

# Oracle® Enterprise Manager Cloud Administration Guide



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## Index

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# Preface

This book describes how to set up a Private Cloud, manage and deploy virtualization targets with Oracle Enterprise Manager. The preface covers the following:

- [Audience](#)
- [Supported Plug-ins](#)
- [Documentation Accessibility](#)
- [Related Documents](#)
- [Conventions](#)

## Audience

This document is intended for administrators who want to setup and manage the cloud infrastructure. It is also intended for Cloud Administrators, Self Service Administrators and Self Service Users.

## Supported Plug-ins

The features in this book pertain to the following plug-ins:

Plug-in Name (My Oracle Support)	Plug-in Name (Self Update)	Version
Enterprise Manager for Oracle Cloud	Oracle Cloud Application	13.5.1.0.0
Enterprise Manager for Oracle Consolidation Planning and Chargeback	Oracle Consolidation Planning and Chargeback	13.5.1.0.0
<b>Note:</b> This is an optional plug-in.		
Enterprise Manager for Oracle Virtualization	Oracle Virtualization	13.5.1.0.0
Enterprise Manager for Oracle Virtualization Infrastructure	Oracle Virtual Infrastructure	13.5.1.0.0
<b>Note:</b> The Oracle Virtual Infrastructure plug-in is required for direct monitoring of Xen based systems. See <a href="#">Direct Monitoring of Xen Based Systems</a> .		
Enterprise Manager for Oracle Cloud Framework	Oracle Cloud Framework	13.5.1.0.0
Enterprise Manager for Oracle Database	Oracle Database	13.5.1.0.0
Enterprise Manager for Storage Management	Oracle Storage Management Framework	13.5.1.0.0
<b>Note:</b> This is an optional plugin.		
Enterprise Manager for Oracle Fusion Middleware	Oracle Fusion Middleware	13.5.1.0.0

For the most recent information regarding plug-ins for the current release, see Plug-ins Included In This Release.



**Note:**

To use the latest updates, you must upgrade all the plugins to the versions listed in the table.

## Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc>.

### Access to Oracle Support

Oracle customers that have purchased support through My Oracle Support. For information, visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info> or visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs> if you are hearing impaired.

## Related Documents

For more information, see the following documents in the Enterprise Manager documentation set:

- *Oracle Enterprise Manager Cloud Control Introduction*
- *Oracle Enterprise Manager Cloud Control Basic Installation Guide*
- *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*
- *Oracle Enterprise Manager Cloud Control Administrator's Guide*

For the latest releases of these and other Oracle documentation, check the Oracle Technology Network at:

<http://www.oracle.com/technetwork/documentation/index.html#em>

Oracle Enterprise Manager also provides extensive Online Help. Click **Help** at the top of any Enterprise Manager page to display the online help window.

## Conventions

The following text conventions are used in this document:

Convention	Meaning
<b>boldface</b>	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, user names, text that appears on the screen, or text that you enter.

# Part I

## Cloud Management Overview

This section provides an introduction to the Oracle Cloud offering and explains the various Cloud service models available.

It contains the following sections:

- [Cloud Management - An Overview](#)

# 1

## Cloud Management - An Overview

This chapter introduces Cloud Management and provides an overview of the various service offerings and components available with the Oracle Cloud platform. It also describes the Consolidation Planner, which is useful in planning your Cloud requirements, as well as various life cycle management capabilities of Oracle Enterprise Manager including resource management, metering and chargeback support.

This chapter contains the following sections:

- [Introduction to Cloud Management](#)
- [Managing the Cloud Management Lifecycle With Enterprise Manager](#)
- [Understanding the Oracle Cloud Service Models](#)
- [Accessing Oracle Cloud Features](#)

### Introduction to Cloud Management

Enterprises and Cloud service providers can use Oracle Enterprise Manager to build and operate their Cloud services. The functionality provided by Enterprise Manager spans the entire Cloud lifecycle and allows you to setup and manage any type of Cloud service.

Enterprises must support hundreds or even thousands of applications to meet growing business demands. This growth has driven up the cost of acquiring and managing servers and storage. Clouds enable customers to consolidate servers, storage, and database workloads onto a shared hardware and software infrastructure.

By providing on-demand access to servers and storage in a self-service, elastically scalable and metered manner, Enterprise Manager offers the following benefits.

- **Increasing Quality of Service:** IT organizations are not only trying to drive down costs, they are also looking at solutions that will simultaneously improve quality of service in terms of performance, availability and security. Cloud consumers inherently benefit from the high availability characteristics built into the Cloud.  
  
Organizations can also enforce a unified identity and security infrastructure as part of standardized provisioning. Thus, instead of bolting on security policies, these policies and compliance regulations are part of the provisioning process.
- **Enabling Faster Deployment:** Building the Cloud infrastructure using standard building block components (for example, servers, CPUs, storage, and network), configurations, and tools, enables a streamlined, automated, and simplified deployment process.
- **Providing Resource Elasticity:** The ability to grow and shrink the capacity of a given database, both in terms of storage size and compute power, allows applications the flexibility to meet the dynamic nature of business workloads.
- **Rapid Provisioning:** Databases in a Cloud can be rapidly provisioned, often by way of a self-service infrastructure, providing agility in application deployment. This reduces overall time in deploying production applications, development platforms, or creating test bed configurations.

# Managing the Cloud Management Lifecycle With Enterprise Manager

Enterprise Manager allows you to manage the entire Cloud lifecycle which includes the following:

- [Planning](#)
- [Setting Up the Cloud](#)
- [Building the Cloud](#)
- [Testing and Deploying a Service](#)
- [Monitoring and Managing the Cloud](#)
- [Metering, Charging, and Optimization](#)

## Planning

Using Enterprise Manager, you can transform existing data centers into a Cloud environment. Before setting up a Cloud, you should map out your infrastructure requirements, such as the physical and virtual networks, storage arrays, applications and so on.

The Enterprise Manager Consolidation Planner is a powerful tool that helps administrators plan the Cloud architecture. It allows you to identify source and destination targets and applicable technical and functional constraints such as where the application can reside, and so on. You can generate consolidation advisories that may include plans to move from Physical to Virtual (P2V), Physical to Physical (P2P), or Physical to an Exadata solution. The Consolidation Planner can also be used to identify the database consolidation plan which is helpful when setting up Database-as-a-Service (DBaaS).

## Setting Up the Cloud

Enterprise Manager can be used to model clouds, it is important to select the appropriate Cloud Service Model (as discussed in [Understanding the Oracle Cloud Service Models](#)) that suits the needs of your users and organization. To facilitate Cloud setup, Enterprise Manager offers capabilities for both physical and virtual infrastructure.

For physical infrastructure, Enterprise Manager leverages its core automation framework of deployment procedures, job system, and the enterprise software library. It offers out of the box deployment procedures that can be used for provisioning the pre-requisite software for both databases and middleware. The same automation framework is also used to interact with third party storage systems for the purposes of data cloning and storage management. For virtual infrastructure, it offers bare metal provisioning of hypervisor and setting up server and storage pools. Once completed, you can group all of these into zones based on functional or QoS characteristics. Enterprise Manager leverages the Virtualization Storage Connect technology, where the Cloud setup process is integrated with storage technologies like Netapp, Hitachi, Fujitsu. Administrators can define standardized service templates for databases and middleware platforms, and publish these as services. These services can represent single-tier templates or complex, multi-tier enterprise platforms.

Enterprise Manager supports role-driven access control. Resource limits, or quotas, are assigned to roles to control access to services. This prevents unauthorized usage of a service while also preventing a few users from using majority of the resources in the Cloud. Integration with LDAP allows Enterprise Manager to inherit enterprise roles.



## Building the Cloud

Enterprise Manager allows entire applications or components to be packaged and published to the Cloud as a service. This expedites application development and provisioning processes within an organization.

Developers can publish utility components and applications in the form of assemblies and service templates for reuse within their groups. Similarly, allowing applications to be available as assemblies allows testing teams, business analysts or production teams to deploy pre-built applications in a few clicks.

## Testing and Deploying a Service

After an application has been built, it needs to be tested. Enterprise Manager provides a testing portfolio that allows users to test both application changes and changes to the database.

The testing solution provides the ability to capture a production load and replay in a test environment, so that the results are predictable. It also leverages the diagnostic capabilities built into the technology layers and provides prescriptions for remediation.

Enterprise Manager provides a self-service application that lets end-users deploy a service. This self service application can be customized. End users can choose to provision application assemblies, along with databases and platforms, in an on-demand manner. For each request, users can specify the amount of underlying resources such as CPU, memory, and so on that they require for each component. Enterprise Manager automatically provisions the requested service and the appropriate resources. The self-service application also lets users define policies to scale out or scale back resources based on schedule or performance metrics.

## Monitoring and Managing the Cloud

Enterprise Manger offers a number of inherent monitoring and management features that collectively comprise a full Cloud management system.

For example, Enterprise Manager provides the ability to collate targets into groups for better manageability. The Administration Group feature allows administrators to define monitoring settings, compliance standards and cloud policies through templates and also organize each target in multiple hierarchies, such as Line of Business and Lifecycle status. This allows the monitoring framework to scale to thousands of servers, databases and middleware targets in the Cloud.

Enterprise Manager's built-in Incident Management system allows you to monitor the Cloud for complex operational issues that may affect performance. You can review, suppress, escalate and remediate events that occur as needed, and even integrate incident escalation with existing support ticketing systems. See the Enterprise Manager Cloud Control Administrator's Guide for details. Contractual Service Level Agreements (SLAs) can be defined to govern the contract between the application owner and the provider of the Cloud. Administrators as well as users can also define management policies that automatically adjust the service resources to ensure that SLAs are met.

The configuration management capabilities of Enterprise Manager are optimized for Cloud environments. For example, Enterprise Manager can monitor vast numbers of configurations continuously to discover changes, measure drifts, pin-point configuration errors, and offer insight into system topologies - all through a single console. Enterprise Manager Cloud management capabilities are also integrated with My Oracle Support. This integration delivers

facilities such as Patch Advisories, Service Request Management, Knowledge Management right on-premise and in-context of the overall Cloud.

The DBaaS Home page provided through the Enterprise Manager Cloud Control user interface allow Cloud administrators to get a summary view of the requests, the general state of the service such as zones, pools, servers, service instances, and databases.

## Metering, Charging, and Optimization

The Metering and Chargeback features in Enterprise Manager enable enterprises to account for actual usage versus representative usage. Administrators can also extend the pricing models to account for fixed costs, configurations, administrative expenses, people costs, energy utilization or a combination of these. Cloud Management also entails an ongoing optimization of resources as well as processes to make sure that the service levels are persistent. Enterprise Manager provides administrators and application users with features that help rediscover assets, re-evaluate the performance, rebalance the Cloud, and fine-tune the provisioning process. Chargeback supports basic metrics like CPU, memory, and storage usage. It also offers pricing models based on application usage, database usage, and Middleware-level metrics.

## Understanding the Oracle Cloud Service Models

This section describes the available Oracle Cloud service models available.

- [Oracle Cloud Service Models](#)
- [Oracle Cloud Anatomy](#)
- [DBaaS Components](#)

## Oracle Cloud Service Models

Oracle's Cloud service model uses Platform as a Service, which provides the database components required by applications.

**Platform as a Service (PaaS) Service Model:** The PaaS model allows you to create platforms onto which consumers can deploy their own applications. A platform resource is typically comprised of a host, an operating system, an Oracle WebLogic Application server - all of which can be virtualized. It can also include an Oracle database or RAC cluster.

Models available with PaaS include:

- **Database as a Service (DBaaS) Service Model:** In this model, users can request database services (single instance or RAC) through the Self Service Portal. DBaaS is implemented through several options:
  - **Virtual Machine Based:** The database is deployed as a part of a virtual assembly or template, and several virtual machines share the same physical server. This offers the maximum level of isolation (at the operating system level).
  - **Shared Cluster:** The database is deployed on existing clusterware. Typically the grid infrastructure (Oracle Clusterware, ASM) and database software is pre-installed; the Cloud service essentially consists of the deployment of databases on top of that infrastructure.
  - **Shared Installation:** The database is deployed as a single instance database on an existing database installation.

- **Pluggable Database as a Service:** A pluggable database is deployed. This model provides high consolidation, and minimal administrative and maintenance overhead.
- **Snap Clone:** You can make a thin-clone using copy on write technology of the database. This model requires minimal space, provides instantaneous cloning, and is ideal for functional testing.
- **Full Clone:** You can make a full copy of the database. This model is ideal for load testing with significant data updates.
- **Shared Database (Schema as a Service):** The database service is a schema deployment on an existing database. It is assumed for purposes of metering and chargeback that each of the consumers of the database will use a different service while accessing the database. This service model is also referred to as Schema as a Service.

Users are allowed to perform a few administrative tasks such as start/stop, backup, and recovery of databases. Chargeback reports are also made available for Self Service users.

## Oracle Cloud Anatomy

In the Oracle implementation, Clouds are composed of logical zones. Zones are composed of logical pools and pools are composed of targets on hosts.

The pools in DBaaS zones are collections of one or more Oracle Database homes (used for database requests), or databases (used for schema requests) of the same platform and version (for example, Oracle Database 12.2.0.1 RAC on Oracle Linux 6 x86-64), or Oracle Middleware homes of the same platform and version (for example, Oracle Database 12.2.0.1 on Linux x86-64).

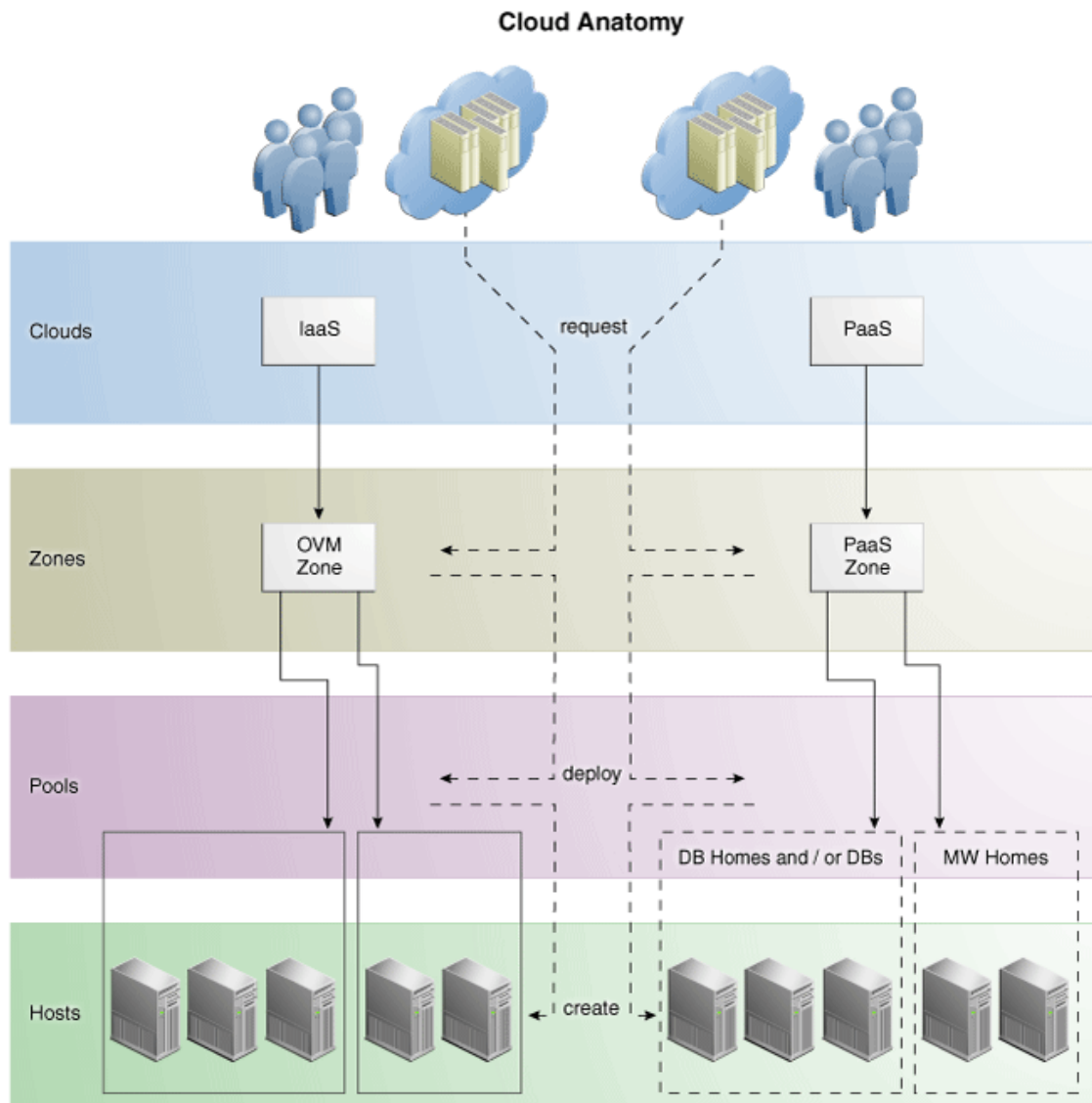
In a PaaS, Self Service users will request resources at the zone level from a catalog of templates. Enterprise Manager will then determine which pool in the chosen zone can be used to satisfy the request. The needed Enterprise Manager jobs will be initiated on one or more hosts in the selected pool to create the entities required to fulfill the request.

Within the DBaaS view, you can request a new Database or schema in existing databases be created. In the PDBaaS view, you can request a new Pluggable database.

Databases can be single instance or RAC, depending upon the zones and catalog templates to which the user has access.

Figure [Figure 1-1](#) shows the Cloud anatomy.

Figure 1-1 Cloud Anatomy



## DBaaS Components

The DBaaS Cloud structures consist of the following:

- **PaaS Infrastructure Zone:** A *PaaS infrastructure zone* is a group of hosts. Each resource in a zone represents a location at which a service instance is to be deployed. Before you enable or setup DBaaS, you must create a PaaS Infrastructure Zone which allows you to define the placement policy constraints for a specified set of targets and the users to whom this zone will be available.
- **Software Pool:** A *software pool* is a set of homogeneous resources. You can create software pools for DBaaS. A Database Pool, which is created in DBaaS, is a collection of database homes, databases, or container databases depending on the type of cloud service model selected. A software pool has the following constraints:
  - A target can belong to only one software pool.

- The name of the software pool and the version cannot be modified after it has been created.
- All targets in a software pool must be homogeneous.
- A service template can use multiple zones but only one software pool within each zone.
- **Database Provisioning Profile:** A *database provisioning profile* is an entity that captures source database information for provisioning. A profile can represent a complete database or a set of related schemas that form an application.
- **Service Template:** A *service template* is a standardized service definition that is offered to self service users to create databases, schemas, or middleware services.

## Accessing Oracle Cloud Features

Access to the Oracle Cloud features is either through the standard Enterprise Manager console, or the Self Service Portal, which is also part of Enterprise Manager.

Access to the rest of the Enterprise Manager functionality is restricted. This allows enterprises to safely implement Clouds without worrying about exposing the entire infrastructure to the end users.

## Enterprise Manager Cloud Control Console

Administrators will use the Enterprise Manager Cloud Control console to set up, monitor, and manage Cloud services. Each service is managed using a page specific to that service.

The Enterprise Manager Cloud Summary page is a single pane that contains the summary of all Cloud services. Enterprise Manager enables a layer of abstraction that hides the underlying complexities of the application from the end-user. This abstraction is delivered via a self-service interface, both in Graphical User Interface (GUI) and Application Programming User Interface (API).

## Self Service Portal

To directly manage the Cloud infrastructure, Enterprise Manager provides an out-of-the-box Self Service Portal that allows self-service users to access Cloud services (provisioning applications) without IT intervention. It provides several pre-packaged virtual assemblies and templates for on-demand provisioning, tracks usage of services and resources, and allows data to be used for Chargeback reports and capacity planning.

The Self Service Portal is the Home Page for the self service user. Users who have the necessary privileges can navigate between Services pages by clicking the appropriate radio button. How you use the Portal will vary depending on the type of service you are managing.

# Part II

## Setting Up and Enabling Cloud

This section provides an introduction to virtualization concepts and describes how to start managing virtualization targets in Enterprise Manager.

It contains the following sections:

- [Setting Up the Cloud Management Infrastructure](#)
- [How to Enable Cloud](#)

# 2

## Setting Up the Cloud Management Infrastructure

This chapter describes the initial setup needed before you can begin using the Enterprise Manager Cloud Management solution.

The chapter includes the following sections:

- [Setting Up Self Update](#)
- [Deploying the Required Plug-ins](#)
- [Defining Roles and Assigning Users](#)
- [Configuring LDAP Authentication](#)
- [Configuring Privilege Delegation Settings](#)
- [Customizing the Self Service Login Page](#)



### Note:

From the Enterprise Manager 12.1.0.4 release, the Software Library is configured during the installation of Enterprise Manager. It need not to be separately configured.

## Setting Up Self Update

The Self Update feature allows you to expand Enterprise Manager's capabilities by updating Enterprise Manager components whenever new and updated features become available between official releases. Oracle makes functional updates available between releases by publishing them to the Enterprise Manager Store, an external site that is periodically checked by Enterprise Manager to obtain information about available updates.

The updatable entities for the Oracle Cloud platform include:

- Cloud Plug-ins. See [Deploying the Required Plug-ins](#)
- Database Provisioning Profiles. See [Creating a Container Database Provisioning Profile Using Database Template](#).

Before you can use the Self Update feature, you must satisfy these prerequisites:

- If you are applying an update in online mode, ensure that the My Oracle Support credentials have been set up using the SYSMAN user. This is required to enable entities to be downloaded from the My Oracle Support site.
- The Software Library (also known as the local store) has been configured. Updates are downloaded to this local store before being deployed into Enterprise Manager.

Review the following sections for instructions on setting up Self Update:

- [Setting Up Enterprise Manager Self Update Mode](#)
- [Assigning Self Update Privileges to Users](#)

- [Setting Up the EM CLI Utility \(Optional\)](#)

## Setting Up Enterprise Manager Self Update Mode

In order to set up or modify the Enterprise Manager Self Update feature, you must have Enterprise Manager Super Administrator privileges.

1. Log in to Enterprise Manager as an administrator with Super Administrator privileges.
2. From the **Setup** menu, select **Extensibility**, then select **Self Update**. The Self Update console appears with the default setup displayed.
3. From the **General** status area, click the **Connection Mode** status to set either offline or online mode. Enterprise Manager takes you to the Patching Setup page to specify online and offline settings.
4. Once the desired connection mode has been selected, return to the Self Update console. From here you can select entity types and schedule updates from the Enterprise Manager Update Store.

## Assigning Self Update Privileges to Users

Enterprise Manager administrators must have the requisite privileges to use the Self Update feature. The Enterprise Manager Super Administrator must assign the following Self Update roles to these administrators:

- **VIEW\_SELF\_UPDATE**: The user can view the Self Update console and can monitor the status of download and apply jobs.
- **MANAGE\_SELF\_UPDATE**: The user can schedule download and apply jobs. User can also suppress/unsuppress updates. This privilege implicitly contains **VIEW\_SELF\_UPDATE**.
- **EM\_INFRASTRUCTURE\_ADMIN**: The user can perform all self update operations. This privilege implicitly contains **MANAGE\_SELF\_UPDATE**.

By default, the Super Administrator will be granted **EM\_INFRASTRUCTURE\_ADMIN** privilege.

To assign Self Update privileges to regular Enterprise Manager administrators:

1. From the **Setup** menu, select **Security**, then select **Administrators**.
2. Select an administrator and click **Edit**.
3. From the Roles page, assign the appropriate Self Update roles.

## Setting Up the EM CLI Utility (Optional)

If you plan to apply software updates in offline mode, you will need to use the Enterprise Manager Command Line Utility, or EM CLI, to import entity archives for deployment to Enterprise Manager.

A page is provided in the Enterprise Manager Cloud Control console with instructions on setting up EMCLI. Access the page by appending `/console/emcli/download` to the URL used to access the Cloud Control console:

```
https://emcc_host:emcc_port/em
```

For example:

```
https://emcc_host:emcc_port/em/console/emcli/download
```



## Deploying the Required Plug-ins

Much of the functionality available in Enterprise Manager Cloud Control is made available through *plug-ins*. As its name implies, a plug-in is a component or module that can be plugged into an existing Enterprise Manager installation to extend its management and monitoring capabilities.

The features that collectively comprise the Oracle Cloud Management solution are provided via several plug-ins which must be deployed to your Oracle Management Service (OMS). The plug-ins that must be deployed to enable each Cloud model are listed below.

There are two methods for deploying required the plug-ins to enable Cloud:

- If you have not yet installed Enterprise Manager Cloud Control, or have not yet upgraded to the latest Enterprise Manager release, you can deploy the plug-ins as part of the installation or upgrade process. You will select the **Advanced Install** mode and in the **Select Plug-ins** screen, select the plug-ins that you wish to install.
- If you already have Enterprise Manager installed, you must download the needed plug-ins to the **Software Library**. You can then deploy the plug-ins to your **Oracle Management Service (OMS)**. See the Enterprise Manager Cloud Control Administrator's Guide for instructions on downloading and deploying the plug-ins.

The default plug-ins available are:

- Oracle Database
- Oracle Fusion Middleware
- Oracle Cloud Framework

### Note:

The Oracle Consolidation Planning and Chargeback plug-in is an optional plug-in for all service families and is required only you are using the Chargeback features.

For a complete list of all cloud plug-ins along with the version numbers, see [Supported Plug-ins](#). Check for any plug-ins updates that are available and ensure that the latest version has been downloaded.

### Plug-ins Required for Direct Monitoring of Xen Based Systems

- Oracle Virtual Infrastructure

## Defining Roles and Assigning Users

Roles are named groups of related system and object privileges. You can create roles and then assign them to users and to other roles. You can assign any of the existing roles to a new role and the associated privileges. Enterprise Manager contains four out-of-the-box roles for the Cloud Self Service Portal, namely:

- **EM\_CLOUD\_ADMINISTRATOR**: Users with this role can set up and manage the cloud infrastructure. This role is responsible for deploying the cloud infrastructure (servers, zones, storage, and networks) and infrastructure cloud operations for performance and configuration management. This user has the following privileges:

- Access to all services and service families.
- Privileges to manage any service or service family.
- Privileges to view any target.
- **EM\_SSA\_ADMINISTRATOR:** Users with this role can define quotas and constraints for the self service users and grant them access privileges. Users with this role also have provisioning and patching designer privileges that allow them to create and save deployment procedures, create and view patch plans, and support the plug-in lifecycle on the Management Agent. These privileges are required for initial setup and on going maintenance of the infrastructure. This user has the following privileges:
  - Access to all services and service families.
  - Privileges to manage any service or service family.
  - Privileges to view any target.

Apart from this default role, you can create custom self service administrator roles with access to specific service families and specific services.

- **EM\_SSA\_ADMINISTRATOR\_BASE:** Users with this role do not have access to any services or service family. This user has **View Any Target** privilege only.
- **EM\_SSA\_USER:** Users with this role, by default, can only access the Self Service Portal and all the service families. An administrator with the **EM\_SSA\_ADMINISTRATOR** role can provide additional privileges that allow users with the **EM\_SSA\_USER** role to access other features in Enterprise Manager.
- **EM\_SSA\_USER\_BASE:** Users with this role can access the Self Service Portal but will not have access to any service family. Access to a specific service family (DBaaS, and so on) needs to be explicitly granted to the users with this role. This user has the following privileges:
  - Can submit service requests.
  - Can view PaaS Infrastructure Zone targets.

The table below lists the roles associated with each user.

User Profile	EM_CLOUD_ADMINISTRATOR	EM_SSA_ADMINISTRATOR	EM_SSA_USER	EM_SSA_USER_BASE
Minimum roles required to create a user	<ul style="list-style-type: none"> <li>• EM_CLOUD_ADMINISTRATOR</li> <li>• PUBLIC</li> <li>• EM_USER</li> </ul>	<ul style="list-style-type: none"> <li>• EM_SSA_ADMINISTRATOR</li> <li>• PUBLIC</li> <li>• EM_USER</li> </ul>	<ul style="list-style-type: none"> <li>• EM_SSA_USER</li> <li>• EM_SSA_USER_BASE</li> </ul>	<ul style="list-style-type: none"> <li>• EM_SSA_USER_BASE</li> </ul>
Roles to be removed when creating a user	NONE	NONE	<ul style="list-style-type: none"> <li>• PUBLIC</li> <li>• EM_USER</li> </ul>	NONE
NONE	Additional roles may be added as required		NONE	NONE

The Oracle Cloud Self Service Portal is intended for end-users to be able to provision and manage their own cloud services. Since the functions performed by users with the **EM\_CLOUD\_ADMINISTRATOR** and **EM\_SSA\_ADMINISTRATOR** roles are consistent across Enterprise Manager, these out-of-box roles can be used as they are. All you need to create users with the **EM\_CLOUD\_ADMINISTRATOR** and **EM\_SSA\_ADMINISTRATOR** roles.

If you want to restrict access to certain service families and specific service types, you can create custom self service administrator roles based on the out-of-the-box **EM\_SSA\_ADMINISTRATOR** role.

But the `EM_SSA_USER` and `EM_SSA_USER_BASE` roles are used for quota assignment, and to limit access to PaaS Infrastructure zones, and service templates. In this case, the pre-defined role cannot be used as it is defined. You must create custom self service user roles based on the standard `EM_SSA_ROLE` and `EM_SSA_USER_BASE` roles as described in [Creating Custom Roles for Self Service Application Administrators and Users](#). After creating a custom role, you must assign users to this role.

For example, in a DBaaS Cloud setup, you may want to create the following users:

- `CLOUD_ADMIN`: This user will have the `EM_CLOUD_ADMINISTRATOR` role and is responsible for network, system, storage, and administration activities.
- `SSA_ADMIN_DBAAS`: This user will have the `EM_SSA_ADMINISTRATOR` role but will have access only to the Database Service Family. Users with this role will be responsible for all database administration activities. You can further restrict access by granting access to only to a certain service type within the Database Service Family.
- `SSA_USER_DBAAS`: In this case, the default `EM_SSA_USER` role must be customized and a custom role must be created. A user in this role is typically a junior database administrator, developer, or tester.
- `SSA_USER_BASE_DBAAS`: In this case, you need to create a copy of the `EM_SSA_USER_BASE` role and grant access to the Database Service Family to this role. You can then create the `SSA_USER_BASE` user who will have access the Database Cloud Self Service Portal.

For more details on Users and Roles, see the *Enterprise Manager Cloud Control Security Guide*.

## Creating Custom Roles for Self Service Application Administrators and Users

This section describes the following:

- [Creating a Custom Role Based on the `EM\_SSA\_ADMINISTRATOR` Role](#)
- [Creating a Custom Role Based on the `EM\_SSA\_USER` Role](#)
- [Creating a Custom Role Based on the `EM\_SSA\_USER\_BASE` Role](#)

### Creating a Custom Role Based on the `EM_SSA_ADMINISTRATOR` Role

You can create a custom self service administrator role and grant access to the Database Service Family. You can grant privileges to users with this role to access all service types or specific service types and view or manage the services. To create a custom role, follow these steps:

1. Log in to Enterprise Manager as a Super Administrator user.
2. From the **Setup** menu, select **Security**, then select **Roles**.
3. Click **Create** in the Roles page to launch the Create Role wizard.
4. Provide a name and description (`SSA_ADMIN_DBAAS`) for the role and click **Next**.
5. From the list of Available Roles, select the `EM_SSA_ADMINISTRATOR` role and move it to the Selected Roles table. Click **Next**.
6. Accept the default target privileges and click **Next**.

7. In the Resource Privileges page, click the **Edit** icon for the Cloud Service Families. In the Resource Privileges page, click **Add** and select **DBAAS** and click **Continue** to return to the Manage Privileges page.

 **Note:**

If you want users with this role to view and manage all the DBaaS service types, click the Manage Resource Privilege Grants icon and select the following privileges:

- View Service Family
- Manage Service Family

8. Click **Continue** to return to the Resource Privileges page. Click the **Edit** icon for the Cloud Service Types. Click **Add** and select the database service type for which the privileges should be granted. You can select one of the following:
  - DB
  - PDB
  - Schema
9. Click the **Manage Resource Privilege Grants** for the Cloud Service Types resource type. Select the following privileges:
  - Manage Service Type
  - View Service Type
10. Click **Continue** to return to the Resource Privileges page.
11. Review the changes and click **Finish** to create the custom SSA user (`SSA_ADMIN_DBAAS`) role.

## Creating a Custom Role Based on the EM\_SSA\_USER Role

Typically, you need to create new SSA User roles either for different functional groups like developers, testers, production DBAs, or for different customer teams like the Siebel DBA team, BRM DBA team, and operations team for hosting custom Java applications, and so on. To create a custom SSA user role who has access only to the Database Service Family and can submit requests, follow these steps:

1. Log in to Enterprise Manager as a Super Administrator user.
2. From the **Setup** menu, select **Security**, then select **Roles**.
3. Click **Create** in the Roles page to launch the Create Role wizard.
4. Provide a name and description (`SSA_USER_DBAAS`) for the role.

You can also select **Private Role**, this role grants secure privileges to Super Administrators that are not granted by default (`FULL_CREDENTIAL` or `FULL_JOB`, etc). Private roles can not be converted into System Roles. Creator of a private role handles the life cycle of it. Click **Next**.

5. From the list of **Available Roles**, select the `EM_SSA_USER` role and **Move** to the **Selected Roles** table. Click **Next**.
6. Accept the default target privileges and click **Next**.
7. In the Resource Privileges page make sure following resource types are not selected.

- Cloud Self Service Portal for JVM Diagnostics
  - Cloud Self Service Portal for Test
  - Infrastructure Self Service Portal
8. Click the **Pencil** icon under **Manage Privilege Grants** for the **Cloud Service Families** resource type. In the Resource Type Privileges region, select the **View Any Service Family** check box.
  9. Click **Add** under **Resource Privileges** and select the **DBAAS** service family and click **Continue**.
  10. Skip the **Create Role: Administrators** step and click **Next**.
  11. Review the changes and click **Finish** to create the custom SSA user (`SSA_USER_DBAAS`) role.

## Creating a Custom Role Based on the EM\_SSA\_USER\_BASE Role

You may want to restrict some self service users from using all service families and allow them to access only certain service types depending on their requirements. In this case, you can create a custom role based on the `EM_SSA_USER_BASE` role and grant them access to only certain service types.

To create a custom SSA user role, follow these steps:

1. Log in to Enterprise Manager as a Super Administrator user.
2. From the **Setup** menu, select **Security**, then select **Roles**.
3. Click **Create** in the Roles page to launch the Create Role wizard.
4. Provide a name and description (`SSA_USER_BASE_DBAAS`) for the role and click **Next**.
5. From the list of Available Roles, select the `EM_SSA_USER_BASE` role and move it to the Selected Roles table. Click **Next**.
6. Select the default target privileges and click **Next**.
7. In the Resource Privileges page, click the **Manage Privilege Grants** icon for the Cloud Requests resource type.
8. In the Resource Privileges page, deselect the **Create Any Cloud Request** checkbox and click **Continue**.
9. Click the **Manage Privilege Grants** icon next to the Cloud Service Families and Cloud Service Types resource types and select the service families and service types for which you need access.
10. Skip the Create Role: Administrators step and click **Next**.
11. Review the changes and click **Finish** to create the custom SSA user (`SSA_USER_BASE_DBAAS`) role. This user can only access the Database Cloud Self Service Portal.

## Creating a User and Assigning Roles

To create a user called `SSA_USER1` and grant the custom role created earlier (`SSA_USER_DBAAS`), follow these steps:

1. Log in to Enterprise Manager as a Super Administrator user.
2. From the **Setup** menu, select **Security**, then select **Administrators**.

3. Click **Create** in the Administrators page to launch the Create Administrator wizard.
4. Enter a name, password and confirm the password for the user (`SSA_USER1`). These fields are mandatory.

You can also enter the following optional information:

- Password Profile: Select from a list of profiles.
- Prevent Password Change: The administrator is not allowed to change his/her own password.
- Expire Password Now: The administrator account is created as expired forcing a password change on next log in.
- E-mail Address: Set one or more email addresses for notifications.
- Contact: Contact name.
- Location: Database location.
- Department: Department associated to the database.
- Cost Center: Cost center associated to the database.
- Line of Business: Business line associated with the database.
- Description: Description of the database.
- Super Administrator: Check mark to enable the user as a Super Administrator.

When complete click **Next**.

5. In the **Create Administrator Test\_Admin: Roles** page from the list of Available Roles, select `SSA_USER_DBAAS` role and **Move** it to the **Selected Roles table**. **Remove** `EM_USER` and `PUBLIC` roles from the **Selected Roles** table.

Click **Next**.

6. Accept the default target privileges and click **Next**.
7. Accept the default resource privileges and click **Next**.
8. Review all the changes and click **Finish** to create the `SSA_USER1` user.

 **Tip:**

To create multiple users with the same role, select the user and click **Create Like**. This creates a new user with the same source properties. Update the name, description, and optional fields for the new user.

 **Note:**

For users with the `EM_CLOUD_ADMINISTRATOR` and `EM_SSA_ADMINISTRATOR` roles, the `EM_USER` and `PUBLIC` roles must be retained as these users need access to additional features.

## Granting Roles and Privileges for Managing Storage Servers for Snap Clone

To perform various storage server activities, you need to grant the following roles and privileges:

- [Granting General Privileges](#)
- [Granting Target Privileges](#)
- [Granting Roles](#)
- [Granting Privileges for Provisioning](#)

### Granting General Privileges

[Table 2-1](#) displays the general privileges you need to set before you register a storage server.

**Table 2-1 General Privileges for Storage Server Registration and Management**

Privilege	Description	Scope	Notion	Included Privilege
VIEW_ANY_STORAGE	Ability to view any storage.	class	VIEW	nil
REGISTER_STORAGE	Ability to register storage.	class	CREATE	nil
VIEW_STORAGE	Ability to view storage details.	object	VIEW	nil
MANAGE_STORAGE	Ability to synchronize storage.	object	EDIT	VIEW_STORAGE CREATE_JOB
MANAGE_ANY_STORAGE	Ability to manage any of the registered storage servers.	object	EDIT	VIEW_ANY_STORAGE CREATE_JOB
FULL_STORAGE	Ability to modify or remove storage.	object	FULL	MANAGE_STORAGE

### Granting Target Privileges

[Table 2-2](#) displays the target privilege you need to set, for enabling or disabling Snap Clone for a target.

**Table 2-2 Target Privilege for Enabling or Disabling Snap Clone**

Target Privilege	Scope	Notion	Include In Privilege	Included Privilege	Applicable Target Type
SNAP_CLONE_TARGET	object	Manage	FULL_TARGET	VIEW_TARGET	oracle_database rac_database

### Granting Roles

[Table 2-3](#) displays the roles you need to grant to be able to register a storage server and perform various activities on the registered storage server.

**Table 2-3 Roles for Registering and Managing the Storage Server**

Role	Description	Security Class	Privilege	Granted To Role
EM_STORAGE_ADMINISTRATOR	Role has privileges to register storage hardware for Snap Clone.	STORAGE STORAGE TARGET TARGET NAMED_CREDENTIALS JOB SWLIB_ENTITY_MGMT	MANAGE_ANY_STORAGE REGISTER_STORAGE VIEW_ANY_TARGET PERFORM_OPERATION_ANYWHERE CREATE_CREDENTIAL CREATE_JOB SWLIB_CREATE_ANY_ENTITY SWLIB_VIEW_ANY_ENTITY	EM_ALL_ADMINISTRATOR
EM_STORAGE_OPERATOR	Role has privileges to manage storage hardware for Snap Clone.	STORAGE TARGET TARGET JOB SWLIB_VIEW_ANY_ENTITY	MANAGE_ANY_STORAGE VIEW_ANY_TARGET PERFORM_OPERATION_ANYWHERE CREATE_JOB SWLIB_VIEW_ANY_ENTITY	EM_ALL_OPERATOR

## Granting Privileges for Provisioning

You need the following privileges to be able to use the storage server for provisioning:

- VIEW\_STORAGE on the storage server
- GET\_CREDENTIAL on the storage server
- GET\_CREDENTIAL on all the Management Agent credentials of the storage server
- PERFORM\_OPERATION on the storage server Management Agent

## Configuring LDAP Authentication

Oracle Enterprise Manager provides tools and procedures to help you ensure that you are managing your Oracle environment in a secure manner. Enterprise Manager's authentication framework consists of pluggable authentication schemes that let you use the type of authentication protocol best suited to your environment. The following authentication schemes are available:

- Oracle Access Manager (OAM) SSO
- Repository-Based Authentication
- SSO-Based Authentication
- Enterprise User Security Based Authentication
- Oracle Internet Directory (OID) Based Authentication
- Microsoft Active Directory Based Authentication

Enterprise User Security (EUS) provides automatic authentication to users and roles from the LDAP compliant directory server.



For more details on Enterprise User Security, see the *Enterprise Manager Cloud Control Security Guide*.

## Configuring Privilege Delegation Settings

Privilege delegation allows a logged-in user to perform an activity with the privileges of another user. Sudo and PowerBroker are privilege delegation tools that allow a logged-in user to be assigned these privileges. These privilege delegation settings will be used for all provisioning and patching activities on these hosts.

For details on how to configure the privilege delegation settings, see the *Enterprise Manager Cloud Control Security Guide*.

## Customizing the Self Service Login Page

You can configure Enterprise Manager and provide specific access to SSA users. To configure Enterprise Manager for SSA users, you must set some properties on the OMS and copy the required images to a specified directory. This section describes the following:

- [Configuring the Self Service Login Page](#)
- [Switching Back to the Enterprise Manager Login Page](#)
- [Routing SSA Requests to a Specific OMS Pool](#)

## Configuring the Self Service Login Page

To launch a separate SSA login page for all SSA users, you must do the following:

- Set the following mandatory property on all OMSes:

```
$ORACLE_HOME/bin/emctl set property -name oracle.sysman.ssa.logon.ssa_oms -  
value true
```

If this property is not set to *true*, the standard Enterprise Manager login page is displayed.

- Set the following optional OMS properties.

```
– $ORACLE_HOME/bin/emctl set property -name  
oracle.sysman.ssa.logon.show_cloud_provider_brand -value true
```

If this property is not set to *true*, the default Oracle Enterprise Manager 12c logo is displayed.

```
– $ORACLE_HOME/bin/emctl set property -name  
oracle.sysman.ssa.logon.show_cloud_tenant_brand -value true
```

If this property is not set to *true*, the tenant logo is not displayed.

```
– $ORACLE_HOME/bin/emctl set property -name  
oracle.sysman.ssa.logon.cloud_provider_alt_text -value "Cloud Provider"
```

```
– $ORACLE_HOME/bin/emctl set property -name  
oracle.sysman.ssa.logon.cloud_tenant_alt_text -value "Cloud Tenant"
```

These properties are optional and if not set, the default values for "Cloud Provider", and "Cloud Tenant" are displayed.

```
– $ORACLE_HOME/bin/emctl set property -name  
oracle.sysman.ssa.logon.show_disclaimer_text -value true
```

If this property is not set to *true*, the default Oracle copyright message is displayed.

- `$ORACLE_HOME/bin/emctl set property -name oracle.sysman.ssa.logon.disclaimer_text -value "Customer specified Disclaimer text"`

If this property is set to *true*, the specified disclaimer text is displayed instead of the default Oracle copyright message.

- `$ORACLE_HOME/bin/emctl set property -name oracle.sysman.ssa.logon.show_em_branding_text -value true`

If this property is not set to *false*, the "Powered by Oracle Enterprise Manager" text will appear on the Self Service Login page.

- Copy the following images to the `$ORACLE_HOME/sysman/config/` directory.

- `cloud_provider_small_brand.png`
- `cloud_tenant_small_brand.png`

If a single image is used, the maximum recommended size is 500 \* 20 px. If 2 images are used, the maximum recommended size is 200 \* 20 px per image. After login, these images are displayed instead of the Oracle logo, if the OMS properties `oracle.sysman.ssa.logon.show_cloud_provider_brand` and `oracle.sysman.ssa.logon.show_cloud_tenant_brand` are set. If the OMS property `oracle.sysman.ssa.logon.show_cloud_provider_brand` is not set to *true*, along with the tenant logo, the default Oracle logo appears.

- `cloud_provider_large_brand.png`
- `cloud_tenant_large_brand.png`

If a single image is used, then the maximum recommended size is 525 \* 60 px. If 2 images are used, the maximum recommended size is 250 \* 50 px per image. These images are displayed on the login page, if the OMS properties `oracle.sysman.ssa.logon.show_cloud_provider_brand` and `oracle.sysman.ssa.logon.show_cloud_tenant_brand` are set.

## Switching Back to the Enterprise Manager Login Page

To revert to the default Enterprise Manager login page, set the following property:

```
$ORACLE_HOME/bin/emctl set property -name oracle.sysman.ssa.logon.ssa_oms -value false
```

## Routing SSA Requests to a Specific OMS Pool

Oracle Management Service (OMS) is one of the core components of Enterprise Manager Cloud Control that works with the Oracle Management Agents (Management Agents) and plugins to discover targets, monitor and manage them, and store the collected information in a repository for future reference and analysis.

When you install Enterprise Manager for the very first time, by default, one OMS is installed along with one Management Agent. This default configuration is suitable for small environments. In larger production environments with several SSA users, you may need to install additional OMS instances to reduce the load on a single OMS and improve the efficiency of the data flow. You can then configure the Server Load Balancer (SLB) to redirect all SSA requests to a specific OMS pool. The other OMS pools will then be available for administration usage. To learn more about setting up multiple OMS instances and the SLB, see *Adding Additional Oracle Management Service* section in the *Enterprise Manager Cloud Control Basic Installation Guide*.

To redirect SSA requests, you must specify the following SLB configuration:

```
https://<slb_host_name>:<slb_em_port>/em redirecting to oms for em
```

```
https://<slb_host_name>:<slb_ssa_port>/em redirecting to oms for ssa
```

The SSA and non-SSA OMS pools are differentiated based on the port number. All requests with a particular port number will be redirected to a specific OMS pool (SSA OMS pool) and all the other requests will be redirected to the other pool.

# 3

## How to Enable Cloud

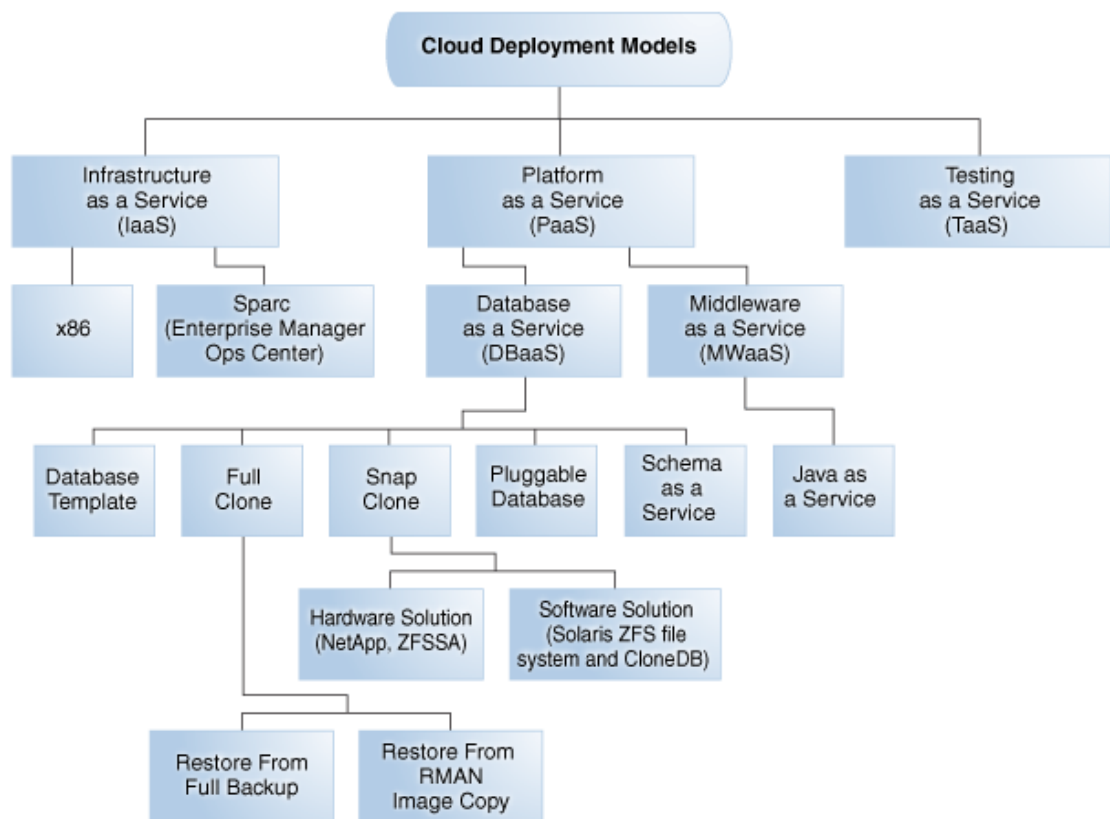
This chapter lists the tasks to be performed to enable your PaaS Cloud. It contains the following sections:

- [Enterprise Manager Cloud Deployment Models](#)
- [Enabling Platform as a Service \(PaaS\)](#)

## Enterprise Manager Cloud Deployment Models

Figure 3-1 shows the cloud deployment models supported by Enterprise Manager.

Figure 3-1 Cloud Deployment Models



The sections below list the tasks that need to be performed to set up and use the various cloud deployment models. Apart from these tasks, you must also ensure that the correct plugins have been deployed. For more details on the plugins required, see [Supported Plug-ins](#).

## Enabling Platform as a Service (PaaS)

This section describes the tasks that need to be performed by users with the Super Administrator, EM\_CLOUD\_ADMINISTRATOR, EM\_SSA\_ADMINISTRATOR, and EM\_SSA\_USER roles to setup and use PaaS.

### Platform as a Service (PaaS): Super Administrator Tasks

This section lists the tasks that need to be performed for PaaS by users with the Super Administrator role.

**Table 3-1 Super Administrator User Tasks (PaaS)**

Cloud Service Model	Usecase
Platform as a Service (PaaS)	<ul style="list-style-type: none"> <li>• <a href="#">Defining Roles and Assigning Users</a></li> </ul>
<ul style="list-style-type: none"> <li>• Database as a Service (DBaaS)</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Configuring Privilege Delegation Settings</a></li> </ul>

### Platform as a Service (PaaS): Cloud Administrator Tasks

This section lists the tasks that need to be performed for PaaS by users with the EM\_CLOUD\_ADMINISTRATOR role.

**Table 3-2 Cloud Administrator Tasks (PaaS)**

Cloud Service Model	Usecase
Platform as a Service (PaaS)	<ul style="list-style-type: none"> <li>• <a href="#">Adding Hosts</a></li> <li>• <a href="#">Creating a PaaS Infrastructure Zone</a></li> </ul>

### Platform as a Service (PaaS): Storage Administrator Tasks

This section lists the tasks that need to be performed for PaaS by users with the EM\_STORAGE\_ADMINISTRATOR role.

**Table 3-3 Storage Administrator Tasks (PaaS)**

Cloud Service Model	Usecase
Platform as a Service (PaaS)	<ul style="list-style-type: none"> <li>• <a href="#">Registering and Managing Storage Servers</a></li> </ul>

### Platform as a Service (PaaS): Self Service Administrator Tasks

This section lists the tasks that need to be performed for PaaS by users with the EM\_SSA\_ADMINISTRATOR role.

**Table 3-4 SSA Administrator Tasks (PaaS)**

Cloud Service Model	Usecase
Platform as a Service (PaaS)	<ul style="list-style-type: none"><li data-bbox="716 312 1073 340">• <a href="#">Configuring Request Settings</a></li><li data-bbox="716 346 1110 373">• <a href="#">Creating the Resource Providers</a></li><li data-bbox="716 380 959 407">• <a href="#">Setting Up Quotas</a></li><li data-bbox="716 413 1089 441">• <a href="#">Viewing the Cloud Home Page</a></li><li data-bbox="716 447 1175 474">• <a href="#">Viewing the List of Resource Providers</a></li><li data-bbox="716 480 1159 508">• <a href="#">Viewing the List of Service Templates</a></li><li data-bbox="716 514 1154 541">• <a href="#">Viewing the List of Service Instances</a></li><li data-bbox="716 548 1175 575">• <a href="#">Viewing the Cloud Request Dashboard</a></li><li data-bbox="716 581 1057 609">• <a href="#">Viewing All Cloud Requests</a></li><li data-bbox="716 615 1295 642">• <a href="#">Viewing the PaaS Infrastructure Zone Home Page</a></li></ul>

---

# Part III

## Direct Monitoring

This section describes how to discover and monitor a Xen based hypervisor and the associated virtual targets.

It contains the following chapters:

- [Direct Monitoring of Xen Based Systems](#)



### Note:

Set the `locale` parameter to one of the English language values like `en_GB` or `en_US` in your KVM and Xen hosts.

# 4

## Direct Monitoring of Xen Based Systems

This chapter describes the procedures to discover and monitor Xen based systems. It contains the following sections:

- [Direct Monitoring Overview](#)
- [Discovering the Hypervisor Target](#)
- [Viewing the Oracle Server Home Page](#)
- [Viewing the Oracle Virtual Platform Home Page](#)
- [Viewing the Oracle VM Instance Home Page](#)

### Direct Monitoring Overview

You can directly monitor a Xen based Hypervisor, the bare metal machine, its operating system, and the virtual machines without relying on their monitoring software. Monitoring these targets involves the following:

- Direct Monitoring of the Oracle Virtual Server (Guest OS or DomU running on the Hypervisor) target based on Xen 4.1.2 or later.
- Direct monitoring of Oracle Server (Physical Server)
- Direct monitoring of the Oracle Virtual Server (Xen based Hypervisor).
- Direct Monitoring of the Oracle Virtual Platform or the host operating system of the hypervisor machine.

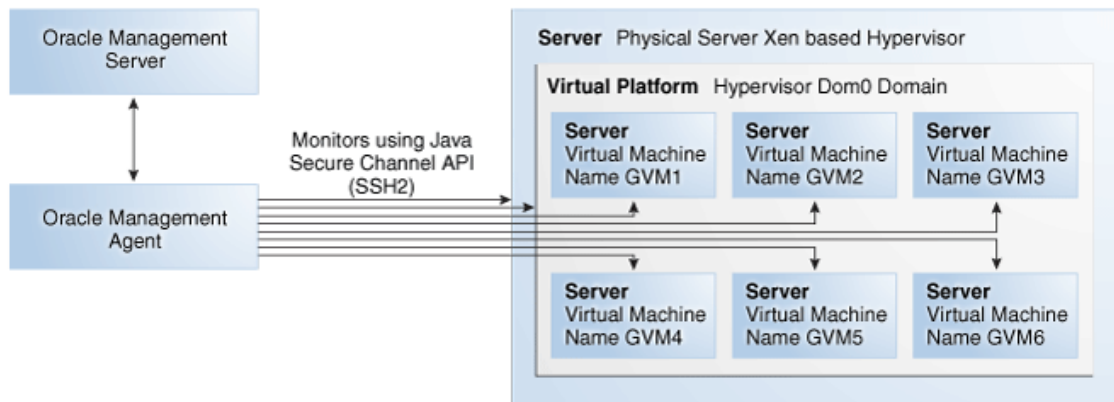
 **Note:**

To enable direct monitoring of Xen based Hypervisors, the Oracle Virtual Infrastructure 12.1.0.2 plugin must be deployed on the Management Server. This plugin is automatically deployed on the Management Agent when the Hypervisor is registered.

The following figure shows the high level architecture.



**Figure 4-1 Direct Monitoring Architecture**



## Discovering the Hypervisor Target

### Prerequisites:

- To discover a Hypervisor target, the administrator must have the following privileges:
  - Add Any Target
  - Create Job
  - Operator privilege on the Management Agent that is monitoring the Hypervisor target.

To discover the Hypervisor by following these steps:

1. Log in to Enterprise Manager as a user with the above privileges.
2. From the **Setup** menu, select **Add Targets**, then select **Add Targets Manually**.
3. In the Add Targets Manually page, select **Add Targets Using Guided Process (Also Related Targets)** and select Oracle Virtual Platform from the Target Types drop down list.
4. Click **Add Using Guided Process**. The Discover Oracle Virtual Platforms page appears.

**Figure 4-2 Discover Virtual Platform**

**Discover Oracle Virtual Platforms** Submit Cancel

Register Oracle Virtual Platforms with Enterprise Manager. Target credentials and/or monitoring agent can be specified for each target. If set, these override the defaults for that target.

**Default Monitoring Agent and Credentials**

Specify the default Monitoring Agent and Credentials for the Oracle Virtual Platforms to be discovered.

\* Monitoring Agent

Falover Monitoring Agent

Privileged User  Yes  No

Credential type

**Credential Properties**

\* Username

\* Password

Run Privilege

**Hostname and IP Address**

Specify the hostname or IP address for the Oracle VM servers that need to be discovered.

Host/IP Address	Agent & Credentials	Monitoring Agent	Username
No data to display			

**Global Target Properties (Optional)**

Setting global target properties is optional. These can also be set at a later time.

Comment

Contact

Cost Center

Department

Lifecycle Status

Line of Business

Location

5. In the Default Monitoring Agent and Credentials region, enter the following details:

 **Note:**

The credentials specified in this region will be applied to all Oracle Virtual Platform targets discovered through this process by default. You can choose to override these credentials for a specific Oracle Virtual Platform target.

- **Monitoring Agent:** Click **Search** icon and select the Linux based default monitoring agent to monitor the targets.
- **Failover Monitoring Agent:** Click **Search** icon and select the failover, Linux based monitoring agent to monitor the targets.

 **Note:**

To ensure that Hypervisors and the associated targets can be monitored smoothly in a large scale environment, you must use the following recommendation for the Java Heap Size.

- If the Total Number of Targets (includes Oracle Virtual Platform, Oracle Server, and Oracle Virtual Server targets) is less than or equal to 300, the Java Heap Size for the Management Agent must be set to 128 MB.
- If you add another 300 targets, you must increase the Java Heap Size by an additional 128 MB.

- **Privileged User:** This field is used to provide the user with access to certain privileged commands. The access is available either by a root user or through the Privilege Delegation options provided here.

- **Yes:** If you select **Yes**, you must be a user who can execute the following `xl` / `xm` commands that require root access privileges:

```
/usr/sbin/xl list*,/usr/sbin/xl info*,/usr/sbin/xl network-list*,
/usr/sbin/xl uptime*,/usr/sbin/xl vcpu-list*,/usr/sbin/dmidecode,
/usr/sbin/xentop,/usr/bin/xenstore-read,/usr/bin/xenstore-list,
/usr/bin/xenstore-ls,/sbin/ethtool
```

These commands allow you to collect virtualization metrics when they are executed. If the `xl` command is not present on the system, the following commands will be used:

```
/usr/sbin/xm list*,/usr/sbin/xm info*,/usr/sbin/xm network-list*,
/usr/sbin/xm uptime*,/usr/sbin/xm vcpu-list*,/usr/sbin/dmidecode,
/usr/sbin/xentop,/usr/bin/xenstore-read,/usr/bin/xenstore-list,
/usr/bin/xenstore-ls,/sbin/ethtool
```

- **No:** If you select **No**, you cannot execute the `xl`/`xm` commands, and virtualization and configuration metrics for the Oracle Virtual Platform target are not collected.

- **Credential Type:** Specify the credentials for the target being discovered. You can select **Host Credentials** or **SSH Key Credentials**. Depending on your choice, you must enter the credential properties as described in [Setting the Credential Properties](#).
6. Click **Add** in the Host Name and IP Address region. In the Add Host/IP Address window, enter one or more host names, IP addresses or IP address ranges and click **Add**. Multiple host names, IP addresses or the ranges must be separated by a new line. The host names that you have added will appear in the Discover Oracle Virtual Platforms page.
  7. You can choose to use the default agent and credentials or click **Override** to override them. You can also override the Failover Monitoring Agent credentials. In the Override Monitoring Agent and Credentials window, enter the monitoring agent and credential properties and click **Override**. This will override the monitoring credentials. The new agent and credentials you specify will be applied.
  8. Optionally, you can also specify the Global Target Properties. The Enterprise Manager Target Properties allows you to store descriptive target information, such as Contact or Location, which can then be used in dynamic/administration group definition, reports, incident rules and notifications. The Global Target Credentials region allows you to specify the values for the target properties that are applied to all the targets discovered using this process.
  9. Click **Submit**. The registration information is validated and a job is submitted. On completion of the job, the following targets are discovered from a host that is running a Xen based hypervisor.
    - **Oracle Server:** The bare metal box running the hypervisor.
    - **Oracle Virtual Platform:** The host operating system that represents the hypervisor process.
    - **Oracle Virtual Server:** The virtual machines managed by the hypervisor domain.

 **Note:**

To facilitate monitoring of these targets in a group, you can specify global target properties to create dynamic groups while registering the targets or by editing the already registered targets.

For instance, you can include all production virtual platforms into a dynamic group with production lifecycle status.

## Deleting the Targets

To delete the targets that have been discovered, you must first delete the Oracle Virtual Platform target. When this target is deleted, all associated Oracle Virtual Server and Oracle Server targets are deleted.

To delete the target, follow these steps:

1. From the Targets menu, select All Targets to navigate to the All Targets page.
2. In the left panel of the All Targets page, select Oracle Virtual Platform under Servers, Storage, and Network target type. The list of Oracle Virtual Platform targets available is displayed.
3. Click on one of the targets to navigate to the Oracle Virtual Platform Home page. From the Oracle Virtual Platform menu, select Target Setup, then select Remove Target. A

confirmation message is displayed. Click Yes to delete the Oracle Virtual Platform target and the associated targets.

## Setting the Credential Properties

You can specify the credentials for the Virtual Platform target being discovered. You can select the credential type as Host Credentials or SSH Key Credentials. Each of these credentials can be clubbed with the Sudo or PowerBroker privilege delegation option.

**Figure 4-3 Discover Oracle Virtual Platform: Setting the Credentials**

**Discover Oracle Virtual Platforms** Submit Cancel

Register Oracle Virtual Platforms with Enterprise Manager. Target credentials and/or monitoring agent can be specified for each target. If set, these override the defaults for that target.

**Default Monitoring Agent and Credentials**

Specify the default Monitoring Agent and Credentials for the Oracle Virtual Platforms to be discovered

\* Monitoring Agent:

Failover Monitoring Agent:

Privileged User:  Yes  No

Credential type: Host Credentials

**Credential Properties**

\* Username:

\* Password:

Run Privilege: Sudo

Sudo Command: /usr/bin/sudo -S -u %RUN\_AS% %COMMAND%

Run As: root

Enable Pseudo Terminal:

### Host Credentials

If you have selected Host Credentials, you must specify the credential properties shown below:

- **User Name:** The user name required to access the target.
- **Password:** The password required to access the target.
- **Run Privilege:** This can be:
  - **None:** Run privileges are not required. This option is used when the user is **root** and the Privileged User option is set to **Yes**.
  - **Sudo:** If you select Sudo, you must specify the following:
    - \* **Sudo Command:** Sudo allows a permitted user to execute a command as the super user or another user as specified in the sudoers file. Enter the command in the format `/usr/bin/sudo -S -u %RUN_AS% %COMMAND%` where `/usr/bin/sudo` is the path to the sudo executable, `RUN_AS` is the name of the user who is executing the command and `COMMAND` represents that Sudo command being executed.
    - \* **Run As:** Specify `root` to run this command as a root user.
    - \* **Enable Pseudo Terminal:** Select the checkbox if the sudo command requires the user to log in to a real terminal (tty). If this flag is set, the sudo user must log into the machine via a separate terminal.
  - **PowerBroker:** If you select PowerBroker, you must specify the following:
    - \* **PowerBroker Command:** Enter the command in the format `/usr/bin/pbrun -l -u %RUN_AS% %COMMAND%` where `/usr/bin/pbrun` is the path to the PowerBroker executable, `RUN_AS` is the name of the user running the command, and `COMMAND` represents the PowerBroker command being executed.
    - \* **Password Prompt:** The prompt that is to be displayed when the password is specified.

- \* Run As: Specify `root` to run this command as a root user.
- \* Profile: Specify the user profile to be used to run this command.

### SSH Key Credentials

If you select **SSH Key Credentials**, you must specify the user name, private and public key, passphrase (for further encryption), and the run privilege.

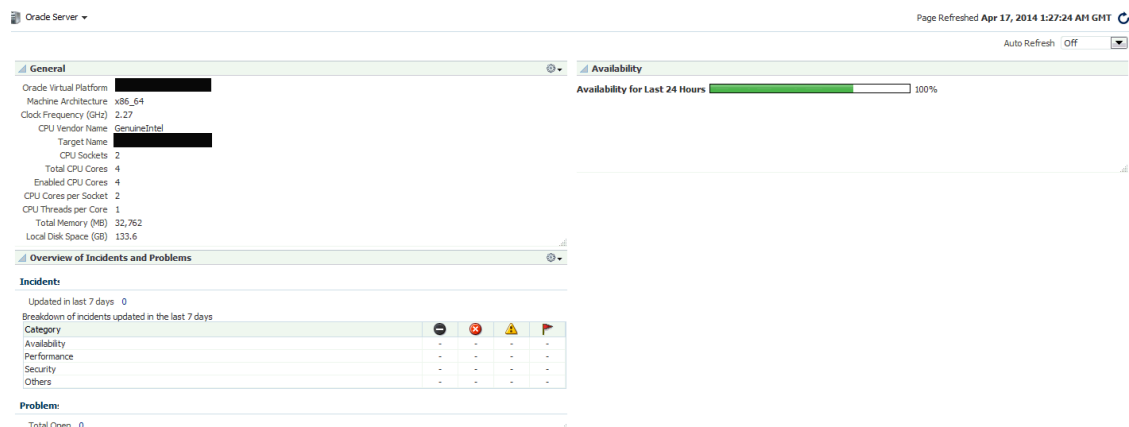
If you select Sudo or PowerBroker in the Run Privilege field, enter the additional details as listed in the **Host Credentials** section.

## Viewing the Oracle Server Home Page

To view the Oracle Server Home page, follow these steps:

1. From the Targets menu, select All Targets to navigate to the All Targets page.
2. In the left panel of the All Targets page, select Oracle Server under Servers, Storage, and Network target type. The list of Oracle Server targets available is displayed.
3. Click on one of the targets to navigate to the Oracle Server Home page.

**Figure 4-4 Oracle Server Home Page**



This page contains the following regions:

- **General:** This region provides general details such as the Oracle Virtual Platform target, name of the target, CPU sockets, CPU cores, total memory, and local disk space.
- **Availability:** The chart in this region shows the status of the target over the last 24 hours.
- **Overview of Incidents and Problems:** This region shows any incidents or problems associated with the Oracle Server target.

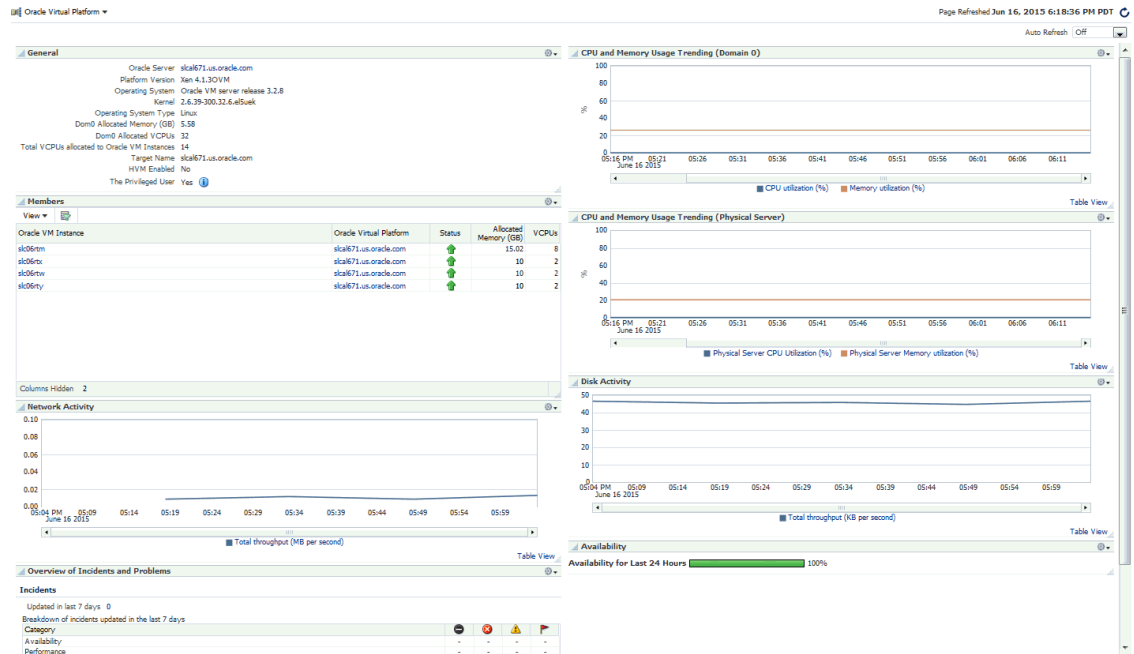
## Viewing the Oracle Virtual Platform Home Page

To view the Oracle Virtual Platform Home page, follow these steps:

1. From the **Targets** menu, select **All Targets** to navigate to the All Targets page.
2. In the left panel of the All Targets page, select **Oracle Virtual Platform** under Servers, Storage, and Network target type. The list of Oracle Virtual Platform targets available is displayed.

- Click on one of the targets to navigate to the Oracle Virtual Platform Home page.

**Figure 4-5 Oracle Virtual Platform Home Page**



This page contains the following regions:

- General:** This region shows general details such as the Oracle Server target, platform version, name of the target, VCPUs allocated to Dom0 and total VCPUs allocated to the Oracle Virtual Server targets. It also indicates if this is a Privileged User. Virtualization metrics are collected only for privileged users.
- Members:** This region listed the virtual servers that belong to this virtual platform, their status, and the memory allocated to each virtual server. Host names corresponding to the Oracle Virtual Server target are also displayed if the Management Agent is present on the virtual server. By default, this column is not visible. You can select this column using the View drop down menu.
- Network Activity:** This region shows the total throughput (MB per second) over the last 24 hours.
- Overview of Incidents and Problems:** This region shows any incidents or problems associated with the Oracle Server target.
- Charts:** The CPU utilization, Memory Utilization, Network, and Disk Activity charts show the activity over the last 24 hours. It shows the CPU and memory usage trending.
- Availability:** The chart in this region shows the status of the target over the last 24 hours.

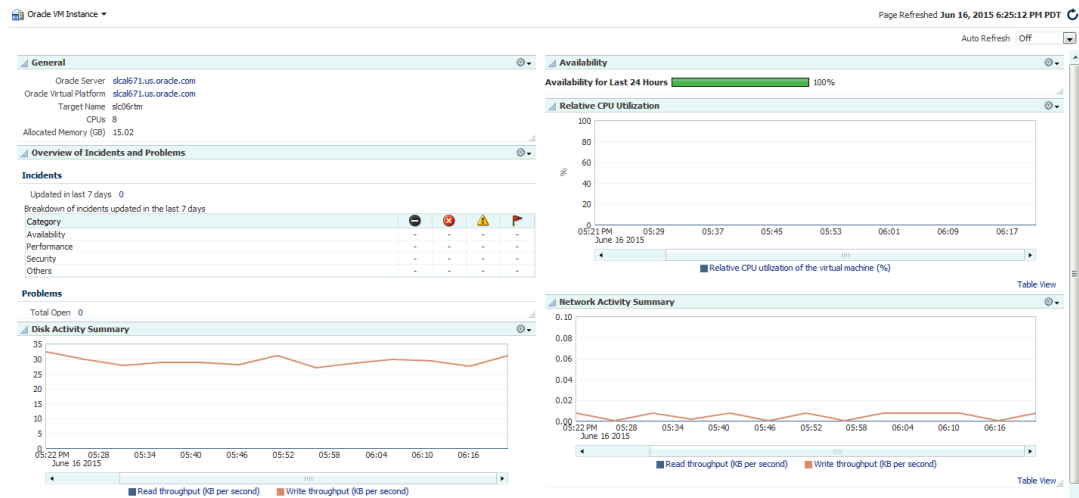
## Viewing the Oracle VM Instance Home Page

To view the Oracle VM Instance Home page, follow these steps:

- From the **Targets** menu, select **All Targets** to navigate to the All Targets page.
- In the left panel of the All Targets page, select Oracle VM Instance under Servers, Storage, and Network target type. The list of Oracle VM Instance targets available is displayed.

- Click on one of the targets to navigate to the Oracle VM Instance Home page.

**Figure 4-6 Oracle VM Instance Home Page**



This page contains the following regions:

- **General:** This region provides general details such as the Oracle Server and Oracle Virtual Platform targets, name of the target, and allocated memory.
- **Availability:** The chart in this region shows the status of the target over the last 24 hours.
- **Overview of Incidents and Problems:** This region shows any incidents or problems associated with the Oracle Server target.
- **Charts:** The CPU utilization, Memory Utilization, Network, and Disk Activity charts show the activity over the last 24 hours.

# Part IV

## Setting Up and Using Platform as a Service

This section describes the steps required to enable Platform as a Service, which encompasses the Database as a Service (DBaaS) Cloud model.

It contains the following chapters:

- [Setting Up the PaaS Infrastructure](#)
- [Enabling the DBaaS Cloud](#)



# 5

## Setting Up the PaaS Infrastructure

This chapter covers the common operations that need to be performed to enable Platform as a Service (PaaS), which encompasses different service families such as Database as a Service (DBaaS) using Oracle Single Instance, and RAC.

The PaaS model allows users to create platforms onto which consumers can deploy their own applications. A platform resource is typically comprised of a host, operating system, and application server, and may be virtualized. The platform may also include a database and even multiple hosts in a cluster. This chapter contains the following sections:

- [About Service Families](#)
- [Common Setup Tasks](#)

### About Service Families

A service family can be classified as a group of services that provide a solution for a specific domain. For example, a Database Service provides RDBMS solutions and a WebLogic service provides the Java solutions for J2EE based application development and hosting.

Each service family can contain one or more service types. A service type provides a specialized service within a service family. For example, a database service can contain service types such as database service, schema service, or pluggable database service. A middleware service type can contain WebLogic service, OSB service, or SOA service. Each service type has certain fixed attributes, actions, configurations, metrics, and other properties.

A service instance is a cloud resource that is requested and managed by the self service user. For example, single instance database service instance, WebLogic service instance, and so on.

### Common Setup Tasks

This section helps you get started by providing an overview of the common steps that must be performed before you set up a service family.

**Table 5-1 Setting Up the Service Family**

Step	Task	Role
1	Configure the Software Library. See <a href="#">Setting Up the Software Library</a> section for details.	Cloud Administrator
2	Deploy the necessary plug-ins. See <a href="#">Deploying the Required Plug-ins</a>	Cloud Administrator
3	Define roles for administrators and self service users. See <a href="#">Defining Roles and Assigning Users</a> .	Super Administrator
4	Install the Management Agent on unmanaged hosts so that they can be monitored by Enterprise Manager. See <a href="#">Adding Hosts</a> .	Cloud Administrator

**Table 5-1 (Cont.) Setting Up the Service Family**

Step	Task	Role
5	Create one or more resource providers. See <a href="#">Creating the Resource Providers</a> .	Self Service Administrator
6	Configure the request settings. See <a href="#">Configuring Request Settings</a> .	Self Service Administrator
7	Set up quotas for self service users. See <a href="#">Setting Up Quotas</a> .	Self Service Administrator

## Adding Hosts

Oracle Management Agent (Management Agent) is one of the core components of Enterprise Manager Cloud Control. It works in conjunction with the plug-ins to monitor the targets running on a managed host. You must install Oracle Management Agents on your unmanaged hosts to monitor them in Enterprise Manager. See [Installing Oracle Management Agents](#) for details.

## Creating the Resource Providers

A resource provider is a target that represents the type of resources required to provision a service instance of a specific service type. A PaaS Infrastructure zone is a resource provider which contains one or more hosts. A Software Pool is another resource provider that can contain resources such as Oracle Home targets, Oracle database targets, and so on. Resource providers such as the Database Pool or Middleware Pool are dependent on the PaaS Infrastructure Zone.

Resources can be grouped under a resource provider for easier administration and management. Resource providers allow administrators to enforce policies for service provisioning and capacity planning.

To create a resource provider, follow these steps:

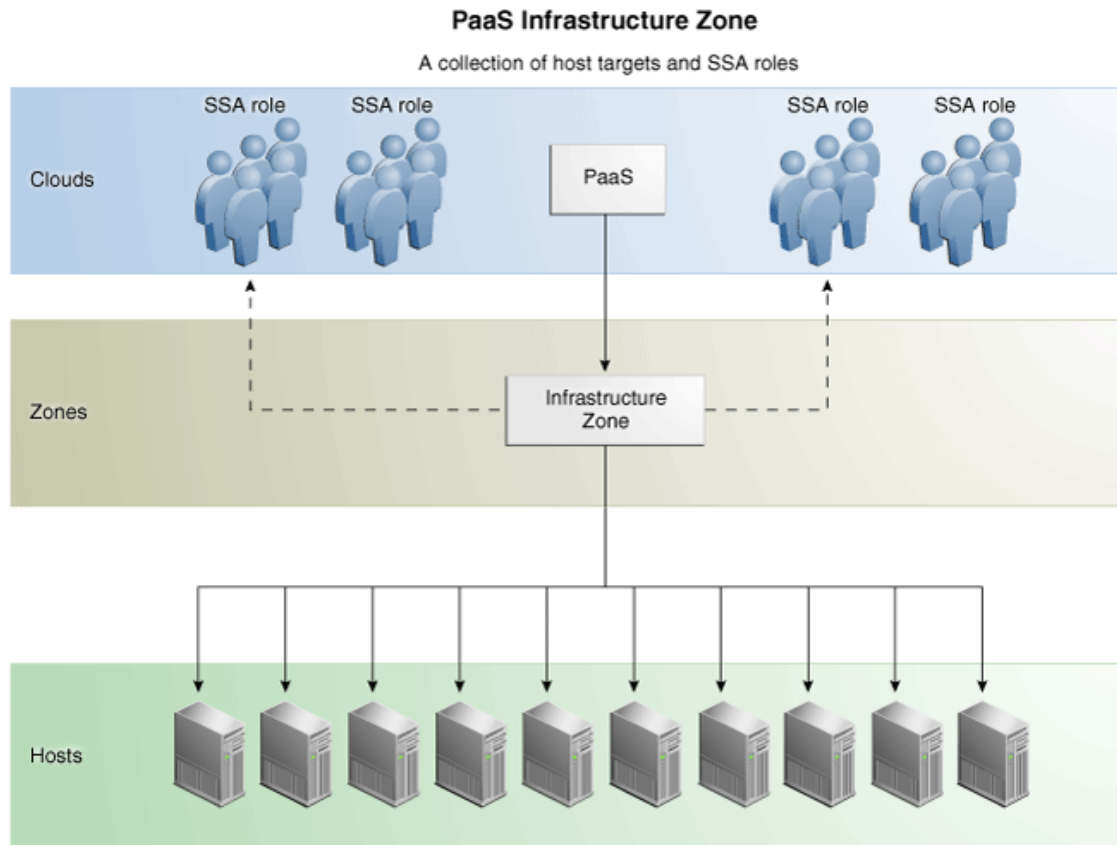
1. Login as a user with the appropriate role. To create a PaaS Infrastructure Zone, you must login as a user with the `EM_CLOUD_ADMINISTRATOR` role. To create all other resource providers such as database pools, schema pools, and so on, you must login as a user with the `EM_SSA_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears.
3. From the **Oracle Cloud** menu, select **Resource Providers**, then click **Create**. The Create Resource Provider window appears.
4. Select the type of resource provider you want to create. This can be:
  - PaaS Infrastructure Zone. See [Creating a PaaS Infrastructure Zone](#).
  - PaaS Pool. See [Creating a PaaS Pool](#)
5. Click **Create** and follow the steps in the wizard to create the selected resource provider.

## Creating a PaaS Infrastructure Zone

A PaaS Infrastructure Zone can contain a group of hosts. Each zone can contain homogeneous resources of only one type. Each resource in a zone represents a location at which a service instance is to be deployed.

The first step in building a PaaS cloud is to create at least one PaaS Infrastructure Zone, which is done by selecting one more Enterprise Manager host targets and identifying the SSA enabled roles that users will need in order to request resources in this zone.

**Figure 5-1 PaaS Infrastructure Zone**



### Prerequisites

Before you create a PaaS Infrastructure Zone, you must ensure that the following prerequisites are met:

- The `EM_CLOUD_ADMINISTRATOR`, `EM_SSA_ADMINISTRATOR`, and `EM_SSA_USER` roles must have been created. See [Defining Roles and Assigning Users](#) for details.

-  **Note:**

If you are using an OMS Shared System location in the Software Library, the credentials owner must grant privileges to the `CLOUD_ENGINE_USER`. Since the `CLOUD_ENGINE_USER` is a hidden user account, the owner of the named credential cannot grant **View** privileges from the Enterprise Manager Console. To address this issue, (especially on a Windows host where OMS Agent Filesystem is the recommended approach for setting up Software Library) you need to run the following EMCLI commands:

```
emcli login -username=<username> -password =<password>

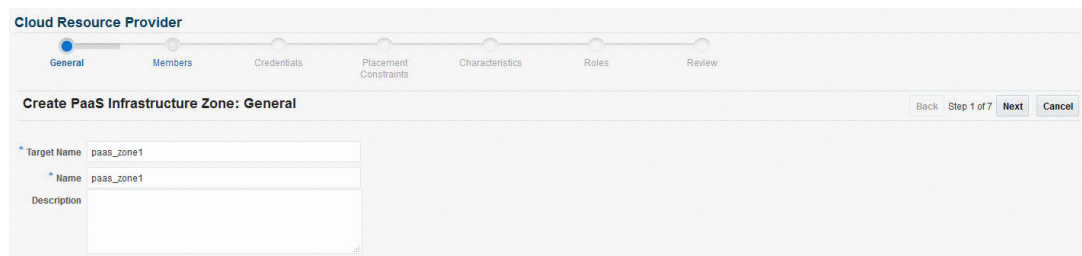
emcli grant_privs -name=CLOUD_ENGINE_USER -
privileges="GET_CREDENTIAL;
CRED_NAME=<namedcred>:CRED_OWNER=<loginusername>"
```

- You must log in as a user with `EM_CLOUD_ADMINISTRATOR` privileges to create a PaaS Infrastructure Zone.

To create a PaaS Infrastructure Zone, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears.
2. From the **Cloud Home** menu, select **Resource Providers**, then select **Create**. In the Create Resource Provider window, select **PaaS Infrastructure Zone**, then click **Create**. The Create PaaS Infrastructure Zone: General page appears.

**Figure 5-2 Create PaaS Infrastructure Zone: General**



3. Enter the target name, name, and description for the zone. Click **Next**.
4. Click **Add** to add one or more host members to the zone. The hosts that you select cannot be present in more than one PaaS Infrastructure Zone. Click **Next**.
5. In the Create PaaS Infrastructure Zone: Credentials page, specify the host credentials that are to be used for provisioning all targets in this zone. The credentials provided should be of global credential type (valid across the members in the zone) and owned by the current user. Click **Next**.

-  **Note:**

To create new named credentials, from the **Setup** menu, select **Security**, then select **Named Credentials**. You can create user or password named credentials here. Other types of credentials such as SSH must be created from the **Security** menu and can be used here.

6. Specify appropriate values for the placement policy constraints based on the resources available to the host members. The placement policy constraints are used to set maximum ceilings for any host in the zone. Placement policy values are used during deployment to filter out hosts that are overburdened. You can define the following placement policy constraints for each host:
  - Maximum CPU Utilization: The average CPU utilization percentage for the past 7 days.
  - Maximum Memory Allocation: The average memory allocation for the past 7 days.Hosts exceeding these thresholds will not be considered for provisioning operations.
7. Click **Next**. In the Create PaaS Infrastructure Zone: Characteristics page, specify the target properties such as cost center, lifecycle status, location, and so on
8. Click **Next**. The Create PaaS Infrastructure Zone: Roles page appears. A PaaS Infrastructure Zone can be made available to a restricted set of self service users with the EM\_SSA\_USER role. Click **Add** to add and select the roles that can access this PaaS Infrastructure Zone.
9. Click **Next**. The Create PaaS Infrastructure Zone: Review page appears. Review the details of the zone being created and click **Submit** to create the zone. You will return to the Database and Cloud Home page.

 **Note:**

You can use EMCLI commands (see [Creating a PaaS Zone](#)) or REST APIs (see [Creating a PaaS Zone](#)) to create a PaaS Infrastructure Zone.

## Editing a PaaS Infrastructure Zone

To edit a PaaS Infrastructure Zone, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears.
2. From the **Cloud Home** menu, select **Resource Providers**. The Resource Providers page appears.
3. Select a PaaS Infrastructure Zone from the list and click **Edit**.

 **Note:**

If you do not have access to or own the Named Credentials that have been defined for the PaaS Infrastructure Zone, you must specify new credentials.

4. Follow the steps in the wizard to edit the necessary parameters and click **Submit** to accept the changes.

## Deleting a PaaS Infrastructure Zone

To delete a PaaS Infrastructure Zone, follow these steps:

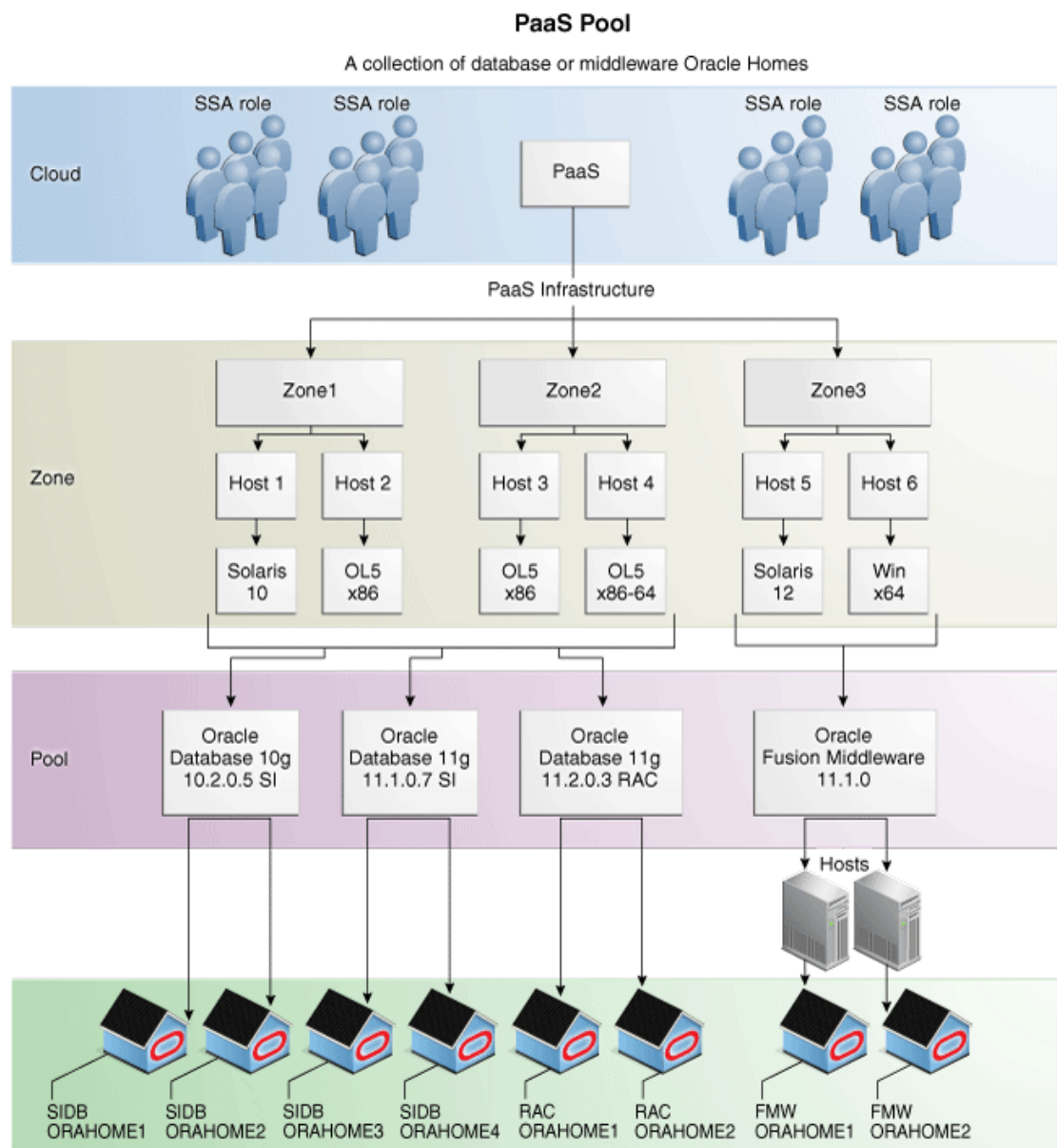
1. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears.

2. From the **Cloud Home** menu, select **Resource Providers**. The Resource Providers page appears.
3. Select a PaaS Infrastructure Zone from the list and click **Delete**.
4. A confirmation message is displayed. Click **Delete PaaS Infrastructure Zone** to delete the zone.

## Creating a PaaS Pool

The second step in building a PaaS cloud is to create software pools (for example, database or middleware Oracle Homes that exist on hosts within the PaaS Infrastructure Zone, or database instances for schema as a service). The figure below shows an example of a PaaS pool.

**Figure 5-3 PaaS Pool**



A PaaS pool must be a homogeneous collection of Oracle Homes of the same platform, type, and version. For example, Solaris 10 Oracle Database single instance version 10.2.0.5 or Oracle Enterprise Linux 5 x86-64 WebLogic Server version 10.3.6. For information about creating a Database Pool, see [Creating a Database Pool](#).

## Creating a Database Pool

A Database Pool contains a set of resources that can be used to provision a database instance within a PaaS Infrastructure Zone. A database pool is a collection of homogenous targets such as servers or clusters with database software installed. For more details, see [Creating a PaaS Pool](#).

Depending on the type of database service you are setting up, you can do one of the following:

- [Creating a Database Pool for Database as a Service](#)
- [Creating a Database Pool for PDB as a Service](#)
- [Creating a Database Pool for Schema as a Service](#)

## Creating a Middleware Pool

A Middleware Pool contains a set of resources that can be used to provision a service instance within a PaaS Infrastructure Zone.

## Configuring Request Settings

You can configure the request settings by specifying when a request can be made, its duration, and so on. To configure request settings, follow these steps:

1. Log into Enterprise Manager as a user with the `EM_SSA_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears.
3. From the **Oracle Cloud** menu, select **Setup**, then select **Request Settings**.
4. Specify the following Request Settings:
  - Future Reservation: How far in advance can a request be made.
  - Request Archive Retention: Period for which archived requests are stored before they are automatically deleted by the system.
  - Request Duration: Maximum duration for which requests can be made.
  - Service Instance Share Settings: You can choose to share the service instance with other users or roles by selecting either of the following checkboxes.
    - Enable SSA User to share service instances with other Users
    - Enable SSA User to share service instances with Roles

### Note:

By default, service instances are not shared with users or roles.

5. Click **Apply**.

Request settings can be defined for all services or a specific service family, service type or role. The most restrictive value of request settings is taken from all matched values. **No**

**Restriction** on a level means the setting is not applied at this level and will not be considered in evaluating final value.

For example, if a user requests a schema service and the Request Duration settings are as follows:

- All Services: 30 Days
- Database family: 10 days
- Schema service type (Global): 5 days
- Schema service type (*SSAUser1* Role): 3 days

The most restrictive setting, *3 days from the Schema service type (SSAUser1 Role)* will be applied.

Share Service Instance Settings are taken from the highest enabled level.

For example, if sharing is enabled for All Services, then sharing is allowed for all users regardless of any lower level settings. To turn off sharing for the Middleware family, you must first disable sharing at the All Services level. Then disable sharing for the Middleware family and enable sharing for the other families. Any modified settings must be saved before making another selection. Any changes not applied will be discarded.

## Setting Up Quotas

Quota is the aggregate amount of resources that can be granted to each self service user belonging to a certain role. This quota applies databases provisioned through the Database Cloud Self Service Portal or databases provisioned through REST APIs. To set up quotas, follow these steps:

1. Log into Enterprise Manager as a user with the `EM_SSA_ADMINISTRATOR` role.
2. From the **Cloud** menu, select **Cloud Home**. The Cloud Home page is displayed. From the **Oracle Cloud** menu, click **Setup** and then select **Quotas**.
3. Click the **Databases** link on the left hand side. The quota definition page appears. Click **Create**.

### Note:

Quota validation ensures that a request is executed only if the user's current usage is within the limits specified for the roles to which the user belongs. Only the direct roles are considered for the quota determination, and not nested ones.

4. In the Create New Quota window, select the Role Name for which the quota is to be granted. Only roles that have the `EM_SSA_USER` privileges are displayed in the Select Roles dialog box. After you have selected the role, enter the following details:
  - Memory: Total allocated memory that can be assigned for all the databases owned by a specific user. This should be the total memory used by all:
    - Databases
    - Schemas requested
    - Pluggable Databases
  - Storage: Total allocated storage that can be assigned for all the databases owned by a user. This should be total storage used by all:



- Databases
- Schemas requested
- Pluggable Databases

 **Note:**

Storage used for backups is not included here.

- Number of Database Requests: The number of databases that can be requested by a user at any point in time. The standby databases created as part of database requests will not be included in this quota. But the storage and memory values for the standby databases will be added to the total allocated storage and memory.
- Number of Schema Service Requests: The number of database services that can be requested by the user.
- Number of Pluggable Database Service Requests: The number of PDBs that can be requested by the user.

For example, if a user has 3 roles with quota setup for each role as shown in the table below:

Role Name	Attribute	Value
Dev Role	Memory	30 GB
N/A	Storage	40 GB
N/A	DB Requests	10
N/A	Schema Requests	2
N/A	PDB Requests	3
Test Role	Memory	40 GB
N/A	Storage	60 GB
N/A	DB Requests	12
N/A	Schema Requests	3
N/A	PDB Requests	5
PM Role	Memory	Quota not set
N/A	Storage	Quota not set
N/A	DB Requests	Quota not set
N/A	Schema Requests	Quota not set
N/A	PDB Requests	Quota not set

The quota limits for each of the attributes would be determined based on all the roles to which a user directly belongs. The quota is calculated as the absolute maximum across the roles for each attribute value. For the user who belongs to the Dev, Test, and PM Role, the Quota is calculated as:

Value for Memory = MAX (Dev, Test, PM) = MAX (2, 5, NA) = 5 GB

Value for Storage = MAX (Dev, Test, PM) = MAX (15, 10, NA) = 15 GB

Value for DB Requests = MAX (Dev, Test, PM) = MAX (10, 12, NA) = 12 Databases

Value for Schema Requests = MAX (Dev, Test, PM) = MAX (2, 3, NA) = 5 Database Services

Value for PDB Requests = MAX (Dev, Test, PM) = MAX (3, 5, NA) = 8 PDB Services

**A sample quota validation log generated by the user request follows:**

Quota validation:

```
=====
                        Quota Details
=====
Total resources available
Memory: 15
Storage: 20
Number of Database Instances: 5
Number of Schema Services: 5
Number of Pluggable Databases: 10
```

```
=====
                        Current Usage
=====
Memory: 0.0
Storage: 0.0
Number of Database Instances: 0.0
Number of Database Services: 0.0
```

```
=====
                        Requested Resource
=====
Memory: 0.681640625
Number Of Databases: 1
Storage: 0.681640625
```

```
-----
                        Quota validation for 'Memory'
-----
Allocated Resource: 15.0
Current Usage: 0.0
Requested: 0.681640625
-----
Remaining Resource After Allocation: 14.318359375
-----
```

Result: Passed

```
-----
                        Quota validation for 'Storage'
-----
Allocated Resource: 20.0
Current Usage: 0.0
Requested: 0.681640625
-----
Remaining Resource After Allocation: 19.318359375
-----
```

Result: Passed

```
-----
                        Quota validation for 'Number of Database Instances'
-----
Allocated Resource: 5.0
Current Usage: 0.0
Requested: 1.0
-----
```

Remaining Resource After Allocation: 4.0  
-----

# 6

## Enabling the DBaaS Cloud

This chapter covers the initial configuration required to enable a DBaaS Cloud. It contains the following sections:

- [Getting Started](#)
- [Setting Up Credentials for Provisioning](#)
- [Provisioning Database Software for Database as a Service](#)
- [Provision the Database for Schema as a Service](#)
- [Provision a Container Database for PDB as a Service](#)
- [Configuring the Oracle Listener](#)

### Getting Started

This section helps you get started by providing a list of steps that must be performed to get started in setting up a private database cloud. Before you set up the database cloud, you must have completed the common setup tasks described in [Common Setup Tasks](#).

**Table 6-1 Getting Started with DBaaS**

Step	Task	Role
1	Configure Privilege Delegation Settings on your managed hosts. See <a href="#">Configuring Privilege Delegation Settings</a>	Super Administrator
2	Set up provisioning credentials. See <a href="#">Setting Up Credentials for Provisioning</a>	Self Service Administrator
3	<ul style="list-style-type: none"><li>• Setting up Database as a Service, you must provision the database software or create Oracle Homes. See <a href="#">Provisioning Database Software for Database as a Service</a>.</li><li>• Setting up Schema as a Service, you must provision the database. See <a href="#">Provision the Database for Schema as a Service</a>.</li><li>• Setting up Pluggable Database as a Service, you must create a container database (CDB) with one or more pluggable databases (PDBs). See <a href="#">Provision a Container Database for PDB as a Service</a>.</li></ul>	Self Service Administrator
4	Configure the Listener. See <a href="#">Configuring the Oracle Listener</a> .	Self Service Administrator
5	If you are using the Snap Clone profile, you must register the storage servers. See <a href="#">Registering and Managing Storage Servers</a> .	Self Service Administrator

# Setting Up Credentials for Provisioning

## Credential Definitions

Before you perform any operations on the Managed Servers or databases, you must define the credentials that will be used by Enterprise Manager to connect to the targets.

You need to set up the following types of credentials:

- **Named credentials** are the host operating system credentials used to provision the database software and create databases. For example, `oracle/<login password>`. These credentials are saved when the Database Pool is created and are used when the `EM_SSA_USER` requests a database or a schema.
- **Privileged credentials** are the host operating system credentials used to perform privileged actions like executing root scripts. These credentials are used deploying software (for running `root.sh` during deployment), for mounting and unmounting storage volumes (for databases created with snapshots) and so on. These credentials are saved along with the Database Pool if the pool is used for creating databases using snapshots.
- **Database SYSDBA** credentials are used and saved for schema as a service database pool. These credentials are required only for schema as a service.

 **Note:**

It is recommended that the same OS user who owns the Oracle Home on the host, creates the database.

## Create the Credentials

To create named credentials, follow these steps:

 **Note:**

Do not delete the Named Credential used at creation. The credential is required when deleting an instance.

1. Log in to Enterprise Manager as an administrator with the `EM_SSA_ADMINISTRATOR` role.
2. From the **Setup** menu, select **Security**, then select **Named Credentials**.
3. Click **Create** in the Named Credentials page.
4. Enter the **Credential Name** and **Credential Description**. Set the Authenticating Target Type field to Host and Scope field to Global. Enter the user name and password in the Credential Properties section. If you need to set privileged credentials, select `SUDO` or `PowerBroker` in the **Run Privilege** field and enter values in the **Run As** and **Profile fields**.
5. Click **Test** and **Save**.
6. Verify these credentials against a host target and click **OK**.

## Provisioning Database Software for Database as a Service

Before you can enable database as a service, the database software must already be provisioned on all hosts. Database software can be provisioned by an administrator with the `EM_SSA_ADMINISTRATOR` role in the following ways:

- **Provisioning Profile**

- Capture a gold image of an existing database using a Provisioning Profile. See the Enterprise Manager Lifecycle Management Administrator's Guide for details.
- Use the Provisioning Profile to provision the Clusterware/ASM or Grid Infrastructure (for Real Application Cluster databases), and Database Oracle Home. This method ensures that the necessary database plug-in (monitoring part of the database plug-in) is deployed onto the Management Agent as part of the database provisioning Oracle Home installation.

To create a provisioning profile, from the **Enterprise** menu, select **Provisioning and Patching**, then select **Database Provisioning** and select the database provisioning deployment procedure to be used. You can select either **Provision Oracle Database** or **Provisioning Oracle RAC Database** deployment procedure.

**Note:** Do not create a new database as part of this deployment procedure.

- **Using the Database Installer**

- From the **Setup** menu, select **Extensibility**, then select **Plug-ins**, and deploy the complete SSA (Enterprise Manager for Oracle Cloud) plug-in on all the Management Agents in a PaaS Infrastructure Zone.
- Run the Clusterware/ASM or Grid Infrastructure installer to set up the cluster and ASM (for RAC databases).
- Run the Database Installer and ensure you select the **Install Database Software Only** option on all hosts.
- Discover the cluster. From the **Setup** menu, select **Add Target**, then **Add Targets Manually**, and then select **Add Non-Host Targets Using Guided Process** (Also Adds Related Targets).

Select:

- \* Oracle Cluster and High Availability Service to discover the cluster.
  - \* Oracle Database, Listener and Automatic Storage Management to discover ASM and listeners.
- From the **Enterprise** menu, you can also select **Job**, then select **Library** and submit the **Discover Promote Oracle Home Target** job to add the Oracle Home.

For more details on provisioning the database software, see the Enterprise Manager Lifecycle Management Administrator's Guide.

## Provision the Database for Schema as a Service

For schema as a service, you must deploy a single instance or RAC database. To deploy a database, you must use the Provision Oracle Database deployment procedure. See the Enterprise Manager Lifecycle Management Administrator's Guide for details.

## Provision a Container Database for PDB as a Service

 **Note:**

If pluggable databases (PDBs) need to be provisioned, you must create container databases.

An Oracle Database can contain a portable collection of schemas, schema objects, and nonschema objects, that appear to an Oracle Net client as a separate database. This self-contained collection is called a pluggable database (PDB). A multi-tenant container database (CDB) is a database that includes one or more PDBs.

You can create a CDB either by using the Database Configuration Assistant (DBCA) or the `CREATE DATABASE SQL` statement. See the *Oracle Database Administrator's Guide* for details. After the CDB is created, it consists of the root and the seed. The root contains minimal user data or no user data, and the seed contains no user data.

PDBs contain user data. After the CDB has been created, you can add PDBs to the CDB by using either of the following options:

- Create a new PDB. See the *Enterprise Manager Lifecycle Management Administrator's Guide* for details.
- Plug in an unplugged PDB into a CDB. See the *Enterprise Manager Lifecycle Management Administrator's Guide* for details.

## Configuring the Oracle Listener

You need to configure an Oracle Home and the Oracle Listener before you can add them as Enterprise Manager targets.

To set up the Oracle Listener (Listener) for the database hosts, follow these steps:

1. Log in as a user with the `EM_SSA_ADMINISTRATOR` role and perform mass deployment of database homes on the newly added hosts as described in [Adding Hosts](#)
2. To configure a Listener running from the same Oracle Home on which the database instance is to be created, launch a Bash shell and enter the following commands:
  - a. `<AGENT_BASE>/agent_inst/bin/emctl stop agent`
  - b. `export TNS_ADMIN=<DB_HOME_LOCATION>/network/admin`
  - c. `export ORACLE_HOME=<DB_HOME_LOCATION>`
  - d. Run `$ORACLE_HOME/bin/netca` and create the listener. Make sure you have the same Listener name and Listener port on all the hosts.
3. To configure a Listener running from the Single Instance High Availability (SIHA) Oracle Home, launch a Bash shell and enter the following commands:
  - a. `export ORACLE_HOME=<SIHA_HOME_LOCATION>`
  - b. Run `$ORACLE_HOME/bin/netca` and create the listener. Make sure you have the same listener name and listener port on all the hosts

4. Log in as the user with the `DBAAS_ADMIN_ROLE` and discover the newly added Listener target on all the hosts. From the **Setup** menu, select **Add Target**, then select **Add Target Manually**.
5. Select the **Add Non-Host Targets Using Guided Process** option and select Target Type as **Oracle Database, Listener, and Automatic Storage Management** and click **Add Guided Discovery** and follow the steps in the wizard. Before you add the new Listener target, ensure the `ORACLE_HOME` for the Listener is pointing to the correct `ORACLE_HOME` location. This process adds the Oracle Home target which is used when a database pool is created.

## Registering and Managing Storage Servers

### Note:

If you are creating thin clones from a snap clone based profile, you must register and manage the storage servers such as Sun ZFS. See [Creating Snap Clones](#) for details.

This section describes the following:

- [Overview of Registering the Sun ZFS Storage Server](#)
- [Before You Begin](#)
- [Prerequisites for Registering Storage Servers](#)
- [Registering Storage Servers](#)
- [Administering the Storage Server](#)
- [Managing Storage Servers](#)

## Overview of Registering the Sun ZFS Storage Server

Registering the Sun ZFS storage server in Enterprise Manager enables you to provision databases using the snapshot and cloning features provided by the storage.

The registration process validates the storage, and discovers the Enterprise Manager managed database targets on this storage. Once the databases are discovered, you can enable them for *Snap Clone*. Snap Clone is the process of creating database clones using the Storage Snapshot technology.

### Note:

Databases on Windows operating systems are not supported.

## Before You Begin

Before you begin, note the following:

- Windows databases are not discovered as part of storage discovery. This is because the Windows storage NFS collection does not happen at all. NFS collection is also not supported on certain OS releases, and thus databases on those OS releases cannot be



Snap Cloned. For further details please refer to the *My Oracle Support* note [465472.1](#). Also, NAS volumes cannot be used on Windows for supporting Oracle databases.

- Snap Clone is supported on Sun ZFS Storage, for a list of supported models contact your Oracle Support Representative.
- By default, the maximum number of NFS file systems that Enterprise Manager discovers on a target host is 100. However, this threshold is configurable. You can also choose a list of file systems to be monitored if you do not want all the extra file systems to be monitored. The configuration file `$agent_inst/sysman/emd/emagent_storage.config` for each host agent contains various storage monitoring related parameters.

To configure the threshold for the NFS file systems, you need to edit the following parameters:

```
Collection Size:START
Disks=1000
FileSystems=1000
Volumes=1000
Collection Size:END
```

If you choose to provide a list of file systems to be monitored, it can be provided between the following lines:

```
FileSystems:START
FileSystems:END
```

Restart the Management Agent and refresh the host configuration for the changes to this configuration file to be effective.

- If the OMS Repository is running on RDBMS with 11.1.0.7.0 and AL32UTF8 character set, you need to apply patch 11893621.

## Prerequisites for Registering Storage Servers

Before you register a storage server, follow the prerequisites outlined in the following sections:

- [Configuring Storage Servers](#)
- [Customizing Storage Proxy Agents](#)

## Configuring Storage Servers

Before you register a storage server, you require the following privileges and licenses to successfully use Snap Clone:

- [Configuring Sun ZFS and ZS3 Hardware](#)
- [Configuring Solaris File System \(ZFS\) Storage Servers](#)



### Note:

Enterprise Manager Cloud Control 13c supports Sun ZFS and Solaris File System (ZFS) storage servers.

## Configuring Sun ZFS and ZS3 Hardware

This section consists of the following:

- [Obtaining Sun ZFS Hardware Privileges](#)
- [Obtaining Sun ZFS Hardware Licenses](#)
- [Creating Sun ZFS Storage Credentials](#)

### Obtaining Sun ZFS Hardware Privileges

*Privileges* is a generic term. For example, Sun ZFS refers to privileges as *Permissions*.

For Sun ZFS storage server, to use Snap Clone, assign the following privileges or permissions to the Sun ZFS storage credentials:



#### Note:

All the permissions listed must be set to `true`. The scope must be `'nas'` and there must not be any further filters.

- `changeProtocolProps`
- `changeSpaceProps`
- `clone` and `createShare`
- `destroy`
- `rollback`
- `takeSnap`

### Obtaining Sun ZFS Hardware Licenses

Snap Clone on Sun ZFS Storage Appliance requires a license for the Clones feature. A restricted-use license for the same is included with the Enterprise Manager Snap Clone.

### Creating Sun ZFS Storage Credentials

To create the Sun ZFS storage credentials, follow these steps:

1. Create ROLE `em_smf_admin_role`.
2. Create AUTHORIZATIONS for the ROLE `em_smf_admin_role`.
3. Set SCOPE as `nas`.
4. Set the recommended permissions, such as, `allow_changeProtocolProps`, `allow_changeSpaceProps`, and the like to `true`.
5. Create USER `em_smf_admin` and set its ROLE property as `em_smf_admin_role`.

 **Note:**

The user `em_smf_admin` must be a dedicated user to be used by Oracle Enterprise Manager. Oracle does not recommend sharing this account for any other purposes.

## Configuring Solaris File System (ZFS) Storage Servers

This section consists of the following:

- [Obtaining Solaris File System \(ZFS\) Privileges](#)
- [Obtaining Solaris File System \(ZFS\) Licenses](#)
- [Setting Up Solaris File System \(ZFS\) Storage Servers](#)

### Obtaining Solaris File System (ZFS) Privileges

Solaris File System (ZFS) refers to privileges as *Permissions*. For Solaris File System (ZFS) storage server, to use Snap Clone, grant the following permissions on the pool for the Solaris File System (ZFS) user:

- clone
- create
- destroy
- mount
- rename
- rollback
- share
- snapshot
- quota
- reservation
- sharenfs
- canmount
- recordsize

### Obtaining Solaris File System (ZFS) Licenses

Solaris File System (ZFS) does not require any special hardware license. Only Oracle Solaris OS version 11.1 is supported.

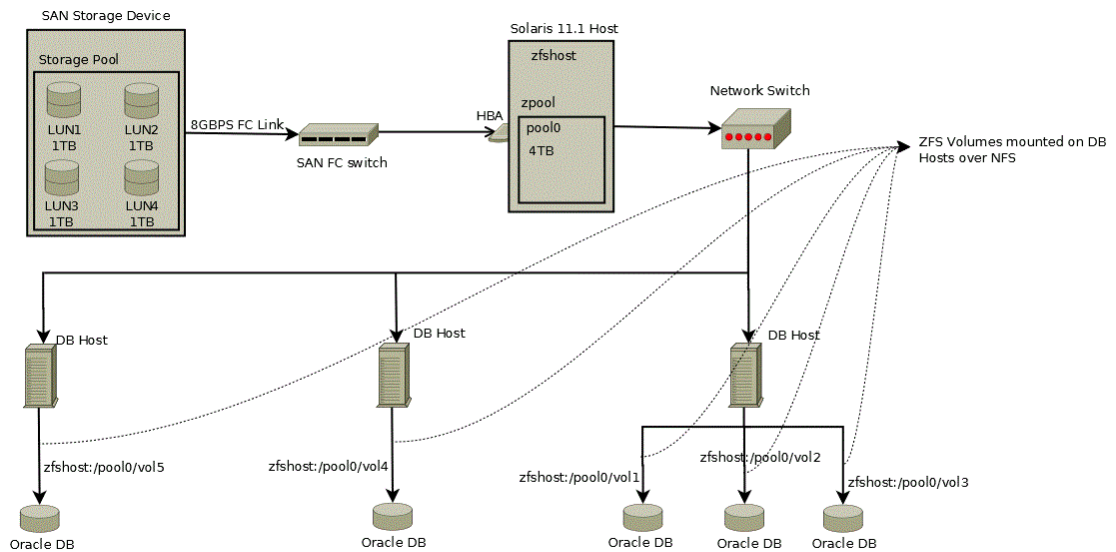
### Setting Up Solaris File System (ZFS) Storage Servers

Solaris File System (ZFS) storage servers can work with any storage hardware. You do not need to buy any additional storage hardware. Instead, you can attach your in-house storage hardware and to acquire the Oracle Snap Clone functionality. For example, you can attach LUNs from an EMC VMAX, VNX systems, a Hitachi VSP, or an Oracle Pillar Axiom FC array.

The following storage topology figure explains how this works:

 **Note:**

This figure assumes that you have a SAN storage device with 4 x 1TB logical unit devices exposed to the Solaris File System (ZFS) storage server.



This section contains the following:

- [Prerequisites for Setting Up Solaris File System \(ZFS\) Storage Servers](#)
- [Requirements for Storage Area Network Storage](#)
- [Recommendations for Solaris File System \(ZFS\) Pools](#)
- [Configuring Solaris File System \(ZFS\) Users and Pools](#)

### Prerequisites for Setting Up Solaris File System (ZFS) Storage Servers

Before you configure a Solaris File System (ZFS) storage server, ensure that you meet requirements:

- Ensure that `zfs_arc_max` is not set in `/etc/system`. If it needs to be set ensure that it is set to a high value such as 80% of RAM.
- Ensure that the storage server is configured with multiple LUNs. Each LUN should be a maximum of 1TB. A minimum 2 LUNs of 1TB each is recommended for a Snap Clone. Each LUN should have a mirror LUN which is mounted on the host over a different controller to isolate failover. A LUN can be attached to the Solaris host over Fibre Channel for better performance.

 **Note:**

If Fibre Channel is not available, any direct attached storage or iSCSI based LUNs are sufficient.

- All LUNs used in a pool should be equal in size. It is preferable to use less than 12 LUNs in a pool.
- Apart from LUNs, the storage needs cache and log devices to improve zpool performance. Both these devices should ideally be individual flash/SSD devices. In case it's difficult to procure individual devices, one can use slices cut from a single device. Log device needs to be about 32GB in size and also have redundancy and battery backup to prevent data loss. Cache device can be about 128GB in size and need not have redundancy.

### Requirements for Storage Area Network Storage

The requirements for Storage Area Network (SAN) storage are as follows:

- It is recommended to create large LUNs and lesser number of LUNs. The maximum recommended size for a LUN is 3TB.
- LUNs should come from different SAN storage pools or an entirely different SAN storage device.

These LUNs are needed for mirroring, to maintain the pool level redundancy. If your SAN storage maintains a hardware level redundancy, then you can skip this requirement.

- The LUNs should be exposed over Fiber Channel.

### Recommendations for Solaris File System (ZFS) Pools

The recommendations for Solaris File system (ZFS) pools are as follows:

- Create the Storage pool with multiple LUNs of the same size. You can add more disks to the storage pool to increase the size based on your usage.
- The storage pool created on the Solaris File System (ZFS) storage server should use the LUNs coming from a different SAN storage pool or an entirely different SAN storage device. You can skip this if your SAN storage maintains hardware level redundancy.
- To repair data inconsistencies, use ZFS redundancy such as mirror, RAIDZ, RAIDZ-2 or RAIDZ-3 to repair data inconsistencies, regardless of whether RAIDZ is implemented at the underlying storage device.
- For better throughput and performance, use cache and log devices. Both these devices should ideally be on individual flash/SSD devices. In case of difficulty in procuring individual devices, you can use slices cut from a single device.

It is recommended to have the Log device at about 50% of RAM and also have redundancy and battery backup to prevent data loss. Cache device size could be based on the size of the workload and the pool.

Cache device do not support redundancy. This is optional.

- While creating the pool, it has to be sized to accommodate the test master database along with the cloned databases. A clone will co-exist with the parent database in the same storage pool. Therefore, you should plan for test master and clone capacity well ahead.

For example, The size of the test master is 1TB and you expect to create 10 clones with each of them expected to differ from the test master by 100G. Then, the storage pool should be minimum 2.5TB in size.

- Maintain the storage pool with at least 20% free space. If the free space falls below this level, then the performance of the pool degrades.

### Configuring Solaris File System (ZFS) Users and Pools

You need to create a user which will be able to administer the storage from Enterprise Manager. To do this, run the following commands as root user:

```
# /sbin/useradd -d /home/emzfsadm -s /bin/bash emzfsadm
# passwd emzfsadm
```

**Note:**

The username should be less than or equal to 8 characters.

You need to configure the ZFS pool that is used to host volumes, and grant privileges on this pool to the user created. The `emzfsadm` user should have the privileges on all the zpools and its mount points in the system.

To configure the ZFS pool, refer to the following table and run the following commands:

**Note:**

The table displays a reference implementation, and you can choose to change this as required.

Pool Name	lunpool
Disks (SAN exposed LUNs over FC/iSCSI)	lun1=c9t5006016E3DE0340Ed0, lun2=c9t5006016E3DE0340Ed1
Disks Mirror (SAN exposed LUNs over FC/iSCSI)	mir1=c10t5006016E3DE0340Ed2, mir2=c10t5006016E3DE0340Ed3
Flash/ SSD disk (log)	ssd1=c4t0d0s0
Flash/SSD disk (cache)	ssd2=c4t0d1s0

```
# zpool create lunpool mirror lun1=c9t5006016E3DE0340Ed0 mir1=c10t5006016E3DE0340Ed2
mirror lun2=c9t5006016E3DE0340Ed1 mir2=c10t5006016E3DE0340Ed3 log ssd1=c4t0d0s0 cache
ssd2=c4t0d1s0
```

Example format output is as follows:

```
bash-4.1# /usr/sbin/format
Searching for disks...done
```

AVAILABLE DISK SELECTIONS:

0. c9t5006016E3DE0340Ed0 <DGC-VRAID-0532-1.00TB>  
/pci@78,0/pci8086,3c08e3/pci10df,f100@/fp@0,0/disk@w5006016e3de0340e,0
1. c9t5006016E3DE0340Ed1 <DGC-VRAID-0532-1.00TB>  
/pci@78,0/pci8086,3c08e3/pci10df,f100@/fp@0,0/disk@w5006016e3de0340e,1
2. c10t5006016E3DE0340Ed2 <DGC-VRAID-0532-1.00TB>  
/pci@78,0/pci8086,3c08e3/pci10df,f100@/fp@0,0/disk@w5006016e3de0340e,2
3. c10t5006016E3DE0340Ed3 <DGC-VRAID-0532-1.00TB>  
/pci@78,0/pci8086,3c08e3/pci10df,f100@/fp@0,0/disk@w5006016e3de0340e,3

```
[ We need to find the size of pool that was created ]
# df -k /lunpool
Filesystem          1024-blocks      Used   Available Capacity  Mounted on
lunpool             1434746880        31  1434746784      1%    /lunpool

[ We use the Available size shown here to set quota as shown below ]

# zfs set quota=1434746784 lunpool

# zfs allow emzfsadm
clone,create,destroy,mount,rename,rollback,share,snapshot,quota,reservation,sharencfs,cann
ount,recordsize,logbias lunpool

# chmod A+user:emzfsadm:add_subdirectory:fd:allow /lunpool

# chmod A+user:emzfsadm:delete_child:fd:allow /lunpool
```

## Customizing Storage Proxy Agents

A Proxy Agent is required when you register a Sun ZFSSA or Solaris File System (ZFS) File System.

### Acquiring Third Party Licenses

The Storage Management Framework is shipped by default for *Linux x86-64* bit platform, and is dependent on the following third party modules:

- Source CPAN - CPAN licensing apply
  - IO::Tty (version 1.10)

### Overriding Third Party Server Components

By default, all the required third party components are shipped for *Linux Intel 64* bit platform. If you need to override it by any chance, package the tar file as follows:



#### Note:

The tar file should contain a `thirdparty` folder whose structure should be as mentioned below:

```
thirdparty
|-- pm
|-- CPAN
| |-- IO
| | |-- Pty.pm
| | |-- Tty
| | |-- Constant.pm
| | |-- Tty.pm
|-- auto
| |-- IO
| | |-- Tty
| | |-- Tty.bs
| | |-- Tty.so
|-- Net
```

Ensure that the tar file is uploaded to the Software Library entity which is named after the platform name, `x86_64`. The Software Library entity must be under the following:

Storage Management Framework Third Party/Server

The `x86_64` entity, when uploaded is copied to all the storage proxy hosts irrespective of which storage server it would be processing. To use this entity on a specific storage proxy agent, name the entity after the host name.

For example, `Storage Management Framework/Third Party/Server/x86_64` will be copied to any storage proxy host which is on an `x86_64` platform. Similarly, `Storage Management Framework Third Party/Server/myhost.example.com` is copied only to `myhost.example.com`, if it is used as a storage proxy host.

The host name is given a higher preference than the platform preference.

## Registering Storage Servers

To register a particular storage server, follow the procedure outlined in the respective section:

- [Registering a Sun ZFS Storage Server](#)
- [Registering a Solaris File System \(ZFS\) Storage Server](#)

## Registering a Sun ZFS Storage Server

To register the storage server, follow these steps:

1. From the **Setup** menu, click on **Provisioning and Patching**, and then select **Storage Registration**.
2. On the Storage Registration page, in the Storage section, click on **Register**, and then select **Sun ZFS Storage Appliance**, based on which storage server you want to register.

### Note:

If you see a *No named credentials available* message, it means that no credentials are registered or the credentials are owned by another user.

**Storage Registration**

**Storage**

Register Edit... Remove Manage Access Synchronize

	Vendor	Model	Operating System Release
Sun ZFS Storage Appliance			
Solaris File System (ZFS)			

**Details:**

Overview Contents Databases Hierarchy

**Summary**

- Total Space (TB)
- Used Space (TB)
- Available Space (TB)
- Number of Projects
- Number of Volumes
- Number of Snapshots
- Number of Snap Clones

**Space Usage**



 **Note:**

You need the `EM_STORAGE_ADMINISTRATOR` role to complete the storage registration.

3. On the Sun ZFS Storage Registration page, in the Storage section, do the following:

**Storage**

\* Name

Vendor Sun ZFS

\* Protocol  ssh

\* Storage Credentials  +

**Tip** Only credentials that you own are listed.

+ Add    X Remove

Aliases

Name
No data to display

**Tip** Provide the interface that should be used to carry out storage operations in the Name field.

**Tip** Specify all the interfaces and aliases of the storage that will be used to mount the volumes on host in the aliases section. This should include fully qualified domain name, IP address, DNS alias or any other name that points to storage data interface.

- Enter the storage server name in the Name field. Ensure that the name is the valid host name and contains no spaces and invalid characters.
- Select the protocol.

 **Note:**

For Sun ZFS storage, the connection is over ssh.

- Select the Storage Credentials, or click on the green plus sign to add.

 **Note:**

These credentials will be used by the Management Agent to execute storage (Sun ZFS) APIs.

Only credentials owned by the user are displayed here.

In the display box that appears, enter the storage server name and password. Confirm the password and click **OK**.

- Enter storage name aliases (optional).

The storage name alias should be in lowercase.

 **Note:**

A storage name alias is any name that may have been used when mounting a volume from the storage.

For example: IP address, FQDN, DNS alias, and the like.

A storage alias is necessary to identify the database targets on the storage. The database targets are identified by mapping the mount points to the files used by the database. For example, if the storage `mystorage.com` has an alias `mystorage.net`, and a database uses a data file mounted as `mystorage.net:/u01`, then `mystorage.net` must be added as an alias for the discovery to work.

When you register the storage, use the admin interface as the storage name. List the data interfaces in the storage alias section. The registered storage name will be used to perform registration operations and while mounting the volumes on target host, it will give preference to interfaces listed as storage aliases.

4. In the Agent to Manage Storage section, do the following:
  - Click **Add** to add a Management Agent host. A Storage Agent display box appears. Select a Management Agent from the Target Name column of the table. Then, click **Select**.

 **Note:**

The Management Agent list displays only *Linux X64* Management Agents.

### Agent to Manage Storage

Select one or more Linux x86\_64 or Solaris SPARC agents that can be used to perform operations on this storage device.

Host	Credential Type	Credentials
No data to display		

**Tip** Only credentials that you own are listed.

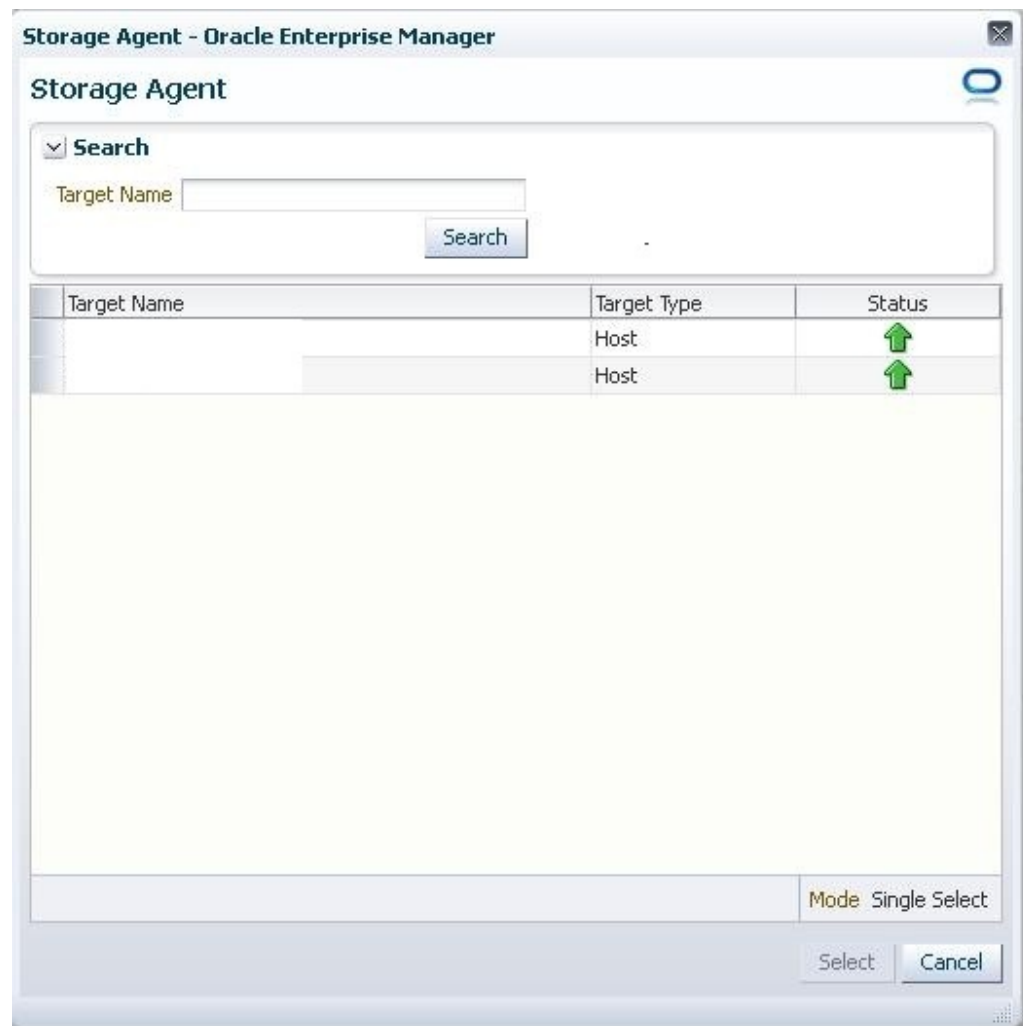
---

### Synchronize Schedule

Specify frequency to synchronize storage details with the hardware.

Repeat

Frequency Every    hour(s)



The Management Agent selected is used for performing operations on the storage server.

- Once a Management Agent is selected, the Management Agent credentials are found and a named credential for the host is displayed.

 **Note:**

The Management Agent credentials are used to connect to the Management Agent from Oracle Management Service.

Multiple Management Agents can be configured to monitor the storage device. Click **Add** to choose a second Management Agent if required.

 **Note:**

Configuring multiple Management Agents to monitor the storage device provides you with a backup in the event that an host is down or the Management Agent is under blackout.

- Click **Submit** to register the storage server.

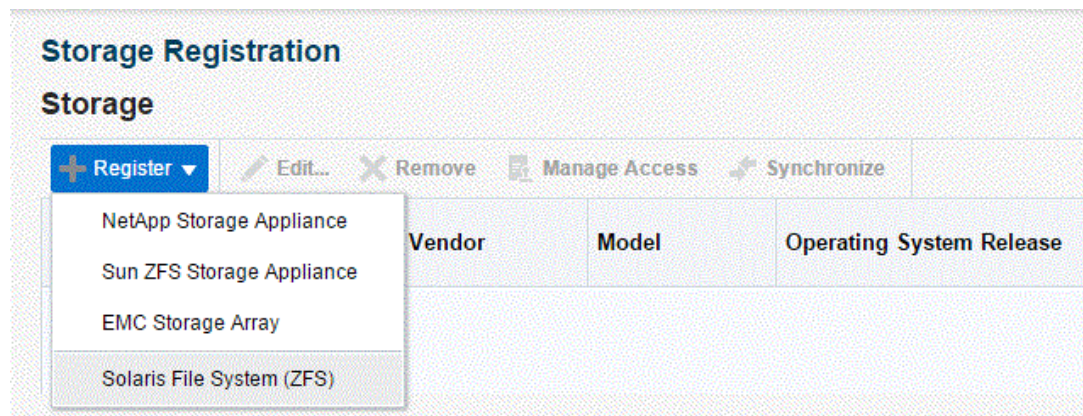
## Registering a Solaris File System (ZFS) Storage Server

To register the storage server, follow these steps:

1. From the **Setup** menu, click on **Provisioning and Patching**, and then select **Storage Registration**.
2. On the Storage Registration page, in the Storage section, click on **Register**, and then select **Solaris File System (ZFS)**

 **Note:**

If you see a *No named credentials available* message, it means that no credentials are registered or the credentials are owned by another user.



 **Note:**

You need the `EM_STORAGE_ADMINISTRATOR` role to complete the storage registration.

3. On the **Register File System (ZFS)** page, in the Storage section, do the following:
  - Enter the Solaris system name in the Name field. Ensure that the name is the valid host name or IP address and contains no spaces and invalid characters.
  - Select the protocol.
  - Select the Storage Credentials, or click on the green plus sign to add.

 **Note:**

These credentials will be used by the Management Agent to execute Solaris file system APIs.

Only credentials owned by the user are displayed here.

In the display box that appears, enter the storage server name and password. Confirm the password and click **OK**.

- Enter storage name aliases (optional).

The storage name alias should be in lowercase.

 **Note:**

A storage name alias is any name that may have been used when mounting a volume from the storage.

For example: IP address, FQDN, DNS alias, and the like.

Storage alias is necessary to identify the database targets on the storage. The database targets are identified by mapping the mount points to the files used by the database. For example, if the storage `mystorage.com` has an alias `mystorage.net`, and a database uses a data file mounted as `mystorage.net:/u01`, then `mystorage.net` must be added as an alias for the discovery to work.

When you register the storage, use the admin interface as the storage name. List the data interfaces in the storage alias section. The registered storage name will be used to perform registration operations and while mounting the volumes on target host, it will give preference to interfaces listed as storage aliases.

## Storage Registration

### Register File System (ZFS)

**Storage**

\* Name

Vendor Solaris ZFS

\* Protocol  Local

\* Storage Credentials  +

**Tip** Only credentials that you own are listed.

+ Add X Remove

Name
Aliases No data to display

**Tip** Provide the interface that should be used to carry out storage operations in the Name field.

**Tip** Specify all the interfaces and aliases of the storage that will be used to mount the volumes on host in the aliases section. This should include fully qualified domain name, IP address, DNS alias or any other name that points to storage data interface.

4. In the Synchronize Schedule section, specify the frequency to synchronize the storage details with the hardware.

Ensure that the zpools setup is completed before clicking **Submit**. To setup the zpools, refer to [Configuring Solaris File System \(ZFS\) Users and Pools](#).

## Administering the Storage Server

To administer the storage server, refer to the following sections:

- [Synchronizing Storage Servers](#)
- [Deregistering Storage Servers](#)

## Synchronizing Storage Servers

When you register a storage server for the first time, a synchronize job is run automatically. However, to discover new changes or creations, you should schedule a synchronize job to run at a scheduled time, preferably during a quiet period when Snap Clone actions are not in progress. To do this, follow these steps:

1. On the Storage Registration page, in the Storage section, click **Synchronize**.

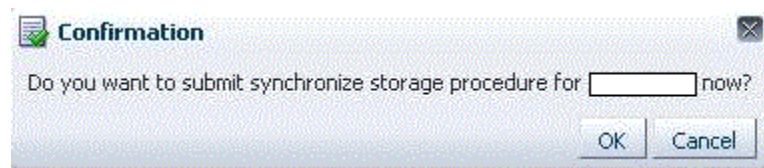
### Note:

When you click on Synchronize, a deployment procedure is submitted which discovers all databases monitored by Enterprise Manager Cloud Control which can be used for Snap Clone.

Windows databases are not discovered as part of storage discovery. This is because the Windows storage NFS collection does not happen at all. For further details please refer to the MOS note [465472.1](#)

You need `EM_STORAGE_OPERATOR` role along with `GET_CREDENTIAL` privilege on the Storage Server and Storage Management Agent credentials to be able to synchronize the storage.

2. A confirmation box appears. Click **OK**.

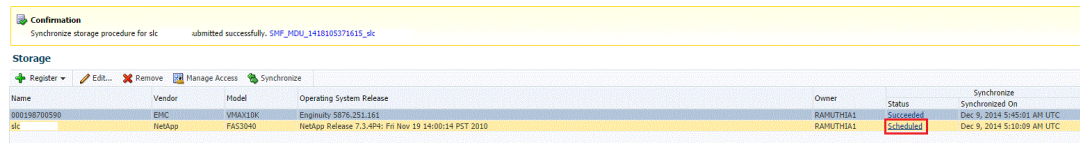


This action now submits a one-time synchronization job.

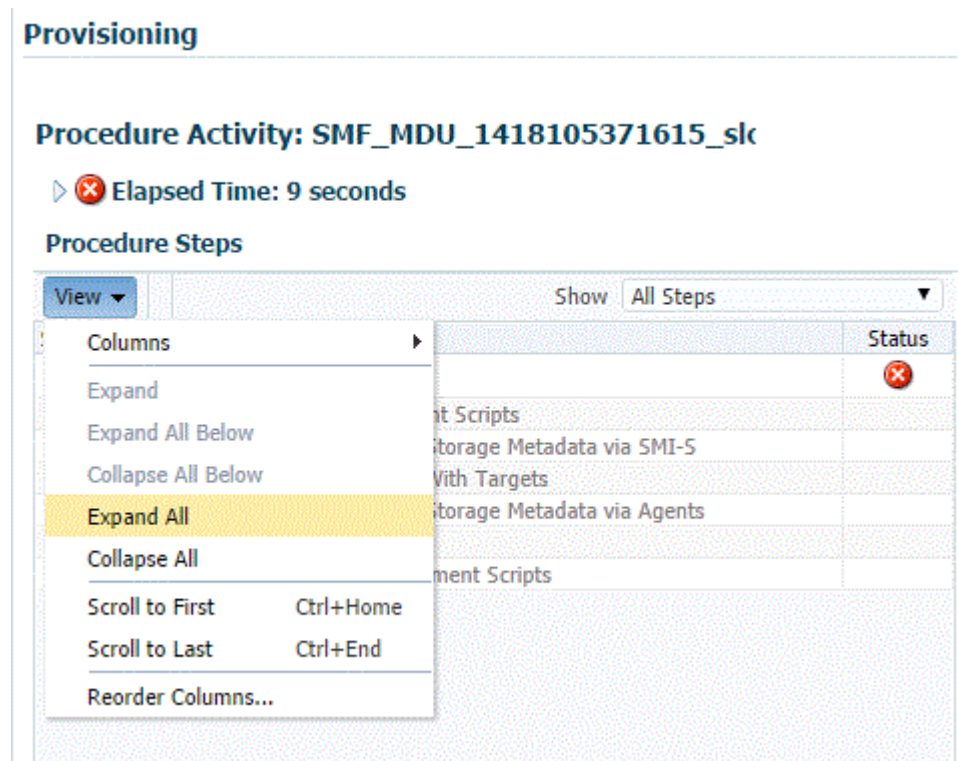
### Note:

The synchronization job fetches latest storage information, and recomputes the mapping between storage volumes and databases.

- On the Storage Registration page, in the Storage section, to view the procedure details of the Management Agent host, click on the value (for example, Scheduled) in the Status column.



- On the Provisioning page, in the Procedure Steps section, click **View**, and then select **Expand All**. Keep clicking the Refresh button on the page to view the procedure activity as it progresses.



The synchronization status of the Management Agent on the Storage Registration page, changes to Succeeded once the synchronization process is complete.

- To update a synchronize schedule of a registered storage server, select a storage server on the Storage Registration page and then click on **Edit**. On the Edit Storage page, in the Synchronize Storage section, edit the repetition time and frequency of the synchronize job.

### Synchronize Schedule

Specify frequency to synchronize storage details with the hardware.

Repeat:    
 Frequency: Every    hour(s)

 **Note:**

The frequency of a synchronization job is set at 3 hours by default.

Click **Submit**.

 **Note:**

The *Associating Storage Volumes With Targets* step relies on both database target metrics and host metrics. The database target (`oracle_database/rac_database`) should have up-to-date metrics for the *Controlfiles*, *Datafiles* and *Redologs*. The File Systems metric should be up to date for the hosts on which the database is running.

## Deregistering Storage Servers

To deregister a registered storage server, follow these steps:

 **Note:**

To deregister a storage server, you need `FULL_STORAGE` privilege on the storage along with `FULL_JOB` privilege on the Synchronization GUID of the storage server.

1. From the **Setup** menu, click on **Provisioning and Patching**, and then select **Storage Registration**.
2. On the Storage Registration page, in the Storage section, select a storage server from the list of registered storage servers.
3. Select **Remove**.

On the Remove Storage page, select the storage server that you want to deregister, and then click **Submit**.

The storage server is now deregistered.

 **Note:**

Once a storage is deregistered, the Snap Clone profiles and Service Templates on the storage will no longer be functional, and the relationship between these Profiles, Service Templates and Snap Cloned targets will be lost.



 **Note:**

It is recommended to delete the volumes created using Enterprise Manager before deregistering a storage. As a self service user, you should submit deletion requests for the cloned databases.

To submit these deletion requests, click **Remove** from the Hierarchy tab on the Storage Registrations page for deleting the volumes that were created by Enterprise Manager for hosting test master databases.

## Managing Storage Servers

To manage the storage server, refer to the following sections:

- [Managing Storage Allocation](#)
- [Managing Storage Access Privileges](#)
- [Viewing Storage Registration Overview and Hierarchy](#)
- [Editing Storage Servers](#)

## Managing Storage Allocation

You can manage storage allocation by performing the following tasks:

- [Editing the Storage Ceiling](#)
- [Creating Storage Volumes](#)
- [Resizing Volumes of a Database](#)

### Editing the Storage Ceiling

*Storage Ceiling* is the maximum amount of storage from a project, aggregate, or thin pool that Enterprise Manager is allowed to use. This ensures that Enterprise Manager creates clones in that project only till this limit is reached. When a storage project is discovered for the first time, the entire capacity of the project is set as the ceiling. In case of Sun ZFS, the quota set on the project is used.

 **Note:**

You must explicitly set quota property for the Sun ZFS storage project on the storage end. Also, the project should have a non zero quota set on the storage end. Else, Enterprise Manager will not be able to clone on it.

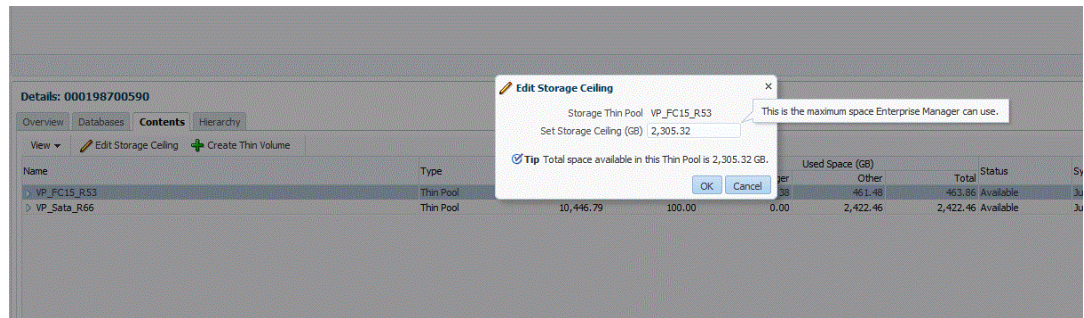
To edit the storage ceiling, do the following:

1. On the Storage Registration page, from the Storage section, select the storage server for which you want to edit the storage ceiling.
2. Select the **Contents** tab, select the aggregate, and then click **Edit Storage Ceiling**.

 **Note:**

*Edit Storage Ceiling* option enables you modify the maximum amount of storage that Enterprise Manager can use. You can create clones or resize volumes only till this limit is reached.

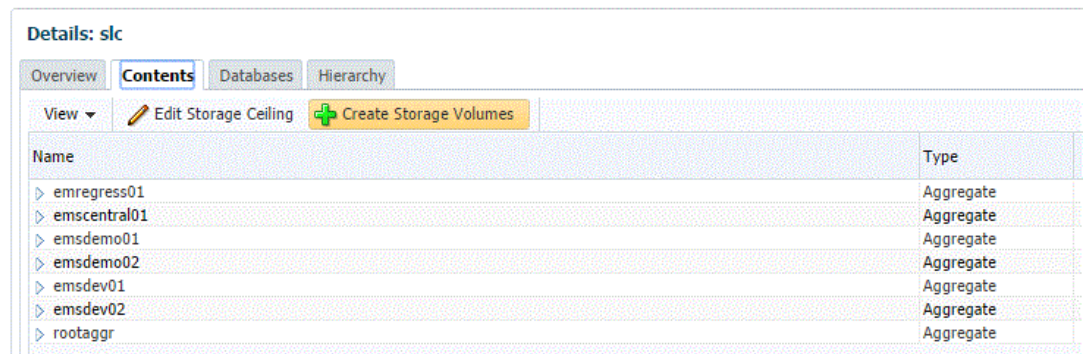
3. In the Edit Storage Ceiling dialog box, enter the storage ceiling, and then, click **OK**.



### Creating Storage Volumes

To create storage volume, do the following:

1. On the Storage Registration page, from the Storage section, select the storage server for which you want to create storage volume.
2. Select the **Contents** tab, select the aggregate, and then select **Create Storage Volumes**.



3. On the Create Storage Volumes page, in the Storage Volume Details section, click **Add**.

### Storage Volume Details

4. Select a storage and specify the size in GB (size cannot exceed the storage size). The specified size should be able to accommodate the test master database size, without consuming the entire storage size.

Next, specify a mount point starting with /.

For example,

If the storage is "lunpool", select the "lunpool".

The specified size under the size column should not exceed the storage space. If the size of the "lunpool" is 100GB and the test master database is 10 GB, then specify size as 10GB.

The mount point should be a meaningful mount point starting with "/".

For example: /oracle/oradata

### Storage Volume Details

5. In the Host Details section, specify the following:
  - **Host Credentials:** Specify the target host credentials of the Oracle software.
  - **Storage Purpose:** For using Snap Clone, the most important options are as follows:
    - Oracle Datafiles for RAC

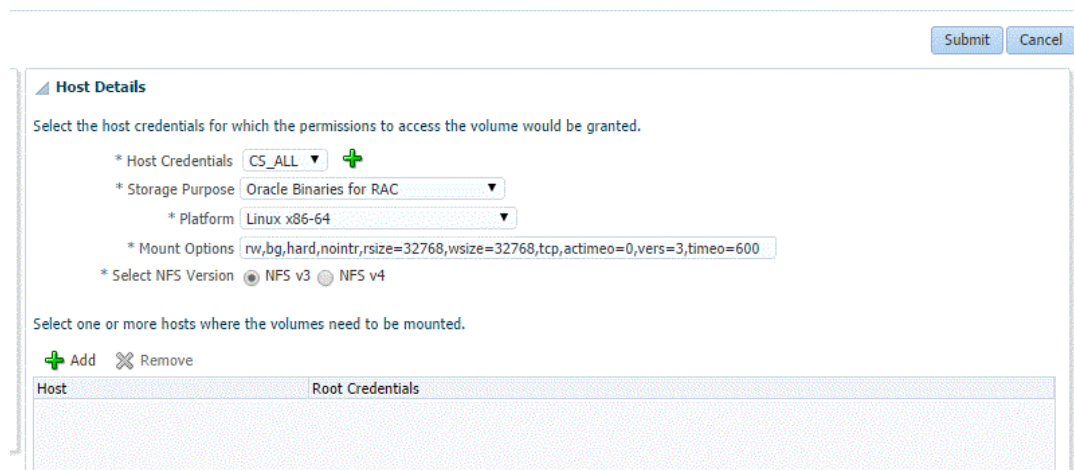
- Oracle Datafiles for Single Instance

 **Note:**

You can also store the *OCR and Voting disks and Oracle binaries* in the storage volume,

- **Platform:** Select the supported target platform. The volume will be mounted on the supported target platform.
  - **Mount Options:** Mount options field is automatically filled based on the values specified for the storage purpose and the platform. Do not edit the mount options.
  - Select **NFS v3** or **NFS v4**.
6. Select one or more hosts to perform the mount operations by clicking **Add**.

If you select **Oracle Datafiles for RAC**, you would normally specify more than one host. The volume is then mounted on the specified hosts automatically after the completion of the procedure activity.



7. Click **Submit**.

When you click Submit, a procedure activity is executed. On completion of the procedure activity, the volumes get mounted on the target system. You can now proceed to create a test master database on the mounted volumes on the target system.

### Resizing Volumes of a Database

When a database runs out of space in any of its volumes, you can resize the volume according to your requirement. To resize volume(s) of a clone, follow these steps:

 **Note:**

This is not available for EMC storage servers.

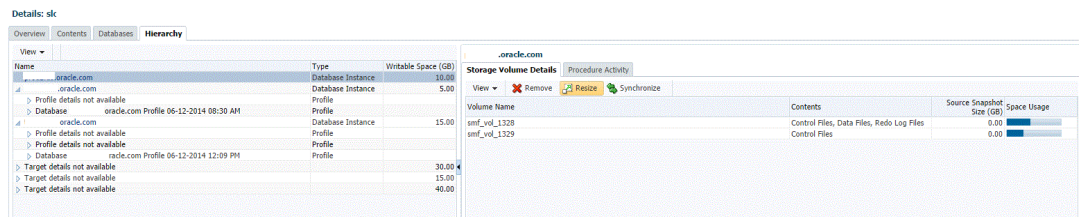
 **Note:**

Resizing of volumes of a Test Master database cannot be done using Enterprise Manager, unless the volumes for the Test Master were created using the Create Volumes UI.

 **Note:**

You need the `FULL_STORAGE` privilege to resize volumes of a database or a clone. Also, ensure that the underlying storage supports quota management of volumes.

1. On the Storage Registration page, from the Storage section select the required storage server.
2. In the Details section, select the **Hierarchy** tab, and then select the target.  
The Storage Volume Details table displays the details of the volumes of the target. This enables you to identify which of the volume of the target is running out of space.
3. In the Volume Details table, select **Resize**.

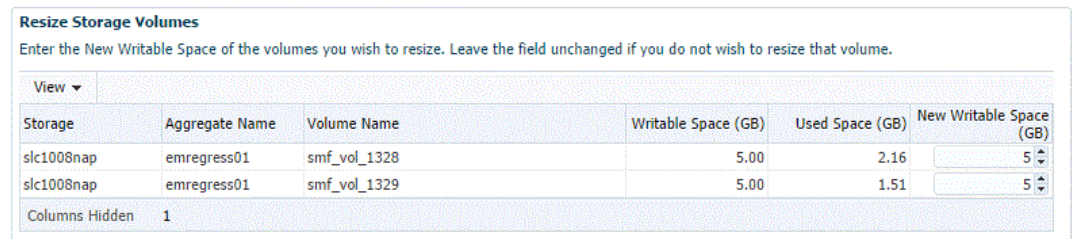


The screenshot shows the 'Details: slc' page in Oracle Enterprise Manager. The 'Hierarchy' tab is selected, showing a tree view of storage objects. The 'Storage Volume Details' table is visible, showing two volumes: 'smf\_vol\_1328' and 'smf\_vol\_1329'. The 'smf\_vol\_1328' volume is highlighted, and the 'Resize' button is visible in the toolbar above the table.

4. On the Resize Storage Volumes page, specify the New Writable Space for the volume or volumes that you want to resize. If you do not want to resize a volume, you can leave the New Writable Space field blank.

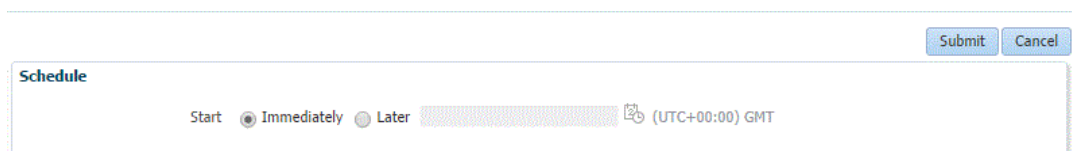
**Storage Registration**

**Manage Storage for Target: prod2.us.oracle.com**



The screenshot shows the 'Resize Storage Volumes' dialog box. It contains a table with columns: Storage, Aggregate Name, Volume Name, Writable Space (GB), Used Space (GB), and New Writable Space (GB). Two rows are shown, both for storage 'slc1008nap' and aggregate 'emregress01'. The first row is for volume 'smf\_vol\_1328' with 5.00 GB writable space and 2.16 GB used space. The second row is for volume 'smf\_vol\_1329' with 5.00 GB writable space and 1.51 GB used space. The 'New Writable Space (GB)' column has a dropdown menu set to '5' for both rows.

5. You can schedule the resize to take place immediately or at a later time.



The screenshot shows the 'Schedule' dialog box. It has a 'Start' section with two radio buttons: 'Immediately' (selected) and 'Later'. There is a text input field for a date and time, followed by a clock icon and '(UTC+00:00) GMT'. At the bottom right, there are 'Submit' and 'Cancel' buttons.

- Click **Submit**.

 **Note:**

You can monitor the re-size procedure from the **Procedure Activity** tab.

## Managing Storage Access Privileges

To manage storage access privileges for a registered storage server, follow these steps:






- On the Storage Registration page, in the Storage section, select a storage server from the list of registered storage servers.

 **Note:**

The Storage Registration page displays only the databases which you have `VIEW_STORAGE` privilege on.

- Click **Manage Access**.

**Storage**

 Register ▾
  Edit...
  Remove
  **Manage Access**
 Synchronize

Name	Vendor	Model	Operating System Release
000198700590	EMC	VMAX10K	Enginuity 5876.251.161
slc	NetApp	FAS3040	NetApp Release 7.3.4P4: Fri Nov 19 14:00:14 PST 2010

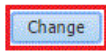
- On the Manage Access page, do the following:
  - Click **Change**, if you need to change the Owner of the registered storage server.




 **Note:**

The Owner of a registered storage server can perform all actions on the storage server, and grant privileges and roles to other Administrators.

**Manage Access: slc**

**Storage**

Name slc  
 Owner RAML 

 **Add Grant**
 Revoke Grant
  Change Privilege

Grantee	Type	Privilege	Privilege Description
---------	------	-----------	-----------------------

- Click **Add Grant** to grant privileges to an Administrator, Role or both.
  - On the Add Grant page, enter an Administrator name or select the type, and then click **Go**.
  - Select an Administrator from the list of Administrators or Roles, and then click **Select**.
4. On the Manage Access page, you can change privileges of an Administrator or Role by selecting the Administrator or Role from the Grantee column, and then clicking **Change Privilege**.
  5. In the Change Privilege display box, you can select one of the three following privileges:
    - View Storage (ability to view the storage)
    - Manage Storage (ability to edit the storage)
    - Full Storage (ability to edit or remove the storage)
 Click **OK**.
  6. You can also revoke a grant to an Administrator by selecting the Administrator from the Grantee column, and then clicking **Revoke Grant**.
  7. When you are done with granting, revoking, or changing privileges to Administrators or Roles, click **Submit**.

 **Note:**

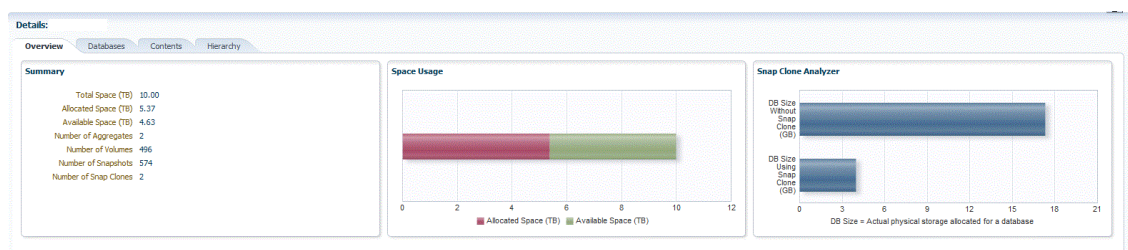
To be able to use the storage server, you also need to specifically grant privileges to the storage server and storage Management Agent credentials to the user.

## Viewing Storage Registration Overview and Hierarchy

To view the storage registration overview, on the Storage Registration page, in the Details section, select the **Overview** tab. The Overview section provides a summary of storage usage information. It also displays a Snap Clone Storage Savings graph that shows the total space savings by creating the databases as a Snap Clone versus without Snap Clone.

 **Note:**

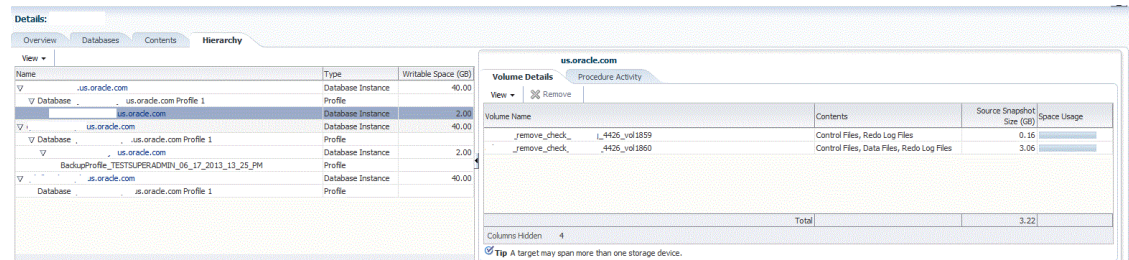
If you have NetApp volumes with no space guarantee, you may see negative allocated space in the Overview tab. Set guarantee to 'volume' to prevent this.



To view the storage registration hierarchy, on the Storage Registration page, in the Details sections, select the **Hierarchy** tab. This displays the storage relationships between the following:

- Test Master Database
- Database Profile
- Snap Clone Database
- Snap Clone Database Snapshots

You can select a row to display the corresponding Volume or Snapshot Details.



If a database profile or Snap Clone database creation was not successful, and it is not possible to delete the entity from its respective user interface, click on the **Remove** button to access the Manage Storage page. From this page, you can submit a procedure to dismount volumes and delete the snapshots or volumes created from an incomplete database profile or snap clone database.



**Note:**

The Manage Storage page only handles cleanup of storage entities and does not remove any database profile or target information from the repository.

The **Remove** button is enabled only if you have the `FULL_STORAGE` privilege.

You can also select the **Procedure Activity** tab on the right panel, to see any storage related procedures run against that storage entity.

To view the NFS Exports, select the **Volume Details** tab. Select **View, Columns**, and then select **NFS Exports**.

The Volume Details tab, under the Hierarchy tab also has a **Synchronize** button. This enables you to submit a synchronize target deployment procedure. The deployment procedure collects metrics for a given target and its host, determines which volumes are used by the target, collects the latest information, and updates the storage registration data model. It can be used when a target has been recently changed, data files added in different locations, and the like.

## Editing Storage Servers

To edit a storage server, on the Storage Registration page, select the storage server and then, click **Edit**. On the Storage Edit page, you can do the following:

- Add or remove aliases.



- Add, remove, or select an Agent that can be used to perform operations on the storage server.
- Specify a frequency to synchronize storage details with the hardware.

 **Note:**

If the credentials for editing a storage server are not owned by you, an Override Credentials checkbox will be present in the Storage and Agent to Manage Storage sections. You can choose to use the same credentials or you can override the credentials by selecting the checkbox.

# Part V

## Provisioning New Database Artifacts

This section describes the procedures to provision new databases, schemas, and pluggable databases using Database as a Service.

It contains the following chapters

- [Getting Started with Database as a Service](#)
- [Creating Databases Using Database Template](#)
- [Creating Schema](#)
- [Provisioning Pluggable Databases](#)

# 7

## Getting Started with Database as a Service

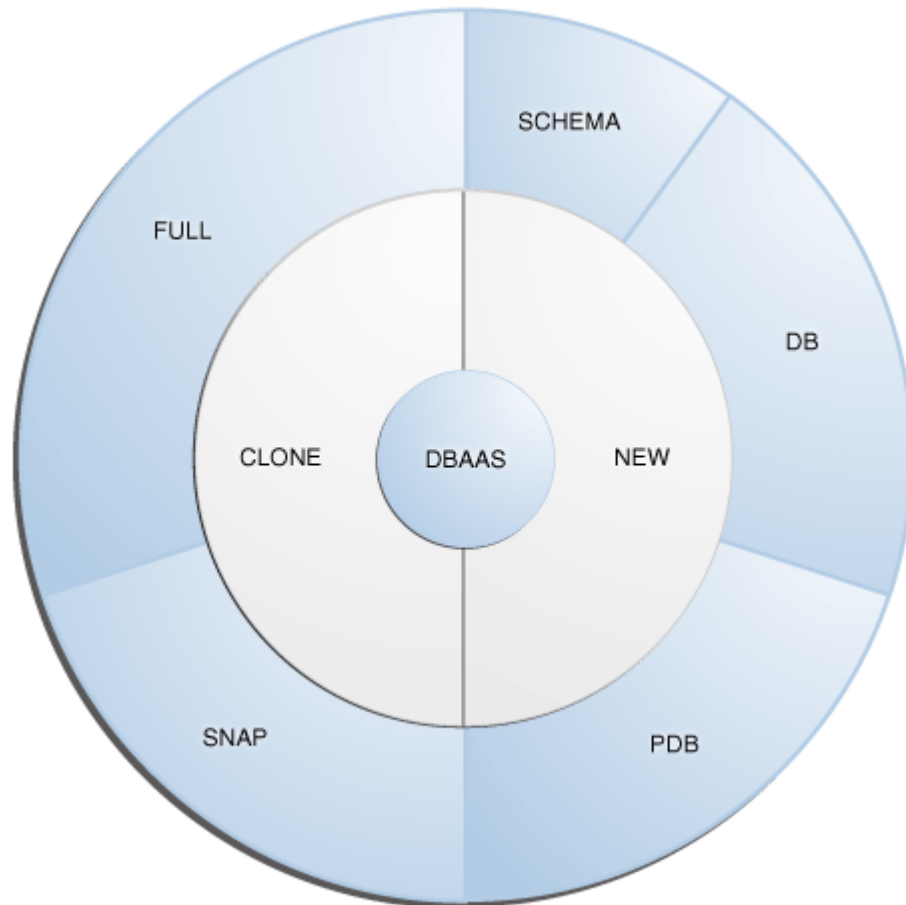
This chapter describes the procedure to different DBaaS use cases supported in this release. It contains the following sections:

- [Supported DBaaS Use Cases](#)
- [Getting Started with DBaaS](#)

### Supported DBaaS Use Cases

The following figure provides an overview of the different flavors of Enterprise Manager DBaaS.

**Figure 7-1 DBaaS Use Cases**



This table lists the DBaaS use cases that are supported in this release and lists the different methods (GUI, EMCLI, and Rest API) that can be used to run these use cases.

**Table 7-1 DBaaS Use Cases**

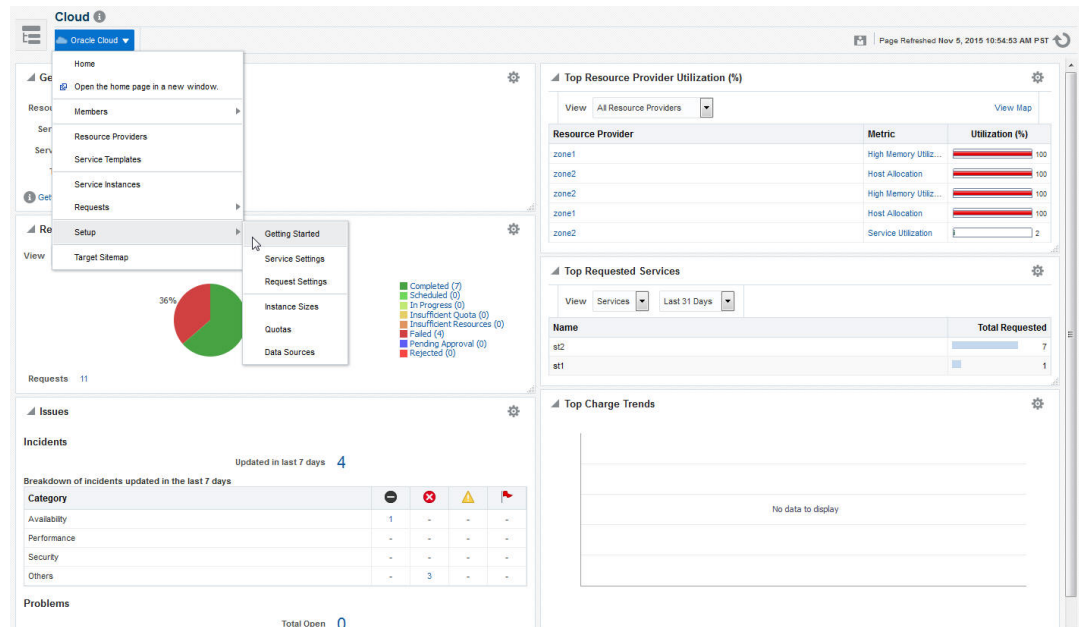
Service Type	Service Offering	Using Graphical User Interface	Using EMCLI	Using Rest API
New	Creating Databases Using Database Template.	<a href="#">Creating Databases Using Database Template</a>	<a href="#">Creating Databases Using Database Template With REST APIs and EM CLI Verbs</a>	<a href="#">Creating Databases Using Database Template With REST APIs and EM CLI Verbs</a>
-	Schema <ul style="list-style-type: none"> <li>• Creating an Empty Schema</li> <li>• Creating a Schema Based on Profile</li> </ul>	<a href="#">Creating Schema</a>	<a href="#">Creating Empty Schemas and Schemas Based on Profile With REST APIs and EM CLI Verbs</a>	<a href="#">Creating Empty Schemas and Schemas Based on Profile With REST APIs and EM CLI Verbs</a>
-	Pluggable Database <ul style="list-style-type: none"> <li>• Creating an Empty Pluggable Database</li> <li>• Creating a Pluggable Database Based on Profile</li> </ul>	<a href="#">Provisioning Pluggable Databases</a>	<a href="#">Creating Empty PDBs and PDBs Based on Profile With REST APIs and EM CLI Verbs</a>	<a href="#">Creating Empty PDBs and PDBs Based on Profile With REST APIs and EM CLI Verbs</a>
Clone	Full Clone <ul style="list-style-type: none"> <li>• Cloning Databases Using RMAN Backup</li> <li>• Cloning Databases Using RMAN Duplicate</li> </ul>	<a href="#">Creating Full Clones</a>	<a href="#">Creating Full Database Clones Using RMAN With REST APIs and EM CLI Verbs</a>	<a href="#">Creating Full Database Clones Using RMAN With REST APIs and EM CLI Verbs</a>
Snap Clone	<ul style="list-style-type: none"> <li>• Hardware Solution Sun ZFS Storage Appliance</li> <li>• Software Solution ZFS File System Clone DB</li> </ul>	<a href="#">Creating Snap Clones</a>	<a href="#">Creating Databases Using Snap Clone With REST APIs and EM CLI Verbs</a>	<a href="#">Creating Databases Using Snap Clone With REST APIs and EM CLI Verbs</a>

## Getting Started with DBaaS

To get started with database as a service, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The following page appears:

Figure 7-2 Cloud Home Page



2. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**. You must first perform the common setup tasks as described in [Common Setup Tasks](#). This page is the main entry point for setting up database as a service.
3. Click the **Setup** link next to the Database Service Family in the left panel. Select one of the service types (Database, Pluggable Database, or Schema) from the drop down list and perform the necessary tasks required for the selected service type.
4. Depending on your selection, the list of tasks can be different. Any step that has been configured is marked with a green check mark and the non-configured are listed as not configured.

### Note:

The service types you can access are based on your user role. For example, if you have logged in as a user (for instance `DBAAS_ADMIN`) who can access only Database service type, you will see only the tasks relevant to that service type. But if you have logged in as a user with the `EM_SSA_ADMINISTRATOR` role, you can view all the service types. See [Defining Roles and Assigning Users](#) for more details.

5. Depending on the service type you wish to configure, you can perform the relevant tasks required to set up that service type. The available service types are Database, Pluggable Database, and Schema.
  - See [Provisioning New Database Artifacts](#)
  - See [Cloning Databases](#)

# 8

## Creating Databases Using Database Template

This chapter describes the process involved in creating single instance and cluster databases using database template based profiles. It contains the following sections:

- [Creating Databases Using Database Template](#)
- [Provisioning Standby Databases](#)

### Creating Databases Using Database Template

The DBCA template supports both structure plus data and structure only types. This database provisioning profile is created from the production or source database registered with Enterprise Manager. It supports both structure plus data and structure only types. This option is recommended if the database size being created is less than 5GB.

The table below shows the list of tasks that are involved in creating a database using the database template based profile.

**Table 8-1 Creating Databases Using Database Template**

Step	Task	Role
1	Follow the steps in the Getting Started section to enable DBaaS.	See <a href="#">Getting Started</a>
2	Create resource providers. <ul style="list-style-type: none"><li>• Create one or more PaaS Infrastructure Zones.</li><li>• Create one or more database pools.</li></ul>	See <a href="#">Creating Resource Providers</a>
4	Configure the request settings.	See <a href="#">Configuring Request Settings</a>
5	Define quotas for each self service user.	See <a href="#">Defining Quotas</a>
6	Create a DBCA template based database provisioning profile.	See <a href="#">Creating a Database Provisioning Profile Using Database Template</a>
7	Create a service template based on the profile you have created.	See <a href="#">Creating a Service Template Using Database Template Profile</a>
8	Configure the Chargeback Service.	See <a href="#">Configuring Chargeback</a>
9	While creating a database, select the service template (associated with the database template based profile) you have created.	See <a href="#">Requesting a Database</a>

### Creating Resource Providers

You must create one or more resource providers which include:

- PaaS Infrastructure Zones: See [Creating a PaaS Infrastructure Zone](#)
- Database Pool: See [Creating a PaaS Pool](#)

## Creating a Database Pool for Database as a Service

To create a database pool for database as a service, follow these steps:

1. Log into Enterprise Manager as a user with the `EM_SSA_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**. Click the **Setup** link next to the Database service family, click the **Database Pool** link and click **Create**.
3. Enter a name and description for the database pool.
4. In the Credentials region, specify the following credentials:
  - **Database Home:** Required for creating and starting the database.
  - **Root:** This is an optional field. It is required if you plan to use this database pool for database requests based on snap clone profile.
  - **Grid Infrastructure:** This is an optional field. It is required for registering database services with credentials.
  - **Automatic Storage Management:** This is an optional field. It is required if you plan to use this database pool for live cloning on any database running on ASM.

 **Note:**

You can use Preferred Credentials or the Named Credentials. If you are using Preferred Credentials,

- Host Credentials: Select the Target Type as Oracle Home and Credential Set as Normal Host Credentials.
- Root Credentials: Select the Target Type as Host and Credential Set as Privileged Host Credentials.
- Grid Infrastructure: Select the Target Type as Oracle High Availability Service and Credential Set as Host Credentials.
- Automatic Storage Management: Select the Target Type as ASM Instance.

5. Click **Add** and select one or more Oracle Homes to be added to the database pool.
6. Specify the following details:
  - **PaaS Infrastructure Zone:** Select the PaaS Infrastructure Zone into which the database instance is to be provisioned.
  - **Database Configuration:** Specify the configuration of the database being provisioned. This can either be Single Instance or Cluster Database (RAC) but cannot be a combination of both.
  - **Platform and Version:** Specify the platform and version of the database being deployed.
7. In the Maximum Number of Database Instances (per host), enter the maximum number of database instances that can be running on each host in the pool.

 **Note:**

For RAC databases, the value specified in this field is used to ensure that the nodes on which the database is to be created meets this criteria.

8. Click **Submit** to create a database pool. The newly created pool will appear in the Database Cloud Self Service Portal Setup: Database Pools page. The database pool can now be added to the Service Template.

## Creating a Database Provisioning Profile Using Database Template

To create a database provisioning profile, follow these steps:

1. You can access the Database Provisioning page using either of the following ways:
  - From the **Enterprise** menu, select **Cloud**, and then select **Cloud Home**. On the Cloud home page, click **Oracle Cloud**, select **Setup**, and then select **Data Sources**. On the **Database: Data Sources** page, in the Data Profiles tab, click **Create**.
  - From the Enterprise menu, select **Provisioning and Patching**, and then select **Database Provisioning**. On the Database Provisioning page, in the Profiles section, click **Create**.
2. On the **Reference Target** page, click the search icon to select a target.
3. In the Search and Select: Targets display box, select the database you want to create a profile for, and then, click **Select**.
4. On the **Reference Target** page, select the following steps:
  - Click **Data Content**.
  - Select **Structure Only** to include only the structural files in the template. Select **Database Template**.

 **Note:**

Use the **Structure and Data** option if the database size is less than or equal to 5 GB.

5. In the Credentials section, select **Named Credentials** or **Preferred Credentials**. For Named Credentials select a valid credential to use.  
Click **Next**.
6. On the **Create Database Provisioning: Profile** page in the **Profile Information** section enter the following:
  - Profile Location (mandatory)
  - Profile Name (mandatory)
  - Description
  - Profile Version
  - Vendor
  - Notes
7. Under **Software Library Storage** make sure **Type** and **Name** are correctly displayed.



8. In the **Schedule** section, you can choose to start the profile creation **Immediately**, or you can schedule it for a **Later** time.
9. Specify a valid **Working Directory**.
10. Select the **Files To Exclude** from the **Database Gold Image**  
Click **Next**.
11. In the **Review** page make sure that the information displayed is correct displayed and click **Submit**. To make changes to your database provisioning click **Back**. Click **Cancel** to abort the provisioning profile creation.

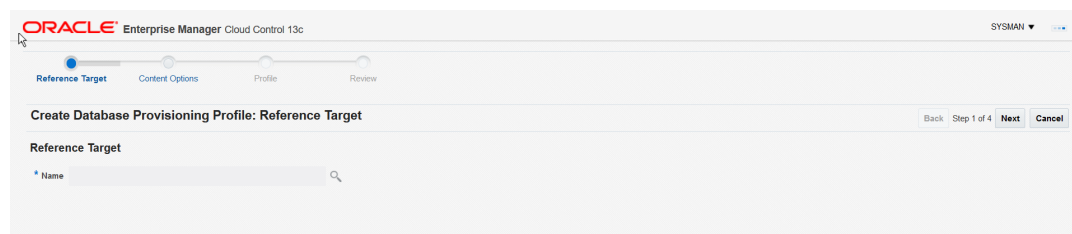
To view the submitted jobs, select the **Procedure Activity** link in the **Data Profiles** tab. Once you have submitted the provisioning profile creation job, manually refresh the page if **View Data** has been set to **Real Time: Manual Refresh**. If not, set **View Data** to reload after a specific period of time. Select an execution step from the **Procedure Steps** tree on the left pane to view details.

## Creating a Container Database Provisioning Profile Using Database Template

To create a database provisioning profile, follow these steps:

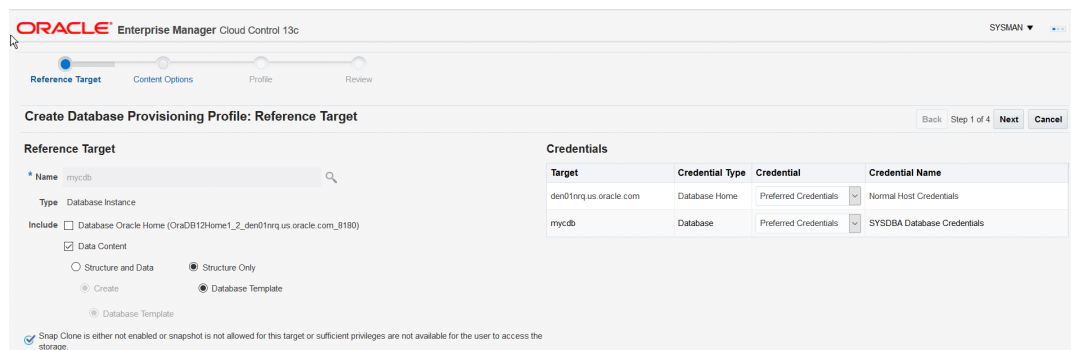
1. You can access the Database Provisioning page using either of the following ways:
  - From the **Enterprise** menu, select **Cloud**, and then select **Cloud Home**. On the Cloud home page, click **Oracle Cloud**, select **Setup**, and then select **Data Sources**. On the Database: Data Sources page, in the Data Profiles tab, click **Create**.
  - From the Enterprise menu, select **Provisioning and Patching**, and then select **Database Provisioning**. On the Database Provisioning page, in the Profiles section, click **Create**.
  - From the database target home page, click **Oracle Database**, select **Provisioning**, and then select **Create Provisioning Profile**.
2. On the **Reference Target** page, click the search icon to select a target Container Database.

**Figure 8-1 Create Container Database: Reference Target**



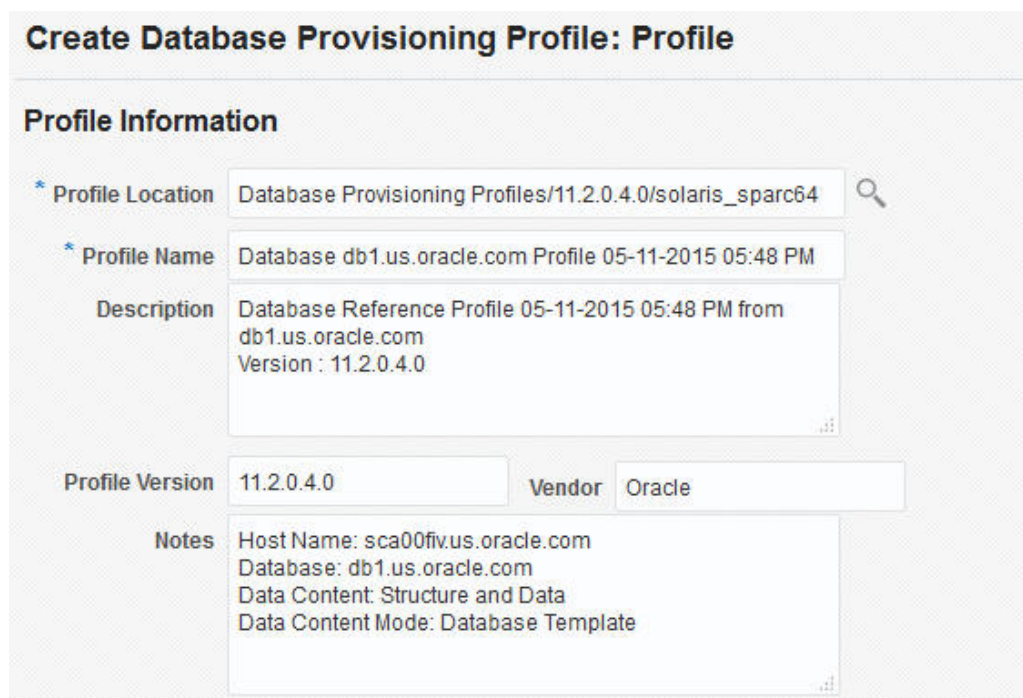
3. On the **Reference Target** page, perform the following steps:
  - a. Click **Data Content**.
  - b. Select **Structure Only** to include only the structural files in the template (Structure only Database templates are only supported to provision CDBs)
  - c. Select **Database Template**.
4. In the Credentials section, select **Named Credentials**. and then select a credential name from the Credential Name column (or) select **Preferred Credentials**. Click **Next**.

Figure 8-2 Create Container Database: Reference Target



- On the **Create Database Provisioning Profile:** page, in the **Profile Information** section, add the following:
  - Specify or select a profile location in the software library where the database profile will be created.
  - Specify a unique profile name.
  - Add a description for the profile.
  - Verify the profile version and the vendor.

For example:  
Database Template for HR database



- Select the Schedule.
- Specify or select a working directory. Click **Next**.
- On the **Review** page, ensure that the selections you have made in the previous pages are correctly displayed and click **Submit**. Otherwise, click **Back** repeatedly till you reach the page where you want to make changes. Click **Cancel** to abort the provisioning profile creation.

Once you have submitted the provisioning profile creation job, manually refresh the page if View Data has been set to Real Time: Manual Refresh. Else, set View Data to reload after a specific period of time, and then select an execution step from the Procedure Steps tree on the left pane to view the details.

To view the submitted jobs, select the **Procedure Activity** link in the **Data Profiles** tab.

## Configuring Request Settings

You can configure the request settings by specifying when a request can be made, its duration, and so on. See [Configuring Request Settings](#)

## Defining Quotas

After configuring the request settings, you must define quotas for each self service user. See [Setting Up Quotas](#)

## Creating a Service Template Using Database Template Profile

A service template is a standardized service definition that is offered to self service users to create databases or schema. Self service users can create one or more databases based on the service template definition.

1. Log into Enterprise Manager as a user with the `EM_SSA_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**.
3. Click the **Setup** link next to the Databases option in the left panel. Select Database from the drop down menu.
4. Click the **Service Templates** link. The **Service Templates** page appears. Click **Create**. The **Create Service Template: General** page appears.
5. Under **Describe**, enter a **Name** and **Description** for the service template. The description must be unique and provide information on the type of service template being created.
6. Under **Source Identification**, select the **Create Database Using Profile** radio button and then click the **Search** icon and select a DBCA template based profile from the list.
7. In the **Database Definition** region, specify:
  - **Create as Container Database**: Select this to create a service template that creates a CDB instead of a PDB.

### Note:

Create as Container Database is available for Oracle Database 12.1 and higher.

- For **Create** select whether to create a database from a **CLONEDB Database** or from a **Full Copy of the Database**.

 **Note:**

Clone DB reduces the amount of storage required for testing purposes using copy-on-write technology. It enables rapid creation of multiple database clones without copying backups from the shared locations.

- **Type:** This can be **Single Instance**, **Real Application Cluster (RAC)**, or **Real Application Clusters (RAC) One Node**.  
If you select RAC, specify the **Number of Nodes**.
  - **Database SID:** You can select **Specify Prefix** or **Specified by User at Request Time**.
    - **Specify Prefix:** Enter a prefix that will be used to generate a unique System Identifier (SID) during database creation. The prefix can be a maximum of 6 characters.  
The new database name will be generated from the SID Prefix entered. For example, a prefix defined as MYDB will generate SIDs MYDB0000, MYDB0001, MYDB0002, and on.  
  
For existing databases (running databases and in progress requests), a unique SID name is generated for single instance databases (unique name for RAC databases). For example, if the existing SIDs running on a host are MYDB0000, MYDB0001, MYDB0002; and the in progress are MYDB0003, MYDB0004, the new SID will be MYDB0005.
    - **Specified by User at Request Time:** You will specify the SID when you are making a new database request
  - **Domain Name:** This is an optional field. Enter a Domain Name to be used for the new database being created. You must ensure that the domain name does not contain a preceding "." (dot).
  - **Enable Standby Database:** Select this if you want to provision standby databases using this service template. See [Creating a Service Template](#) for details.
8. In the **Pools and Zones** region, click **Add** to select a PaaS Infrastructure Zone into which the database instance is to be provisioned. Click **Assign Pool**. Select a pool from the list and assign this pool to the PaaS Infrastructure Zone. The database will be provisioned into this pool.
  9. After you have selected the zone and the pool, the host target is populated in the **Reference Host** field.
  10. Under **Placement** select where to Provision the Database on the host, you can choose to **Selected by placement algorithm** or **Selected by the user during request**.
  11. Click **Next**. The **Create Service Template: Database** page appears.

 **Note:**

Starting with Enterprise Manager 13c Release 5 Update 8 (13.5.0.8) you can specify a non-DBSNMP user for database monitoring, edit the DBSNMP field with the user name. If the user does not exist it will be created.

12. **Reference Host** displays the name of the PaaS Infrastructure zone, the database pool, and the reference host selected in the Database Cloud Self Service Portal Setup: General page.
13. Specify the following:

 **Note:**

The database values you select here must be available on the reference host. These include: Automatic Storage Management (ASM) disk group, location of the file system, and listener port.

- **Storage Type:**
  - **Automatic Storage Management:** Oracle Automatic Storage Management (ASM) is a volume manager and a file system for database files that supports single-instance and RAC configurations. ASM groups the disks in your storage system into one or more disk groups. If you select ASM, select the **Disk Group** here.
  - **File System:** Oracle Database File System creates a standard file system interface on top of files and directories that are stored in database tables. If you select this option, you must specify or select the **Location** of the File System.
- **Fast Recovery (Optional):** A fast recovery area simplifies the management of backup and recovery files for your database. Select the **Enable Fast Recovery Area** checkbox to enable this feature. Specify the location of the Fast Recovery Area by selecting **Automatic Storage Management** and specifying its **Disk Group** or by selecting **File System** and specifying its **Location**. Set the **Fast Recovery Area Size** in megabytes, the amount of disk space to allocate for the fast recovery area depends on the size and activity levels of your database. To allow self service users to schedule backups and perform restore operations, configure a Fast Recovery Area and select the **Enable Archiving** check box.
- **Listener Port:** In the Listener Port field, specify listener port number that is to be associated with the new database. If you have selected a 11.2 or later RAC database, you must specify the scan port number.
- **Administrator Credentials:** Specify passwords for SYS, SYSTEM and the monitoring user (DBSNMP) of the new database. These schema will not be available to the Self Service Administrator (SSA) user, but are used by the SSA to manage the database. You can choose to use the same password for all the schema or different passwords for each schema. If these values are not specified, default values will be used and SSA can change them.  
  
DBSNMP is the default monitoring credential name and can be changed.
- **Master Account Privileges:**
  - Name: Sets a name for the role.
  - Description: Enter a description for the role.
  - Privileges: Set a list of granted privileges for the role.

Click **Next**.

14. Click **Next**. The **Create Service Template: Initialization Parameters** page appears. In this page, you can configure the values of various initialization parameters that affect the operation of the database instance. Select a parameter and click the **Set** icon to modify the value of the parameter. If you have previously created `db_size_name` via `emcli`, then you can associate `db_size` with the template at this step.
15. Click **Next**. The **Create Service Template: Initialization Parameters** page appears. In this page, you can configure the values of various initialization parameters that affect the operation of the database instance. Select a parameter and click the **Set** icon to modify the value of the parameter. For **Structure Only DBCA** templates, the Character Set List can

be created (displayed during DB request). See [Pre and Post Request Creation / Deletion Scripts](#) for details.

16. In the **Target Properties** section, you can specify global target properties such as Location, Department, Line of Business, and so on. You can do the following:
  - Mark a property as mandatory by selecting **Required**. If a property is marked as mandatory, the self service user must specify a value for this property while requesting a database.
  - **Lock** a property. When a property is locked, the self service user cannot modify the value of this property while requesting a database.
17. Click **Next**. The **Create Service Template: Roles** page appears. Click **Add** to select the SSA user roles to which this service template will be available. All users belonging to the selected role can use this service template. Click **Next**.
18. The **Create Service Template: Review** page appears. Click **Create**. The newly created service template will appear in the **Database Cloud Self Service Portal Setup: Service Templates** page.

## Creating a Service Template Using Database Template Profile for Container Database

A service template is a standardized service definition that is offered to self service users to create databases or schemas. Self service users can create one or more databases based on the service template definition.

1. Log into Enterprise Manager as a user with the `EM_SSA_ADMINISTRATOR` role.
2. From the **Setup** menu, select **Cloud**, then select **Database**. Click **Select Database** from the drop down menu.
3. Click the **Service Templates** link. The **Service Templates** page appears. Click **Create**. The **Create Service Template: General** page appears.

**Figure 8-3 Create Service Template: General (DBCA Template)**

The screenshot displays the Oracle Enterprise Manager Cloud Control 13c interface for creating a service template. The page title is "Database Cloud Self Service Portal Setup: General". The navigation bar shows steps: General, Database, Initialization Parameters, Customization, Roles, and Review. The "General" step is selected. The page contains several sections:

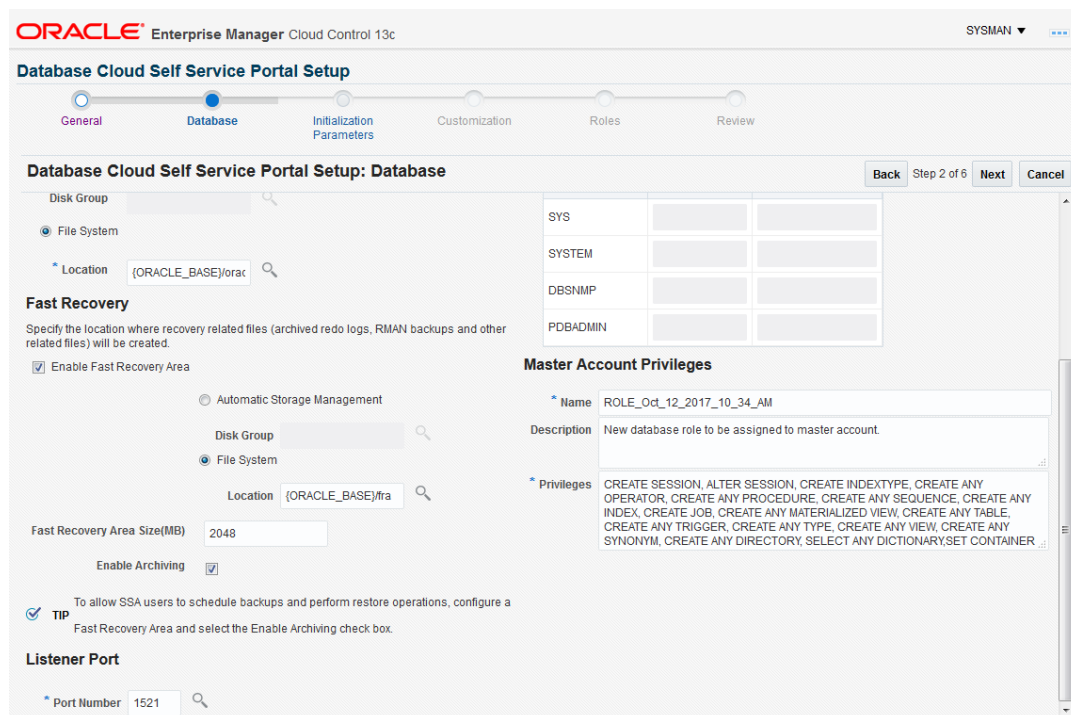
- Describe:** Name: CDB DB Template; Description: DB Template based Container Database Provisioning with one PDB.
- Source Identification:** Create Database:  Using Profile,  Using existing Database,  Using Test Master Snapshot. Profile: Database cdb db template Profile 12-10-2017 08:25 AM.
- Database Definition:**
  - Create As Container Database
  - Type:  Single Instance,  Real Application Clusters (RAC),  Real Application Clusters (RAC) One Node
  - Number of nodes: 2
  - Database SID:  Specify Prefix,  Specified by user at request time
  - SID Prefix: db
  - Domain Name: [empty]
  - Enable Standby Database

4. Enter a name and description for the service template. The description must be unique and provide information on the type of service template being created.
5. Select the **Create As Container Database** checkbox. The profiles created from the Container Database will be listed in the Profile list only if you select this checkbox .
6. In the Source Identification section, select the **Using profile** radio button. Click **Search** next to the **Profile** field and select a Container Database template based profile from the list.
7. In the Database Definition region, specify the following:
  - **Type:** This can be Single Instance or Real Application Cluster (RAC). If you select RAC, specify the Number of Nodes.
  - **Database SID:** You can select **Specify Prefix** or **Specified by User at Request Time**.
  - **Domain Name:** This is an optional field. Enter a Domain Name to be used for the new database being created.
8. In the Zones region, click **Add** to select a PaaS Infrastructure Zone into which the database instance is to be provisioned. Click **Assign Pool**. Select a pool from the list and assign this pool to the PaaS Infrastructure Zone. The database will be provisioned into this pool.
9. After you have selected the zone and the pool, the host target is populated in the **Reference Host** field.
10. Click **Next**. The **Create Service Template: Database** page appears.

 **Note:**

Starting with Enterprise Manager 13c Release 5 Update 8 (13.5.0.8) you can specify a non-DBSNMP user for database monitoring, edit the DBSNMP field with the user name. If the user does not exist it will be created.

Figure 8-4 Create Service Template: Database (DBCA Template)



11. Specify the following:

- **Storage Type:** This can be:
  - **Automatic Storage Management:** The Oracle Automatic Storage Management (ASM) is a volume manager and a file system for database files that supports single-instance and RAC configurations. ASM groups the disks in your storage system into one or more disk groups. If you select ASM, select the Disk Group here.
  - **File System:** The Oracle Database File System creates a standard file system interface on top of files and directories that are stored in database tables. If you select this option, you must specify or select the Location of the File System.
- **Fast Recovery (Optional):** To simplify the management of backup and recovery files, you can create a fast recovery area for your database. Select the **Enable Fast Recovery Area** checkbox to specify the location in which recovery related files must be stored. The fast recovery area can be a ASM disk group or a file system that provides a centralized disk location for backup and recovery file. Specify the location of the Fast Recovery Area and the Fast Recovery Size. The amount of disk space to allocate for the fast recovery area depends on the size and activity levels of your database.
 

To allow self service users to schedule backups and perform restore operations, configure a Fast Recovery Area and select the **Enable Archiving** check box.
- **Listener Port:** In the Listener Port field, specify listener port number that is to be associated with the new Container Database.
- **Administrator Credentials:** Select either Use Same Password or Use different password option.

12. Click **Next**. The Create Service Template: Initialization Parameters page appears. In this page, you can configure the values of various initialization parameters that affect the operation of the database instance. Select a parameter and click the **Set** icon to modify the



value of the parameter. If you have previously created `db_size_name` via `emcli`, then you can associate `db_size` with the template at this step.

13. Click **Next**. The Create Service Template: Customization page appears. Specify the custom scripts that need to be executed before and after the database is created. See [Pre and Post Request Creation / Deletion Scripts](#) for details.
14. In the Target Properties region, you can specify global target properties such as Location, Department, Line of Business, and so on. You can do the following:
  - Mark a property as mandatory by selecting the **Required** check box. If a property is marked as mandatory, the self service user must specify a value for this property while requesting a database.
  - Lock a property. When a property is locked, the self service user cannot modify the value of this property while requesting a database.
15. Click **Next**. The Create Service Template: Roles page appears. Click **Add** to select the `EM_SSA_USER` roles to which this service template will be available. All users belonging to the selected role can use this service template. Click **Next**.
16. The Create Service Template: Review page appears. Click **Create**. The newly created service template will appear in the Database Cloud Self Service Portal Setup: Service Templates page.

**Note:**

Please refer to MOS [Doc ID 1549855.1](#) for plug-in and patch requirements for Container Database Provisioning from Self Service Portal.

## Configuring Chargeback

Optionally, you can configure the chargeback service. See [Chargeback Administration](#).

## Requesting a Database

The self service user can now select the service template based on the database template profile and create a database. See [Requesting a Database](#).

## Provisioning Standby Databases

A data guard configuration consists of one primary database and one or more standby databases. The databases in a Data Guard configuration are connected by Oracle Net and may be dispersed geographically. There are no restrictions on where the databases are located, provided they can communicate with each other.

Oracle Data Guard ensures high availability, data protection, and disaster recovery for enterprise data. It provides a comprehensive set of services that create, maintain, manage, and monitor one or more standby databases to enable production Oracle databases to survive disasters and data corruptions. Oracle Data Guard maintains these standby databases as copies of the production database. If the production database becomes unavailable due to a planned or an unplanned outage, the Oracle Data Guard can switch any standby database to the production role, minimizing the downtime associated with the outage.

The production database, also referred to as the primary database can be either a single-instance Oracle database or an Oracle Real Application Clusters (RAC) database. A standby database is a transactionally consistent copy of the primary database. Using a backup copy of the primary database, you can create one or more standby databases and incorporate them in a Data Guard configuration. Using Enterprise Manager Database as a Service, users with the `EM_SSA_ADMINISTRATOR` role can setup the DBaaS Cloud with single instance of RAC standby databases.

**Table 8-2 Provisioning Standby Databases**

Step	Task	Role
1	Follow the steps in the Getting Started section to enable DBaaS.	See <a href="#">Getting Started</a>
2	Create resource providers. <ul style="list-style-type: none"> <li>Create one or more PaaS Infrastructure Zones.</li> <li>Create one or more database pools for provisioning standby databases</li> </ul>	See <a href="#">Creating Resource Providers</a>
6	Create either of the following types of profiles: <ul style="list-style-type: none"> <li>DBCA template based database provisioning profile.</li> <li>RMAN Backup based database provisioning profile.</li> </ul>	See: <ul style="list-style-type: none"> <li><a href="#">Creating a Container Database Provisioning Profile Using Database Template</a></li> <li><a href="#">Creating a Database Provisioning Profile Using RMAN Backup</a></li> </ul>
4	Configure the request settings.	See <a href="#">Configuring Request Settings</a>
5	Define quotas for each self service user.	See <a href="#">Defining Quotas</a>
7	Create a service template based on the profile you have created.	See <a href="#">Creating a Service Template</a>
8	Configure the Chargeback Service.	See <a href="#">Configuring Chargeback</a>
9	While deploying a database, select the service template (associated with the DBCA template based profile) you have created. Additionally, you can also specify the standby database information while requesting the database.	See <a href="#">Requesting a Database</a>

## Defining Database Pools for Provisioning Standby Databases

A Data Guard configuration consists of one production database and one or more standby databases. To define a database pool for provisioning standby databases, you must follow these steps:

1. Create a database pool. See [Creating a Database Pool for Database as a Service](#).
2. Associate the database pool with one or more pools that host standby databases. See [Associating a Standby Database Pool with a Primary Database Pool](#).

## Associating a Standby Database Pool with a Primary Database Pool

To include standby support, you must add one or more pre-created database pools on which the standby databases will be created by following these steps:

1. Log into Enterprise Manager as a user with the `EM_SSA_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. From the **Oracle Cloud** menu, select **Resource Providers**, and select the database pool that has been

designated as the primary database pool and click **Edit**. The Edit Pool: Setup page appears.

**Figure 8-5 Edit Database Pool**

**Edit Pool: Setup** Back Step 1 of 1 Submit Cancel

**Pool Details**

Name: pool1  
Description:

**Credentials**

Specify the host credentials that will be used for performing database creation operations. Root credentials are optional. They are needed if you plan to use this pool for snap cloned database requests. Grid Infrastructure credentials are also optional. They are needed if you plan to use this pool for live cloning of a database using ASM.

\* Host: EMGA (DBAAS\_ADMIN) +  
Root: EMGA\_ROOT (DBAAS\_ADMIN) +  
Grid Infrastructure: EMGA (DBAAS\_ADMIN) +  
Automatic Storage Management: Select a Credential +

**Oracle Homes**

Add one or more Oracle Homes to the pool. All Oracle Homes must reside in the same PaaS infrastructure zone. Homogeneity is controlled by the target filters that cannot be modified once the pool is created.

PaaS Infrastructure Zone: zone1 Platform: Linux x86-64  
Database Configuration: Cluster Database Version: 12.1.0.1.0

Name	Location	Description	On Host
OraDB12c_home1_2015_10...	/oradboctfnw/racdbhome1	OraDB12c_home1_2015_10_27_08_27_5_slc000rww.us.oracle.com_2063	slc000rww.us.oracle.com

TIP A target can only belong to one pool.  
Where is my Oracle Home?

**Standby Pools**

Associate one or more Pools for provisioning the Physical Standby Database(s). The 'Add' list contains a filtered set of Pools based on the Dataguard compatibility matrix.

Name	Member Target Type	Targets	Description
pool2	Oracle Home	2	

- The pool details and the Oracle homes in the pool are displayed. You can now add one or more standby database pools and associate it with the primary database pool. Click **Add** in the Standby Pools region. The Add Standby Pools window appears.
- Select one or more standby pools and click **Select**. The selected pools appear in the Standby Pools region. These pools are now associated with the primary database pool and can be used to provision standby databases.

### Note:

The OS user name and password for the primary and standby database pool must be the same but the Named Credentials can be different.

- Specify the Placement Constraints that will allow the self service administrator to set the maximum limits for resource utilization. For example, if you are using the database pool to provision standby databases, you can specify a higher value in the Maximum Number of Database Instances Per Host field, since the standby database may not be used for active operations all the time.
- Click **Submit**. The primary pool is now associated with the standby database pool and can be used to provision standby databases.

## Creating a Service Template

Service templates are standardized service definitions that allow self service users to create standby databases. Self service users can create one or more standby databases based on the service template definition. To create a database service template, follow these steps:

- Log into Enterprise Manager as a user with the `EM_SSA_ADMINISTRATOR` role.

2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**.
3. Click the **Setup** link next to the Databases option in the left panel. Select Database from the drop down menu.
4. Click the **Service Templates** link. The Service Templates page appears. Click **Create**. The Create Service Template: General page appears.
5. Enter a name and description for the service template. The description must be unique and provide information on the type of service template being created.
6. Click the **Search** icon next to the **Profile** field and select a database provisioning profile.
7. You can select the following types of profiles:
  - RMAN Backup Based Database Provisioning Profile.
  - DBCA Template Based Database Provisioning Profile.
8. In the Database Definition region, specify the following:
  - **Type:** This can be Single Instance or Real Application Cluster (RAC). If you select RAC, specify the Number of Nodes.
  - **Database SID:** This is an optional field. You can select **Specify Prefix** or **Specified by User at Request Time**.
    - **Specify Prefix:** If you choose this option, enter a prefix that is to be used to generate a unique System Identifier (SID) at the time of database creation. The prefix helps to identify databases created using this service template. The prefix can be a maximum of 6 characters.  
  
 The new database name generated will be based on the SID Prefix specified here. For example, if the prefix is specified as MYDB, the SID for the new database is generated as MYDB0000, MYDB0001, MYDB0002, and so on.  
  
 For existing databases (running databases and in progress requests), a unique SID name is generated for single instance databases, or a unique name is generated for real application cluster databases. For example, if the existing SIDs running on a host are MYDB0000, MYDB0001, MYDB0002 And In progress are MYDB0003, MYDB0004, the new SID or database name generated for the new request is MYDB0005.
    - **Specified by User at Request Time:** If you choose this option, you can leave this field blank and specify the SID when you are making a database request.
  - **Domain Name:** This is an optional field. Enter a Domain Name to be used for the new database being created. You must ensure that the domain name does not contain a preceding "." (dot).
  - **Enable Standby Database:** Select this checkbox if you want to provision standby databases using this service template. The database lock icon and the Add Standby Database region appears. Click the database lock icon to lock the database. This forces the self service user to request standby databases. If unlocked, the self service user can deselect the standby database while submitting the database request.
9. Click **Add Standby Database**. In the Add Standby Database window that appears, specify the following details:
  - **Standby Name:** The name used to identify the standby database.
  - **Type:** This can be Single Instance or Real Application Cluster (RAC). If you select RAC, you must specify the Number of Nodes.

- Standby Domain Name: Enter a domain name for the new standby database that is to be created.
- Standby Protection Mode: Specify the protection mode which can be:
  - Maximize Protection: Provides the highest level of data protection with no data loss. If this mode is selected, you must set the SYNC Redo Transport Mode on at least one standby database.
  - Maximize Availability: Provides very high data protection. If this mode is selected, you must set the SYNC Redo Transport Mode on at least one standby database.
  - Maximize Performance: Provides high data protection with the ASYNC Redo Transport Mode. If you select this mode, there is no performance impact on the primary database.
- Enable Real Time Query: Select this option to enable real time data query on the database. This feature requires an active data guard license.
- Apply Delay: Specifies the delay period before which the archived redo log data is applied on the standby database. When the property is set to 0 minutes, the redo log data is applied immediately on the standby database.

 **Note:**

You can use a single service template to provision multiple standby databases.

10. In the Pools and Zones (Primary Pools) region, click **Add** to add one or more PaaS Infrastructure zones into which the database instance is to be provisioned. Click **Assign Pool** and select a database pool which will be the primary database pool for the standby database.
11. In the Standby Pools region, you will see the list of standby databases that you have defined. From the drop down list, select the standby pool with which the standby database is to be associated. You can associate multiple standby pools with one primary pool.

 **Note:**

If the Primary Pool is of single instance type, both single instance and RAC database pools are listed. But if the Primary Pool is RAC, only RAC database pools are listed in the Standby Pools region.

12. Click **Search** in the Reference Host field to select a host target.
13. Specify the Shared Location and click **Next** to continue to the Database Cloud Self Service Portal Setup: Database page.
14. The name of the Zone, Pool, and Reference Host you have selected is displayed. You can select the ASM Disk Group, File System Location, and Listener Port that is available on the Reference Host.

 **Note:**

The storage locations and listener ports must be identical on all the primary and standby pools.

- Storage Type: Storage type can be:
  - Automatic Storage Management: The Oracle Automatic Storage Management (ASM) is a volume manager and a file system for database files that supports single-instance and RAC configurations. ASM groups the disks in your storage system into one or more disk groups. If you select ASM, specify the Disk Group here.
  - File System: The Oracle Database File System creates a standard file system interface on top of files and directories that are stored in database tables. If you select this option, you must specify the Location of the File System.
- Fast Recovery: To simplify the management of backup and recovery files, you can create a fast recovery area for your database. The fast recovery area can be a ASM disk group or a file system that provides a centralized disk location for backup and recovery file. Specify the location of the Fast Recovery Area and the Fast Recovery Size. The amount of disk space to allocate for the fast recovery area depends on the size and activity levels of your database.

To allow self service users to schedule backups and perform restore operations, configure a Fast Recovery Area and select the **Enable Archiving** check box.

15. In the Port Number field, specify listener port number that is to be associated with the new database. If you have selected a 11.2 or later RAC database, you must specify the scan port number.
16. In the Location fields, specify the RMAN Duplicate Backup location. This directory must be present on all members of the Primary and Standby pools. The free space available in this location must be equal to or more than the size of the database from which the profile has been created.
17. Specify the Administrator Credentials. Specify passwords for the system schemas of the new database. These schemas will not be available to the `EM_SSA_USERS`. You can choose to use the same password for all the schemas or different passwords for each schema. If these values are not specified, default values will be used and the `EM_ADMINISTRATOR` can change them.
18. Apart from the system schemas, if you want to restrict access to other schemas, you can select them in the Non-Administrator Credentials region and specify the password. These schemas will be locked and the `EM_SSA_USERS` cannot access them.
19. Click **Next**. The Database Cloud Self Service Portal Setup: Initialization Parameters page appears. In this page, you can configure the values of various initialization parameters that affect the operation of the database instance. Select the parameter and click the **Set** icon to modify the value of the parameter.

 **Note:**

Database sizes that can be selected by the self service user while creating a service instance are defined globally using EMCLI commands. A subset of these global database sizes can be defined on the Initialization Parameters page and the self service user can choose one of these sizes while creating a database.

20. Click **Next**. The Database Cloud Self Service Portal Setup: Scripts page appears. Specify the custom scripts that need to be executed before and after the database is created.
21. Click **Next**. The Database Cloud Self Service Portal Setup: Roles page appears. Click **Add** to select the SSA user roles to which this service template will be available. All users belonging to the selected role can use this service template.

22. Click **Next**. The Database Cloud Self Service Portal Setup: Review page appears. Review the information you have entered so far and click **Create**. The newly created service template will appear in the Database Cloud Self Service Portal Setup: Service Templates page. You can click on the Service Template Name link to view additional details.

# 9

## Provisioning Pluggable Databases

This chapter describes the process involved in provisioning pluggable databases. It contains the following sections:

- [Getting Started](#)
- [Creating Resource Providers](#)
- [Creating a Database Provisioning Profile Using Export Schema Objects](#)
- [Creation of SSA User Data Profile for Pluggable Database - Dehydrate of PDB by SSA User](#)
- [Configuring Request Settings](#)
- [Defining Quotas](#)
- [Creating a Service Template for PDB Based on Profile](#)
- [Creating a Service Template for an Empty PDB](#)
- [Configuring Chargeback](#)
- [Requesting a Pluggable Database](#)
- [Pluggable Database creation using SSA User Data Profile - Hydrate PDB](#)
- [Creating Test Master Pluggable Databases and Snapshot Clones](#)
- [Enabling a Test Master Pluggable Database](#)
- [Disabling a Test Master Pluggable Database](#)

### Getting Started

An Oracle Database can contain a portable collection of schemas, schema objects, and nonschema objects, that appear to an Oracle Net client as a separate database. This self-contained collection is called a pluggable database (PDB). A multi-tenant container database (CDB) is a database that includes one or more PDBs. Oracle Database 12c Release 1 (12.1) and later versions allow you to create many PDBs within a single CDB.

**Table 9-1 Provisioning Pluggable Databases**

Step	Task	Role
1	Follow the steps in the Getting Started section to enable DBaaS.	See <a href="#">Getting Started</a>
2	Create one or more resource providers.	See <a href="#">Creating Resource Providers</a>
3	Configure the request settings.	See <a href="#">Configuring Request Settings</a>
4	Define quotas for each self service user.	See <a href="#">Defining Quotas</a>
5	Create a database provisioning profile. This step is optional and is not required if you are creating an empty pluggable database.	See <a href="#">Creating a Database Provisioning Profile Using Export Schema Objects</a>



**Table 9-1 (Cont.) Provisioning Pluggable Databases**

Step	Task	Role
6	Create a service template. A service template can contain: <ul style="list-style-type: none"> <li>• Empty Pluggable Database: In this case, the service template is created with an empty schema.</li> <li>• Pluggable Database from a Profile: In this case, you can import schemas from a database provisioning profile. You can select this option for applications with data such as eBusiness applications.</li> </ul>	See <a href="#">Creating a Service Template for PDB Based on Profile</a>
7	Configure the Chargeback Service.	See <a href="#">Configuring Chargeback</a>
8	While deploying a database, select the service template that you have created.	See <a href="#">Requesting a Pluggable Database</a>

## Creating Resource Providers

You must create one or more resource providers which include:

- PaaS Infrastructure Zones: See [Creating a PaaS Infrastructure Zone](#)
- Database Pool: See [Creating a Database Pool for PDB as a Service](#)

### Hybrid PDB as a Service

Before provisioning PDB as a Service on an OCI Database System (via the *PDB on OCI DBCS New Service* template) you must first create a separate pool and separate zone for the PDB service.

## Creating a Database Pool for PDB as a Service

A Pluggable Database (PDB) is portable set of schemas, schema objects, and related structures that appears logically to an application as a separate database. This self-contained collection is called a pluggable database (PDB). Every PDB is owned by a SYS user.

A container is a collection of schema, objects, and related structures in a container database (CDB) that appears logically to an application as a separate database. A container database (CDB) is an Oracle database that includes zero, one, or many user-created PDB.

A database pool for PDB as a Service must contain a set of container databases. The container databases must meet the following guidelines:

- All CDB in a database pool must be of the same version and platform.
- All CDB in a database pool must either be single instance databases or RAC databases. Mix and match of database types is not supported.

To create a database pool for PDB as a service, follow these steps:

1. Log into Enterprise Manager as a user with the `EM_SSA_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**. Click the **Setup** link next to the Database service family, select **Pluggable Database** from the drop down link, click on the **Pluggable Database Pool** link and then click **Create**.

3. Enter a name and description for the database pool.
4. In the Credentials region, specify the credentials that will be used for performing database operations. Specify the following credentials:
  - **Database Home Credentials:** Required for performing remote host operations.
  - **Grid Infrastructure:** Required to register a database service with grid infrastructure credentials.
  - **Database:** Required for creating the pluggable database.
  - **Container Database Wallet Password:** Mandatory for all TDE encrypted databases. You must specify the password required to open the wallet from the keystore.
5. Specify the following details:
  - **PaaS Infrastructure Zone:** Select a PaaS Infrastructure Zone in which the container databases are present. The PDBs will be created on the databases selected for the pool. For details on creating container databases, see [Provision a Container Database for PDB as a Service](#).
  - **Target Type:** Specify the configuration of the target database on which the PDB is being deployed. This can be Single Instance or Cluster Database (RAC).
  - **Platform and Version:** Specify the platform and version of the database being deployed.
6. Click **Add** and select one or more container databases to be added to the pool. All databases you select must be present in the same PaaS Infrastructure Zone.

 **Note:**

You can search for database groups that meet your requirements by specifying a search string in the Groups field.

7. Click **Next**. The Create New Pool: Policies page appears.

Specify the placement policy constraints to set maximum ceilings for resource utilization on each database. Placement policy constraints for each database can be defined by services or workloads as follows:

  - **Maximum Number of Pluggable Databases:** Select the Pluggable Database checkbox and specify the Maximum Number of Pluggable Databases that can be created inside each CDB.
  - **Workloads Associated with Service Requests:** The amount of resources (such as CPU and memory) to manage the workload can be specified here. Specify the workload that is to be enforced for the pluggable database.
    - **Maximum CPU Allocation:** Specify the maximum CPU that can be allocated to each database.
    - **Maximum Memory Allocation:** Specify the maximum memory that can be allocated for each database.

For example: If a container database is caged to 2 CPUs with SGA of 4GB, and you specify the Maximum CPU Allocation and Maximum Memory Allocation as 80%:

  - The maximum CPU limit for each pluggable database is 1.6
  - The maximum SGA / memory limit for each pluggable database is 3.2

8. If you have chosen to set the placement constraints by **Workloads Associated with Service Requests**, you can choose to enable the resource manager by selecting the **Enable Resource Manager for CPU** check box. You can use the resource manager to manage the CPU resource and create Consumer Groups. A Consumer Group is used to ensure that the service gets the requested CPU cycles on a fully loaded system.
9. Click **Submit** to create a database pool for PDB as a service. The newly created database pool will appear in the Database Cloud Self Service Portal Setup: Database Pools page.

## Creating a Database Provisioning Profile Using Export Schema Objects

To create a database provisioning profile, follow these steps:

1. You can access the Database Provisioning page using either of the following ways:
  - From the **Enterprise** menu, select **Cloud**, and then select **Cloud Home**. On the Cloud home page, click **Oracle Cloud**, select **Setup**, and then select **Data Sources**. On the Database: Data Sources page, in the Data Profiles tab, click **Create**.
  - From the Enterprise menu, select **Provisioning and Patching**, and then select **Database Provisioning**. On the Database Provisioning page, in the Profiles section, click **Create**.
  - From the database target home page, click **Oracle Database**, select **Provisioning**, and then select **Create Provisioning Profile**.
2. On the Reference Target page, click the search icon to select a target.
3. In the Search and Select:Targets display box, select the database you want to create a profile for, and then, click **Select**.
4. On the Reference Target page, select the following:
  - **Data Content**
  - **Structure and Data** to include physical and structural files from the database or **Structure Only** to include only the structural files in the template.
  - **Export Schema Objects**

### Create Database Provisioning Profile: Reference Target

#### Reference Target

\* Name

Type Database Instance

Include  Database Oracle Home (OraDb11g\_home1\_2\_adc2201753.us.oracle.com\_4745)

Grid Infrastructure Oracle Home (Ora11g\_gridinfrahome1\_1\_adc2201753.us.oracle.com\_1453)

Data Content

Structure and Data  Structure Only

Create  Database Template

RMAN Backup  Export Schema Definition

RMAN Database Image

Database Template

Use Existing RMAN Backup

Export Schema Objects

5. In the Credentials section, select the database. In the Credentials column, you can select **Named Credentials** and then select a credential name from the Credential Name column (or) select **Preferred Credentials**. Click **Next**.
6. On the Content Options page, do the following:
  - Select the schema you want to include in the profile by clicking on a schema in the Available Schema list and moving it to the Selected Schema list.

**Note:**

When one or more schemas are selected, the database checks if the dependent schemas are also selected for export. If the dependent schemas are not exported, you will receive a warning. You can choose to go ahead with the selected schemas, or to include the schemas which were not initially selected.

The same warning is also displayed when you select a profile that does not have the dependent schemas exported.

### Create Database Provisioning Profile: Content Options

Back Step 2 of 4 Next Cancel

Content

Export  Full Database for migrating to Pluggable Database

Selected Schemas

Available Schemas

Selected Schemas

SSA\_USER\_SERVICEAPP  
 sysman\_SERVICEAPP  
 SERVICEAPP

Directory Locations

Dump

Directory	File name	Maximum file size (MB)
DATA_PUMP_DIR	export_061115_08_47_%U.dmp	

Log

\* Directory  File Name

Degree Of Parallelism

\* Maximum number of Threads in Export Job

 **Note:**

The Available Schemas section displays only the user created schemas that has data content in it. All the empty schemas are filtered out by default.

 **Note:**

System schemas such as SYS, SYSTEM, and DBSNMP will not be exported.

The user schemas which do not have their own tablespace are not shown in left side of the shuttle.

- In the Degree of Parallelism section, enter the number of threads required to perform the export operation.

 **Note:**

Increasing the number of threads helps reduce the time required to create the profile at the cost of using system resources.

- In the Directory Locations section, click on **Add**. In the Select Directory window, select a directory object listed to perform the export operation, and then click **Select**.

 **Note:**

The number of export threads determines the number of parallel export processes that will run in parallel during export.

Hence, the dump file names should contain %U, to ensure the file names are auto generated with the running count to facilitate parallel operation along with the maximum size for the dump file. For example, 5GB. This means that the file rotation will start after 5GB limit is reached.

 **Note:**

Ensure that the directory location is accessible. The directory object that you select must refer to a location that is accessible across all the nodes. You can also create a directory object on ASM. However, it is not supported on ASM.

In the Log subsection, click on the search icon. In the Select Directory window, select the directory object you require to perform the export operation, and then click **Select**.

In the Log subsection, enter the file name, and then click on **Next**.

 **Note:**

You can make use of degree of parallelism with dump file names. The default value of dump files contain %U which creates a running count when degree of parallelism is greater than 1.

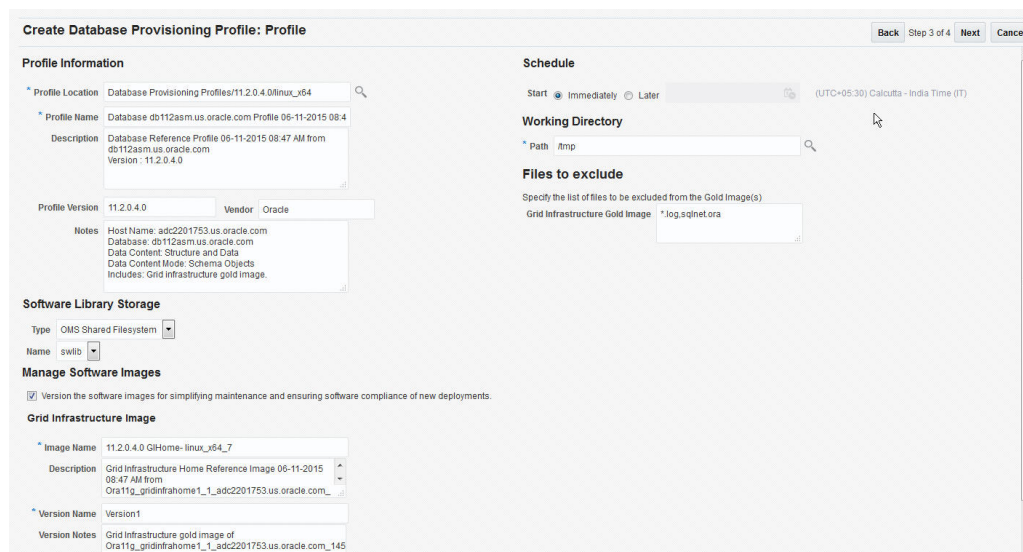
Also, this enables you to add multiple dump directories to distribute the storage if required.

7. On the Create Database Provisioning Profile: Page, in the Profile Information section, do the following:
  - Specify or select a profile location in the software library where the database profile will be created.
  - Specify a unique profile name.

For example:

Export Schema Objects Provisioning Profile for HR database

- Add a description for the profile.
- Verify the profile version and the vendor.
- Add any additional notes such as host name, database, data content, data content mode, and the like.



8. In the Schedule section, you can choose to start the profile creation immediately, or you can schedule it for a later time. You can also choose to repeat the creation of the provisioning profile, and set a repeat time.
9. Specify or select a working directory. Click **Next**.
10. On the Review page, ensure that the selections you have made in the previous pages are correctly displayed and click **Submit**. Otherwise, click **Back** repeatedly till you reach the page where you want to make changes. Click **Cancel** to abort the provisioning profile creation.

Once you have submitted the provisioning profile creation job, manually refresh the page if View Data has been set to Real Time: Manual Refresh. Else, set View Data to reload after

a specific period of time, and then select an execution step from the Procedure Steps tree on the left pane to view the details.

To view the submitted jobs, select the **Procedure Activity** link in the **Data Profiles** tab.

## Creation of SSA User Data Profile for Pluggable Database - Dehydrate of PDB by SSA User

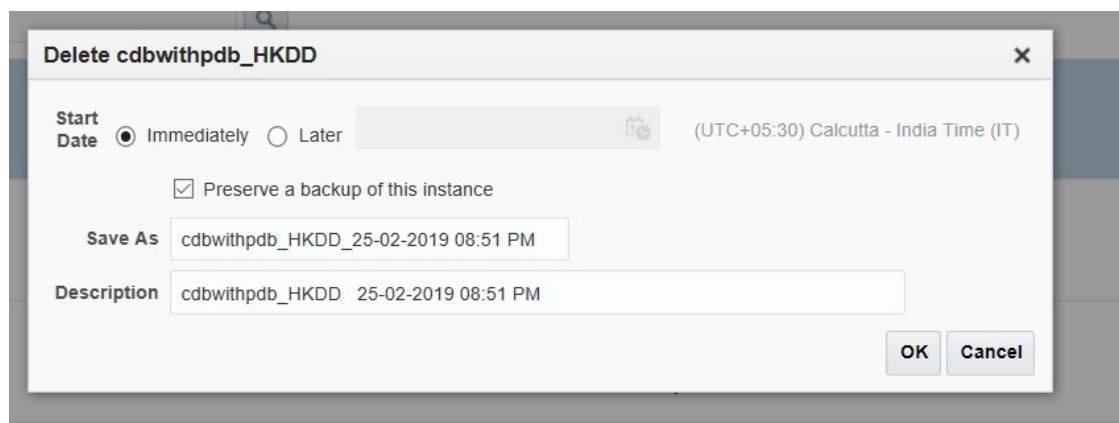
An Enterprise Management Self Service Application administrator can enable a Self Service Application (SSA) user to create a data profile.

To enable the SSA user to create a data profile, the option **Allow SSA user to create a Data Profile** must be selected in the Pluggable Database Service Template. The SSA Administrator must also provide a payload location for storing the backup file(s). The SSA user can now create a data profile for preserving a backup of a pluggable database as part of Delete operation, this is known as a dehydrate of a PDB by an SSA user.

**Figure 9-1 Create Data Profile**

If the **Allow SSA user to create a Data Profile** option is configured in the Pluggable Database Service Template, the option **Preserve a backup of this instance** is enabled for SSA User.

The SSA user can preserve a backup of any PDB instance created using this service template for an Instance Delete operation. SSA User can also customize the name and description of the profile created for preserving the backup, and PDB backup is taken on the location configured in the service template. The EM default software library stores the metadata for the profile in the following location: Database Configuration/ <PDB version>/<OSName >/ Database Templates .

**Figure 9-2 Preserve a Backup**

The following users are granted the view privileges to the software library profile:

- SSA User initiating the creation of data profile operation
- Any EM Administrator with EM\_CLOUD\_ADMINISTRATOR role
- Any EM Administrator with EM\_SSA\_ADMINISTRATOR role
- Any EM Administrator with a role configured in the service template associated with this instance

## Configuring Request Settings

You can configure the request settings by specifying when a request can be made, its duration, and so on. See [Configuring Request Settings](#)

## Defining Quotas

After configuring the request settings, you must define quotas for each self service user. See [Setting Up Quotas](#)

## Creating a Service Template for PDB Based on Profile

One or more pluggable databases can be created based on the service template definition. To create a service template for PDB as a service, follow these steps:

1. Log into Enterprise Manager as a user with the EM\_SSA\_ADMINISTRATOR role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**.
3. Click the **Setup** link next to the Databases option in the left panel. Select **Pluggable Database** from the drop down menu.
4. Click the **Service Templates** link. The Service Templates page appears. Click **Create**. The Create Service Template: General page appears.
5. Enter a name and description for the service template. The description must be unique and provide information on the type of service template being created.



- In the Pluggable Database region, select the **Create Pluggable Databases** from Profile option and select a database provisioning profile that is to be used to create the pluggable database. Click the **Search** icon next to the Profile field and select an export schema objects profile from the list. If a profile does not exist, you must create one. See [Creating a Database Provisioning Profile Using Export Schema Objects](#) for details.

•  **Note:**

You can also create a PDB from an unplugged PDB. To do so, follow these steps:

- Unplug the PDB from the container database and specify the location in the Software Library which the PDB template (contains data files and the metadata XML file) is to be stored.
- In the Service Template Creation wizard, specify the PDB template location in the Shared Location field. The PDB is created with the specified data files.

- In the Pools and Zones region, click **Add** to select a PaaS Infrastructure Zone into which the pluggable database instance is to be provisioned. Click **Assign Pool** to add a Database Pool (for Pluggable Databases) for the zone.

 **Note:**

A database pool (for PDBs) must be present in the PaaS Infrastructure Zone that you select here.

- After the database pool has been assigned, the container database into which the pluggable database is to be added is displayed in the Reference Container Database field. All the validations for the service template will be performed against this database.
- If you have selected **Create Pluggable Databases from Profile** in the Pluggable Database region, in the Shared Location field, specify the Path or the shared location on all hosts in which the schema dumps are present. The Dump File Location must be accessible by all the databases.
- In the Placement region, the pluggable database can be provisioned on the container database using one of the following options:
  - Selected by placement algorithm: If this option is selected, the container database will be selected based on the placement algorithm.
  - Selected by user during request: If this option is selected, while requesting a new PDB, the self service user can select the container database on which the PDB is to be provisioned.
- In the Identification region, in the Pluggable Database Prefix Name field, specify the prefix that is to be used to generate a unique Pluggable Database name at the time of database creation. The prefix helps to identify the PDBs that are created using this service template.
- Click **Next**. The Create New Service Template: Configurations page appears.  
For TDE enabled databases enter the Wallet Transport key. This is the same key provided during unplugging of the PDB.
- Click **Next**. The Create Service Template: Initialization Parameters page appears. In this page, you can configure the values of various initialization parameters that affect the

operation of the database instance. Select the parameter and click the Set icon to modify the value of the parameter.

14. Click **Next**. The Create Service Template: Customization page appears. Specify the custom scripts that need to be executed before and after the database is created. See [Pre and Post Request Creation / Deletion Scripts](#) for details.
15. In the Target Properties region, you can specify global target properties such as Location, Department, Line of Business, and so on. You can do the following:
  - Mark a property as mandatory by selecting the **Required** check box. If a property is marked as mandatory, the self service user must specify a value for this property while requesting a database.
  - Lock a property. When a property is locked, the self service user cannot modify the value of this property while requesting a database.
16. Click **Next**. The Create Service Template: Roles page appears. Click **Add** to select the `EM_SSA_USER` roles to which this service template will be available. All users belonging to the selected role can use this service template.
17. Click **Next**. The Create Service Template: Review page appears where you can review the details entered so far.
18. Click **Submit**. The newly created service template will appear in the Database Cloud Self Service Portal Setup: Service Templates page. You can click on the Service Template Name link to view additional details.

## Creating a Service Template for an Empty PDB

One or more pluggable databases can be created based on the service template definition. To create a service template for PDB as a service, follow these steps:

1. Log into Enterprise Manager as a user with the `EM_SSA_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**.
3. Click the **Setup** link next to the Databases option in the left panel. Select **Pluggable Database** from the drop down menu.
4. Click the **Service Templates** link. The Service Templates page appears. Click **Create**. The Create Service Template: General page appears.
5. Enter a name and description for the service template. The description must be unique and provide information on the type of service template being created.
6. In the Pluggable Databases region, select the **Create Empty Pluggable Database** option to create an empty PDB that can be configured by the user.
7. In the Pools and Zones region, click **Add** to select a PaaS Infrastructure Zone into which the pluggable database instance is to be provisioned. Click **Assign Pool** to add a Database Pool (for Pluggable Databases) for the zone.

### Note:

A database pool (for PDBs) must be present in the PaaS Infrastructure Zone that you select here.

8. After the database pool has been assigned, the container database into which the pluggable database is to be added is displayed in the Reference Container Database field. All the validations for the service template will be performed against this database.
9. In the Placement region, the pluggable database can be provisioned on the container database using one of the following options:
  - Selected by placement algorithm
  - Selected by user during request
10. In the Identification region, in the Pluggable Database Prefix Name field, specify the prefix that is to be used to generate a unique Pluggable Database name at the time of database creation. The prefix helps to identify the PDBs that are created using this service template.
11. Click **Next**. The Create New Service Template: Configurations page appears.

Specify the following details:

- **Workload Size:** Workload represents the total CPU, memory, number of sessions, and storage requirements for each service. You can define workload sizes such as small, medium, and large. The workload sizes defined here will be the default workload sizes available to the users with the `EM_SSA_USER` role. Click **Create** and in the Create Workload window, enter the name, CPU, Memory, and Storage limit for each service.
  - **Pluggable Database Administrator Privileges:** You can assign privileges to the Pluggable Database Administrator by:
    - **From Existing Database Roles:** If you select this option, click **Add Roles** to add one or more existing roles from which the privileges will be assigned to the Pluggable Database Administrator.
    - **Creating a new Database Role:** If you select this option, you must specify the Role Name, Description, and the Privileges such as `CREATE_SESSION`, `ALTER_SESSION`, `CREATE ANY OPERATOR`, `CREATE ANY PROCEDURE` and so on that will be assigned to the administrator.
  - **Pluggable Database Storage:** The maximum size of the PDB storage can either be **Unlimited** or **Specified by the workload size selected at request time**.
  - **Tablespace:** Specify the number of tablespaces that should be present in the new empty PDB.
12. Click **Next**. The Create Service Template: Initialization Parameters page appears. In this page, you can configure the values of various initialization parameters that affect the operation of the database instance. Select the parameter and click the Set icon to modify the value of the parameter.
  13. Click **Next**. The Create Service Template: Customization page appears. Specify the custom scripts that need to be executed before and after the database is created. See [Pre and Post Request Creation / Deletion Scripts](#) for details.
  14. In the Target Properties region, you can specify global target properties such as Location, Department, Line of Business, and so on. You can do the following:
    - Mark a property as mandatory by selecting the **Required** check box. If a property is marked as mandatory, the self service user must specify a value for this property while requesting a database.
    - Lock a property. When a property is locked, the self service user cannot modify the value of this property while requesting a database.

15. Click **Next**. The Create Service Template: Roles page appears. Click **Add** to select the `EM_SSA_USER` roles to which this service template will be available. All users belonging to the selected role can use this service template.
16. Click **Next**. The Create Service Template: Review page appears where you can review the details entered so far.
17. Click **Submit**. The newly created service template will appear in the Database Cloud Self Service Portal Setup: Service Templates page. You can click on the Service Template Name link to view additional details.

## Creating a Service Template Using a Data Profile Selected by an SSA User At Request Time

One or more pluggable databases can be created based on the service template definition. To create a service template for PDB as a service, follow these steps:

1. Log into Enterprise Manager as a user with the `EM_SSA_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**.
3. Click the **Setup** link next to the Databases option in the left panel. Select **Pluggable Database** from the drop down menu.
4. Click the **Service Templates** link. The Service Templates page appears. Click **Create**. The Create Service Template: General page appears.
5. Enter a name and description for the service template. The description must be unique and provide information on the type of service template being created.
6. In the Pluggable Database region, select the **Create Pluggable Databases** from Profile option and select a database provisioning profile that is to be used to create the pluggable database. Click the **Search** icon next to the Profile field and select an export schema objects profile from the list. If a profile does not exist, you must create one. See [Creating a Database Provisioning Profile Using Export Schema Objects](#) for details.

•  **Note:**

You can also create a PDB from an unplugged PDB. To do so, follow these steps:

- Unplug the PDB from the container database and specify the location in the Software Library which the PDB template (contains data files and the metadata XML file) is to be stored.
- In the Service Template Creation wizard, specify the PDB template location in the Shared Location field. The PDB is created with the specified data files.

7. In the Pools and Zones region, click **Add** to select a PaaS Infrastructure Zone into which the pluggable database instance is to be provisioned. Click **Assign Pool** to add a Database Pool (for Pluggable Databases) for the zone.

 **Note:**

A database pool (for PDBs) must be present in the PaaS Infrastructure Zone that you select here.

8. After the database pool has been assigned, the container database into which the pluggable database is to be added is displayed in the Reference Container Database field. All the validations for the service template will be performed against this database.
9. Selected **Create Pluggable database using Data Profile selected by SSA user at request time**. in the Pluggable Database region, in the Shared Location field, specify the Path or the shared location on all hosts in which the schema dumps are present. The Dump File Location must be accessible by all the databases.
10. In the Placement region, the pluggable database can be provisioned on the container database using one of the following options:
  - Selected by placement algorithm: If this option is selected, the container database will be selected based on the placement algorithm.
  - Selected by user during request: If this option is selected, while requesting a new PDB, the self service user can select the container database on which the PDB is to be provisioned.
11. In the Identification region, in the Pluggable Database Prefix Name field, specify the prefix that is to be used to generate a unique Pluggable Database name at the time of database creation. The prefix helps to identify the PDBs that are created using this service template.
12. Click **Next**. The Create New Service Template: Configurations page appears.
13. Click **Next**. The Create Service Template: Initialization Parameters page appears. In this page, you can configure the values of various initialization parameters that affect the operation of the database instance. Select the parameter and click the Set icon to modify the value of the parameter.
14. Click **Next**. The Create Service Template: Customization page appears. Specify the custom scripts that need to be executed before and after the database is created. See [Pre and Post Request Creation / Deletion Scripts](#) for details.
15. In the Target Properties region, you can specify global target properties such as Location, Department, Line of Business, and so on. You can do the following:
  - Mark a property as mandatory by selecting the **Required** check box. If a property is marked as mandatory, the self service user must specify a value for this property while requesting a database.
  - Lock a property. When a property is locked, the self service user cannot modify the value of this property while requesting a database.
16. Click **Next**. The Create Service Template: Roles page appears. Click **Add** to select the `EM_SSA_USER` roles to which this service template will be available. All users belonging to the selected role can use this service template.
17. Click **Next**. The Create Service Template: Review page appears where you can review the details entered so far.
18. Click **Submit**. The newly created service template will appear in the Database Cloud Self Service Portal Setup: Service Templates page. You can click on the Service Template Name link to view additional details.

## Configuring Chargeback

Optionally, you can configure the chargeback service. See [Chargeback Administration](#).

## Requesting a Pluggable Database

The self service user can now select the service template and create a pluggable database. See [Requesting a Pluggable Database](#)

## Pluggable Database creation using SSA User Data Profile - Hydrate PDB

An EM Self Service Application administrator can enable a Self Service Application (SSA) user to create a new PDB instance using a pre-existing Data Profile.

The SSA User can create a new pluggable database using a pluggable database backup preserved as an SSA User Data Profile, this is known as a Hydrate PDB process.

Before you create a PDB with an SSA User you must set up a Service Template with the **Create Pluggable database using Data Profile selected by SSA user at request time** option selected, to do this see: [Creating a Service Template Using a Data Profile Selected by an SSA User At Request Time](#).

To create a new PDB instance using and SSA User follow these steps:

1. Navigate from **Enterprise**, select **Cloud**, and click on **Self Service Portal**.
2. In the Self Service Portal click on **Database Cloud Services**. In the Database Cloud Services page click on **Create instance** located at the top right of the page.
3. Click the **Select** button for **Create PDB from SSA Data Profile - Hydrate**.
4. The option **Create Pluggable Database using Data Profile by SSA user at request time** must be selected in the Pluggable Database Service Template.
5. In the **Select Data Profile** field, when you click the search icon, the profiles created by the SSA user and the profiles for which the user has view privileges, are listed.
6. Under **Pluggable Database Configuration** enter:

- PDB Name
- Database Service Name
- Size

Under **Pluggable Database Administrator Account** enter:

- Administrator Name
- Password
- Confirm Password

Under **Tablespaces** enter the Tablespace name.

Under **Instance Details** enter:

- Request Name
- Zone

- Properties
- Under **Instance Duration** enter:
- Start
  - Duration
7. Once all fields have been entered, click **Submit** to create the PDB using and SSA User Data Profile

## Enabling a Test Master Pluggable Database

To convert a pluggable database into a test master, follow these steps:

1. Right click on the pluggable database target name that you want to enable as a test master, select **Oracle Database**, select **Cloning**, and then select **Enable as a Test Master**.
2. On the Enable as a Test Master page, in the Credentials section, specify the credentials for the container database of the pluggable database, and the credentials of the Oracle Home.
3. In the Source section, specify or search for the parent database from which the database has been created. This provides better lineage tracking.
4. In the Data Masking section, you can choose to desensitize the data by applying masking templates or by running additional scripts of your choice.
5. In the Custom Scripts section, you can select the Software Library components which contain post cloning scripts. The clone database can also be customized by executing the post cloning SQL script.
6. Click **Submit**.

## Disabling a Test Master Pluggable Database

Disabling a test master pluggable database, resets the data files to read-write mode and restarts the pluggable database in open mode. You can make further changes to the database and then enable it as a test master again.

To disable a test master pluggable database, follow these steps:

1. Right click on the test master pluggable database, select **Oracle Database**, select **Cloning**, and then select **Disable as a Test Master**.
2. On the Disable Test Master page, specify the credentials of the container database of the test master pluggable database. Also, specify the credentials of the Oracle Home.

3. Click **Submit**.

**FIN\_TM**

**Disable Test Master**

This process will reset the datfiles to read-write mode and restart the pluggable database in open mode. You may make further changes to the database and then enable it as a test master again.

**Credentials**

* Container Database	Preferred Credentials	
* Oracle Home	Preferred Credentials	



# 10

## Creating Schema

You can create one or more schema on a running database these can be empty or based on a profile.

This chapter covers the following sections:

- [Getting Started](#)
- [Creating Resource Providers](#)
- [Creating a Database Provisioning Profile Using Export Schema Objects](#)
- [Configuring Request Settings](#)
- [Defining Quotas](#)
- [Configuring Chargeback](#)
- [Requesting a Schema](#)

### Getting Started

The data content of this database provisioning profile is compiled from an export dump created using the Data Pump tool. You can choose to export Schema objects (structure only) or the Schema with data (structure + data).

The table below shows the list of tasks that are involved in creating an empty schema or a schema based on profile.

**Table 10-1 Creating Databases Using Database Template**

Step	Task	Role
1	Follow the steps in the Getting Started section to enable DBaaS.	See <a href="#">Getting Started</a>
2	Create resource providers. <ul style="list-style-type: none"><li>• Create one or more PaaS Infrastructure Zones.</li><li>• Create one or more database pools.</li></ul>	See <a href="#">Creating Resource Providers</a>
6	Create a database provisioning profile. This step is optional and is required if you are importing schemas from a profile.	See <a href="#">Creating a Database Provisioning Profile Using Export Schema Objects</a>
4	Configure the request settings.	See <a href="#">Configuring Request Settings</a>
5	Define quotas for each self service user.	See <a href="#">Defining Quotas</a>
7	Create as service template based on: <ul style="list-style-type: none"><li>• User Defined Schema: In this case, the service template is created with an empty schema.</li><li>• Schema from a Profile: In this case, you can import schemas from a database provisioning profile. You can select this option for applications with data such as eBusiness applications.</li></ul>	See <a href="#">Creating a Service Template for Schema Based on Profile</a>

**Table 10-1 (Cont.) Creating Databases Using Database Template**

Step	Task	Role
8	Configure the Chargeback Service.	See <a href="#">Configuring Chargeback</a>
9	While creating a database, select the service template (associated with the database template based profile) you have created.	See <a href="#">Requesting a Schema</a>

## Creating Resource Providers

You must create one or more resource providers which include:

- PaaS Infrastructure Zones: See [Creating a PaaS Infrastructure Zone](#)
- Schema Pool: See [Creating a Database Pool for Schema as a Service](#)

## Creating a Database Pool for Schema as a Service

You can create a database service with one or more schema with or without seed data and database objects. To do so, follow these steps:

1. Log into Enterprise Manager as a user with the `EM_SSA_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**. Click the **Setup** link next to the Database service family, select **Schema** from the drop down list, click **Schema Pool** and click **Create**.
3. Enter a name and description for the schema pool.
4. In the Credentials region, specify the credentials that will be used for performing database operations. Specify the following credentials:
  - **Host:** Required for starting the database.
  - **Grid Infrastructure:** Required to register a database service with grid infrastructure credentials. These credentials are used when schema backups taken by the self service user from ASM need to be deleted.
  - **Database:** Required for creating schema on the database. The database credentials must have SYSDBA privileges.
5. Specify the following details:
  - **PaaS Infrastructure Zone:** Select the PaaS Infrastructure Zone in which the databases are present. The schema will be created on the databases selected for the pool.
  - **Target Type:** Specify the configuration of the target database on which the schema is being deployed. This can be Single Instance or Cluster Database (RAC).
  - **Platform and Version:** Specify the platform and version of the database being deployed.
6. Click **Add** and select one or more databases to be added to the pool. All databases you select must be present in the same PaaS Infrastructure Zone.

 **Note:**

You can search for database groups that meet your requirements by specifying a search string in the Groups field.

7. Click **Next**. The Create New Pool: Policies page appears.

Specify the placement policy constraints to set maximum ceilings for resource utilization on each database. Placement policy constraints for each database can be defined by services or workloads as follows:

- **Services:** If you select this check box, you must specify the Maximum Number of Database Services that can be running on each database.
  - **Workloads Associated with Service Requests:** The amount of resources (such as CPU and memory) to manage the workload can be specified here. Specify the total workload for each database.
    - **Maximum CPU Allocation:** Specify the maximum CPU that can be allocated to each database.
    - **Maximum Memory Allocation:** Specify the maximum memory that can be allocated for each database.
8. If you have chosen to set the placement constraints by **Workloads Associated with Service Requests**, you can choose to enable the resource manager by selecting the **Enable Resource Manager for CPU** check box. You can use the resource manager to manage the CPU resource and ensure that `EM_SSA_USER` will not exceed the maximum allocated value.
  9. Click **Submit** to create a database pool. The newly created database pool will appear in the Database Cloud Self Service Portal Setup: Database Pools page.

## Creating a Database Provisioning Profile Using Export Schema Objects

To create a database provisioning profile, follow these steps:

1. You can access the Database Provisioning page using either of the following ways:
  - From the **Enterprise** menu, select **Cloud**, and then select **Cloud Home**. On the Cloud home page, click **Oracle Cloud**, select **Setup**, and then select **Data Sources**. On the Database: Data Sources page, in the Data Profiles tab, click **Create**.
  - From the Enterprise menu, select **Provisioning and Patching**, and then select **Database Provisioning**. On the Database Provisioning page, in the Profiles section, click **Create**.
  - From the database target home page, click **Oracle Database**, select **Provisioning**, and then select **Create Provisioning Profile**.
2. On the Reference Target page, click the search icon to select a target.
3. In the Search and Select:Targets display box, select the database you want to create a profile for, and then, click **Select**.
4. On the Reference Target page, select the following:
  - **Data Content**

- **Structure and Data** to include physical and structural files from the database or **Structure Only** to include only the structural files in the template.
- **Export Schema Objects**

**Create Database Provisioning Profile: Reference Target**

**Reference Target**

\* Name  🔍

Type Database Instance

Include  Database Oracle Home (OraDb11g\_home1\_2\_adc2201753.us.oracle.com\_4745)

Grid Infrastructure Oracle Home (Ora11g\_gridinfrahome1\_1\_adc2201753.us.oracle.com\_1453)

Data Content

Structure and Data       Structure Only

Create       Database Template

RMAN Backup       Export Schema Definition

RMAN Database Image

Database Template

Use Existing RMAN Backup

Export Schema Objects

5. In the Credentials section, select the database. In the Credentials column, you can select **Named Credentials** and then select a credential name from the Credential Name column (or) select **Preferred Credentials**. Click **Next**.
6. On the Content Options page, do the following:
  - Select the schema you want to include in the profile by clicking on a schema in the Available Schema list and moving it to the Selected Schema list.

**Note:**

When one or more schemas are selected, the database checks if the dependent schemas are also selected for export. If the dependent schemas are not exported, you will receive a warning. You can choose to go ahead with the selected schemas, or to include the schemas which were not initially selected.

The same warning is also displayed when you select a profile that does not have the dependent schemas exported.

**Create Database Provisioning Profile: Content Options** Back Step 2 of 4 Next Cancel

**Content**

Export  Full Database for migrating to Pluggable Database  
 Selected Schemas

**Available Schemas** **Selected Schemas**

SISA\_USER\_SERVICEAPP  
 sysman\_SERVICEAPP  
 SERVICEAPP

**Directory Locations**

**Dump**

+ Add - Delete...

Directory	File name	Maximum file size (MB)
DATA_PUMP_DIR	export_081115_08_47_%U.dmp	

**Log**

\* Directory ORACLE\_OCM\_CONFIG\_DIR2 File Name log\_081115\_08\_47.log

**Degree Of Parallelism**

\* Maximum number of Threads in Export Job 1

**Note:**

The Available Schemas section displays only the user created schemas that has data content in it. All the empty schemas are filtered out by default.

**Note:**

System schemas such as SYS, SYSTEM, and DBSNMP will not be exported.

The user schemas which do not have their own tablespace are not shown in left side of the shuttle.

- In the Degree of Parallelism section, enter the number of threads required to perform the export operation.

**Note:**

Increasing the number of threads helps reduce the time required to create the profile at the cost of using system resources.

- In the Directory Locations section, click on **Add**. In the Select Directory window, select a directory object listed to perform the export operation, and then click **Select**.

**Note:**

The number of export threads determines the number of parallel export processes that will run in parallel during export.

Hence, the dump file names should contain %U, to ensure the file names are auto generated with the running count to facilitate parallel operation along with the maximum size for the dump file. For example, 5GB. This means that the file rotation will start after 5GB limit is reached.

 **Note:**

Ensure that the directory location is accessible. The directory object that you select must refer to a location that is accessible across all the nodes. You can also create a directory object on ASM. However, it is not supported on ASM.

In the Log subsection, click on the search icon. In the Select Directory window, select the directory object you require to perform the export operation, and then click **Select**. In the Log subsection, enter the file name, and then click on **Next**.

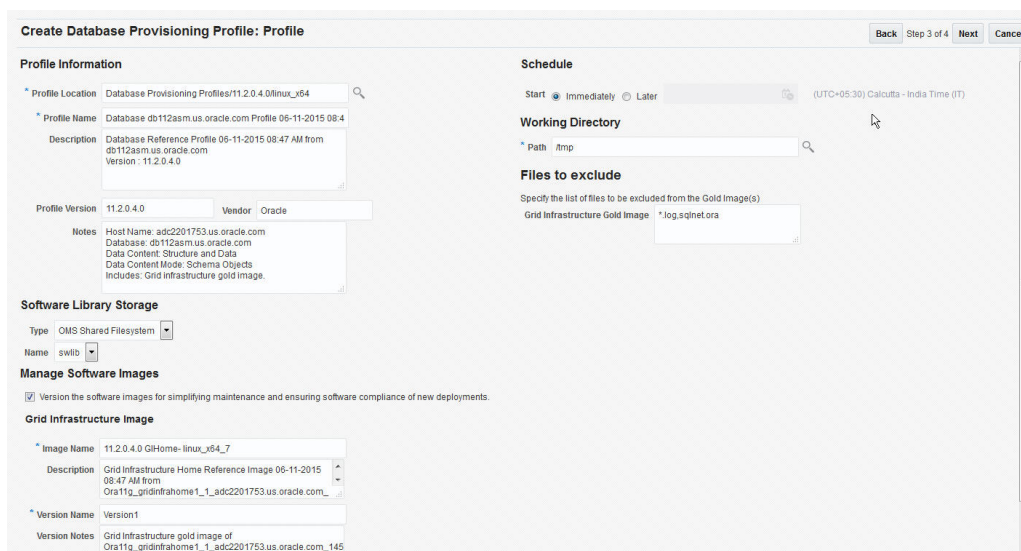
 **Note:**

You can make use of degree of parallelism with dump file names. The default value of dump files contain %U which creates a running count when degree of parallelism is greater than 1.

Also, this enables you to add multiple dump directories to distribute the storage if required.

7. On the Create Database Provisioning Profile: Page, in the Profile Information section, do the following:
  - Specify or select a profile location in the software library where the database profile will be created.
  - Specify a unique profile name.
 

For example:  
Export Schema Objects Provisioning Profile for HR database
  - Add a description for the profile.
  - Verify the profile version and the vendor.
  - Add any additional notes such as host name, database, data content, data content mode, and the like.



8. In the Schedule section, you can choose to start the profile creation immediately, or you can schedule it for a later time. You can also choose to repeat the creation of the provisioning profile, and set a repeat time.
9. Specify or select a working directory. Click **Next**.
10. On the Review page, ensure that the selections you have made in the previous pages are correctly displayed and click **Submit**. Otherwise, click **Back** repeatedly till you reach the page where you want to make changes. Click **Cancel** to abort the provisioning profile creation.

Once you have submitted the provisioning profile creation job, manually refresh the page if View Data has been set to Real Time: Manual Refresh. Else, set View Data to reload after a specific period of time, and then select an execution step from the Procedure Steps tree on the left pane to view the details.

To view the submitted jobs, select the **Procedure Activity** link in the **Data Profiles** tab.

## Configuring Request Settings

You can configure the request settings by specifying when a request can be made, its duration, and so on. See [Configuring Request Settings](#)

## Defining Quotas

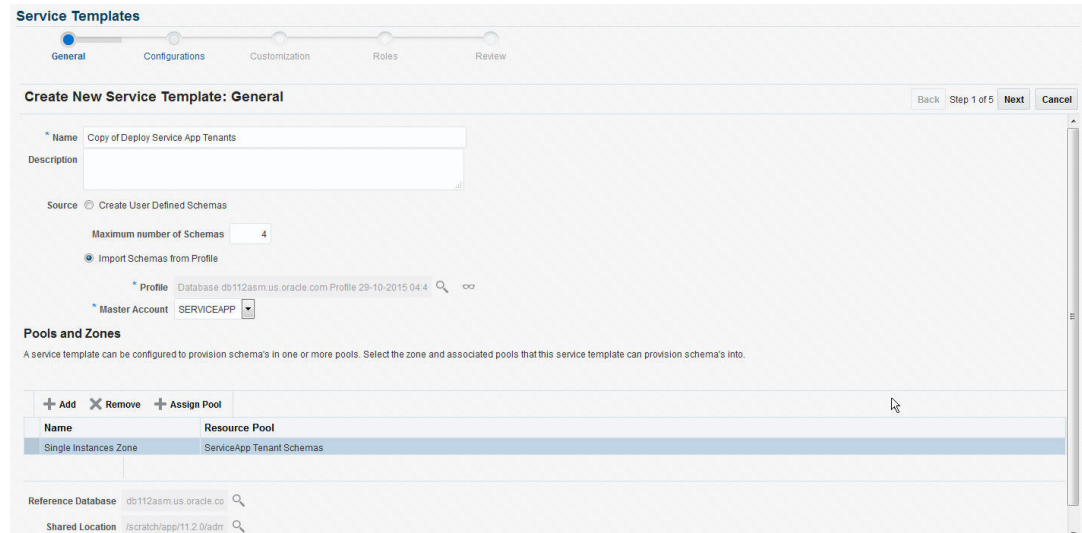
After configuring the request settings, you must define quotas for each self service user. See [Setting Up Quotas](#)

## Creating a Service Template for Schema Based on Profile

One or more schemas can be created based on the service template definition. To create a service template for schema as a service, follow these steps:

1. Log into Enterprise Manager as a user with the `EM_SSA_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**.
3. Click the **Setup** link next to the Databases option in the left panel. Select **Schema** from the drop down menu.
4. Click the **Service Templates** link. The Service Templates page appears. Click **Create**. The Create Service Template: General page appears.

**Figure 10-1 Create Service Template: General**



5. Enter a name and description for the service template. The description must be unique and provide information on the type of service template being created.
6. In the Source region, select the **Import Schemas from Profile** option and select a database provisioning profile from which the schema is to be imported. Click the Search icon next to the Profile field and select an export schema objects based profile from the list. If a profile does not exist, you must create one. See [Creating a Database Provisioning Profile Using Export Schema Objects](#).
7. After selecting the profile, you must select the Master Account that has privileges on all the schemas. If the Master Account is not selected, the self service user will have to select it when requesting a schema.
8. In the Zones region, click **Add** to select a PaaS Infrastructure Zone into which the service instance is to be provisioned. Click **Assign Pool** to add a Database Pool for the zone.
9. After you have selected the zone and the pool, the host target is populated in the Reference Host field. If you have added multiple zones and pools, you must click the **Search** icon and select a host target from the list.
10. If you creating a service template based on an export schema objects profile, in the Shared Location region, specify the Path or the Shared Location in which the schema dumps are present. The Shared Location must be accessible by all the databases.
11. Click **Next**. The Create New Service Template: Configurations page appears.



**Figure 10-2 Create Service Template: Configurations**

**Service Templates**

General Configurations Customization Roles Review

**Create New Service Template: Configurations** Back Step 2 of 5 Next Cancel

**Workloads**  
Workload represents the expected CPU, memory and storage requirements for each service.

View

Name	Description	CPU (cores)	Memory (GB)	Storage (GB)
Workload_1		2	0.5	1

**Schema Privileges**  
Select existing roles or create a role which will be assigned to all the schemas.

Assign Schema Privileges  From existing Database Roles  By creating a new Database Role

\* Name Deploy\_Service\_App\_Tenants\_

Description New database role to be assigned to all the s chemas.

\* Privilege for all accounts CREATE SESSION, CREATE DIMENSION, CREATE INDEXTYPE, CREATE OPERATOR, CREATE PROCEDURE, CREATE SEQUENCE, CREATE TABLE, CREATE TRIGGER, CREATE TYPE, CREATE VIEW, CREATE SYNONYM

TIP Master account has complete access to all other schemas created as part of service request

**Tablespace**  
Specify the tablespace storage configurations.

Maximum Size  Unlimited  Specified by the workload size selected at request time

Auto Extend

**Tablespace Details**

Following list provides tablespace as per profile selection. Rows can be selected to edit values in the table.

Specify the following details:

- **Workload Size:** Workload represents the total CPU, memory, and storage requirements for each service. You can define workload sizes such as small, medium, and large for the schema service. Click **Create** and in the Create Workload window, enter the name, CPU, Memory, and Storage limit for each service. Select a workload size and click **Default** to designate it as the default workload size.
- **Assign Schema Privileges:** You can select existing roles or create a role that will be assigned to all the schemas. All database privileges such as `CREATE_SESSION`, `CREATE_DIMENSION`, and so on can be granted to the role. Enter the name of the user, description, and the privileges that will be granted to the user.

**Note:**

- If the role with the name specified already exists in the database, the database privileges cannot be modified.
- The Master Account will have the `CREATE_SESSION`, `CREATE_DIMENSION`, `CREATE_INDEXTYPE`, `CREATE_OPERATOR`, `CREATE_PROCEDURE`, `CREATE_SEQUENCE`, `CREATE_TABLE`, `CREATE_TRIGGER`, `CREATE_TYPE`, `CREATE_VIEW`, and `CREATE_SYNONYM` privileges over all the schemas created as part of this service request.

- **Tablespace:** Specify the tablespace storage configuration. Enter the following details:
  - **Maximum Size:** The maximum size of the tablespace can be **Unlimited** or **Specified by the workload size selected at request time**.
  - **Auto Extend:** Select this check box to automatically extend the new data file.

 **Note:**

If you are creating an empty schema, the tablespaces are not listed in the Tablespace Details section. In this case, you must specify the Initial Size and the Increment value for the tablespace and only one tablespace is created.

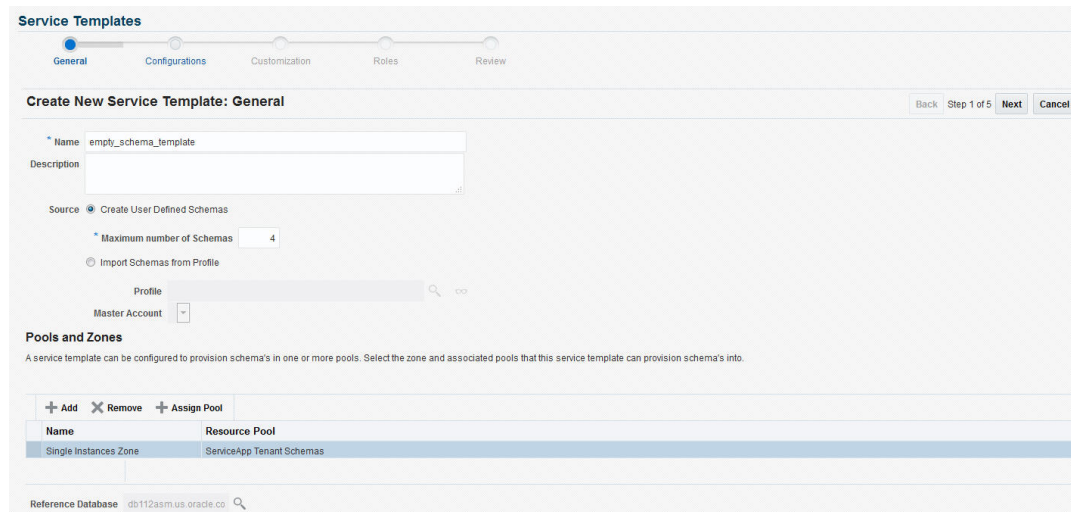
- Tablespace Details: Based on the profile you have selected, one or more tablespaces are listed here. You can edit the following values in the table:
  - **Initial Size:** If you selected **Specified by the workload size selected at request time** in the Maximum Size field, enter the initial size of the tablespace.
  - **Increment:** If you have selected the **Auto Extend** checkbox, specify the size by which the data file is to be automatically incremented.
  - **Maximum Size:** If the tablespace storage is Specified by workload size specified at request time, enter the maximum size here that can be distributed across tablespaces.
- 12. Click **Next**. The Create Service Template: Scripts page appears. Specify the custom scripts that need to be executed before and after the service instance has been created. See Pre and Post Scripts section for details.
- 13. In the Target Properties region, you can specify global target properties such as Location, Department, Line of Business, and so on. You can do the following:
  - Mark a property as mandatory by selecting the **Required** check box. If a property is marked as mandatory, the self service user must specify a value for this property while requesting a schema.
  - Lock a property. When a property is locked, the self service user cannot modify the value of this property while requesting a schema.
- 14. Click **Next**. The Create Service Template: Roles page appears. Click **Add** to select the SSA user roles to which this service template will be available. All users belonging to the selected role can use this service template.
- 15. Click **Next** to go to the Review page. Review the details entered so far and click **Submit**. The newly created service template will appear in the Database Cloud Self Service Portal Setup: Service Templates page. You can click on the Service Template Name link to view additional details.

## Creating a Service Template with Empty Schema

One or more schemas can be created based on the service template definition. To create a service template that can be used to create empty schemas, follow these steps:

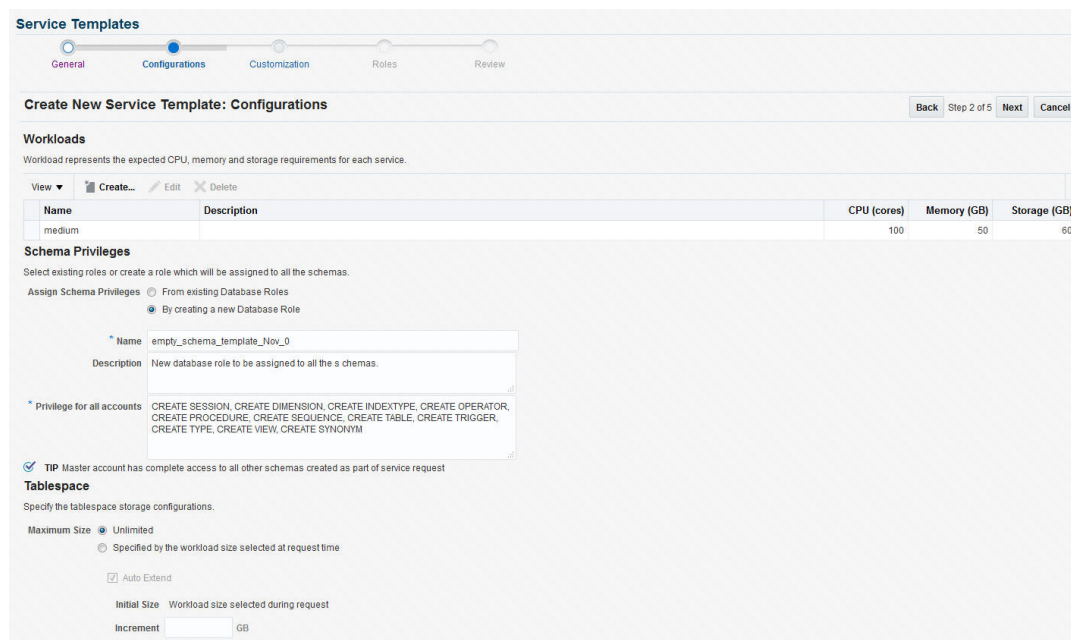
1. Log into Enterprise Manager as a user with the `EM_SSA_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**.
3. Click the **Setup** link next to the Databases option in the left panel. Select **Schema** from the drop down menu.
4. Click the **Service Templates** link. The Service Templates page appears. Click **Create**. The Create Service Template: General page appears.

**Figure 10-3 Create Service Template: General (Empty Schema)**



5. Enter a name and description for the service template. The description must be unique and provide information on the type of service template being created.
6. In the Source region, select the **Create User Defined Schemas** option to create empty schemas which can be configured by the user. If you select this option, you must specify the Maximum Number of Schemas that can be created.
7. In the Zones region, click **Add** to select a PaaS Infrastructure Zone into which the service instance is to be provisioned. Click **Assign Pool** to add a Database Pool for the zone.
8. After you have selected the zone and the pool, the host target is populated in the Reference Host field. If you have added multiple zones and pools, you must click the **Search** icon and select a host target from the list.
9. Click **Next**. The Create New Service Template: Configurations page appears.

**Figure 10-4 Create Service Template: Configurations (Empty Schema)**



Specify the following details:

- **Workload Size:** Workload represents the total CPU, memory, and storage requirements for each service. You can define workload sizes such as small, medium, and large for the schema service. Click **Create** and in the Create Workload window, enter the name, CPU, Memory, and Storage limit for each service. Select a workload size and click **Default** to designate it as the default workload size.
- **Assign Schema Privileges:** You can select existing roles or create a role that will be assigned to all the schemas. All database privileges such as `CREATE_SESSION`, `CREATE_DIMENSION`, and so on can be granted to the role. Enter the name of the user, description, and the privileges that will be granted to the user.

 **Note:**

- If the role with the name specified already exists in the database, the database privileges cannot be modified.
- The Master Account will have the `CREATE_SESSION`, `CREATE_DIMENSION`, `CREATE_INDEXTYPE`, `CREATE_OPERATOR`, `CREATE_PROCEDURE`, `CREATE_SEQUENCE`, `CREATE_TABLE`, `CREATE_TRIGGER`, `CREATE_TYPE`, `CREATE_VIEW`, and `CREATE_SYNONYM` privileges over all the schemas created as part of this service request.

- **Tablespace:** Specify the tablespace storage configuration. Enter the following details:
  - **Maximum Size:** The maximum size of the tablespace can be **Unlimited** or **Specified by the workload size selected at request time**.
  - **Auto Extend:** Select this check box to automatically extend the new data file. If this check box is selected, enter the following details:
    - Initial Size:** Enter the initial size of the tablespace.
    - Increment:** Specify the size by which the data file is to be automatically incremented.
- 10. Click **Next**. The Create Service Template: Scripts page appears. Specify the custom scripts that need to be executed before and after the service instance has been created.
- 11. In the Target Properties region, you can specify global target properties such as Location, Department, Line of Business, and so on. You can do the following:
  - Mark a property as mandatory by selecting the **Required** check box. If a property is marked as mandatory, the self service user must specify a value for this property while requesting a schema.
  - Lock a property. When a property is locked, the self service user cannot modify the value of this property while requesting a schema.
- 12. Click **Next**. The Create Service Template: Roles page appears. Click **Add** to select the SSA user roles to which this service template will be available. All users belonging to the selected role can use this service template.
- 13. Click **Next** to go to the Review page. Review the details entered so far and click **Submit**. The newly created service template will appear in the Database Cloud Self Service Portal Setup: Service Templates page. You can click on the Service Template Name link to view additional details.

## Configuring Chargeback

Optionally, you can configure the chargeback service. See [Chargeback Administration](#).

## Requesting a Schema

The self service user can now select the service template based on the database template profile and create a database. See [Requesting a Schema](#).

# Part VI

## Cloning Databases

This section describes how you can create full clones or snap clones either by using profiles or from a live database.

This section contains the following chapters:

- [Supported Cloning Options](#)
- [Creating Full Clones](#)
- [Creating Snap Clones](#)

# 11

## Supported Cloning Options

This chapter describes the different options offered by Enterprise Manager to clone a database. It contains the following sections:

- [About Data Lifecycle Management](#)
- [Supported Cloning Options](#)

### About Data Lifecycle Management

The Data Lifecycle Management (DLM) is a complete end-to-end solution offered by Enterprise Manager that enables administrators to refresh production databases after they are masked and instantly clone large databases on demand. The DLM solution:

- Supports creation of full and thin database clones.
- Is technology agnostic (storage and vendor agnostic).
- Integrates masking of production data and inline patching.
- Can be accessed through the Cloud Self Service Portal and the Database Provisioning dashboard.
- Is available through EMCLI and Rest APIs.

### Supported Cloning Options

IT environments typically require multiple copies of production databases for application development and testing purposes. When an application developer or tester needs a database clone, he or she must typically go through an approval cycle, which then initiates a cumbersome and time-consuming cloning process that may span days. Clones are shared by multiple users and applications, which results in degraded performance due to increased sharing by multiple users. In such an environment, refreshing test data to reflect changes made to a production database is typically done on a fixed schedule, and may not be done as often as needed. As a result, it may often not be feasible to ensure that developers and testers are testing with the latest data.

Creating database clones with the latest data involves the following steps:

- Identifying the production database that is to be cloned.
- Taking periodic backups using RMAN Backup, RMAN Image, and so on.
- Masking the sensitive data.
- Mask and Subset Data on the Test Master Database
- Creating a test master which is a sanitized copy of the production database or creating a standby database.
- Creating full clones for performance or stress testing, and snap clones for functional testing.
- Refreshing the clones to keep them in sync with the changes in the production database.

Using Enterprise Manager, you can create full clones or snap clones either from the Administration Dashboard or from the Self Service Portal.

Enterprise Manager allows you to create:

- Full Clones: You can make a full or complete copy of the production database using one of the following methods:
  - RMAN Backup
  - RMAN Duplicate
  - Data Pump

For more details, see [Creating Full Clones](#) .

- Snap Clones: You can make a snap clone or a thin clone using copy on write technology of the database. This model requires minimal space, provides instantaneous cloning, and is ideal for functional testing. You can create snap clones using one of the following solutions:
  - Software Solution
  - Hardware Solution

For more details, see [Creating Snap Clones](#) .



# 12

## Creating Full Clones

This chapter describes how to create a full database clone. It contains the following sections:

- [Creating a Full Database Clone Using RMAN Backup from the Self Service Portal](#)
- [Creating a Full Database Clone Using RMAN Duplicate from the Self Service Portal](#)

### Creating a Full Database Clone Using RMAN Backup from the Self Service Portal

Database backups created by RMAN (Recovery Manager) are stored as image copies or backup sets. You can create profiles using these backups and use these profiles to create full database clones.

**Table 12-1 Creating a Full Database Clone Using RMAN Backup**

Step	Task	Role
1	Follow the steps in the Getting Started section to enable DBaaS.	See <a href="#">Getting Started</a>
2	Create one or more resource providers.	See <a href="#">Creating Resource Providers</a>
4	Configure the request settings.	See <a href="#">Configuring Request Settings</a>
5	Define quotas for each self service user.	See <a href="#">Setting Up Quotas</a>
6	Create one of the following types of profiles: <ul style="list-style-type: none"><li>• RMAN Backup</li><li>• Existing RMAN Backup</li></ul>	See: <ul style="list-style-type: none"><li>• <a href="#">Creating a Database Provisioning Profile Using RMAN Backup</a></li><li>• <a href="#">Creating a Database Provisioning Profile Using Existing RMAN Backup</a></li></ul>
8	Create a service template based on the profile you have created.	See <a href="#">Create Service Template Using RMAN Backup Profile</a>
9	Configure the Chargeback Service.	See <a href="#">Configuring Chargeback</a>
10	While deploying a database, select the service template you have created.	See <a href="#">Requesting a Database</a>

### Creating Resource Providers

You must create one or more resource providers which include:

- PaaS Infrastructure Zones: See [Creating a PaaS Infrastructure Zone](#)
- Database Pool: See [Creating a Database Pool for Database as a Service](#)

### Creating a Database Pool for Database as a Service

To create a database pool for database as a service, follow these steps:

1. Log into Enterprise Manager as a user with the `EM_SSA_ADMINISTRATOR` role.

2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**. Click the **Setup** link next to the Database service family, click the **Database Pool** link and click **Create**.
3. Enter a name and description for the database pool.
4. In the Credentials region, specify the following credentials:
  - **Database Home:** Required for creating and starting the database.
  - **Root:** This is an optional field. It is required if you plan to use this database pool for database requests based on snap clone profile.
  - **Grid Infrastructure:** This is an optional field. It is required for registering database services with credentials.
  - **Automatic Storage Management:** This is an optional field. It is required if you plan to use this database pool for live cloning on any database running on ASM.

 **Note:**

You can use Preferred Credentials or the Named Credentials. If you are using Preferred Credentials,

- Host Credentials: Select the Target Type as Oracle Home and Credential Set as Normal Host Credentials.
- Root Credentials: Select the Target Type as Host and Credential Set as Privileged Host Credentials.
- Grid Infrastructure: Select the Target Type as Oracle High Availability Service and Credential Set as Host Credentials.
- Automatic Storage Management: Select the Target Type as ASM Instance.

5. Click **Add** and select one or more Oracle Homes to be added to the database pool.
6. Specify the following details:
  - **PaaS Infrastructure Zone:** Select the PaaS Infrastructure Zone into which the database instance is to be provisioned.
  - **Database Configuration:** Specify the configuration of the database being provisioned. This can either be Single Instance or Cluster Database (RAC) but cannot be a combination of both.
  - **Platform and Version:** Specify the platform and version of the database being deployed.
7. In the Maximum Number of Database Instances (per host), enter the maximum number of database instances that can be running on each host in the pool.

 **Note:**

For RAC databases, the value specified in this field is used to ensure that the nodes on which the database is to be created meets this criteria.

8. Click **Submit** to create a database pool. The newly created pool will appear in the Database Cloud Self Service Portal Setup: Database Pools page. The database pool can now be added to the Service Template.

## Creating a Database Provisioning Profile

You can create either of the following types of profiles:

- RMAN Backup. See [Creating a Database Provisioning Profile Using RMAN Backup](#).
- Existing RMAN Backup. See [Creating a Database Provisioning Profile Using Existing RMAN Backup](#).

### Note:

It is recommended that you create the profile from a database that is designated as the test master database. For details on setting up the test master, see [Enabling the Test Master for Snap Clone](#).

## Creating a Database Provisioning Profile Using RMAN Backup

To create a database provisioning profile, follow these steps:

1. You can access the Database Provisioning page using any of the following ways:
  - From the **Enterprise** menu, select **Cloud**, and then select **Cloud Home**. On the Cloud home page, click **Oracle Cloud**, select **Setup**, and then select **Data Sources**. On the Database: Data Sources page, in the Data Profiles tab, click **Create**.
  - From the Enterprise menu, select **Provisioning and Patching**, and then select **Database Provisioning**. On the Database Provisioning page, in the Profiles section, click **Create**.
  - From the database target home page, click **Oracle Database**, select **Provisioning**, and then select **Create Provisioning Profile**.
2. On the Reference Target page, click the search icon to select a target.
3. In the Search and Select:Targets display box, select the database you want to create a profile for, and then, click **Select**.
4. On the Reference Target page, select the following:
  - **Data Content**
  - **Structure and Data** to include physical and structural files from the database.
  - **Create**
  - **RMAN Backup**

The screenshot shows the 'Create Database Provisioning Profile: Reference Target' page. The 'Reference Target' section includes a search bar with 'db112asm.us.oracle.com' and a list of database instances. The 'Credentials' section contains a table with the following data:

Target	Credential Type	Credential	Credential Name
adc2201753.us.oracle.com	Database Home	Named Credentials	NC_HOST_SRRMANNNA
db112asm.us.oracle.com	Database	Named Credentials	NC_ORACLE_D_SYS_WELCOME

5. In the Credentials section, select the database. In the Credentials column, you can select **Named Credentials** and then select a credential name from the Credential Name column (or) select **Preferred Credentials**. Click **Next**.
6. The Content Options page appears. On this page, do the following:
  - Select **Online Backup** or **Offline Backup**.
  - Enter the number of channels.

**Note:**

A channel is the connection between the RMAN and the database. The usage of channels in RMAN backups sets the degree of parallelism. Each channel represents one stream of data to the device type. The more number of channels you allocate, the faster the backup jobs run. The maximum number of channels you can use is 25.

- (optional) Select **Compress files** and then select **High**, **Medium**, or **Low** strength of compression.
- (optional) Select **Use File Encryption** and then, enter the password and confirm the password.
- Select **Directory** for the Backup location, and enter the directory path (or) select **Fast Recovery Area**, which already contains a backup location.

**Note:**

Ensure that the given location is accessible to the nodes in the database pool.

- Enter the backup file name format. This will be used to generate backup files. backup file tag, control file name, and control file tag.
- Enter the backup file tag. Backup files will be tagged with this tag.
- Enter the control file name. The control file backup will be generated with this name.
- Click **Next**.

**Create Database Provisioning Profile: Content Options** (Step 2 of 4)

**Oracle Database Backup Using Recovery Manager (RMAN)**

Type:  Online backup  
 Offline backup

Channels: 2

Compress files  
 Strength:  High  
 Medium  
 Low

Use file encryption  
 Password: [Redacted]  
 Confirm Password: [Redacted]

Backup location:  Fast Recovery Area  
 Directory  
 Path: +RECO

Keep local backup  
 Until:  Date keep utility: [Redacted]

Backup file name format: backup\_%U  
 Backup file tag: data\_backup\_1446841  
 Control file name: control01.cfb

7. On the Create Database Provisioning Profile: Page, in the Profile Information section, do the following:
- Specify or select a profile location in the software library where the database profile will be created.
  - Specify a unique profile name.  
 For example:  
 RMAN Backup Profile for HR database
  - Add a description for the profile.
  - Verify the profile version and the vendor.
  - Add any additional notes such as host name, database, data content, data content mode, and the like.

**Create Database Provisioning Profile: Profile** (Step 3 of 4)

**Profile Information**

\* Profile Location: Database Provisioning Profiles/11.2.0.4.0linux\_r64

\* Profile Name: RMAN Backup Profile

Description: Database Reference Profile 07-11-2015 01:49 AM from db112asm.us.oracle.com  
 Version: 11.2.0.4.0

Profile Version: 11.2.0.4.0 Vendor: Oracle

Notes: Host Name: host.example.com  
 Database: test.example.com  
 Data Content: Structure and Data  
 Data Content Mode: RMAN Backup

**Schedule**

Start:  Immediately  Later (UTC+05:30) Calcutta - India Time (IT)

**Working Directory**

\* Path: /tmp

8. In the Schedule section, you can choose to start the profile creation immediately, or you can schedule it for a later time. You can also choose to repeat the creation of the provisioning profile, and set a repeat time.

 **Note:**

If a periodic RMAN profile is being used in a Service Template, then as an SSA\_admin, you need to devise a way to synchronously transfer all the backup pieces to a shared location among the Pool. Else, you need to take the backup on a shared nfs directory.

9. In the Purge Policy section, you have three options:
  - **None.** Select this option you do not want to purge any data collected.
  - **Snapshots.** This option enables you to specify the maximum number of snapshots that can be purged.
  - **Day(s).** This option enables you to specify the number of days after which the data component should be purged.
10. Specify or select a working directory. Click **Next**.
11. On the Review page, ensure that the selections you have made in the previous pages are correctly displayed and click **Submit**. Otherwise, click **Back** repeatedly till you reach the page where you want to make changes. Click **Cancel** to abort the provisioning profile creation.

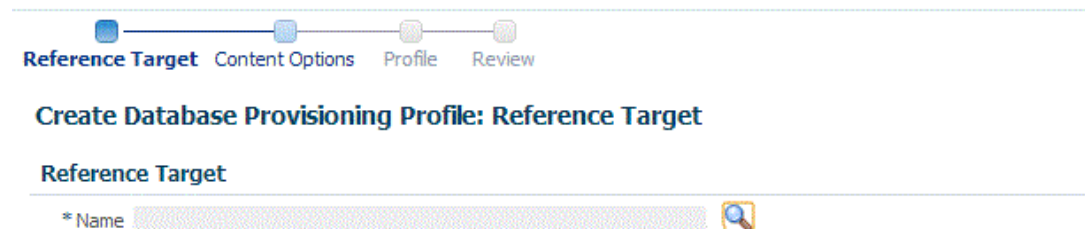
Once you have submitted the provisioning profile creation job, manually refresh the page if View Data has been set to Real Time: Manual Refresh. Else, set View Data to reload after a specific period of time, and then select an execution step from the Procedure Steps tree on the left pane to view the details.

To view the submitted jobs, select the **Procedure Activity** link in the **Data Profiles** tab.

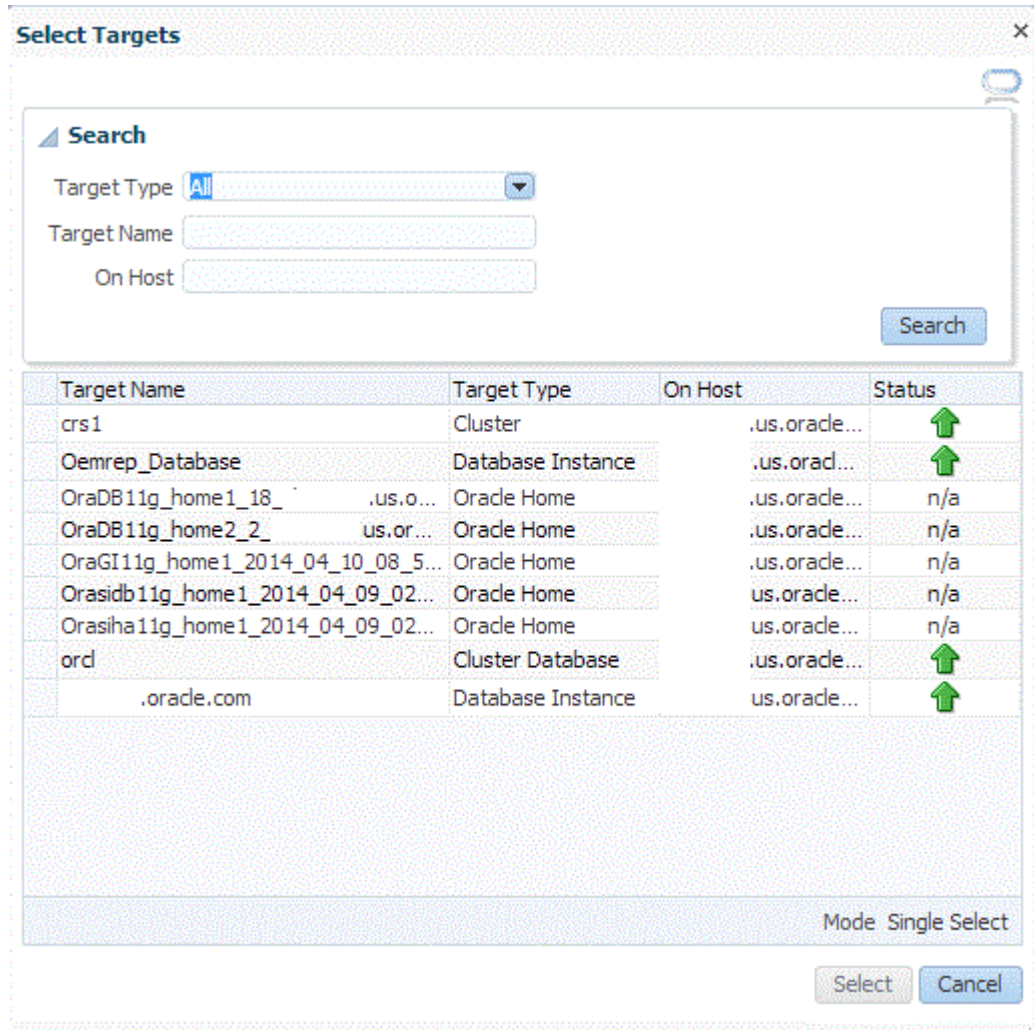
## Creating a Database Provisioning Profile Using Existing RMAN Backup

To create a database provisioning profile, follow these steps:

1. You can access the Database Provisioning page using either of the following ways:
  - From the **Enterprise** menu, select **Cloud**, and then select **Cloud Home**. On the Cloud home page, click **Oracle Cloud**, select **Setup**, and then select **Data Sources**. On the Database: Data Sources page, in the Data Profiles tab, click **Create**.
  - From the Enterprise menu, select **Provisioning and Patching**, and then select **Database Provisioning**. On the Database Provisioning page, in the Profiles section, click **Create**.
  - From the database target home page, click **Oracle Database**, select **Provisioning**, and then select **Create Provisioning Profile**.
2. On the Reference Target page, click the search icon to select a target.



3. In the Search and Select:Targets display box, select the database you want to create a profile for, and then, click **Select**.



4. On the Reference Target page, select the following:
  - **Data Content**
  - **Structure and Data** to include physical and structural files from the database.
  - **Use Existing RMAN Backup**

## Create Database Provisioning Profile: Reference Target

### Reference Target

\* Name

Type

Include  Database Oracle Home (OraDB12Home1\_1\_)

Data Content

- Structure and Data
  - Create
    - RMAN Backup
    - RMAN Database Image
    - Database Template
    - Storage Snapshots
    - Use Existing RMAN Backup
    - Export Schema Objects
- Structure Only
  - Database Template
  - Export Schema Definition

- In the Credentials section, select the database. In the Credentials column, you can select **Named Credentials** and then select a credential name from the Credential Name column (or) select **Preferred Credentials**. Click **Next**.

Step 1 of 4

### Credentials

Target	Credential Type	Credential	Credential Name
oracle.com	Database Home	Preferred Credentials	Normal Host Credentials
oracle.com	Database	Preferred Credentials	SYSDBA Database Credentials

- On the Content Options page, select an existing RMAN backup from the list provided.

### Note:

The list of existing RMAN backups are fetched from the database. Backups with multiple tags are supported.

### Create Database Provisioning Profile: Content Options

Step 2 of 4

#### Existing Backups

Select an existing backup to create the profile

Backup Name	Start Time	Type	Status
BKUP_120814075913	December 07, 2014	FULL	completed
2014-12-08T03:31:31	December 08, 2014	FULL	completed

#### Backup Details : BKUP\_120814075913

Backup Set	Tag	Name	Completion Time	Device
55	BKUP_120814075913	/mnt2/r1a1/fast_recovery_area/PROD2/backups/2014_12_08/01_mf_nconf_BKUP_120814075913_b8bprsp9_bkp	December 08, 2014	DISK
56	BKUP_120814075913	/mnt2/r1a1/fast_recovery_area/PROD2/backups/2014_12_08/01_mf_nconf_BKUP_120814075913_b8bpryf_bkp	December 08, 2014	DISK
57	BKUP_120814075913	/mnt2/r1a1/fast_recovery_area/PROD2/backups/2014_12_08/01_mf_nconf_BKUP_120814075913_b8bpr7ho_bkp	December 08, 2014	DISK

Click **Next**.

- On the Create Database Provisioning Profile: Page, in the Profile Information section, do the following:




- Specify or select a profile location in the software library where the database profile will be created.
- Specify a unique profile name.

For example:  
Existing RMAN Backup Profile for HR database

- Add a description for the profile.
- Verify the profile version and the vendor.
- Add any additional notes such as host name, database, data content, data content mode, and the like.

## Create Database Provisioning Profile: Profile

### Profile Information

* Profile Location	Database Provisioning Profiles/12.1.0.1.0/linux_x64	
* Profile Name	RMAN Backup Profile for HR database	
Description	Database Reference Profile 09-12-2014 10:05 AM from test.example.com Version : 12.1.0.1.0	
Profile Version	12.1.0.1.0	Vendor Oracle
Notes	Host Name: host.example.com Database: test.example.com Data Content: Structure and Data Data Content Mode: RMAN Backup Includes: Database gold image.	

8. In the Schedule section, you can choose to start the profile creation immediately, or you can schedule it for a later time. You can also choose to repeat the creation of the provisioning profile, and set a repeat time.

#### Note:

If a periodic RMAN profile is being used in a Service Template, then as an SSA\_admin, you need to device a way to synchronously transfer all the backup pieces to a shared location among the Pool. Else, you need to take the backup on a shared nfs directory.

9. In the Purge Policy section, you have three options:
  - **None.** Select this option you do not want to purge any data collected.
  - **Snapshots.** This option enables you to specify the maximum number of snapshots that can be purged.
  - **Day(s).** This option enables you to specify the number of days after which the data component should be purged.

### Schedule

Start  Immediately  Later  (UTC+00:00) GMT  
Repeat

### Purge Policy

Purge   
Working   
Day(s)

\* Path

- Specify or select a working directory. Click **Next**.
- On the Review page, ensure that the selections you have made in the previous pages are correctly displayed and click **Submit**. Otherwise, click **Back** repeatedly till you reach the page where you want to make changes. Click **Cancel** to abort the provisioning profile creation.

Once you have submitted the provisioning profile creation job, manually refresh the page if View Data has been set to Real Time: Manual Refresh. Else, set View Data to reload after a specific period of time, and then select an execution step from the Procedure Steps tree on the left pane to view the details.

To view the submitted jobs, select the **Procedure Activity** link in the **Data Profiles** tab.

## Configuring Request Settings

You can configure the request settings by specifying when a request can be made, its duration, and so on. See [Configuring Request Settings](#).

## Defining Quotas

After configuring the request settings, you must define quotas for each self service user. See [Setting Up Quotas](#).

## Create Service Template Using RMAN Backup Profile

- Log into Enterprise Manager as a user with the `EM_SSA_ADMINISTRATOR` role.
- From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**.

3. Click the **Setup** link next to the Databases option in the left panel. Select Database from the drop down menu.
4. Click the **Service Templates** link. The Service Templates page appears. Click **Create**. The Create Service Template: General page appears.

**Figure 12-1 Create Service Template (RMAN Backup)**

5. Enter a name and description for the service template. The description must be unique and provide information on the type of service template being created.
6. In the Source Identification section, select the **Using Profile** radio button, click the **Search** icon and select a RMAN Backup profile from the list.
7. In the Profile Version field, you can select either of the following:
  - Latest: This ensures that the latest profile is always used by the self service user.
  - Selected by user at request time: If this option is selected, the self service user can select a revision of the profile that is to be used when creating a service request.
8. In the Database Definition region, specify the following:
  - **Type:** This can be Single Instance or Real Application Cluster (RAC). If you select RAC, specify the Number of Nodes.
  - **Database SID:** This is an optional field. You can select **Specify Prefix** or **Specified by User at Request Time**.
    - **Specify Prefix:** If you choose this option, enter a prefix that is to be used to generate a unique System Identifier (SID) at the time of database creation. The prefix helps to identify databases created using this service template. The prefix can be a maximum of 6 characters.

The new database name generated will be based on the SID Prefix specified here. For example, if the prefix is specified as MYDB, the SID for the new database is generated as MYDB0000, MYDB0001, MYDB0002, and so on.

For existing databases (running databases and in progress requests), a unique SID name is generated for single instance databases, or a unique name is generated for real application cluster databases. For example, if the existing SIDs running on a host are MYDB0000, MYDB0001, MYDB0002 And In progress are

MYDB0003, MYDB0004, the new SID or database name generated for the new request is MYDB0005.

- **Specified by User at Request Time:** If you choose this option, you can leave this field blank and specify the SID when you are making a database request.
  - **Domain Name:** This is an optional field. Enter a Domain Name to be used for the new database being created. You must ensure that the domain name does not contain a preceding "." (dot).
  - **Enable Standby Database:** Select this checkbox if you want to provision standby databases using this service template. If this checkbox is selected, you have to add standby databases.
9. In the Zones region, click **Add** to select a PaaS Infrastructure Zone into which the database instance is to be provisioned. Click **Assign Pool**. Select a pool from the list and assign this pool to the PaaS Infrastructure Zone. The database will be provisioned into this pool.
  10. After you have selected the zone and the pool, the host target is populated in the Reference Host field.
  11. Specify a Shared Location and click **Next**.
  12. In the Listener Port field, specify listener port number that is to be associated with the new database. If you have selected a 11.2 or later RAC database, you must specify the scan port number. Click **Next**. The Create Service Template: Database page appears.

**Figure 12-2 Create Service Template: Database (RMAN Backup)**

**Database Cloud Self Service Portal Setup: Database**

Reference Host  
The reference host is used to select the necessary database content values like ASM disk group, data file location, listener port that are available on the reference host.

Zone: Austin Data Center Pool: SI Database Pool1 Host: us.oracle.com

Storage type  
 Automatic Storage Management  
 File System  
 \* Location: (ORACLE\_BASE)/oradata

Fast Recovery  
Specify the location where recovery related files (archived redo logs, RMAN backups and other related files) will be created.  
 Enable Fast Recovery Area  
 Automatic Storage Management  
 File System  
 Location: (ORACLE\_BASE)/fra  
 Fast Recovery Size(MB): 500  
 Enable Archiving

Listener Port  
\* Port Number: 1531

Administrator Credentials  
Specify passwords for the administrative users (SYS, SYSTEM and DBSNMP) in the new database. These users are used by the SSA Administrator to manage the database. The SSA User has no access to these users.  
 Use the same password  
 \* Password: \*\*\*\*\* \* Confirm Password: \*\*\*\*\*  
 Use different passwords

User Name	Password	Confirm Password
SYS	*****	*****
SYSTEM	*****	*****
DBSNMP	*****	*****

Non Administrator Credentials  
Select users that should not be accessible to the SSA User.

Available Users  
 QUTLH  
 ORACLE\_OCM  
 APPQOSSYS  
 WMYSYS  
 EIPSYS  
 CTXSYS  
 XDB  
 ORDSYS  
 ORDDATA  
 ORDPLUGINS  
 SI\_INFORMTN\_SCHEMA  
 MDSYS  
 OLAPSYS

Selected Users  
 SCOTT

Master Account Privileges  
 \* Name: MASTER\_ACCOUNT  
 Description: New database role to be assigned to master account.

13. In the Reference Host region, the name of the PaaS Infrastructure zone, the database pool, and the reference host you have selected in the Database Cloud Self Service Portal Setup: General page are displayed.

The database values such as a Automatic Storage Management (ASM) disk group, location of the file system, and listener port you select must be available on the reference host.

14. Specify the following:

- **Storage Type:** This can be:
  - **Automatic Storage Management:** The Oracle Automatic Storage Management (ASM) is a volume manager and a file system for database files that supports single-instance and RAC configurations. ASM groups the disks in your storage system into one or more disk groups. If you select ASM, select the Disk Group here.
  - **File System:** The Oracle Database File System creates a standard file system interface on top of files and directories that are stored in database tables. If you select this option, you must specify or select the Location of the File System.
- **Fast Recovery (Optional):** To simplify the management of backup and recovery files, you can create a fast recovery area for your database. Select the **Enable Fast Recovery Area** checkbox to specify the location in which recovery related files must be stored. The fast recovery area can be a ASM disk group or a file system that provides a centralized disk location for backup and recovery file. Specify the location of the Fast Recovery Area and the Fast Recovery Size. The amount of disk space to allocate for the fast recovery area depends on the size and activity levels of your database.
 

If the **Enable Archiving** check box is selected, the database will not be shut down during a refresh. This allows self service users to schedule backups and restore operations without shutting down the database.
- 15. In the Listener Port field, specify listener port number that is to be associated with the new database. If you have selected a 11.2 or later RAC database, you must specify the scan port number.
- 16. Specify the **Administrator Credentials**. Specify passwords for the system schemas of the new database. These schemas will not be available to the `EM_SSA_USERS`. You can choose to use the same password for all the schemas or different passwords for each schema. If these values are not specified, default values will be used and the `EM_ADMINISTRATOR` can change them.
- 17. Apart from the system schemas, if you want to restrict access to other schemas, you can select them in the Non-Administrator Credentials region and specify the password. These schemas will be locked and the `EM_SSA_USERS` cannot access them.
- 18. Enter the name of the Master Account. You can specify the privileges that are to be provided to the master account user by specifying them in the Privileges field. Click **Next**.
- 19. Click **Next**. The Create Service Template: Initialization Parameters page appears. In this page, you can specify the following:
  - **Database Sizes:** Select the database sizes that are to be supported by this service template. You can select sizes such as small, medium, and large. Each database size has a specific memory, storage, CPU cores, and units. Select a size and select **Include in Template** to associate it with the service template. Click **Default** to designate it as the default database size.
  - **Initialization Parameters:** You can configure the values of various initialization parameters that affect the operation of the database instance. Select a parameter and click the **Set** icon to modify the value of the parameter.
- 20. Click **Next**. The Create Service Template: Customization page appears. Specify the custom scripts that need to be executed before and after the database is created. See [Pre and Post Request Creation / Deletion Scripts](#) for details.
 

You can also specify a custom Post SQL Script and select the user who can run the script. For more details, see [Selecting the Post SQL Script](#).

21. In the Target Properties region, you can specify global target properties such as Location, Department, Line of Business, and so on. These properties will be applied to the database clones that are created. You can do the following:
  - Mark a property as mandatory by selecting the **Required** check box. If a property is marked as mandatory, the self service user must specify a value for this property while requesting a database.
  - Lock a property. When a property is locked, the self service user cannot modify the value of this property while requesting a database.
22. Click **Next**. The Create Service Template: Roles page appears. Click **Add** to select the SSA user roles to which this service template will be available. All users belonging to the selected role can use this service template. Click **Next**.
23. The Create Service Template: Review page appears. Click **Create**. The newly created service template will appear in the Database Cloud Self Service Portal Setup: Service Templates page.

## Configuring Chargeback

Optionally, you can configure the chargeback service. See [Chargeback Administration](#).

## Requesting a Database

The self service user can now select the service template based on the database template profile and create a database. See [Requesting a Database](#).

# Creating a Full Database Clone Using RMAN Duplicate from the Self Service Portal

You can use the RMAN Duplicate feature to create a test master and use the test master to create a full database clone.

**Table 12-2 Creating a Full Database Clone Using a Live Standby Database**

Step	Task	Role
1	Follow the steps in the Getting Started section to enable DBaaS.	See <a href="#">Getting Started</a> .
2	Create one or more resource providers	See <a href="#">Creating Resource Providers</a> .
3	Create the test master by using a live standby database.	See <a href="#">Creating a Service Template Using RMAN Duplicate</a> .
4	Configure the request settings.	See <a href="#">Configuring Request Settings</a> .
5	Define quotas for each self service user.	See <a href="#">Defining Quotas</a> .
6	Create a service template based on the live standby database.	See <a href="#">Creating a Service Template Using RMAN Duplicate</a> .
7	Configure the Chargeback Service.	See <a href="#">Configuring Chargeback</a> .
8	While deploying a database, select the service template you have created.	See <a href="#">Requesting a Database</a> .

## Creating a Service Template Using RMAN Duplicate

To create a service template using an existing database, follow these steps:

1. Log into Enterprise Manager as a user with the `EM_SSA_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**.
3. Click the **Setup** link next to the Databases option in the left panel. Select **Database** from the drop down menu.
4. Click the **Service Templates** link. The Service Templates page appears. Click **Create**. The Create Service Template: General page appears.
5. Enter a name and description for the service template. The description must be unique and provide information on the type of service template being created.
6. In the Source Identification section, select the **Using Existing Database** radio button, click the **Search** icon and select the test master database that you had created earlier.
7. Specify the host and database credentials.
8. In the Database Definition region, specify the following:
  - **Create:** Select **Full Clone Using RMAN Duplicate**. This option is used to create a full database clone using an existing database.
  - **Type:** This can be Single Instance or Real Application Cluster (RAC). If you select RAC, specify the Number of Nodes.
  - **Database SID:** This is an optional field. You can select **Specify Prefix** or **Specified by User at Request Time**.
    - **Specify Prefix:** If you choose this option, enter a prefix that is to be used to generate a unique System Identifier (SID) at the time of database creation. The prefix helps to identify databases created using this service template. The prefix can be a maximum of 6 characters.  
The new database name generated will be based on the SID Prefix specified here. For example, if the prefix is specified as MYDB, the SID for the new database is generated as MYDB0000, MYDB0001, MYDB0002, and so on.  
  
For existing databases (running databases and in progress requests), a unique SID name is generated for single instance databases, or a unique name is generated for real application cluster databases. For example, if the existing SIDs running on a host are MYDB0000, MYDB0001, MYDB0002 And In progress are MYDB0003, MYDB0004, the new SID or database name generated for the new request is MYDB0005.
    - **Specified by User at Request Time:** If you choose this option, you can leave this field blank and specify the SID when you are making a database request.
  - **Domain Name:** This is an optional field. Enter a Domain Name to be used for the new database being created. You must ensure that the domain name does not contain a preceding "." (dot).
9. In the Zones region, click **Add** to select a PaaS Infrastructure Zone into which the database instance is to be provisioned. Click **Assign Pool**. Select a pool from the list and assign this pool to the PaaS Infrastructure Zone. The database will be provisioned into this pool.
10. After you have selected the zone and the pool, the host target is populated in the Reference Host field.

11. Specify a Shared Location and click **Next**.
12. In the Listener Port field, specify listener port number that is to be associated with the new database. If you have selected a 11.2 or later RAC database, you must specify the scan port number. Click **Next**. The Create Service Template: Database page appears.
13. In the Reference Host region, the name of the PaaS Infrastructure zone, the database pool, and the reference host you have selected in the Database Cloud Self Service Portal Setup: General page are displayed.

The database values such as a Automatic Storage Management (ASM) disk group, location of the file system, and listener port you select must be available on the reference host.

14. Specify the following:
  - **Storage Type:**
    - **Automatic Storage Management:** The Oracle Automatic Storage Management (ASM) is a volume manager and a file system for database files that supports single-instance and RAC configurations. ASM groups the disks in your storage system into one or more disk groups. If you select ASM, select the Disk Group here.
    - **File System:** The Oracle Database File System creates a standard file system interface on top of files and directories that are stored in database tables. If you select this option, you must specify or select the Location of the File System.
  - **Fast Recovery (Optional):** To simplify the management of backup and recovery files, you can create a fast recovery area for your database. Select the **Enable Fast Recovery Area** checkbox to specify the location in which recovery related files must be stored. The fast recovery area can be a ASM disk group or a file system that provides a centralized disk location for backup and recovery file. Specify the location of the Fast Recovery Area and the Fast Recovery Size. The amount of disk space to allocate for the fast recovery area depends on the size and activity levels of your database.  
If the **Enable Archiving** check box is selected, the database will not be shut down during a refresh. This allows self service users to schedule backups and restore operations without shutting down the database.
15. In the Listener Port field, specify listener port number that is to be associated with the new database. If you have selected a 11.2 or later RAC database, you must specify the scan port number.
16. Specify the **Administrator Credentials**. Specify passwords for the system schema of the new database. These schema will not be available to the `EM_SSA_USERS`. You can choose to use the same password for all the schemas or different passwords for each schema. If these values are not specified, default values will be used and the `EM_ADMINISTRATOR` can change them.
17. Apart from the system schema, if you want to restrict access to other schema, you can select them in the Non-Administrator Credentials region and specify the password. These schema will be locked and the `EM_SSA_USERS` cannot access them. Click **Next**.
18. Click **Next**. The Create Service Template: Initialization Parameters page appears. In this page, you can specify the following:
  - **Database Sizes:** Select the database sizes that are to be supported by this service template. You can select sizes such as small, medium, and large. Each database size has a specific memory, storage, CPU cores, and units. Select a size and select **Include in Template** to associate it with the service template. Click **Default** to designate it as the default database size.



- Initialization Parameters: You can configure the values of various initialization parameters that affect the operation of the database instance. Select a parameter and click the **Set** icon to modify the value of the parameter.
19. Click **Next**. The Create Service Template: Customization page appears, specify the custom scripts that need to be executed before and after the database is created. See [Pre and Post Request Creation / Deletion Scripts](#) for details.
  20. In the Target Properties region, you can specify global target properties such as Location, Department, Line of Business, and so on. You can do the following:
    - Mark a property as mandatory by selecting the **Required** check box. If a property is marked as mandatory, the self service user must specify a value for this property while requesting a database.
    - Lock a property. When a property is locked, the self service user cannot modify the value of this property while requesting a database.
  21. Click **Next**. The Create Service Template: Roles page appears. Click **Add** to select the SSA user roles to which this service template will be available. All users belonging to the selected role can use this service template. Click **Next**.
  22. The Create Service Template: Review page appears. Click **Create**. The newly created service template will appear in the Database Cloud Self Service Portal Setup: Service Templates page.

# 13

## Creating Snap Clones

This chapter describes how to create snap clones. It contains the following sections:

- [About Snap Clones](#)
- [Registering and Managing Storage Servers](#)
- [Creating Test Master Pluggable Databases and Snapshot Clones](#)

### About Snap Clones

Snap Clone provides a storage agnostic approach to creating rapid and space efficient clones of large databases. Clones of the production database are often required for test and development purposes, and it is difficult and time consuming to create these clones, especially if the databases are huge.

Enterprise Manager offers Snap Clone as a way to address this issue, so that thin clones can be created from production databases by using the copy on write technology available in some storage systems. This means that these clones take up little space initially (about 2 GB of writable space required for a thin clone of a multi-terabyte database), and will grow as inserts, updates and deletes are performed. Enterprise Manager offers two solutions with snap clone:

- **Hardware Solution:** Vendor specific hardware solution which supports Oracle Sun ZFS storage appliance.
- **Software Solution:** Storage agnostic software solution that supports all NAS storage devices. This is supported through use of the ZFS file system, and the CloneDB feature.

The main features of Snap Clones are:

- **Self-Service Driven Approach:** Empowers the self service user to clone databases as required on an ad-hoc basis.
- **Rapid Cloning:** Databases can be cloned in minutes and not in days or weeks.
- **Space Efficient:** This features allows users to significantly reduce the storage footprint.

 **Note:**

Beginning with Enterprise Manager 13c, Snap Clone no longer supports NetApp or EMC Storage Appliance.

The NetApp/EMC appliance registered on Enterprise Manager 13c Release 4 or earlier release will be deregistered when upgrading to Enterprise Manager 13c Release 5. Once Enterprise Manager has been upgraded, the following jobs will no longer run:

- Synchronize jobs scheduled on the deregistered filer will be stopped after upgrade.
- Database will be no longer be snap clone enabled.
- Any future job scheduled for Profile will fail. This has to be explicitly stopped.
- Refresh of the snap clone database will fail.
- Service Templates on the deregistered storage will no longer be functional. Any provisioning request submitted using such Service template will fail.

## About Data Lifecycle Management

The Enterprise Manager Data Lifecycle Management solution provides a complete end to end automated flow to move data from the production environment to the test environment.

In a production environment, the database administrator will first take a backup of this production database, create a test master database from the backup, then mask the sensitive data, and finally create clones from the test master. The clones then need to be refreshed as required to ensure that the data is in sync with the production data. With the Data Lifecycle Management solution, this process is completely automated and can be performed either from the Cloning Dashboard or through the Self Service Portal.

## Creating Test Master Pluggable Databases and Snapshot Clones

This section provides the following different solutions of creating test master pluggable database and snapshot clones of test master pluggable databases:

- [Creating a Test Master Pluggable Database](#)
- [Creating an Exadata Test Master Pluggable Database](#)
- [Creating a Snapshot Clone of an Exadata Test Master PDB](#)
- [Creating an ACFS Test Master Pluggable Database](#)
- [Creating a Snapshot Clone of an ACFS Test Master PDB](#)

### Creating a Test Master Pluggable Database

To create a test master PDB from a source PDB, follow these steps:

1. From the **Targets** menu, select **Databases**.
2. For **View**, select **Search List**. From the **View** menu, select **Expand All**.
3. Look for the source CDB (the CDB that the source PDB is a part of) in the list, then click the name of the PDB from which you want to create a test master PDB.

4. From the **Oracle Database** menu, select **Cloning**, then select **Create Test Master**.

Alternatively, in Step 3, you can right click the name of the PDB from which you want to create a test master PDB, select **Oracle Database**, select **Cloning**, then select **Create Test Master**.

5. On the Create Test Master Pluggable Database: Source and Destination page, do the following:

- Specify the SYSDBA credentials for the source CDB. You can choose to use the preferred credentials, use a saved set of named credentials, or specify a new set of credentials.
- In the Pluggable Database Definition section, specify a name, and a display name for the test master PDB. Enterprise Manager uses the display name to identify the test master PDB target.
- In the PDB Administrator Credentials section, specify the credentials of the admin user account that you want to use to administer the test master PDB.
- In the Container Database section, specify the destination CDB (the CDB that the test master PDB must be a part of).
- In the Credentials section, specify the SYSDBA credentials for the destination CDB, and the host credentials for the destination CDB. Also, if the destination CDB is using Automatic Storage Management (ASM) to manage disk storage, you must specify the ASM credentials.

Click **Next**.

6. On the Create Test Master Pluggable Database: Configuration page, do the following:

In the Database Files Location section, specify the storage location where the datafiles of the test master PDB must be stored. If the destination CDB is using ASM to manage disk storage, specify the disk group where the datafiles of the test master PDB must be stored.

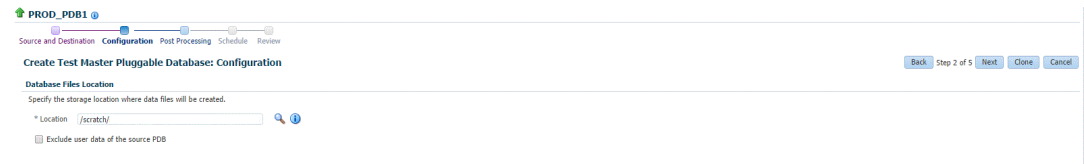
To ensure that only the source PDB data model definition is cloned (and the source PDB data is not cloned), select **Exclude User Data**.

In the PDB Administrator Credentials section, specify the credentials of the admin user account that you want to use to administer the test master PDB.

In the Advanced Configuration section, specify the storage limits for the maximum size of the test master PDB, and the maximum size of a shared tablespace within the test master PDB. By default, no limits are placed on the values for these attributes. In the Miscellaneous section, select the logging option that you want to use for the tablespaces created within the test master PDB.

Note that if the destination CDB is part of an Exadata machine, the Access Controls and Permissions section is displayed in place of the Advanced Configuration section. In this case, you must specify the owner and the group that must be granted *read only* permissions on the datafiles.

Click **Next**.

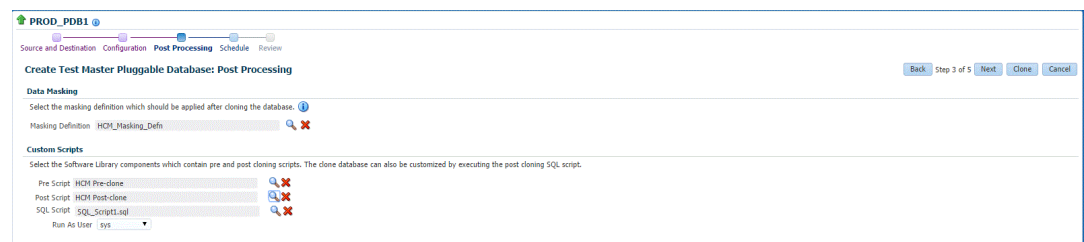


7. On the Create Test Master Pluggable Database: Post Processing page, in the Data Masking section, specify the data masking definition that you want to apply after creating the test master PDB. Data masking masks sensitive data in a database.

For information on how to create a data masking definition, see the *Oracle Data Masking and Subsetting Guide*. Note that you can apply a data masking definition only if you have the Subset-Masking license pack.

In the Custom Scripts section, for **Pre Script** and **Post Script**, specify the Oracle Software Library components that contain the scripts that you want to run before, and after creating the test master PDB respectively. Also, for **SQL Script**, specify the SQL scripts that you want to run after creating the test master PDB. For **Run As User**, select the user account that you want to use to run the SQL scripts.

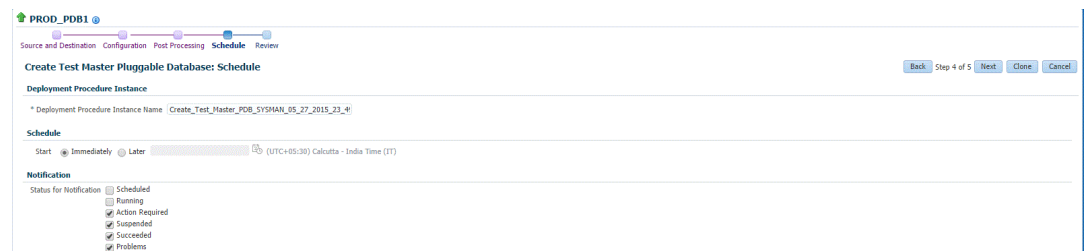
Click **Next**.



8. Specify an instance name for the deployment procedure. Also, specify the point in time when you want the deployment procedure to begin.

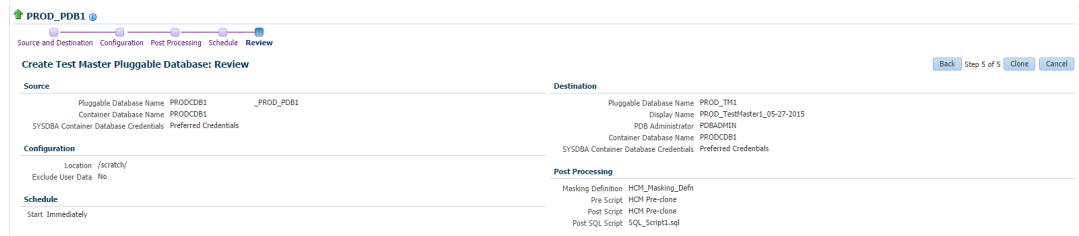
In the Notification section, select the deployment procedure states for which you want to receive e-mail notifications. For example, if you select **Scheduled** and **Succeeded** for **Status for Notification**, you will receive e-mail notifications when the deployment procedure is scheduled, and when it succeeds.

Click **Next**.



9. Review all the details you provided. If you want to edit certain details, click **Back** to navigate to the required page.

Click **Clone** to submit the deployment procedure to create a test master PDB from the source PDB.



 **Note:**

The pluggable database cloning procedure contains a prerequisite step that is enabled by default. This step causes the cloning procedure to fail. To disable this step, run the following command:

```
emctl set property -name oracle.sysman.db.pdb.prereq_enabled -
sysman_pwd <sysman password> -value false
```

To enable this step, run the following command:

```
emctl set property -name oracle.sysman.db.pdb.prereq_enabled -
sysman_pwd <sysman password> -value true
```

## Creating an Exadata Test Master Pluggable Database

If you have the 12.1.0.8 Enterprise Manager for Oracle Database plug-in deployed in your system, you can create a test master PDB from a source PDB, using the new Clone PDB Wizard.

To create a test master PDB from a source PDB, follow these steps:

1. From the **Targets** menu, select **Databases**.
2. For **View**, select **Search List**. From the **View** menu, select **Expand All**.
3. Look for the source CDB (the CDB that the source PDB is a part of) in the list, then click the name of the PDB from which you want to create a test master PDB.
4. From the **Oracle Database** menu, select **Cloning**, then select **Create Test Master**.

Alternatively, in Step 3, you can right click the name of the PDB from which you want to create a test master PDB, select **Oracle Database**, select **Cloning**, then select **Create Test Master**.

5. On the Create Test Master Pluggable Database: Source and Destination page, do the following:
  - Specify the SYSDBA credentials for the source CDB. You can choose to use the preferred credentials, use a saved set of named credentials, or specify a new set of credentials.
  - In the Pluggable Database Definition section, specify a name, and a display name for the test master PDB. Enterprise Manager uses the display name to identify the test master PDB target.
  - In the PDB Administrator Credentials section, specify the credentials of the admin user account that you want to use to administer the test master PDB.
  - In the Container Database section, specify the destination CDB (the CDB that the test master PDB must be a part of).

- In the Credentials section, specify the SYSDBA credentials for the destination CDB, and the host credentials for the destination CDB. Also, if the destination CDB is using Automatic Storage Management (ASM) to manage disk storage, you must specify the ASM credentials.

Click **Next**.

6. On the Create Test Master Pluggable Database: Configuration page, do the following:

In the Database Files Location section, specify the disk group where the data files of the test master PDB will be created.

To ensure that only the source PDB data model definition is cloned (and the source PDB data is not cloned), select **Exclude User Data**.

In the Access Controls and Permissions section, specify the owner and the group that must be granted *read-only* permissions on the data files.

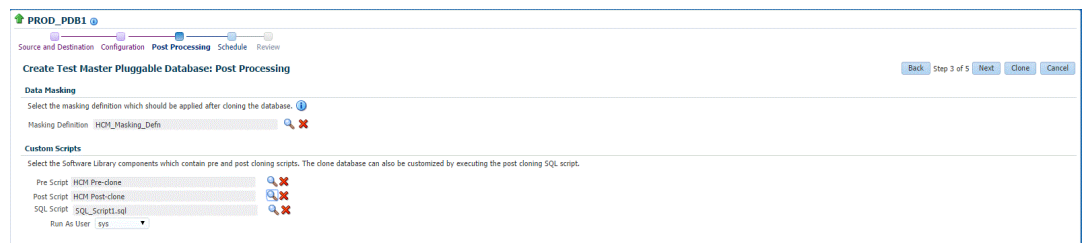
Click **Next**.

7. On the Create Test Master Pluggable Database: Post Processing page, in the Data Masking section, specify the data masking definition that you want to apply after creating the test master PDB. Data masking masks sensitive data in a database.

For information on how to create a data masking definition, see the *Oracle Data Masking and Subsetting Guide*. Note that you can apply a data masking definition only if you have the Subset-Masking license pack.

In the Custom Scripts section, for **Pre Script** and **Post Script**, specify the Oracle Software Library components that contain the scripts that you want to run before, and after creating the test master PDB respectively. Also, for **SQL Script**, specify the SQL scripts that you want to run after creating the test master PDB. For **Run As User**, select the user account that you want to use to run the SQL scripts.

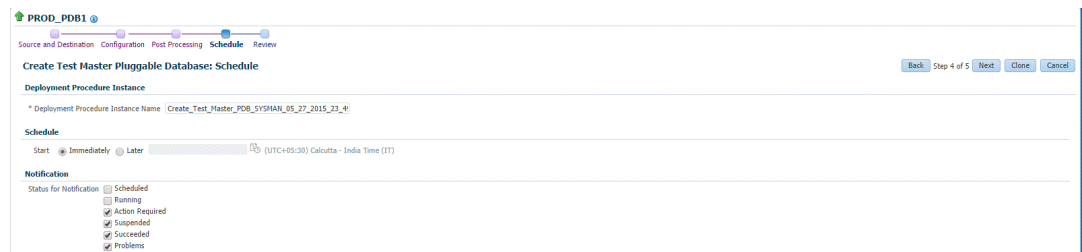
Click **Next**.



- Specify an instance name for the deployment procedure. Also, specify the point in time when you want the deployment procedure to begin.

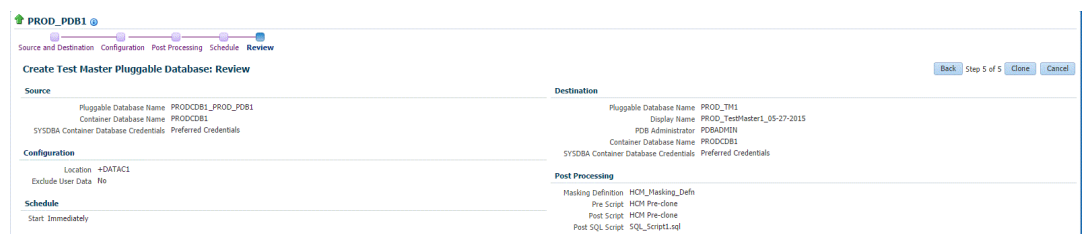
In the Notification section, select the deployment procedure states for which you want to receive e-mail notifications. For example, if you select **Scheduled** and **Succeeded** for **Status for Notification**, you will receive e-mail notifications when the deployment procedure is scheduled, and when it succeeds.

Click **Next**.



- Review all the details you provided. If you want to edit certain details, click **Back** to navigate to the required page.

Click **Clone** to submit the deployment procedure to create a test master PDB from the source PDB.



## Creating a Snapshot Clone of an Exadata Test Master PDB



### Note:

You can create snapshot clones of only those test master PDBs that are of version 12.1.0.2.0 or higher.

If you have the 12.1.0.8 Enterprise Manager for Oracle Database plug-in deployed in your system, you can create a snapshot clone of a test master PDB using the new Clone PDB Wizard.

To create a snapshot clone of an exadata test master PDB, follow these steps:



1. From the **Targets** menu, select **Databases**.
  2. For **View**, select **Search List**. From the **View** menu, select **Expand All**.
  3. Look for the source CDB (the CDB that the source test master PDB is a part of) in the list, then click the name of the test master PDB that you want to clone.
  4. From the **Oracle Database** menu, select **Cloning**, then select **Create Snapshot Clone**.
- Alternatively, in Step 3, you can right click the name of the test master PDB that you want to clone, select **Oracle Database**, select **Cloning**, then select **Create Snapshot Clone**.
5. On the Source and Destination: Create Snapshot Clone Pluggable Database, do the following:

- Specify the SYSDBA credentials for the source CDB. You can choose to use the preferred credentials, use a saved set of named credentials, or specify a new set of credentials.
- In the Credentials section, specify the SYSDBA credentials of the CDB.
- In the Pluggable Database Definition section, specify the name of the PDB, and a display name of the PDB snapshot clone. Enterprise Manager uses the display name to identify the PDB snapshot clone target.
- In the PDB Administrator Credentials section, specify the credentials of the Admin user account that you want to use to administer the PDB snapshot clone.

To clone the test master PDB to a CDB different from the source CDB, select **Clone the Pluggable Database into a different Container Database**, then specify the destination CDB.

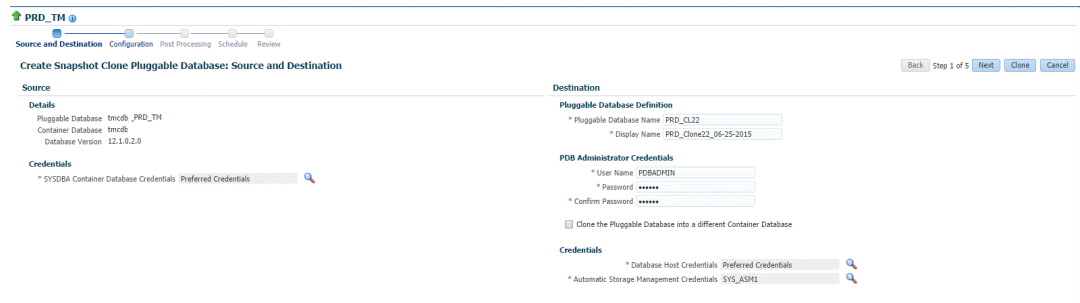
- In the Credentials section, specify the CDB host credentials. Also, specify the ASM credentials of the ASM that will be used to manage disk storage.

6. If you do not need to specify anymore details, click **Clone**. This submits the deployment procedure to clone a PDB to a CDB that is deployed in a public cloud setup.

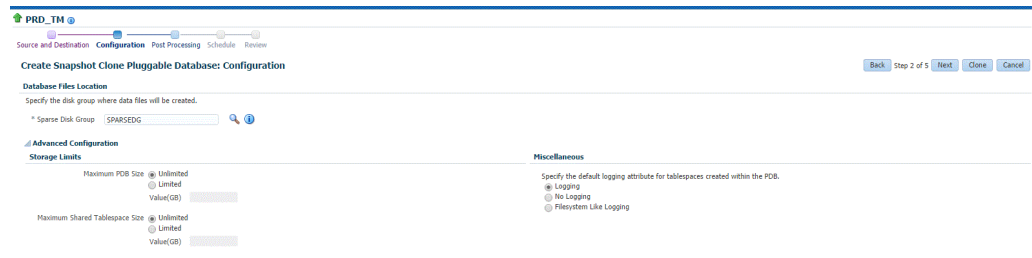
To specify other configuration details, mask data, as well as schedule the cloning process, click **Advanced**.

Follow the rest of the steps, if you have selected the Advanced option. The option to **Clone** is available on each page.

7. On the Create Snapshot Clone Pluggable Database: Source and Destination page, verify the details specified, and then click **Next**.



8. On the Create Snapshot Clone Pluggable Database: Configuration page, do the following:
  - In the Database Files Location section, specify the name of the Sparse disk group where the data files of the PDB snapshot clone will be created.
  - In the Advanced Configuration section, specify the storage limits for the maximum size of the PDB snapshot clone, and the maximum size of a shared tablespace within the PDB snapshot clone. By default, no limits are placed on the values for these attributes.
  - In the Miscellaneous section, select the default logging option for the tablespaces created within the PDB snapshot clone.
  - Click **Next**.

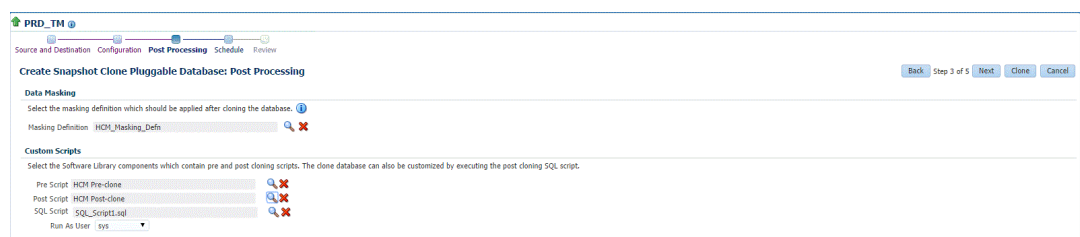


9. On the Create Snapshot Clone Pluggable Database: Post Processing section, in the Data Masking section, specify the data masking definition that you want to apply after cloning the PDB. Data masking masks sensitive data in a database.

For information on how to create a data masking definition, see the *Oracle Data Masking and Subsetting Guide*. Note that you can apply a data masking definition only if you have the Subset-Masking license pack.

In the Custom Scripts section, for **Pre Script** and **Post Script**, specify the Oracle Software Library components that contain the scripts that you want to run before cloning, and after cloning the PDB respectively. Also, for **SQL Script**, specify the SQL scripts that you want to run after cloning the PDB. For **Run As User**, select the user account that you want to use to run the SQL scripts.

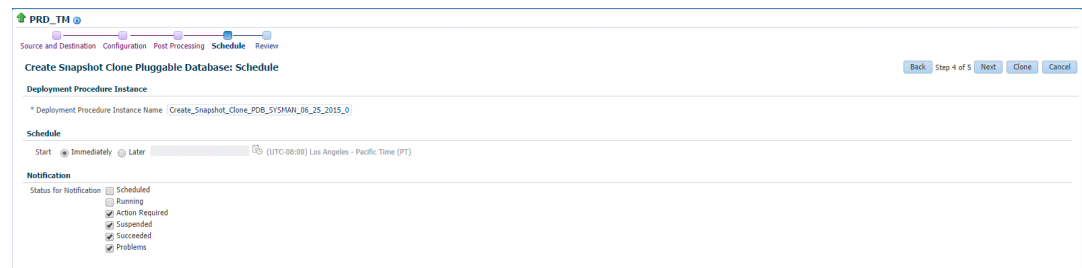
Click **Next**.



- On the Create Snapshot Clone Pluggable Database: Schedule page, specify an instance name for the cloning deployment procedure. Also, specify the point in time when you want the cloning procedure to begin.

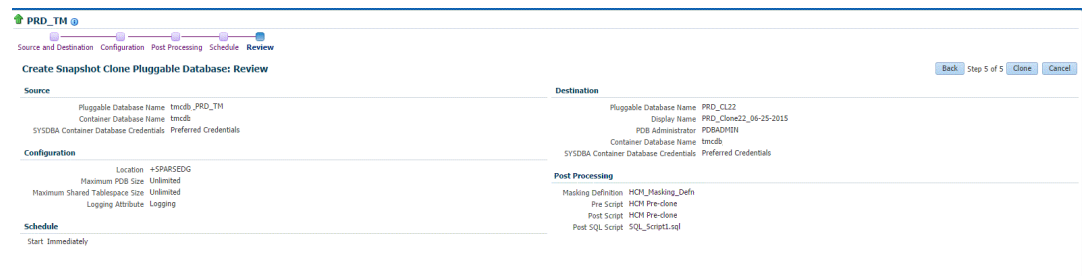
In the Notification section, select the deployment procedure states for which you want to receive e-mail notifications. For example, if you select **Scheduled** and **Succeeded** for **Status for Notification**, you will receive e-mail notifications when the cloning deployment procedure is scheduled, and when it succeeds.

Click **Next**.



- On the Create Snapshot Clone Pluggable Database: Review page, review all the details you provided. If you want to edit certain details, click **Back** to navigate to the required page.

Click **Clone** to submit the deployment procedure to create a snapshot clone of the exadata test master PDB.



## Creating an ACFS Test Master Pluggable Database

If you have the 12.1.0.8 Enterprise Manager for Oracle Database plug-in deployed in your system, you can create a test master PDB from a source PDB, using the new Clone PDB Wizard.

To create a test master PDB from a source PDB, follow these steps:

- From the **Targets** menu, select **Databases**.
- For **View**, select **Search List**. From the **View** menu, select **Expand All**.
- Look for the source CDB (the CDB that the source PDB is a part of) in the list, then click the name of the PDB from which you want to create a test master PDB.
- From the **Oracle Database** menu, select **Cloning**, then select **Create Test Master**.

Alternatively, in Step 3, you can right click the name of the PDB from which you want to create a test master PDB, select **Oracle Database**, select **Cloning**, then select **Create Test Master**.

5. On the Create Test Master Pluggable Database: Source and Destination page, do the following:
  - Specify the SYSDBA credentials for the source CDB. You can choose to use the preferred credentials, use a saved set of named credentials, or specify a new set of credentials.
  - In the Pluggable Database Definition section, specify a name, and a display name for the test master PDB. Enterprise Manager uses the display name to identify the test master PDB target.
  - In the PDB Administrator Credentials section, specify the credentials of the admin user account that you want to use to administer the test master PDB.
  - In the Container Database section, specify the destination CDB (the CDB that the test master PDB must be a part of).
  - In the Credentials section, specify the SYSDBA credentials for the destination CDB, and the host credentials for the destination CDB. Also, if the destination CDB is using Automatic Storage Management (ASM) to manage disk storage, you must specify the ASM credentials.

Click **Next**.

6. On the Create Test Master Pluggable Database: Configuration page, in the Database Files Location section, specify the ACFS mount point storage location where the data files of the test master PDB will be created.

To ensure that only the source PDB data model definition is cloned (and the source PDB data is not cloned), select **Exclude User Data**.

Click **Next**.

7. On the Create Test Master Pluggable Database: Post Processing page, in the Data Masking section, specify the data masking definition that you want to apply after creating the test master PDB. Data masking masks sensitive data in a database.

For information on how to create a data masking definition, see the *Oracle Data Masking and Subsetting Guide*. Note that you can apply a data masking definition only if you have the Subset-Masking license pack.

In the Custom Scripts section, for **Pre Script** and **Post Script**, specify the Oracle Software Library components that contain the scripts that you want to run before, and after creating the test master PDB respectively. Also, for **SQL Script**, specify the SQL scripts that you

want to run after creating the test master PDB. For **Run As User**, select the user account that you want to use to run the SQL scripts.

Click **Next**.

- Specify an instance name for the deployment procedure. Also, specify the point in time when you want the deployment procedure to begin.

In the Notification section, select the deployment procedure states for which you want to receive e-mail notifications. For example, if you select **Scheduled** and **Succeeded** for **Status for Notification**, you will receive e-mail notifications when the deployment procedure is scheduled, and when it succeeds.

Click **Next**.

- Review all the details you provided. If you want to edit certain details, click **Back** to navigate to the required page.

Click **Clone** to submit the deployment procedure to create a test master PDB from the source PDB.

## Creating a Snapshot Clone of an ACFS Test Master PDB

### Note:

You can create snapshot clones of only those test master PDBs that are of version 12.1.0.2.0 or higher.

If you have the 12.1.0.8 Enterprise Manager for Oracle Database plug-in deployed in your system, you can create a snapshot clone of a test master PDB using the new Clone PDB Wizard.

To create a snapshot clone of an exadata test master PDB, follow these steps:

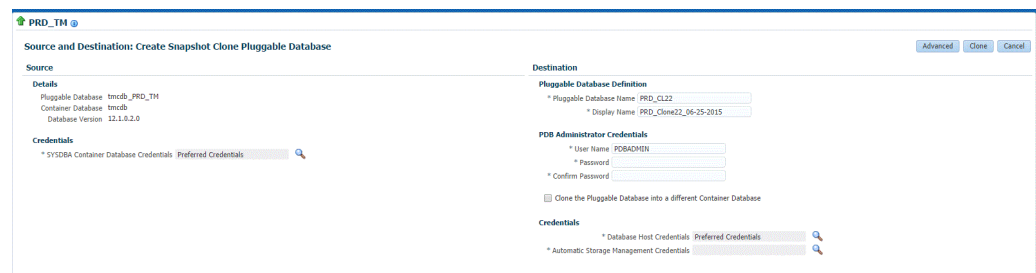
1. From the **Targets** menu, select **Databases**.
2. For **View**, select **Search List**. From the **View** menu, select **Expand All**.
3. Look for the source CDB (the CDB that the source test master PDB is a part of) in the list, then click the name of the test master PDB that you want to clone.
4. From the **Oracle Database** menu, select **Cloning**, then select **Create Snapshot Clone**.

Alternatively, in Step 3, you can right click the name of the test master PDB that you want to clone, select **Oracle Database**, select **Cloning**, then select **Create Snapshot Clone**.

5. On the Source and Destination: Create Snapshot Clone Pluggable Database, do the following:
  - Specify the SYSDBA credentials for the source CDB. You can choose to use the preferred credentials, use a saved set of named credentials, or specify a new set of credentials.
  - In the Credentials section, specify the SYSDBA credentials of the CDB.
  - In the Pluggable Database Definition section, specify the name of the PDB, and a display name of the PDB snapshot clone. Enterprise Manager uses the display name to identify the PDB snapshot clone target.
  - In the PDB Administrator Credentials section, specify the credentials of the Admin user account that you want to use to administer the PDB snapshot clone.

To clone the test master PDB to a CDB different from the source CDB, select **Clone the Pluggable Database into a different Container Database**, then specify the destination CDB.

- In the Credentials section, specify the CDB host credentials. Also, specify the ASM credentials of the ASM that will be used to manage disk storage.



6. If you do not need to specify anymore details, click **Clone**. This submits the deployment procedure to clone a PDB to a CDB that is deployed in a public cloud setup.

To specify other configuration details, mask data, as well as schedule the cloning process, click **Advanced**.

Follow the rest of the steps, if you have selected the Advanced option. The option to **Clone** is available on each page.

7. On the Create Snapshot Clone Pluggable Database: Source and Destination page, verify the details specified, and then click **Next**.

8. On the Create Snapshot Clone Pluggable Database: Configuration page, do the following:
  - In the Database Files Location section, specify the name of the Sparse disk group where the data files of the PDB snapshot clone will be created.
  - In the Advanced Configuration section, specify the storage limits for the maximum size of the PDB snapshot clone, and the maximum size of a shared tablespace within the PDB snapshot clone. By default, no limits are placed on the values for these attributes.
  - In the Miscellaneous section, select the default logging option for the tablespaces created within the PDB snapshot clone.
  - Click **Next**.

9. On the Create Snapshot Clone Pluggable Database: Post Processing section, in the Data Masking section, specify the data masking definition that you want to apply after cloning the PDB. Data masking masks sensitive data in a database.

For information on how to create a data masking definition, see the *Oracle Data Masking and Subsetting Guide*. Note that you can apply a data masking definition only if you have the Subset-Masking license pack.

In the Custom Scripts section, for **Pre Script** and **Post Script**, specify the Oracle Software Library components that contain the scripts that you want to run before cloning, and after cloning the PDB respectively. Also, for **SQL Script**, specify the SQL scripts that you want to run after cloning the PDB. For **Run As User**, select the user account that you want to use to run the SQL scripts.

Click **Next**.

- On the Create Snapshot Clone Pluggable Database: Schedule page, specify an instance name for the cloning deployment procedure. Also, specify the point in time when you want the cloning procedure to begin.

In the Notification section, select the deployment procedure states for which you want to receive e-mail notifications. For example, if you select **Scheduled** and **Succeeded** for **Status for Notification**, you will receive e-mail notifications when the cloning deployment procedure is scheduled, and when it succeeds.

Click **Next**.

- On the Create Snapshot Clone Pluggable Database: Review page, review all the details you provided. If you want to edit certain details, click **Back** to navigate to the required page.

Click **Clone** to submit the deployment procedure to create a snapshot clone of the exadata test master PDB.

## Creating Snap Clones from the Cloning Dashboard

You can create a snap clone from the Administration Dashboard and promote the snap clone as the Test Master Database. This section outlines the following procedures which you can use to create and manage snap clone databases:

- Creating a Snap Clone Database
- Creating a Test Master Database
- Enabling a Test Master Database
- Disabling a Test Master Database
- Creating a Test Master Pluggable Database
- Creating a CloneDB Database
- Managing Clone Databases
- Refreshing Clone Databases



- [Creating a Snapshot Clone of an Exadata Test Master Database](#)

## Creating a Snap Clone Database

To create a Database Snap Clone, follow these steps:

1. On the Databases page, you can access the Database Snap Clone wizard by following any one method:
  - Select the database that you want to clone from the list of the databases displayed. On the Database homepage, click the **Database** menu, select **Cloning**, and then select **Create Snap Clone**.
  - Right click on the database target name, select **Database**, select **Cloning**, and then select **Create Snap Clone**.
  - Right click on the database target name, select **Database**, select **Cloning**, and then select **Clone Management**. On the Clone Management page, in the Snap Clone Databases box, click **Create**.
2. On the Create Snap Clone Database: Source and Destination page, do the following:
  - In the Source section, launch the credentials selector by clicking the search icons for SYSDBA Database and Database Host credentials. Click **OK**.
  - In the Data Time Series section, select **Now** or **Prior Point in Time**.



If you selected Now, specify or search and select the SYSASM ASM Credentials. Now refers to Live Clone.

In the Database Snapshot section specify the location, name, description, version, and vendor of the snapshot profile which will be created as part of the clone database job. You can add additional notes, such as host name, database, data content, and data content mode.

## Create Snap Clone Database: Source and Destination

### Source

Global Database Name snpsi  
Type Single Instance Database  
Version 11.2.0.4.0


\* SYSDBA Database Credentials SYS\_WEL\_SNPSI   
\* Database Host Credentials AIME\_2COOL 

### Data Time Series

- Now  
 Prior Point in Time

### Database Snapshot

Specify details of the snapshot profile which will be created as part of the clone database job.

\* Location Database Provisioning Profiles/11.2.0.4.0/Linux86\_64   
\* Name Database snpsi Profile 29-06-2015 02:44 AM  
Description Database Reference Profile 29-06-2015 02:44 AM from snpsi  
Version 11.2.0.4.0 Vendor Oracle  
Notes Host Name: adc  
Database: snpsi  
Data Content: Structure and Data

- If you selected Prior Point in Time, a carousel of Storage Snapshot images appear. Select the appropriate RMAN backup by clicking **Select** on the image.

You can create snap clones by selecting a storage snapshot from the carousel. You can modify this in case you have to create a new clone between these two time periods. Similarly, you can do the same for SCN by selecting the **Select SCN** option.

Data Time Series

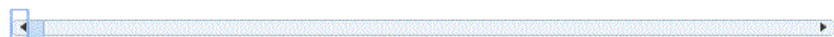
- Now
- Prior Point in Time

**Snapshot**

Time: 29-Jun-2015 12:20:26 AM

SCN: 958530

Owner: RAM



1 of 1

Selected Backup: **Snapshot 29-Jun-2015 12:20:26 AM**

**Modify Date and SCN**

- Select Time
 

2015/06/29 12:20:26 AM
- Select SCN

3. In the Destination Database Definition section, do the following:

- Specify a display name.
- Specify a global database name and SID.

A database is uniquely identified by a Global Database Name. The typical form of a name is `name.domain`. A database is referenced by at least one Oracle instance which is uniquely identified by SID.

- Select one of the following types of databases:

– **Single Instance Database.**

In the Hosts section, specify the Oracle Home location. The host gets specified by default. Next, select the Database Home credentials and the SYSASM ASM credentials.

– **RAC Database**

In the Hosts section, specify or select the cluster target. The Oracle Home location gets specified by default. Next, specify the Database Host credentials, and the SYSASM ASM credentials.

In the Nodes section, select the cluster and Oracle Home to display one or more hosts on which the administrator managed Oracle RAC database will be created.

– **RAC One Node Database**

In the Hosts section, specify or select the cluster target. The Oracle Home location gets specified by default. Next, specify the Database Host credentials, and the SYSASM ASM credentials.

In the Nodes section, select the cluster and Oracle Home to display one or more hosts on which the administrator managed Oracle RAC database will be created.

Click **Next**.

## Destination

### Database Definition

\* Display Name

\* Global Database Name  \* SID

Type

- Single Instance Database
- RAC Database
- RAC One Node Database

### Hosts

\* Oracle Home Location  Host

\* Database Host Credentials  \* Root Credentials

### Note:

Oracle supports inline patching as part of clones. When the destination home selected has patches applied such as the latest CPU or PSU, then the cloned database is automatically brought up with that level.

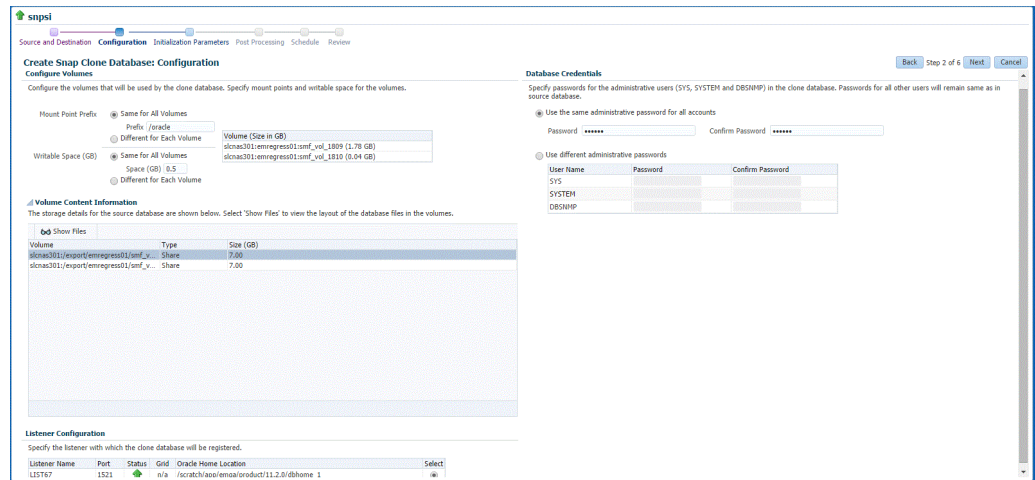
4. On the Create Snap Clone Database: Configuration page, do the following:
  - In the Configure Volumes, configure the volumes that will be used by the clone database, by specifying the following:
    - **Mount Point Prefix:** Specify a new mount point for the database being cloned. This value would be prefixed to an auto-generated mount point where a clone of this volume will be mounted. The volume will be mounted on `/<mount-prefix><unique-suffix-generated-by-EM> /<source-path>`. The mount point prefix can be the **Same for All Volumes** or **Different for Each Volume**.

### Note:

the volumes must be pre-created.

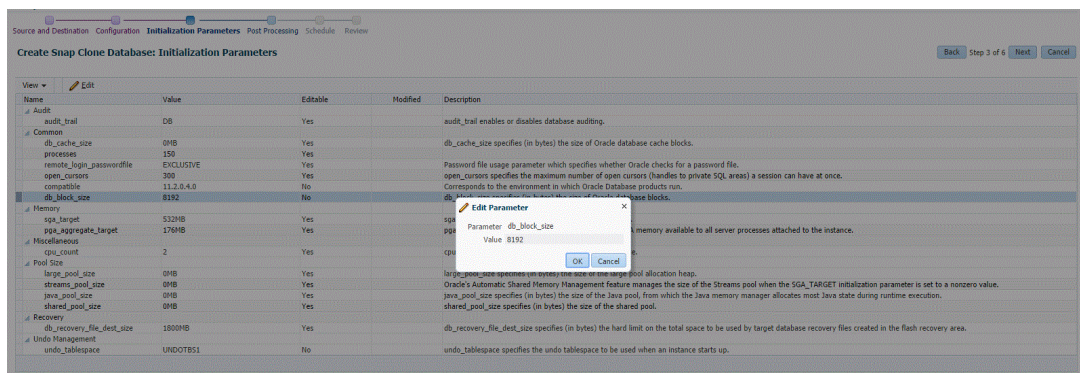
- **Writable Space:** Specify the amount of space required for block changes. The value specified here cannot exceed the Storage Ceiling specified for the server. For example, for minimal data changes, you specify the value as 1% of the original volume size. The writable space can be the Same for All Volumes or Different for Each Volume.
- The storage details of the selected database are displayed in the Volume Content Information section. Click **Show Files** to view the layout of the database files in the volumes.
- In the Listener Configuration section, select the listener targets running under the new Oracle Home, to register the clone database, You can add new listeners by clicking Add, and specifying the listener name and port.
- In the Database Credentials section, specify passwords for the SYS, SYSTEM, and DBSNMP administrative users in the clone database. You can choose to have the same password for all the three users or a different password for each.

Click **Next**.




- On the Create Snap Clone Database: Initialization Parameters page, you can configure the values of various initialization parameters that affect the operation of the database instance. Select the parameter and click **Edit** to modify the value of the parameter.

Click **Next**.

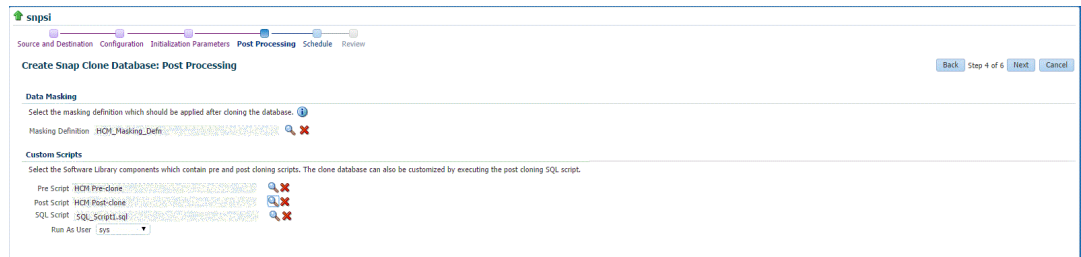


- On the Create Snap Clone Database: Post Processing page, specify the following:
  - Masking Definition:** Data masking is the process of masking sensitive data in test or non-production databases. The masking definition defines the columns to be masked in the format of the masked data. Specify the masking definition to be applied after the database is cloned.

 **Note:**  
The masking definition can be used only when you have a Subset-Masking license pack.

- Custom Scripts:** Specify the custom scripts that need to be executed before and after the database is created.

Click **Next**.

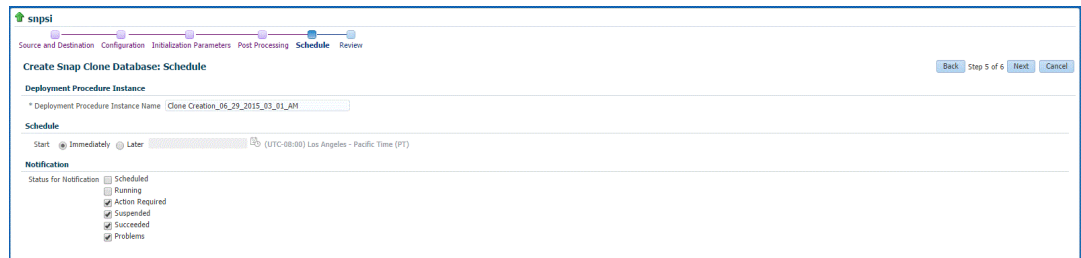


- On the Create Snap Clone Database: Schedule page, specify a unique deployment procedure instance name. You can choose to start the deployment procedure immediately or at a later time.

In the Notification Details section, you can choose to set the following notifications:

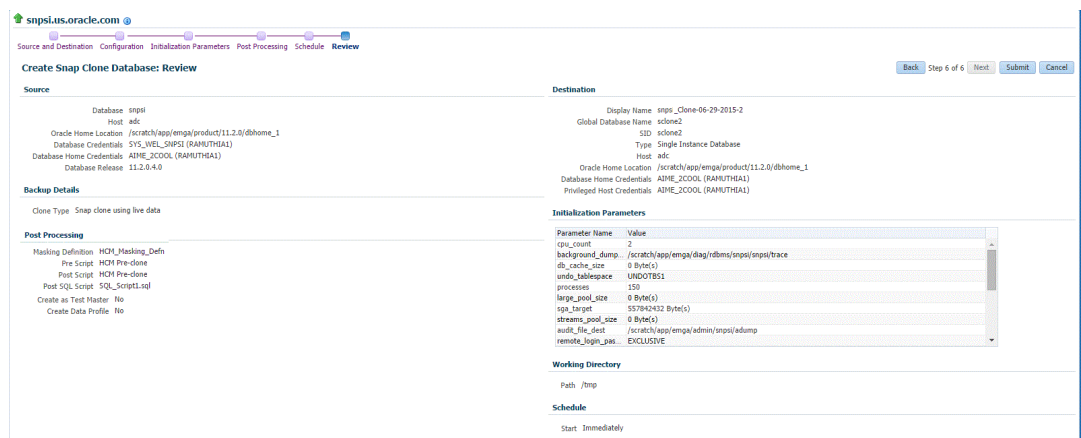
- Scheduled
- Running
- Action Required
- Suspended
- Succeeded
- Problems

Click **Next**.



- On the Create Snap Clone Database: Review page, verify the details of the source database, the data source of the clone, and the destination database.

Click **Submit**.



## Creating a Test Master Database

To create a Test Master database, you can use either of the following solutions:

- [Creating a Test Master Database Using the Clone Wizard](#)
- [Creating a Test Master Database Using EM CLI](#)

## Creating a Test Master Database Using the Clone Wizard

A test master database is a sanitized version of the production database. Production data can be optionally masked before the test master is created. A test master can be created from a snapshot or an RMAN Backup profile taken at a prior point in time and refreshed at specific intervals. This option is useful if the source data has to be masked to hide sensitive data.

To create a test master, follow these steps:

1. On the Databases page, you can access the Full Clone database wizard by following any one method:
  - Select the database that you want to clone from the list of the databases displayed. On the Database home page, click the **Database** menu, select **Cloning**, and then select **Create Test Master**.
  - Right click on the database target name, select **Database**, select **Cloning**, and then select **Create Test Master**.
  - Right click on the database target name, select **Database**, select **Cloning**, and then select **Clone Management**. On the Clone Management page, in the Test Master Databases box, click **Create**.
2. On the Create Test Master Database: Source and Destination page, do the following:
  - In the Source section, launch the credentials selector by selecting the search icons for SYSDBA Database and Database Host credentials. Click **OK**.
  - In the Data Time Series section, select **Now** or **Prior Point in Time**.

If you selected Now, specify or search and select the SYSASM ASM Credentials. Now refers to Live Clone.

If you selected Prior Point in Time, a carousel of RMAN Backup images appear. Select the appropriate RMAN backup by clicking **Select** on the image.

Select a specific time between the selected backup or snapshot and the next (or latest point of source). The backups or dumps are created at specific intervals and the test master that is based on these will reflect the production database at specific points in time. To reflect the latest data in the production database, the test master needs to be periodically refreshed.

3. In the Destination Database Definition section, do the following:
  - Specify a display name.
  - Specify a global database name and SID.

A database is uniquely identified by a Global Database Name. The typical form of a name is name.domain. A database is referenced by at least one Oracle instance which is uniquely identified by SID.

- Select one of the following types of databases:
  - **Single Instance Database.**

In the Hosts section, specify the Oracle Home location. The host gets specified by default. Next, select the Database Home credentials and the SYSASM ASM credentials.

– **RAC Database**

In the Hosts section, specify or select the cluster target. The Oracle Home location gets specified by default. Next, specify the Database Host credentials, and the SYSASM ASM credentials.

In the Nodes section, select the cluster and Oracle Home to display one or more hosts on which the administrator managed Oracle RAC database will be created.

– **RAC One Node Database**

In the Hosts section, specify or select the cluster target. The Oracle Home location gets specified by default. Next, specify the Database Host credentials, and the SYSASM ASM credentials.

In the Nodes section, select the cluster and Oracle Home to display one or more hosts on which the administrator managed Oracle RAC database will be created.

 **Note:**

Oracle supports inline patching as part of clones. When the destination home selected has patches applied such as the latest CPU or PSU, then the cloned database is automatically brought up with that level.

Click **Next**.

4. On the Create Test Master Database: Configuration page, do the following.
  - Database Files Location: Specify the location in which the data files, temporary files, redo log files, and control files will be created.

You can select:

    - File System: The Oracle Database File System creates a standard file system interface on top of files and directories that are stored in database tables. If you select this option, you must specify or select the Location of the File System. You can specify a common location for all the files or you can select the **Use Oracle Optimal Flexible Architecture-compliant directory structure (OFA)** checkbox and specify different locations for data files, redo log files, and so on.
    - Automatic Storage Management: The Oracle Automatic Storage Management (ASM) is a volume manager and a file system for database files that supports single-instance and RAC configurations. ASM groups the disks in your storage system into one or more disk groups. If you select ASM, select a common location for the database files.
  - Recovery Files Location: To simplify the management of backup and recovery files, a fast recovery area can be created for your database. The fast recovery area can be a ASM disk group or a file system that provides a centralized disk location for backup and recovery file. To allow self service users to schedule backups and perform restore operations, you can select the Use Fast Recovery Area checkbox and specify the location of the Fast Recovery Area and the Fast Recovery Size. The amount of disk space to allocate for the fast recovery area depends on the size and activity levels of your database.
  - Listener Configuration: Click **Add** to add one or more listener targets that are to be associated with the new database.



- **Database Credentials:** Specify the passwords for the administrative users (SYS, SYSTEM and DBSNMP) of the new database being cloned. You can choose to use the same password for all the schemas or different passwords for each schema.
  - Click **Next**.
5. On the Create Test Master Database: Initialization Parameters page, you can configure the values of various initialization parameters that affect the operation of the database instance.

Select the parameter and click **Edit** to modify the value of the parameter. Some values such as `db_block_size` cannot be modified.

Click **Next**.

6. On the Create Test Master Pluggable Database: Post Processing page, in the Data Masking section, specify the data masking definition that you want to apply after creating the test master PDB. Data masking masks sensitive data in a database.

Note that you can apply a data masking definition only if you have the Subset-Masking license pack.

In the Custom Scripts section, for **Pre Script** and **Post Script**, specify the Oracle Software Library components that contain the scripts that you want to run before, and after creating the test master PDB respectively. Also, for **SQL Script**, specify the SQL scripts that you want to run after creating the test master PDB. For **Run As User**, select the user account that you want to use to run the SQL scripts.

Click **Next**.

7. On the Create Test Master Database: Schedule page, specify the schedule for the creation of the test master. It can be created immediately (if physical standby used, it is created immediately and automatically refreshed) or can be created at a later date / time and refreshed at specified intervals.

Click **Next**.

8. On the Create Test Master Database: Review page, review and verify the information specified and click **Submit** to create the test master. After the Test Master has been created, you can refresh the Test Master as required to create a new version of the profile on which the Test Master is based.

## Creating a Test Master Database Using EM CLI

To create a Test Master database execute the verb: `emcli db_clone_management -createTestMaster -target_name="<database target name>" -target_type="<oracle_database | rac_database>" -clone_type="<LIVE | POINT_IN_TIME>" -input_file="<input file path>"`.

To view the required input file properties for creating Test Master execute this verb: `emcli db_clone_management -createTestMaster -target_name="<database target name>" -target_type="<oracle_database | rac_database>" -clone_type="<LIVE | POINT_IN_TIME>" -print_properties`.

To verify the status of the Test Master database creation execute the EM CLI verb `emcli get_instance_status -instance=<instance GUI>`.

## Enabling a Test Master Database

To convert a database to a test master database, follow these steps:

1. From the Targets menu, select Databases.
2. On the Databases page, right click on the database target that you want to enable as a test master database. From the menu that appears, select **Oracle Database**, select **Cloning**, and then select **Enable Test Master**.
3. On the Enable as a Test Master Database page, specify or search and select the SYSDBA database and database host credentials.
4. Specify or search and select the parent database from which the database has been cloned. This provides better lineage tracking.
5. Specify or select a data masking definition if you want to mask data in the cloned database before enabling it as a test master.
6. In the Custom Scripts section, you can select Software Library components that contain post cloning scripts. The clone database can also be customized by executing the post cloning SQL script.
7. In the Access Controls and Permissions section, specify the owner and group that should be given read-only permissions on the datafiles.
8. Click **Submit**.

**Enable as a Test Master**

This process will help you convert the selected database into a test master by setting the necessary access controls and marking the datafiles as read-only files. For better lineage tracking, you may also identify the parent database from which the database has been cloned. If not already done, you may also choose to de-sensitize the data by applying masking templates or by running additional scripts of your choice.

**Credentials**

\* SYSDBA Database Credentials

\* Database Host Credentials

**Source**

Parent Database

**Data Masking**

Do you want to mask data in this cloned database before enabling it as a test master? [?](#)

Masking Definition

**Custom Scripts**

Select the Software Library components which contain post cloning scripts. The clone database can also be customized by executing the post cloning SQL script.

Post Script

SQL Script

Run As User

**Access Controls and Permissions**

Specify the owner and group that should be given read-only permissions on the datafiles.

Data Files Owner

Data Files Group

## Disabling a Test Master Database

To disable a test master database, follow these steps:

1. From the Targets menu, select Databases.
2. On the Databases page, right click on the database target that you want to disable as a test master database. From the menu that appears, select **Oracle Database**, select **Cloning**, and then select **Disable Test Master**.
3. On the Disable Test Master page, specify or search and select the SYSDBA database and database host credentials.
4. The Exadata Snapshot Clone Databases sections lists the database snapshot clones that will be deleted as part of the process of disabling the test master.
5. Click **Submit**. This action resets the datafiles to read-write mode and restarts the database in open mode. You can later make further changes to the database and then enable it as test master again, if you choose to.



## Creating a Test Master Pluggable Database

To create a Test Master PDB, you can use either of the following solutions:

- [Creating a Test Master Pluggable Database Using the Clone Wizard](#)
- [Creating a Test Master Pluggable Database Using EM CLI](#)

## Creating a Test Master Pluggable Database Using the Clone Wizard

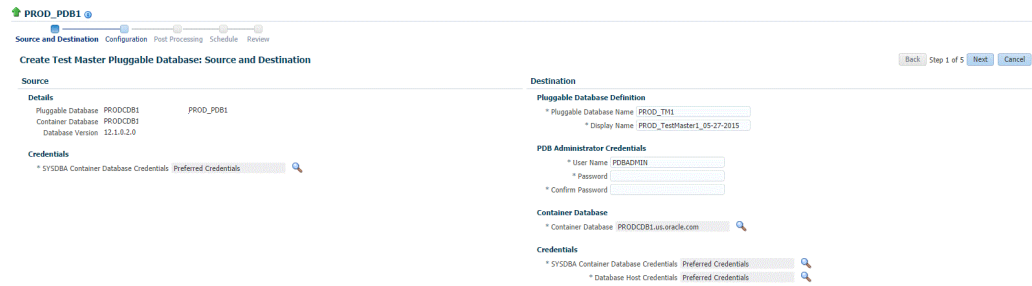
To create a test master PDB from a source PDB, follow these steps:

1. From the **Targets** menu, select **Databases**.
2. For **View**, select **Search List**. From the **View** menu, select **Expand All**.
3. Look for the source CDB (the CDB that the source PDB is a part of) in the list, then click the name of the PDB from which you want to create a test master PDB.
4. From the **Oracle Database** menu, select **Cloning**, then select **Create Test Master**.

Alternatively, in Step 3, you can right click the name of the PDB from which you want to create a test master PDB, select **Oracle Database**, select **Cloning**, then select **Create Test Master**.

5. On the Create Test Master Pluggable Database: Source and Destination page, do the following:
  - Specify the SYSDBA credentials for the source CDB. You can choose to use the preferred credentials, use a saved set of named credentials, or specify a new set of credentials.
  - In the Pluggable Database Definition section, specify a name, and a display name for the test master PDB. Enterprise Manager uses the display name to identify the test master PDB target.
  - In the PDB Administrator Credentials section, specify the credentials of the admin user account that you want to use to administer the test master PDB.
  - In the Container Database section, specify the destination CDB (the CDB that the test master PDB must be a part of).
  - In the Credentials section, specify the SYSDBA credentials for the destination CDB, and the host credentials for the destination CDB. Also, if the destination CDB is using Automatic Storage Management (ASM) to manage disk storage, you must specify the ASM credentials.

Click **Next**.



- On the Create Test Master Pluggable Database: Configuration page, do the following:

In the Database Files Location section, specify the storage location where the datafiles of the test master PDB must be stored. If the destination CDB is using ASM to manage disk storage, specify the disk group where the datafiles of the test master PDB must be stored.

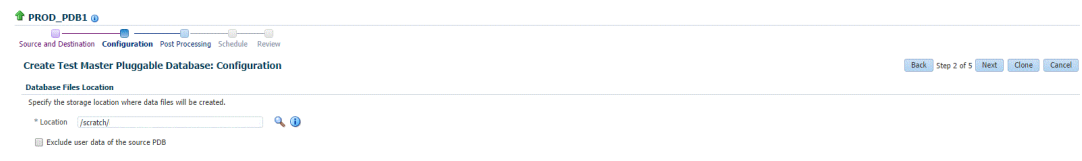
To ensure that only the source PDB data model definition is cloned (and the source PDB data is not cloned), select **Exclude User Data**.

In the PDB Administrator Credentials section, specify the credentials of the admin user account that you want to use to administer the test master PDB.

In the Advanced Configuration section, specify the storage limits for the maximum size of the test master PDB, and the maximum size of a shared tablespace within the test master PDB. By default, no limits are placed on the values for these attributes. In the Miscellaneous section, select the logging option that you want to use for the tablespaces created within the test master PDB.

Note that if the destination CDB is part of an Exadata machine, the Access Controls and Permissions section is displayed in place of the Advanced Configuration section. In this case, you must specify the owner and the group that must be granted *read only* permissions on the datafiles.

Click **Next**.

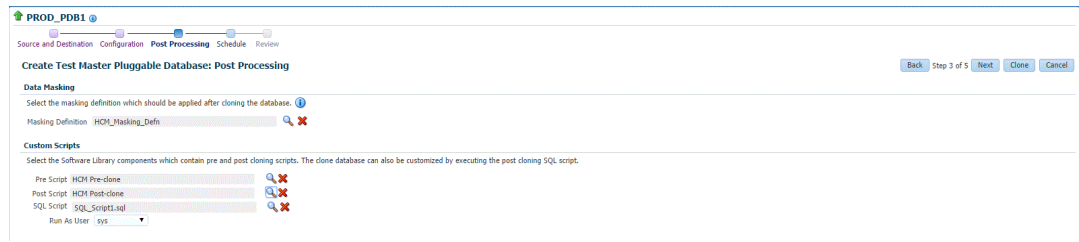


- On the Create Test Master Pluggable Database: Post Processing page, in the Data Masking section, specify the data masking definition that you want to apply after creating the test master PDB. Data masking masks sensitive data in a database.

Note that you can apply a data masking definition only if you have the Subset-Masking license pack.

In the Custom Scripts section, for **Pre Script** and **Post Script**, specify the Oracle Software Library components that contain the scripts that you want to run before, and after creating the test master PDB respectively. Also, for **SQL Script**, specify the SQL scripts that you want to run after creating the test master PDB. For **Run As User**, select the user account that you want to use to run the SQL scripts.

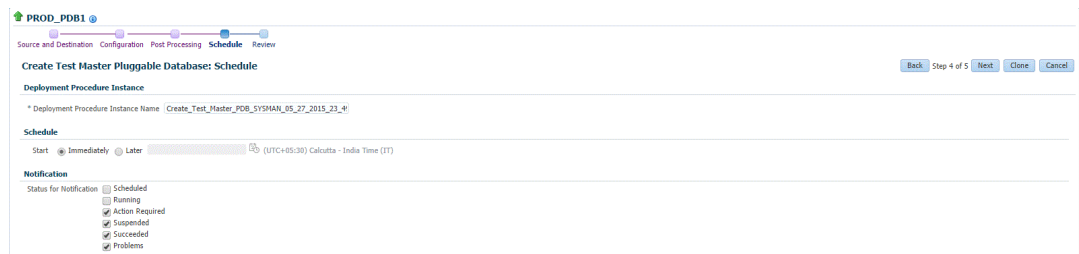
Click **Next**.



- Specify an instance name for the deployment procedure. Also, specify the point in time when you want the deployment procedure to begin.

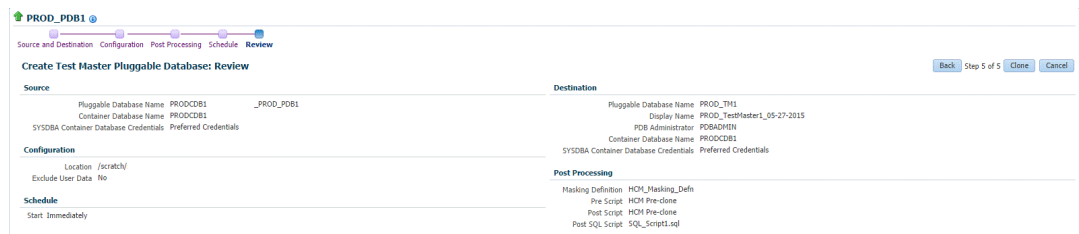
In the Notification section, select the deployment procedure states for which you want to receive e-mail notifications. For example, if you select **Scheduled** and **Succeeded** for **Status for Notification**, you will receive e-mail notifications when the deployment procedure is scheduled, and when it succeeds.

Click **Next**.



- Review all the details you provided. If you want to edit certain details, click **Back** to navigate to the required page.

Click **Clone** to submit the deployment procedure to create a test master PDB from the source PDB.



## Creating a Test Master Pluggable Database Using EM CLI

To create a Test Master pluggable database, execute the command `emcli pdb_clone_management -input_file=data:/xyz/sdf/pdb_test_master.props`, where the sample contents of the `pdb_test_master.props` file is given below.

### Sample properties file to create a Test master PDB:

```
SRC_PDB_TARGET=cdb_prod_PDB
SRC_HOST_CREDS=NC_HOST_SCY:SYCO
SRC_CDB_CREDS=NC_HOST_SYC:SYCO
SRC_WORK_DIR=/tmp/source
DEST_HOST_CREDS=NC_SLCO_SSH:SYS
DEST_LOCATION=/scratch/sray/app/sray/cdb_tm/HR_TM_PDB6
DEST_CDB_TARGET=cdb_tm
DEST_CDB_TYPE=oracle_database
```

```
DEST_CDB_CREDS=NC_HOST_SYC:SYCO
DEST_PDB_NAME=HR_TM_PDB6
IS_CREATE_AS_TESTMASTER=true
MASKING_DEFINITION_NAME=CRM_Masking_Defn
```

**Note:**

You will need to add two more parameters (`ACL_DF_OWNER=oracle` and `ACL_DF_GROUP=oinstall`) in case you need to create the Test Master on Exadata ASM.

## Creating a CloneDB Database

You can create CloneDB databases only when you have RMAN Image backups.

To create a CloneDB database, follow these steps:

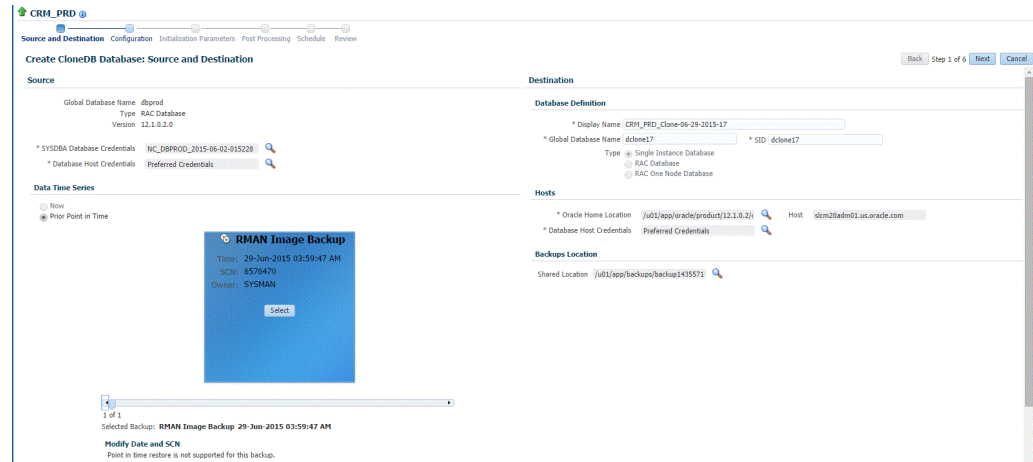
1. On the Databases page, you can access the CloneDB wizard by following any one method:
  - Select the database that you want to clone from the list of the databases displayed. On the Database home page, click the **Database** menu, select **Cloning**, and then select **Create CloneDB**.
  - Right click on the database target name, select **Database**, select **Cloning**, and then select **Create CloneDB**.
  - Right click on the database target name, select **Database**, select **Cloning**, and then select **Clone Management**. On the Clone Management page, in the CloneDB Databases box, click **Create**.
2. On the Create CloneDB Database: Source and Destination page, do the following:
  - In the Source section, launch the credentials selector by selecting the search icons for SYSDBA Database and Database Host credentials. Click **OK**.
  - In the Source Data Time Series, **Prior Point in Time** is selected automatically. Select the appropriate RMAN Image backup by clicking **Select** on the image.

You can create full clones by selecting a backup and optionally modify the time and SCN to do a point in time restore. The **Select Time** option has the minimum limit set to the current backups time and maximum time limit set to the next backup time. You can modify this in case you have to create a new clone between these two time periods. Similarly, you can do the same for SCN by selecting the **Select SCN** option.
3. In the Destination Database Definition section, do the following:
  - Specify a display name.
  - Specify a global database name and SID.

A database is uniquely identified by a Global Database Name. The typical form of a name is name.domain. A database is referenced by at least one Oracle instance which is uniquely identified by SID.
  - The RAC Database type is selected by default.

In the Hosts section, specify or select the cluster target. The Oracle Home location gets specified by default. Next, specify the Database Host credentials, and the SYSASM ASM credentials.

In the Nodes section, select the cluster and Oracle Home to display one or more hosts on which the administrator managed Oracle RAC database will be created.



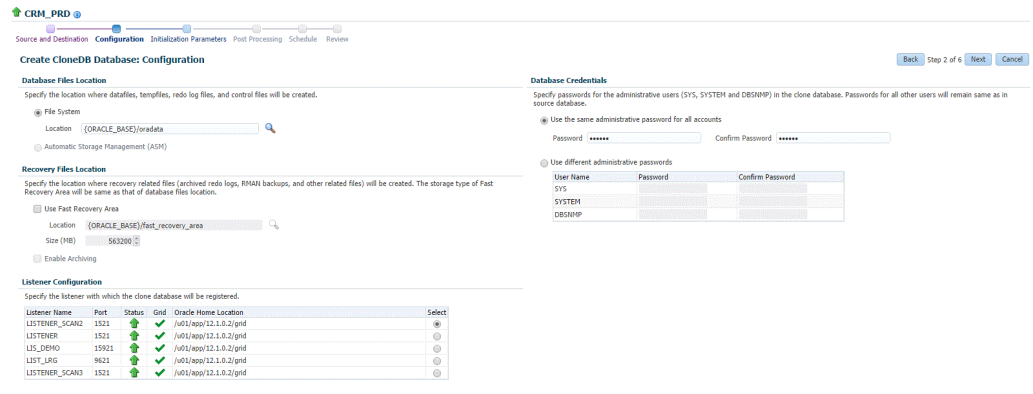
 **Note:**

Oracle supports inline patching as part of clones. When the destination home selected has patches applied such as the latest CPU or PSU, then the cloned database is automatically brought up with that level.

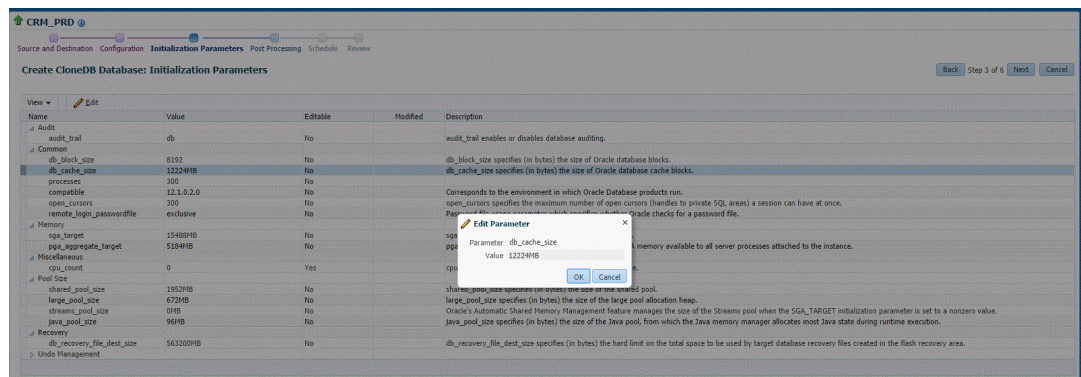
Click **Next**.

4. On the Create CloneDB Database: Configuration page, do the following:
  - In the Database Files Location, specify the location where you want the data files, temp files, redo log files, and control files to be created. The **File System** option is selected by default.
  - In the Recovery Files location, specify the location where you want the recovery files, such as archived redo logs, RMAN backups, and other related files to be created. You can choose to use the fast area recovery by selecting **Use Fast Recovery Area**. If you do, specify the fast recovery area size. The fast recovery area size is defaulted to that of source.
  - In the Listener Configuration section, select the listener targets running under the new Oracle Home, to register the clone database.
  - In the Database Credentials section, specify passwords for the SYS, SYSTEM, and DBSNMP administrative users in the clone database. You can choose to have the same password for all the three users or a different password for each.

Click **Next**.



- On the Create CloneDB Database: Initialization Parameters page, you can configure the values of various initialization parameters that affect the operation of the database instance. Select the parameter and click **Edit** to modify the value of the parameter. Click **Next**.



- On the Create CloneDB Database: Post Processing page, specify the following:
  - Masking Definition:** Data masking is the process of masking sensitive data in test or non-production databases. The masking definition defines the columns to be masked in the format of the masked data. Specify the masking definition to be applied after the database is cloned.

**Note:**

The masking definition can be used only when you have a Subset-Masking license pack.

- Custom Scripts:** Specify the custom scripts that need to be executed before and after the database is created.
- Create Data Profile:** This option enables you to automatically take a backup of the new cloned instance once it is created. When the clone or the Test Master is refreshed, this section displays the existing profiles created for the database. You can select the profile that has to be refreshed along with the database.
- Create as Test Master:** This option if you want to create the cloned database as a Test Master database.

Click **Next**.



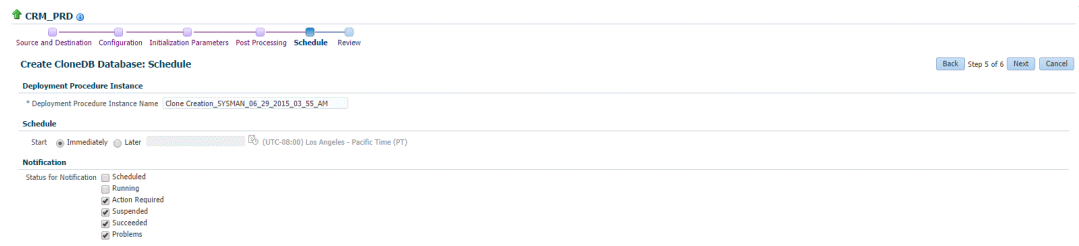


- On the Create CloneDB Database: Schedule page, specify a unique deployment procedure instance name. You can choose to start the deployment procedure immediately or at a later time.

In the Notification Details section, you can choose to set the following notifications:

- Scheduled
- Running
- Action Required
- Suspended
- Succeeded
- Problems

Click **Next**.



- On the Create CloneDB Database: Review page, verify the details of the source database, the data source of the clone, and the destination database.

Click **Submit**.



## Managing Clone Databases

The Clone and Refresh page enables you to manage clone databases by adding clone databases, removing clone database, and promoting the clone databases as Test Master.

To access the Clone and Refresh page, navigate to an Oracle database target home page. On the home page, click **Oracle Database**, select **Provisioning**, and then select **Clone and Refresh**.

### Adding Clone Databases

The **Add** button can be used to add the clones of the current databases which have already been created. To add a database clone instance, click on **Add**. In the Select Targets dialog box that opens, select a database target, and click **Select**. The database instance gets added to the Clones section in the Database Cloning page.

### Removing Clone Databases

Only the databases that are added using the **Add** button can be removed using the **Remove** button. To

remove a database clone instance, select the database clone instance that you want to remove, from the Clones section. Click **Remove**.

### Promoting Clone Databases as Test Master

To promote a database clone database instance as Test Master, select the clone instance that you want to recreate from the Clone section. Click **Promote as Test Master**.

You can also remove the clone database instance from Test Masters, by selecting the clone database instance from the Clones section, and clicking **Remove from Test Masters**.

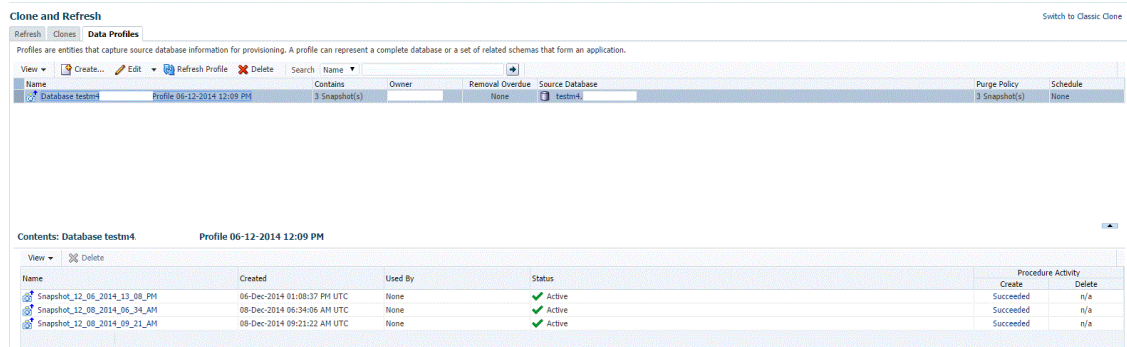
### Refresh Clone Databases

To refresh a clone database, select the clone database instance from the Clone section, and then click **Refresh**. See [Refreshing Clone Databases](#).

Name	Status	Database Version	Type	Test Master	Data Masked	Cloud Target	Owner	Name	Data Source of Clone		
									Type	Created	Purge Status
testm1	↓	12.1.0.1.0	Full Clone	✓	-	-	RAHUTHIA1	n/a	RMAN Duplicate	Dec 6, 2014	n/a
testm1	↑	12.1.0.1.0	Full Clone	✓	-	-	RAHUTHIA1	n/a	RMAN Duplicate	Dec 6, 2014	n/a

### Creating Data Profiles

The Data Profiles tab on the Clone and Refresh page displays the data profiles that you have created from the clone database. On the Data Profiles page, you can view the contents of existing data profiles. You can also **Edit** and **Refresh** these data profiles.



You can also create a new data profile by clicking **Create**. This takes you to the Create Provisioning Profile wizard. Refer to *Enterprise Manager Cloud Control Administrator's Guide for information* on how to create a provisioning profile using this wizard.

## Refreshing Clone Databases

To refresh a clone database, navigate to the Refresh and Clone page by following these steps:

1. From the **Targets** menu, select **Databases**.
2. On the databases home page, select the database clone instance that you want to refresh from the list of databases.
3. On the database target home page, click **Oracle Database**, select **Provisioning**, and then select **Clone and Refresh**.
4. On the Clone and Refresh page, select the **Refresh** tab.

The Refresh page displays the following sections:

- **Drift from Source Database**

This section displays the name of the source database from which this database has been cloned. It shows the number of days since the clone database has been refreshed. Click **Refresh** to refresh the clone database.

- **Database Volume Details**

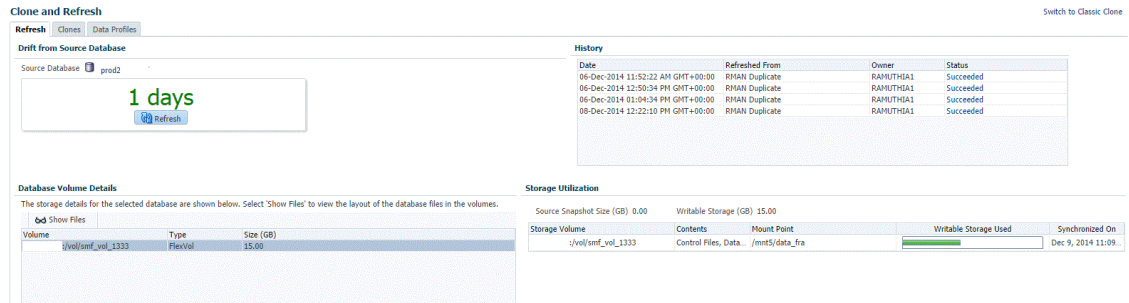
This section displays the storage details for the selected databases. Click Show files to view the layout of the database files in the volumes. A display box appears that shows the storage layout and file layout of the selected database.

- **History**

This section displays the past refreshes of the database. It shows the date and time of the refresh, where it has been refreshed from, the owner of the database, and the status of the refresh action.

- **Storage Utilization**

This section displays the storage volume of the database, the storage contents, the mount point, the amount of writable storage used, and the synchronization date.



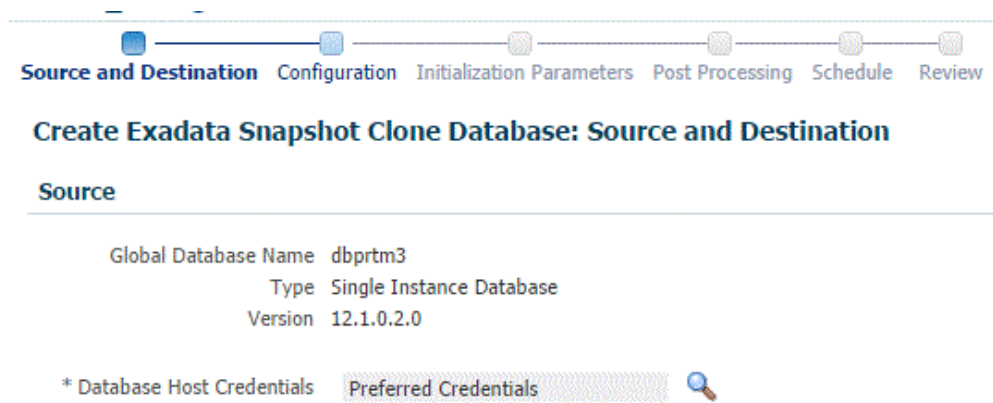
## Creating a Snapshot Clone of an Exadata Test Master Database

To create a snapshot clone of an Exadata Test Master database, follow these steps:

1. From the **Targets** menu, select **Databases**.
2. On the Databases page, you can access the Database Snap Clone wizard by following any one method:
  - Select the test master database that you want to clone from the list of the databases displayed. On the Database homepage, click the **Database** menu, select **Cloning**, and then select **Create Snapshot Clone**.
  - Right click on the test master database target name, select **Database**, select **Cloning**, and then select **Create Snapshot Clone**.
3. On the Create Exadata Snapshot Clone Database: Source and Destination page, do the following:
  - In the Source section, launch the credentials selector by clicking the search icons for SYSDBA Database and Database Host credentials. Click **OK**.
  - In the Data Time Series section, **Now** is selected by default.

Now refers to Live Clone.

Specify or select the SYSASM ASM credentials.



4. In the Destination Database Definition section, do the following:

- Specify a display name.
- Specify a global database name and SID.

A database is uniquely identified by a Global Database Name. The typical form of a name is `name.domain`. A database is referenced by at least one Oracle instance which is uniquely identified by SID.

- Select one of the following types of databases:

- **Single Instance Database.**

In the Hosts section, specify the Oracle Home location. The host gets specified by default. Next, select the Database Home credentials and the SYSASM ASM credentials.

- **RAC Database**

In the Hosts section, the cluster field is auto selected from the parent database and disabled. The Oracle Home location gets specified by default. Next, specify the Database Host credentials, and the SYSASM ASM credentials.

In the Nodes section, select the cluster and Oracle Home to display one or more hosts on which the administrator managed Oracle RAC database will be created.

- **RAC One Node Database**

In the Hosts section, specify or select the cluster target. The Oracle Home location gets specified by default. Next, specify the Database Host credentials, and the SYSASM ASM credentials.

In the Nodes section, select the cluster and Oracle Home to display one or more hosts on which the administrator managed Oracle RAC database will be created.

Click **Next**.

Back Step 1 of 6 Next Cancel

### Destination

---

#### Database Definition

\* Display Name:

\* Global Database Name:  \* SID:

Type:  Single Instance Database

---

#### Hosts

\* Oracle Home Location:  Host:

\* Database Host Credentials:

\* SYSASM ASM Credentials:

 **Note:**

Oracle supports inline patching as part of clones. When the destination home selected has patches applied such as the latest CPU or PSU, then the cloned database is automatically brought up with that level.

5. On the Create Exadata Snapshot Clone Database: Configuration page, do the following:
  - In the Database Files Location, specify the Sparse disk group and the redo log file size.
  - In the Recovery Files location, specify the location where you want the recovery files, such as archived redo logs, RMAN backups, and other related files to be created. You can choose to use the fast area recovery by selecting **Use Fast Recovery Area**. If you do, specify the fast recovery area size. The fast recovery area size is defaulted to that of source.
  - In the Listener Configuration section, select the listener targets running under the new Oracle Home, to register the clone database.
  - In the Database Credentials section, specify passwords for the SYS, SYSTEM, and DBSNMP administrative users in the clone database. You can choose to have the same password for all the three users or a different password for each.

Click **Next**.

Back Step 2 of 6 Next Cancel

### Create Exadata Snapshot Clone Database: Configuration

---

#### Database Files Location

\* Sparse Disk Group:

\* Redo Log File Size (MB):

#### Recovery Files Location

Specify the location where recovery related files (archived redo logs, RMAN backups, and other related files) will be created. The storage type of Fast Recovery Area will be same as that of database files location.

Use Fast Recovery Area

Location:

Size (MB):

Enable Archiving

#### Listener Configuration

Specify the listener with which the clone database will be registered.

Listener Name	Port	Status	Grid	Oracle Home Location	Select
LIST_LPG	1521			/u01/app/12.1.0.2/grid	<input checked="" type="radio"/>
LISTENER_SCAN1	1521			/u01/app/12.1.0.2/grid	<input type="radio"/>
LISTENER	1521			/u01/app/12.1.0.2/grid	<input type="radio"/>
LIS_DEMO	15921			/u01/app/12.1.0.2/grid	<input type="radio"/>

#### Database Credentials

Specify passwords for the administrative users (SYS, SYSTEM and DBSNMP) in the clone database. Passwords for all other users will remain same as in source database.

Use the same administrative password for all accounts

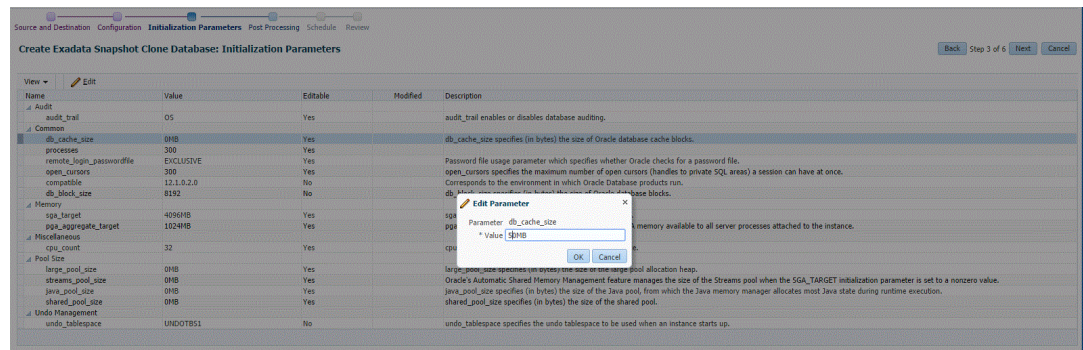
Password:  Confirm Password:

Use different administrative passwords

User Name	Password	Confirm Password
SYS	<input type="password"/>	<input type="password"/>
SYSTEM	<input type="password"/>	<input type="password"/>
DBSNMP	<input type="password"/>	<input type="password"/>

6. On the Create Exadata Snapshot Clone Database: Initialization Parameters page, you can configure the values of various initialization parameters that affect the operation of the database instance. Select the parameter and click **Edit** to modify the value of the parameter.

Click **Next**.



7. On the Create Exadata Snapshot Clone Database: Post Processing page, specify the following:

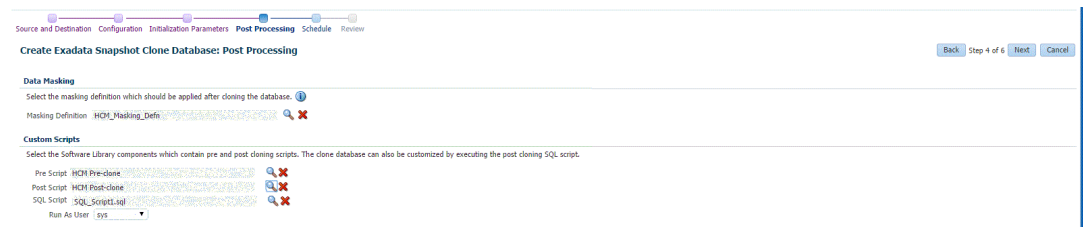
- **Masking Definition:** Data masking is the process of masking sensitive data in test or non-production databases. The masking definition defines the columns to be masked in the format of the masked data. Specify the masking definition to be applied after the database is cloned.

**Note:**

The masking definition can be used only when you have a Subset-Masking license pack.

- **Custom Scripts:** Specify the custom scripts that need to be executed before and after the database is created.

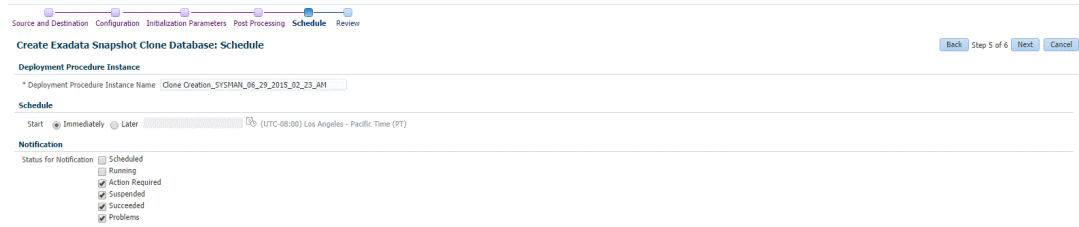
Click **Next**.



8. On the Create Exadata Snapshot Database: Schedule page, specify a unique deployment procedure instance name. You can choose to start the deployment procedure immediately or at a later time.

In the Notification Details section, you can choose to set the following notifications:

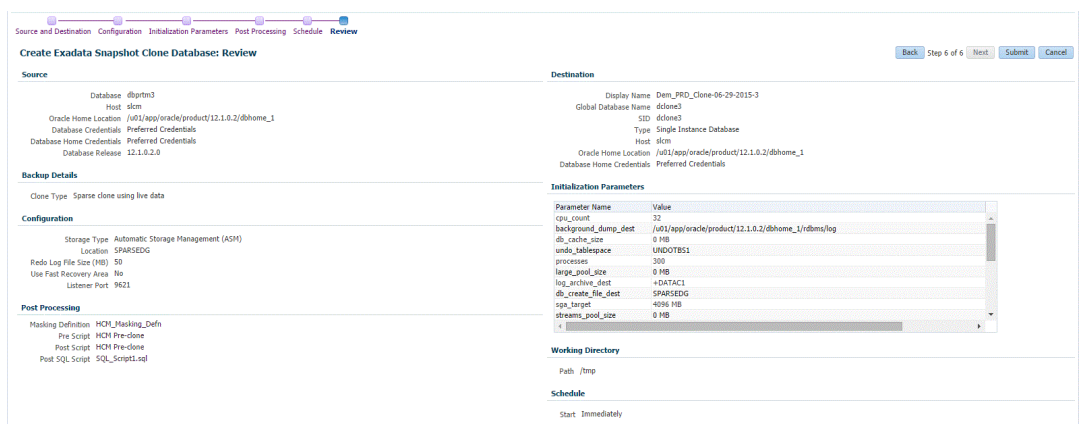
- Scheduled
- Running
- Action Required
- Suspended
- Succeeded
- Problems



Click **Next**.

- On the Create Exadata Snapshot Database: Review page, verify the details of the source database, the data source of the clone, and the destination database.

Click **Submit**.



## Creating Snap Clones from an In-Sync Test Master

You can create snap clones using a standby database that is designated as the test master database. The test master database is always current and in sync with the production database. To create snap clones using this approach, follow these steps:

**Table 13-1 Creating Snap Clone (Continuous Flow)**

Step	Task	Role
1	Following the steps in the Getting Started section to enable DBaaS.	See <a href="#">Getting Started</a> .
2	Register storage servers.	See <a href="#">Registering Storage Servers</a> .
3	Create one or more resource providers.	See <a href="#">Creating Resource Providers</a> .
4	Configure the request settings.	See <a href="#">Configuring Request Settings</a> .
5	Define quotas for each self service user.	See <a href="#">Defining Quotas</a>
7	Add a standby database and designate it as the test master.	See <a href="#">Using a Physical Standby Database as a Test Master</a>

**Note:** This standby database must be present on a registered storage server (such as NetApp, Sun ZFS, or EMC) that allows creation of snap clones.



**Table 13-1 (Cont.) Creating Snap Clone (Continuous Flow)**

Step	Task	Role
6	Enable the test master for snap clone.	See <a href="#">Enabling the Test Master for Snap Clone</a> .
7	Create snapshot profiles from the test master.	<a href="#">Creating a Database Provisioning Profile Using Snapshots</a> .
8	Create a service template.	See <a href="#">Creating Service Template Using Snap Clone Profile</a>
9	Configure the Chargeback Service. (this step is optional)	See <a href="#">Configuring Chargeback</a> .
10	While deploying a database, select the service template you have created.	See <a href="#">Requesting a Database</a>

## Getting Started

See [Getting Started](#).

## Registering Storage Servers

To register storage servers for:

- Sun ZFS Storage Server: See [Registering a Sun ZFS Storage Server](#).
- Solaris File System (ZFS): See [Registering a Solaris File System \(ZFS\) Storage Server](#).

## Creating Resource Providers

You must create one or more resource providers which include:

- PaaS Infrastructure Zones: See [Creating a PaaS Infrastructure Zone](#).
- Database Pool: See [Creating a Database Pool for Database as a Service](#)

## Creating a Database Pool for Database as a Service

To create a database pool for database as a service, follow these steps:

1. Log into Enterprise Manager as a user with the `EM_SSA_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**. Click the **Setup** link next to the Database service family, click the **Database Pool** link and click **Create**.
3. Enter a name and description for the database pool.
4. In the Credentials region, specify the following credentials:
  - **Database Home:** Required for creating and starting the database.
  - **Root:** This is an optional field. It is required if you plan to use this database pool for database requests based on snap clone profile.
  - **Grid Infrastructure:** This is an optional field. It is required for registering database services with credentials.
  - **Automatic Storage Management:** This is an optional field. It is required if you plan to use this database pool for live cloning on any database running on ASM.

 **Note:**

You can use Preferred Credentials or the Named Credentials. If you are using Preferred Credentials,

- Host Credentials: Select the Target Type as Oracle Home and Credential Set as Normal Host Credentials.
- Root Credentials: Select the Target Type as Host and Credential Set as Privileged Host Credentials.
- Grid Infrastructure: Select the Target Type as Oracle High Availability Service and Credential Set as Host Credentials.
- Automatic Storage Management: Select the Target Type as ASM Instance.

5. Click **Add** and select one or more Oracle Homes to be added to the database pool.
6. Specify the following details:
  - **PaaS Infrastructure Zone:** Select the PaaS Infrastructure Zone into which the database instance is to be provisioned.
  - **Database Configuration:** Specify the configuration of the database being provisioned. This can either be Single Instance or Cluster Database (RAC) but cannot be a combination of both.
  - **Platform and Version:** Specify the platform and version of the database being deployed.
7. In the Maximum Number of Database Instances (per host), enter the maximum number of database instances that can be running on each host in the pool.

 **Note:**

For RAC databases, the value specified in this field is used to ensure that the nodes on which the database is to be created meets this criteria.

8. Click **Submit** to create a database pool. The newly created pool will appear in the Database Cloud Self Service Portal Setup: Database Pools page. The database pool can now be added to the Service Template.

## Configuring Request Settings

You can configure the request settings by specifying when a request can be made, its duration, and so on. See [Configuring Request Settings](#) for details.

## Defining Quotas

After configuring the request settings, you must define quotas for each self service user. See [Setting Up Quotas](#) for details.

## Using a Physical Standby Database as a Test Master

A test master database is a sanitized version of the production database. A test master can be created from a live standby database by using the Oracle Data Guard feature. Profiles or snapshots can be created from the test master (see [Creating a Database Provisioning Profile Using Snapshots](#)) and these profiles can be used to create snap clones (see [Requesting a Database](#)). Since the test master is a physical standby database with live data, you must schedule and create profiles and snapshots on a periodic basis to ensure that the latest data is captured in the profile (see [Creating and Refreshing Snapshots of the Test Master](#)). Self service users can create multiple snap clones from each profile and refresh their snap clones (see [Refresh an RMAN Database](#)) when a new profile or snapshot become available.

To create a test master, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. From the **Oracle Cloud** menu, select **Setup**, then select the Database Service family on the left panel. Click the **Test Master Databases** tab.
2. To create a test master from a live standby database, click **Add** and select a standby database that is to be designated as the test master. The newly added database appears in the Test Master Database page and can be used to create the snap clone database instances.

## Enabling the Test Master for Snap Clone

After the test master database has been created, you must enable snap clone on the database.



### Note:

You need `SNAP_CLONE_TARGET` or `FULL_TARGET` privilege on the database to enable snap clone.

To enable snap clone, follow these steps:

1. On the Storage Registration page, in the Details section, select the **Databases** tab, and then select the database from the table which you want to use for Snap Clone, and then click **Enable Snap Clone**.

The Supported column in the table shows if the databases listed support Snap Clone or not.

**Note:** If a database listed shows the **Not Supported** icon in the Supported column, you can view the Message column from the **View** menu. This column displays the reason. A possible reason is that the data files are missing on the storage server and may be located on either local disk or some other unregistered storage server. Another reason could be that the data files reside on another storage that is not synchronized.

2. Once snap clone has been successfully enabled, a confirmation message appears. Click **OK**.

To view all the files located on the storage server, click **Show Files**. To view all the projects (aggregates), volumes, and snapshots in the storage server, select the **Contents** tab.

## Creating a Database Provisioning Profile Using Snapshots

### Prerequisites for Creating a Database Provisioning Profile Using Snapshots

Before you create a database provisioning profile, follow these prerequisites:

- Ensure that the storage server you want to register for storage is available on the network. To register a storage server, refer to [Registering and Managing Storage Servers](#).

#### Note:

Sun ZFS and Solaris ZFS are supported in Enterprise Manager Cloud Control 12c.

- Ensure that the storage server is connected to a Management Agent installed and monitored in Enterprise Manager Cloud Control for communication.
- Ensure that the storage server is registered, and at least one database should be present which is enabled for Snap Clone.
- To create the profile, you must have the `EM_STORAGE_OPERATOR` or `EM_STORAGE_ADMINISTRATOR` privileges.

### Creating a Database Provisioning Profile Using Snapshots

To create a database provisioning profile, follow these steps:

#### Note:

When a snapshot is used by a database, it cannot be deleted. When you remove a snapshot, it becomes obsolete.

This means that you cannot request any new databases using the obsolete snapshot. This is indicated by the red pushpin against the database, which means that the snapshot is pinned and cannot be used.

When the database using that snapshot is deleted, it gets automatically purged in the next run.

1. You can access the Database Provisioning page using any of the following ways:
  - From the **Enterprise** menu, select **Cloud**, and then select **Cloud Home**. On the Cloud home page, click **Oracle Cloud**, select **Setup**, and then select **Data Sources**. On the Database: Data Sources page, in the Data Profiles tab, click **Create**.
  - From the **Enterprise** menu, select **Provisioning and Patching**, and then select **Database Provisioning**. On the Database Provisioning page, in the Profiles section, click **Create**.
  - From the database target home page, click **Oracle Database**, select **Provisioning**, and then select **Create Provisioning Profile**.
2. On the Reference Target page, click the search icon to select a target.
3. In the Search and Select:Targets display box, select the database you want to create a profile for, and then, click **Select**.

 **Note:**

Ensure that the database you select is enabled for Snap Clone.

4. On the Reference Target page, select the following:
  - **Data Content**
  - **Structure and Data** to include physical and structural files from the database
  - **Create**
  - **Storage Snapshots**
5. In the Credentials section, select the database. In the Credentials column, you can select **Named Credentials** and then select a credential name from the Credential Name column (or) select **Preferred Credentials**. Click **Next**.
6. On the Create Database Provisioning Profile: Page, in the Profile Information section, do the following:
  - Specify or select a profile location in the software library where the database profile will be created.
  - Specify a unique profile name.  
  
For example:  
Snap Clone Profile for HR database
  - Add a description for the profile.
  - Verify the profile version and the vendor.
  - Add any additional notes such as host name, database, data content, data content mode, and the like.
7. In the Schedule section, you can choose to start the profile creation immediately, or you can schedule it for a later time. You can also choose to repeat the creation of the provisioning profile, and set a repeat time.
8. In the Purge Policy section, you have three options:
  - **None**. Select this option you do not want to purge any data collected.
  - **Snapshots**. This option enables you to specify the maximum number of snapshots that can be purged.
  - **Day(s)**. This option enables you to specify the number of days after which the data component should be purged.
9. Specify or select a working directory. Click **Next**.
10. On the Review page, ensure that the selections you have made in the previous pages are correctly displayed and click **Submit**. Otherwise, click **Back** repeatedly till you reach the page where you want to make changes. Click **Cancel** to abort the provisioning profile creation.

Once you have submitted the provisioning profile creation job, manually refresh the page if View Data has been set to Real Time: Manual Refresh. Else, set View Data to reload after a specific period of time, and then select an execution step from the Procedure Steps tree on the left pane to view the details.

To view the submitted jobs, select the **Procedure Activity** link in the **Data Profiles** tab.

## Creating and Refreshing Snapshots of the Test Master

After the snapshot profile has been created, you can refresh the profile at scheduled intervals and create new versions of the profile.

To create a snapshot profile of the test master (or the physical standby database), follow the steps listed in [Creating a Database Provisioning Profile Using Snapshots](#). To refresh a snapshot profile, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. From the **Oracle Cloud** menu, select **Setup**, then select the Database Service family on the left panel. Click the **Data Profiles** tab.
2. Select the snapshot profile that is to be refreshed.

Click **Refresh**. You will see a message indicating that a new snapshot (version) of the profile will be created. Click **Yes** to submit the refresh profile job and create a new snapshot.

### Snapshot Purge Policy

Snapshots can be refreshed at regular intervals to ensure that the latest production data is available to the users. Every time a snapshot is refreshed, a new version of the snapshot is created. When the self service user refreshes his database to a newer version of the snapshot, the older versions can be deleted. You can delete them manually or define a purge policy while creating the snapshot.

## Creating Service Template Using Snap Clone Profile

To create a snap clone based service template, follow these steps:

1. Log into Enterprise Manager as a user with the `EM_SSA_ADMINISTRATOR` role. The `EM_SSA_ADMINISTRATOR` role you select must also have the `EM_STORAGE_OPERATOR` privileges.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**.
3. Click the **Setup** link next to the Databases option in the left panel. Select Database from the drop down menu.
4. Click the **Service Templates** link. The Service Templates page appears. Click **Create**. The Create Service Template: General page appears.

**Figure 13-1 Create Service Template: General (Snap Clone)**

5. Enter a name and description for the service template. The description must be unique and provide information on the type of service template being created.
6. In the Source Identification section, select the **Using Profile** radio button, click the **Search** icon and select the test master database based on the snap clone profile you created.
7. In the Profile Version field, you can select either of the following:
  - **Latest:** This ensures that the latest profile is always used by the self service user.
  - **Selected by user at request time:** If this option is selected, the self service user can select the profile to be used when creating a service request.
8. In the Database Definition region, specify the following:
  - **Type:** This can be Single Instance or Real Application Cluster (RAC). If you select RAC, specify the number of nodes.
  - **Database SID:** This is an optional field. You can select **Specify Prefix** or **Specified by User at Request Time**.
    - **Specify Prefix:** If you choose this option, enter a prefix that is to be used to generate a unique System Identifier (SID) at the time of database creation. The prefix helps to identify databases created using this service template. The prefix can be a maximum of 6 characters.

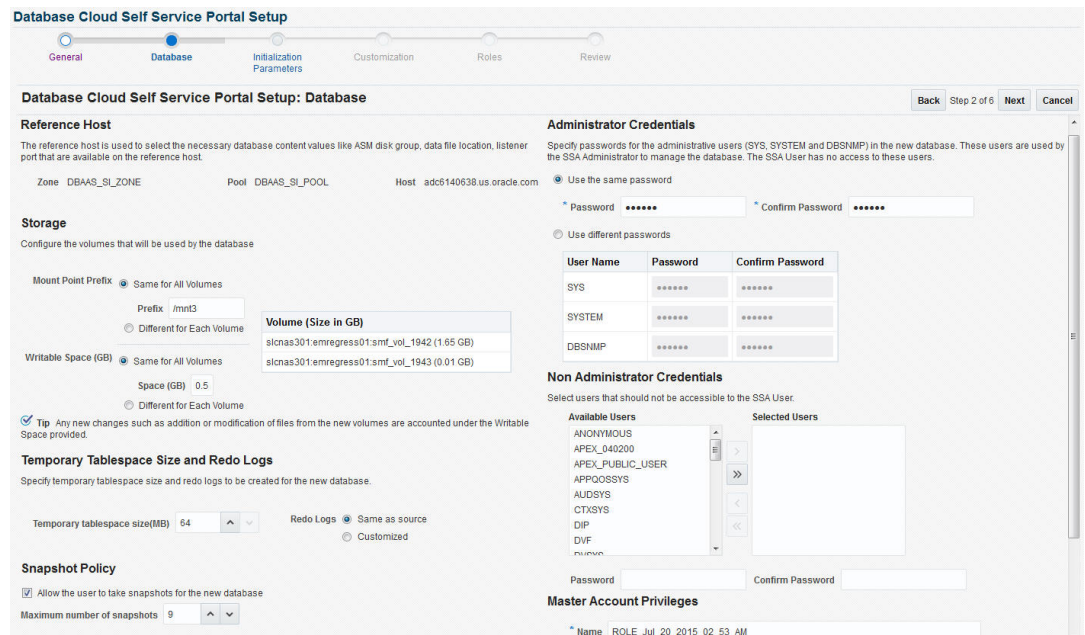
The new database name generated will be based on the SID Prefix specified here. For example, if the prefix is specified as MYDB, the SID for the new database is generated as MYDB0000, MYDB0001, MYDB0002, and so on.

For existing databases (running databases and in progress requests), a unique SID name is generated for single instance databases, or a unique name is generated for real application cluster databases. For example, if the existing SIDs running on a host are MYDB0000, MYDB0001, MYDB0002 And In progress are MYDB0003, MYDB0004, the new SID or database name generated for the new request is MYDB0005.

- **Specified by User at Request Time:** If you choose this option, you can leave this field blank and specify the SID when you are making a database request.

- **Domain Name:** This is an optional field. Enter a Domain Name to be used for the new database being created. You must ensure that the domain name does not contain a preceding "." (dot).
9. In the Zones region, click **Add** to select a PaaS Infrastructure Zone into which the database instance is to be provisioned. Click **Assign Pool**. Select a pool from the list and assign this pool to the PaaS Infrastructure Zone. The database will be provisioned into this pool.
  10. After you have selected the zone and the pool, the host target is populated in the Reference Host field.
  11. Click **Next**. The Database Cloud Self Service Portal Setup: Database page appears.

**Figure 13-2 Create Service Template: Database (Snap Clone)**



12. In the Reference Host region, the name of the PaaS Infrastructure zone, the database pool, and the reference host you have selected in the Database Cloud Self Service Portal Setup: General page are displayed.

The database values such as the location of the file system and the listener port you select must be available on the reference host.

13. Specify the following details:

- **Storage:** You can configure the volumes that will be used by the database:
  - **Mount Point Prefix:** The mount point prefix can be the **Same for All Volumes** or **Different for Each Volume**.  
Specify the prefix for the new mount point for the database being provisioned. This value would be prefixed to an auto-generated mount point where a clone of this volume will be mounted. The volume will be mounted on /<mount-prefix>\_<unique-suffix-generated-by-EM>/<source-path>. If the Mount Point Prefix is different for each volume, specify a different value for each volume,
  - **Writable Space:** The Writable Space can be the **Same for All Volumes** or **Different for Each Volume**.



Specify the amount of space required for block changes. The value specified here cannot exceed the Storage Ceiling specified for the server. For example, for minimal data changes, you specify the value as 1% of the original volume size.

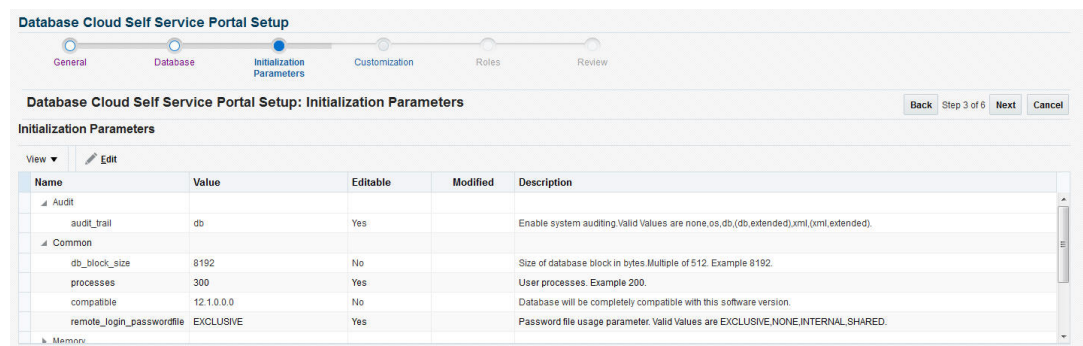
- **Enable Archiving:** If this check box is selected, the database will not be shut down during a refresh. This allows self service users to schedule backups and restore operations without shutting down the database.
- **Snapshot Policy:** Snapshots are sets of historical data for specific time periods. By default, Oracle Database automatically generates snapshots of the performance data once every hour and retains the statistics in the workload repository for 8 days. **Select the Allow the user to take snapshots for the new database** checkbox and specify the **Maximum Number of Snapshots** that can be taken.

Snapshots can be created for a specific point in time. The number of snapshots is determined by the value specified by the self service administrator in the Maximum Number of Snapshots field. Once the snapshot has been taken, the database can be restored to a specific snapshot taken a particular point in time. For example, if there are several snapshots such as *snap1*, *snap2*, and *snap3*, if the database is restored to *snap2*, *snap3* will be deleted.

- In the Listener Port field, specify listener port number that is to be associated with the new database. If you have selected a 11.2 or later RAC database, you must specify the scan port number.
- **Administrator Credentials:** Specify passwords for the system schemas of the new database. These schemas will not be available to the `EM_SSA_USERS`. You can choose to use the same password for all the schemas or different passwords for each schema. If these values are not specified, default values will be used and the `EM_ADMINISTRATOR` can change them.
- **Non Administrator Credentials:** Apart from the system schemas, if you want to restrict access to other schemas, you can select them in the Non-Administrator Credentials region and specify the password.
- **Master Account Privileges:** Enter the name of the Master Account. You can specify the privileges that are to be provided to the master account user by specifying them in the Privileges field.

14. Click **Next**. The Create Service Template: Initialization Parameters page appears.

**Figure 13-3 Create Service Template: Initialization Parameters (Snap Clone)**



15. In this page, you can specify the following:
  - **Database Sizes:** Select the database sizes that are to be supported by this service template.

**Note:** The database size definitions must have already been defined using the `emcli create_database_size` command. See [Database Size EM CLI Verbs](#) for details.

You can select sizes such as small, medium, and large. Each database size has a specific memory, storage, CPU cores, and units. Select a size and select **Include in Template** to associate it with the service template. Click **Default** to designate it as the default database size.

- Initialization Parameters: You can configure the values of various initialization parameters that affect the operation of the database instance. Select a parameter and click the **Set** icon to modify the value of the parameter.
16. Click **Next**. The Create Service Template: Customization page appears. Specify the custom scripts that need to be executed before and after the database is created. See [Pre and Post Request Creation / Deletion Scripts](#) for details.  
You can also specify a custom Post SQL Script and select the user who can run the script. For more details, see [Selecting the Post SQL Script](#).
  17. In the Target Properties region, you can specify global target properties such as Location, Department, Line of Business, and so on. These properties will be applied to the database clones that are created. You can do the following:
    - Mark a property as mandatory by selecting the **Required** check box. If a property is marked as mandatory, the self service user must specify a value for this property while requesting a database.
    - Lock a property. When a property is locked, the self service user cannot modify the value of this property while requesting a database.
  18. Click **Next**. The Create Service Template: Roles page appears. Click **Add** to select the SSA user roles to which this service template will be available. All users belonging to the selected role can use this service template. Click **Next**.
  19. The Create Service Template: Review page appears. Click **Create**. The newly created service template will appear in the Database Cloud Self Service Portal Setup: Service Templates page.

## Configuring Chargeback

Optionally, you can configure the chargeback service. See [Chargeback Administration](#).

## Requesting a Database

The self service user can now select the service template based on the database template profile and create a database. See [Requesting a Database](#).

## Example: Creating Snap Clones from an In-Sync Test Master

The following example shows how you can create a snap clones from a physical standby database.

1. First, you must make sure that all the prerequisites are met. See [Getting Started](#).
2. The next step is to identify the production database and the physical standby database. The production database is **prod1** and the standby database as **prod1stb**.
3. Next, you must register the storage server. This step validates the storage and discovers **prod1stb** on the storage server. See [Registering Storage Servers](#).

4. You must then create one or more PaaS Infrastructure Zones and one or more database pools. See [Creating Resource Providers](#)
5. Then, you must define the quota that you wish to allocate to the self service users. See [Defining Quotas](#).
6. The next step is to designate the standby database, **prod1stb** as the test master.
7. Next, you must enable **prod1stb** for snap clone. This allows creation of snap clones using snapshot technology. See [Enabling the Test Master for Snap Clone](#).
8. The next step is to create a snapshot profile from **prod1stb**. See [Creating a Database Provisioning Profile Using Snapshots](#)

While creating the profile, specify the **Start Date** as **05/15/2015**, the **Repeat** schedule as **Every N Days** and the Frequency as Every **1** day. Specify the **End By** date as **05/20/2015**. A new version of the snapshot profile will be created every day from the Start date of **05/15/2015**.

In the Purge Policy field, specify the **Number of Snapshots** as **5**. This will ensure that after 5 versions of the snapshot are created, the first or oldest one will be purged.

9. To make this profile available to the self service user, you must create a service catalog entry or a service template. Create a template called **Snap Clone Template**. See [Creating Service Template Using Snap Clone Profile](#). Set the Profile Version field to **Selected by user at request time**. The self service user can choose the profile version that is to be used to create the snap clone.
10. The self service user can then use the **Snap Clone Template**, select a version of the profile and use it to create the snap clone. See [Requesting a Database](#). As and when a new version of the profile is available (see [Creating and Refreshing Snapshots of the Test Master](#)), the self service user can choose to refresh the profile to the latest version. See [Refresh an RMAN Database](#).

Based on the Purge Policy which is set to 5 snapshots, the older versions of the snapshots will be deleted. But if the self service user has a database that is using that snapshot, the profile cannot be deleted until the self service user has refreshed the profile to the latest version.

## Creating Snap Clones from a Discretely Synchronized Test Master

You can create snap clones from a discretely synchronized test master if the test master is present on a NAS storage device. This table lists the steps involved in creating a snap clone using a snapshot profile.

**Table 13-2 Creating Snap Clone - Discrete Flow**

Step	Task	Role
1	Follow the steps in the Getting Started section to enable DBaaS.	See <a href="#">Getting Started</a>
2	Register storage servers.	See <a href="#">Registering Storage Servers</a>
3	Create one or more resource providers.	See <a href="#">Creating Resource Providers</a> .
4	Configure the request settings.	See <a href="#">Configuring Request Settings</a> .
4	Define quotas for each self service user.	See <a href="#">Defining Quotas</a>

**Table 13-2 (Cont.) Creating Snap Clone - Discrete Flow**

Step	Task	Role
5	Create a test master database from an RMAN Backup.	See <a href="#">Creating a Discretely Synchronized Test Master</a> .
6	Enable the test master for snap clone	See <a href="#">Enabling the Test Master for Snap Clone</a>
6	Create a snap clone profile from the test master.	See <a href="#">Creating a Database Provisioning Profile Using Snapshots</a>
9	Create a service template based on the profile you have created.	See <a href="#">Creating a Service Template Using Snap Clone Profile</a> .
10	Configure the Chargeback Service. (this step is optional)	See <a href="#">Configuring Chargeback</a> .
11	Select the service template you have created and request a database.	See <a href="#">Requesting a Database</a>
12	Refresh the test master and the database instance: <ul style="list-style-type: none"> <li>• Refresh the test master.</li> <li>• Refresh the snap shot profile.</li> <li>• Refresh the snap clone database instance.</li> </ul>	See: <ul style="list-style-type: none"> <li>• <a href="#">Refreshing the Test Master Database</a></li> <li>• <a href="#">Refreshing the Snap Shot Profile</a>.</li> <li>• <a href="#">Refresh an RMAN Database</a></li> </ul>

## Getting Started

See [Getting Started](#).

## Registering Storage Servers

See [Registering and Managing Storage Servers](#).

## Creating Resource Providers

See [Creating Resource Providers](#).

## Configuring Request Settings

See [Configuring Request Settings](#).

## Defining Quotas

See [Defining Quotas](#).

## Creating a Discretely Synchronized Test Master

A test master database is a sanitized version of the production database. Production data can be optionally masked before the test master is created. A test master can be created from a snapshot or an RMAN Backup profile taken at a prior point in time and refreshed at specific intervals. This option is useful if the source data has to be masked to hide sensitive data.

To create a test master, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. From the **Oracle Cloud** menu, select **Setup**, then select the Database Service family on the left panel. Select **Data Sources** and click on the **Test Master Databases** tab.
2. To create a new test master, click on the **Create** menu. Select a production database from which the test master is to be created and click **Select**. The Clone Database: Source and Destination page appears.
3. On the Create Test Master Database: Source and Destination page, do the following:
  - In the Source section, launch the credentials selector by selecting the search icons for SYSDBA Database and Database Host credentials. Click **OK**.
  - In the Data Time Series section, select **Now** or **Prior Point in Time**.

If you selected Now, specify or search and select the SYSASM ASM Credentials. Now refers to Live Clone.

If you selected Prior Point in Time, a carousel of RMAN Backup images appear. Select the appropriate RMAN backup by clicking **Select** on the image.

Select a specific time between the selected backup or snapshot and the next (or latest point of source). The backups or dumps are created at specific intervals and the test master that is based on these will reflect the production database at specific points in time. To reflect the latest data in the production database, the test master needs to be periodically refreshed.
4. In the Destination Database Definition section, do the following:
  - Specify a display name.
  - Specify a global database name and SID.

A database is uniquely identified by a Global Database Name. The typical form of a name is name.domain. A database is referenced by at least one Oracle instance which is uniquely identified by SID.
  - Select one of the following types of databases:
    - **Single Instance Database.**

In the Hosts section, specify the Oracle Home location. The host gets specified by default. Next, select the Database Home credentials and the SYSASM ASM credentials.
    - **RAC Database**

In the Hosts section, specify or select the cluster target. The Oracle Home location gets specified by default. Next, specify the Database Host credentials, and the SYSASM ASM credentials.

In the Nodes section, select the cluster and Oracle Home to display one or more hosts on which the administrator managed Oracle RAC database will be created.
    - **RAC One Node Database**

In the Hosts section, specify or select the cluster target. The Oracle Home location gets specified by default. Next, specify the Database Host credentials, and the SYSASM ASM credentials.

In the Nodes section, select the cluster and Oracle Home to display one or more hosts on which the administrator managed Oracle RAC database will be created.

 **Note:**

Oracle supports inline patching as part of clones. When the destination home selected has patches applied such as the latest CPU or PSU, then the cloned database is automatically brought up with that level.

Click **Next**.

5. On the Create Test Master Database: Configuration page, do the following.
  - Database Files Location: Specify the location in which the data files, temporary files, redo log files, and control files will be created. You must specify a mount point which must be present on a registered storage volume so that the self service administrator can enable this test master for snap clone.  
You can select:
    - File System: The Oracle Database File System creates a standard file system interface on top of files and directories that are stored in database tables. If you select this option, you must specify or select the Location of the File System. You can specify a common location for all the files or you can select the **Use Oracle Optimal Flexible Architecture-compliant directory structure (OFA)** checkbox and specify different locations for data files, redo log files, and so on.
    - Automatic Storage Management: The Oracle Automatic Storage Management (ASM) is a volume manager and a file system for database files that supports single-instance and RAC configurations. ASM groups the disks in your storage system into one or more disk groups. If you select ASM, select a common location for the database files.
  - Recovery Files Location: To simplify the management of backup and recovery files, a fast recovery area can be created for your database. The fast recovery area can be a ASM disk group or a file system that provides a centralized disk location for backup and recovery file. To allow self service users to schedule backups and perform restore operations, you can select the Use Fast Recovery Area checkbox and specify the location of the Fast Recovery Area and the Fast Recovery Size. The amount of disk space to allocate for the fast recovery area depends on the size and activity levels of your database.
  - Listener Configuration: Click **Add** to add one or more listener targets that are to be associated with the new database.
  - Database Credentials: Specify the passwords for the administrative users (SYS, SYSTEM and DBSNMP) of the new database being cloned. You can choose to use the same password for all the schemas or different passwords for each schema.
6. Click **Next**. Some values such as `db_block_size` cannot be modified.
7. Click **Next**. The Create Test Master Database: Post Processing page appears. Specify the following details:
  - Masking Definition: Data masking is the process of masking sensitive data in test or non-production databases. The masking definition defines the columns to be masked in the format of the masked data. Specify the masking definition to be applied after the database is cloned. After selecting the masking definition, select the In-Place Masking option to generate a script to replace the sensitive data in-place with masked data on the cloned database. For more details on creating a masking definition, see the *Enterprise Manager Database Testing Guide*.

 **Note:**

The masking definition can be used only when you have the Oracle Data Masking and Subsetting license pack.

- Specify the custom scripts that need to be executed before and after the database is created. See [Pre and Post Request Creation / Deletion Scripts](#) for details.
- Specify the path for the SQL script which allows you to run the script against the newly cloned database as a user such as SYS, SYSTEM, or any other specified user. The SQL script allows you to customize the cloned database. For more details, see [Selecting the Post SQL Script](#).
- Select the **Create Data Profile** check box if you wish to create a database provisioning profile that is based on the test master. These profiles can be refreshed automatically or at specified intervals. Different versions of the profile are saved and are available to the self service user until they are purged. This ensures that the test master is periodically updated and the latest data can be used by the self service user. You can create a database provisioning profile if:

- This version of the test master must be available for cloning in future, even after the test master has been refreshed.

Enter the following details for the profile:

- Profile Type: Select RMAN Backup or RMAN Image.
  - Backup Mode: If you select the RMAN Backup profile type, you can select one of the following: Select **Online Backup** to make a backup while the database is up and running. Select **Offline Backup** to shutdown the database for the duration of backup and bring it back once the backup is complete.
  - Backup Location: Enter the directory path that already contains a backup location.
  - Backup File Tag: Backup files will be tagged with the tag specified here.
  - Location: Select the directory for the backup location.
  - Enter the name, description, version number, vendor, and additional notes.
  - Purge Policy Type: This can be None, Snapshots, or Days. If you select **None**, the profiles will need to be manually deleted as required. If you select **Snapshots**, specify the maximum number of snapshots that can be retained. If you select **Day(s)**, specify the number of days the profile can be retained.
  - Schedule: Specify whether the profile needs to be created immediately or at a later date.
8. Click **Next**. Specify the schedule for the creation of the test master. It can be created immediately (if physical standby used, it is created immediately and automatically refreshed) or can be created at a later date / time and refreshed at specified intervals.
  9. Click **Next**. Review the information entered so far and click **Submit** to create the test master. After the test master has been created, you can refresh the test master as required to create a new version of the profile on which the test master is based.



**Note:**

You can also use the `emcli create_clone` command to create the test master. See [Creating a Database Clone Using EM CLI Verbs](#) for more details.

## Creating a Service Template Using Snap Clone Profile

See [Creating Service Template Using Snap Clone Profile](#).

## Configuring Chargeback

Optionally, you can configure the chargeback service. See [Chargeback Administration](#).

## Requesting a Database

The self service user can now select the service template based on the database template profile and create a database. See [Requesting a Database](#).

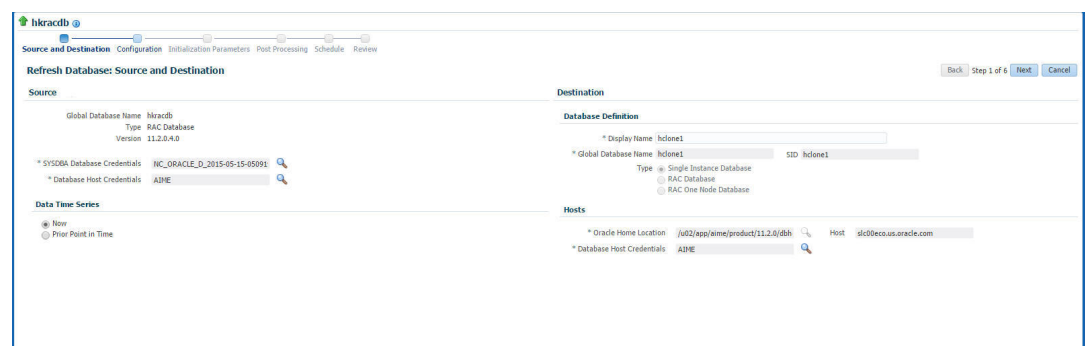
## Refreshing the Test Master Database

The test master database is created from an RMAN Backup profile of the production database taken at a particular point in time. Since the production database is constantly updated, to ensure that the latest production data is available in the test master, it has to be refreshed at periodic intervals.

To refresh the test master database, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. From the **Oracle Cloud** menu, select **Setup**, then select the Database Service family on the left panel. Click the **Test Master Databases** tab.
2. Select the test master that is to be refreshed and click **Refresh**. The Refresh Database: Source and Destination page appears.
3. Select the **Prior Point in Time** option and select the backup to which the test master is to be refreshed. You can modify the source and destination credentials.
4. If you select the **Now** option, you will see the following screen.

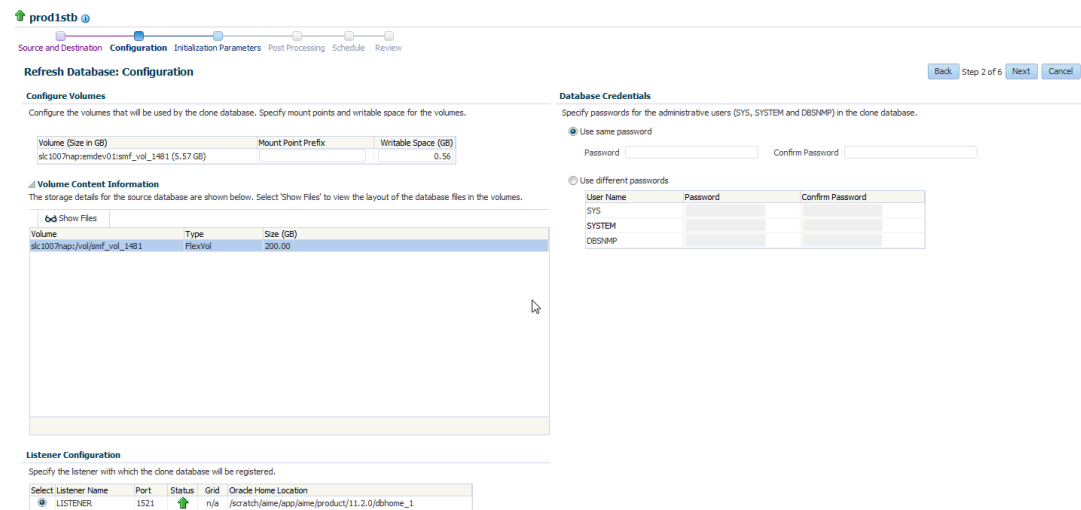
**Figure 13-4 Test Master Refresh: Source and Destination (Now)**





Click **Next**. The Configuration page appears.

**Figure 13-5 Test Master Refresh: Configuration**



5. Specify the Mount Point Prefix for the storage volume that will be used by the clone database and the database credentials. Click **Next**.
6. In the Initialization Parameters page, edit the values of various initialization parameters that affect the operation of the database instance. Click **Next**.
7. In the Post Processing page, specify the following:
  - Masking Definition: Data masking is the process of masking sensitive data in test or non-production databases. The masking definition defines the columns to be masked in the format of the masked data. Specify the masking definition to be applied after the database is cloned. After selecting the masking definition, select the In-Place Masking option to generate a script to replace the sensitive data in-place with masked data on the cloned database. For more details on creating a masking definition, see the *Enterprise Manager Database Testing Guide*

 **Note:**

The masking definition can be used only when you have the Oracle Data Masking and Subsetting license pack.

- Specify the custom scripts that need to be executed before and after the database is created. See [Pre and Post Request Creation / Deletion Scripts](#) for details.
  - Specify the path for the SQL script which allows you to run the script against the newly cloned database as a user such as SYS, SYSTEM, or any other specified user. The SQL script allows you to customize the cloned database. For more details, see [Selecting the Post SQL Script](#).
8. Click **Next**. Specify the schedule for the creation of the test master. It can be created immediately (if physical standby used, it is created immediately and automatically refreshed) or can be created at a later date / time and refreshed at specified intervals.
  9. Click **Next**. Review the information entered so far and click **Submit** to refresh the test master.

**Note:**

You can use the `emcli refresh_database` command to refresh the database. See [Database Profile EM CLI Verbs](#) for details.

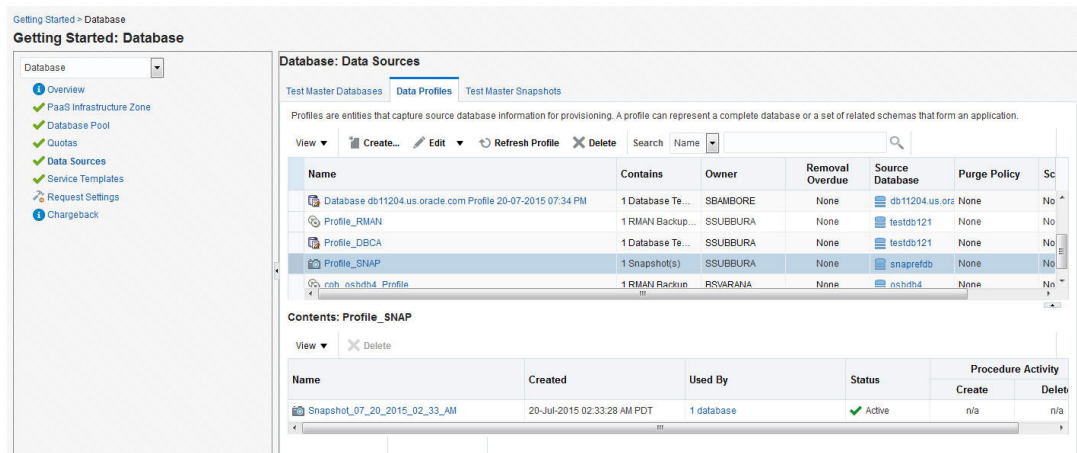
When the test master is refreshed, you can create a new profile based on the updated test master. The self service user can choose to refresh the database instances to the latest profile. The storage space that was used by the older version of the test master will be reclaimed by the updated (refreshed) test master.

## Refreshing the Snap Shot Profile

After the test master has been refreshed, you must create a new revision of the snap shot profile. To do so, you must refresh the snap shot profile by following these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. From the **Oracle Cloud** menu, select **Setup**, then select the Database Service family on the left panel. Click **Data Sources**.
2. In the Data Sources page, click the **Data Profiles** tab. The list of the profiles is displayed.

**Figure 13-6 Refresh Snap Shot Profile**



3. Select the profile to be refreshed and click **Refresh Profile**. A confirmation message is displayed. Click **Yes** to submit the refresh profile job.

## Example: Creating Snap Clones from Discretely Synchronized Test Master

The following example shows how you can create snap clones from a test master database that is refreshed at discrete intervals.

1. First, you must make sure that all the prerequisites are met. See [Getting Started](#).
2. Next, you must register the storage server. See [Registering Storage Servers](#).
3. You must then create one or more PaaS Infrastructure Zones and one or more database pools. See [Creating Resource Providers](#).
4. Then, you must define the quota that you wish to allocate to the self service users. See [Defining Quotas](#).

5. The next step is to identify the production database (**prod1**) and create an RMAN backup **prod1\_backup**.
6. Create a test master (**testmaster1**) based on **prod1\_backup**. See [Creating a Discretely Synchronized Test Master](#).
7. Next, you must enable **testmaster1** for snap clone. This allows creation of snap clones using snapshot technology. See [Enabling the Test Master for Snap Clone](#).
8. Next, you must create a profile (**snap\_profile**) that is based on **testmaster1**. See [Creating a Database Provisioning Profile Using Snapshots](#)
9. To make this profile available to the self service user, you must create a service catalog entry or a service template. Create a template called **Snap Clone Template1**. See [Creating a Service Template Using Snap Clone Profile](#). In the Service Template, the **Profile Version** field is set to **Latest**. This will ensure that the self service user will always use the latest version of the profile to create database instances.
10. The self service user can then use the **Snap Clone Template1** to create the snap clone. See [Requesting a Database](#).
11. To get the latest production data, the self service administrator refreshes **TestMaster1**. See [Refreshing the Test Master Database](#).
12. Since the test master now contains updated data, a new revision of the profile must be created. See [Refreshing the Snap Shot Profile](#).
13. Now that a new revision of the profile (**snap\_profile**) is available, the self service user can refresh his database instance to get the latest production data. See [Refresh an RMAN Database](#). The storage space that was used by the older version of the test master will be reclaimed by the refreshed test master.

## Creating a CloneDB Database

The CloneDB feature allows you to clone a database multiple times without copying the data into different locations. Instead Oracle Database creates the files in the Clone DB database using copy-on-write technology, so that only the blocks that are modified in the Clone DB database require additional storage on disk. Clone DB reduces the amount of storage required for testing purposes and enables rapid creation of multiple database clones. Clone DB is supported for database 11.2.0.3 or later versions.

You can create CloneDB databases by using a discretely synchronized test master by following these steps:

**Table 13-3 Creating Snap Clone - Discrete Flow**

Step	Task	Role
1	Follow the steps in the Getting Started section to enable DBaaS.	See <a href="#">Getting Started</a>
3	Create one or more resource providers.	See <a href="#">Creating Resource Providers</a> .
4	Configure the request settings.	See <a href="#">Configuring Request Settings</a> .
5	Define quotas for each self service user.	See <a href="#">Defining Quotas</a>
6	Create a database provisioning profile using snapshots from an RMAN Image Backup.	See <a href="#">Creating a Database Provisioning Profile Using RMAN Database Image</a>
9	Create a service template based on the profile you have created.	See <a href="#">Creating a Service Template Using RMAN Image Profile</a> .

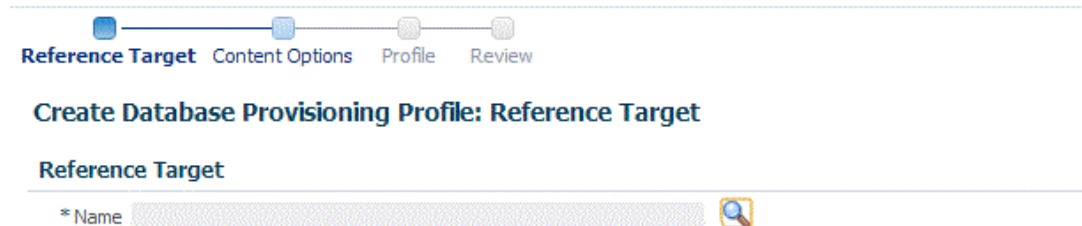
**Table 13-3 (Cont.) Creating Snap Clone - Discrete Flow**

Step	Task	Role
10	Configure the Chargeback Service. (this step is optional)	See <a href="#">Configuring Chargeback</a> .
11	Select the service template you have created and request a database.	See <a href="#">Requesting a Database</a>

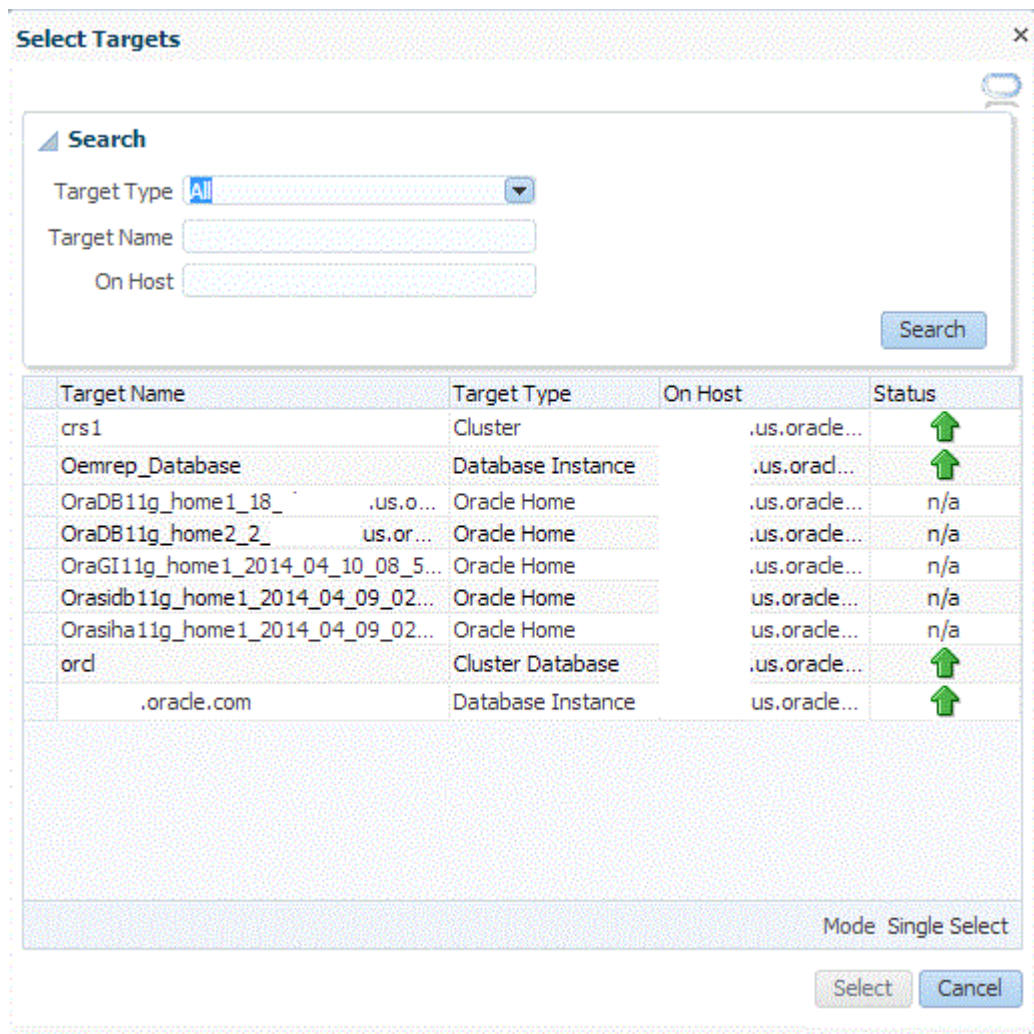
## Creating a Database Provisioning Profile Using RMAN Database Image

To create a database provisioning profile, follow these steps:

- You can access the Database Provisioning page using either of the following ways:
  - From the **Enterprise** menu, select **Cloud**, and then select **Cloud Home**. On the Cloud home page, click **Oracle Cloud**, select **Setup**, and then select **Data Sources**. On the Database: Data Sources page, in the Data Profiles tab, click **Create**.
  - From the Enterprise menu, select **Provisioning and Patching**, and then select **Database Provisioning**. On the Database Provisioning page, in the Profiles section, click **Create**.
  - From the database target home page, click **Oracle Database**, select **Provisioning**, and then select **Create Provisioning Profile**.
- On the Reference Target page, click the search icon to select a target.



- In the Search and Select: Targets display box, select the database you want to create a profile for, and then, click **Select**.



4. On the Reference Target page, select the following:
  - **Data Content**
  - **Structure and Data** to include physical and structural files from the database or **Structure Only** to include only the structural files in the template.
  - **Create**
  - **RMAN Database Image**

Reference Target   Content Options   Profile   Review

### Create Database Provisioning Profile: Reference Target

#### Reference Target

\* Name  🔍

Type Database Instance

Include  Database Oracle Home (Orasidb11g\_home1\_2014\_04\_09\_02\_10\_19.us.oracle.com)

Grid Infrastructure Oracle Home (has\_slc00exf.us.oracle.com)

Data Content

Structure and Data       Structure Only

Create       Database Template

RMAN Backup       Export Schema Definition

RMAN Database Image

Database Template

Use Existing RMAN Backup

Export Schema Objects

Snap Clone is either not enabled or snapshot is not allowed for this target or sufficient privileges are not a

- In the Credentials section, select the database. In the Credentials column, you can select **Named Credentials** and then select a credential name from the Credential Name column (or) select **Preferred Credentials**. Click **Next**.

Step 1 of 4

#### Credentials

Target	Credential Type	Credential	Credential Name
oracle.com	Database Home	Preferred Credentials ▼	Normal Host Credentials
oracle.com	Database	Preferred Credentials ▼	SYSDBA Database Credentials

- On the Content Options page, specify the backup location for the RMAN image mode. By default, the backup location selected is **Offline Backup**. You can choose **Online Backup** only if it is enabled.

Then, select **Directory** for the backup location and enter the directory path, or select **Fast Recovery Area**, which already contains a backup location.

### Create Database Provisioning Profile: Content Options

#### RMAN Database Image Profile Contents

RMAN Image Mode  Online Backup

Offline Backup

Backup Location  Fast Recovery Area

Directory

🔍

 **Note:**

- Ensure that the specified location is accessible to all the nodes in the database pool.
- Depending on the database version, the profile (image) may need to be manually staged on an NFS shared location.

Click **Next**.

7. On the Create Database Provisioning Profile: Page, in the Profile Information section, do the following:
  - Specify or select a profile location in the software library where the database profile will be created.
  - Specify a unique profile name.


For example:

RMAN Database Image for HR database

- Add a description for the profile.
- Verify the profile version and the vendor.
- Add any additional notes such as host name, database, data content, data content mode, and the like.

## Create Database Provisioning Profile: Profile

### Profile Information

* Profile Location	Database Provisioning Profiles/12.1.0.1.0/linux_x64	
* Profile Name	RMAN Database Image for HR database	
Description	Database Reference Profile 09-12-2014 02:38 PM from database.example.com Version : 12.1.0.1.0	
Profile Version	12.1.0.1.0	Vendor Oracle
Notes	Host Name: host.example.com Database: database.example.com Data Content: Structure and Data Data Content Mode: RMAN Database Image Backup	

8. In the Schedule section, you can choose to start the profile creation immediately, or you can schedule it for a later time. You can also choose to repeat the creation of the provisioning profile, and set a repeat time.
9. In the Purge Policy section, you have three options:
  - **None.** Select this option you do not want to purge any data collected.
  - **Snapshots.** This option enables you to specify the maximum number of snapshots that can be purged.

- **Day(s).** This option enables you to specify the number of days after which the data component should be purged.

**Schedule**

Start  Immediately  Later (UTC+00:00) GMT

Repeat

---

**Purge Policy**

Purge  (Dropdown menu with options: None, Snapshots, Day(s))

Working Directory

10. Specify or select a working directory. Click **Next**.
11. On the Review page, ensure that the selections you have made in the previous pages are correctly displayed and click **Submit**. Otherwise, click **Back** repeatedly till you reach the page where you want to make changes. Click **Cancel** to abort the provisioning profile creation.

Create Database Provisioning Profile: Review

Reference Target

Target: Create RMAN Database Image Profile

Content: ADME\_2000L

Database Home Credentials: ADME\_2000L

Grid Infrastructure Home Credentials: PRODB\_CREDS

Database Credentials: PRODB\_CREDS

Content Details

RMAN Database Image Profile Contents

RMAN Image Mode: Offline Image Backup

Backup Location: /mnt2/fs1/fs1\_recovery\_area

Profile Details

Profile Location: Database Provisioning Profiles/12.1.0.1.0/linux\_x64

Profile Name: RMAN Database Image for HR database

Description: Database Reference Profile 09-23-2014 02:38 PM from database.example.com Version : 12.1.0.1.0

Profile Version: 12.1.0.1.0 Vendor: Oracle

Notes: Host Name: host.example.com  
Database: database.example.com  
Data Content: Structure and Data  
Data Content Mode: RMAN Database Image Backup

Schedule

Start: Immediately

Purge Policy

None

Working Directory

Path: /tmp

Once you have submitted the provisioning profile creation job, manually refresh the page if View Data has been set to Real Time: Manual Refresh. Else, set View Data to reload after a specific period of time, and then select an execution step from the Procedure Steps tree on the left pane to view the details.

To view the submitted jobs, select the **Procedure Activity** link in the **Data Profiles** tab.

## Creating a Service Template Using RMAN Image Profile

To create a service template using RMAN Image Profile, follow these steps:

1. Log into Enterprise Manager as a user with the `EM_SSA_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**.
3. Click the **Setup** link next to the Databases option in the left panel. Select Database from the drop down menu.
4. Click the **Service Templates** link. The Service Templates page appears. Click **Create**. The Create Service Template: General page appears.



**Figure 13-7 Create Service Template: General (CloneDB)**

5. Enter a name and description for the service template. The description must be unique and provide information on the type of service template being created.
6. Click the **Search** icon next to the **Profile** field and select the test master database based on the RMAN Image profile.
7. In the Profile Version field, you can select either of the following:
  - **Latest:** This ensures that the latest profile is always used by the self service user.
  - **Selected by user at request time:** If this option is selected, the self service user can select the profile to be used when creating a service request.
8. In the Database Definition region, select the following:
  - **Create:** Select **CloneDB Database** option. Each file is copied as an image copy which is a bit-for-bit copy of a database file created on disk. Image copies are identical to copies created with operating system commands such as cp on Linux or COPY on Windows, but are recorded in the RMAN repository and so are usable by RMAN. This option allows you reduce the amount of storage and enables rapid creation of multiple databases.
 

If you are doing an online backup, you must ensure that your Test Master database is in ARCHIVELOG mode and that all of the necessary archived redo log files are saved and accessible to the CloneDB database environment. If you are doing an offline backup, you must ensure that the backup copies are accessible to the CloneDB database environment.
  - **Type:** This can be Single Instance or Real Application Cluster (RAC). If you select RAC, specify the Number of Nodes.
  - **Database SID:** This is an optional field. You can select **Specify Prefix** or **Specified by User at Request Time**.
    - **Specify Prefix:** If you choose this option, enter a prefix that is to be used to generate a unique System Identifier (SID) at the time of database creation. The prefix helps to identify databases created using this service template. The prefix can be a maximum of 6 characters.

The new database name generated will be based on the SID Prefix specified here. For example, if the prefix is specified as MYDB, the SID for the new database is generated as MYDB0000, MYDB0001, MYDB0002, and so on.

For existing databases (running databases and in progress requests), a unique SID name is generated for single instance databases, or a unique name is generated for real application cluster databases. For example, if the existing SIDs running on a host are MYDB0000, MYDB0001, MYDB0002 And In progress are MYDB0003, MYDB0004, the new SID or database name generated for the new request is MYDB0005.

- **Specified by User at Request Time:** If you choose this option, you can leave this field blank and specify the SID when you are making a database request.
  - **Domain Name:** This is an optional field. Enter a Domain Name to be used for the new database being created. You must ensure that the domain name does not contain a preceding "." (dot).
9. In the Pools and Zones region, click **Add** to select a PaaS Infrastructure Zone into which the database instance is to be provisioned. Click **Assign Pool**. Select a pool from the list and assign this pool to the PaaS Infrastructure Zone. The database will be provisioned into this pool.
  10. After you have selected the zone and the pool, the host target is populated in the Reference Host field.
  11. In the Reference Host region, the name of the PaaS Infrastructure zone, the database pool, and the reference host you have selected in the Database Cloud Self Service Portal Setup: General page are displayed.
  12. In the Location field, specify the location for the database files. This must be an NFS location.
  13. To simplify the management of backup and recovery files, you can optionally create a fast recovery area for your database. Select the **Enable Fast Recovery Area** checkbox to specify the location in which recovery related files must be stored. The fast recovery area can be a file system that provides a centralized disk location for backup and recovery file. Specify the location of the Fast Recovery Area and the Fast Recovery Size. The amount of disk space to allocate for the fast recovery area depends on the size and activity levels of your database.

If the **Enable Archiving** check box is selected, the database will not be shut down during a refresh. This allows self service users to schedule backups and restore operations without shutting down the database.
  14. If you have chosen to create a CloneDB database, you can optionally allow the user to take a backup copy of the database. Select the **Allow the user to take backup copy for the new database** checkbox. Specify the maximum number of backups allowed and the backup location.
  15. In the Listener Port field, specify listener port number that is to be associated with the new database. If you have selected a 11.2 or later RAC database, you must specify the scan port number.
  16. Specify the **Administrator Credentials**. Specify passwords for the system schemas of the new database. These schemas will not be available to the `EM_SSA_USERS`. You can choose to use the same password for all the schemas or different passwords for each schema. If these values are not specified, default values will be used and the `EM_ADMINISTRATOR` can change them.
  17. Apart from the system schemas, if you want to restrict access to other schemas, you can select them in the Non-Administrator Credentials region and specify the password. These schemas will be locked and the `EM_SSA_USERS` cannot access them. Click **Next**.
  18. Click **Next**. The Create Service Template: Initialization Parameters page appears. In this page, you can configure the values of various initialization parameters that affect the

operation of the database instance. Select the parameter and click the Set icon to modify the value of the parameter.

19. Click **Next**. The Create Service Template: Customization page appears. Specify the custom scripts that need to be executed before and after the database is created. See [Pre and Post Request Creation / Deletion Scripts](#) for details.
20. In the Target Properties region, you can specify global target properties such as Location, Department, Line of Business, and so on. You can do the following:
  - Mark a property as mandatory by selecting the **Required** check box. If a property is marked as mandatory, the self service user must specify a value for this property while requesting a database.
  - Lock a property. When a property is locked, the self service user cannot modify the value of this property while requesting a database.
21. Click **Next**. The Create Service Template: Roles page appears. Click **Add** to select the SSA user roles to which this service template will be available. All users belonging to the selected role can use this service template. Click **Next**.
22. The Create Service Template: Review page appears. Click **Create**. The newly created service template will appear in the Database Cloud Self Service Portal Setup: Service Templates page.

# 14

## Using the DBaaS Self Service Portal

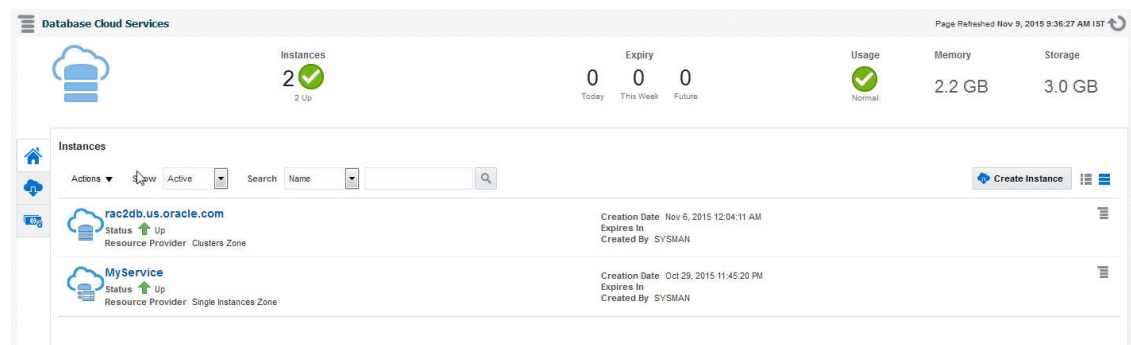
This chapter provides self service users with instructions on using the Database Cloud Self Service Portal to request, monitor, and manage database services. It contains the following sections:

- [About the Database Cloud Self Service Portal](#)
- [Provisioning of Database using Database Cloud Self Service Portal](#)
- [Requesting a Database](#)
- [Refresh an RMAN Database](#)
- [Viewing the History of a Request](#)
- [Database Service Home Page](#)
- [Database Instance Home Page](#)
- [Standby Database Home Page](#)
- [Cluster Database Home Page](#)
- [Pluggable Database Home Page](#)
- [Data Guard Switchover](#)

### About the Database Cloud Self Service Portal

The Database Self Service Portal allows self service users to view, monitor and deploy databases on selected zones, as well as create schemas on running databases. To view the Database Cloud Self Service Portal, log in to Enterprise Manager as a user with `EM_SSA_USER` role or an user with the `EM_SSA_USER_BASE` role. Users with these roles must be part of the DBaaS Cloud Service Family and must have privileges for the DB, Schema, or PDB service types. The Self Service Portal appears. Select **Databases** from the **Manage** drop down list.

**Figure 14-1 Database Cloud Self Service Portal**



The Database Self Service Portal allows SSA users to view, monitor, deploy databases on selected zones, and create schemas on running databases.

The following details are displayed:

- **Home:** This is the Home page for the Database Self Service Portal. It contains the following sections:
  - **Notifications:** This section shows the number of databases that are expiring in the next 7 days.
  - **Usage:** This region displays the quota that you currently have and how much has been used for the following:
    - \* **Databases:** The number of databases requested so far and the maximum number of databases that can be requested.
    - \* **Schema Services:** The number of schemas requested so far and the maximum number of schemas that can be requested.
    - \* **Pluggable Databases:** The number of PDBs requested so far and the maximum number of PDBs that can be requested.
    - \* **Memory:** The total amount of memory allocated to the user and the memory used by all databases and schemas requested so far.
    - \* **Storage:** The total storage volumes allocated to the user and the storage used by all databases requested so far.
  - **Services:** This table lists the services that you currently own. You can request more databases, schemas, or PDBs by selecting the appropriate option from the **Request New Service** menu. You can also delete any databases you own to release it prior to expiration. Click on the service instance name to drill down to the database details page. This page provides basic monitoring capabilities and provides life cycle operations for the service.

From the **Actions** menu, you can do the following:

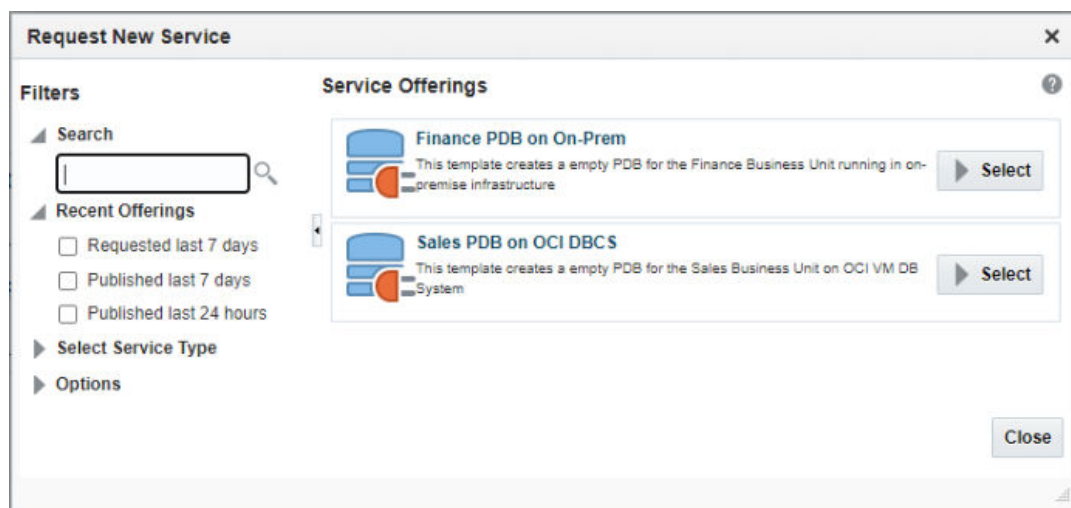
    - \* **Start / Stop a Service Instance:** You can start a service instance that has been stopped or stop a service instance that is running.
    - \* **View History:** Select a service instance and click View History to view the history of operations performed on the service instance.
    - \* **Grant:** You can grant view or full privileges over the service instance to other users or roles. See [Granting, Revoking, and Reassigning Privileges to Service Instances](#).
    - \* **Revoke:** You can revoke privileges that you have granted to other users or roles. See [Granting, Revoking, and Reassigning Privileges to Service Instances](#).
  - **Requests:** This table tracks the requests that you have created, deleted, or refreshed. For each request, the status, request type, service type, and submission date of the request is displayed. You can select a scheduled such as a Create or Delete request and click **Reschedule** to reschedule the request. To delete a scheduled request, select the request and click **Cancel**. If a request that is scheduled such as **Create** gets canceled, all other associated requests are also canceled.
- **Chargeback:** This page displays all the chargeback break-up data for the databases and pricing for different zones. The charge incurred will be calculated from the database requested date to current date. This page contains the following sections:
  - **Charge Trend:** This graph show the usage and charge trends over time.
  - **Aggregate By:** You can aggregate the charge back data for the database by resources or metrics. You can export this data to an external application such as a spreadsheet.

- Charge Plans: The charge plans that have been assigned to each are displayed. Select a zone to view the pricing. The rate for each metric in the database zone for a specific time period is displayed.
- **Preferences:** Click this link to set up your preferences such as your default service portal, default PaaS Infrastructure Zone, default email address for notifications, and so on.

## Provisioning of Database using Database Cloud Self Service Portal

To provision a database using Database Cloud Self Service Portal, follow these steps:

1. Log in to Enterprise Manager as a user with EM\_SSA\_USER privileges.  
The **Database Cloud Service** page appears.  
Alternative you can select **All Cloud Service** and then select **Databases Cloud Service**.
2. Click **Create Instance**.
3. Choose a service template from the list and click **Select**.



4. Enter the following details:
  - PDB Name
  - Database Service Name
  - User Details in the master account section. The master user name should begin with "C###" or "c###"
5. Click the **Submit**.

## Requesting a Database

To request a new database, follow these steps:

1. From the **Enterprise** menu, select **Cloud** and select **Self Service Portal**.
2. On the Self Service Portal click on **Database Cloud Services**.
3. Click **Create Instance** on the Database Cloud Self Service Portal. The service offerings window is displayed.

### Note:

**Create Instance** is not shown from the SSA portal.

4. In the Service Type drop down, select **All** to view all the service offerings available for the Database Service Family. You can select Database, Pluggable Database, or Schema to view service offerings only for the selected service type.
5. Select a service template from the list and click **Select**. The service template you select can be based on RMAN backup profile, physical standby database, or snapshot based profile. Select the appropriate template according to your requirement.
6. The New Database Service Request page appears.

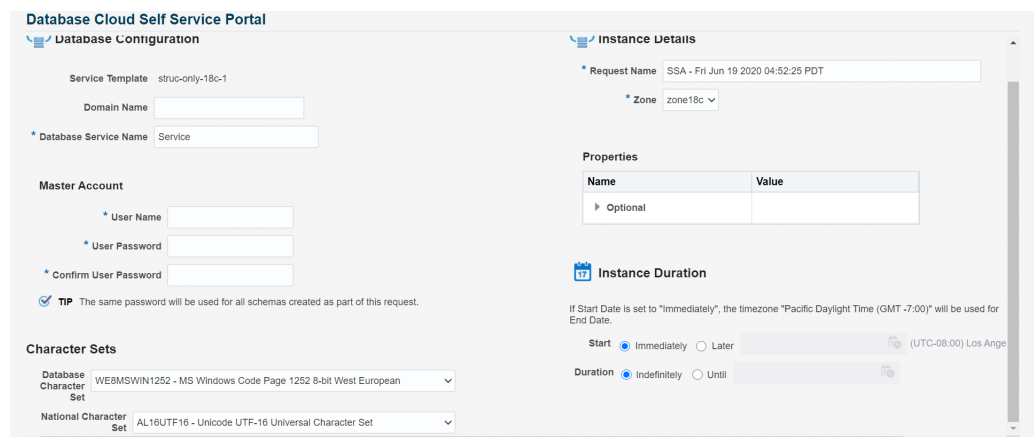
Enter the following details:

- **Request Name:** Enter the name of the request.
- **Zone:** Select a PaaS Zone on which the database is to be deployed.
- **Database SID:** This field is displayed if the service template you have selected allows you to specify the database SID at request time. Enter a unique Database SID.
- **Database Service Name:** Enter a unique database service name. The name you specify must be unique across all database, pluggable database, and schema service requests.  
You cannot use the same database service name that has been used for future scheduled requests. If a Delete operation failed, you cannot use the name specified in the failed request.

 **Note:**

- You can create a standby database only if the service template you select contains a database pool with standby databases.
- If the service template supports standby databases, depending on the preferences set up the self service administrator, you can choose to create a standby database if required. You can also select from one or more standbys (a subset of what is defined in the service template). If you do not wish to create a standby database and you select only a subset of the topology supported by the service template, you can request one or more of the remaining standbys at a later point in time after the current request has been completed.

- **Deployment Input:** Specify the user name and password for the database. If you have selected an RMAN or snap clone based service template, and you are allowed to choose from the active data points, you can select an RMAN backup or snap shot here.
- **Schedule Request:** Specify the schedule for the request.
- **Service Instance Properties:** Any mandatory and optional target properties are displayed here. If a property is marked mandatory, you must enter a value for that property.
- **Database Character Set :** If you have selected the DBCA structure-only profile based service template, specify the database character set for the database.
- **National Character Set:** If you have selected the DBCA structure-only profile based service template, specify the national character set for the database.



The screenshot displays the 'Database Cloud Self Service Portal' interface. The left pane shows 'Database Configuration' with fields for Service Template (struc-only-18c-1), Domain Name, Database Service Name (Service), Master Account (User Name, User Password, Confirm User Password), and Character Sets (Database Character Set: WE8MSWIN1252 - MS Windows Code Page 1252 8-bit West European; National Character Set: AL16UTF16 - Unicode UTF-16 Universal Character Set). The right pane shows 'Instance Details' with Request Name (SSA - Fri Jun 19 2020 04:52:25 PDT), Zone (zone18c), Properties table (with an 'Optional' row), and Instance Duration (Start: Immediately, Duration: Indefinitely). A tip at the bottom of the configuration pane states: 'TIP The same password will be used for all schemas created as part of this request.'

7. If the service template you selected is based on a RMAN Backup, Snapshot or RMAN Image profile, the list of available backups, snapshots, or images are listed in the Snapshot region. These snapshots reflect the state of the test master database at any point in time.



Figure 14-2 Create Database (Snapshots)

The screenshot shows the 'Create Database' interface in the Database Cloud Self Service Portal. It includes sections for configuration, master account, snapshots, instance details, properties, and instance duration.

Select a snapshot from the list and click **Submit** to deploy the database to the selected zone. The new database that is created will be based on the selected snapshot.

## Requesting a Schema

You can create a database service with one or more schema and populate them with the required data.

### Requesting an Export Profile Based Schema

You can create a schema based on a service template with a schema export profile or an empty service template. To create a schema based on a schema export profile, follow these steps:

1. Log in to Enterprise Manager as a user with `EM_SSA_USER` role or any role that includes `EM_SSA_USER` role.
2. The Database Cloud Self Service Portal page appears. Select **Databases** from the Manage drop down list to navigate to the Database Cloud Self Service Portal.
3. Click **Create Instance** in the Services region.
4. Choose a Schema Service Template with an schema export profile from the list and click **Select**. The Create Schema page appears. The name and description of the service template you have selected is displayed. Enter the following details:
  - **Request Name:** Enter a name for the schema service request.
  - **Zone:** Select the zone in which the schema is to be created.
  - **Database Service Name:** Enter a unique name for the database service.
  - **Workload Size:** Specify the workload size for the service request.
  - **Schema Prefix:** Enter a prefix for the schema. For clustered databases, the service is registered with Grid Infrastructure credentials.

5. Click **Rename Schema** to enter a new name for the schema. If you wish to retain the source schema name, ensure that the Schema Prefix field is blank.
6. Specify the password for the schema. Select the **Same Password for all Schema** check box to use the same password for all the schema.
7. The Master Account for the schema is displayed. The schema with Master Account privileges will have access to all other schema created as part of the service request.
8. In the Tablespace Details region, the names of all the tablespaces in the schema are displayed. You can modify the tablespace name and specify a new name in the New Tablespace Name box.
9. Specify the schedule for the request and click **Submit** to create the schema.

### Requesting an Empty Schema

To create a schema with an empty schema template, follow these steps:

1. Follow **steps 1 to 3** listed above and in the Select Service Template window, select an empty schema template from the list.
2. Specify the details of the schema as listed in **steps 4 to 7**.
3. In the Tablespace Details region, you can specify a separate tablespace for each schema or use the same tablespace for all schema.
4. Specify the schedule for the schema request and click **Submit** to create the schema.

## Requesting a Pluggable Database

You can request a pluggable database based on a selected service template. To request a pluggable database, follow these steps:

1. Log in to Enterprise Manager as a user with `EM_SSA_USER` role or any role that includes `EM_SSA_USER` role.
2. Navigate to **Enterprise**, select **Cloud** and click on **Self Service Portal**.
3. In the Infrastructure Cloud Self Service Portal page select **Database Cloud Services**.
4. Click **Create Instance** in the right hand side. The **Request New Service** popup appears select **Pluggable Database** from the **Service Type** drop down.
5. Choose a **Service Offering**(service template) from the list and click **Select**. The Create Pluggable Database page appears.
6. Specify the following details:
  - Pluggable Database Configuration
    - Service Template: This field is auto-populated with the selection from step 4.
    - PDB Name: Enter a unique pluggable database name.
    - Database Service Name: Enter a unique database service name. It must be unique across all database, pluggable database, and schema service requests.
    - Size: Select an appropriate size for the deployment from the drop down menu.
  - Pluggable Database Administrator Account
    - Administrator Name: User that will be the administrator.
    - Password: Enter a password for the administrator.
    - Confirm Password: Re-enter the password.

- Tablespaces
    - Tablespace Name: Name of the tablespace to be created.
  - Instance Details
    - Request Name: Enter the name of the request.
    - Zone: Select a PaaS Infrastructure Zone with the container databases into which the pluggable database is to be deployed.
  - Properties (Optional)
    - Comment
    - Line of Business
    - Location
    - Downtime Contact
    - Department
    - LifeCycle Status
    - Contact
  - Duration
    - Start: Select **Immediately** or enter a time to start by selecting **Later**.
    - Duration: Select **Indefinitely** or enter a end of life date by selecting **Until**.
7. Click **Submit** to deploy the database to the selected zone.

## Requesting a Hybrid Pluggable Database

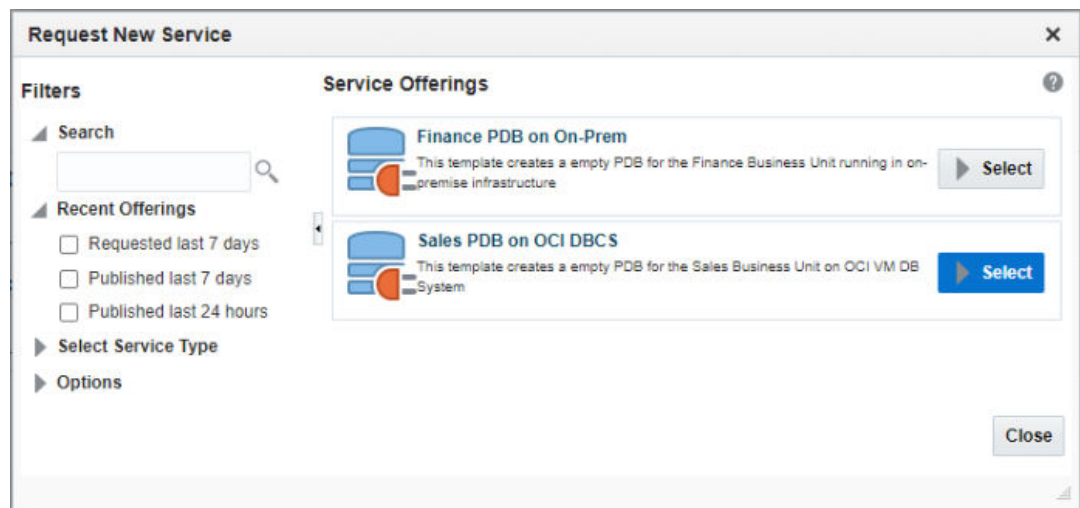
When using the Oracle Cloud Infrastructure (OCI), you can now provision Pluggable Databases (PDBs) running on OCI VM Hosts and DB systems.

### Before You Begin

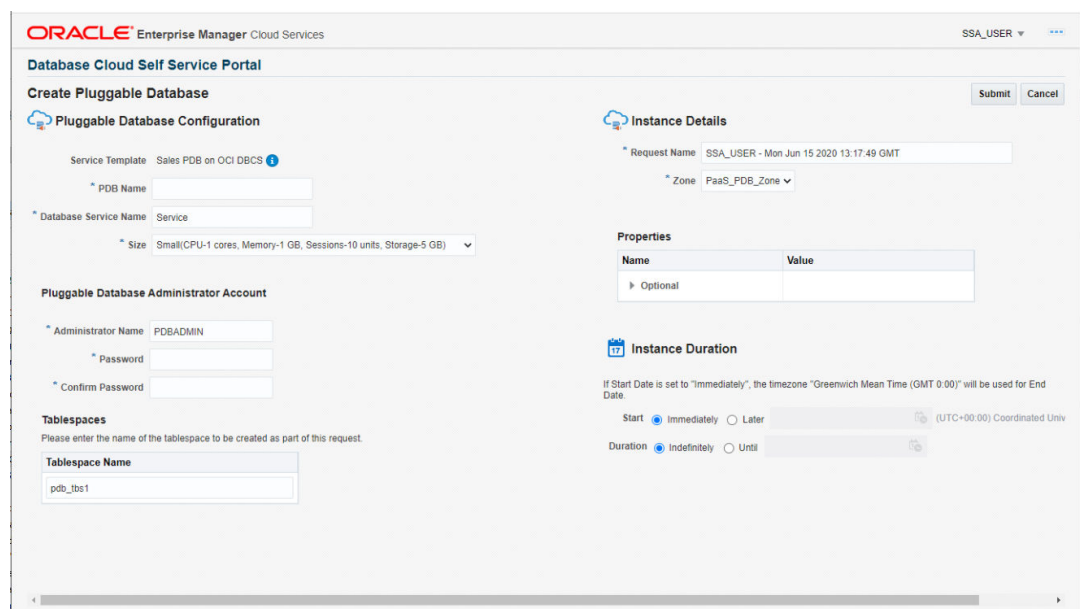
Before provisioning a PDB to run in an OCI environment, you first need to ensure that an Enterprise Manager agent has been deployed to the OCI VM host. This is required to enable monitoring of the OCI environment. For more information, see [Deploying Agents on OCI Resources](#)

### Request the PDB

1. Login to Enterprise Manager as a user with `EM_SSA_USER` role or any role that includes `EM_SSA_USER` role.
2. The Infrastructure Cloud Self Service Portal page appears. Select **Databases** from the Manage drop down list.
3. Click **Request New Service** in the Services region. In the Request New Service window that appears, select **Pluggable Database** from the Service Type drop down.
4. Choose the **PDB on OCI DBCS** service template from the list and click **Select**.



The Create Pluggable Database page appears.



5. Specify the following details:

- **Request Name:** Enter the name of the request.
- **Zone:** Select a PaaS Infrastructure Zone with the container databases into which the pluggable database is to be deployed.
- **PDB Name:** Enter a unique pluggable database name.

 **Note:**

- a. The database service name you specify must be unique across all database, pluggable database, and schema service requests.
- b. You cannot use the same database service name that has been used for future scheduled request.
- c. If a Delete operation failed, you cannot use the name specified in the failed request.

- **Database Service Name:** Enter a unique database service name.
  - **Workload Size:** Workload represents the total CPU, memory, and storage requirements for each service. Select the Workload Size from the drop down list.
  - **Deployment Input:** Specify the pluggable database administrator user name and password.
  - **Schedule Request:** Specify the schedule for the request.
  - **Service Instance Properties:** Any mandatory and optional target properties are displayed here. If a property is marked mandatory, you must enter a value for that property.
6. Click **Submit** to deploy the database to the selected zone.

## Refresh an RMAN Database

After you have created an RMAN database, you can keep the data current and consistent with the production database by refreshing it on a regular basis. To refresh an RMAN database, follow these steps:

1. In the **Database Self Service Portal** Home page, click on **Name** in the **Services** region. Scroll down to the **Database Home** page.
2. Click **Refresh**, the list of available snapshots (RMAN backups) are displayed.
3. Select a snapshot profile from the list and click **Refresh**.

 **Note:**

You will see a message that the database will be refreshed to the selected snapshot version and older snapshots will be deleted.

4. Click **Yes** to submit the Refresh Database Request job.
5. On successful completion of the request, the database is refreshed and will be consistent with the selected snapshot profile.

## Viewing the History of a Request

To view the history for a database instance, select the row in the Services column and select **History** from the **Actions** menu. All the requests that have been submitted for the database instance and the status of each request is displayed.

## Database Service Home Page

Database services are logical abstractions for managing workloads in Oracle Database. Services divide workloads into mutually disjointed groupings. Each service represents a workload with common attributes, service-level thresholds, and priorities. The Database Service Home page provides a detailed view of the database service.

It contains the following regions:

- **Summary:** Displays the status of the database service and the database version.
- **Connection Details:** Shows the database connection details including the Connect String and the Master Account Name.
- **Export:** You can do the following:
  - **Export:** Click **Export** to take export dumps of all the schemas that are part of the service. In the Export window, enter the name, description, and specify when the export dump should be scheduled and click **Schedule**.
  - **Import:** Click **Restore** to restore schemas from the selected export dump.
  - **Remove:** Select an export dump and click **Remove** to delete it.
- **Requests:** This region shows the requests that you have created. For each request, the status, type, start date, and submission date of the request is displayed. You can select a scheduled request and click **Reschedule** to reschedule the request. To delete a scheduled request, select the request and click **Cancel**.
- **Schemas:** Displays the name of the schema and tablespace associated with the database service.
- **Resource Usage:** This region displays the workloads associated with the schema. This includes the CPU, Memory, and Storage allocated to the database service.
- **Performance:** This region displays a graph showing the Average Number of Active Sessions over the last 5 minutes.

## Database Instance Home Page

The Database Instance Home page provides a detailed view of the database instance.

This page contains the following regions:

- **Summary:** The region of the Database Instance Home page provides a quick overview of the database status and provides basic information about the database. It shows the current status of the database and includes details such as the time stamp of instance start time, database version, date of the last backup, and so on.
- **Connection Details:** Shows the database connection details including the Connect String and the name of the user accessing the database.
- **Backup and Restore:** If the fast recovery area is configured for the database, you can schedule a daily backup for this database. Click **Schedule Backup** to perform this task. Once backups are available, you can click **Restore** to restore the database to a specific point in time. If the fast recovery area is not configured, your Database Administrator can configure the fast recovery area or publish a new service template that allows you to request databases with fast recovery area configured at the time of request fulfillment.

 **Note:**

If the database instance has been created using a snap clone based profile, instead of the Backup and Restore region, you will see the Snapshot and Restore region with a list of snapshots. You can click **Restore** to restore data from a snapshot.

- **Performance:** Shows the performance monitoring information for the database. Click on the **Active Class** tab to view a bar chart showing the amount of time spent either waiting for a resource or consuming CPU.
- **Resources:** Shows graphs indicating the resource consumption and include Host CPU, Active Sessions, Memory, and Data Storage.
- **SQL Monitoring:** Shows the SQL Response Time chart that shows the current response of the tracked set of SQL versus the reference collection response.
- **Requests:** This region shows the requests that you have created. For each request, the status, type, start date, and submission date of the request is displayed. You can select a scheduled request and click **Reschedule** to reschedule the request. To delete a scheduled request, select the request and click **Cancel**.

### Starting and Stopping the Database

Depending on the state of the database, you can click **Shutdown** to shut down the database if the database is open, the **Startup** button if the database is shut down, or the **Shutdown** button if the state of the database is unknown or in a Status Pending state.

## Standby Database Home Page

The Home page for a standby database instance contains the following regions:

- **Summary:** The region provides a quick overview of the database status and provides basic information about the database. It shows the current status of the database and includes details such as the time stamp of instance start time, database version, date of the last backup, and so on.
- **Connection Details:** Shows the database connection details for the primary database, and one or more standby databases. It includes the Connect String and the name of the user accessing the database.
- **Data Guard Summary:** This region shows the Protection Mode for all the databases (primary and standby) and the details of each database such as the type of database, role, redo transport mode, and so on. If the SSA Admin has locked the Dataguard topology, you can still add or remove standby databases adhering to the topology detailed in the service template.  
For more details, see [Creating a Service Template](#).
- **Performance:** Shows the performance monitoring information for the database. Click on the **Active Class** tab to view a bar chart showing the amount of time spent either waiting for a resource or consuming CPU.
- **Resources:** Shows graphs indicating the resource consumption and include Host CPU, Active Sessions, Memory, and Data Storage.
- **SQL Monitoring:** Shows the SQL Response Time chart that shows the current response of the tracked set of SQL versus the reference collection response.
- **Requests:** This region shows the requests that you have created. For each request, the status, type, start date, and submission date of the request is displayed. You can select a

scheduled request and click **Reschedule** to reschedule the request. To delete a scheduled request, select the request and click **Cancel**.

## Data Guard Switchover

A switchover is a role reversal between the primary database and one of its standby databases. A switchover guarantees no data loss and is done for planned maintenance of the primary system. During a switchover, the primary database transitions to a standby role, and the standby database transitions to the primary role.

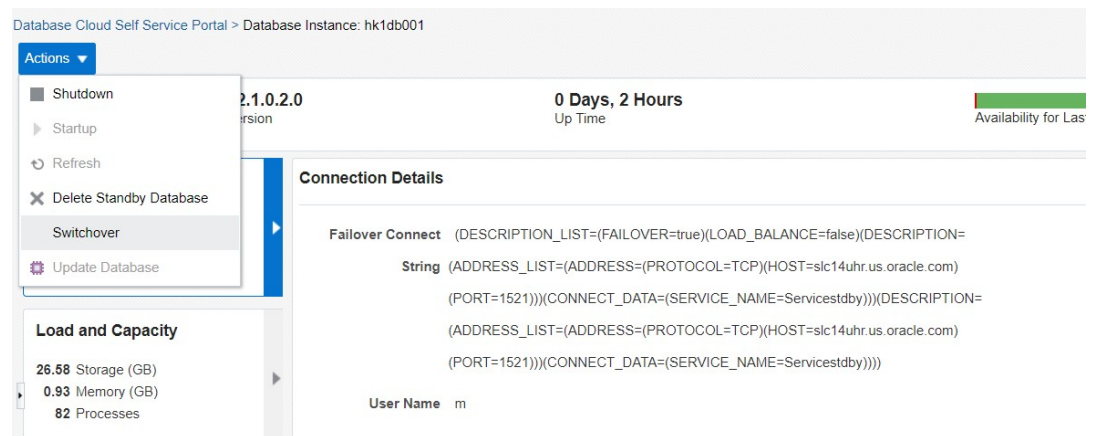
The switchover is supported for the DBaaS service type "Database".

To switchover a database, follow these steps:

1. In the Database Self Service Portal Home page, select **Switchover** from the **Actions** menu.

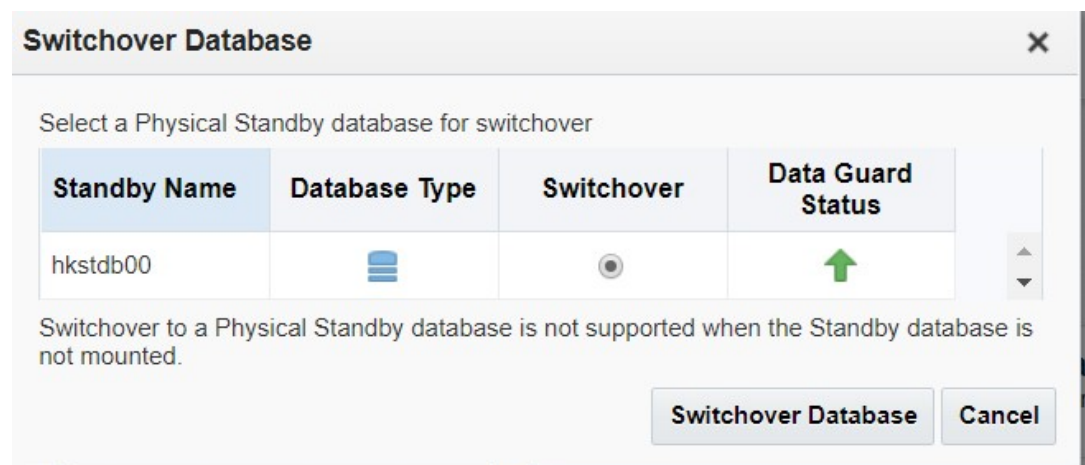
The **Switchover** option is enabled only if a Standby database exists for the target instance.

**Figure 14-3 Initiate a Switchover Operation**



2. Select a physical standby database and click **Switchover Database**.

**Figure 14-4 Switchover Database**





You will see a message that the switchover to the physical standby database is scheduled successfully.

## Cluster Database Home Page

Use the Cluster Database Home Page to:

- Determine the current status of the Oracle Real Application Clusters database by viewing a series of metrics.
- Start or stop the cluster database.
- Schedule daily backups and perform a point-in-time-restore of the database.

### Note:

The Home Page presents a high level view of the cluster database. Click the arrow key on the left margin to expand the master panel and view the Target Navigation pane. You can select a Database Instance from the left panel to view details for that instance. You can then perform operations such as Startup and Shutdown for the Database Instance.

### Home Page Sections

The Cluster Database Home page displays information for the following sections:

- Summary
- Performance
- Configuration Changes
- Resources
- Jobs Running
- SQL Monitor
- Issues

#### Summary

The Summary section displays the status and diagnostics information about the cluster database.

#### Status

This section provides a quick view of the status of the cluster database and provides basic information about the cluster database. The status can be Up, Down, Under Blackout, Unmonitored, or Unknown, and the status is mirrored in the arrow icon that appears to the left.

The number of database instances in the cluster, the Up Time, Version, Load, Total Sessions, Available Space and other details are displayed. Following are the fields displayed in this section:

- Instances: Displays the number of cluster database instances that are up.
- Up Time: Displays the total elapsed time since the cluster database was started.
- Availability: Displays the percentage of time that the cluster database was available.

- Version: Displays this version of the Oracle Database.
- Load: Displays the number of average active sessions since this cluster database was started.
- Total Sessions: Displays the total cluster database sessions running.
- Latest Backup: Displays when the last backup of the database was performed.
- Available Space: Displays space available on the cluster database.
- Total SGA: Displays total system global area.
- Problem Services: Displays the services that have problems

**Note:** QoS Status on Cluster Database Home page shows if the database is enabled for QoS Management. The possible states are:

- Enabled: Indicates that this database is enabled for QoS monitoring.
- Disabled: Indicates that this database is disabled for QoS monitoring.
- Active: Indicates that this database is enabled and monitored by QoS.

The QoS Status shown on the Cluster Database Home page is different from status shown on Quality of Service Dashboard. QoS Dashboard shows overall status of QoS itself in the Cluster.

### Jobs Running

This table displays a report of the job executions that shows the scheduled, running, suspended, and problem (stopped/failed) executions for all Enterprise Manager jobs on the cluster database, ordered by submission of the job to the cluster database or to any member instance. If a value other than 0 appears in a field, you can click the number to go to the Job Activity page where you can view information about all scheduled, currently running, and past jobs.

**Note:** The four job status categories displayed group together job executions of similar status. For a complete list of job status values, refer to the Jobs tab to view all jobs or search for jobs of a certain status.

### Performance

The Performance section shows active sessions during a one-hour window for activity classes and top services.

### Activity Class

The Active Sessions chart shows potential problems inside the database. Categories, called wait classes, show how much of the database is waiting for a resource, such as CPU or disk I/O. The chart displays the load on the instance and identifies bottlenecks in performance.

To quickly identify problem areas, the chart displays a larger block of color to indicate more severe problems. Click the largest wait class on the highest peak, or alternatively click the corresponding wait class (indicated in yellow highlighting). Either action takes you to the Active Sessions Waiting page for the wait class selected, which shows top SQL, sessions, files, and objects for the wait class and also shows the associated wait events.

### Services

The Active Sessions chart shows the top services waiting for the corresponding wait event during the time period shown. Only active services are shown. Click on one of the service legends to the right of the chart to go to the Service Activity page, where you can view real-time data showing the sessions load for all wait classes associated with the service.

## Resources

The Resources section displays a bar chart showing relative CPU utilization of the Oracle host. This instantaneous value is refreshed every minute from the host by the Agent. The 100% represents the total CPU that the host system provides. The Instances tab is a break down of instance-wise measure of the resources, and the Database tab presents the overall measure.

## Host CPU

This section displays a bar chart showing the relative CPU utilization across all hosts in the cluster. This instantaneous value is refreshed every minute by the Agent. The 100% represents the total CPU across all hosts in the cluster. Two values appear in the bar chart. The bottom, darker color corresponds to the Database legend and represents how much of the CPU is consumed by all the instances of this database. Click the Database link to go to the Top Activity page to display all wait classes and related statistics. The upper, lighter color corresponds to the Other legend and represents all other processes. Click the Other link to go to the Host Performance page for a quick glimpse of the utilization statistics (CPU, Memory, Disk I/O, and Program Resource Utilization) for this host.

The Load number is unrelated to the Host CPU chart. The Load number relates to the sum of the current CPU load for all cluster hosts. Click the Load link to go to the Host Performance page for a quick glimpse of the utilization statistics (CPU, Memory, Disk I/O, and Program Resource Utilization) for this host.

**Note:** The Host CPU section does not appear for pre-10g databases.

## Active Sessions

The bar chart shows the amount of time all instances consumed using I/O and CPU, and the amount of time it consumed in bottlenecks. The number shown beside the bar chart is a literal number representing the number of active sessions, rather than the total number of sessions. The chart shows the latest value instead of a historical value. The three session categories are always CPU, User I/O, and Wait.

The **Wait** category represents the value for all wait classes combined, excluding User I/O. All of the links go to the Cluster Database Performance page.

**User I/O** displays the average active sessions spent on waiting for user I/O. User I/O means that the workload originating from the user causes the database to read data from the disk or write data to the disk. Click the User I/O link to go to the Performance page to view potential problems inside and outside of the current database.

**CPU** displays the average active sessions spent on using CPU. Click the CPU link to go to the Top Activity page to display all wait classes and related statistics.

The **Maximum CPU** number is the total CPU count across all the cluster database hosts.

**Note:** The Active Sessions section does not appear for pre-10g databases.

## Memory

The chart shows the memory used by the database in GB.

**Shared Pool** displays various constructs that can be shared among users. For example:

- SQL statements that users implement are cached so that they can be reused if the same statement is used again.
- Information from the data dictionary is cached for quick access and reusability.
- Stored procedures, which are executable code that is stored in the database, can be cached for faster access.

**Buffer Cache** caches blocks of data retrieved from the database. If a piece of data can be found in the buffer cache, then there is no need to read it from disk. There are subcaches for multiple block sizes, if used.

**Large Pool** displays optional area used for buffering large I/O requests for various server processes.

**Java Pool** used for all session-specific Java code and data within the Java Virtual Machine (JVM).

**Other SGA** displays shared memory area that contains data and control information for the instance. Multiple users can share data within this memory area (controlled by Oracle), and information stored in the SGA can avoid repeated access from physical disk, a time consuming operation.

### Data Storage

The chart shows data storage details for tablespaces UNDOTBS, SYSAUX, and SYSTEM.

### SQL Monitor - Last Hour

This section lists the SQL monitoring details for the last hour. The real-time SQL monitoring feature of Oracle Database enables you monitor the performance of SQL statements while they are executing. By default, SQL monitoring automatically starts when a SQL statement runs parallel, or when it has consumed at least 5 seconds of CPU or I/O time in a single execution. It lists the status, duration, SQL ID, Session ID, Parallel, and Database Time.

### Instances

The Instances table lists the instances for the cluster database, their availability, incidents, compliance score, ASM instance information, and ADDM findings. Click an instance name on the left hand panel to go to the home page for that instance. Click the links in the table to get more information about that particular incident.

## Pluggable Database Home Page

To view the Pluggable Database Home page, click on the PDB name link in the Databases region of the Database Cloud Self Service Portal.

This page contains the following regions:

- **Summary:** The region of the Database Instance Home page provides a quick overview of the database status and provides basic information about the database. It shows the current status of the database and includes details such as the time stamp of instance start time, database version, date of the last backup, and so on.
- **Connection Details:** Displays the connect string used to connect to the database.
- **Resource Usage:** Shows the usage details such as Expected Workload and Actual Workload.
- **Performance:** Shows the performance monitoring information for the database. Click on the **Active Class** tab to view a bar chart showing the amount of time spent either waiting for a resource or consuming CPU.
- **SQL Monitoring:** Shows the SQL Response Time chart that shows the current response of the tracked set of SQL versus the reference collection response.
- **Requests:** This table tracks the requests that you have created. For each request, the status, type, start date, and submission date of the request is displayed. You can select a

scheduled request and click **Reschedule** to reschedule the request. To delete a scheduled request, select the request and click **Cancel**.

### **Starting and Stopping the Database**

Depending on the state of the database, you can use the Shutdown button to shut down the database if the database is open, the Startup button if the database is shut down, or the Shutdown button if the state of the database is unknown or in a Status Pending state.

# Part VII

## Maintaining and Customizing Databases

This section contains chapters on how to maintain a database pool and how to customize a database. It contains the following chapters:

- [Maintaining the Database Pool](#)
- [PDBaaS Fleet Operations](#)
- [Customizing Database as a Service](#)
- [DB Onboarding on DBaaS Cloud](#)
- [DB Relocation](#)
- [PDB Onboarding on DBaaS Cloud](#)
- [PDB Relocation](#)
- [PDB Instance Resize](#)
- [PDB Upgrade using Fleet Maintenance](#)

# Maintaining the Database Pool

This chapter covers the database pool maintenance feature. It contains the following sections:

- [About Database Pool Maintenance](#)
- [Creating a Database Gold Image](#)
- [Subscribing to an Image](#)
- [Deploying the Image](#)
- [Updating the Database](#)
- [Performing Ongoing Image Updates](#)

## About Database Pool Maintenance

Enterprise Manager offers a subscription based software maintenance feature that allows self service administrators to maintain the cloud by applying database updates which include:

- **Minor Updates:** Interim one-off patches including quarterly security patch updates (SPUs/ CPUs) and Patchset Updates (PSUs).
- **Major Updates:** Patchsets such as (12.2.0.1 to 12.1.0.2) and major version upgrades 12.1.0.2 to 19c.

Any new database patches, patchsets, or updates are made available in the form of images. An *image* (also referred to as *gold image*) represents the software binary that is patched to the required level. Each newly created image from a new patch or patchset for a specific database version is a new version. For example, an image for Oracle Database version 12.1.0.2 contains gold images (such as Version 1, Version 2, and so on) at different patch or patchset levels.

A standalone database pool contains databases along with its Oracle Home infrastructure. A RAC database pool contains RAC databases along with Grid Infrastructure Instances and its associated Oracle Homes. Maintaining a database pool involves the following:

- **Subscribe the database pool to an image that has been patched to the required level.** This task has to be performed by a user with the `EM_SSA_ADMINISTRATOR` role.
- **Deploy the image and switch the database from the old Oracle Home to a new Oracle Home.** This task has to be performed by a user with the `EM_SSA_ADMINISTRATOR` role.
- **Update the database.** This task can be performed by a user with either the `EM_SSA_ADMINISTRATOR` role or `EM_SSA_USER` role.

This maintenance activity can be performed as and when a new patch or patchset update is available. A database pool is considered to be fully compliant if the targets in the pool are associated with the latest version of an image. If the targets are still associated with an older version of the image, the database pool is considered to be non compliant. The goal of the self service administrator is to ensure all targets in the database pool are 100% compliant.

 **Note:**

- For database upgrades, such as 12.2.0.1 to 12.1.0.2, see: Database Fleet Maintenance in *Enterprise Manager Lifecycle Management Administrator's Guide* to perform maintenance activities.
- Database pool maintenance can also be performed for Grid Infrastructure targets.

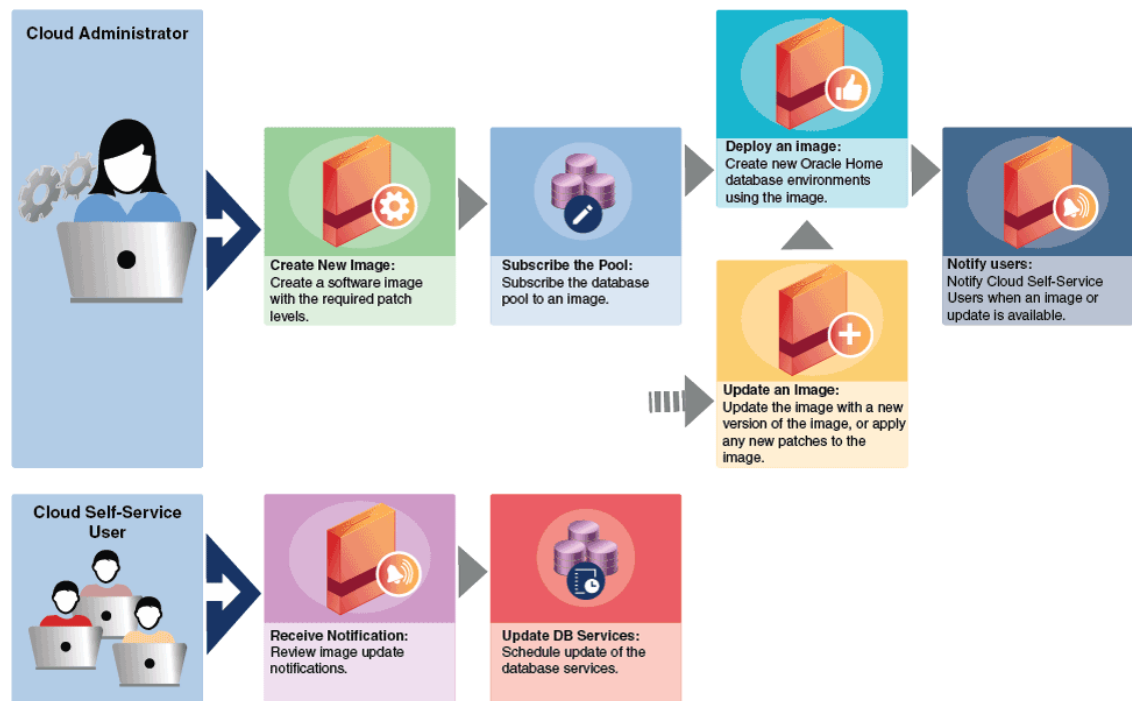
The database pool maintenance feature is useful in:

- Reducing the number of different database software versions and patches in the pool.
- Standardizing the database software versions and patches across the enterprise.
- Streamlining and automating software upgrades and patches.
- Enabling the self service users to move to the new software version and update the database on their own terms.

 **Note:**

You can use EMCLI commands to perform pool maintenance activities. For details, see [Database Fleet Maintenance EM CLI Verbs](#).

**Figure 15-1 Database Pool Maintenance Workflow**





The following table shows the list of tasks involved in updating and maintaining a database pool.

**Table 15-1 Database Pool Maintenance Tasks**

Step	Task	Role
1	<a href="#">Creating a Database Gold Image</a>	EM_SSA_ADMINISTRATOR
2	<a href="#">Subscribing to an Image</a>	EM_SSA_ADMINISTRATOR
3	<a href="#">Deploying the Image</a>	EM_SSA_ADMINISTRATOR
4	<a href="#">Updating the Database</a>	EM_SSA_ADMINISTRATOR EM_SSA_USER
5	<a href="#">Performing Ongoing Image Updates</a>	EM_SSA_ADMINISTRATOR

## Creating a Database Gold Image

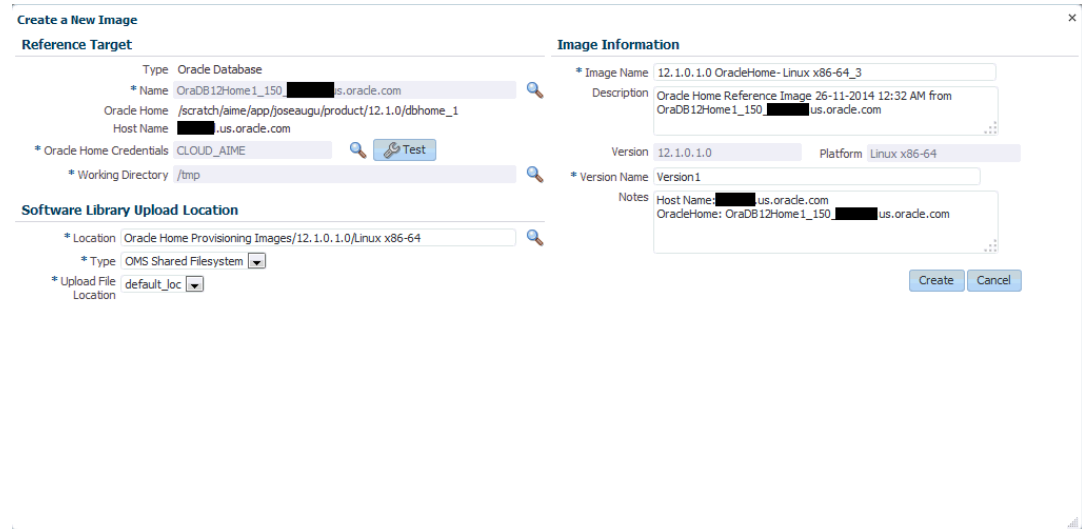
An *image* is the software binary for the target (say Oracle database) on a given platform and release containing the required patch levels. For example, Image DB\_19101\_Linux represents Database software for 19.1.0.1 release applicable to Linux x86\_64 platform containing patches like PSUs and other one-off patches at the needed level. Whenever there is a new patch, you must create a new version of the image from a reference target that contains a zipped up Oracle Home that has been brought to a certain certified or tested patch level.

To maintain the database pool, you must subscribe to an image which contains the latest patches or patchset. If no images exist, you must first create an image and then subscribe the database pool to the image.

To create an image, follow these steps:

1. Log in as a user with the EM\_SSA\_ADMINISTRATOR role.
2. From the **Enterprise** menu select **Cloud**, then select **Cloud Home**. From the Oracle Cloud menu, select **Resource Providers**, and click on a **Database Pool** in the list to navigate to the Database Pool Home page. From the Database Pool menu, select **Members**, and then click **Maintenance**. The Maintenance page appears. Click **Manage Subscriptions**.
3. The Manage Subscriptions page appears. Click **Create a New Database Home Image**.
4. The following dialog box appears:

**Figure 15-2** Creating a New Image



5. In the **Create a New Image** dialog box, in the **Reference Target** section specify the following details:
  - Name: Reference target name. You can select the Search icon to select a target from the list provided. Once you select a target, the Oracle Home and Host Name details get automatically added.
  - Oracle Home credentials: You can click on the search icon to select existing Oracle Home credentials. Click **OK**. Next, you can click the **Test** button to check if the credentials are valid.
  - Working Directory: Specify the working directory or click the Search icon to select one.
6. In the **Software Library Upload Location** specify:
  - Location
  - Type
  - Upload File Location

These fields are already populated by default. You can verify or change them.

7. In the **Image Information** section, specify the following details:
  - Image Name: Specify a new and unique name for the image. For example: DB12021\_Linux\_SALES\_XYZ.
  - Description: Image description, this field is optional.
  - Version: The display name used to refer to the version. For example, based on the description of the image, the version name can be specified as JAN PSU 2022.
  - Platform: Platform operating system
  - Version Name: Specify a new and unique version name.
  - Notes: Additional description for the image you can specify.
8. Click **Create**. The newly created image will appear in the Oracle Database Home Images table and you will be subscribed to the newly created image.

At this point, the database pool compliance is 0%. To make the database pool 100% compliant, you must do the following:

- Deploy the image, see [Deploying the Image](#) .

- Update the image, see [Updating the Database](#).

## Subscribing to an Image

When a new image is created, the database pool is automatically subscribed to the image. To begin maintenance, start by deploying the image. Follow steps listed in [Deploying the Oracle Home](#).

If you want to maintain the database pool with another image, you must subscribe to the image. To subscribe to an existing image, follow these steps:

1. Log in as a user with the `EM_SSA_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears.
3. Click on **Resource Providers**, a list of database pools and PaaS Infrastructure zones are displayed.
4. Click on a **Database Pool** to view the Database Pool page.
5. From the **Database Pool** menu, select **Members**, then select **Maintenance**.
6. Click **Manage Subscriptions**. You will see a list of available and applicable images for Oracle Database. Select the **Update Subscriptions for Oracle Database** checkbox, select an image from the list and click **Subscribe**.

The pie chart shows the distribution ratio for targets in the database pool, with respect to the image and the different versions of the image. Each version is represented as follows:

- System Version Number (Version Display Name) (Number of targets in the version).
- Each version can have one of the following states:
  - Draft: This is a test version.
  - Restricted: This represents a Beta version that is released to a restricted set of targets.
  - Current: This represents the latest version of the image.

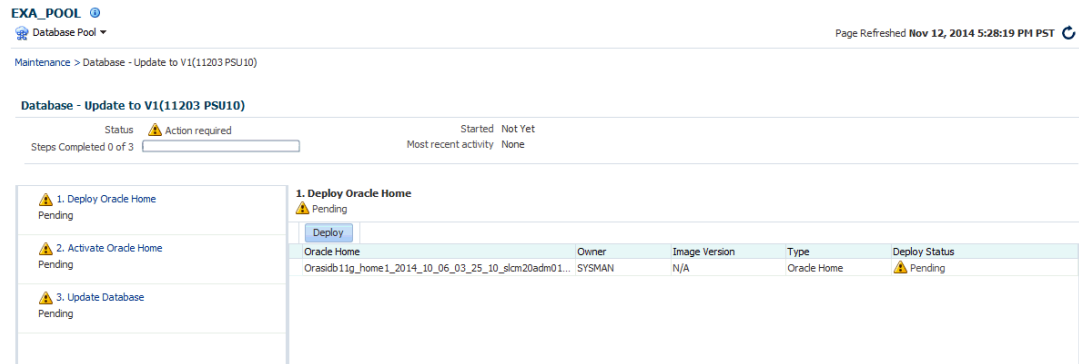
An administrator's maintenance goal is to move all targets in the pool to the **Current** version of the image to keep the pool up-to-date and compliant.

## Deploying the Image

After the self service administrator has subscribed the database pool to a new image, the new image must be deployed. To deploy the image, follow these steps:

1. Navigate to the Image Maintenance page. Click the **Select** button in the **Updates to Image Version** region of the page. The following page appears:

**Figure 15-3 Deploying the Image**



To complete the maintenance process and update the database, 3 steps are required:

- **Deploy:** See [Deploying the Oracle Home](#).
- **Activate:** See [Activating the New Oracle Home](#)
- **Update:** See [Updating the Database](#)

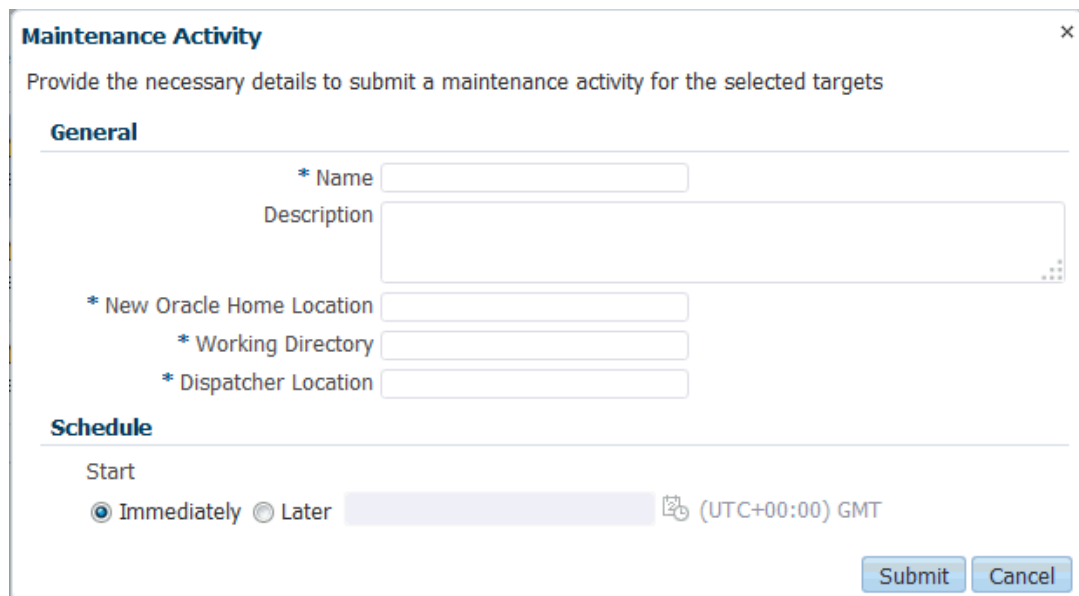
2. Specify the schedule for the deployment and click **Submit** to submit the job.

## Deploying the Oracle Home

This option copies the image binaries to each of the hosts in the database pool and create new Oracle Homes on all them. When you navigate to this page, the **Deploy** step is highlighted and the status is **Pending**. The list of targets on which the image is to be deployed, the target owner, and the image version is displayed. To deploy the image, follow these steps:

1. Click **Deploy**. The following dialog box appears:

**Figure 15-4 Maintenance Activity**



- Specify the name, description, the new Oracle Home location, Working Directory, and Dispatcher Location.
- Click **Submit** to deploy the image and create new Oracle Homes.

## Activating the New Oracle Home

This step sends notifications to the self service users that a new update is available. Activating the newly deployed Oracle Homes also updates the self service template associated with the database pool and redirects any new database service requests to be created from the new Oracle Home. Click **Activate** to activate the Oracle Homes that have been successfully deployed.

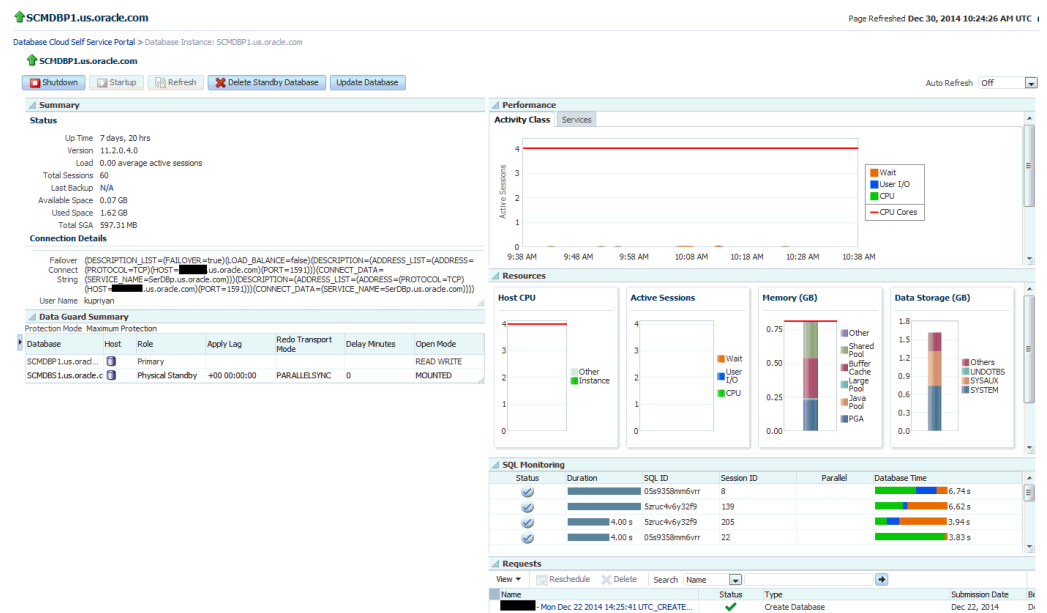
## Updating the Database

This step switches the database from the old Oracle Home to the new Oracle Home and completes the post install steps for all the patches related to the image. This step can either be performed by the self service administrator or the self service user.

After deploying the latest version of the image, the self service administrator can do either of the following:

- Apply the latest version and update the database. To update the database targets associated with the pool, select the **Update** option shown in [Figure 15-3](#) and click **Update**. The latest patch will be applied on all the database targets in the pool. The database pool will now be 100% compliant.
- Notify the self service user about the updates by clicking **Yes** in the **Delegate the Responsibility to the Self Service User** field. The self service user can then choose to apply the updates by following these steps:
  - Log in as a user with the EM\_SSA\_USER role.
  - In the Self Portal Page, select **Databases** from the **Manage** drop down list. Click on a database for which updates are available to drill down to the Home page.

**Figure 15-5 Updating the Database**



3. Click **Update** to switch the database to the new Oracle Home.

 **Note:**

- When all the tasks (deploy, activate, and update) have been performed, the pool is successfully subscribed to the new image.
- When the database pool is subscribed to a newer version of an image, the compliance status of the pool changes will be at 0%. After the new version is deployed and all databases associated with the database pool are updated, the compliance will be at 100%.

## Performing Ongoing Image Updates

When a new patch or patchset is available, to deploy the new patch on the database pool, you must ensure that the following tasks are performed:

- [Creating a New Version of the Image](#)
- [Deploying the Image](#)
- [Updating the Database](#)

## Creating a New Version of the Image

To create a new version of an image, follow these steps:

1. Login as a user with the `EM_SSA_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears. Click on the Resource Providers link on the page. A list of database pools and PaaS Infrastructure zones are displayed.
3. Click on a **Database Pool** to view the Database Pool page.
4. From the **Database Pool** menu, select **Members**, then select **Maintenance**. The Image Subscriptions page appears.
5. Click the **Manage Image** link on the page. The Manage Images page appears.

**Figure 15-6 Manage Images**

Database Images > Manage Image Page Refreshed Dec 5, 2014 4:45:16 PM UTC

**11.2.0.4.0 OracleHome- Linux x86-64**

Subscribed 1 Targets  
Compliance

Product Version 11.2.0.4.0 Database Type Database Instance Platform Linux x86-64

**Deployments**

Version1

**Active Versions (1)**

Name	Version	Status	Deployments	Date Created	Owner
Version1	V1	CURRENT	0	12/4/2014	[REDACTED]

**Version1**

**General** Software

Database Type Database Instance Date Created 12/4/2014  
 Product 11.2.0.4.0 Owner [REDACTED]  
 Version  
 Platform Linux x86-64  
 State CURRENT  
 Description Oracle Home Reference Image 04-12-2014 06:06 AM from OraDb11g\_home1\_1 [REDACTED] us.oracle.com

This page contains the following details:

- **Database Images:** This region displays the name of the image, number of subscribed targets, compliance score, product version, database type, and platform.
  - **Deployments:** This region shows a piechart that consists of the percentage of deployments for each version in the image.
  - **Active Versions:** This region lists the number of active versions, the name of the versions, the version number, the status of the version (Current or Active), the number of deployments for each version, the creation date of each version, and the SSA owner of the version.
  - **General:** The General tab lists the database type, product version, platform, state, description, creation date, and owner of the image. The Software tab lists the location of the Oracle Home, the product name, and the host name. If you have saved a snapshot of the image, you can view it by clicking **View**.
6. Click **Manage Versions** to manage the image versions.

**Figure 15-7 Manage Database Image Versions**

Database Images > Manage Image > Manage Versions Page Refreshed Nov 26, 2014 2:00:56 AM UTC

**Manage Image: 11204\_GIHome\_sobk86\_x64**

Database Type Cluster Product Version 11.2.0.4.0 Platform Oracle Solaris on x86-64 (64-bit)

View

Name	Version	Status	Deployments	Date Created	Owner
11.2.0.4.30BP5U	V1	CURRENT	0	11/17/2014	SSA_ADMIN11

**11.2.0.4.30BP5U**

**General** Software

Database Type Cluster Date Created 11/17/2014  
 Product Version 11.2.0.4.0 Owner SSA\_ADMIN11  
 Platform Oracle Solaris on x86-64 (64-bit)  
 State CURRENT  
 Description Grid Infrastructure Home Reference Image 17-11-2014 06:16 AM from OraGI11g\_home2\_18 [REDACTED] us.oracle.com

This page consists of a table that lists the name of each version, the version number, the status of the version, the number of deployments of each version, the creation date of the version, and the owner of the version.

When you select a version, the General and Software tabs automatically displays the general and software details of the version.

7. From the **Actions** menu, select **Create** to create a new version of the image. The Create New Image dialog box appears.
8. Follow the steps listed in [Creating a Database Gold Image](#) to create the new image version. The database pool will now be subscribed to the new version.

After the new version has been created, you can click **Set Current Version** to set this version as the current version of the image. You can restrict the users who can use this version by clicking **Set Restricted Version**. If you set the version status as Restricted, no other user can access the version.

### Editing an Image

To edit an image version, select the image and click **Edit** from the **Actions** menu. This option allows you to change the name of the image version.

### Deleting an Image

To delete a database image, in the Images section, select the image that you want to delete, and then click **Delete**. Click Yes to confirm and delete the image.



# 16

## PDBaaS Fleet Operations

This chapter describes the EMCLI commands that can be used to perform PDBaaS fleet operations. It contains the following sections:

- [Preparing and Subscribing to the Software Image \(SSA Admin\)](#)
- [PDBaaS Pool Operations Performed by SSA Admin \(Option 1\)](#)
- [PDBaaS Pool Operations Performed by SSA Admin \(Option 2\)](#)
- [Update CDB \(SSA Admin and SSA User Operations\)](#)
- [PDBaaS Pool Cleanup Operations - SSA Admin](#)

### Preparing and Subscribing to the Software Image (SSA Admin)

To prepare and subscribe to the software image, follow these steps:

- **Create a Software Image of the Oracle Home with patches/patchsets**

```
emcli db_software_maintenance -createSoftwareImage -input_file="data:/scratch/  
input_rac"
```

where the contents of `input_rac` are:

- IMAGE\_NAME=DbGoldImage
- IMAGE\_DESCRIPTION=Gold Image for 12c db
- REF\_TARGET\_NAME=ORACLE\_HOME
- IMAGE\_SWLIB\_LOC=Oracle Home Provisioning Profiles/12.1.0.2.0/linux\_x64
- REF\_HOST\_CREDENTIALS=ZONE\_CREDS:TESTSUPERADMIN
- WORKING\_DIRECTORY=/tmp
- STORAGE\_TYPE\_FOR\_SWLIB=OmsShared
- STORAGE\_NAME\_FOR\_SWLIB=swlib
- VERSION\_NAME=Version1

- **Retrieve the Created Image**

To get the id of the newly created image, run the following command:

```
emcli db_software_maintenance -getImages
```

- **Subscribe the PDBaaS Pool to the Newly Created Image**

```
emcli db_cloud_maintenance -subscribeTarget -pool_name=PDB_POOL -  
pool_type=pdbaas_pool -image_id=438AA95015F34E25E053FB7BB10A9E3B
```

This command subscribes the PDBaaS pool, the CDB members and the PDBs associated with the CDBs. This is a **db\_cloud\_maintenance** operation and not a **db\_software\_maintenance** operation.

- **Verify the PDBaaS Target and Its Subscriptions**

To verify the PDBaaS target and its subscriptions, run the following command:

```
emcli db_software_maintenance -getSubscriptionsForContainer -target_name="RAC
Pool" -target_type=pdbaas_pool -image_id=FE55AD7AB28974EFE04313B2F00AD4A0
```

## PDBaaS Pool Operations Performed by SSA Admin (Option 1)

The PDBaaS pool operations that can be performed by SSA Admin are:

- **Deploy the Oracle Home from the subscribed image on the targets**

### Note:

Ensure you have set the root credentials for the database pool. Set the privileged delegation for the particular host mentioned in the database pool throughout the zone.

```
emcli db_cloud_maintenance -performOperation -purpose="DEPLOY_DB_SOFTWARE/
DEPLOY_RAC_SOFTWARE" -pool_name="PDB_POOL" -pool_type="pdbaas_pool" -
name="Deploy Patch OH for Pool" -target_type=oracle_home -description="Deploys
the Patched Oracle home on target nodes" -input_file="data:/scratch/
data_backup/deployoh.properties"
```

The contents of the `deployoh.properties` are:

- NEW\_ORACLE\_HOME\_LIST=/u01/app/oracle/product/patchedHome2
- WORK\_DIR\_LOC=/tmp
- DISPATCHER\_LOC=/tmp

The following parameters can be added if the prerequisite checks need to be skipped during the **Deploy** operation:

- SKIP\_PREREQUISITE\_CHECKS=true
- SKIP\_CVU\_CHECK=true

This step retrieves the list of Oracle Homes associated with the CDB members of the pool and creates a new Oracle Home for each, using the software image provided and creates a Oracle Home Lineage.

- **Migrate the Listeners**

Run the following command to migrate the listeners:

```
emcli db_cloud_maintenance -performOperation -purpose="MIGRATE_LISTENER" -
pool_name="PDB_POOL" -pool_type="pdbaas_pool" -name="Migrate Listeners" -
description="Migrate the listeners to the new Oracle Home, if any"
```

- **Create / Deploy CDB**

To create or deploy the CDB, run the following command:

```
emcli db_cloud_maintenance -performOperation -purpose="DEPLOY_CDB" -
pool_name="PDB_POOL" -pool_type="pdbaas_pool" -name="Deploy CDB" -
target_type=rac_database -description="Deploy a new CDB on the new OH for
every CDB on the Pool using the prefix " -db_prefix="racdb"
```

This step creates a new CDB for every CDB member of the pool by using the member CDBs structure only template. The new CDBs that are created will use the `db_prefix` for their names.

```
emcli db_cloud_maintenance -performOperation -purpose="DEPLOY_CDB" -
pool_name="PDB_POOL" -pool_type="pdbaas_pool" -name="Deploy CDB for a given
target" -target_type=rac_database -description=" Deploy a new CDB on the new
OH for the selected CDB target " -db_name="slspc" -
target_list="sales.yourcompany.com"
```

This step creates a new CDB for the selected CDB member of the pool specified in the `target_list` option, using its structure only template. The new CDBs that are created will use the `db_prefix` for their db name.

The CDBs created using this command will be marked as Passive and will be part of the pool's member list. There will also be a lineage created between the CDBs.

- **Activate CDB**

```
emcli db_cloud_maintenance -performOperation -purpose="ACTIVATE_CDB" -
pool_name="PDB_POOL" -pool_type="pdbaas_pool" -name="Activate the CDBs" -
target_type=oracle_database/rac_database -description="Activates the newly
created CDBs"
```

This step marks all the new CDBs in the pool that were created in the above step as Active and the existing CDBs as Inactive. Any further SSA requests will be forwarded to the newly activated CDBs.

```
emcli db_cloud_maintenance -performOperation -purpose="ACTIVATE_CDB" -
pool_name="PDB_POOL" -pool_type="pdbaas_pool" -name="Activate the CDBs" -
target_type=oracle_database/rac_database -description="Activates the newly
created CDBs" -target_list="sales.yourcompany.com"
```

This step the given CDBs in the `target_list` as Active and its predecessor CDBs as Inactive. Any further SSA requests will be forwarded to the newly activated CDB.

## PBaaS Pool Operations Performed by SSA Admin (Option 2)

The following operations can be performed by the SSA Admin:

- **Attach an existing CDB to the pool**

```
emcli db_cloud_maintenance -performOperation -purpose="ATTACH_CDB" -
pool_name="PDB_POOL" -pool_type="pdbaas_pool" -name="Attach an existing CDB" -
target_type=oracle_database/rac_database -description="Attach an existing CDB
as the successor" -destinationCDB="subjects.yourcompany.com" -
target_list="crm.yourcompany.com"
```

This step will attach the destination CDB as the successor of the member CDB specified in the `target_list`. This will bypass the Deploy OH, Migrate Listener, Deploy CDB steps and will create the necessary lineage for Oracle home and CDB. The destination CDB should be in the same zone associated with the pool and on the same cluster. The newly attached CDB will be marked as Passive once it has been attached.

- **Activate the CDB**

```
emcli db_cloud_maintenance -performOperation -purpose="ACTIVATE_CDB" -
pool_name="PDB_POOL" -pool_type="pdbaas_pool" -name="Activate the CDBs" -
target_type=oracle_database/rac_database -description="Activates the newly
created CDBs"
```

This step marks all the new CDBs in the pool that were created in the above step as Active and the existing CDBs as Inactive. Any further SSA requests will be forwarded to the newly activated CDBs.

```
emcli db_cloud_maintenance -performOperation -purpose="ACTIVATE_CDB" -
pool_name="PDB_POOL" -pool_type="pdbaas_pool" -name="Activate the CDBs" -
target_type=oracle_database/rac_database -description="Activates the newly
created CDBs" -target_list="sales.yourcompany.com"
```

This step marks the specified CDBs in the target\_list as Active and is predecessor CDBs as Inactive. Any further SSA requests will be forwarded to the newly activated CDB.

## Update CDB (SSA Admin and SSA User Operations)

This section lists the Update CDB operations:

- **Update PDB — SSA Admin**

```
emcli db_cloud_maintenance -performOperation -purpose="UPDATE_PDB" -
pool_name="PDB_POOL" -pool_type="pdbaas_pool" -name="Update PDB to new CDB" -
target_type=oracle_pdb -description="Relocates the PDB from its inactive CDB
to newly active CDB" -target_list="crm.mycompany.com_SDB1"
```

The SSA Admin can update a PDB from its predecessor to the newly activated CDB.

- **Update PDB – SSA User – UI**

The SSA User will see an **Update Database** button on the PDB home page once the new CDB has been activated and is available for update. The SSA User can schedule an update of the PDB with no additional inputs.

- **Update PDB – SSA User — RESTful API**

The SSA can submit a Update PDB request using the RESTful API request.

```
https://<host>:<port>/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/
<requestid>
Content-Type: application/oracle.com.cloud.common.PluggableDbPlatformInstance+json
Accept: application/oracle.com.cloud.common.PluggableDbPlatformInstance+json
Body:
{
  "operation" : "UPDATE_DATABASE",
  "update_schedule" : ""
}
Method: POST
```

## PDBaaS Pool Cleanup Operations - SSA Admin

The following pool cleanup operations can be performed by the SSA Admin:

- **Deactivate the CDB**

If there are any issues with the newly activated CDB, the SSA Admin can deactivate them and use the old CDB as their member active CDB for new requests until the time the issue is sorted with the new CDB or they are removed from the pool (given that they do not service any PDB's)

```
emcli db_cloud_maintenance -performOperation -purpose="DEACTIVATE_CDB" -
pool_name="PDB_POOL" -pool_type="pdbaas_pool" -name="Deactivate the CDBs" -
target_type=oracle_database/rac_database -description="Deactivates the newly
created CDBs"
```

This step marks all the new CDBs in the pool that were created in the above step as Passive and their predecessor CDBs as Active. Any further SSA requests will be forwarded to the newly activated CDBs.

```
emcli db_cloud_maintenance -performOperation -purpose="DEACTIVATE_CDB" -
pool_name="PDB_POOL" -pool_type="pdbaas_pool" -name="Deativate the CDBs" -
target_type=oracle_database/rac_database -description="Deactivates the newly
created CDBs" -target_list="sales.yourcompany.com"
```

This step the given CDBs in the target\_list as Passive and is predecessor CDBs as Active. Any further SSA requests will be forwarded to the newly activated CDB.

- **Rollback the PDB**

In case the PDB update has any issues with the CDB to which it was updated, the admin (and admin only) can do a rollback of the PDB to the CDB that was the predecessor of the currently active CDB.

```
emcli db_cloud_maintenance -performOperation -purpose="ROLLBACK_PDB" -
pool_name="PDB_POOL" -pool_type="pdbaas_pool" -name="Activate the CDBs" -
target_type=oracle_pdb -description="Rolls back the PDB to its parent CDB"
```

This step rolls back the PDBs associated with the pool to their respective parent CDBs.

```
emcli db_cloud_maintenance -performOperation -purpose="ROLLBACK_PDB" -
pool_name="PDB_POOL" -pool_type="pdbaas_pool" -name="Activate the CDBs" -
target_type=oracle_pdb -description="Rolls back the PDB to its parent CDB" -
target_list="sales.yourcompany.com_FIN"
```

This step rolls back the given PDBs in the target\_list to their parent CDB.

As part of PDBaaS Fleet Maintenance operations, the new Oracle Home(s) (OH) and new Container Database(s) (CDBs) are deployed.

The individual PDB instances, which are patched, are relocated to these newly deployed CDBs. After all the PDBs in a CDB are patched, the old CDB needs to be deleted for reclaiming the resources. This removal of old CDBs and old OHs post completion of a patching cycle can be achieved using an automated operation, the PDBaaS Fleet Maintenance 'CLEANUP' operation.

The pool cleanup operations are:

- **CLEANUP with -reportOnly flag**

The -reportOnly option provides a report of eligible CDB(s) and Oracle Home(s) to be removed as part of next CLEANUP operation.

```
emcli db_cloud_maintenance -performOperation -purpose="CLEANUP" -
pool_name="poolname" -pool_type="pdbaas_pool" -name="Cleanup CDBs and Homes" -
description="Only show a CLEANUP report" -reportOnly=true
```

**Table 16-1 Categories of Report Formats**

Category	Description
Container Database(s) (CDBs) eligible for cleanup	Lists the CDBs that are deleted by next 'CLEANUP' operation
Oracle Home(s) (OHs) eligible for cleanup	Lists the OHs that are deinstalled by next 'CLEANUP' operation
CDB(s) not eligible for cleanup	Lists the CDBs that are not deleted by next 'CLEANUP' operation due to presence of one or more PDBS Reverse-engineering Knowledge Module JDE Enterprise One DB2 UDB Integration Knowledge Module JDE Enterprise One Control Append (UBE)
Ineligible Home(s) for cleanup	Lists the OHs that are not deinstalled by next 'CLEANUP' operation due to presence on one or more associated DB/CDBs

- **CLEANUP**

The CLEANUP operation when initiated performs actual deletion/deinstall of eligible CDB/OH targets as shown in the CLEANUP report.

```
emcli db_cloud_maintenance -performOperation -purpose="CLEANUP" -  
pool_name="Pluggable Database Pool" -pool_type="pdbaas_pool" -name="Cleanup  
CDBs and Homes" -description="Show CLEANUP report and submit CLEANUP  
operation"
```

 **Note:**

Before initiating the CLEANUP operation, ensure to generate and review the CLEANUP report using `-reportOnly=true` to show only the report.

- **CLEANUP with -target\_list**

The `target_list` option is used for deletion of a specific CDB target which is eligible for 'CLEANUP' operation. In this case, `target_type` is `oracle_database` or `rac_database`.

```
emcli db_cloud_maintenance -performOperation -purpose="CLEANUP" -  
pool_name="poolname" -pool_type="pdbaas_pool" -target_list="cdbtemp" -  
target_type='oracle_database' -name="Cleanup CDBs and Homes" -  
description="CLEANUP for CDB target" -reportOnly=true
```

The `-reportOnly` flag is used to check if target CDB is eligible for CLEANUP or not.

# Customizing Database as a Service

This chapter describes how to customize Database as a Service. It contains the following sections:

- [Pre and Post Request Creation / Deletion Scripts](#)

## Pre and Post Request Creation / Deletion Scripts

You can run custom scripts before and after a service instance has been created. These requests can range from some additional host commands on the machine on which the database was created or commands to perform additional book activities and other operations on the newly provisioned database.

Similarly, you can run scripts after a service instance has been deleted if you need to undo the changes made during service cleanup.

The custom script must follow certain guidelines and consists of four parts:

- **Response File:** The response file contains the service template and request specific information. Before the custom script is executed, the request procedure, the request procedure generates a response file (file with name-value pairs) containing the data from the service template as well as the request-specific data such as the SID that is auto computed, the hosts on which the database will be deployed, and so on.
- **Driver Script:** This is the key driver script that will be invoked by the request procedure. The driver script accepts only one argument which specifies the location of the response file.
- **Other Scripts:** Apart from the driver script, you can specify other perl or sql scripts. These scripts must be invoked from the driver script.
- **Additional Variables:** You can include a file containing additional variables that can be used by the custom script as applicable.

After the scripts have been created, they must be uploaded as a directive into the Software Library. In the Describe page, the name of the directive and the description is displayed. Click the **Configure** tab.

**Figure 17-1 Pre or Post Database Script: Configure**

Software Library

Describe Configure Select Files Set Directives Review

Create Generic Component: Configure Back Step 2 of 5 Next Save Cancel

Parent Folder: Components  
Subtype: Generic Component

Declare new property types that can be used to customize instances of the component.

Name	Type	Initial Value	Property Description
Top-level			
Shared			

The driver script accepts one command line argument which must be in the `INPUT_FILE` format. This variable will be used at run-time to specify the location of the generated response file. Click the **Select Files** tab.

**Figure 17-2 Pre or Post Database Script: Select Files**



Specify any additional files that are required by the custom script. You can run the script from the same host on which the database instance or the database service was created or deleted.



**Note:**

if you need to change the content of the script, you must upload a newer version of the script to the Software Library. To use the latest version of the script, you must launch the Edit Service Template wizard and select the updated version of the script and save the template. This ensures that the latest version of the script will be used.

Do not edit Pre/Post hooks sections of Pre/Post script.

## Selecting the Post SQL Script

A post SQL script can be created and uploaded to the Software Library. The self service administrator can select the script during service template creation. To specify the script, follow these steps:

1. Log in as a user with EM\_SSA\_ADMINISTRATOR role.
2. From the Enterprise menu, select Cloud. From the Cloud Home menu, select Service Template and then Create.
3. Select the Service Template type as Database and click Create.
4. Navigate to the Configuration page. Click the Search icon next to the Post SQL Script field and select the script from the Software Library.
5. In the Run As User drop down, the SYS user is selected by default.

If this user is selected, the SYS password provided on Database page in the wizard is used to run the post database creation SQL script.

If any other user is selected including Master Account, the password provided by the self service user for the Master Account while creating a service request will be used.



 **Note:**

If the user account is locked, an error message is displayed. The user account must be open in the source database.

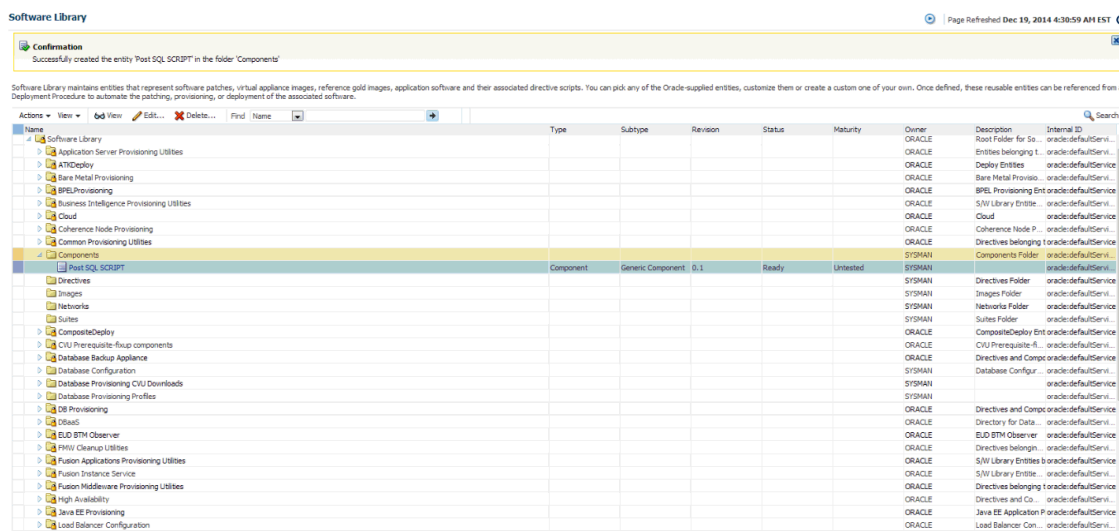
## Sample Scripts

Sample scripts are available in the Software Library. To view the sample scripts, from the **Enterprise** menu, select **Provisioning and Patching**, then select **Software Library**. Select the **DBaaS** folder, then select **Directives**, and click the **Samples** folder to see the custom scripts.

 **Note:**

Do not edit Pre/Post hooks sections of Pre/Post script.

**Figure 17-3 Sample Scripts**



Name	Type	Subtype	Revision	Status	Maturity	Owner	Description	Internal ID
Software Library						ORACLE	Root Folder for So...	oracle:default/Servi...
Application Server Provisioning Utilities						ORACLE	Entities belonging t...	oracle:default/Servi...
ATIDeploy						ORACLE	Deploy Entities	oracle:default/Servi...
Bare Metal Provisioning						ORACLE	Bare Metal Provisio...	oracle:default/Servi...
BPELProvisioning						ORACLE	BPEL Provisioning Ent...	oracle:default/Servi...
Business Intelligence Provisioning Utilities						ORACLE	S/W Library Entity	oracle:default/Servi...
Cloud						ORACLE	Cloud	oracle:default/Servi...
Coherence Node Provisioning						ORACLE	Coherence Node P...	oracle:default/Servi...
Common Provisioning Utilities						ORACLE	Directives belongin...	oracle:default/Servi...
Components						SYSMAN	Components Folder	oracle:default/Servi...
Post SQL SCRIPT	Component	Generic Component	0.1	Ready	Unlisted	SYSMAN		oracle:default/Servi...
Directives						SYSMAN	Directives Folder	oracle:default/Servi...
Images						SYSMAN	Images Folder	oracle:default/Servi...
Networks						SYSMAN	Networks Folder	oracle:default/Servi...
Suites						SYSMAN	Suites Folder	oracle:default/Servi...
CompositeDeploy						ORACLE	CompositeDeploy Ent...	oracle:default/Servi...
CIU Prerequisite-fixup components						ORACLE	CIU Prerequisite-fi...	oracle:default/Servi...
Database Backup Appliance						ORACLE	Directives and Comp...	oracle:default/Servi...
Database Configuration						SYSMAN	Database Configur...	oracle:default/Servi...
Database Provisioning CIU Downloads						SYSMAN		oracle:default/Servi...
Database Provisioning Profiles						SYSMAN		oracle:default/Servi...
DB Provisioning						ORACLE	Directives and Comp...	oracle:default/Servi...
DBaaS						ORACLE	Directory for Data...	oracle:default/Servi...
EUO BTH Observer						ORACLE	EUO BTH Observer	oracle:default/Servi...
EMV Cleaning Utilities						ORACLE	Directives belong...	oracle:default/Servi...
Fusion Applications Provisioning Utilities						ORACLE	S/W Library Entities b...	oracle:default/Servi...
Fusion Instance Service						ORACLE	S/W Library Entity	oracle:default/Servi...
Fusion Middleware Provisioning Utilities						ORACLE	Directives belongin...	oracle:default/Servi...
High Availability						ORACLE	Directives and Co...	oracle:default/Servi...
Java EE Provisioning						ORACLE	Java EE Application P...	oracle:default/Servi...
Load Balancer Configuration						ORACLE	Load Balancer Con...	oracle:default/Servi...

## Input Parameters for Pre and Post Database Scripts

This section lists the following:

- [Input Parameters for DBaaS Pre and Post Request Creation Scripts](#)
- [Input Parameters for DBaaS Pre and Post Request Deletion Scripts](#)
- [Input Parameters for DBaaS Pre and Post Custom Scripts when Provisioning a Standby DB](#)
- [Input Parameters for SchaaS Pre and Post Request Creation Scripts](#)
- [Input Parameters for SchaaS Pre and Post Request Deletion Scripts](#)
- [Input Parameters for PDBaaS Pre and Post Request Creation Scripts](#)

- [Input Parameters for PDBaaS Pre and Post Request Deletion Scripts](#)
- [Sample Input Files](#)
- [Sample PDBaaS Post Scripts](#)

## Input Parameters for DBaaS Pre and Post Request Creation Scripts

This table lists the input parameters for the DBaaS pre and post request creation scripts.

**Table 17-1 DBaaS: Input Parameters for Pre and Post Request Creation Scripts**

Variable Name	Description	Example
ssaRequestId	The Request ID of the SSA user request.	3
ssaUser	The SSA user name.	Ssa_user1
ssaTargetName	The zone target name.	Myzone1
ssaTargetType	The zone target type.	Self_service_zone
zoneTargetName	The zone target name.	Myzone1
zoneTargetType	The zone target type.	Self_service_zone
DBAAS_SSA_CUS TOM_PRE_SCRIP TS_URN	The URN of the directive in the software library which will be executed before the creation of the PDB target.	oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:E9DE463D356E7433E04354B2F00A56C6:0.1
DBAAS_SSA_CUS TOM_POST_SCRIP PTS_URN	The URN of the directive in the software library which will be executed after the creation of the PDB target.	oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:E9DE463D356E7433E04354B2F00A56C6:0.1
SEL_HOST	The host selected as part of placement where the new database will be created.	Myhost.oracle.com
MEM_SIZE	The memory size of the requested database. This shall be the sum of sga and pga aggregate size or the total memory size.	2324
STORAGE_SIZE	The total storage size of the requested database	2324
HOST_CREDS	The credentials of the host where the database will be created.	Mycred1:dbaas_admin
PROFILE_COMPO NENT_URN	The profile component URN.	oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:E9C8A650EFA5291DE04354B2F00AFF3E:0.1
WORK_DIR	The temporary working directory used for staging provisioning related files	/tmp
DB_ADMIN_PASS WORD_SAME	Indicates if the password provided for the sys, system and dbsnmp are same or different	true
DB_ORACLE_HO ME_LOC	The oracle home in the selected host, from where the new Database will be created.	/scratch/aime/oraclehomes/dbbase/112030/dbhome1
DB_ORACLE_BAS E_LOC	The oracle base of the selected oracle home.	/scratch/aime/oraclehomes/dbbase
TOTAL_MEMORY	The total memory for the chosen database if the memory management type is AMM.	0
SGA_MEMORY	The SGA memory value set for the database.	1744

**Table 17-1 (Cont.) DBaaS: Input Parameters for Pre and Post Request Creation Scripts**

Variable Name	Description	Example
PGA_MEMORY	The PGA target value set for the database.	580
INIT_PARAMS	The list of initialization parameter values that are set in the service template. The values are stored as paramName=paramValue[,paramName=paramValue]	processes=150,cluster_database=FALSE,db_name=,open_cursors=300,sga_target=1828716544,db_block_size=8192,audit_file_dest={ORACLE_BASE}/admin/{DB_UNIQUE_NAME}/adump,diagnostic_dest={ORACLE_BASE},*.cpu_count=0,db_recovery_file_dest={ORACLE_BASE}/fast_recovery_area,log_archive_format=%t_%s_%r.dbf,compatible=11.2.0.0.0,audit_trail=DB,remote_login_passwordfile=EXCLUSIVE,undo_tablespace=UNDOTBS1,db_recovery_file_dest_size=4322230272,control_files=("{ORACLE_BASE}/oradata/{DB_UNIQUE_NAME}/control01.ctl", "{ORACLE_BASE}/fast_recovery_area/{DB_UNIQUE_NAME}/control02.ctl"),pga_aggregate_target=608174080
DATABASE_TYPE	Type of database that will be provisioned as part of the request.	oracle_database or rac_database
USER_NAME	User Name (cannot be any of Oracle default accounts) which will be treated as the master account and will be used to login to the requested database.	Useracct1
INSTANCE_COUNT	Number of database instances that will be created in case if the request is for a RAC Database.	1
COMMON_DB_SID	The SID Prefix that has been provided in the Service Template with which a unique database name will be generated.	db000000
COMMON_DOMAIN_NAME	The Database Domain name provided in the Service Template which will be used to create the Database Target in Enterprise Manager.	Mycompany.com
LISTENER_PORT	The port number of the listener in the host to which the database will be attached.	1521
REF_ZONE	The reference zone used for the validations.	Myzone1
REF_POOL	The pool selected on the reference zone.	Mypool1
REF_HOST	The reference host chosen from the pool.	Myhost1.oracle.com
REF_TGT	The reference host chosen from the pool	Myhost1.oracle.com
COMMON_GLOBAL_DB_NAME	The global database domain name.	db000000.myhost.oracle.com

## Input Parameters for DBaaS Pre and Post Request Deletion Scripts

This table lists the input parameters for DBaaS pre and post request deletion scripts.

**Table 17-2 DBaaS: Input Parameters for Pre and Post Request Deletion Scripts**

Variable Name	Description	ExampleDB
DB_SID	The database SID of the database which is chosen for deletion. This can be used to connect to the database.	db000000
HOST_NAME	The host name where the DB chosen for deletion, resides.	Myhost.oracle.com
DATABASE_TGT_GUID	The guid of the database which is chosen for deletion	E9C5A1149C266846E04354B2F00A9D7B
HOST_CREDS	The credentials to login to the database host to access the oracle home.	MYCREDS:DBAAS_ADMIN
ROOT_CREDS	The root credentials to login to the host as super user as specified in the pool.	MYROOTCREDS:DBAAS_ADMIN
TARGET_GUID	The guid of the database which is chosen for deletion.	E9C5A1149C266846E04354B2F00A9D7B
BACKUP_ENABLED	If the backup has been enabled for snap clone database target.	True
WORK_DIR	Temporary working directory used for deletion.	/tmp/workdir1
CUSTOM_DEL_PRE_SCRIPTS_URN	The URN of the directive in the software library which will be executed before the deletion of the Schema.	oracle.defaultService:em:provisioning:1:cmp:COMP_Directives:none:E9DE463D356E7433E04354B2F00A56C6:0.1
CUSTOM_DEL_POST_SCRIPTS_URN	The URN of the directive in the software library which will be executed after the deletion of the Schema.	oracle.defaultService:em:provisioning:1:cmp:COMP_Directives:none:E9DE463D356E7433E04354B2F00A56C6:0.1

## Input Parameters for DBaaS Pre and Post Custom Scripts when Provisioning a Standby DB

This table lists the input parameters for the DBaaS pre and post request custom scripts when provisioning a standby database.

Variable Name	Description	Example
PRIMARY_ORACLE_HOME	The primary Oracle Home location	/u01/app/oracle/product/12201/dbhome_1
PRIMARY_ORACLE_BASE	The primary Oracle Base location	/u01/app/oracle
PRIMARY_DBNAME	The primary database name	TESTDB
PRIMARY_INSTANCE_LIST	The primary database instance list	TESTDB1:TESTDB2
PRIMARY_HOST_LIST	The primary database host list	host1.mycompany.com:host2.mycompany.com
PRIMARY_VIP_LIST	The primary database VIP list	h1-vip.mycompany.com:h2-vip.mycompany.com:
PRIMARY_LISTENER_PORT	The primary database listener port	1521
PRIMARY_SCAN_NAME	The primary SCAN name	cluster-s

Variable Name	Description	Example
PRIMARY_DOMAIN_NAME	The primary database domain name	mycompany.com
PRIMARY_PROTECTION_MODE	Data Guard protection mode	MAXIMIZEPERFORMANCE
WORK_DIR	Work directory	/tmp
DATA_DISK_GROUP	Data Disk Group	DATA
FRA_DISK_GROUP	Fast Recovery Area Disk Group	RECO
DATABASE_SERVICE_NAME	The primary database service name	testdb
DATABASE_NAME	The standby database name	STDBYDB
<STANDBY_DB_NAME>_DATABASE_SID	The standby database SID	STDBYDB
<STANDBY_DB_NAME>_RAC_DATABASE	Whether the standby database is a RAC	true
<STANDBY_DB_NAME>_DATABASE_DOMAIN_NAME	The standby database domain name	mycompany.com
<STANDBY_DB_NAME>_DATABASE_RAC_INSTANCE_COUNT	Number of RAC instances of the standby database	2
<STANDBY_DB_NAME>_DATABASE_READONLY_OPEN	Whether the standby database is open in Read Only mode	false
<STANDBY_DB_NAME>_DATABASE_ORACLE_HOME	The standby database Oracle Home	/u01/app/oracle/product/12201/dbhome_1
<STANDBY_DB_NAME>_DATABASE_HOST_LIST	The standby database host list	host3.mycompany.com host3.mycompany.com:
<STANDBY_DB_NAME>_DATABASE_INSTANCE_LIST	The standby database instance list	STDBYDB1:STDBYDB2
<STANDBY_DB_NAME>_DATABASE_SCAN_NAME	The standby SCAN Name	cluster-s
<STANDBY_DB_NAME>_DATABASE_REDO_MODE	The standby database redo mode	ASYNCR
<STANDBY_DB_NAME>_DATABASE_LISTENER_PORT	The standby database listener port	1521

## Input Parameters for SchaaS Pre and Post Request Creation Scripts

This table lists the input parameters for schema as a service pre and post request creation scripts.

**Table 17-3 SchaaS: Input Parameters for Pre and Post Request Creation Scripts**

Variable Name	Description	ExampleDB
ssaRequestID	The Request ID of the SSA User request.	3
ssaUser	The SSA user name.	Ssa_user1
ssaTargetName	The zone target name.	Myzone1
ssaTargetType	The zone target type.	Self_service_zone
zoneTargetName	The zone target name.	Myzone1
zoneTargetType	The zone target type.	Self_service_zone

**Table 17-3 (Cont.) SchaaS: Input Parameters for Pre and Post Request Creation Scripts**

Variable Name	Description	ExampleDB
SCHAAS_CUSTOM_PRE_SCRIPTS_URN	The URN of the directive in the software library which will be executed before the creation of the schema target.	oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:E9DE463D356E7433E04354B2F00A56C6:0.1
REQUEST_NAME	The name of the request	SYSMAN - Tue Oct 29 02:04:21 PDT 2013_CREATE_4_41
SERV_TEMPLATE_GUID	The service template guid.	E9C5A1149C266846E04354B2F00A9D7B
CREATE_SCHEMA_OPTION	Option to differentiate between creating empty schemas or schemas from profile. Possible values, EMPTY_SCHEMAS/SCHEMAS_FROM_PROFILE	EMPTY_SCHEMAS
MAX_NUMBER_OF_SCHEMAS	Maximum number of schemas permissible if the user does not select a profile. Applicable only when the <b>Create Empty Schemas</b> option is selected.	4
MASTER_ACCOUNT	The master account from the list of schemas selected.	MySchema
ROLE_NAME	Name of the database role which will be assigned to all the schemas.	Mynewrole1
SCHEMA_PRIVILEGES	List of schema privileges that will be applied on the user accounts.	CREATE VIEW, CREATE DIR
ENFORCE_STORAGE_CONSTRAINT	Enforces the storage constraint on the service request. Possible values true/false	True
INITIAL_BLOCK_SIZE	The initial size of the tablespace.	2048M
AUTO_EXTEND_BLOCK_SIZE	The auto extend block size.	100M
TABLESPACE_ENCRYPTION_ALGORITHM	The algorithm used for tablespace encryption	AES128
SHARED_STORAGE_LOCATION	Shared staging location where the dump files are location across the hosts in the selected pool. Will be specified only if the create schema option is from an existing profile.	/oradbdfs/dumpfiles/
DBSERVICE_NAME	Database service name that will be provided during the request.	Service_88A370FC0FC1
DB_ORACLE_HOME_LOC	The Oracle Home for the Database where the new schema is created.	/scratch/aime/app/aime/11.2.0/dbhome_1
COMMON_DB_SID	The service name with which the Database can be connected in the host.	Mydb1
REMAP_SCHEMA_LIST	The list of schemas will that will be created on the target.	MySchema

## Input Parameters for SchaaS Pre and Post Request Deletion Scripts

This table lists the input parameters for schema as a service pre and post request deletion scripts.

**Table 17-4 SchaaS: Input Parameters for Pre and Post Request Deletion Scripts**

Variable Name	Description	Example
DB_CONNECT_STRING	The connection string to establish a connection to the database.	DESCRIPTION = (ADDRESS = (PROTOCOL = TCP)(HOST = myhost.oracle.com)(PORT = 1521))(CONNECT_DATA = (SERVER = DEDICATED)(SID= Myservice1))
SCHEMA_NAME	Schema name selected for deletion.	Myservice1
PERM_TABLESPACE_NAME	The primary table space.	Myschema1
HOST_NAME	The host name where the DB chosen for deletion, resides.	Myhost.oracle.com
DATABASE_CREDS	The named credentials used for connecting to the database.	MYDBCREDS:DBAAS_ADMIN
GI_CREDS	The named credentials used for connecting to the Grid Infrastructure in case of RAC.	MYHOSTCREDS:DBAAS_ADMIN
WORK_DIR	Temporary working directory	/tmp/myworkdir1
CUSTOM_DEL_PRE_SCRIPTS_URN	The URN of the directive in the software library which will be executed before the deletion of the Schema	oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:E9DE463D356E7433E04354B2F00A56C6:0.1
CUSTOM_DEL_POST_SCRIPTS_URN	The URN of the directive in the software library which will be executed after the deletion of the Schema	oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:E9DE463D356E7433E04354B2F00A56C6:0.1

## Input Parameters for PDBaaS Pre and Post Request Creation Scripts

This table lists the input parameters for PDB as a service pre and post request creation scripts.

**Table 17-5 PDBaaS: Input Parameters for Pre and Post Request Creation Scripts**

Variable Name	Description	Example
ssaRequestId	The Request ID of the SSA User request.	3
ssaUser	The SSA user name.	Ssa_user1
ssaTargetName	The zone target name.	Myzone1
ssaTargetType	The zone target type.	Self_service_zone
PDBAAS_CUSTOM_PRE_SCRIPTS_URN	The URN of the directive in the software library which will be executed before the creation of the PDB target.	oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:E9DE463D356E7433E04354B2F00A56C6:0.1
PDBAAS_CUSTOM_POST_SCRIPTS_URN	The URN of the directive in the software library which will be executed after the creation of the PDB target.	oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:E9DE463D356E7433E04354B2F00A56C6:0.1

**Table 17-5 (Cont.) PDBaaS: Input Parameters for Pre and Post Request Creation Scripts**

Variable Name	Description	Example
CREATE_PDB_OPTION	Option for creating Pluggable Database that includes empty PDB or PDB from profile. Possible values, EMPTY_PDB/PDB_FROM_PROFILE	EMPTY_PDB
PDB_CONNECT_STRING	The connection string to establish a connection to the pluggable database.	(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=myhost.mycompany.com)(PORT=1531)))(CONNECT_DATA=(SERVICE_NAME=svc_mypdb)(INSTANCE_NAME=CDB01)(UR=A)(SERVER=DEDICATED)))
PDB_NAME	Name of the PDB target being created.	mypdb
CDB_CONNECT_STRING	The connection string to establish a connection to the container database.	(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=myhost.mycompany.com)(PORT=1531)))(CONNECT_DATA=(SID=CDB01)))
MAX_TABLESPACE_ALLOWED	Maximum number of tablespaces allowed for pluggable database as a service.	10
ENFORCE_STORAGE_CONSTRAINT	Enforces the storage constraint on the service request. Possible values true/false.	True
TABLESPACE_ENCRYPTION_ALGORITHM	The algorithm used for tablespace encryption.	AES128
TABLESPACE_SIZE	The SID Prefix that has been provided in the Service Template with which a unique database name will be generated.	mydb
PDB_SID_PREFIX	SID Prefix for the new pluggable database.	Mypdb1
SHARED_STAGE_LOCATION	Shared staging location where the dump file are location across the hosts in the selected pool.	/oradbnfs/dumpfiles/
PDB_ADMIN_USERNAME	Administrator user name for the new pluggable database.	Myadmin
PDB_SERVICE_NAME_PREFIX	The service name prefix for the pluggable database.	Service
PDBSERVICE_NAME	Pluggable database service name.	Service_000
DB_ORACLE_HOME_LOC	The Oracle Home for the Database where the new schema is created.	/scratch/aime/app/aime/11.2.0/dbhome_1
COMMON_DB_SID	The service name with which the Database can be connected in the host.	Mydb1
ROLE_OPTION	Role Option Custom New Role/ Existing Roles which will assigned to Pluggable database administrator.	CUSTOM_NEW_ROLE



**Table 17-5 (Cont.) PDBaaS: Input Parameters for Pre and Post Request Creation Scripts**

Variable Name	Description	Example
INIT_PARAMS	The list of initialization parameter values that are set in the service template. The values are stored as paramName=paramValue[,paramName=paramValue].	*.open_cursors 300,*.cursor_sharing EXACT
CUSTOM_ROLE_NAME	The name of the database role which will be assigned to Pluggable database administrator.	PDBAAS_OCT_29_2013_02_27_A M
CUSTOM_ROLE_DESCRIPTION	The description for the new role to be created.	New db role to be assigned to pluggable database administrator.
PRIVILEGES	List of privileges of custom new role that will be applied on pluggable database administrator.	CREATE SESSION, ALTER SESSION, CREATE DIMENSION, CREATE INDEXTYPE, CREATE ANY OPERATOR, CREATE ANY PROCEDURE, CREATE ANY SEQUENCE, CREATE ANY INDEX, CREATE JOB, CREATE ANY MATERIALIZED VIEW, CREATE ANY TABLE, CREATE ANY TRIGGER, CREATE ANY TYPE, CREATE ANY VIEW, CREATE ANY SYNONYM, CREATE ANY DIRECTORY, SELECT ANY DICTIONARY
ROLES	Name of the database role which will be assigned to all the schemas.	Mynewrole1
DB_ORACLE_HOME_LOC	The oracle home of the chosen Container database.	/scratch/aime/oraclehomes/dbbase/ 121010/dbhome1
COMMON_DB_SID	The Database sid for the selected Container Database where the new PDB will be created.	cdb

## Input Parameters for PDBaaS Pre and Post Request Deletion Scripts

This table lists the input parameters for PDB as a service for pre and post request deletion scripts.

**Table 17-6 SchaaS: Input Parameters for Pre and Post Request Deletion Scripts**

Variable Name	Description	Example
DB_CONNECT_STRING	The connection string to establish a connection to the database.	DESCRIPTION = (ADDRESS = (PROTOCOL = TCP)(HOST = myhost.oracle.com)(PORT = 1521)) (CONNECT_DATA = (SERVER = DEDICATED)(SID= mypdb0001)))
PDB_NAME	PDB target name selected for deletion.	Mypdb001
HOST_NAME	The host name where the PDB chosen for deletion, resides.	Myhost.oracle.com

**Table 17-6 (Cont.) SchaaS: Input Parameters for Pre and Post Request Deletion Scripts**

Variable Name	Description	Example
DATABASE_CREDS	The named credentials used for connecting to the database.	MYDBCREDS:DBAAS_ADMIN
GI_CREDS	The named credentials used for connecting to the Grid Infrastructure in case of RAC.	MYHOSTCREDS:DBAAS_ADMIN
WORK_DIR	Temporary working directory	/tmp/myworkdir1
CUSTOM_DEL_PRE_SCRIPTS_URN	The URN of the directive in the software library which will be executed before the deletion of the PDB target.	oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:E9DE463D356E7433E04354B2F00A56C6:0.1
CUSTOM_DEL_POST_SCRIPTS_URN	The URN of the directive in the software library which will be executed after the deletion of the PDB target.	oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:E9DE463D356E7433E04354B2F00A56C6:0.1

## Sample Input Files

This section contains a few sample input files for DBaaS, Schema as Service, and PDB as a Service.

### Example 17-1 Sample Input File for DBaaS

```

ssaRequestId=2
ssaUser=ssa_user1
ssaTargetName=My Zone
ssaTargetType=self_service_zone
zoneTargetName=My Zone
zoneTargetType=self_service_zone
SEL_HOST=myhost.oracle.com
MEM_SIZE=2324
STORAGE_SIZE=2324
HOST_CREDS=AIME:SYSMAN
INIT_PARAMS=processes=150,cluster_database=FALSE,db_name=,open_cursors=300,
sga_target=1828716544,db_block_size=8192,audit_file_dest={ORACLE_BASE}/admin/
{DB_UNIQUE_NAME}/adump,diagnostic_dest={ORACLE_BASE},*.cpu_count=0,db_recovery
_file_dest={ORACLE_BASE}/fast_recovery_area,log_archive_format=%t_%s
_%r.dbf,compatible=11.2.0.0.0,audit_trail=DB,remote_login
_passwordfile=EXCLUSIVE,undo_tablespace=UNDOTBS1,db_recovery_file_dest
_size=4322230272,control_files=("{ORACLE_BASE}/oradata/{DB_UNIQUE
_NAME}/control01.ctl", "{ORACLE_BASE}/fast_recovery_area/{DB_UNIQUE
_NAME}/control02.ctl"),pga_aggregate_target=608174080
PROFILE_COMPONENT_URN=oracle:defaultService:em:provisioning:1:cmp:COMP
_Component:SUB_DbProfile:E9C8A650EFA5291DE04354B2F00AFF3E:0.1
DATABASE_TYPE=oracle_database
WORK_DIR=/tmp
DBAAS_SSA_CUSTOM_PRE_SCRIPTS_URN=oracle:defaultService:em:provisioning:1:cmp:COMP
_Directives:none:E9DE463D356E7433E04354B2F00A56C6:0.1
USER_NAME=rv
INSTANCE_COUNT=2
DB_ADMIN_PASSWORD_SAME=true
COMMON_DB_SID=db000000
COMMON_DOMAIN_NAME=mycompany.com
LISTENER_PORT=1527
COMMON_GLOBAL_DB_NAME=db000000.myhost.oracle.com

```

```
DB_ORACLE_HOME_LOC=/scratch/aime/oraclehomes/dbbase/112030/dbhome1
DB_ORACLE_BASE_LOC=/scratch/aime/oraclehomes/dbbase
TOTAL_MEMORY=0
SGA_MEMORY=1744
PGA_MEMORY=580
MEM_SIZE=2324
STORAGE_SIZE=2324
REF_ZONE=My Zone
REF_POOL=dbpool1
REF_HOST=myhost.oracle.com
REF_TGT= myhost.oracle.com
```

### Example 17-2 Sample SQL Script

```
REM --- your custom sql script ---
REM --- sample: select * from v$database ---
REM --- If there are more than one sql file all files can be uploaded to the same
component, and be called from the main script using
@/<staging location>/sqlfile1.sql ----
```

### Example 17-3 Sample Input File for Schema as a Service

```
ssaRequestId=1
ssaUser=SYSMAN
ssaTargetName=My Zone
ssaTargetType=self_service_zone
zoneTargetName=My Zone
zoneTargetType=self_service_zone
REQUEST_NAME=SYSMAN - Tue Oct 29 02:04:21 PDT 2013 CREATE_4_41
SERV_TEMPLATE_GUID=E9C5A1149C266846E04354B2F00A9D7B
CREATE_SCHEMA_OPTION=EMPTY_SCHEMAS
MAX_NUMBER_OF_SCHEMAS=4
REMAP_SCHEMA_LIST=MySchema
MASTER_ACCOUNT=MySchema
ROLE_NAME=schtemplatel_Oct_29_2013_02
SCHEMA_PRIVILEGES=CREATE SESSION,CREATE DIMENSION,CREATE INDEXTYPE,CREATE
OPERATOR,CREATE PROCEDURE,CREATE SEQUENCE,CREATE TABLE,CREATE TRIGGER,CREATE
TYPE,CREATE VIEW,CREATE SYNONYM
ENFORCE_STORAGE_CONSTRAINT=false
SCHAAS_CUSTOM_PRE_SCRIPTS_URN=oracle:defaultService:em:provisioning:1:cmp:COMP
_Directives:none:E9DE463D356E7433E04354B2F00A56C6:0.1
DBSERVICE_NAME=Service_88A370FC0FC1
DB_ORACLE_HOME_LOC=/scratch/aime/oraclehomes/dbbase/112030/dbhome1
COMMON_DB_SID=refdb
```

### Example 17-4 Sample Input File for PDB as a Service

```
ssaRequestId=3
ssaUser=SYSMAN
ssaTargetName=My Zone
ssaTargetType=self_service_zone
zoneTargetName=My Zone
zoneTargetType=self_service_zone
CREATE_PDB_OPTION=EMPTY_PDB
MAX_TABLESPACE_ALLOWED=2
ENFORCE_STORAGE_CONSTRAINT=true
TABLESPACE_ENCRYPTION_ALGORITHM=None
PDBAAS_CUSTOM_POST_SCRIPTS_URN=oracle:defaultService:em:provisioning:1:cmp:COMP_Directive
s:none:0008270085383BBDE0535C56F20AB27E:0.5
PDB_SID_PREFIX=PDB
PDB_ADMIN_USER_NAME=oracle
PDB_SERVICE_NAME_PREFIX=svc_pdbps1
PDBSERVICE_NAME=svc_pdbps1
```

```

ROLE_OPTION=CUSTOM_NEW_ROLE
INIT_PARAMS=*.open_cursors=300,*.cursor_sharing=EXACT
CUSTOM_ROLE_NAME=PDBAAS_JUN_12_2014_23_16_PM
CUSTOM_ROLE_DESC=New db role to be assigned to pluggable database administrator.
PRIVILEGES=CREATE SESSION,ALTER SESSION,CREATE DIMENSION,CREATE INDEXTYPE,CREATE ANY
OPERATOR,CREATE ANY PROCEDURE,CREATE ANY SEQUENCE,CREATE ANY INDEX,CREATE JOB,CREATE ANY
MATERIALIZED VIEW,CREATE ANY TABLE, CREATE ANY TRIGGER, CREATE ANY TYPE, CREATE ANY
VIEW, CREATE ANY SYNONYM, CREATE ANY DIRECTORY, SELECT ANY DICTIONARY
DB_ORACLE_HOME_LOC=/scratch/12c_rdbms/product/12.1.0/dbhome_1
COMMON_DB_SID=CDB06
PDB_NAME=pdbps1
PDB_CONNECT_STRING=(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)
(HOST=xx.example.com)(PORT=1531))) (CONNECT_DATA=(SERVICE_NAME=svc_pdbps1)
(INSTANCE_NAME=CDB06)(UR=A)(SERVER=DEDICATED)))
CDB_CONNECT_STRING=(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)
(HOST=xx.example.com)(PORT=1531))) (CONNECT_DATA=(SID=CDB06)))

```

## Sample PDBaaS Post Scripts

This section includes sample perl and sql scripts for PDBaaS.

### Example 17-5 Sample PDBaaS Perl Script

```

use Getopt::Long;
use File::Path;
use File::Spec;

#Store the passed input file path in a variable
my $fileName = $ARGV[0];

#Print the input file content as it is...
print "Printing the variable values received from cloud request ...\n";
open IN,"<",$fileName or die "Can't open file due to :$!";
while(<>){
    print $_;
}
close IN;

#Reads a text file with var=values pairs line delimited
#Setting the values in the environment
sub readDat {
#Grab the passed parameter
    my $filename = $_[0];
    my @Data;

#The ubiquitous $i counter
    my $i = 0;

#Register a filehandle
    local (*DATFILE);

#Open the file for read
    open (DATFILE, $filename) or print ( "Can't open $filename: $!");

#Read through the file one line at a time
FORA:while (<DATFILE>) {

#Skip over any comments
    if ( /#.* / ) {
        next FORA;
    }
}

```

```

#Clean up any extraneous garbage
    chomp;
    # no newline
    s/^\s+//;
# no leading white
    s/\s+$//;
# no trailing white

#           If clean up eliminated any data worth reading

#l     ets skip to the next line
next unless length;

#           We can't load the lines with $VARS as we will
#loose any values so we'll make sure to escape them
#(the $'s that is)
    s/\$/\\\$/g;

#localizing $var and $value to make sure
# they are clean out on every read.
    my ($var, $value) = split(/=/,$_);

#           Load variable into enviroment
    $ENV{$var}="$value";

    $i++;
}

}
print "Loading custom variables into ENV..\n";
readDat("custom_sample_variables.txt");
print "Print custom variables...\n";
print "VAR1=" . $ENV{'VAR1'} . "\n" ;
print "VAR2=" . $ENV{'VAR2'} . "\n";
print "VAR3=" . $ENV{'VAR3'} . "\n";

print "Loading cloud variables into ENV..\n";
readDat($fileName);

my $service_name="$ENV{'COMMON_DB_SID'}";
$ENV{"ORACLE_HOME"}="$ENV{'DB_ORACLE_HOME_LOC'}";

#find sid by parsing pmon process.
my $pmon_ora = ".*pmon_". $service_name . ".*";
my $process = `ps -eaf |grep $pmon_ora |grep -v grep`;
chomp($process);
my $sid = ( split "pmon_", $process )[-1 ];

$ENV{"ORACLE_SID"}= $sid;

print "Executing attached SQL ...\n";
my $CMD = $ENV{"ORACLE_HOME"} . "/bin/sqlplus / as sysdba
\@sample.sql $ENV{"PDB_NAME"}";

print "Firing SQL ...\n";
print "$CMD\n";
system($CMD);
my $ERROR_CODE = $?;
print "Error code is $ERROR_CODE \n";
if ( $ERROR_CODE == 0 )
{

```

```
        print "Script Completed\n";
    }
    else
    {
        print "Error occured while executing \n";
    }
}
```

#### **Example 17-6 Sample PDBaaS SQL Script**

```
alter session set container=&1;
REM --- you custom sql goes here ---
select name, con_id from v$pdb;
exit;
```

#### **Example 17-7 Sample PDBaaS RAC Script**

```
alter session set container=&1;
REM --- you custom sql goes here ---
select name, con_id from gv$pdb;
exit;
```

# 18

## DB Onboarding on DBaaS Cloud

This chapter covers the database onboarding on DBaaS cloud feature. It contains the following sections:

- [Introduction](#)
- [Prerequisites](#)
- [DB Onboarding on DBaaS Cloud: EMCLI Command and Input File Properties](#)

### Introduction

Database as a Service supports Database Lifecycle Management operations like Database Creation/Deletion, Startup/Shutdown, Backup/Restore, Patching etc. via Self Service Portal.

Self Service users have been able to provision and manage new Database services using these operations.

While adopting Database as a Service, an existing Database can now be assigned to Self Service user owning the database, for management of DB from Self Service portal. This can be achieved by discovering an EM managed DB instance as an EM Cloud instance.

### Prerequisites

- Target Oracle Database must be discovered in Enterprise Manager.
- Database Host(s) must be added to a destination PaaS Infrastructure Zone.
- Database Software Home(s) must be added to a destination Database Software Pool.
- Grant privileged rights to the CLOUD\_ENGINE\_USER account to the MASTER and DEST\_DB\_CRED credentials as shown below:

```
- grant_privs -name=CLOUD_ENGINE_USER -  
  privilege="FULL_CREDENTIAL;CRED_NAME=MASTER:CRED_OWNER=<owner name>"  
  
- grant_privs -name=CLOUD_ENGINE_USER -  
  privilege="FULL_CREDENTIAL;CRED_NAME=<DEST_DB_CRED Name>;CRED_OWNER=<owner  
  name>"
```

### DB Onboarding on DBaaS Cloud: EMCLI Command and Input File Properties

This section provides details on DB Onboarding on DBaaS cloud using EMCLI command:

```
$ emcli db_cloud_maintenance -relocateService -discoverOnly=true -  
input_file="data:<absolute_path_to_input_file>"
```

**Input file properties:**

```
DEST_TARGET_NAME=<EM Target name of the DB Target to be managed via Self
Service Portal>
DEST_TARGET_TYPE=<oracle_database|rac_database>
DEST_POOL_NAME=<Name of the DB Software Pool which contains the target DB
ORACLE_HOME>
DEST_POOL_TYPE=oracle_cloud_zone
DB_SERVICE_NAME=<Name of the new DB service that will be created for the DB
Target>
DEST_DB_CRED=<EM Named Credential for Target DB SYS user in the format
CREDENTIAL_NAME:CREDENTIAL_OWNER>
MASTER_USER_CREDS=<EM Named Credential for DB Master Account user in the
format CREDENTIAL_NAME:CREDENTIAL_OWNER. Master account user will be created
in the DB>
SSA_USER=<Username of EM SSA user with EM_SSA_USER role privileges>
```

 **Note:**

- In case the target DB is in Dataguard Configuration, only primary DB will be discovered.
- This is an administrator driven operation to be initiated by an EM administrator with EM\_SSA\_ADMINISTRATOR role privileges.



# 19

## DB Relocation

This chapter covers the database relocation feature. It contains the following sections:

- [Introduction](#)
- [Pre-requisites](#)
- [DB Relocation: EMCLI Command and Input File Properties](#)

### Introduction

Typically, a database outlives the hosting platform. EM Database as a Service now provides support to migrate an existing database to a new DB Software Pool. This functionality will allow the DB administrators to migrate DBs to a new platform when existing platform is obsolete.

### Pre-requisites

- If the target DB is in NOARCHIVELOG mode, ARCHIVELOG mode would be enabled.
- Oracle Home owner must be consistent across source and destination DB Software Pools.
- PaaS Infrastructure Zone hosting the destination DB Software Pool must be different from the PaaS Infrastructure Zone hosting the DB Target.
- DB versions for source and destination DB Software Pools must be same.
- Destination DB Software Pool must be added to the Service Template associated with the Target DB
- The host where you are going to relocate the source DB should also have the same listener port discovered in the EM as the source DB.
- In case of a DB in Dataguard Standby configuration, destination DB software pool for primary DB must be added to Primary Pools in the Service template and destination DB software pool for Standby DB must be added to:
  - standby pools for the destination pool for primary database and
  - standby pools in the service template.

### DB Relocation: EMCLI Command and Input File Properties

This section provides details on DB Relocation using EMCLI command:

```
$ emcli db_cloud_maintenance -relocateService -  
input_file="data:<path_to_input_file>"
```

Input file properties:

```
#Mandatory properties  
SRC_TARGET_NAME=<EM target name of the srouce DB>  
SRC_TARGET_TYPE=<oracle_database|rac_database>  
DEST_HOST_NAME=<EM target name of the destination host>
```

```
DEST_POOL_NAME=<Destination Pool>
SRC_DB_CRED=<EM Named Credential for Target DB SYS user in the format
CREDENTIAL_NAME:CREDENTIAL_OWNER>
#Optional properties
DELETE_SRC_TARGET=Y #If you want to delete the target DB and EM target for
the target DB
DEST_TARGET_NAME=<New EM target name for the destination DB>
SELECT_ORACLE_HOME_OPTION=RUNTIME #If destination host in the destination
pool is to be selected automatically
DEST_DATABASE_AREA=<absolute_path_to_destination_datafiles_location> #Only
required if different at destination
DEST_FAST_RECOVERY_AREA=<absolute_path_to_destination_fast_recovery_area>
#Only required if different at destination
```

 **Note:**

- This functionality is not supported for Snap Clone Database(s).
- This is an administrator driven operation to be initiated by an EM administrator with EM\_SSA\_ADMINISTRATOR role privileges.

# PDB Onboarding on DBaaS Cloud

This chapter covers the PDB Onboarding on DBaaS Cloud feature. It contains the following sections:

- [Introduction](#)
- [Pre-requisites](#)
- [PDB Onboarding on DBaaS Cloud: EMCLI Command and Input File Properties](#)

## Introduction

Currently, Database as a Service for multitenant DB architecture supports Pluggable Database Lifecycle operations like Creation/Deletion, Start/Stop, Backup/Restore, Patching etc. With PDBaaS adoption in EM environments with existing Pluggable Database(s), an existing Pluggable Database can now be assigned to a Self Service user owning the database, for management of PDB from Self Service portal.

## Pre-requisites

- Target Pluggable Database must be discovered in Enterprise Manager
- Pluggable Database Host(s) must be added to a destination PaaS Infrastructure Zone.
- Parent Container Database(s) for Pluggable Database must be added to a destination Pluggable Database Pool.

## PDB Onboarding on DBaaS Cloud: EMCLI Command and Input File Properties

This section provides details on PDB Onboarding on DBaaS Cloud using EMCLI command:

```
$ emcli db_cloud_maintenance -relocateService -discoverOnly="true" -
input_file="data:<absolute_path_to_input_file>"
```

Input file properties:

```
DEST_PDB_NAME=<EM Target name of the Pluggable Database>
DEST_CDB_TARGET_NAME=<EM Target name of the destination Container Databas>
DEST_CDB_TARGET_TYPE=<oracle_database|rac_database>
PDBSERVICE_NAME=<Name of the service to be created for the target Pluggable
Database>
DEST_CDB_POOL_NAME=<Destination Pluggable Database Pool name>
DEST_CDB_CRED=<EM Named Credential for Target Container Database SYS user in
the format CREDENTIAL_NAME:CREDENTIAL_OWNER>
MASTER_USER_CREDS=<EM Named Credential for Master Account user to be created
in Target Pluggable Database in the format CREDENTIAL_NAME:CREDENTIAL_OWNER>
PDBAAS_SSA_USER=<Username of EM SSA user with EM_SSA_USER role privileges>
```

 **Note:**

This is an administrator driven operation to be initiated by an EM administrator with EM\_SSA\_ADMINISTRATOR role privileges.

# 21

## PDB Relocation

This chapter covers the PDB Relocation feature. It contains the following sections:

- [Introduction](#)
- [Pre-requisites](#)
- [PDB Relocation: EMCLI Command and Input File Properties](#)

### Introduction

Enterprise Manager Pluggable Database as a Service now provides support to migrate an existing pluggable database to a new Pluggable Database pool. This functionality will allow the DB administrators to migrate PDBs to a new platform when existing platform is obsolete.

### Pre-requisites

- Destination CDB must either be part of the same Pluggable Database Pool as the target PDB or it must be a part of a Pluggable Database pool on a PaaS Infrastructure Zone different than the target PDB.
- Destination Pluggable Database Pool must be added to the Service Template associated with the target PDB.
- Source and Destination Pluggable Database Pool version must be same.

### PDB Relocation: EMCLI Command and Input File Properties

This section provides details on PDB Relocation using the EMCLI command:

```
$ emcli db_cloud_maintenance -relocateService -  
input_file="data:<absolute_path_to_input_file">
```

Input file properties:

```
SRC_PDB_TARGET_NAME=<EM Target name of the PDB to be relocated>  
DEST_CDB_TARGET_NAME=<EM Target name of the destination Target Container DB,  
optional, required when SELECT_TARGET_OPTION=RUNTIME is not used>  
DEST_CDB_TARGET_TYPE=<oracle_database|rac_database>  
STORAGE_LOCATION=<Optional, Storage location for destination PDB>  
DEST_WORK_DIR=<Optional, absolute path to temporary work directory at  
destination>  
SELECT_TARGET_OPTION=RUNTIME<Optional, needed if destination CDB needs to be  
selected automatically>  
DEST_CDB_POOL_NAME=<Optional, Destination Pluggable Database Pool name needed  
only when SELECT_TARGET_OPTION parameter is specified>  
USE_SAME_STORAGE_LOCATION=Y<Optional, needed in case PDB relocation is to be  
performed without moving PDB datafiles, target PDB datafile(s) storage  
location must also be accessible to destination Container DB>  
WORKLOADS=<Optional>, to be specified if during relocate, the instance needs
```

to be associated with the different workload size. The given workload must exist in the Service template.>

PDBAAS\_CUSTOM\_PRE\_SCRIPTS\_URN=<Optional>, if not specified, pre script configured in the Service Template associated with this instance will be selected>

PDBAAS\_CUSTOM\_POST\_SCRIPTS\_URN=<Optional>, if not specified, post script configured in the Service Template associated with this instance will be selected>

 **Note:**

If Storage location is not in the input file, then it will be picked from the associated Service Template.

This is an administrator driven operation to be initiated by an EM administrator with EM\_SSA\_ADMINISTRATOR role privileges.

# 22

## PDB Instance Resize

This chapter covers the PDB Instance Resize feature, and contains the following sections:

- [Introduction](#)
- [Prerequisites](#)
- [PDB Resize: Self-service Portal](#)
- [PDB Resize: EMCLI Command](#)
- [Limitations](#)

### Introduction

You can resize an OEM DBaaS Pluggable Database instance by initiating a resize operation to a workload size defined in the corresponding service template. This resize operation ensures sufficient availability and effective utilization of resources.

**Table 22-1 Impacted Pluggable Database Initialization Parameter Values**

Parameter	Description
Session	Pluggable database sessions parameter is updated as per the new workload size.
Storage	Pluggable Database <code>MAX_PDB_STORAGE</code> parameter is impacted if <b>Pluggable Database Storage -&gt; Maximum Size</b> is set to <b>Specified by the workload size selected at request time</b> in the corresponding service template.
CPU	If DB version < 12.2, CPU constraint is enforced using PDB Resource Plan Directive <code>utilization_limit</code> , if <b>Enable Resource Manager for CPU</b> is selected in Pluggable Database Pool. if DB version >= 12.2, in addition to Resource Plan Directive <code>utilization_limit</code> , pluggable database <code>cpu_count</code> parameter is set as per the new workload size.
Memory	If DB version < 12.2, memory parameter is not enforced. If DB version >= 12.2, Pluggable database <code>SGA_TARGET</code> and <code>PGA_AGGREGATE_TARGET</code> parameters are updated as per the new workload memory value. <ul style="list-style-type: none"><li>• <code>SGA_TARGET</code> =&gt; 75 percent of the total memory specified in the new workload.</li><li>• <code>PGA_AGGREGATE_TARGET</code> =&gt; 25 percent of the total memory specified in the new workload.</li></ul>

### Prerequisites

The prerequisites to perform a resize operation are:

- `NONCDB_COMPATIBLE` parameter must be set to false in the CDB for enforcing pluggable database memory constraints.
- For the CDB, `memory_target` parameter value must be zero.
- CDB `sga_target` must be higher than pluggable database `sga_target`. (PDB `sga_target` value is set to 75 percent of the total memory specified in the new workload.)

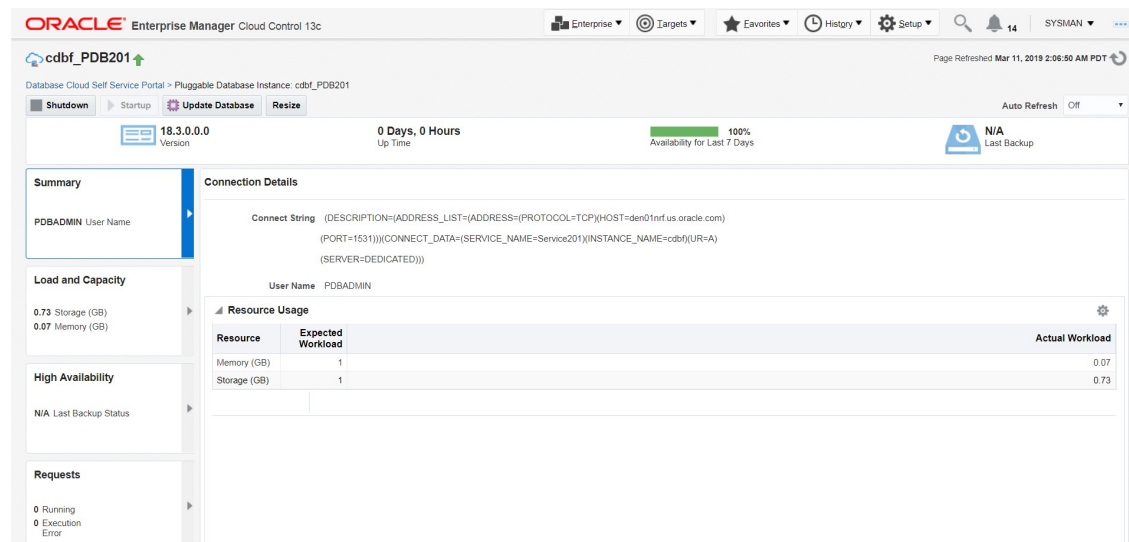
- CDB `pga_aggregate_limit` must be more than twice the PDB `pga_aggregate_target`.
- CDB `pga_aggregate_target` must be higher than pluggable database `pga_aggregate_target`. (Resize operation updates pluggable database `pga_aggregate_target` value as 25 percent of total memory specified in the new workload size.)

An Enterprise Manager Administrator with `EM_SSA_ADMINISTRATOR` or `EM_SSA_USER` role can initiate the PDB Instance resize operation.

## PDB Resize: Self-service Portal

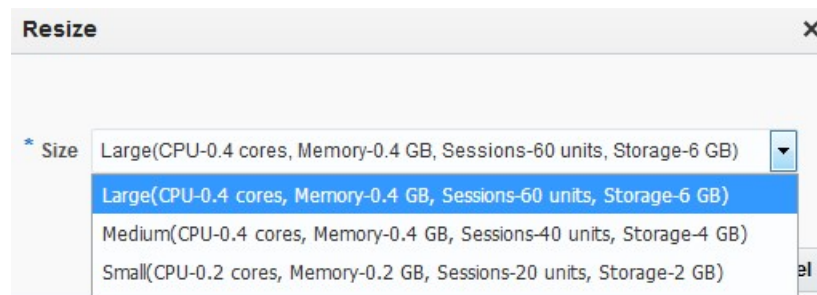
You can use the **Resize** button to initiate a resize operation. However, the **Resize** button is enabled only if the service template for PDB has more than one workload.

Figure 22-1 PDB Resize



After the **Resize** button is clicked, you can select a size from the drop-down list.

Figure 22-2 Resize Options





## PDB Resize: EMCLI Command

This section provides details on resizing PDB instance using EMCLI command:

```
$ emcli db_cloud_maintenance -resizeService -pdbName="<pdb target name>" -  
workloadName="<workload name to be used for resizing>"
```

## Limitations

The limitations for performing a resize operation are:

- If the PDB actual storage consumption is greater than the storage value in the new workload, PDB scale down operation is not possible.
- If sufficient resources are not available on the target host for resizing PDB, the PDB Relocation feature must be used. For more information, refer [PDB Relocation](#).

# PDB Upgrade using Fleet Maintenance

This chapter covers the PDB Upgrade using Fleet Maintenance feature. It contains the following sections:

- [Introduction](#)
- [Prerequisites](#)
- [Preconfiguration for Upgrade](#)
- [Upgrading PDB](#)

## Introduction

Fleet Maintenance provides solution for upgrading PDBs provisioned on Enterprise Manager DBaaS cloud. This solution implements an out of place upgrade of a PDB by relocating the target PDB to a Container Database at a higher version and other existing PDBs running in the container are not impacted.

## Prerequisites

- Create a successor pluggable database pool containing CDBs at a higher version to which the target PDB will be relocated as part of upgrade. For example, if you want to upgrade PDB version 12.1.0.2 to 19.1.0.1, create a successor PDB pool with CDBs at DB version 19.1.0.1.
- Create a successor service template which is configured to provision in the successor pool.
- Oracle Application Express version on the source CDB hosting the target PDB and CDBs in the successor pool must be same.
- PDB pool must have privileged credentials configured.
- Update implication of request settings to the discovered instance.

## Preconfiguration for Upgrade

This section provides preconfiguration details for upgrade:

Configure a successor pool using the following command:

```
$ emcli db_cloud_maintenance -performOperation -purpose="ATTACH_POOL" -
pool_name="<Pluggable Database Pool name hosting the target PDB>" -
pool_type="pdbaas_pool" -name="Attach successor pool" -description="Attach
pool" -destPool="<EM Target name of the successor Pluggable Database Pool >" -
destPoolType="pdbaas_pool"
```

Configure a successor service template using the following command:

```
$ emcli db_cloud_maintenance -performOperation -purpose="ATTACH_ST" -
stName="<Name of the service template associated with PDB target to be
upgraded>" -name="Attach successor ST" -description="Attach ST" -
destST="<Name of the successor service template"
```

 **Note:**

The onboarding operation can be reversed by an administrator using the following command:

```
emcli cleanup_dbaas_requests -ids=<request ID> -removeMetadataOnly
```

The parameter `-removeMetadataOnly` deregisters the database and the pluggable database (PDB) from EM DBaaS Self Service Portal.

The database instance is monitored or managed as an EM target.

## Upgrading PDB

This section provides details on upgrading PDB using EMCLI command:

```
$ emcli db_cloud_maintenance -performOperation -purpose="UPGRADE_PDB" -
pool_name="<Pluggable Database Pool name hosting the target PDB>" -
pool_type="pdbaas_pool" -name="Upgrade PDB to new CDB" -
target_type=oracle_pdb -description="Relocates the PDB" -target_list="<EM
Target name of the PDB to be upgraded>" -input_file="data:<absolute path to
input file> " -destCDB=<EM Target name of the destination CDB>
```

**Optional Parameter:**

`destCDB=<EM Target name of the target CDB to which PDB target is relocated as part of upgrade process.>`

**Input file Parameters:**

`WORKLOADS=<Workload size name from the successor service template to be associated with upgraded PDB>`

`USE_SAME_STORAGE_LOCATION=Y` #Optional parameter to be used only with `-destCDB`, when PDB is to be upgraded without moving the datafiles.

# Part VIII

## Monitoring the PaaS Cloud

This section describes how to administer and monitor Database as a Service (DBaaS). It contains the following chapter:

- [Administering and Monitoring a PaaS Cloud](#)

# Administering and Monitoring a PaaS Cloud

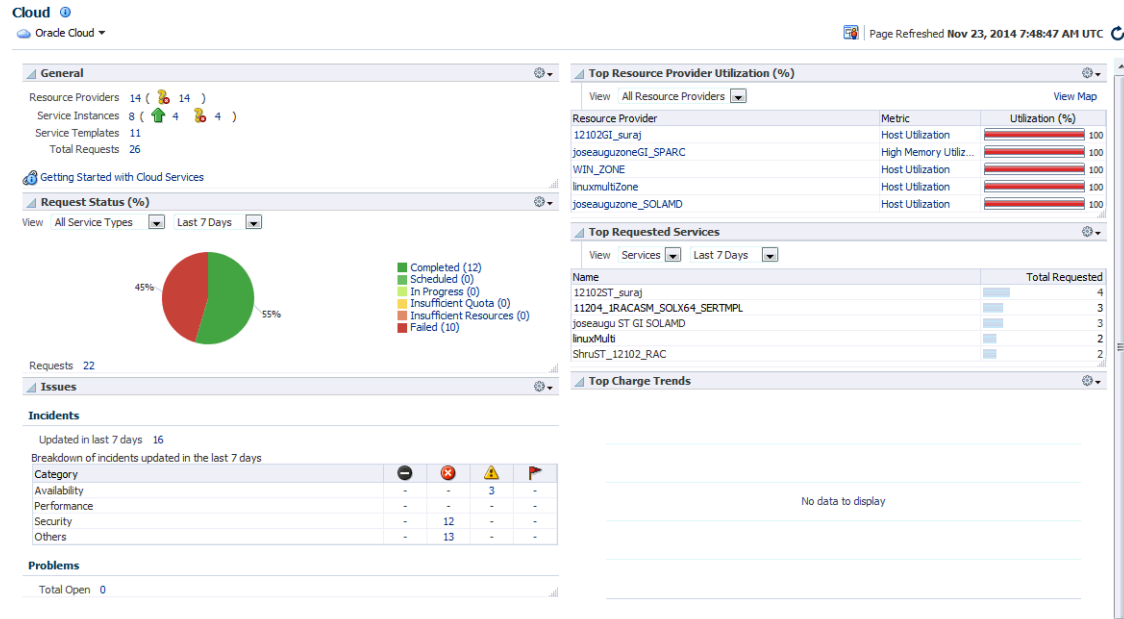
This chapter describes the different options that are available to monitor the DBaaS service. It contains the following sections:

- [Viewing the Cloud Home Page](#)
- [Viewing the List of Resource Providers](#)
- [Viewing the List of Service Templates](#)
- [Viewing the List of Service Instances](#)
- [Viewing the Cloud Request Dashboard](#)
- [Viewing All Cloud Requests](#)
- [Viewing the PaaS Infrastructure Zone Home Page](#)
- [Viewing the Database Pool Home Page](#)
- [Viewing the Schema Pool Home Page](#)
- [Viewing the Pluggable Database Pool Home Page](#)
- [Viewing the Cloud Services Reports](#)

## Viewing the Cloud Home Page

After the cloud services have been set up, and one or more self service users have submitted requests, you can view a unified view of the different service types on the Cloud Home page. You can use the rolled up data to identify problem areas and drill down for more details. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home** to navigate to this page.

Figure 24-1 Cloud Home Page



**Note:**

- To view this page, you must have **View** privilege on the Cloud target. Out-of-the-box user roles have this privilege by default.
- You can use the **Personalize** option to customize the Cloud Home page. This option allows you to add or delete regions, change the page layout, and so on.

- General:** This region shows the following:
  - Resource Providers:** The total number of PaaS Infrastructure zones and software pools that have been created is displayed. Click on the link to drill down to the Resource Providers page.
  - Service Templates:** The total number of service templates that have been defined.
  - Total Requests:** The total number of requests for configured cloud services. Click on the link to drill down to the All Requests page.
  - Service Instances:** The total number of members that are up or down. Click on the link to drill down to the Service Instances page.
- Request Status:** The status of service requests during a specific period. By default, the request status over the last 24 hours is displayed but you can select another duration such as 7 days, 30 days, and so on. You can view the request status for all requests or for a specific service type. To view the status for a specific service type, select type from the View drop down list.
- Issues:** The availability, performance, security, and other incidents across all the configured service providers.
- Top Resource Provider Utilization:** This region shows the Top level resource utilization for the configured resource providers. For example, the CPU and Memory Utilization for a

PaaS Infrastructure Zone. To view more details, click the **View Map** link at the top of the region. This displays the Heat Map page with detailed information on the resource provider utilization. The number of resource providers and the threshold value to calculate color can be configured by using the **Personalization** feature.

- **Daily Charge for the Last 30 Days:** Shows rolled up chargeback data across all service types.
- **Top Requested Services:** This region lists the most requested service templates. You can see service utilization trend by user or service template for a selected period which can be 24 hours, 7 days, or 30 days.

The following options are available from the Cloud Home menu.

 **Note:**

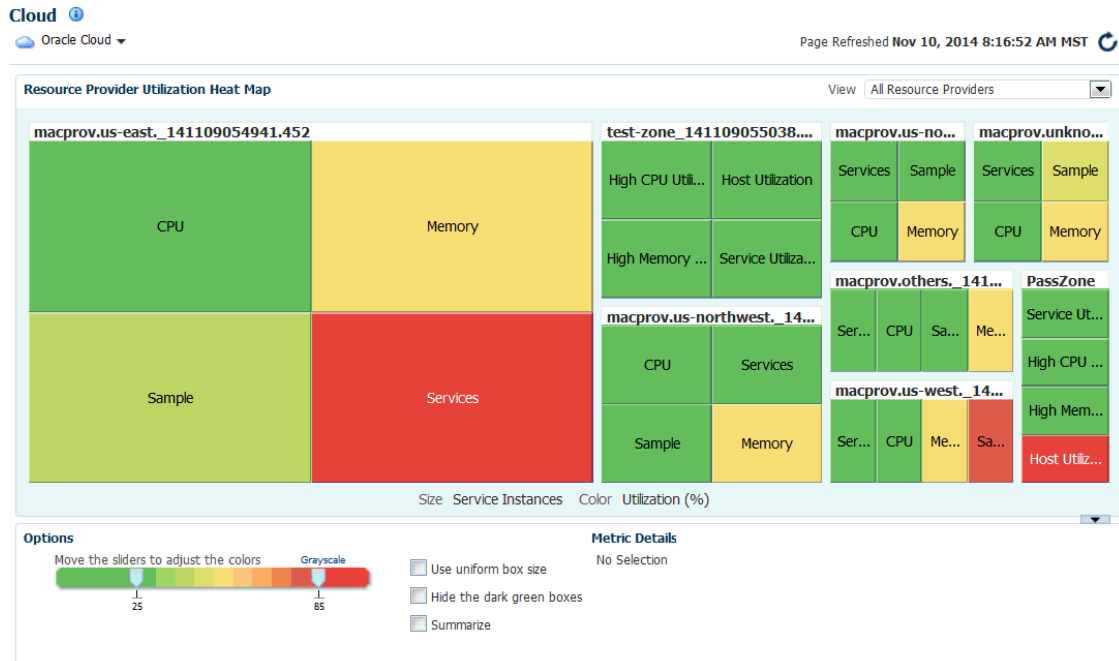
The following pages can be accessed only by users with the `EM_SSA_ADMINISTRATOR` role. To modify these pages, the users must have **Manage** privilege on the corresponding services and families. Out-of-the-box administrators have this privilege by default.

- **Resource Providers:** You can see the list of resource providers for which you have at least View Target Privilege. You can create a new resource provider, edit, or delete an existing resource provider.  
**Note:** To create a new service provider, you must have Create Target Privilege on that resource provider target type.
- **Service Templates:** Use this option to the Service Templates page from where you can create, edit, and delete service templates across different service families.
- **Services Instances:** Shows a list of service instances.
- **Requests:** Use this option to view all the requests, or view a summary in the Request Dashboard page.
- **Setup:** The Setup menu allows you to define global settings across the different service types. The following options are available:
  - **Getting Started:** The Getting Started page lists the minimum tasks that are required to configure a service type and the order in which these tasks must be completed. This page is useful to self service administrators who are not familiar with the product.
  - **Service Settings:** Allows you to specify service specific settings.
  - **Request Settings:** Allow you to specify request settings at many different levels (from all services to a specific service type).
  - **Quotas:** Allows you to define quota for each service family.
  - **Data Sources:** Used to launch the Create Profile and Create Test Master wizards if required by the service type.

## Viewing the Resource Provider Utilization Heat Map

From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. On the Cloud Home page, click the View Map link in the Top Resource Provider Utilization% region to view the Resource Provider Utilization Heat Map.

**Figure 24-2 Resource Provider Utilization Heat Map**



This page shows the utilization metrics for all resource providers such as PaaS Infrastructure Zones, Database Pools, and Middleware Pools. The heat map provides a graphical representation of the resource provider utilization. On the Heat Map view, metrics are represented as boxes and the size and color of each box depicts potential problem areas. Select a box and click on a metric value to navigate to the Metric History page.

## Viewing the List of Resource Providers

A resource provider is an entity that contains the actual resources required to provision the cloud services of a specific service type.

1. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home** to navigate to the Cloud Home page.
2. From the **Cloud Home** menu, select **Resource Providers** to see a list of resource providers.

The following information is displayed for Resource Providers:

- **Name:** The name of the resource provider.
- **Type:** The type of resource provider, this can be:
  - PaaS Infrastructure Zone
  - Database Pool
  - Schema Pool
  - Pluggable Database Pool
- **Owner:** The user who created the resource provider.
- **Parent:** If the resource provider has a parent, it is listed here. For example, a PaaS Infrastructure Zone is the parent for a middleware or database pool.



- **Members:** The members associated with the resource provider (this includes member type and number of members).
  - **Service Instances:** The service instance associated with the resource provider. Click on the link to drill down to the Home page.
  - **Description:** A description of the resource provider specified by the administrator while creating the resource provider.
3. Click **Create** to enter a new Resource Provider.
  4. **Edit** allows you to modify the Resource Provider fields.
  5. Click **Delete** to remove a Resource Provider.

## Viewing the List of Service Templates

From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. From the **Oracle Cloud** menu, select **Service Templates** to view this page.

**Figure 24-3 Service Templates Page**

Display Name	Service Family	Service Type	Owner	Resource Providers	Service Instances	Description
ADST_Suraj	Databases	Database	SURARAY1	1	1	
LINUX_11203_11204_DBTMP	Databases	Database		1	1	
LINUX_DBCA_1124_UPGRADE	Databases	Database		1	1	
Orchestration	Infrastructure - Nimbula	Orchestration	SYSMAN	n/a	0	Create a set of Oracle VM instances with cus...
SIHA_WINDOWS_112045_PATCH_CM	Databases	Database		1	4	
ST_AIX_TM_PROFILE	Databases	Database		1	0	
Simple Orchestration	Infrastructure - Nimbula	Orchestration	SYSMAN	n/a	0	Create one or more Oracle VM instances wit...
VM Instance	Infrastructure - Nimbula	Oracle VM Instance	SYSMAN	n/a	0	Create an Oracle VM Instance
WBST_Suraj	Databases	Database	SURARAY1	1	1	
JoseguSOLAMD ST	Databases	Database		1	0	
new st ax	Databases	Database		1	1	

This page shows a list of all the service templates that are available to the self service administrator across the different service families. For each service template, the following details are displayed:

- Name of the service template
- The service family to which belongs (for example, Database, Middleware, and so on).
- The type of service.
- The owner of the service.
- The resource providers associated with the service template.
- The number of service instances associated with the service template.
- A description of the service template.

You can perform the following actions:

- **Create:** Select this option to launch the Create Service Template wizard.
- **Create Like:** Select this option to create a copy of an existing service template.
- **Edit:** Select a service template and click **Edit** to modify an existing template. Click Submit after modifying the template to update the template.
- **Delete:** Select a service template and click **Delete** to delete the template.

- **Grant and Revoke Privileges:** The `EM_SSA_ADMINISTRATOR` can grant or revoke service template privileges to other users with the `EM_SSA_ADMINISTRATOR` role.

## Granting, Revoking, and Reassigning Service Template Privileges

The owner (the self service administrator who has created the template, or the `SUPER_USER` can grant or revoke privileges over a service template to one or more users or roles. Only the `SUPER_USER` can grant or revoke privileges over all service templates to other users and roles.

- **Grant Privileges:** Select the service template for which privileges are to be granted and select **Grant** from the **Actions** menu.

To grant privileges to other users, select **User** in the Type drop down list and click **Search**. A list of users to whom the privileges can be granted is displayed. Select one or more users from the list and click **Grant** to grant the privilege.

In the Select **Privilege to Grant** drop down list, select **Manage** or **Full** to grant the privilege to the user. To allow users to edit, and modify the configuration in the service template, select **Manage** access. To allow users to edit, delete, and modify the service template, select **Full** access.

To grant privileges to one or more user roles, select **Role** in the Type drop down list and click **Search**. A list of roles to whom the privileges can be granted is displayed. Select one or more roles from the list and click **Grant** to grant the privilege.

- **Revoke:** Select a service template for which privileges have been granted and click **Revoke**. In the **Search** drop down list, you can select one of the following:
  - Name: The name of the user to whom the privilege has been granted.
  - Type: Select the type which can either be User or Role to whom the privilege has been granted.
  - Privilege: The type of privilege that has been granted which can be View, Manage, or Full.

Based on the search criteria, the list of users or roles to whom the privileges have been granted is displayed. Select the users or roles for whom the privileges are to be revoked and click **Revoke**.

- **Reassigning a Service Template:** Login as a Super Administrator user, select the template and click **Reassign** to reassign the ownership of the service template to another user. Select the user and click **Reassign** to reassign the service template.

## Viewing the List of Service Instances

The Service Instance page shows the list of all service instances. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. From the **Oracle Cloud** menu, select **Service Instances** to view this page.

**Figure 24-4 Service Instances Page**

Cloud Oracle Cloud Page Refreshed Nov 23, 2014 8:02:49 AM UTC

**Service Instances**

Actions View Start Stop History Delete Search Created By Advanced Search

Name	Status	Service Type	Resource Provider	Service Template	Created By	Policies	Creation Date	Expires In
db000009		Database	SOLX64_POOL	11204_IRACASM_...	SSA_USER11		0 Nov 18, 2014	
db000008		Database	SOLX64_POOL	11204_IRACASM_...	SSA_USER11		0 Nov 18, 2014	

The following details are displayed:

- **Service Instance Name:** The name associated with the service instance. Click on the link to drill down to the target home page.
- **Status:** The status of the service instance.
- **Service Instance Type:** The type of request (Middleware or Database).
- **Resource Provider:** The Resource Provider with which the instance is associated.
- **Service Template:** The service template that was used to create the service instance.
- **Policies:** The number of policies associated with the service instance. Click on the link to drill down to the Policies page.
- **Created By:** The user who created this service instance.
- **Creation Date:** The date on which the service was created.
- **Expiry Date:** The date on which the service will expire and no longer be available.

You can perform the following actions:

 **Note:**

You must have **Manage** privilege on the service types on which these operations are to be performed. This privilege is assigned to the out-of-the-box self service administrators roles by default.

- **Start:** Select a service instance that has been stopped and click **Start** to start the service.
- **Stop:** Select a service that is running and click **Stop** to stop the service.
- **Delete:** Select a service and click **Delete**. You are prompted to specify the schedule and indicate whether the service instance is to be deleted immediately or at a later date. Select the schedule and click **OK** to delete the request.
- **History:** Select a service and click **History** to view a list of all actions that have been performed on the service instance.
- **Grant, Revoke, and Reassign Privileges:** See [Granting, Revoking, and Reassigning Privileges to Service Instances](#)

## Granting, Revoking, and Reassigning Privileges to Service Instances

The self service administrator can grant or revoke privileges over a service instance to one or more users or roles. Self service users can also grant or revoke privileges over service instances they own. The user who created the service instance (owner) or the SUPER\_USER can reassign the ownership of a service instance to another user.

To grant or revoke access to a service instance, the self service administrator must select **Enterprise > Cloud Home > Setup > Request Settings** and enable the following flags:

- Enable self service user to share service instances with other Users.
- Enable self service user to share service instance Roles.

These settings can be defined either at global level, service family level, or at other User or Role level. See [Creating a PaaS Infrastructure Zone](#) for details.

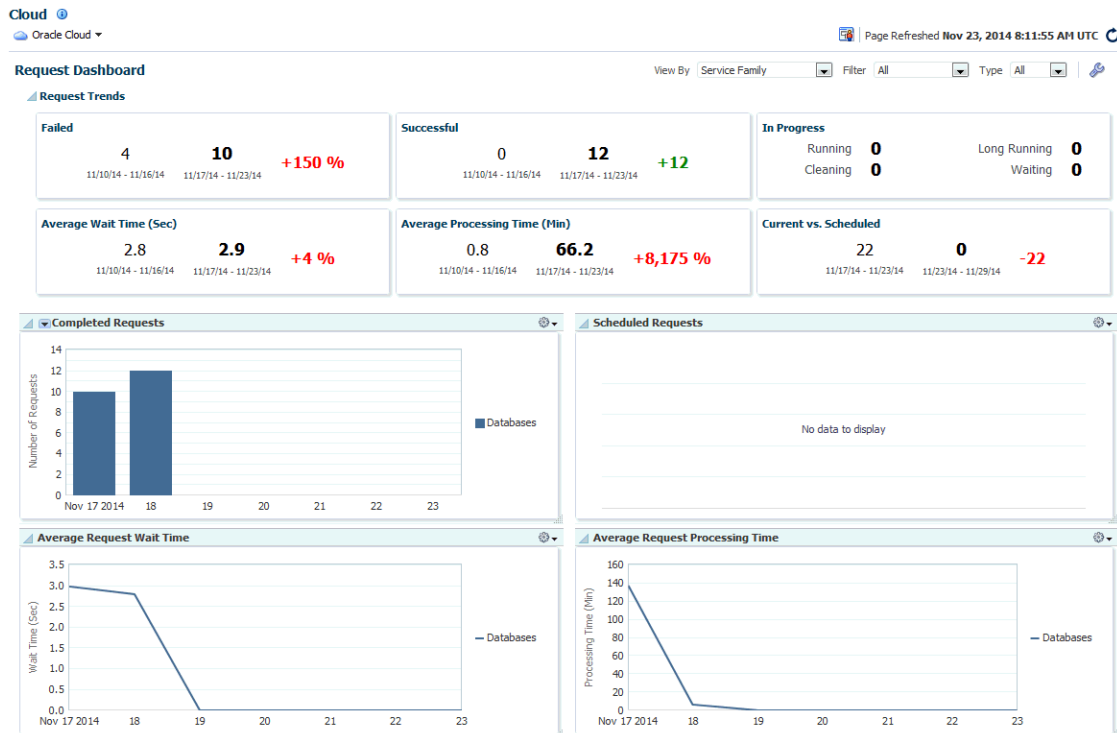
- **Grant Privileges:** Select the service instance for which privileges are to be granted and select **Grant** from the **Actions** menu.  
  
To grant privileges to other users, select **User** in the Type drop down list and click **Search**. A list of users to whom the privileges can be granted is displayed. Select one or more users from the list and click **Grant** to grant the privilege.  
  
In the Select **Privilege to Grant** drop down list, select **View**, **Manage**, or **Full** to grant the privilege to the user. To allow users to edit, and modify the configuration in the service instance, select **Manage** access. To allow users to edit, delete, and modify the service instance, select **Full** access. To provide users with read only access, select **View** access.  
  
To grant privileges to one or more user roles, select **Role** in the Type drop down list and click **Search**. A list of roles to whom the privileges can be granted is displayed. Select one or more roles from the list and click **Grant** to grant the privilege.
- **Revoke:** Select a service instance for which privileges have been granted and click **Revoke**. In the **Search** drop down list, you can select one of the following:
  - Name: The name of the user to whom the privilege has been granted.
  - Type: Select the type which can either be User or Role to whom the privilege has been granted.
  - Privilege: The type of privilege that has been granted which can be View, Manage, or Full.  
Based on the search criteria, the list of users or roles to whom the privileges have been granted is displayed. Select the users or roles for whom the privileges are to be revoked and click **Revoke**.
- **Reassigning a Service Instance:** Login as a Super Administrator user, select the instance and click **Reassign** to reassign the ownership of the service instance to another user. Select the user and click **Reassign** to reassign the service instance.

## Viewing the Cloud Request Dashboard

The self service administrator can use the Cloud Request Dashboard to track the status of all database and middleware requests. The self service administrator can view the requests across all resource providers for all users. The requests the self service administrator can view depends on the instance level privileges. All trends and graphs on this page apply to the current filter and time period specified. By default, the status across all services over the last 7 days is displayed.

From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. From the **Oracle Cloud** menu, select **Requests**, then select **Dashboard** to view the cloud request dashboard.

Figure 24-5 Cloud Request Dashboard



The following charts are displayed:

- **Request Trends:** You can view recent trends for Failed, Successful, Average Wait Time, Average Processing Time and Scheduled requests. Trends are shown across two time periods (for example, previous week, current week). Click the drop down list in the Completed Requests chart to filter and view failed, successful, partially successful, or completed requests.
- **Average Request Wait Time:** The elapsed time from which a request is scheduled to start and its actual start time.
- **Average Request Processing Time (Zone):** The average time taken to process the request for the selected criteria. For example, if a specific service template is selected as the filter criteria, then the average time taken to create the service instance from the selected service template in the specified time period (last 24 hours, last 7 days, or last 30 days) is displayed.

You can choose to filter the requests listed on the page by selecting a value in the **View By** drop down list and specifying the **Filter** value and the **Type**. For example, if you select **Resource Provider** in the **View By** drop down list, and **All** in the **Filter** column, and **Create** in the Type column, you will see the Create requests for all resource providers.

You can click the **Edit** (wrench icon) option to edit the layout of the Request Dashboard page. The following service settings can be modified:

- **Summary Columns:** The number of columns that can be displayed in the Summary region.
- **Long Running Threshold:** The percentage of average processing time used to determine if the time taken to complete a request is longer than normal.

- **Maximum Chart Items:** The maximum number of resource providers, service types or service families that can be shown in each chart. The remaining items are listed in the All Others category.
- **Include Archived Requests:** Select this check box to include deleted but not yet purged requests in the charts. This option is useful in providing a more accurate picture of the total number of requests processed during the time periods
- **Chart Time Period:** The default view period (7 days) for the chart.

Modify the values as required and click **OK**. To restore the earlier settings, click **Restore Defaults**.

## Viewing All Cloud Requests

From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. From the **Oracle Cloud** menu, select **Requests**, then select **Show All** to view a list of all cloud service requests.

**Figure 24-6 All Cloud Requests**

Name	Status	Type	Created By	Submission Date	Begin Date
Startup_db000008_18-11-2014 22:44:57#26	✓	Startup Database	SSA_USER11	Nov 18, 2014	Nov 18, 2014
Shutdown_db000008_18-11-2014 22:44:04#25	✓	Shutdown Database	SSA_USER11	Nov 18, 2014	Nov 18, 2014
SSA_USER11 - Tue Nov 18 2014 22:07:33 UTC_C...	✓	Create Database	SSA_USER11	Nov 18, 2014	Nov 18, 2014
Startup_db000008_18-11-2014 12:20:52#23	✓	Startup Database	SSA_USER11	Nov 18, 2014	Nov 18, 2014
Shutdown_db000008_18-11-2014 12:20:11#22	✓	Shutdown Database	SSA_USER11	Nov 18, 2014	Nov 18, 2014
- Tue Nov 18 2014 08:47:51 UTC_CRE...	✓	Create Database		Nov 18, 2014	Nov 18, 2014
- Tue Nov 18 2014 07:46:08 UTC_CRE...	✓	Create Database		Nov 18, 2014	Nov 18, 2014
SSA_USER11 - Tue Nov 18 2014 07:12:49 UTC_C...	✓	Create Database	SSA_USER11	Nov 18, 2014	Nov 18, 2014
- Linux Multi_CREATE_4_40#13	✓	Create Database		Nov 17, 2014	Nov 17, 2014
- Linux Multi_CREATE_26_49#12	✓	Create Database		Nov 17, 2014	Nov 17, 2014
- Mon Nov 17 2014 08:11:24 UTC_C...	✓	Create Database		Nov 17, 2014	Nov 17, 2014
SURARAY1 - Mon Nov 17 2014 08:07:35 UTC_CR...	✓	Create Database	SURARAY1	Nov 17, 2014	Nov 17, 2014

For each request, the name of the request or job, status of the request, the request type (Create, Delete, and so on), the user who submitted the request, service type (database, schema, WebLogic, and so on), date on which the request was submitted, and so on is displayed. Click on the Name link to drill down to the Job Activity page. The Status link shows the Request Details popup window.

You can do the following:

- **Reschedule:** Select a request that is scheduled to run at a future date and click **Reschedule** to change the date on which the request should be initiated.
- **Delete:** Select a request and click **Delete** to delete the request. Deleted requests are still present in the repository and will be purged according the purge policy defined in the Request Settings page. See [Configuring Request Settings](#) for details.
- **Clean Up:** Use this option to clean up failed requests. This may include shutting down any partially configured services and deleting any partially configured storage used for the failed service.

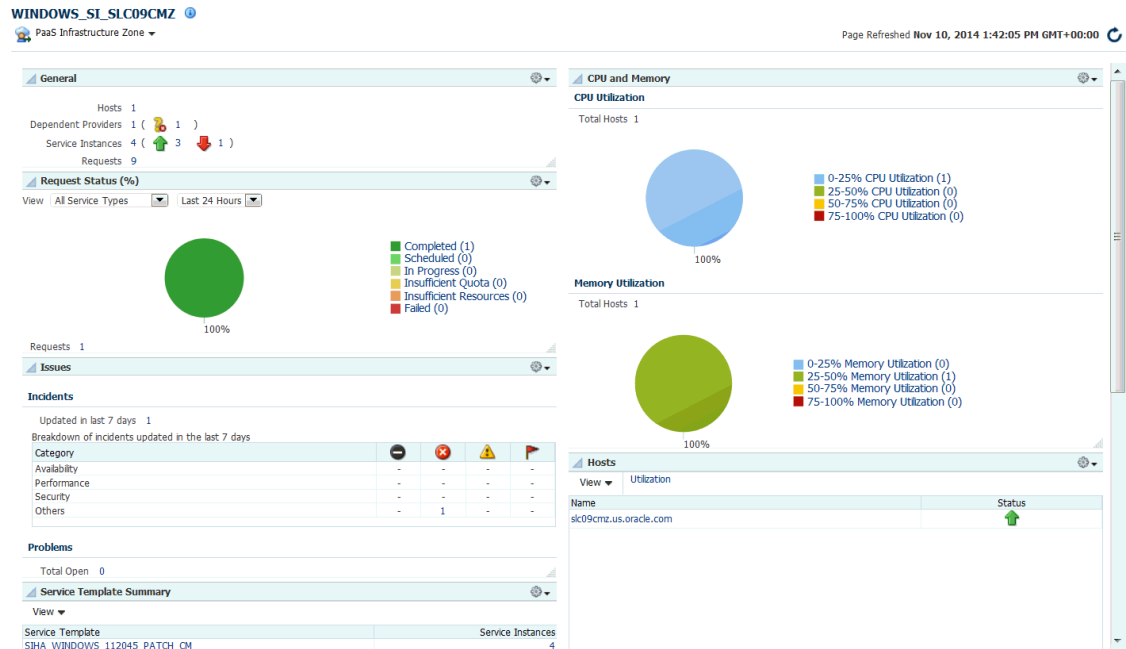
**Note:** Failed provisioning requests cannot be deleted unless they have been cleaned up.

## Viewing the PaaS Infrastructure Zone Home Page

A zone is a logical entity that allows homogenous resources to be grouped together. The resources consist of components (servers, storage, networks, operating systems, applications)

that are required to create new services. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. Click on a resource provider link on the Cloud Home page to navigate to the Resource Providers page and click on the **PaaS Infrastructure Zone** link to drill down to the PaaS Infrastructure Zone Home page.

**Figure 24-7 PaaS Infrastructure Home**



The PaaS Infrastructure Zone Home page contains the following regions:

- **General:** This region lists the total number of Hosts, Dependent Providers (Software Pool), Requests, and Service Instances in the zone. It also shows the Placement Policy Constraints that have been defined for the zone.
- **Request Summary:** Shows the percentage of requests that are in progress, failed, successful, partially successful, or scheduled.
- **CPU and Memory:** The average CPU and memory utilizations by Hosts in the zone is displayed in these charts.

**Note:**

You can set the thresholds for these metrics on the All Metrics page. To navigate to this page, from the **PaaS Infrastructure Zone** menu, select **Monitoring**, then select **All Metrics**. Select the metric for which the threshold is to be set, click **Modify** and change the settings.

- **Issues:** Shows the outstanding incidents and problems for the target.
- **Members:** Shows the members of the zones and the member type (Oracle VM Zone or Host).
- **Hosts:** Lists the hosts in the PaaS Infrastructure Zone. Click on the Utilization link to view details on the CPU and memory has been utilized for all the hosts, and the number of

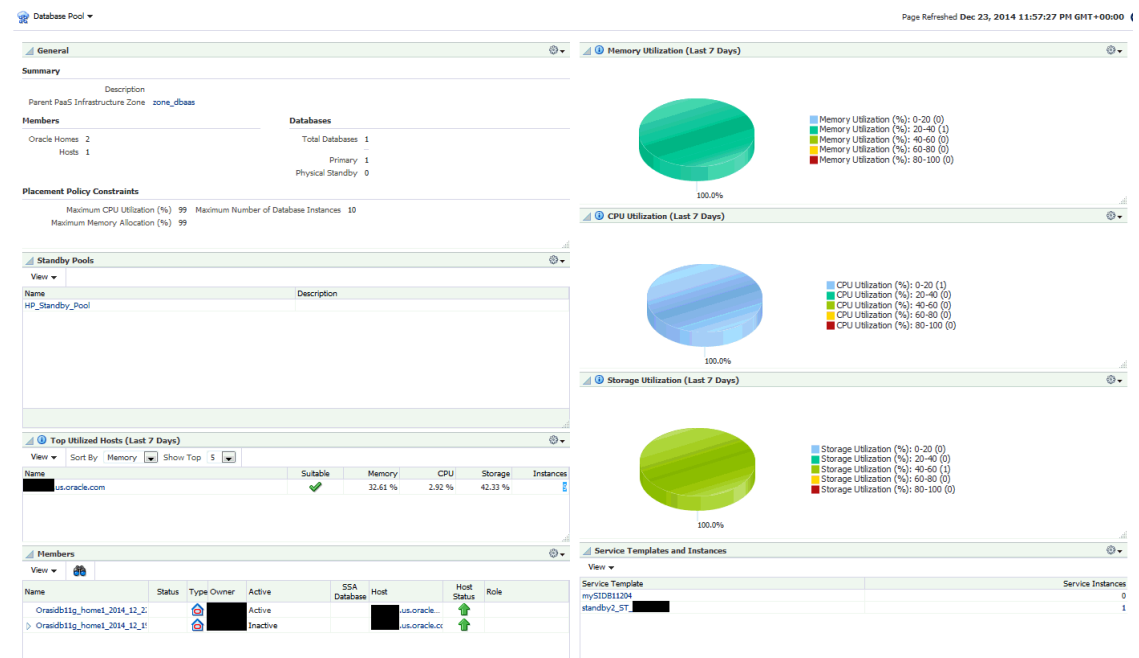
service instances created on the host. Click on the Name link to drill down to the Host Home page.

- **Service Template Summary:** Shows the service templates associated with the zone. The software pool associated with each service template and number of service instances in each resource pool is also displayed.

## Viewing the Database Pool Home Page

A database pool contains a set of resources that can be used to provision a database instance within a PaaS Infrastructure Zone.

**Figure 24-8 Database Pool Home**



This page contains the following regions:

- **General:** This region displays the following:
  - **Summary:** Displays a description of the database pool and PaaS Infrastructure Zone to which it belongs.
  - **Members and Databases:** Shows the list of Members (Oracle Homes and Hosts) and Databases in the pool. The Databases region lists the total number of databases and the number of single instance or RAC databases in the pool.
  - **Placement Policy Constraints:** The placement policy constraints that specify maximum ceilings for each host member of the pool are displayed.
- **Standby Pools:** If one or more standby pools are present, they are listed here.
- **Top Utilized Hosts:** This region shows the list of top utilized hosts over the last 7 days. Click on the link to drill down to the Host Home page. You can sort by:
  - **Memory:** The average memory utilized over the last 7 days as a percentage of the total memory on the host.

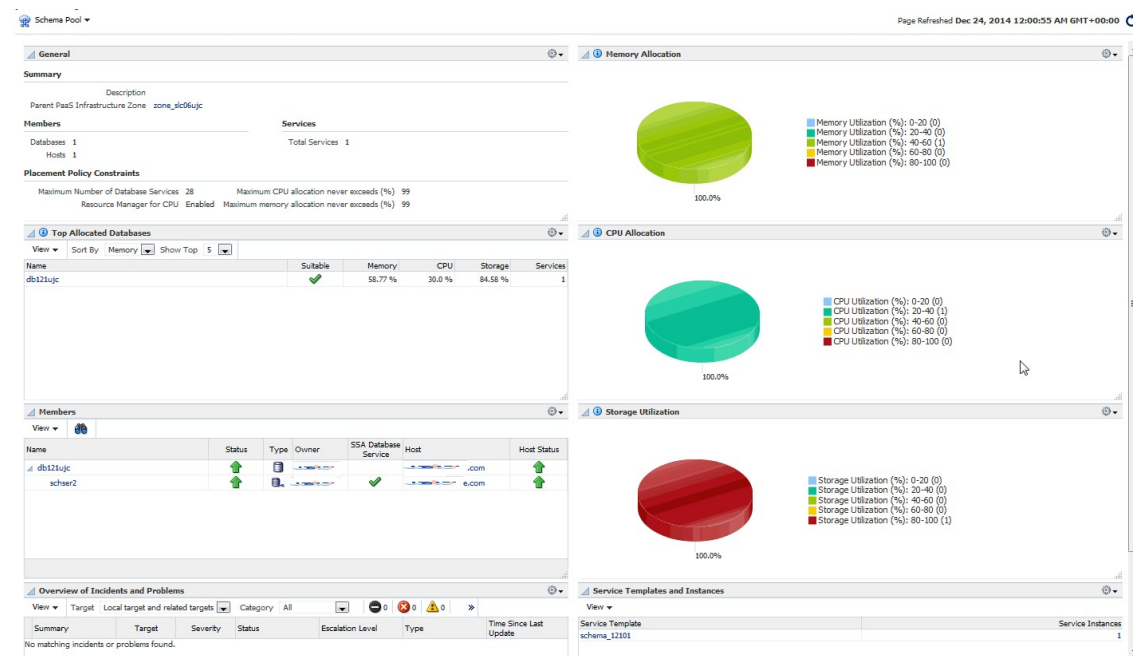


- CPU: The average CPU utilized over the last 7 days as a percentage of the CPU available on the host.
- Storage: The average storage utilized over the last 7 days as a percentage of the total storage available on the host.
- Instances: The number of database instances on the host.
- **Members:** Lists all the members in the database pool. Click on the links in the Members table to drill down to the Database or Host Home page.
- **Overview of Incidents and Problems:** This region lists any incidents or problems that have occurred.
- **Memory Utilization:** The chart shows the memory utilization by different hosts present in the database pool. The color coded chart shows the different memory utilization range across the different hosts.
- **CPU Utilization:** The chart shows the CPU utilization by different hosts present in the database pool. The color coded chart shows the different CPU utilization range across the different hosts.
- **Storage Utilization:** The chart shows the storage utilization by different hosts present in the database pool. The color coded chart shows the different storage utilization range across the different hosts.
- **Service Template and Instances:** Shows the service templates and service instances associated with the database pool.

## Viewing the Schema Pool Home Page

You can define one or more schemas that can be deployed on a database.

**Figure 24-9 Cloud Schema Pool**



- **General:** This region displays the following:
  - Summary: Displays a description of the schema pool and PaaS Infrastructure Zone to which it belongs. I
  - Members and Services: Shows the list of Members (Databases and Hosts) and Services in the pool.
  - Placement Policy Constraints: The placement policy constraints that specify maximum ceilings for each database member in the pool are displayed.
- **Top Allocated Databases:** This region shows the list of top utilized databases in the schema pool. Click on the link to drill down to the Database Instance page.
  - Memory: The total memory allocated for each service based on the workload as a percentage of the total SGA size of the database.
  - CPU: The total CPU allocated for each service based on the workload as a percentage of the CPU count.
  - Storage: The total storage utilized on all the tablespaces of the database as a percentage of the total size of the database.

 **Note:**

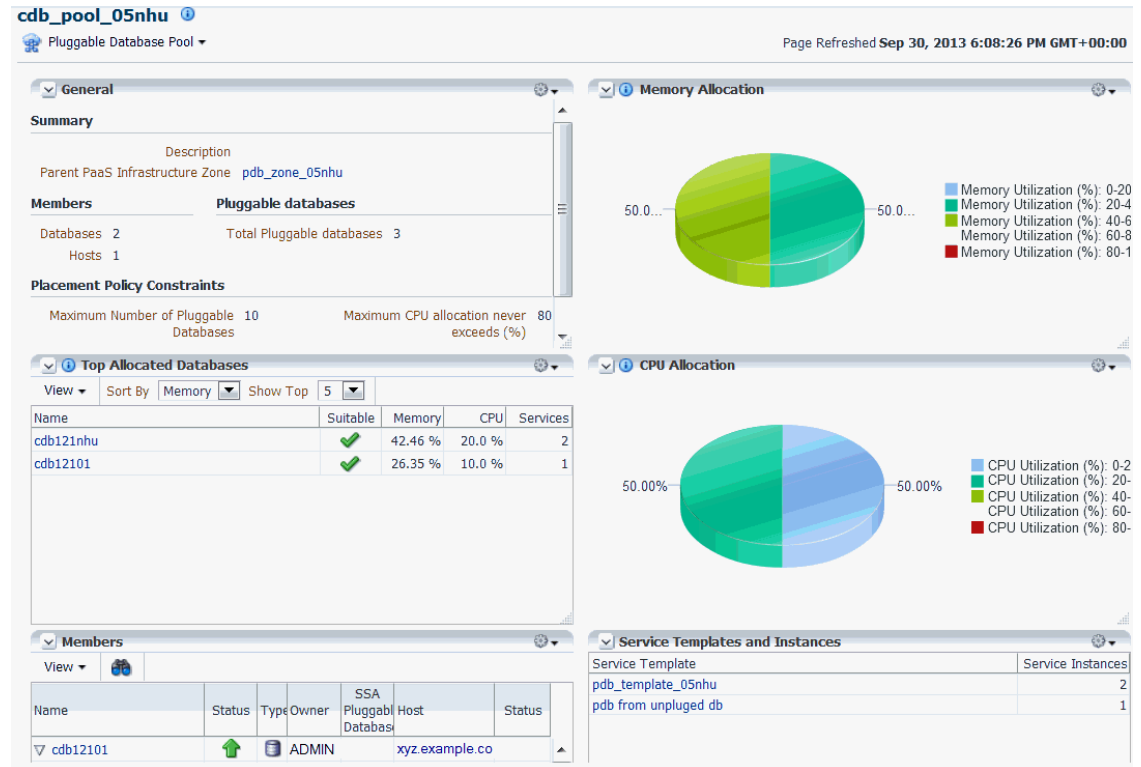
Total here includes requests budgeted for services that have been requested and are active.

- Services: The number of database services.
- **Members:** Lists all the members in the schema pool. Click on the links in the Members table to drill down to the Database Instance Home page.
- **Overview of Incidents and Problems:** This region lists any incidents or problems that have occurred.
- **Memory Allocation:** The chart shows the memory allocation across different databases present in the schema pool. The color coded chart shows the memory allocation range across all the databases.
- **CPU Allocation:** The chart shows the CPU allocation across different databases present in the schema pool. The color coded chart shows the CPU allocation range across all the databases.
- **Storage Allocation:** The chart shows the storage allocation across different databases present in the schema pool. The color coded chart shows the storage allocation range across all the databases.
- **Service Template and Instances:** Shows the service templates and service instances associated with the schema pool.

## Viewing the Pluggable Database Pool Home Page

A PDB pool contains one or more container databases that can be used to create PDBs within a PaaS Infrastructure Zone.

Figure 24-10 PDB Pool Home Page



This page contains the following regions:

- **General:** This region contains the following:
  - **Summary:** This region displays a description of the database pool and PaaS Infrastructure Zone to which it belongs. Click on the Parent PaaS Infrastructure Zone link to drill to the Home page.
  - **Members and Databases:** This region displays a list of Members (Oracle Homes and Hosts) and Databases in the pool. The Databases region lists the total number of databases and the number of single instance or RAC databases in the pool.
  - **Placement Policy Constraints:** The placement policy constraints that specify maximum ceilings for the pool are displayed.
- **Top Allocated Databases:** This region shows 5 to 15 pluggable databases (depending on your selection), sorted by Memory, CPU, Storage, or Services.
  - **Memory:** The total memory allocated for each service based on the workload as a percentage of the total SGA size of the Container database.
  - **CPU:** The total CPU allocated for each service based on the workload as a percentage of the total CPU count.
  - **Services:** The number of database services.
- **Members:** This region shows the list of members in the PDB pool. Click on the links in the Members table to drill down to the database or host home page.
- **Overview of Incidents and Problems:** This region shows a list of any incidents and problems that have occurred for any of the targets in the PDB pool.

- **Memory Allocation:** This chart shows the memory allocation by different container databases in the database pool. The color coded chart shows the memory allocation range across all the container databases.

 **Note:**

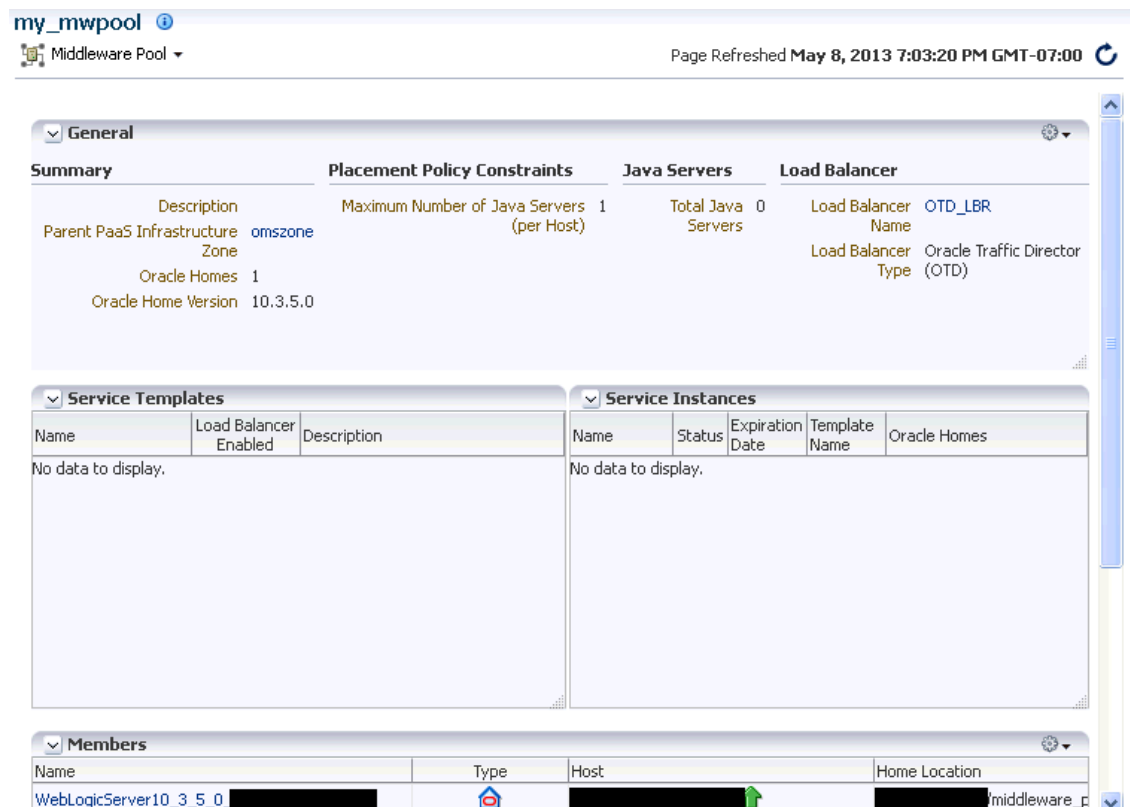
Total here includes requests budgeted for services that have been requested and are active.

- **CPU Allocation:** This chart shows the CPU allocation by different container databases in the pool. The color coded chart shows the CPU allocation range across all the container databases.
- **Service Templates and Instances:** This region shows the list of service templates associated with the PDB pool. Click on the Service Template link to drill down to the Service Template Details page.

## Viewing the Middleware Pool Home Page

The Middleware Pool Home page provides detailed information of the Middleware Pool. To view this page, from the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. Click on the **Resource Providers** link on the Cloud Home page to navigate to the Resource Providers page. Click on a Middleware Pool name to drill down to the Middleware Pool Home page. The Middleware Pool Home page contains the following regions:

**Figure 24-11** Middleware Pool Home





The screenshot shows the 'my\_mwpool' Middleware Pool Home page. At the top, it displays 'my\_mwpool' with a refresh icon and 'Page Refreshed May 8, 2013 7:03:20 PM GMT-07:00'. Below this is a 'General' section with a 'Summary' table and 'Placement Policy Constraints', 'Java Servers', and 'Load Balancer' sections. The 'Summary' table includes fields for Description, Parent PaaS Infrastructure Zone, Oracle Homes, and Oracle Home Version. The 'Placement Policy Constraints' section shows 'Maximum Number of Java Servers (per Host)' as 1. The 'Java Servers' section shows 'Total Java Servers' as 0. The 'Load Balancer' section shows 'Load Balancer Name' as 'OTD\_LBR' and 'Load Balancer Type' as 'Oracle Traffic Director (OTD)'. Below the 'General' section are two empty tables: 'Service Templates' and 'Service Instances'. At the bottom is a 'Members' section with a table listing members.

Summary		Placement Policy Constraints	Java Servers	Load Balancer
Description		Maximum Number of Java Servers (per Host)	1	Total Java Servers
Parent PaaS Infrastructure Zone	omszone			0
Oracle Homes	1			Load Balancer Name
Oracle Home Version	10.3.5.0			OTD_LBR
				Load Balancer Type
				Oracle Traffic Director (OTD)

Name	Load Balancer Enabled	Description
No data to display.		

Name	Status	Expiration Date	Template Name	Oracle Homes
No data to display.				

Name	Type	Host	Home Location
WebLogicServer10_3_5_0			middleware_p

- **General:** This region shows the following information:
  - **Parent PaaS Infrastructure Zone:** The zone with which the Middleware Pool is associated. Click on the link to drill down to the PaaS Infrastructure Zone Home page.
  - **Oracle Homes:** The total number of Oracle Homes in the Middleware Pool.
  - **Oracle Home Version:** The version of the Oracle homes.
- **Placement Policy Constraints:**
  - **Total Java Servers (per host):** The maximum number of WebLogic servers that can be running on each host.
  - **Java Servers:** The total number of WebLogic servers in the Middleware Pool.
- **Load Balancer:** This region shows the following details:
  - **Load Balancer Configuration:** The name of the load balancer configuration associated with the Middleware Pool. Click on the link to view the load balancer details.
  - **Load Balancer Type:** The type of load balancer. This can be Oracle HTTP Server, Oracle Traffic Director, or Third Party Load Balancer.
- **Service Templates:** The number of service templates with which the Middleware Pool is associated. For each service template, the name, a column indicating if the load balancer configuration has been enabled, and the description of the template is displayed.
- **Service Instances:** The service instances running on the Middleware Pool are displayed. For each service instance, the name, the status, date on which it is scheduled to expire, the service template with which is associated, and the location of the Oracle Home is displayed.
- **Members:** This region shows a list of members in the Middleware Pool. The name of the target, the target type, the host on which it is running, and the location of the Oracle Home is displayed.

## Viewing the Cloud Services Reports

Oracle BI Publisher is an Oracle's enterprise reporting solution and provides a single reporting environment to author, manage, and deliver all of your reports and business documents. Utilizing a set of familiar desktop tools, such as Microsoft Word, Microsoft Excel, or Adobe Acrobat, you can create and maintain report layouts based on data from diverse sources. The Cloud Services BI reports consist of the following:

- Most Requested Service Types
- Service Request Status
- Service Request Types
- Cloud Requested Duration Thread

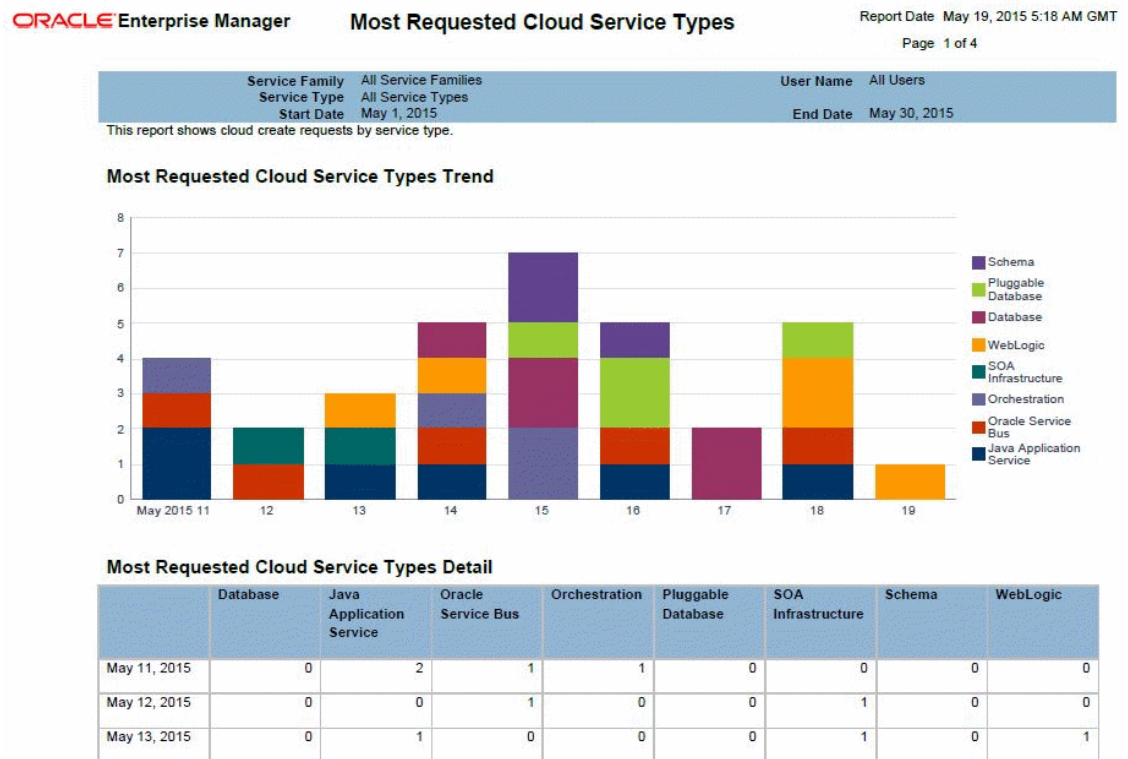
You can view these reports online and export them PDF, RTF, PowerPoint, and Excel formats. To view the reports, log into Enterprise Manager as a user with the `EM_CLOUD_ADMINISTRATOR` role and from the **Enterprise** menu, select **Reports**, then select **BI Publisher Reports**. Click on a report under the **Cloud Services** menu to launch the BI Publisher application and directly view the report.

## Most Requested Service Types

This report shows the most requested reports sorted by service type. You can filter the data displayed by selecting any of the following parameters:

- Service Family
- Service Type
- User Name
- Start Date
- End Date

**Figure 24-12 Most Requested Cloud Service Type**



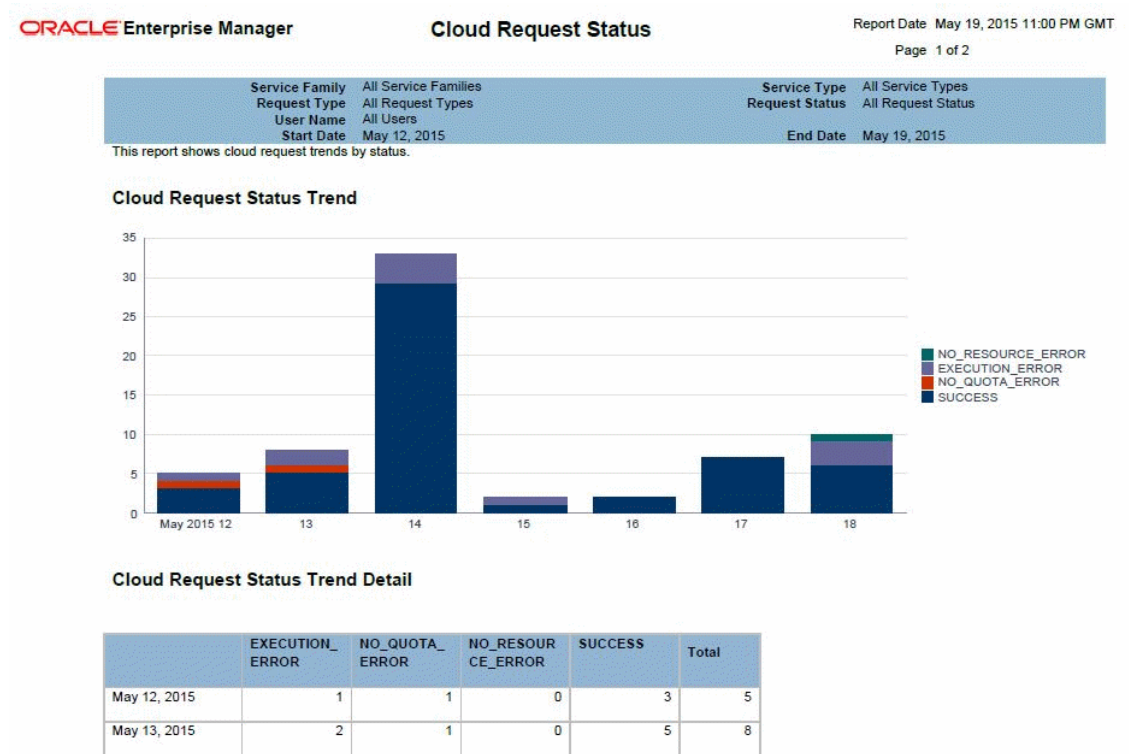
## Service Request Status

This report shows the service request trends sorted by status. You can filter the data displayed by selecting any of the following parameters:

- Service Family
- Service Type
- Request Type
- Request Status
- User Name

- Start Date
- End Date

**Figure 24-13 Cloud Request Status**

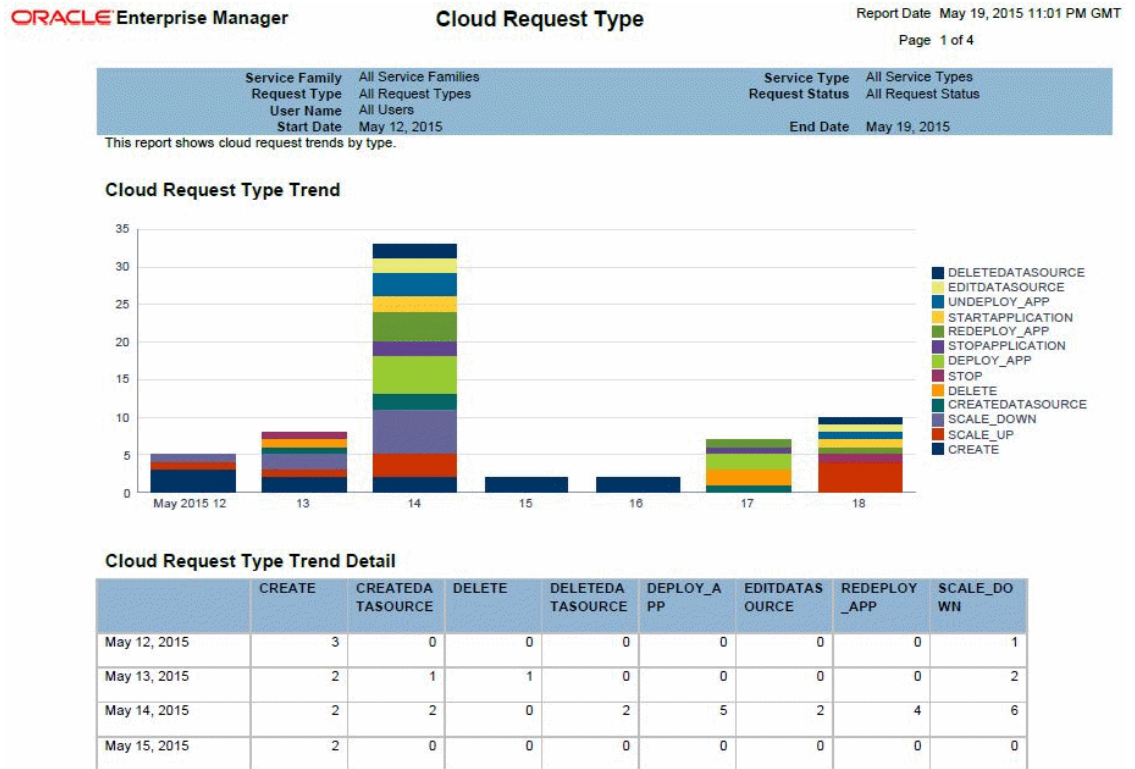


## Service Request Type

This report shows the cloud request trends sorted by request type. You can filter the data displayed by selecting any of the following parameters:

- Service Family
- Service Type
- Request Type
- Request Status
- User Name
- Start Date
- End Date

Figure 24-14 Cloud Request Type



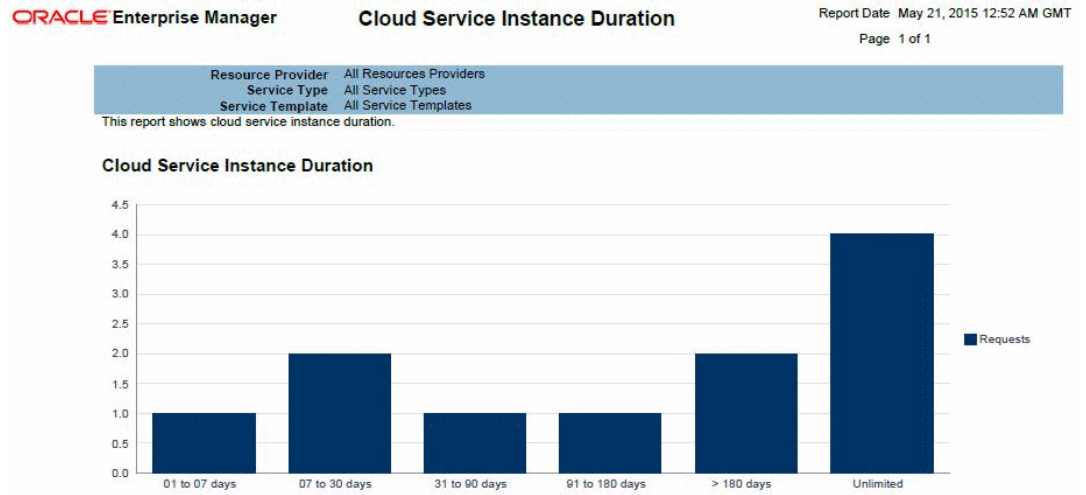
## Cloud Service Instance Duration Trend

This report shows the cloud service instance duration. You can filter the data displayed by selecting any of the following parameters:

- Submission Time
- Resource Provider
- Service Type
- Service Template



Figure 24-15 Cloud Service Instance Duration



# Part IX

## Dynamic Resource Provisioning

This section covers the dynamic resource provisioning feature.

It contains the following chapters:

- [Dynamic Resource Provisioning with Oracle VM Server for SPARC](#)
- [Getting Started with Dynamic Resource Provisioning](#)
- [Dynamically Provisioning Resources in a DBaaS Cloud](#)

# Dynamic Resource Provisioning with Oracle VM Server for SPARC

Oracle Enterprise Manager Cloud Control integrates with Enterprise Manager Ops Center to create and manage virtual datacenters (vDC). Within the vDC, a vServer appears to users as a complete system, which they can optimize on demand as a DBaaS private cloud.

## Integration for a PaaS Solution

In Oracle Enterprise Manager Ops Center, the PaaS cloud platform service is a virtual datacenter (vDC), a virtual environment supported by pooled servers, storage, and network resources. A cloud administrator sets up the vDC to run Oracle VM Servers for SPARC (logical domains). Enterprise Manager Cloud Control users are creating vServers in the logical domains automatically, as needed. Each vServer draws its requirements from the resources of the vDC.

This section explains how to create the vDC and to connect it to Enterprise Manager Cloud Control.

## Prerequisites

- Enterprise Manager 12c Cloud Control Release 5 with Virtual Service Adaptor configured to connect to Ops Center's Enterprise Controller. See [Getting Started with Dynamic Resource Provisioning](#).
- Enterprise Manager Ops Center Release 3 with managed storage and network assets. See Oracle Enterprise Manager Ops Center *Installation for Oracle Solaris Operating System* and *Configure Reference* guides for information about installing the product and discovering assets.
- Oracle Enterprise Manager Ops Center Client Kit, which includes modifications to enable communication between the two software products. This kit is available from My Oracle Support to <https://support.oracle.com/>.

The minimum requirement for Ops Center is the co-located configuration: one system hosts the Enterprise Controller, one Proxy Controller, and an embedded Oracle database.

- Requirements for Enterprise Controller:
  - A minimum of T4-1 Sun Server
  - Same or higher version of Oracle Solaris 11 as the version to be provisioned on vServers running Oracle VM Server for SPARC. Supported versions are Oracle Solaris 11, 11.1, and 11.2 but, for optimal performance use the latest SRU of Oracle Solaris 11.2.
- Requirements for Proxy Controller:
  - Co-located with Enterprise Controller or running in a system with the same minimum requirements for server, network, and operating system as for the Enterprise Controller.
- Requirements for Oracle VM Server for SPARC control domain:

- Oracle VM Server for SPARC 3.1 or later
- Oracle Solaris 11, 11.1, and 11.2. The version must be the same or later than the version to run in the vServer. To provide different versions of Oracle Solaris 11, create a control domain for each operating system.
- For optimal performance between storage elements and control domains, equip each server that hosts a control domain with a Fibre Channel HBA of at least 4 Gb and a 10 Gb Ethernet card. A 1 Gb Ethernet card is the minimum.
- The right size of networks and virtual assets is not uniform. This document makes recommendations but your purposes and site requirements affect them. For a discussion of sizing, see the Oracle blog for some good practices in tuning resources for virtual assets at [https://blogs.oracle.com/jsavit/entry/best\\_practices\\_top\\_ten\\_tuning](https://blogs.oracle.com/jsavit/entry/best_practices_top_ten_tuning)
- Requirements for Oracle VMS Server for SPARC logical domain:
  - Oracle VM Server for SPARC 3.1 or later
  - The version of Oracle Solaris that is available in the Ops Center OS image repository.
- Requirements for storage resources:
  - Dedicated LUNs exposed only to appropriate WWNs. The LUNs must be fully-provisioned, not thin-provisioned. You can use Fibre Channel LUNs or iSCSI LUNs or both.
  - For Fibre Channel LUNs, create at least one SAN static storage library
  - For iSCSI LUNs, a SAN dynamic storage library is created when you discover the storage server; however, you cannot use this library for the vDC. Create at least one static SAN storage library. Use a 10 Gb Ethernet network connection and tune the number of iSCSI connections. For 8 threads/connection: `iscsiadm modify initiator-node -c 8`
  - For optimal performance between storage elements and control domains, equip each server that hosts a control domain with a Fibre Channel HBA of at least 4 Gb and a 10 Gb Ethernet card. A 1 Gb Ethernet card is the minimum.
- Requirements for networks:
  - A fabric backed by an isolated switch to provide separate interfaces to each control domain. an isolated switch is an isolated Ethernet switch or a set of non-routable VLANs spanning multiple network switches. The switch provides the VLAN IDs that provision virtual networks.
    - \* For host-managed or fully-managed fabric, you must reserve a range of VLAN IDs to be mapped to the control domains. When a private network is needed, one is created on demand, using one of the VLAN IDs, and deleted when no longer needed.
    - \* For an unmanaged fabric, you must create the private networks manually, using the **Create Private Networks** action and add them to the network domain. When a private network is needed, an available network is assigned.
  - A dedicated network domain. Do not use the Default network domain.
    - \* At least one public network to provision OS and to access vServers. Public networks supply a block of IP addresses for provisioning the vServers. The number of IP addresses equals the number of vServers that can be supported. Consider the size of the network that can accommodate all your current and future requirements. Class C (for example, 10.0.0.1/24) networks enable you to create

256 vServers, Class 16C networks (for example, 10.0.0.2/20) enable you to create 4096 vServers.

- \* Private networks for Clusterware and internal host connectivity.
  - A set of dedicated VLANs IDs, configured on one or more network interfaces.
- Requirement for software libraries:
  - Place the libraries on a storage server with high transfer rates.
  - To provision an OS version, the Oracle Solaris 11 Software Update Library must contain the packages for that version. This repository is created during the product installation. In addition, you must download the Oracle Solaris 11 SRU library.
  - Limit the Oracle Solaris 11 Software Library to versions of releases and SRUs that are in active use.
  - Add packages from client kit to the Oracle Solaris 11 Software Library.

## Overview of the Configuration of PaaS Solution

To set up the PaaS solution, you perform tasks on each component of the solution:

- [Configure Enterprise Manager Cloud Control](#)
- [Obtain the Client Kit](#)
- [Configure Enterprise Manager Ops Center](#)

## Configure Enterprise Manager Cloud Control

The Enterprise Manager's Virtual Service Adapter is the interface between Enterprise Manager and Enterprise Manager Ops Center. To configure the integration, the main component of Ops Center, the Enterprise Controller, is added as a staging server, as described in [Adding the Stage Server](#).

When the configuration of Oracle Enterprise Manager Ops Center is complete, use the following information to configure Enterprise Manager Cloud Control:

- IP address of the Enterprise Controller
- username and password of the cloud user account

## Obtain the Client Kit

Go to <https://support.oracle.com/> to obtain the Ops Center Client Kit, p21190506\_121050\_Generic.zip. The kit is also available in the OC DVD bundle.

The kit contains packages that provision logical domains, modified to enable PaaS operations, and a script:

- ORCLsysman-iaas-cli.pkg
- ORCLsysman-paas-cli.pkg
- post-script-paas-12.3.0.<buildnumber>.p5p

Extract the files in the compressed file to a location of your choice. These packages and script will be uploaded to Ops Center's repository for Oracle Solaris 11 and used in an OS Update Profile.

## Configure Enterprise Manager Ops Center

The tasks in this section take 2-3 hours to complete. Some of them can be done simultaneously, that is, you do not have to wait for one job to complete before starting another one.

1. [Add Client Kit Contents to Software Library for Oracle Solaris 11](#)
2. [Preparing Network Resources for the vDC](#): fabric, network domain, and public network
3. [Preparing Storage Resources](#): a NAS storage library and a SAN storage library
4. [Create an OS Update Profile](#)
5. [Deploy Control Domains](#)
6. [Create the Server Pool](#)
7. [Create the vDC](#)
8. [Create the vDC account for PaaS](#)
9. [Create a new vServer Type](#)
10. [Create a vServer Template](#)
11. [Create a Private vNet](#)
12. [Validate the Integration and PaaS](#)

## Configure Resources for vDC

A vDC relies on pools of networks, storage, and control domains. It provisions its servers from images in a current OS repository according to profiles in the repository.

### Add Client Kit Contents to Software Library for Oracle Solaris 11

The package that enables the PaaS solution is `post-script-paas-12.3.0.1407.p5p`. This file is in the compressed file you downloaded from My Oracle Support and resides in the directory where you extracted the contents of the compressed file. This procedure imports the file into Op Center's Oracle Solaris 11 repository so that it can enable communication between the Enterprise Manager Cloud Control staging server and the Ops Center resources.

Use the **Add Content** action to add ISO image files to the Oracle Solaris 11 Software Update Library manually.

1. Locate the image in the new repository.
2. Expand **Libraries** in the Navigation pane.
3. Click **Software Libraries**.
4. Click **Oracle Solaris 11 Software Update Library**.
5. Click **Add Content** in the Action pane.

Figure 25-1 Add Content

**Specify Repository to add content from**

Enter the URL of the parent repository URL and credentials.

Repository to add content from	
Repository URL	Credential
enter url	None None Define New SystemDefinedS...

- In the **Repository to add content from** field, enter the location of the file using the syntax:  
`file:///<fullpath>/post-script-paas-12.3.0.<buildnumber>.p5p`

If credentials are required, specify the system's credentials,  
**SystemDefinedSupportCredential**.

When the job is completed, the file is listed in the Contents tab of the library.

## Preparing Network Resources for the vDC

Fabrics are the physical infrastructure, consisting of network interface cards and network switches. Network domains are the logical infrastructure, combining network resources from at least one fabric. The networks used by virtual assets are created from the VLAN IDs managed by a network domain. The physical fabrics support these virtual networks, through the network domain, in a manner that depends on their type. To supply network resources to a vDC, you create a network domain from an appropriate fabric.

You must have the role of Network Admin to create network domains.

### Identify a Fabric

To see the available fabrics, expand **Networks** in the Assets pane. Select **Fabrics**. For each fabric, the Dashboard in the center pane includes a Management Capability field. You have these options for providing physical network resources to a new network domain:

- Use an existing host-managed fabric.
- Convert an unmanaged fabric to host-managed and then use it.
- Create a new host-managed fabric.

- Use an unmanaged fabric.

**To convert an unmanaged fabric to a host-managed fabric**, use the **Assign VLAN ID Range** action. Specify a range that matches VLANs on the isolated switch that supports the fabric. If the fabric is not supported by an isolated switch, you can use an arbitrary VLAN ID range representing configured, non-routed VLANs, for example, 1001-1200.

**To create a new host-managed fabric:**

1. In the Navigation pane, navigate to **Networks**, then select **Fabrics** from the drop-down list.
2. In the Actions pane, click **Define Ethernet Fabric**.
3. In the wizard, enter a name in the **Fabric Name** field. Enter a description. Click **Next**.
4. Enter the range of VLAN IDs. If the fabric is supported by an isolated switch, specify a range that matches the switch's VLANs. If the fabric is not supported by an isolated switch, use an arbitrary VLAN ID range, for example, 1001-1200.
5. Select the networks to be associated with the fabric, then click **Next**.
6. Review the Summary, then click **Finish**. The new fabric is host-managed.

**To use an unmanaged fabric**, assign a set of its public networks as private networks or convert the fabric to an host-managed fabric.

## Create a Network Domain

After Ops Center manages the physical fabric, its network resources are in the system-defined Default Network Domain, but you cannot use the Default network domain for a virtual datacenter. Instead, create a network domain specifically to support a server pool that contains a vDC.

A network domain is a container for networks and handles the relationship between the physical fabrics and the server pool. The fabrics provide network resources such as links and IP subnets. Within the network domain, networks that have been discovered or specified are available for assignment. These are called public networks. Their network resources have been defined. Another type of network is dynamic, that is, the network is created when it is needed, using an IP address space available to the network domain. Because they exist only for a specific purpose and only within a specific network domain, they are called private networks.

To use virtual datacenters, the network domain must provide private networks. To use existing public networks for a virtual datacenter, add each network to the network domain, making it a static private network, because existing public networks already have an IP subnet addresses and VLAN IDs.



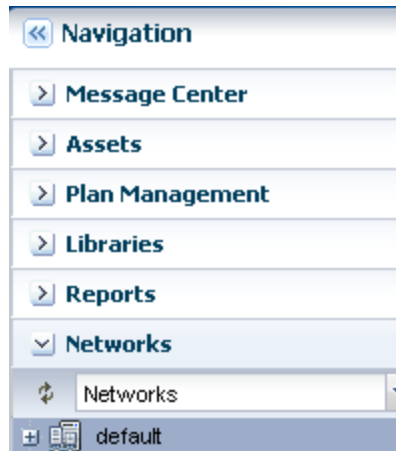
### Note:

Do not attempt to use the Default Network Domain to support a virtual datacenter. Although you are not prevented from specifying the Default Network Domain, its networks will not be available for selection.

Although the network domain is providing the networks to the server pools, this is only a logical association using VLAN IDs. To use the network resources, each physical server that supports the control domains in the server pool must have a physical connection to a fabric in the network domain.



1. Expand Networks in the Navigation pane.
2. The Standard views shows Networks. The Default Network Domain is selected.



3. Click **Create Network Domain** in the Actions pane.
4. In the Identify Network Domain pane, enter the name and description of the network domain. You can also add tags.

**Identify Network Domain** \* Indicates Required Field

Specify the name, description, tags, physical fabric, and maximum number of networks for the network domain. Ops Center will automatically assign P-keys/VLAN IDs for the selected physical fabric.

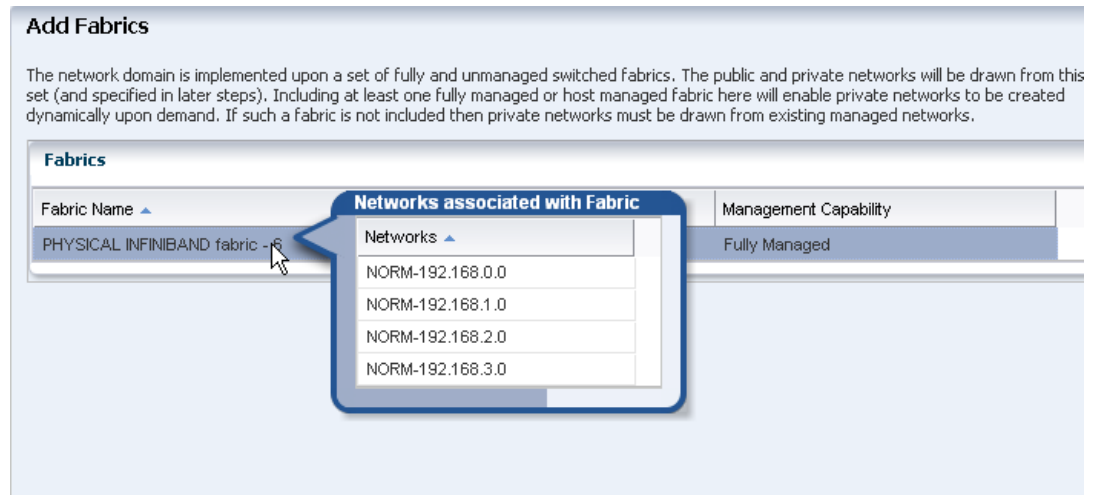
\* **Domain Name:**

**Description:**

**Tags:** + × Search ▾  × 🔍

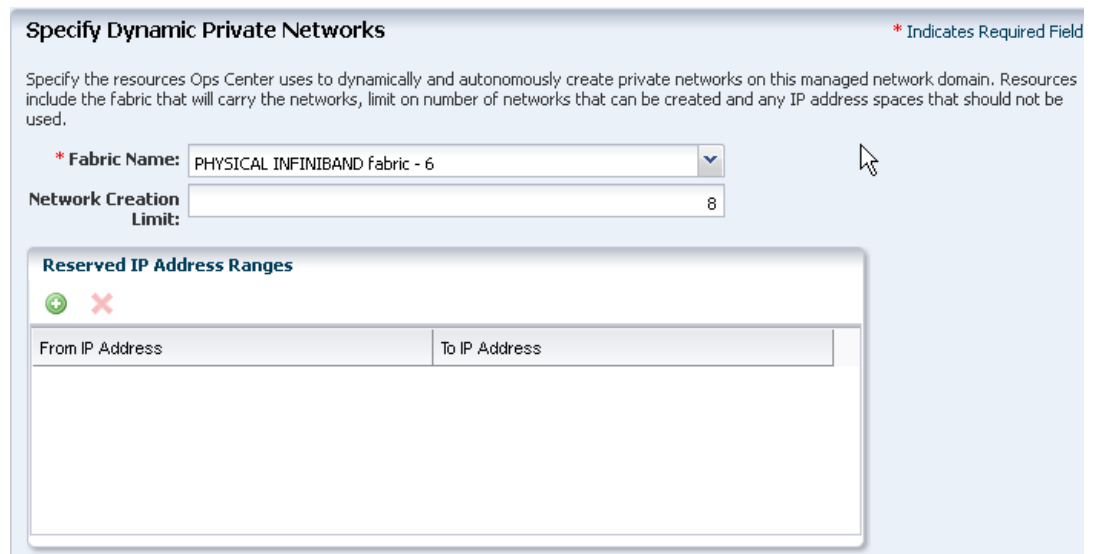
Tag Name	Value

5. In the Add Fabrics step, choose at least one fabric.

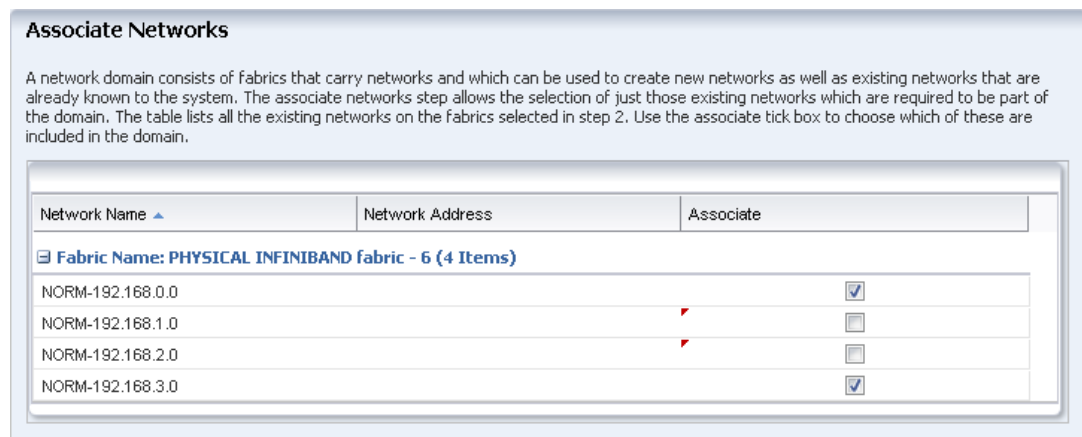


6. Accept the default value for the Network Creation Limit. This value is the maximum number of dynamic private networks that can be in use simultaneously and is set by the number of VLAN IDs in the range of VLAN IDs you set.

A private network uses an IP address from the pool of available IP addresses in the network domain. To exclude IP addresses that your organization is using for other purposes, specify them in the Reserved IP Address Ranges table. These addresses will not be available to dynamic private networks.



7. In the Associate Networks step, you add existing networks to the new network domain. Add the network you want to use as the public network. This network will be used to provision vServers.



8. Review and click **Finish**.

When the job is completed, the new network domain is listed in the Navigation pane.

## Configure Public Network

Select the public network and then select **Edit Managed IP Ranges**. Specify a range or a series of IP addresses, as provided by your network administrator. These addresses will be used later to support logical domains.

## Preparing Storage Resources

When Ops Center discovers a storage device, it creates a dynamic storage library, but these libraries cannot be used to support a vDC. Instead, create static storage libraries:

- Create a NAS storage library to store the metadata of the control domains. This storage is exclusive for the vDC. Do not use this library for any other purpose.
- Create at least one SAN library to store the operational data.

The storage libraries are block storage, which use Logical Unit Numbers (LUNs). The LUNs are backed by Fibre Channel disks or iSCSI disks in the form of LUNs.

SAN LUNs are associated with Fibre Channel or iSCSI target groups. Fibre Channel targets use a dedicated optical network and iSCSI targets use the IP network, but in both protocols, the targets in a target group expose one or more LUNs as a storage resource for the target's initiators.

For both protocols, acts as the initiator. To allow the target group and to identify each other as eligible initiators and targets, each one's Fibre Channel World Wide Number (WWN) or iSCSI IQN must be registered with the other one. recognizes the targets because the WWNs or IQNs of the storage server are recorded when the storage server is discovered. Any LUNs that have been assigned to that WWN or IQN are eligible to be used in a storage library.

## Create a NAS Storage Library

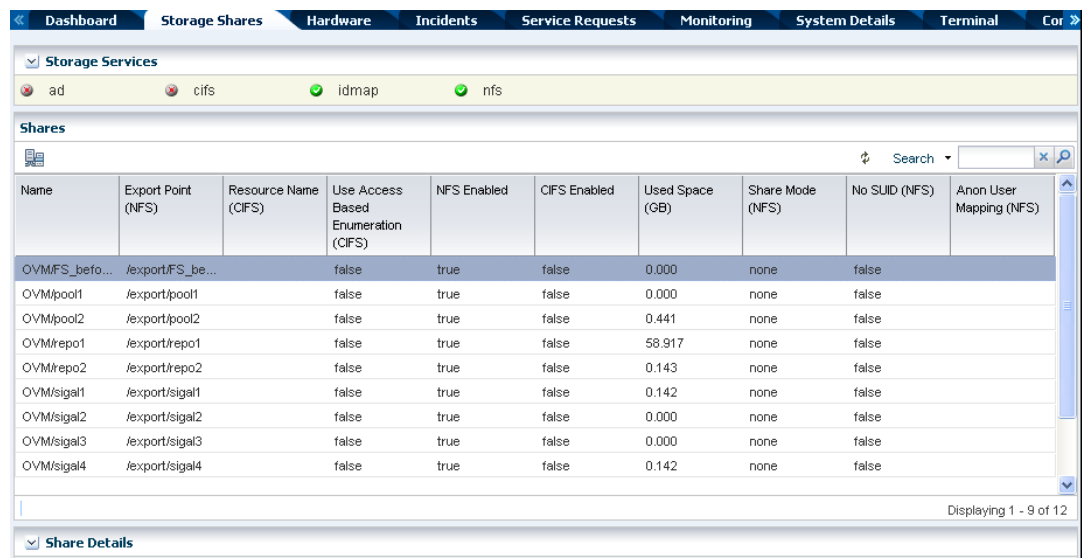
These are the tasks for setting up a NAS storage library:

1. [Identify the NAS Share](#)
2. [Create a NAS Storage Library](#)

## Identify the NAS Share

The NFS share is a file system on a NAS storage device. You can view the shares on managed storage servers from the user interface.

1. Expand **Assets** in the Navigation pane and click
2. Click **All Assets** to expand the section.
3. Click on the NAS storage server in the Storage section.
4. In the center pane, click the **Storage Shares** tab.



The screenshot shows the 'Storage Shares' tab in a management console. At the top, there are navigation tabs: Dashboard, Storage Shares (selected), Hardware, Incidents, Service Requests, Monitoring, System Details, Terminal, and Cor. Below the tabs, there's a 'Storage Services' section with status indicators for 'ad', 'cifs', 'idmap', and 'nfs'. The main area is titled 'Shares' and contains a table with the following columns: Name, Export Point (NFS), Resource Name (CIFS), Use Access Based Enumeration (CIFS), NFS Enabled, CIFS Enabled, Used Space (GB), Share Mode (NFS), No SUID (NFS), and Anon User Mapping (NFS). The table lists several shares, including OVM/FS\_befo..., OVM/pool1, OVM/pool2, OVM/repo1, OVM/repo2, OVM/sigal1, OVM/sigal2, OVM/sigal3, and OVM/sigal4. The 'Used Space (GB)' column shows values like 0.000, 0.441, 58.917, 0.143, 0.142, 0.000, and 0.142. At the bottom right of the table, it says 'Displaying 1 - 9 of 12'. Below the table is a 'Share Details' section.

Name	Export Point (NFS)	Resource Name (CIFS)	Use Access Based Enumeration (CIFS)	NFS Enabled	CIFS Enabled	Used Space (GB)	Share Mode (NFS)	No SUID (NFS)	Anon User Mapping (NFS)
OVM/FS_befo...	/export/FS_be...		false	true	false	0.000	none	false	
OVM/pool1	/export/pool1		false	true	false	0.000	none	false	
OVM/pool2	/export/pool2		false	true	false	0.441	none	false	
OVM/repo1	/export/repo1		false	true	false	58.917	none	false	
OVM/repo2	/export/repo2		false	true	false	0.143	none	false	
OVM/sigal1	/export/sigal1		false	true	false	0.142	none	false	
OVM/sigal2	/export/sigal2		false	true	false	0.000	none	false	
OVM/sigal3	/export/sigal3		false	true	false	0.000	none	false	
OVM/sigal4	/export/sigal4		false	true	false	0.142	none	false	

5. View the shares and choose one with capacity to support a server pool. You will use this share in the following procedure.

## Create a NAS Storage Library

1. Expand **Libraries** in the Navigation pane. The new library will be created in the Filesystem Storage section.
2. Click **New NAS Software Library** in the Actions pane.
3. Enter a name for the library and a description. For example, identify how the new library will be used.
4. Do not associate a server pool with the new storage library. The server pool will be created later. Click **Next**.
5. By default, the wizard displays the option for using an exported share of a storage device. Because this procedure has set up an NFS share, click the **Other** option.

**Identify Storage** \* Indicates Required Field

Specify details about the storage share on which this library is to be created.

**Source:**  Share exported from a managed storage asset  
 Other

\* **URL:**

Replace hostname, port, and path with the values for the storage resource.

6. Enter the URL or IP address for the NFS server.

**Identify Storage** \* Indicates Required Field

Specify details about the storage share on which this library is to be created.

**Source:**  Share exported from a managed storage asset  
 Other

\* **URL:**

Replace hostname, port, and path with the values for the storage resource.

Override NFS Version

**NFS Version:**

7. (Optional) You can specify the version of NFS that this storage uses. By default, uses the operating system's default NFS version. To specify a different version, allow the version to be changed.
  - a. Click the **Override NFS Version** option.
  - b. Click the drop-down list of NFS versions. Select a version.

Override NFS Version

**NFS Version:**

2  
3  
4

< Previous    Next >    Cancel

8. Click the **Next** button to review a summary of the storage library.
9. Click the **Finish** button to submit the job.

When the job is completed, you can see the new storage library in the Libraries section of the Navigation pane.

## Create SAN Storage Libraries using Fibre Channel LUNs

. This section describes how to set up a static block storage library, backed by Fibre Channel LUNs. The number of LUNs in the storage library determines the number of virtual hosts that the library can support.

### What You Will Need

You will need the following to set up and use a block storage library:

- LUNs backed by a managed SAN server using the Fibre Channel protocol
- The role of Storage Admin

To create LUNs on the storage server, you must have the user account and password to log into the storage server and create the LUNs as targets.

### Configure the Storage Server

If you need to create LUNs and make them available to , see the storage server's documentation for instructions in how to perform the following:

- **Configure the initiator and the targets.** The initiator () must be able to recognize the targets (LUNs) and the targets must be able to recognize the initiator. recognizes the targets because the WWNs of the storage server are recorded when the storage server is discovered. Any LUNs that have been assigned to that WWN are eligible to be used in a storage library. On the storage server, you must specify 's WWN as an initiator and assign LUNs to that initiator.
- **Enable multipathing on the Fibre Channel ports.** Multipathing is enabled by default on Oracle Solaris x86-based systems, but is disabled by default on Oracle Solaris SPARC-based systems. Use the `stmsboot -e` command to enable multipathing.
- **Create new LUNs.** It can take several hours for a new LUN to be displayed in 's user interface.

To verify iSCSI LUNs are available to the virtualization host, use the following command:

```
# iscsiadm list target -S
```

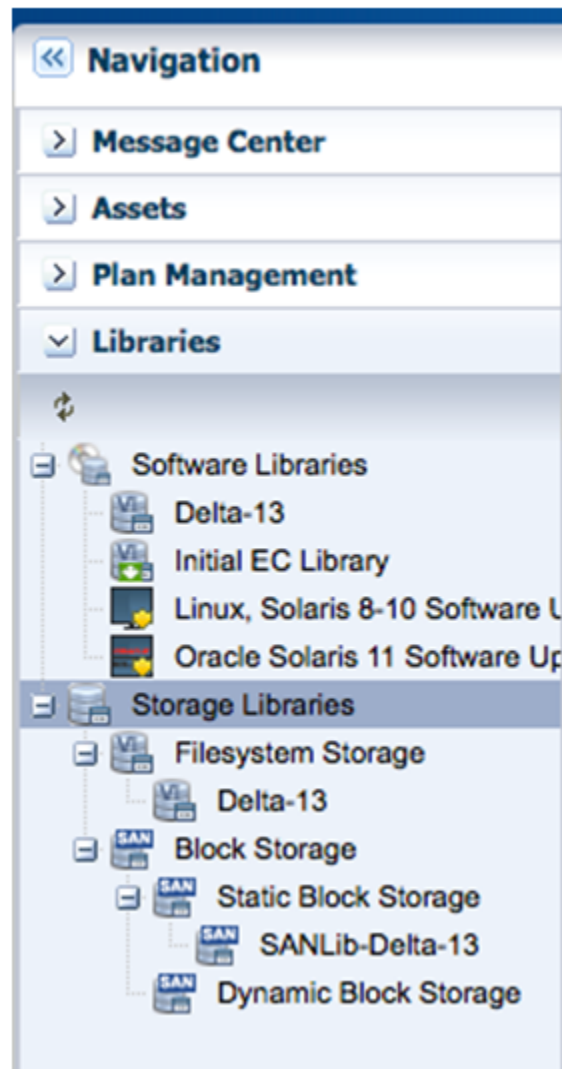
To verify Fibre Channel LUNs are available to the virtualization host, use the following command for Oracle Solaris 11:

```
# fcadm lu
```

### Create a Static Block Storage SAN Library

To specify the LUNs in a storage library, you specify the server pool that will use the storage library and then select LUNs from among the LUNs available to the server pool.

1. Expand **Libraries** in the Navigation pane.



2. Click **New SAN Storage Library** in the Actions pane.
3. Enter the name and description of the library. Click **Next**.

The screenshot shows the 'Identify Library' form. At the top right, there is a legend: '\* Indicates Required Field'. Below the legend, the instruction reads: 'Enter the name and description of the SAN storage library.' There are two input fields: 'Name:' with the value 'SANLib-Delta-12' and 'Description:' with the value 'LUNs for the Delta 12 LDOM server pool'. The 'Name' field has a red asterisk next to the label, indicating it is a required field. The 'Description' field is a larger text area.

4. You have the option to enable multipathed storage for guests of Oracle VM Servers. When you click the **LUNs sharing to LDOMs** option, each logical domain can get access to its storage through any of the domains in the server pool. If you do not enable multi path storage, the logical domain gets access to storage through its primary domain. Click **Next**.

- In the Identify LUNs step, select at least one LUN from the list of available LUNs. Because this is a static block storage library, the number of LUNs you select determines the number of virtual hosts that the library can support. For example, if you select eight LUNs, eight virtual hosts can use the storage library. You can select one LUN and then add more LUNs later. Click **Next**.

**Identify LUNs**

Add one or more LUNs to the library. Use Ctrl+Click and Shift+Click to select multiple LUNs

Available LUNs

Search

LUN GUID	Hostname-Controller Number-LUN Number	Size (GB)
600144f0fa0d3a97000052840af10024	oc-test-lz-3-0-0, oc-test-lz-14-0-0	10
600144f0eeb26fc90000523179090003	oc-test-lz-3-0-0, oc-test-lz-14-0-0	4.999...
600144f0fa0d3a9700005283a1bf001d	oc-test-lz-3-0-0, oc-test-lz-14-0-0	10
600144f0fa0d3a9700005283ef910022	oc-test-lz-3-0-0, oc-test-lz-14-0-0	10
600144f0fa0d3a97000052836f320016	oc-test-lz-3-0-0, oc-test-lz-14-0-0	25

- Review the details of the storage library in the Summary pane.

**Summary**

Click Finish to create the new SAN storage library.

**Name:** SANLib-Delta-12

**Description:** LUNs for the Delta 12 LDOM server pool

Name	Description
delta-1-primary	Oracle VM Server for SPARC

LUN GUID	Hostname-Controller Number-LUN Number	Size (GB)
600144f0dd7790cd000052551ce30003	delta-1-primary-0-0	20
600144f0dd7790cd000052551cd00002	delta-1-primary-0-0	20

- Click **Finish** to submit the job.

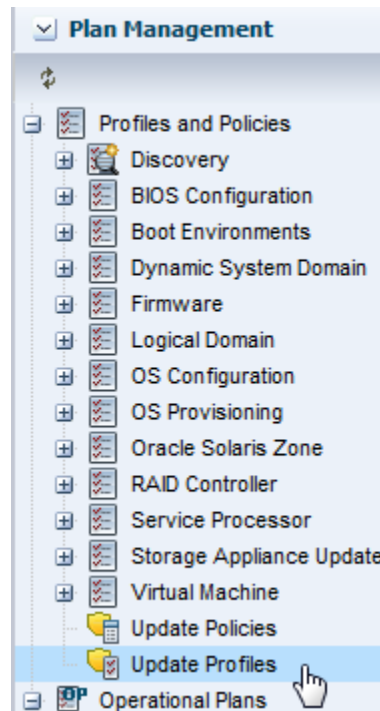
When the job is completed, the new storage library is displayed in the Libraries section of the Navigation pane in the Static Block Storage section. The center pane shows the library's Summary tab.

## Create an OS Update Profile

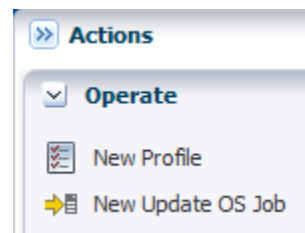
The Oracle Solaris 11 OS Update profile installs packages as part of an OS Provisioning profile. This example shows how to create an OS Update profile that installs the integration package. You then add this profile to an OS Provisioning profile.



1. Expand **Plan Management** in the Navigation pane, then select **Update Profiles** under **Profiles and Policies**.



2. Click **New Profile** in the actions pane.



3. Enter a name and description for the profile. In this case, the profile is `PaaS base update`. Then select **Solaris 11**.

A screenshot of the 'Create OS Update Profile' form. The form has two main sections. The first section contains a text input field for 'Name' with the value 'PaaS base update' and a dropdown menu for 'Type' with 'Solaris11' selected. The second section contains a text input field for 'Description' which is currently empty.

4. Keep the default filters and then search for each one of the following packages and files and click the **Install** icon.

SUNWhea

SUNWspot

developer/ assembler

developer/java/jdk-6

developer/java/jdk-7

```
post-script-paas
```

5. Click **Create OS Update Profile**. The profile appears in the list of Update profiles.

## Deploy Control Domains

- [Create an Provisioning Profile for Oracle VM Server for SPARC](#)
- [Create an OS Configuration Profile for Oracle VM Server for SPARC](#)
- [Apply the Deployment Plan](#)

## Create an Provisioning Profile for Oracle VM Server for SPARC

This profile provisions the Oracle Solaris 11 OS and includes the OS Update profile you created in [Create an OS Update Profile](#).

1. Select **Plan Management** section and expand **Profiles and Policies** in the Navigation pane.
2. Select **OS Provisioning** profile and click **Create Profile** in the Actions pane.
3. Enter the following details in the **Create OS Profile - OS Provisioning** wizard:
  - Name and description of the profile. In this case, the name of the profile is `control_domain_osp`.
  - Select `Oracle VM Server for SPARC` as the Subtype and `V class` as the target type

**Identify Profile** \* Indicates Required Field

\* **Name:**

**Description:**

\* **Subtype:** Subtype

- Oracle VM Server for SPARC
- Logical Domain
- Oracle Linux
- Oracle VM Server for x86
- Red Hat Linux
- SUSE Linux
- JET Template
- Solaris SPARC
- Solaris x86

**Target Type:** Target Type

- V class (sun4v)

Click **Next**.

4. Select the following parameters:
  - For the Oracle VM Server for SPARC version, select `Solaris 11.2 SRU 11.5.0 (LDom 3.2.0.1)`

- For the Systems Software group, select `solaris-small-server`.
- For the Solaris 11 Update profile, select the OS Update Profile that you created: `PaaS base update`

Click **Next**.

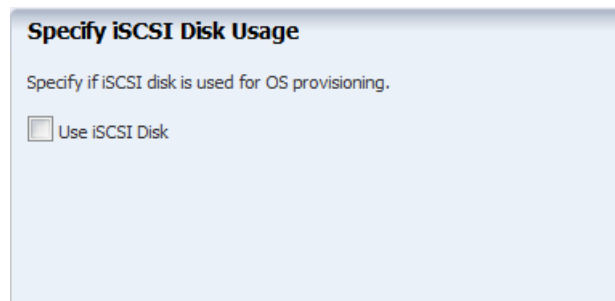
5. Keep the default values for the OS setup parameters or edit the language, time zone, and NFS4 Domain values for your environment.
6. Enter the root password and confirm the password.
7. Clear the **Manual Net Boot** option and the **Save NVRAMRC** option.

Click **Next**.

8. Specify the user account for Oracle Solaris 11 OS. Root login is not enabled in Oracle Solaris 11 OS. Create a user account to SSH to the OS after provisioning. Provide a user name and password for the account.

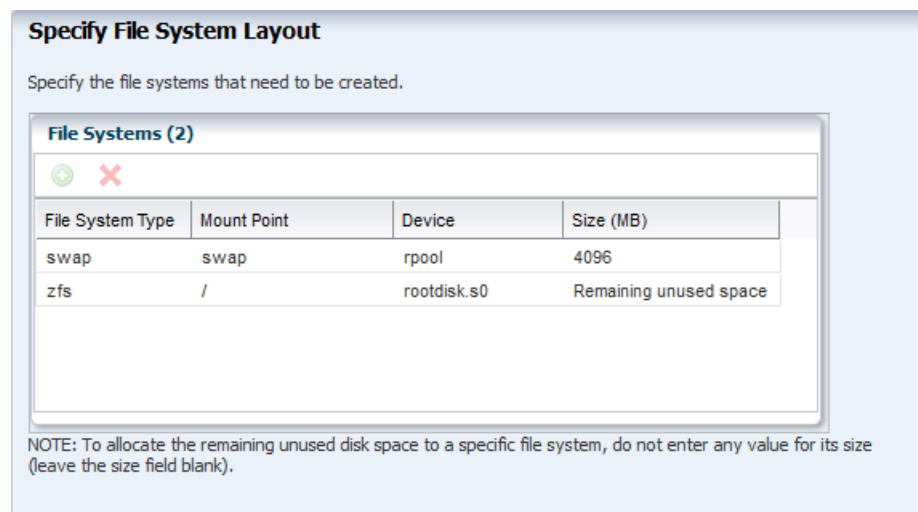
Click **Next**.

- Do not use iSCSI disks for provisioning Oracle VM Server for SPARC. Clear this option and click **Next**.



- The root (/) and a swap file system are defined by default but you must change the swap size, according to recommendations for sizing and performance. In general, each logical domain that this control domain supports will need 1 GB.

Use a minimum of 8192 MB for the swap size.



interface. You can add more than one network interface. When you apply the plan to a target, you can select which network interface is the primary interface and define the IP address.

- Control domain configuration such as CPU Threads or Whole-cores, memory, Crypto Units, Virtual Console Port Range and Virtual Disk Server name.
- Options such as enabling MPxIO and SR-IOV, detaching the unused buses, and saving NVRAMRC values.
- OS management option to install the Agent Controller.
- Networking options to use IPMP or Link Aggregation.

The recommended minimum configurations for the control domain are described in the following sections.

## CPU Resource Allocation

The number of system CPUs determines the number of control domain CPU threads:

- For less than 16 system CPUs, set the control domain CPU Threads to 2.
- For between 16 and 64 system CPUs, set the control domain CPU Threads to 4.
- For more than 64 system CPUs, set the control domain CPU Threads to 8.

You can select to allocate CPU resources either as CPU Threads or Whole-core. Whole-core is the default value in Oracle Enterprise Manager Ops Center. When you allocate as Whole-core, all the CPU Threads in the core are allocated to the control domain. For example, when you allocate two cores in UltraSPARC T2 servers, the control domain is allocated with all the 16 CPU Threads in the core. You can also set the maximum cores constraint when you select Whole-core allocation type. The maximum number of cores constraint specifies the number of cores that must be assigned to the domain.

## Crypto Units

Crypto units are the resources on the supported platforms that provide high-performance, dedicated cryptographic engines. These can be used for tasks such as encrypting and decrypting network traffic between a Secure Socket Layer (SSL) web server and an application server.

Each CPU core has one Crypto unit and four or eight CPU threads. Because the Crypto unit is part of a core, the Crypto unit is bound only to domains that contain at least one thread from the parent core. Crypto units cannot be split as CPU threads are split. For example, you have assigned the Crypto unit for the first CPU core to the control domain. When a new logical domain is assigned a thread from the first CPU core and the Crypto unit for that core is already assigned, the control domain cannot assign that Crypto unit to the new logical domain. Allocation of Crypto units might not succeed, especially when a core is split between domains. An Oracle VM Server might allocate fewer Crypto units or none at all.

You must assign at least one Crypto unit to the control domain because the Crypto unit enables domain migration.

The use of Crypto Units is not mandatory although it might speed the logical domain migration. Allocation of Crypto Units might not be available in all the hardware.

## RAM

The amount of RAM for the control domain depends on the size of the system RAM and the load of the system.

- For system RAM less than 8 GB, set the control domain's RAM to 1 GB.
- For system RAM between 8 GB to 16 GB, set the control domain's RAM to 2 GB.
- For system RAM greater than 64 GB, set the control domain's RAM to 8 GB.

In Oracle Enterprise Manager Ops Center the default value is 4 GB as a recommended starting point for logical domains, and the minimum value is 1GB.

## NVRAMRC Value

Automatic booting on a SPARC system uses the default boot device that is defined in the non-volatile RAM (NVRAM). User-defined commands that are executed during start-up are stored in the NVRAMRC file in the NVRAM. When you run an OS provisioning job on a SPARC machine, Oracle Enterprise Manager Ops Center resets the configuration to the factory default configuration and removes the information that is stored in the NVRAMRC file. The control domain OS configuration profile gives you the option to preserve the information in the NVRAMRC file before resetting the server to the factory defaults, and then restore the information after the reset.

To create an OS Configuration profile:

1. Select the **Plan Management** section and expand **Profiles and Policies**.
2. Select OS Configuration and click **Create Profile** in the Actions pane.
3. Enter a name and description in the **Create Profile - OS Configuration** wizard. In this case, the new profile has the name `install_cdoms_osc`
4. Select Oracle VM Server for SPARC as the Subtype.
5. Click **Next**.

**Identify Profile** \* Indicates Required Field

\* **Name:**

**Description:**

\* **Subtype:** Subtype

- Oracle VM Server for SPARC
- Logical Domain
- Oracle Linux
- Oracle VM Server for x86
- Red Hat Linux
- SUSE Linux
- Solaris
- JET Template

**Target Type:** Target Type

- V class (sun4v)

6. Select the Oracle VM Server for SPARC version to be installed. The version must match the version selected in the OS Provisioning profile.
7. Specify the resources that you want to assign to the control domain, according to the recommended minimum configuration. The remaining resources are then available for the logical domains.

- **CPU Model:** Select Whole-core to allocate the CPU resource in cores.
- **CPU Cores:** Enter the number of CPU core to be allocated to the control domain.
- **Max CPU Cores:** Enter the number of CPU cores that must be assigned to control domain.
- **Memory:** Enter the amount of memory required for control domain.
- Do not provide any values for **Requested Crypto Units**.
- **Virtual Console Port Range:** Enter the range between 5000 to 6000.
- Keep the default name of the virtual disk server.

Clear the following options:

- **Enable Single Root I/O Virtualization (SR-IOV)**
- **Detach Unused Buses**

**Specify Oracle VM Server Control Domain Parameters** \* Indicates Required Field

Specify the setup configuration for the Oracle VM Server Control Domain.

\* Oracle VM Server Version: Solaris 11.2 SRU 11.5.0 (LDom 3.2.0.1)

CPU Model:  Virtual CPU  Whole-Core

\* CPU Cores:

Max CPU Cores:

Memory:  GB

Requested Crypto Units:

Virtual Console Port Range:  -

Virtual Disk Server:

Options:  Enable Single Root I/O Virtualization (SR-IOV)  
 Detach Unused Buses

Click **Next**.

8. Select the option **Enable Multiplexed I/O** so that you can associate block storage libraries such as SAN and iSCSI for storage with the control domain.

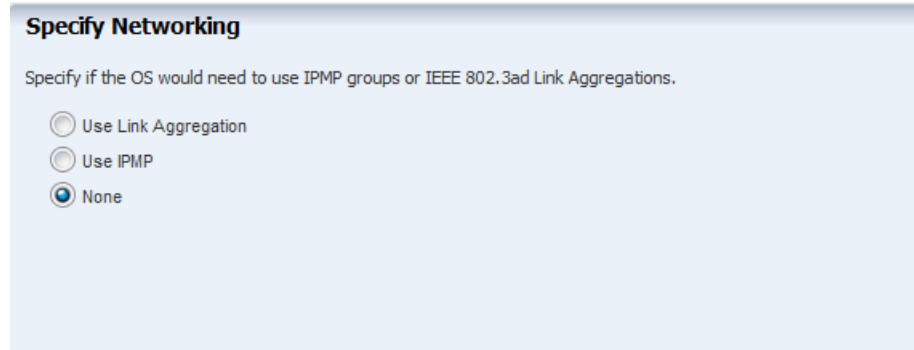
**OS Management**

Automatically Manage with Oracle Enterprise Manager Ops Center

Enable Multiplexed I/O (MPxIO)

Click **Next**.

9. Select **None** as the networking option for Oracle VM Server for SPARC.



**Specify Networking**

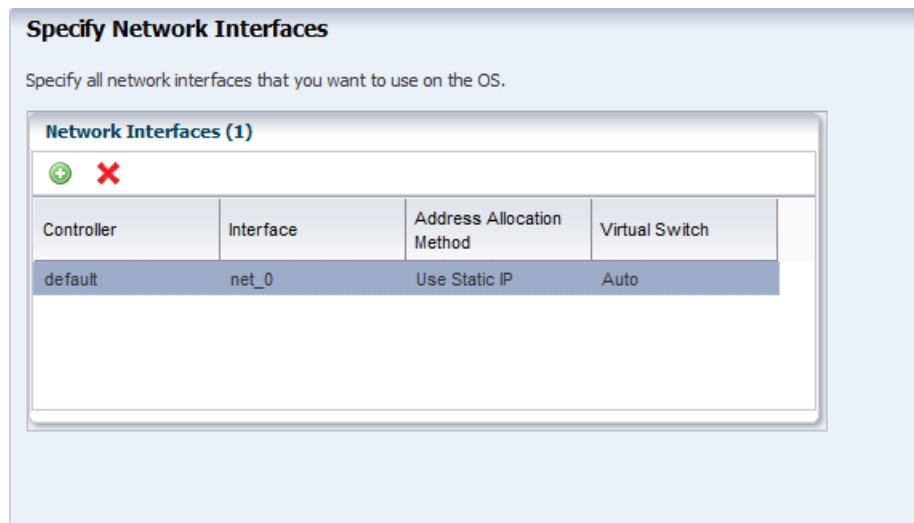
Specify if the OS would need to use IPMP groups or IEEE 802.3ad Link Aggregations.

Use Link Aggregation  
 Use IPMP  
 None

Click **Next**.

10. Select the network interface to use for OS provisioning. Select the **Controller** that hosts the network interfaces and the corresponding network interface. The **Address Allocation** is Use Static IP by default and cannot be modified.

Select **Auto** to create a virtual switch automatically for the network connection to the control domain. The virtual switch is created in the default format. For example, the network `192.0.2.0/24`, the virtual switch is created as `192.0.2.0_24`.



**Specify Network Interfaces**

Specify all network interfaces that you want to use on the OS.

**Network Interfaces (1)**

Controller	Interface	Address Allocation Method	Virtual Switch
default	net_0	Use Static IP	Auto

Click **Next**.

11. Review the parameters and click **Finish** to create the OS configuration profile.

The job is initiated and the new OS configuration profile appears under Profiles and Policies in the Plan Management section. You can select the OS Configuration profile to view its details in the center pane.

## Apply the Deployment Plan

Apply a deployment plan to provision Oracle VM Server for SPARC.



When you apply a deployment plan to provision Oracle VM Server for SPARC, you must have the following information to complete the installation:

- In the server hardware, obtain the network interface that is physically connected to the network that is managed by Oracle Enterprise Manager Ops Center.
  - Both tagged and untagged networks are listed for network configuration. When OpenBoot PROM (OBP) is used, only untagged networks can be used for OS provisioning as you cannot boot from a tagged network.
  - The IP address for the boot interface.
  - If you want to identify the network interface using the MAC address, you can select to enter the MAC address instead of the boot interface.
  - The details of network connection that you want to use to configure the OS after booting. For multiple network configuration, the first interface is always overwritten by the boot interface that is defined during the OS provisioning step. For single network configuration, it is same as the boot interface network.
  - Do not select the option to place the Oracle VM Server for SPARC in a server pool.
1. Select the **Provision OS** plan in the **Deployment Plans** list.
  2. Select **Apply Deployment Plan** in the Actions pane.
  3. Select one or more assets and add to the target list.
  4. Select the plan to be applied with minimal interaction. If required to change the profile parameters, then select **Allow me to override any profile values**.
  5. Select not to review the steps that are not included in the plan and click **Next**.
  6. The wizard collects information for provisioning Oracle VM Server for SPARC. Click **Next**.
  7. In the Boot Interface Resource Assignments step, provide the following information:
    - **Network:** The network for the boot interface.
    - **Controller:** Select the controller that provides the network interface for OS provisioning. It is always default for the Oracle VM Server for SPARC provisioning.
    - **Interface:** Select the net0 interface from the list. This network interface is physically connected to the selected network.
    - **IP Address:** Enter the IP address for the boot interface.
    - (Optional) **Primary Hostname:** Enter the host name for Oracle VM Server for SPARC.

If you want to identify the network interface by its MAC address, then select the option **Identify Network Interface by MAC Address** and enter the MAC address instead of selecting the Controller and the Interface.

Click **Next** to view the OS provisioning summary.

8. Review the parameter of OS provisioning and click **Next**.
9. The following steps in the wizard collects information about OS configuration.  
Click **Next**.
10. Specify the network resources that were defined in the profile. Select the network and for each network, select the network interface and enter the IP address.

The first network interface listed is the boot interface. For multiple network configuration, the first network interface is always overwritten by the boot interface network. You can select which is the primary network interface after the provisioning of the OS.

For single network, the boot interface network will be the defined as the primary network during OS configuration.

Click **Next**.

11. Do not select the option to add the Oracle VM Server for SPARC to a server pool.

Click **Next**.

12. Review the summary of the OS configuration parameters and click **Next** to schedule the job.
13. Schedule the provisioning job to run immediately.

Click **Apply** to apply the deployment plan on the selected targets.

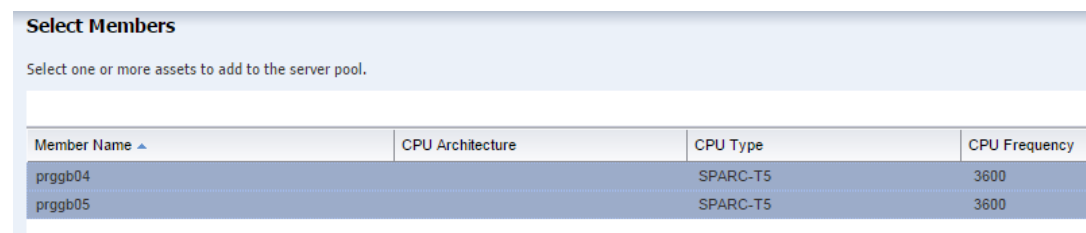
## Create the Server Pool

A server pool is a group of control domains that has access to the same virtual and physical networks and storage resources. Server pools provide load balancing, high availability capabilities, and sharing of the resources for all the members of the pool.

This procedure creates a server pool containing the control domains you created, both storage libraries you created, and the network domain you created.

Before you begin, you must know the network interface that is the physical connection to the system that supports the control domain.

1. Select **Server Pools** in the Resource Management View of the Navigation pane.
2. Click **Create Server Pool** in the Actions pane.
3. Enter a name and description for the server pool.
4. Select Oracle VM Server - SPARC from the Virtualization Technology list.
5. Click **Next**.
6. Select the Oracle VM Servers to be added to the server pool.



Member Name ▲	CPU Architecture	CPU Type	CPU Frequency
prggb04	SPARC-T5	SPARC-T5	3600
prggb05	SPARC-T5	SPARC-T5	3600

Click **Next**.

7. Select the new network domain to be associated with the server pool. When you select a the network domain, the Specify Physical Interface table is populated with the fabrics in the network domain.

**Associate Network Domain**

Select the network domain to associate with the server pool. Select the physical interfaces for each asset used to connect to each fabric in the network domain.

Network Domain: PaaS ND

**Specify Physical Interfaces**

Server	ServiceDomain	Physical Interface	Bond ID	Bond Member
Fabric: Eth Fab at net5 at 10.163.96.217				
prggb05	primary	net0		
Fabric: PaaS Eth Fabric				
prggb05	primary	net3		

Networks on PaaS Eth Fabric:

Networks on Eth Fab at net5 at 10.163.96.217: 10.163.96.217

- Specify how each fabric connects to each Oracle VM Server.

 **Note:**

In the Physical Interface column, for each Oracle VM Server, select the name of the NIC that the system that hosts the Oracle VM Server uses to connect to the fabric. The NIC that is displayed initially is not a default; you must specify the NIC to use.

Click **Next**.

- Click the **Add Network** icon to associate the networks in the network domain with the servers in the server pool. Enter the number of connections to the network as 1.

**Associate Networks**

Select the networks to associate with all of the servers in the server pool.

Network Domain: PaaS ND

Network Name	P-Key / VLAN ID	Mode	Total Connections	Use for Migration?
10.163.96.217	-	-	1	<input type="checkbox"/>

Click **Next**.

- Specify the network configuration settings for each Oracle VM Server. Both Oracle VM Servers are already connected to the selected network. The UI displays the existing connection details to the network.

Select interfaces for each fabric you selected in network domain:

- For the fabric that supports the public network (the routable network), select any existing interfaces to the control domain. If no interface has been connected to the control domain, select the interface that is connected to the Ethernet switch.
- For the host-managed fabric, select the interface that is connected to Ethernet switch. Do not use bonded interfaces.

 **Note:**

In the NIC column, for each Oracle VM Server, select the name of the NIC that the system that hosts the Oracle VM Server uses to connect to the fabric. Specify the same NIC that you chose in Step 8.

**Configure Interfaces**

Specify the configuration settings for each network connection.  
Server Pool Name: my\_server\_pool

**Specify Configuration Settings for each Network Connection**

Hostname	Service Domain	SR-IOV	Network	P-Key/VLAN ID	Mode	Connected	NIC	Switch Name	Address Allocation Method
smt5v2-1	primary	<input type="checkbox"/>	192.0.2.0/24.1	-	Untagged	<input checked="" type="checkbox"/>	net0	192.0.2.0_24	Do not All
smt4v2-3	primary	<input type="checkbox"/>	192.0.2.0/24.1	-	Untagged	<input checked="" type="checkbox"/>	net0	192.0.2.0_24	Do not All

Click **Next**.

- Storage libraries that are reachable from the selected members of the pool are displayed. Select the NAS and the SAN storage library to be associated with the server pool. Do not select a dynamic storage library.

**Associate Libraries**

The storage libraries that are reachable from all of the selected virtualization hosts are listed. Select the storage libraries to associate with the server pool.

Search

Library Type	Library Name	Description
Dynamic Storage	Dynamic Library (10.163.98.106)	Dynamic Storage Library of 10.163.98.106 Storag...
SAN	PaaS data lib	fc://b65f59dd-819c-4d40-8244-d54d1f38eed6
NAS	metadata_paas	paas metadata lib

Click **Next**.

- Select the placement and auto balancing policy:
  - Place the guest on Oracle VM Server with lowest relative load.
  - Do not auto balance the server pool.
  - Clear the option for Automatic Recovery.

**Specify Policies**

**Placement Policy:**  Place guest on Oracle VM Server with lowest relative load  
 Place guest on Oracle VM Server with lowest allocated CPU and memory  
 Place guest on Oracle VM Server minimizing overall power consumption  
A Server is over-utilized when the following values are exceeded:  
CPU Utilization exceeds:  % for:  minutes

---

**Auto-Balancing Policy:**  Do not auto-balance the server pool  
 Automatic balancing of the server pool  
Note: The date and time are in the Enterprise Controller's time zone.  
Every:  Weeks on a  at

**Approval Policy**  
 Approval not required, automatically move the guests  
 Approval required, send notification

---

**Automatic Recovery:**  Power off a failed server when the capabilities are available before the automatic recovery of its logical domains

Check servers reachability every :  seconds

Click **Next**.

13. Review the server pool information, then click **Finish** to create the server pool. The server pool is created and listed in the Server Pools view of the Assets section.

## Set Up and Configure a Virtual Data Center

- [Create the vDC](#)
- [Create the vDC account for PaaS](#)
- [Preparing the vServers](#)

### Create the vDC

The vDC inherits network resources and storage resources from the server pool. The vDC enables cloud users to create virtual machines and run applications. The cloud user provides networking to its virtual machines from the public networks that are allocated to each account or by creating private networks. The cloud user can use the public networks, or create a private vNet for use in the account. When the cloud users create a private vNet, either a dynamic private network is created or the static private network is available for use in that account.

1. Select **vDC Management** in the Navigation pane.
2. Click **Create Virtual Datacenter** in the Actions pane.
3. The first step Create Virtual Datacenter Wizard is an introduction to the vDC and the prerequisites for creating a vDC. Click **Next**.
4. In Specify Virtual Datacenter Details:
  - Provide a name and description for the vDC.

- Enter tags to distinguish this vDC from other vDCs.
- Select **Password Required** to enforce using credentials when creating vServers in the vDC. When this option is enabled, cloud users must specify a root password, with or without an SSH key. In addition, cloud users must specify either an SSH key or remote user credentials when creating vServers that use Oracle Solaris 11 OS.

Click **Next**.

5. Select the new server pool from the list.
6. Select one or more boot networks from the public network. You must select at least one network.

 **Note:**

Boot networks are required for vServer OS deployment. You must also add at least one boot network to each account in the vDC for creating vServers in the account. You can also assign a boot network to an account and use it as a public network for that account.

Click **Next**.

7. The vCPU sizing displays this information:
  - **Total number of vCPUs:** The total number of vCPU in the vDC for the updated vCPU to physical CPU Threads ratio.
  - **Avg memory per vCPU:** The average memory per vCPU in GB. The total memory available for the vDC by the total number of vCPUs. When you want to use the CPU and memory resources to the full extent, the vServers must use this amount of resources.

Accept the default values and click **Next**.

8. Select **Static Block Storage Libraries** as the storage type for the root disk.
9. Select the SAN storage library you created.
10. Select **Static Block Storage Libraries** as the storage type for the volume and template.
11. Select the SAN storage library you created.

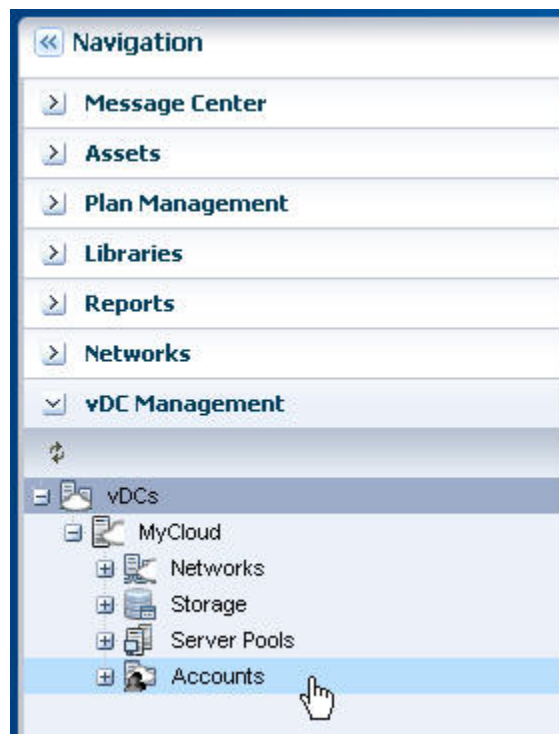
Click **Next**.

12. Confirm the vDC configuration and click **Finish** to create the vDC. The vServers will run in this vDC, according to the vServer type.

## Create the vDC account for PaaS

In creating the account, you allocate resources from the vDC to the account. The resource allocation for all the accounts in a vDC can be more than the actual resources in a vDC. This oversubscription of the resources must be planned. You must update the resources when the requirement increases.

1. Expand vDC Management on the Navigation pane.
2. Expand vDCs, select the new vDC, then click **Accounts**.



3. On the Actions pane, click **Create Account**.
4. Enter the name for the account: `ocadmin`.  
Click **Next**.
5. Specify the quotas of vCPU, Memory, and Storage for the account.  
For this PaaS account, specify the maximum capacity of each resource.

### Specify Account Resource Limits

**Resource Quota Information**

- ⚠ vCPU is Infinity% oversubscribed, 5 vCPUs subscribed from vDC capacity of 0
- ⚠ Memory is Infinity% oversubscribed, 10 GB subscribed from a vDC capacity of 0 GB
- ⚠ Storage is 1% oversubscribed, 1635 GB subscribed from a vDC capacity of 1630 GB

vCPU:

Memory:  GB

Storage:  GB

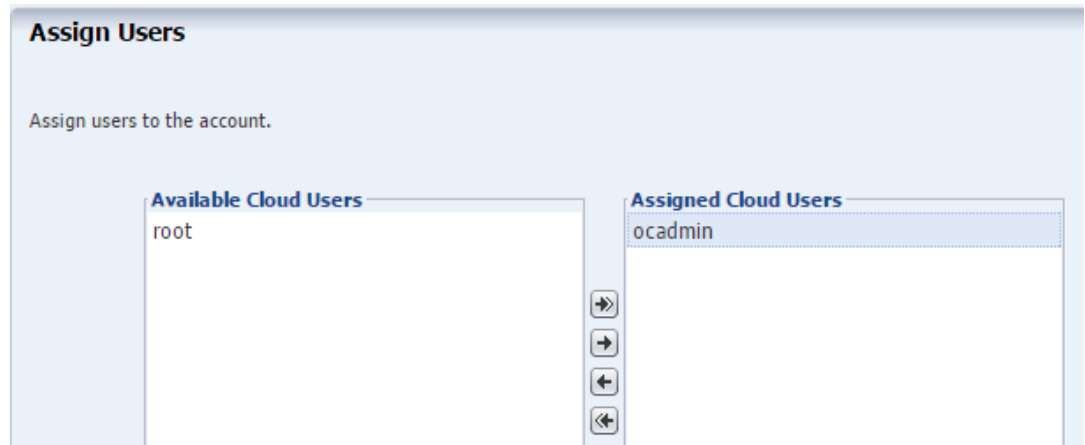
Number of private vNets:

Use the table below to edit the public network resource limits.

Public Networks Resource Limits				
	Name	Subnet	Available Addresses	Limit
<input checked="" type="checkbox"/>	10.1.1.2.1	1.1.1.2	101	<input type="text" value="8"/>

6. In the Number of private vNets field, enter the number of private vNets for this account, which is the same as the number of VLAN IDs assigned. Click **Next**.

7. Select the cloud user that you want to assign to the account. Use the right arrow key to add this cloud user to the list of Assigned Cloud Users. You can use the other arrow buttons to adjust the list. Do not assign the `root` user.



Click **Next**.

8. View the Summary and click **Finish** to create the account. When the job is completed, a new account is created.

## Preparing the vServers

A vServer is an entity that provides the outward interface of a stand-alone operating system that consumes CPU, storage, and memory resources. A vServer has its own identity, local storage, interfaces, and configuration that exist for the full lifetime of the vServer. You determine the creation of new vServers according to the account quota limits and applications requirements.

When creating a vServer, the following account resources are required:

- **A vServer type:** vServer Types are profiles that define the computing resources such as virtual CPU, memory, and storage size. You select the best suitable vServer type from those available for the account. vServer types are visible to cloud users during the vServer creation process.
- **A server template:** Server templates designate the OS provisioning and OS configuration for the vServer. You can either select a server template from those that exist for the account or create a new server template.
- **One or more virtual networks:** For the vServer network connectivity you must choose one or more vNets from the available vNets or create new ones before creating a vServer. vServers are only assigned to virtual networks at vServer creation time.

## Create a new vServer Type

When you create a vServer type, the VM hosting details display the following information in the wizard based on the resources defined:

- The number of virtualization servers in the vDC that have sufficient physical resources to host a vServer with the selected resources.
- An estimation of number of vServers that can be hosted with the total number of physical resources of the vDC.



- A warning when the current value of the memory size exceeds the selected storage size.
1. Select the vDC and click **Create vServer Type** in the Actions pane.
  2. Provide a name and description to identify the type. For example:
    - single instance DBAAS
    - RAC instance DBAAS
    - RAC big instance DBAAS
  3. Add tags for identification and classification of the vServer type. Click **Next**.
  4. Specify values for vCPU, memory and storage resources. Click **Next**. The minimum amount of RAM for Oracle Solaris 11.2 is 2 GB. For example, [Table 25-1](#) shows the recommended values for the DBaaS instances deploying Oracle 12c Database.

**Table 25-1**

Type	RAM	root	vCPU
single instance DBAAS	4 GB	45 GB	16
RAC instance DBAAS	5 GB	45 GB	16
RAC big instance DBAAS	12 GB	45 GB	16

5. Review the information provided and click **Finish** to create the vServer type.

## Create a vServer Template

Create a vServer template from the new OS profiles you created: provisioning, which includes the update profile, and configuration.

1. Select the account in the vDC Management section.
2. Click **Create Server Template** in the Actions pane.
3. In the wizard, skip the introduction and click **Next**.
4. Enter the name and description for the server template.  
Click **Next**.
5. Select the new OS provisioning profile, then click **Next**.
6. Select the new OS configuration profile from the list, then click **Next**.
7. Review the information and click **Finish** to create the server template.

The new template is created and available to create vServers.

## Create a Private vNet

Private vNet is a private virtual network set up exclusively for an account. The vServers associated with this vNet have private virtual IP address for internal communication. In this PaaS solution, only RAC instances use private networks.

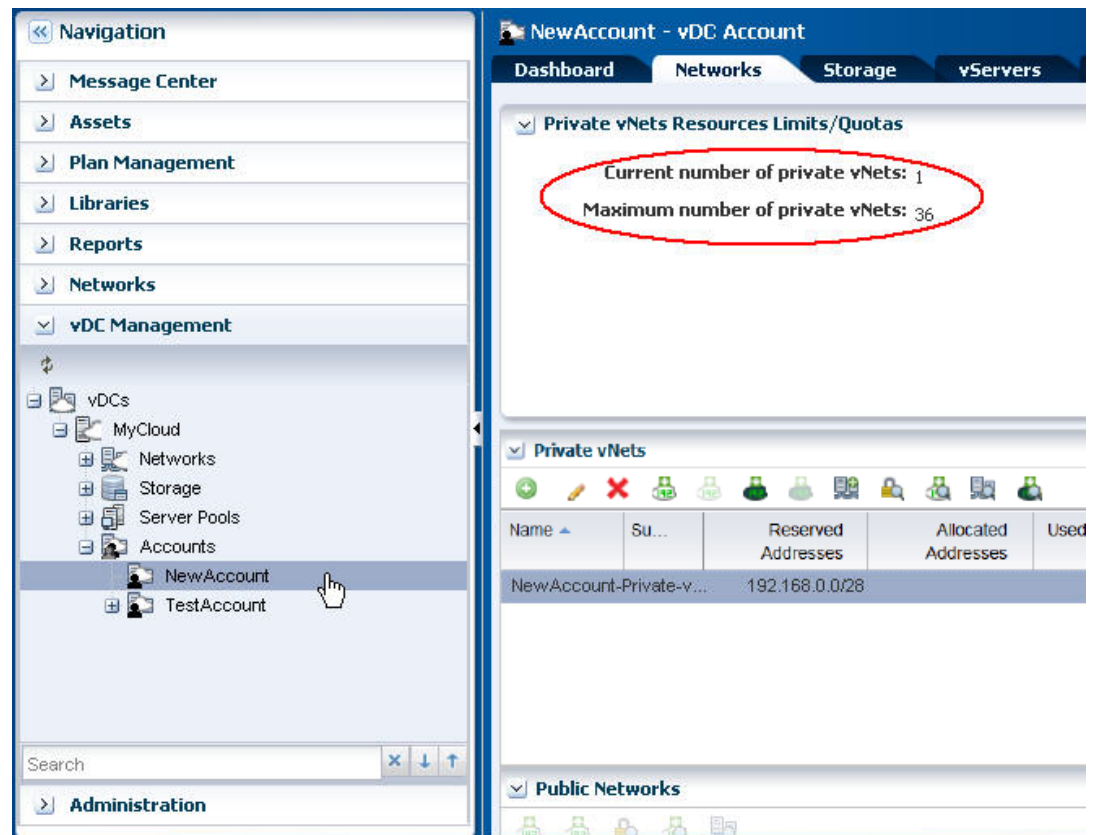
1. Expand vDC Management on the Navigation pane.
2. Expand vDCs, select the new vDC, then click **Accounts**.
3. Select the account you created.
4. On the Actions pane, click **Create Private vNet**.

5. Enter the name and description for the private virtual network. Click **Next**.
6. Use the slide bar to set the value of the number of elements. The values entered are rounded up to the next value of 13, 29, 61, 125, 253, 509, 1021, 2045, 4093, and 8189. Do not use the values of 1 or 5. You cannot change the size of a network after it is created so specify the size needed to accommodate your current and future requirements:
  - The number of elements is also the maximum number of vServers that can be part of this vNet. Class C networks (for example, 10.0.0.1/24) enable you to create 256 vServers and Class 16C networks (for example, 10.0.0.2/20) enable you to create 4096 vServers.
  - Whether the vNets will be shared or dedicated. If multiple RAC instances will share one or more networks, set the network size to 509 and more. If each RAC instance will have a dedicated network, limit the network size to 29 or 13.



7. Click **Next**.
8. Review the Summary, then click **Finish** to create the private virtual network.

The new private virtual network is listed in the Networks and vDC sections of the Navigation pane.



9. Connect the IP address from this new private virtual network to the vServer, using **Connect Private vNet** icon in the Private vNets table.

 **Note:**

If you have multiple vNets, connect each vNet one at a time. Wait for each job to complete before making the next connection.

## Validate the Integration and PaaS

Test the connections from Enterprise Manager Cloud Control and Enterprise Manager Ops Center to the cloud user. In this test, create two vServers with the same storage and network resources. If successful, one vServer can send information to and receive information from the other vServer.

## Create Volumes for vServer

Use the following procedure to create volumes from shared disks. In normal operations, Enterprise Manager creates the volumes.

1. Expand **vDC Management** in the Navigation pane.
2. Select the account from the vDC Accounts list.
3. Click **Create Volume** in the Actions pane.
4. Enter a name for the volume.  
Click **Next**.
5. Check the **Shared** option.
6. Enter the size of the volume.  
Click **Next**.
7. Review the volume information and click **Finish** to create the volume.
8. Delete the volume when the job has completed.

## Create Test vServers

Create two vServers with the same private network.

1. Expand vDC Management in the Navigation pane.
2. Select the account from the vDC Accounts list.
3. Click **Create vServer** in the Actions pane.  
The Create vServer Wizard is displayed.
4. Enter the following information in the **vServer Details** step:
  - Name and description for the vServer.
  - Tags for better identification and classification of the vServer.
  - Number of vServers to create.
  - The High Availability Support option has no effect in the PaaS integration.

Click **Next**.

5. Select a server template from the list. Click **Next**.
6. Select a vServer type from the list. Click **Next**.
7. Select one or more volumes from the Available Volumes list. Use the arrow keys to move the selected volumes to the Attached Volumes list.

For this test, attach the same volume to both vServers.

Click **Next**.

8. Select one or more vNets from the list. Click **Next**.
9. Select the Static method for assigning the IP address.
10. Assign the IP address from the new private virtual network to the vServer. Click **Next**.

You can also perform this step after you create the vServer by clicking the **Connect vNet** icon on the account's **Networks** tab in the Private vNet table.

Do not select a distribution group. Click **Next**.

11. Specify a root password. Click **Next**.
12. Confirm the vServer information provided in the Summary and click **Finish** to launch the job to create the vServer.

After the job completes, the vServer is created and listed in the Navigation pane. By default, the DNS and other naming information is taken from the selected vNet or server template and added in the `/etc/resolv.conf` file of the vServer.

## Verify Shared Storage and Connectivity

To verify connectivity, create two vServers. From the console, log into one vServer and use the `ping` command with the IP address of the other vServer. This succeeds on public network or private network.

To verify shared storage:

- For a Fibre Channel SAN storage: `fcadm lu`
- For iSCSI SAN storage: `iscsiadm list target -S`

The Client Kit also contains the `new_vDC.ksh` script that can be useful for diagnosing problems. Enterprise Manager uses the file when it starts the integration, using the file path `/tmp/INPUT/bootstrap.xml` but you can also perform this manually.

### Note:

After you finish testing, delete the `bootstrap.xml` file and the `oc-pass.txt` files because they contain security information such as passwords and URLs.

1. Create a file named `bootstrap.xml` in the following form and using your site's information.

```
<bootStrap version="1.0" name="boot_strap"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="bootstrap.xsd">
<!-- Ops-center details required to establish connection before running the ops center commands -->
<opsCenterDetails>
  <opsCenterURL>https://<yourhostname>.com</opsCenterURL>
```

```

        <!-- OpsCenter credentials -->
        <opsCenterUser>ocadmin</opsCenterUser>
        <opsCenterHome>/opt/oracle/iaas/cli</opsCenterHome>
    <!-- Stage location on Ops Center Host -->
    <opsCenterStageLoc>/tmp</opsCenterStageLoc>
</opsCenterDetails>

</bootStrap>

```

## 2. Issue the following commands:

```

-bash-4.1$ echo password > /tmp/INPUT/oc-pass.txt
-bash-4.1$ /opt/oracle/paas/tools/new_vDC.ksh

```

## 3. Review the output:

```

Certificate added to truststore /export/home/ocadmin/.oracle_iaas/truststore
Vserver types
4159 EXTRA_LARGE Logical Domain extra-large instance type for vDC PaaS_vDC 17179869184 28
4
4158 LARGE Logical Domain large instance type for vDC PaaS_vDC 8589934592 24
2
4157 SMALL Logical Domain small instance type for vDC PaaS_vDC 4294967296 20
1
4161 paas_RAC 12884901888 45
16
4160 paas_SI 4294967296 45
16
Vnets
VNET-321a93e4-2d11-4642-b3ec-3ebde6e86b04 big_private_net big_private_net OK 172.16.0.0/20
private
VNET-badc34e5-021a-44c7-a7ad-d11915e04ec3 small_rac_net1 small_rac_net1 OK 192.168.0.0/28
private
VNET-47f06e55-7c72-4116-919f-bb940c978b8a 10.163.96.0/22.1 OK 1x.16x.x6.0/22
public_external
Vserver templates
TMPL-116826d2-6a96-4217-ab16-0d4a71157028 paas_default OK 12884901888
false false

```

## Diagnosing Problems

If a virtual datacenter is unable to create vnets, edit the network domain to increase the limit of private networks it can provide simultaneously.

If control domains are already running and you change the fabric that supports the server pool, you will need to configure the Fibre Channel controller:

1. fcadm hba-port
2. Identify active ports.
3. fcadm remote-port -p <each\_portID\_from\_output>
4. # cfgadm -c configure <controller\_to\_be\_configured>

# Getting Started with Dynamic Resource Provisioning

This chapter provides an introduction to the Dynamic Resource Provisioning and describes how to set up the virtual service adapter so that it can communicate with virtual data center. It contains the following sections:

- [About Dynamic Resource Provisioning](#)
- [Configuring the Solaris SPARC Adapter](#)

## About Dynamic Resource Provisioning

Oracle Enterprise Manager Ops Center provides a centralized management and optimization system by which administrators can create virtual operating systems, virtual systems, or a virtual data center in a cloud. The Enterprise Manager Platform as a Service allows administrators to create platforms onto which users can deploy database and middleware applications. By using the Dynamic Resource Provisioning feature, Enterprise Manager can now interface with the Enterprise Manager Ops Center to add or remove resources on demand to a PaaS Cloud.

This reduces the administrator overhead required while planning and setting up large infrastructure services. With this feature, administrators can:

- Dynamically add or remove virtual hardware
- Extend or downsize DBaaS in an automated manner.

To expand the capacity of a private cloud, the cloud administrator must request hardware and software from the Enterprise Manager Ops Center infrastructure administrator. The infrastructure administrator provides the host, network, and storage details to the cloud administrator who then uses these details to setup the PaaS infrastructure in the cloud.

In earlier releases, these tasks had to be performed manually. In this release, several of the steps have been automated and the cloud administrator can increase or decrease capacity by just a few clicks. To set up DBaaS on Solaris SPARC, the following steps are required:

- The virtual data center must be configured. This involves setting up the networks, storage volumes, creating server templates, and defining sizes. See [Set Up and Configure a Virtual Data Center](#).
- The virtual machine adapter must be configured. See [Creating the Virtual Machine Adapter Instance](#).
- The administrator can launch the Provision or De-Provision wizard to increase or decrease the capacity of the pool. For:
  - DBaaS: See [Dynamically Provisioning Resources in a DBaaS Cloud](#) .

## Configuring the Solaris SPARC Adapter

The Solaris SPARC Adapter acts as an interface between Enterprise Manager and Enterprise Manager Ops Center and allows cloud and self service administrators to dynamically provision

or de-provision resources in their private cloud setup. Resources can be added when additional service instances need to be provisioned or decreased if existing resources are not being utilized. Resources can either be infrastructure resources like hosts (based on virtual machines) or platform resources like database and middleware Oracle Homes.

To configure the virtual service adapter, follow these steps:

Step	Task	Link
1	Adding the Stage Server	See <a href="#">Adding the Stage Server</a> .
2	Creating the Virtual Machine Adapter Instance	See <a href="#">Creating the Virtual Machine Adapter Instance</a> .
3	Creating the Virtual Machine Template	See <a href="#">Creating the Virtual Machine Service Template</a> .

## Adding the Stage Server

A staging server is a managed host that communicates with the Enterprise Manager Ops Center to perform one or more of the following tasks:

- **Query:** Query and retrieve configuration information for Solaris SPARC systems from the Enterprise Manager Ops Center Virtual Data Center.
- **Provision the Virtual Machines:** Access the Enterprise Manager Ops Center to perform provisioning operations such as creating virtual machines, reserving networks and allocating storage on virtual machines.
- **De-provision the Virtual Machines:** Access the Enterprise Manager Ops Center to perform de-provisioning operations such as releasing networks, IP addresses, and storage on virtual machines.

Any managed host can be used as the staging server if the Enterprise Manager Ops Center Client kit has been installed and available for the platform. The following platforms are supported:

- Linux\_x86
- Solaris\_x64
- Solaris SPARC 64

Before the staging server can communicate with Enterprise Manager Ops Center, the Ops Center Client must be installed. To communicate with Enterprise Manager Ops Center, specify the IP address of the Ops Center's Enterprise Controller and the credentials for the cloud user account after configuring of the Ops Center Client, as described in [Dynamic Resource Provisioning with Oracle VM Server for SPARC](#).

To add a stage server, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**.
2. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**. Click the Setup link next to the Virtual Adapters service family and click on the **Stage Servers** link.
3. Click **Add** on the Stage Servers page. The Add Stage Server window appears.
4. In the Host field, select a managed host that is to be used as the staging server.
5. Specify the directory in which the staging files are to be stored. This directory is used to stage and execute the scripts, store temporary data and results.
6. Specify the credential type which can be:

- **Named:** Select a named profile for which the credentials have been defined.
  - **New:** Select this option to specify new credentials. Enter the user name, password, specify the **Run** privilege and click **OK**.
7. Click **OK** to add the stage server.

You can add one or more stage servers that can be used to communicate with Enterprise Manager Ops Center when the Solaris adapter instance is being created. When one of the stage servers goes down, the next available one will be used to communicate with Enterprise Manager Ops Center.

## Creating the Virtual Machine Adapter Instance

A virtual machine adapter instance is a managed target which can be used as an interface with the Infrastructure provider system (Enterprise Manager Ops Center) to manage the client machines.

To create an virtual machine adapter instance, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**.
2. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**. Click the **Setup** link next to the **Virtual Adapters** service family and click on the **Instances** link.
3. Click **Create**. The Create Infrastructure Adapter: General page appears. Enter the name and description for the adapter.
4. Select the PaaS Infrastructure Zone with which the adapter is to be associated. Any virtual machine provisioned using this adapter will be added as a host member to the PaaS Infrastructure Zone selected here. A PaaS Infrastructure Zone can be associated with only one adapter instance.
5. Click **Next**. In the Create Infrastructure Adapter: Connection Details page, specify the following:
  - **Ops Center Web Service URL:** Enter the URL that is to be used to connect to the Enterprise Manager Ops Center server.
  - **Ops Center Admin User:** Enter the name of the administrator who will be accessing the Enterprise Manager Ops Center server. This user is created when the virtual data center is set up.
  - **Password:** Enter the password for the administrator.
  - **Stage Servers:** Click **Add** to select the stage servers that are to be used to execute scripts to perform various operations such as provisioning, querying, and so on. You must select the correct stage server for this adapter instance. For example, there may be two administrators managing two different virtual data centers with different accounts and using separate stage servers for each of their accounts. In this case, it is important that the correct stage server is selected here.
6. Click **Next**. In the Placement Constraints page, specify the maximum number of virtual machines that can be provisioned.
7. Click **Next**. In the Characteristics page, specify the characteristics that will be applied to the virtual machine adapter target as target properties. When a new virtual machine is created, these properties will be applied.
8. Click **Submit**. A Solaris SPARC adapter instance that can be used to communicate with the virtualized resource provider system (Enterprise Manager Ops Center) is created. Along with the Solaris SPARC adapter instance, a default virtual machine service template is also created. This template can be modified and copied to create more service



templates. These templates provide the structural definition for the virtual machines that will be created.

## Editing the Virtual Machine Adapter Instance

To edit a virtual machine adapter instance, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**.
2. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**. Click the **Setup** link next to the **Virtual Adapters** service family and click on the **Instances** link.
3. Select a virtual machine adapter instance from the list and click **Edit**.
4. You can edit the following:
  - Name and description of the adapter.
  - PaaS Infrastructure Zone: You can select a new PaaS Infrastructure Zone with which the adapter instance is to be associated.
  - Fetch Configuration: Select this check box to retrieve the latest configuration information such subnet, storage, and so on available with the adapter. If the configuration has changed, the existing service templates may become invalid and scheduled provisioning operations may need to be manually purged.
5. Click **Next**. In the Connection Details page, you can modify the connection details, add a new stage server or remove an existing stage server. Click **Next**.
6. Modify the Placement Constraints if required. Click **Next** and modify the characteristics you have defined for the adapter instance if necessary.
7. Click **Next** and review the information entered so far. Click **Submit** to submit the changes made to the adapter instance.

## Deleting the Virtual Machine Adapter Instance

To delete a virtual machine adapter instance, select an instance from the list and click **Delete**. A confirmation message is displayed. Click **Yes** to confirm and delete the adapter instance.

### Note:

You cannot delete an instance if any virtual machines have been provisioned using the adapter instance.

## Creating the Virtual Machine Service Template

The virtual machine template describes the virtual machine configuration that can be used to provision a virtual machine on the infrastructure adapter instance.

This template can be used in the following cases:

- When the administrator chooses to provision the virtual infrastructure.
- When auto provisioning is not part of the service request. (This feature is available only for Middleware as a Service).

To create the virtual machine template, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**.
2. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**. Click the **Setup** link next to the **Virtual Adapters** service family and click on the **Service Templates** link.
3. Click **Create**. The General page appears. Enter the name and description for the template and click **Next**.
4. In the Characteristics page, specify the characteristics that will be applied to the virtual machines that will be provisioned using the Solaris SPARC adapter.
5. Click **Next**. In the Solaris Adapter page, click **Add** to select the Solaris SPARC Adapter with which the service template is to be associated.
6. Click **Next**. The Virtual Machine Configuration page appears. Depending on your use case (single instance, RAC, or middleware), the configuration details you specify will be different.

Enter the virtual machine configuration details:

- **Host Name Prefix:** Enter a prefix for the host name. This is a logical name used to group hosts of a certain request type.
- **Instance Size:** The list of available virtual machine hardware configurations (memory, CPU, and storage) are listed. The configurations are retrieved from the Enterprise Manager Ops Center when the Solaris adapter is registered. Select the configuration that best suits your requirements based on how much CPU, storage, and memory is required to run the operating system, the software that is to be deployed, and extra space for maintenance.

If all configurations are selected, they will be displayed when the request is submitted.

For example, if the operating system requires 2GB, the Database Home to be deployed requires 2GB, and the maintenance space (3.5 times the Database Home) + expected data to be stored (1GB), you must select at least 10 GB size.

- **Server Template:** The server template defines the operating system image being used. When you select a server template, configuration details such as virtual machine templates, virtual machine sizes, networks, and storage volumes that are accessible and available to the administrator are retrieved from the Enterprise Manager Ops Center. To maintain consistency across the software pool, all the Oracle homes in the pool must be of the same type and are expected to use the same operating system image.

### Sample XML: Server Template

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<result xmlns="http://www.oracle.com/xml/ns/iaas"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:type="DescribeServerTemplatesResult" requestId="8886">
  <items>
    <id>TMPL-1005a3b8-cc8b-4f3e-83c2-ee65b849c871</id>
    <name>paas-templ</name>
    <status>OK</status>
    <size>12884901888</size>
    <public>>false</public>
    <readOnly>>false</readOnly>
  </items>
  <items>
    <id>TMPL-55e78615-e896-4521-a9bd-d037dc5c981b</id>
    <name>paas-tmpl-simple-post-script</name>
    <status>OK</status>
    <size>12884901888</size>
    <public>>false</public>
  </items>
</result>
```

```

    <readOnly>false</readOnly>
  </items>
</result>

```

### Sample XML: Server Template: RAC

```

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<result xmlns="http://www.oracle.com/xml/ns/iaas" xmlns:xsi="http://www.w3.org/
2001/XMLSchema-instance" xsi:type="DescribeVserverTypesResult" requestId="8889">
  <items>
    <id>16019</id>
    <name>PaaS_RAC_big</name>
    <description>Custom vserver type: PaaS_RAC_big, CPU: 8 Memory: 12GB</
description>
    <tags>
      <name>oracle.cloud.uuid.cloud</name>
      <value>VDC-db24f716-fed4bd2-8127-d88848d04687</value>
    </tags>
    <tags>
      <name>oracle.vm.profile.type</name>
      <value>CLOUD_CUSTOM</value>
    </tags>
    <tags>
      <name>oc.internal.ui.hide</name>
      <value>TRUE</value>
    </tags>
    <memorySize>12884901888</memorySize>
    <storageSize>20</storageSize>
    <vcpu>8</vcpu>
  </items>
  <items>
    <id>16017</id>
    <name>PaaS_SI</name>
    <description>Custom vserver type: PaaS_SI, CPU: 4 Memory: 6GB</
description>
    <tags>
      <name>oracle.cloud.uuid.cloud</name>
      <value>VDC-db24f716-fed4bd2-8127-d88848d04687</value>
    </tags>
    <tags>
      <name>oracle.vm.profile.type</name>
      <value>CLOUD_CUSTOM</value>
    </tags>
    <tags>
      <name>oc.internal.ui.hide</name>
      <value>TRUE</value>
    </tags>
    <memorySize>6442450944</memorySize>
    <storageSize>20</storageSize>
    <vcpu>4</vcpu>
  </items>
</result>

```

- **Networks:** The list of available networks or VNET Ids are displayed. Select the public and private network interface for the virtual machine that is to be created. Multiple private and public networks can be available and you must decide which network is to be used for virtual machines created using this service template. For example, choose a network that has sufficient IP addresses available.

- Single Instance Database: If you are defining a service template that will be used to create virtual machines for single instance databases, specify Public Network Details.
- RAC Database: If you are defining a service template that will be used to create virtual machines for cluster databases, specify Public Network Details and select public networks for virtual machines, Host IP, Scan IP, and Virtual IPs. For private interconnect, select Private Network Details and specify a private network with sufficient IP addresses available.
- Middleware: If you are defining a service template that will be used to create virtual machines for middleware as a service specify the Public Network Details.

### Sample XML: Networks

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<result xmlns="http://www.oracle.com/xml/ns/iaas"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:type="DescribeVnetsResult" requestId="8887">
  <items>
    <id>VNET-90db3003-3518-4988-8920-4f66fd85aefc</id>
    <name>bigpriv</name>
    <description>bigpriv</description>
    <status>OK</status>
    <tags>
      <name>network.normalized.name</name>
      <value>com.sun.hss.domain:name=NORM-192.168.0.0_24,type=Network</
value>
    </tags>
    <ipAddress>192.168.0.0/24</ipAddress>
    <vnetType>private</vnetType>
  </items>
  <items>
    <id>VNET-d7ae94f1-ff1c-4eb9-8b69-3d087a9344be</id>
    <name>10.163.96.0/22.1</name>
    <status>OK</status>
    <ipAddress>10.163.96.0/22</ipAddress>
    <vnetType>public_external</vnetType>
  </items>
</result>
```

- Storage: Select shared and local storage for the virtual machine that is to be created. By default, all the available resources are selected. You must select the storage that best meets your requirement or can specify the storage details while submitting the request.

**Note:** Shared Storage (RAW) is applicable for RAC databases.

For example, if you are creating this service template to provision a RAC database, you must select an instance size with sufficient storage.

### Sample XML: Storage

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<result xmlns="http://www.oracle.com/xml/ns/iaas"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:type="DescribeVolumesResult" requestId="8888">
  <items>
    <id>VOL-08391b8d-8f9f-4894-adc4-8214346d64a4</id>
    <name>soanew-14d95dbf7f6-2-1-20</name>
    <description>no_description_provided</description>
    <status>OK</status>
```

```

    <tags>
      <name>keepDisk</name>
      <value>True</value>
    </tags>
    <size>30.0</size>
    <shared>false</shared>
    <vservers>VSRV-d984031b-8385-4473-a0ce-07d71e33756e</vservers>
    <paths>/dev/dsk/c1d1</paths>
  </items>
  <items>
    <id>VOL-c0249120-d9be-42df-bb7d-f9f811a1fb8a</id>
    <name>racs2-s-1-10</name>
    <description>no_description_provided</description>
    <status>OK</status>
    <tags>
      <name>keepDisk</name>
      <value>True</value>
    </tags>
    <size>10.0</size>
    <shared>true</shared>
    <vservers>VSRV-291b879b-5dbd-45ae-b5e3-c4f1239f0804</vservers>
    <paths>/dev/dsk/c1d1</paths>
  </items>
</result>

```

7. In the Host Configuration region, specify the Owner for the Host and Agent targets.
8. In the Agent Configuration region, select the **Push EM Agent** check box to deploy the Management Agent on the virtual machine and specify the following agent configuration details:
  - Platform: Select Oracle Solaris on SPARC (64-bit) platform.
  - Port: Enter the port used for the Management Agent process. If no value is specified, then either 3872 or any free port between 1830 and 1849 will be used.
  - Base Location: Specify the full path to the directory in which the Management Agent is to be installed. Ensure that the Base Location you specify in the response file is empty and has write permissions. This is a mandatory field.
  - Privilege Delegation Settings: Specify the privilege delegation settings. See the *Enterprise Manager Cloud Control Basic Installation Guide* for more details.
  - Pre and Post Installation Scripts: These shell scripts can be used if any custom operations need to be performed on the virtual machines. These scripts must be present on the host on which the Oracle Management Service is running or on the virtual machine.
 

**Note:** The script will be present on the virtual machine only if it was bundled with the OS image.
  - Credentials: Specify Named or New credentials.
9. Click **Next**. The Review page appears. Review the details entered so far and click **Submit** to create the virtual machine template.

After the virtual service adapter has been created and configured, you can associate it with software pools to provision virtual machines.

# Dynamically Provisioning Resources in a DBaaS Cloud

This chapter describes the process of adding or removing resources based on demand to a DBaaS Cloud. It contains the following sections:

- [Provisioning Resources](#)
- [De-Provisioning Resources](#)

## Provisioning Resources

After you have set up and configured the virtual service adapter, you can dynamically add or remove virtual resources to your DBaaS cloud whenever required.

### Prerequisites

- The stage server must be identified. See [Adding the Stage Server](#)
- The Enterprise Manager Ops Center Client Kit must be deployed on the host that is being managed by Enterprise Manager.
- The Solaris Sparc Adapter instance must have been created and configured. See [Creating the Virtual Machine Adapter Instance](#).

To provision new virtual resources in a DBaaS cloud, follow these steps:

1. Log into Enterprise Manager as a user with the `EM_SSA_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears.
3. From the **Oracle Cloud** menu, select **Resource Providers**. The list of existing resource providers is displayed. You can select one of the following:
  - **Database Pool**: If you select a database pool, when the provisioning procedure has been completed, a virtual machine is created, the Management Agent, and Database Software is deployed on the virtual machine (either by using an image if the pool is subscribed to it or by using a reference home in the pool), and the Oracle Home is added to the pool. The capacity of the pool is now increased.
  - **PaaS Infrastructure Zone**: If you select a PaaS Infrastructure Zone, when the provisioning procedure is completed, a virtual machine is created, the Management Agent is deployed, and a host is added to the pool.
4. Select one of the above resource providers from the list. From the **Resources** menu, select **Provision**.
5. In the General page, in the Execution Name field, enter a name for the provisioning procedure.  
The virtual machine adapter with which this pool is associated is displayed.
6. In the Resources to be Provisioned field, enter the number of virtual machines that are to be provisioned.
7. Click **Next**. The Virtual Machine Configuration page appears.

In the Service Template drop down field, select the Solaris Adapter service template from the list. The configuration details defined in the service template are displayed and can be modified.

For example, the service template used for a RAC database requires a private network along with a public network for scan and virtual IPs. You can select the correct template, VM size, network, and storage to create a stand alone virtual machine or a multi node network set up for clustered data using this example. For a detailed description of the fields, see [Creating the Virtual Machine Service Template](#)

For a single instance database, you must consider the database size while selecting the virtual server type. The size guidelines you need to follow for single instance database are as follows:

$SIDB\ VM\ size > OS\ size + (3.5 * Oracle\ home\ size) + expected\ data\ size$

For RAC databases, you must use the following sizing guidelines:

$RAC\ VM\ size > OS\ size + (3.5 * Oracle\ home\ size)$  In the case of RAC databases, data is stored on shared disk using ASM.

8. Click **Next**. If you are provisioning a RAC machine, specify the cluster name and the network from which the Scan IP is to be allocated. The Scan IP is allocated dynamically from the pool of IPs in this network.
9. Click **Next**. Specify the schedule for the provisioning procedure and click **Next**.
10. Review the information and click **Submit** to submit the provisioning job.

## De-Provisioning Resources

You can remove or de-provision resources from your DBaaS cloud by following these steps:

1. Log into Enterprise Manager as a user with the `EM_SSA_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears.
3. From the **Oracle Cloud** menu, select **Resource Providers**. The list of existing resource providers is displayed.
4. Select a Database Pool or a PaaS Infrastructure Zone from the list. From the **Resources** menu, select **De-Provision**.
5. Enter a name and description for the procedure.
6. In the Resources to De-Provision region, click **Add** and select one or more Oracle homes to be de-provisioned.
  - Single Instance Database: You must select the Oracle homes that are to be deleted. All virtual machines hosting these Oracle homes will be deleted.
  - RAC Database: You must select all the Oracle homes that are part of the cluster. This will delete all virtual machines that are part of the cluster.
7. Click **De-Provision** to submit the job. The selected Oracle homes will be deleted and the virtual machines will be de-provisioned.

# Part X

## Using Chargeback

This section describes the Chargeback features in Enterprise Manager.

It contains the following chapters:

- [Chargeback Administration](#)
- [Chargeback for Oracle Cloud Infrastructure](#)



# Chargeback Administration

This chapter describes the Chargeback application and details the administrative tasks necessary to set up and run the application. It then presents various ways to access and use the information Chargeback collects and aggregates.

The chapter contains the following sections:

- [Overview of Chargeback](#)
- [Setting Up Chargeback](#)
- [Self Service Applications and Zones within Chargeback](#)
- [Accessing Chargeback Information](#)

## Overview of Chargeback

This section gives a brief overview of the most important aspects of Chargeback. It covers the following topics:

- [Why Implement Chargeback](#)
- [Enterprise Manager Chargeback](#)

## Why Implement Chargeback

The purpose of Chargeback is to gather data on resource use, allocate charges for the use of these resources, and present the results in a comprehensible format.

Chargeback is used to allocate the costs of IT resources to the people or organizations who consume them. While it can be applied in situations where IT resources are dedicated, it is particularly relevant in situations where resources are shared, as without some way to meter and charge for consumption there will be a tendency for users to allocate or use more resources than they need. This problem is exacerbated in cloud environments where users are able to provision their own resources using self-service.

Consider the following primary use cases:

- Increasingly, organizations are adopting consolidation platforms such as Oracle Exadata, where there are multiple applications running on a shared hardware platform. There needs to be a way to meter the resources consumed by each application so charges can be applied accordingly. This, in turn, helps to measure the business value of IT investments so that priority can be given to the applications with the greatest return on investment (ROI).
- With the popularity of cloud computing on the rise, where users have the ability to self-service provision resources such as databases and virtual machines, it is highly desirable to be able to meter the resources each cloud consumer uses so that they can be charged based on their consumption. Cloud consumers likewise benefit by rationing their consumption to that which provides optimal business value, thus contributing to the overall ROI of the organization's IT investment.

To sum up, adopting a Chargeback (or Showback) model can deliver significant benefits to both IT and Line of Business users:

- Chargeback benefits consumers by placing them in control of their IT costs.
- Chargeback benefits IT by helping to drive up utilization rates, thus reducing the number of physical resources they need to manage.

## Enterprise Manager Chargeback

*Chargeback*, as the name implies, is a tool of accountability. The application's primary uses can generally be described as follows:

- Provide resource usage metering by aggregating and normalizing the enormous amount of metric data Enterprise Manager collects.
- Provide IT with a means to "charge" a currency amount to the consumers of resources.
- Provide consumers with reports detailing their consumption and associated charges.

## Chargeback Entities

Chargeback calculates charges based on resource use. A resource is typically associated with an Enterprise Manager target. Chargeback collects metrics and configuration information for a subset of Enterprise Manager targets to calculate charges. A resource can also be something that an integrator customizes to be monitored and charged for in Enterprise Manager. Chargeback recognizes these Enterprise Manager targets and custom resources collectively as entities. For information on creating a custom entity, see the *Oracle Enterprise Manager Cloud Control Extensibility Programmer's Guide*.



### Note:

You can also add Chargeback support for Enterprise Manager target types for which there is no current out-of-box Chargeback support. See [Chargeback and Metering EMCLI Verbs](#), for more information.

Within Chargeback there is the concept of usage mode; that is, how an entity is metered. All entity types have a default usage mode. Administrators, when adding entities to Chargeback, decide which usage mode is applicable in a given context, if the entity in question has more than its default usage mode. Common usage modes include the following:

- Metered by instance—where charges accrue against a single cost center
- Metered by service—a database instance with multiple services bills by the service; charges by service can be to different cost centers, or charges for all services can be to the same cost center
- Metered by J2EE application—a WebLogic Server bills by the J2EE application; charges by application are to different cost centers

See [Adding Entities to Chargeback](#) for detailed information on adding entities to Chargeback.

## Charge Plans

A charge plan defines the resources to charge for and their associated rates. Chargeback offers two types of charge plan—the universal charge plan and extended charge plans.

### Universal Charge Plan

The universal charge plan contains the rates for three common resources:

- CPU
- Memory
- Storage

Note that the universal plan does not apply to all entity types. Universal rates are not applicable to J2EE applications, for example.

### Extended Charge Plans

While CPU, memory and storage can be used for Chargeback across a variety of entity types, there may be situations where entity-specific charges are required. For example, you may want to base charges on the type of host OS (Windows or Linux), or on a database option such as Partitioning. In this instance, an extended charge plan can be used. The extended charge plan provides greater flexibility to Chargeback administrators, enabling you to:

- Define entity type-specific charges
- Define configuration and usage-based rates
- Define a flat charge independent of configuration or usage
- Override or adjust universal plan rates
- Establish peak hours at which to charge a premium rate
- Institute a tiered pricing structure based on levels of use

Chargeback ships a sample extended charge plan that you can use as-is or as a template for creating your own extended plans tailored to your environment. The shipped plan defines charges for the Oracle VM Guest entity type where charge items and applicable rates vary depending on machine size.

See [Working with Charge Plans](#) for detailed information on working with charge plans.

## Cost Centers

When charges for the consumption of resources are calculated, these charges must be assigned somewhere. In Chargeback, the assignment of these costs is to a cost center. Cost centers are typically organized in a business hierarchy and may correspond to business units—sales, engineering, human resources, and so forth. The cost center hierarchy is defined within the Chargeback application and is used for rollup and drill-down purposes when reporting on usage and charges. There are also default mechanisms in place based on cost center properties set outside of Chargeback. See [Creating Cost Centers](#) for detailed information on creating cost centers.

## Reports

The payoff for setting up Chargeback is the wealth of information it puts at your fingertips. The information is available in a variety of formats, including pie charts and bar graphs. You can drill down to details by cost center, entity type, and resource. Trending reports show charges and resource utilization over time, up to a year in fact, which can help in IT resource planning. In addition to the reporting function available to administrators within the application, self service users can view Chargeback information related to their entities within the self service portal, and Line of Business users can view Chargeback information in BI Publisher reports.

### Report Cycle

Chargeback calculates charges for the current calendar month. This constitutes the report cycle. Any adjustments to configured charge plans and rates are retroactively applied to usage from the first day of the report cycle (that is, the first day of the current month). Charges

accrued in previous calendar months are considered closed. Thus, modifications to charge plans do not affect the calculated charges for previous months.

See [Accessing Chargeback Information](#) for detailed information on accessing Chargeback information.

## Chargeback and Metrics

Chargeback uses information that Enterprise Manager collects as a basis for metering. Chargeback metrics can be configuration-based, usage-based, or availability-based.

- Configuration-based metrics refer to things such as number of CPUs or database version; these metrics are considered static and thus have a daily aggregation.
- Usage-based metrics refer to things such as CPU utilization or memory consumption; these metrics have an hourly aggregation.
- Availability-based metrics measure the time an entity is available, otherwise known as an entity's uptime. It is the number of minutes in a given hour an entity is considered available. The charge is prorated for downtime.

Charges can also be applied at a fixed rate.

Entity types for which charge rates can be defined for specific metrics include host, virtual machine, WebLogic Server, database instance, schema service, and pluggable database (PDB). Composite entity types can also be added to Chargeback. These include Cluster Database, Oracle WebLogic Cluster, Oracle WebLogic Domain, Oracle VM Zone, PaaS Infrastructure Zone, Oracle VM Server Pool, and so forth. Adding groups and systems automatically includes all members that are valid Chargeback entities. After an entity has been added to Chargeback, a collection job will run once a day against entity tables in Enterprise Manager to extract information for use by Chargeback.

## Setting Up Chargeback

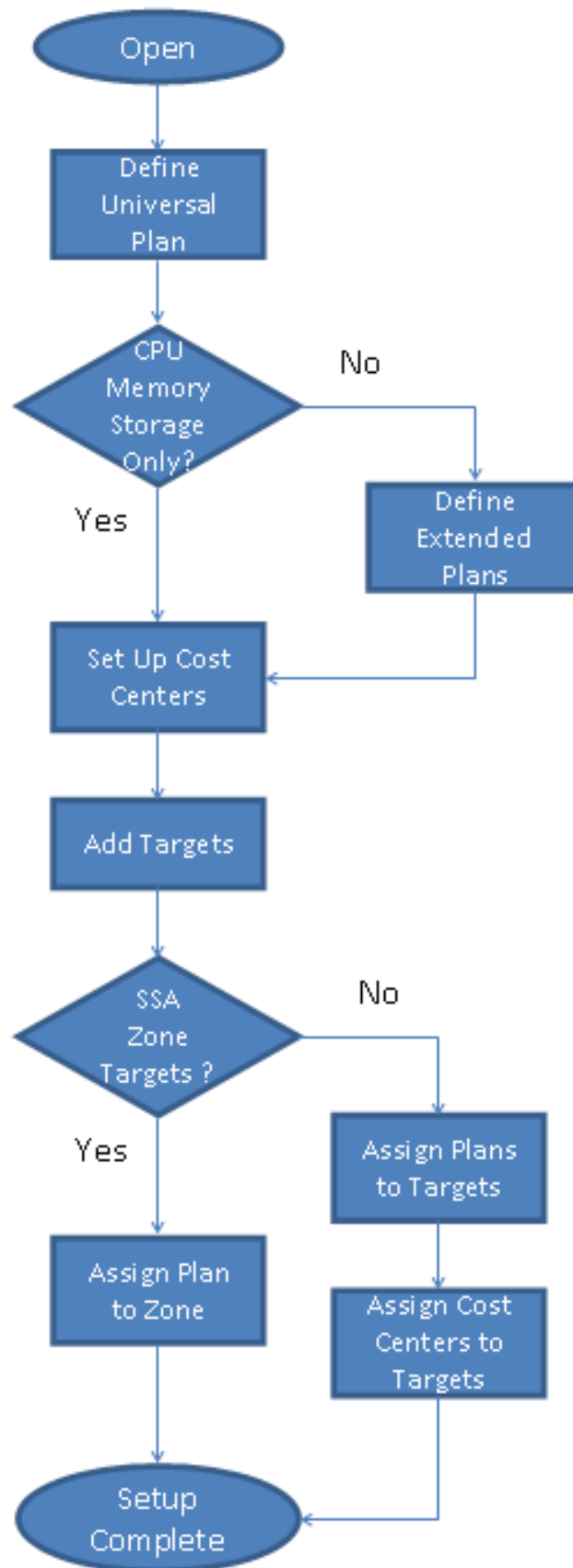
This section describes the following tasks, which must be completed to implement and support Chargeback services:

- [Configuring Global Settings for Chargeback](#)
- [Working with Charge Plans](#)
- [Using the Plan Advisor](#)
- [Creating Cost Centers](#)
- [Adding Entities to Chargeback](#)
- [Assigning Cost Centers to Entities](#)
- [Assigning Charge Plans to Entities](#)
- [Running the Daily Data Collection Job](#)

The person performing these tasks must have the necessary privileges. These privileges can be granted using the EM\_CBA\_ADMIN role.

[Figure 28-1](#) shows a simple workflow of steps required to set up Chargeback.

Figure 28-1 Chargeback Setup Workflow



Following initial setup, you perform tasks on a regular basis, such as:

- Adding new entities not discovered by the Chargeback daily job
- Updating charge plans
- Assigning charge plans and cost centers

Other events happen automatically. For example, new entities that are members of a composite entity (a VM Guest in a VM zone, for example) are discovered and added to Chargeback. The daily data collection job is responsible for capturing these changes, in addition to collecting metric and configuration data.

See [Running the Daily Data Collection Job](#) for detailed information on the daily collection job.

## Configuring Global Settings for Chargeback

Click the **Settings** subtab on the **Home** tab to configure global settings.

- [Peak Times](#)
- [Currency Symbol](#)
- [Uptime Calculations](#)

### Peak Times

Peak times establish days and hours of operation when premium rates apply to charges as defined in the associated charge plan. Chargeback ships with a default peak time window named Global, which defines peak hours as Monday through Friday, midnight to midnight. This in turn defines Saturday through Sunday, midnight to midnight as off-peak hours. The Global peak window is always associated with the universal charge plan, and with an extended charge plan by default. You can change an extended charge plan's association to a custom peak time window that you create.

1. Click **Edit** to open the set peak times dialog.
2. Click **Create** to open the peak time window dialog.
3. Specify a name for the peak time window.
4. Select the days of the week and hours of the day considered to be peak times of operation. By definition, days and hours not included are considered off-peak.
5. Click **OK** to complete time window creation.

You also can perform these other actions with peak time windows:

- Rename the time window.
- Remove the time window.
- Edit the day and time settings or add new days and times to the time window. Edits to peak windows are considered plan revisions. When you change a peak window currently associated with a charge plan, charges are recalculated for the current report cycle.
- Remove row settings from a time window.

### Currency Symbol

You can change the default currency (USD) by clicking in the currency symbol text box and entering the desired currency symbol. The new selection becomes the default currency across all charge plans; that is, the universal plan and all extended charge plans. All reports, including

historical reports, reflect the new currency. Note that no rate conversion occurs when you change the currency; that is, the numbers stay the same. Change from dollars to euros and a one dollar charge becomes a one euro charge.

## Uptime Calculations

Select the appropriate radio button to ignore or include uptime in charge calculations. The default is to include uptime as a consideration. Note that to include uptime has an impact on all fixed and configuration-based charge calculations for all entities.

Chargeback prorates charges and discounts accordingly. So, for example, if an entity was available 22.5 hours in a 24-hour period, the daily charge would be adjusted 1.5 hours. A change in the uptime setting is effective from the beginning of the current report cycle, but does not impact previous report cycles; that is, charges in historical reports are not prorated based on a change made to the setting in the current cycle.

Click **Save** to update the settings.

### Example

To demonstrate the difference in factoring in uptime, consider the following charge plan configurations:

- A universal charge plan that charges two dollars a day per gigabyte of memory allocation, a dollar a day per gigabyte of storage, and no charge for CPU usage
- An extended charge plan for a Guest VM (medium), with a base charge of a dollar an hour and a memory allocation adjustment of x5

Given these charge plans, a user requisitions a Guest VM with 4 GB of memory and 100 GB of disk space for two consecutive days. The first day the uptime metric records 20 hours and the second day, 24 hours.

When uptime is *not* a factor in the calculations, the charge per day is 164 dollars, computed as follows:

- Forty dollars a day for memory (4 GB \* \$2 \* 5)
- A hundred dollars a day for storage (100 GB \* \$1)
- A base charge of 24 dollars a day (24 hours \* \$1)

When uptime is a factor, charges for the first day are 137 dollars (rounded up), computed by subtracting the four hours of downtime from the per day charge ( $20/24 * 164$ ).

## Working with Charge Plans

As described in the Overview, there are two types of charge plan, the universal charge plan and extended charge plans.

The universal charge plan establishes rates for three basic metrics (CPU, memory, and storage). For example, charge a dollar a day for a CPU (generic), two dollars a week per GB of memory, and a dollar a week per GB of storage. Optionally, different rates can be applied per CPU architecture. For example, charge different rates for a PA-RISC, a SPARC, and an x86. You can create multiple revisions of the universal charge plan for use in the future.

An extended charge plan enhances the universal plan to include entity-specific metrics. You may want to implement charges that relate to specific characteristics of an entity. An extended charge plan affords that flexibility. The entity type determines the items for which rates can be charged.

In defining an appropriate charge plan for use with a given entity type, you have to decide on a case-by-case basis whether the three basic metrics of CPU, memory, and storage are sufficient to charge for resource use. If the answer is no, then you have to define an extended plan for the entity type.

In any case, you want to define the universal charge plan for general use. You can then indicate in an extended charge plan how the universal plan rates apply.

An extended charge plan consists of groups of entity-type specific charge items. Entity-specific charge templates are available for the following entity types:

- Host
- Oracle WebLogic Server (includes J2EE applications)
- Oracle VM Guest
- Database Instance (includes database services)
- Pluggable Database (PDB)
- Schema Service

Chargeable items and applicable rate adjustments vary, depending on the entity type.

With an extended plan you can base charges on entity-specific charge items. For example, you may want an additional charge for a host running Windows OS, or a database with the Partitioning option installed. In addition to configuration- and usage-based charge items, you can include a fixed charge. For example, charge \$100 a month for each host, regardless of consumption.

You may find that even with an extended plan, the charge items available for a given entity type are insufficient for your particular needs. In this case, you can introduce custom charge items through use of CLI verbs. For additional information, see [Chargeback and Metering EMCLI Verbs](#).

This section covers the following topics:

- [Charge Plans and Effective Dates](#)
- [Charge Plans and Peak Windows](#)
- [Charge Plans and Tiered Pricing](#)
- [Creating and Revising the Universal Charge Plan](#)
- [Creating an Extended Charge Plan](#)
- [Viewing Charge Item Metadata](#)
- [Using Conditions in Charge Plans](#)
- [Using the Estimate Charges Feature](#)
- [Revising Extended Charge Plans](#)

## Charge Plans and Effective Dates

When you create a charge plan (universal or extended), you establish the plan's effective date, which is always the first of a month. The plan revision remains in effect until you create a new plan revision whose effective date determines the previous plan revision's termination.

Say, for example, you want to set up a charge plan for a calendar year, in which a new plan revision goes into effect each quarter. You create an initial plan revision that goes into effect January 1. The plan shows an effective date of Jan. 1, yyyy - Onward. You create a plan



revision that goes into effect April 1. The initial plan revision now shows an effective date of Jan. 1, yyyy - Mar. 31, yyyy, and the new plan revision, Apr. 1, yyyy - Onward. You create two more plan revisions, one with an effective date of July 1 and the other with an effective date of October 1. You now have four plan revisions with effective dates as follows:

- Jan. 1, yyyy - Mar. 31, yyyy
- Apr. 1, yyyy - Jun. 30, yyyy
- Jul. 1, yyyy - Sep. 30, yyyy
- Oct. 1, yyyy - Onward

Only current and future plan revisions appear in the Charge Plans navigation pane. You can retrieve expired plan revisions by selecting **Historical Revisions** from the **View** menu.

## Charge Plans and Peak Windows

You can define hours of operation for days of the week that you consider to be high volume and thus times for which you want to charge a premium rate. This is a so-called peak window, which you associate with a particular charge plan that has a certain rate structure. Say, for example, Monday through Friday, 8:00 a.m. to 6:00 a.m., is your peak window, which you have named Prime. You associate the Prime window with a charge plan where peak hours have one rate structure and the rest of the week, or non-peak hours have a different structure. You can define multiple peak windows which you associate with different charge plans. For more information, see [Configuring Global Settings for Chargeback](#).

## Charge Plans and Tiered Pricing

You can tie a tiered-pricing structure to charge items within a charge plan that establishes boundaries that determine how much to charge. Say, for example, you want to charge a certain rate for the first 10 GB of storage used, a different rate for the next 10 GB, and a different rate for anything over 20 GB. Chargeback provides this capability within the charge plan framework. Implement tiered pricing as part of charge plan creation. See [Creating an Extended Charge Plan](#).

## Creating and Revising the Universal Charge Plan

Set up the universal charge plan as follows:

1. How to proceed depends on the revision date:
  - If the effective date under Universal Charge Plan starts in the past, select the revision in the navigation pane, then select **Revision** from the **Create** menu.
  - If the effective date under Universal Charge Plan is current or in the future, select the revision in the navigation pane and click **Set Rates**.
2. In the dialog that opens, select the effective date of the revision. Note that a change to rates currently in effect is retroactive to the beginning of the cycle. Click **OK**.
3. In the Charge Plan editor, set the rates and charge frequency for the three basic metrics. Select a row, enter the rate and select the frequency from the drop-down menu.  
The rates set here are effective from the beginning of the current month, and have no impact on any previous month.
4. Make additional entries for different CPU architectures, as required.
  - a. Click the **Add** button.

- b. Select a CPU from the drop-down menu and click **OK**.
  - c. In the new row added to the table, enter the rate and select the charge frequency from the drop-down menu.
5. When done, click the **Save** button in the upper right hand corner to complete the universal charge plan revision.

## Creating an Extended Charge Plan

Set up an extended charge plan as follows:

1. From the **Create** menu, select **Plan**. The Charge Plan editor opens.
2. Enter a name for the plan. The name must be unique but the plan can have multiple, date-based revisions.
3. Choose a peak time window for which to set premium charge rates. For more information, see [Charge Plans and Peak Windows](#).
4. Click **Add**. The Add Entity Types dialog opens.
5. Select from the list of supported entity types. As a plan can serve more than one entity type, you can multiselect in the dialog. Click **OK**.

Selected entity types appear in a table with one configuration (default) indicated.

6. Click **Set Up Configurations** to open the Set Up Configurations dialog, then click **Add** to open the Add Configuration dialog.

Add a condition to set up a configuration for the entity type selected. The list of conditions available derives from the entity type. Select from the list, choose an operator, and set the condition value. You can specify a value or click the search icon to select the condition value from a list, or to search for some other value.

You might, for example, set a condition of machine architecture for a host entity type, where there are two options: sparc sun4u and AMD64. You can then use the **Move Up** and **Move Down** buttons to establish the order of precedence in matching conditions, if applicable.

Click **OK** when done with configuration setup.

As [Figure 28-2](#) shows, the charge plan table now displays separate columns for conditional configurations and the default configuration.

**Figure 28-2** Setting Up an Entity Configuration

Host			
<span>+ Add Item...</span> <span>✎ Edit Item...</span> <span>✕ Remove Item</span> <span>⚙ Set Up Configurations...</span>			
Item	Charge by Configuration: Machine Architecture		
	AMD64	sparc sun4u	Default
<ul style="list-style-type: none"> <li>▾ Universal Rate Adjustments                             <ul style="list-style-type: none"> <li>▶ CPU Rate Factor <span>?</span></li> <li>▶ Memory Rate Factor <span>?</span></li> <li>▶ Storage Rate Factor <span>?</span></li> <li>▶ Recovery Cost</li> </ul> </li> </ul>	1x <span>⦿</span>	1x <span>⦿</span>	1x
	1x <span>⦿</span>	1x <span>⦿</span>	1x
	1x <span>⦿</span>	1x <span>⦿</span>	1x

Note that you can set only a single condition for a configuration. Suppose you want to change the condition from machine size to high availability for VM Guest. To do so, open the Set Up Configurations dialog and remove the machine size condition items. When you click **Add**, the high availability condition item is now available.

- Click **Add Item** to open the Add Item dialog. Use this dialog to add charge items based on entity type for billing purposes.

Select a charge item from the drop-down list. The list of items derives from the entity type. For certain items, you can select the charge type from a drop-down list—flat rate, per unit, and so forth.

For some items, you can select the rate formula type: standard or tiered, where tiered represents a range up to a declared boundary. Set the upper bound of tier 1. The number then becomes the lower bound of tier 2. Click **Add** to add a third tier and specify the upper bound of tier 2, which then becomes the lower bound of tier 3. For more information, see [Charge Plans and Tiered Pricing](#).

You can also set conditions, the same as for configurations in Step 6. For a database metered by service, charges are per service. For a WebLogic Server metered by J2EE application, charges are per application. Make your selection and click **OK**.

The charge plan table now displays a row for the charge item just added. A column appears for each configuration. Click the help icon to see a pop-up description of the charge item.

- In the charge item row, specify the rate and select the frequency for each configuration. Say, for example, you added a CPU count charge item for entity type host, for which you want to charge a \$1 a week per unit for the SPARC architecture, \$.50 a week per unit for the AMD architecture, and \$.75 per unit a week for all other architectures. Make the appropriate entries in the respective columns as displayed in [Figure 28-3](#).

**Figure 28-3 Setting a Condition on a Charge Item**

Host			
<span>+ Add Item...</span> <span>✎ Edit Item...</span> <span>✖ Remove Item</span> <span>⚙ Set Up Configurations...</span>			
Item	Charge by Configuration: Machine Architecture		
	AMD64	sparc sun4u	Default
CPU Count ?	\$ 0.50 / Week ▾	\$ 1.00 / Week ▾	\$ 0.75 / Week ▾
▲ Universal Rate Adjustments <ul style="list-style-type: none"> <li>▶ CPU Rate Factor ?</li> <li>▶ Memory Rate Factor ?</li> <li>▶ Storage Rate Factor ?</li> <li>▶ Recovery Cost</li> </ul>	1x	1x	1x

- Repeat Steps 7 and 8 to include additional charge items for the entity type.
- Optional. Make rate adjustments to the universal charge plan basic metrics for this extended charge plan. Make adjustments by specifying a factor of the base rate, where 1, the default, represents the prevailing base rate. So, for example, enter 1.5 to increase the rate by 50 percent; enter .5 to decrease the rate by 50 percent. If you want to ignore a universal plan rate altogether, enter 0.

Expand the rate factor for a metric to see what the actual charge is. For example, if the rate adjustment for memory allocation is 1.5 and the rate is \$2 a month, the adjusted rate will be \$3 a month.

The metrics available for an entity type determine which rate adjustments are possible. For example, you cannot make rate adjustments for a WebLogic Server metered by a J2EE application.

Suppose, given the example, you want to adjust the CPU rate to 75 percent for the AMD architecture and to 125 percent for the SPARC, leaving the rate as is for the rest. Make appropriate entries as shown in [Figure 28-4](#).

**Figure 28-4 Extended Plan Showing Customized Charge Items**

Host			
<a href="#">+ Add Item...</a> <a href="#">✎ Edit Item...</a> <a href="#">✕ Remove Item</a> <a href="#">⚙ Set Up Configurations...</a>			
Item	Charge by Configuration: Machine Architecture		
	AMD64	sparc sun4u	Default
CPU Count?	\$0.50 / CPU / Week	\$1.00 / CPU / Week	\$0.75 / CPU / Week
<b>Universal Rate Adjustments</b>			
<b>CPU Rate Factor?</b>	0.75	1.25	1
CPU Usage	\$3.00 / CPU / Hour	\$3.00 / CPU / Hour	\$3.00 / CPU / Hour
Rate Factor x CPU Usage	\$2.25 / CPU / Hour	\$3.75 / CPU / Hour	\$3.00 / CPU / Hour
Memory Rate Factor?	1x	1x	1x
Storage Rate Factor?	1x	1x	1x
Recovery Cost			

11. If you used the Plan Advisor to create the plan, recovery costs associated with recouping your investment appear as part of the plan details. You can edit these values as necessary. For more information, see [Using the Plan Advisor](#).
12. When done, click the **Save** button in the upper right hand corner to complete the extended charge plan revision for the entity type.

You can now assign the extended charge plan to an entity instance of the appropriate entity type. Remember that extended charge plans are automatically effective from the beginning of the month.

## Viewing Charge Item Metadata

The charge item library enables you to see at-a-glance detailed information about the charge items known within your Chargeback installation. This includes all charge items for well-known Enterprise Manager target types as well as for custom entity types introduced by integrators.

In many cases, charge items can be taken at face value: amount of memory used. In other cases, however, it is not so clear cut. Is the charge for database memory use computed based on allocated SGA memory or on the amount of memory used? What is the underlying metric or configuration used to determine CPU time or DB time usage? In cases such as these the usage value is only a part of some formula or customized query used to compute charges. In any event, you can take advantage of the detailed information available as you create extended charge plans.

1. From the **Enterprise** menu, select **Chargeback** and click the **Charge Plans** tab
2. Click the **Charge Item Library** icon.

The charge items metadata browser opens, displaying a table of all known charge items.

3. Optional. Select **Columns** from the **View** menu to alter the display and to show hidden columns, which might be of interest to you.
4. Optional. Click **Export** to save the charge items metadata content in a spreadsheet.

Consider the following as you view charge item metadata:

- The information is organized by entity type.
- Resource category is an internal bucket that Chargeback uses to organize charge items.
- Source type denotes a charge item as usage-based, configuration-based, or fixed.
- Chargeable means a rate can be defined for the item. An item without the check in the Chargeable column does not itself have a rate defined. Machine Architecture, for example, is a condition rather than a chargeable item.
- An Invalid indicator means the selected usage mode is not appropriate for the entity type.
- User-defined distinguishes custom charge items from out-of-box charge items.
- Charge items that are inactive cannot be added to new plans but can still be used in existing plans. They may also have meaning to historical plans.
- Metric Group and Metric Column link a charge item to its Enterprise Manager collection data. See the "Using Metric Extensions" chapter in the *Enterprise Manager Cloud Control Administrator's Guide* for more information.

## Using Conditions in Charge Plans

Conditions introduce considerable flexibility when creating extended charge plans. You can create variations known as configurations that allow you to determine a set of rates to charge based on entity configuration. You base configurations on a property or attribute of an entity, such as the size of a virtual machine. The sample extended plan (identified as Sample Charge Plan), for example, sets conditions on a VM Guest entity type, based on the machine size of the virtual machine, allowing for different sets of charges to apply depending on machine size. There is also an implied default configuration, which is the charge plan itself if no configurations are set up, or the charge plan of record if there is no match for a configuration condition. The sample extended plan thus has four configurations, one each for machine sizes small, medium, and large, plus the default "Other."

Similarly, you can place a condition on an individual charge item that determines if a charge will be applied. For example a condition set on Partitioning means charge only if partitioning is used.

Use the Like condition operator with string-based entity type and charge items to match a range of string values. For example, set a Like condition on a database instance to match on all 11g releases (Like 11%). Or use it as a wildcard (Like %) to match on any string of characters (or none). Use an underscore (Like \_) to match any single character. Use backslash to escape a wildcard character (Like \%). Use a double backslash to escape the escape character (Like\\%).

When you have multiple configurations, you have to set the order of precedence to determine how conditions are applied. Suppose you have the following sequence of configurations based on the host operating system:

- OS Like %Linux%
- OS Like %Linux 6%
- Default

The second condition (Linux 6) will never be tested because the first will always take precedence when the OS is any version of Linux. Thus, you have to make the test for Linux 6 first to base charges specifically on the Linux 6 OS.

Contrast the Like operator with the Equals operator, where the match must be exact, and there is no wildcard recognition. So, for example, Equals 11.2% does not match 11.2.0 or 11.2.1. You must specify Equals 11.2.0 or Equals 11.2.1. Note also that all string matching is case-sensitive. Equals UPPER is not the same as Equals upper. There is also a Not Equals operator with which you can exclude specific string values.

Consider these other condition examples:

- For a shared database, set a condition to base the charge on the nodes of a RAC.
- For a dedicated database instance, use the SQL Executions charge item to set a charge rate on SQL statement executions per second.

Conditions give you flexibility. For example, you may want to create many charge plans with no conditions and assign individually to entities. Or, you can create a single charge plan with many conditions, and assign to many entities.

## Using the Estimate Charges Feature

The estimate charges feature supports the following use cases:

- Project the likely effects of rate changes in a charge plan on an entity or a cost center based on prior average usage where available.
- Compare the effects of different charge plans on entities or cost centers based on prior usage.

To see the effects of rate changes in a charge plan:

1. On the **Charge Plans** tab, click the **Estimate** button.
2. On the Estimate Charges page, select a charge plan in which rates have been changed and the effective date of the plan.
3. Choose the basis on which to estimate charges; that is, based on entities or cost centers, then click **Add**.
4. Select entities assigned to a specific charge plan, or entities not yet added to Chargeback. Select cost centers from the list of available cost centers, including the default cost center.
5. After you make your selections, review the results. Click the respective radio button to view estimated charges in a tabular or graphical format.

Select a table row to see the details for an entity or cost center in the region below the table.

To compare different charge plans:

1. On the Estimate Charges page, select the plans to compare and the respective effective dates.
2. Choose the basis on which to compare the plans; that is, based on entities or cost centers, then click **Add**. select the entities or cost centers to consider.
3. Select entities or cost centers as appropriate. Entities can be associated with either plan being compared or unassociated.
4. After you make your selections, review the results. The comparison appears in the table denoting the difference between the plans both as a monetary value and a percentage. A

graphic summary appears to the right. You can change the summary view by selecting from the drop-down menu to the right of the summary.

Details of the comparison appear in the region below the table, where the system breaks out differences by charge items in the respective charge plan.

Chargeback bases estimations on usage for the selected date range. The system first identifies all chargeable entities. The system then applies plan rates to the daily average to determine daily estimated charges. Next it multiplies the daily estimated charges by the number of days in the report cycle to determine total estimated charges. Even if an entity is added mid-month, the system shows the estimation as if available for the whole month.

If the entity selected is not already in Chargeback, the system runs the Enterprise Manager ETL job on the entity to collect configuration and metering data; the job takes into account any child entities. If Chargeback metrics are not available, the system runs the daily collection job. The system then builds the daily average in order to display the estimated charges.

## Revising Extended Charge Plans

You can update an extended charge plan in the following ways:

- Make changes to the charge rates in effect for the current or a future cycle.
- Create a plan revision for the next or a later report cycle, based on an existing plan.

To make changes to the charge rates in effect for the current or a future cycle:

1. Select the plan revision in the navigation pane and click **Set Rates**.
2. Make adjustments to the charge items and rates in effect.
3. Click **Save** to update the plan revision.

Note the warning when changing charge rates for the current cycle that the changes are retroactive to the beginning of the cycle.

To create a plan revision for the next or a later report cycle, based on an existing plan revision:

1. Select a plan in the navigation pane, then select **Revision** from the **Create** menu.
2. In the dialog that opens, select the effective date of the revision. The default date is the first month after the most recently added revision. For example, if the current cycle is for May and a June revision already exists, July 01 is the default effective date. Click **OK**.
3. In the familiar create-like model, the configurations, charge items, and rate adjustments for the plan you selected in the navigation pane appear in the plan details table on the right.

Edit the plan details as desired:

- Add and remove entity types.
  - Add and remove configurations.
  - Add, change, and delete charge items.
  - Make adjustments to metric rates.
4. When done, click **Save** to complete the plan revision.

## Using the Plan Advisor

The Plan Advisor is a Chargeback feature that aids in deducing charge rates that make sense in terms of the entities and configurations for which the charge plan will be created. A wizard guides you through the process as follows:

- [Selecting the Entity or Entity Type](#)
- [Setting Up Configurations](#)
- [Projecting Recovery Costs](#)
- [Setting Rates for Charge Items](#)

## Selecting the Entity or Entity Type

The selection of entity or entity type has consequences as described in Step 2 of the process.

1. On the **Charge Plans** tab, click the **Plan Advisor** button, then select **New Plan**. You can create a plan for an entity or an entity type.
2. Enter a name for the plan and select the effective date. Choose whether to create a plan for an entity or an entity type.

If you are creating a plan for an entity instance, select the usage mode. If the entity is not yet in Chargeback, it will be added to Chargeback and assigned to the charge plan upon plan creation.

If you are creating a plan for an entity type, select chargeable entities to be used for calculating usages upon which to base suggested rates. These entities will not be assigned the plan upon plan creation.

3. Click the **Add** button and select an entity type. Select any chargeable entities you might want to include as part of the plan.
4. Click **Next** to set up plan configurations.

## Setting Up Configurations

The configurations you set up here are the same as when you create a charge plan; that is, you set conditions upon which to base charges, OS is like Linux 6, for example.

1. Select the entity type table row and click the **Setup Configurations** button to open the Set Up Configurations dialog.
2. Click **Add** to open the Add Configuration dialog.
3. Set a condition for the entity type selected. The list of conditions available derives from the entity type. Select from the list, choose an operator, and set the condition value. You can specify a value or click the search icon to select the condition value from a list, or to search for some other value.

If you have selected chargeable entities, the same condition applies to each.

4. Click **Next** to enter recovery parameters.

## Projecting Recovery Costs

Recovery refers to amortizing your investment in resources over a fixed period of time to determine how much in monthly charges you have to generate to recover your investment.

1. Enter a monetary amount for the total recovery cost and period of time in months over which to offset the amount.
2. Enter the number of entity instances to share the recovery cost. If you selected chargeable entities, that number appears by default. You can edit the number.
3. Enter a percentage of the recovery cost that the instances need to generate monthly. Include a percentage for the default configuration. The total has to be 100.



4. Click in the **Amount** column to calculate the percentage amount and monthly recovery rate per instance.
5. Click **Next** to review suggested rates to charge to recover your investment.

## Setting Rates for Charge Items

Complete the plan by providing a weighting factor for charge items; that is, the percentage of monthly income each item should generate. The charge items that appear derive from the plan's entity type. You can include configurations as additional charge items.

1. Select a configuration in the left pane.
2. For each charge item, click in the Weighting column and assign a percentage. All charge items including any added configurations must total 100 percent.
3. Click in the Cost/Month column to calculate a monetary value for the assigned percentage.  
For usage charge items, the system computes average daily usage on the usage patterns of the chargeable entities to calculate a suggested rate. A suggested rate of zero means the usage value is too high or the recovery cost entered is too low.
4. Optional. Click **Add** to include a configuration as an additional charge item. Use this option as a way to augment the configurations set up in Step 2.
5. Click **Save** to complete plan creation and add the entity to Chargeback, if applicable.

## Creating Cost Centers

Cost centers are vehicles for aggregating charges. A cost center can be an individual, a department within an organization, or a multitiered business hierarchy that spreads charges across the enterprise. You can create a business hierarchy by setting up cost centers and assigning users to the business units.

As part of Enterprise Manager user setup, an administrator can be assigned to a cost center. This cost center property then becomes the parent within Chargeback in place of the default cost center. For example:

- The daily data collection job creates a cost center for each Enterprise Manager user. If a cost center was assigned as part of user setup, it becomes the parent of the user's daily collection cost center; otherwise, the Chargeback default cost center becomes the parent of the user's daily collection cost center.
- A cost center is automatically assigned to an SSA entity during setup. If a cost center was assigned to the SSA requestor as part of Enterprise Manager user setup prior to the SSA entity being added to Chargeback, it becomes the parent of the SSA cost center; otherwise, the Chargeback default cost center becomes the parent of the SSA cost center.

Oracle recommends use of the Enterprise Manager user cost center property as a way to better manage cost center hierarchies within Chargeback.

A cost center can originate in the following ways:

- [Setting the Cost Center Property for an Enterprise Manager User](#)
- [Setting the Cost Center Property on the Target Home Page](#)
- [Creating High-Level Cost Centers in Chargeback](#)

## Setting the Cost Center Property for an Enterprise Manager User

Enterprise Manager users who administrate Chargeback should be assigned to a cost center in their account profile.

1. From the **Setup** menu, select **Security**, then select **Administrators**.
2. Search for and select the administrator in question, then click **Edit**.
3. On the Properties page, enter an appropriate value for the **Cost Center** property as it relates to charges accruing to this user.
4. Advance to the Review page and click **Finish**.

You can of course also set the cost center property as part of the overall user account creation process.

This cost center will take precedence over the default cost center in Chargeback.

## Setting the Cost Center Property on the Target Home Page

When you make a server request in the process of setting up a self service application, the Cost Center target property of the target, VM Guest for example, is automatically set to the user login of the person making the request. When the entity is configured for Chargeback, the user login is imported and appears in the Cost Center column for that entity on the **Entities** tab. Its parent is the Enterprise Manager user cost center if assigned; otherwise, it is consigned to the Chargeback default cost center.

You cannot change the cost center assignment for an SSA entity, but you can reassign the SSA user out of the default cost center to a more appropriate cost center, if desired, as described in [Creating High-Level Cost Centers in Chargeback](#).

Similarly, you can manually set an entity's Cost Center target property to an appropriate value (user ID), which will subsequently be imported and appear in the Cost Center column on the **Entities** tab when the entity is configured for Chargeback. Its parent is the Enterprise Manager user cost center if assigned; otherwise, the user ID is consigned to the Chargeback default cost center from which it can subsequently be reassigned to another cost center. This method is relevant only for non-self service entities; it provides a way to automatically set the cost center when the entity is added to Chargeback.

To create a cost center in this fashion:

1. On the All Targets page, select the target in question and go to the target home page.
2. From the target type menu, select **Target Setup**, then select **Properties**.
3. Click **Edit** and enter a value for the **Cost Center** property, then click **OK**.

The value will appear as described when the target is configured for Chargeback.

Note that if you change the Cost Center property for an entity that has already been added to Chargeback, the system does not recognize the new value.

## Creating High-Level Cost Centers in Chargeback

A user who provisions an entity using the self service portal appears under the associated Enterprise Manager user cost center as a consequence of adding the SSA entity to Chargeback. If there was no Enterprise Manager user cost center assigned, the SSA user appears under the Chargeback default cost center, from which the user can subsequently be reassigned to an appropriate cost center as described in Step 4 of the process below.

To create a cost center manually:

1. From the **Enterprise** menu, select **Chargeback**.
2. Select the **Cost Centers** tab and then click the **Add** button.
3. Enter the appropriate information in the **New Cost Center** dialog:
  - The cost center takes a unique name by which it is known internally in the system.
  - The cost center also takes a meaningful name that appears in the user interface and generated reports.
  - Indicate the cost center's position in the tree hierarchy; that is, whether it should be root or nested. You can subsequently change its position in the hierarchy.

When you click **OK**, the new cost center appears in the table.

4. Cost centers typically equate to business organizations. When you select a cost center row, users who are part of the organization appear in the region below. Users can also be unassigned.

In addition to the cost centers you create, there also is a system default cost center that serves as a clearinghouse for unassigned users. These include:

- Self service users; that is, the user login of the person setting up the SSA who do not otherwise have an Enterprise Manager user cost center assigned
- Users designated as the Cost Center target property on the target home page who do not otherwise have an Enterprise Manager user cost center assigned

You can reassign these users to roll up charges to a higher-level cost center.

- a. First, select the default cost center row in the Cost Center table. This exposes the users consigned to the default cost center.
- b. Next, select a user row in the Users table.
- c. Click the **Assign to Cost Center** button that is now active.
- d. In the dialog that opens, designate the cost center to which to assign the user, then click **OK**.

The user now appears in the designated cost center.

5. As the cost centers list grows, you may find that you want to combine cost centers, sales under marketing, for example. To do so, select the cost center row, then select **Move** from the **Action** menu. The change is effective from the beginning of the current reporting cycle.

In the dialog that opens, indicate whether to include nested cost centers and choose where in the tree to move the cost center, then click **OK**.

6. At some point, you may decide to deactivate the cost center. To do so, select the cost center row and click the **Remove** button. Indicate whether to deactivate nested cost centers as well. The change is effective from the beginning of the current reporting cycle. Deactivation means the cost center can no longer be assigned to an entity, but its association with entities remains in previous report cycles; that is, if you run a report for a previous cycle, the entity assignment reflects the deactivated cost center.

Note the following about cost center moves, for example when a cost center (and its users) move to a different parent:

- The user assignment of an entity resource remains the same: the PC assigned to JDoe remains assigned to JDoe.
- Likewise, the resource usage assignment remains the same, but the report rollup reflects the new cost center parent child relationship, unless the administrator changes the

assignment. The cost center move effects a change in the usage assignment, which is associated with the cost center and user ID.

## Adding Entities to Chargeback

Decide on the entities whose resources you want to manage within Chargeback. You have to add entities to start collecting metrics against which to calculate charges. Note that if you want to add a Real Application Cluster (RAC) that has member instances already monitored in Chargeback, you must first remove those instances from Chargeback.

For certain database entity types, you have to enable metric collection before you can add entities of these types to Chargeback:

- Database instance where metering is by service
- Cluster database where metering is by service
- CDB (both single instance and RAC)
- Pool databases used for provisioning schema services and pluggable database services provided as part of a PaaS Infrastructure zone

For information on enabling metric collection, see [Configuring Metric Collection for Enterprise Manager Database Services](#).

A CDB is a composite entity. When you add a CDB instance, all of its pluggable databases (PDBs) are automatically discovered and reported as children of the CDB instance. Usage and charges are calculated at the PDB level.

When you add a PaaS Infrastructure Zone entity, all of its databases (single instance and RAC), database services, and PDBs are automatically discovered and reported as children of the zone. Usage and charges are calculated at the entity level.

### Note:

Pool entities that provision services for a PaaS Infrastructure Zone tracked in Chargeback, cannot also be tracked independently as entities in Chargeback. This may lead to nondeterministic behavior in charge plan assignments. So, for example, a CDB that serves as a pool entity for a PDB service entity that is part of a PaaS Infrastructure Zone, cannot also be added to Chargeback as a composite entity.

You must have the `ADD_CHARGEBACK_TARGET` role assigned to add any entity monitored in the Enterprise Manager instance that qualifies for Chargeback support. Without it, the **Add** button is disabled. As in the process of adding entities you can also assign charge plans and cost centers, these privileges must be included: `MANAGE_CBA_ENTITY_OBJ_PRIV`, `ASSIGN_CHAREG_PLAN_PRIV`, and `ASSIGN_CBA_COST_CENTER_PRIV`.

The `VIEW_CAT_TARGET` role allows you to see Chargeback data related to a specific entity. The `VIEW_ANY_CAT_TARGET` role allows you to see Chargeback data related to any entity.

1. From the **Enterprise** menu, select **Chargeback**.
2. Select the **Entities** tab and click the **Add** button.  
The Add Entities wizard opens, where you perform the following steps:
  - a. [Selecting Entities for Chargeback](#)
  - b. [Making Assignments](#)

### c. Reviewing Entity Setup

It may take up to 24 hours after an entity is added to Chargeback for its metering data to appear. To stop collecting data on entities, select the entities involved and click the **Remove** button.

#### Note:

When you remove an entity from Chargeback scope, its usage and charge data are dropped from the current report cycle. A warning to this effect appears as part of the removal process.

As new services for cluster members are discovered as part of the daily collection, they appear automatically in the tree hierarchy under the RAC node. The charge plan in effect is automatically assigned. Make cost center assignments accordingly.

#### Note:

Starting in Enterprise Manager Release 13.5 Update 19, PDB Chargeback targets will use the new metric `Resource Usage`, this metric is disabled by default and needs to be **enabled** for Chargeback to function correctly with PDB targets. If this metric is not enabled Chargeback will report an incorrect charge for PDB targets.

In a multi-node RAC set-up, a PDB can be disabled on a specific Host. If this happens, it is required to know on which host the PDB is enabled and which host it is disabled. the new `PDB Mode` metric available starting with Enterprise Manager 13.5 Release Update 20 can provide this data. The PDB Mode metric is disabled by default and needs to be enabled, if left disabled Chargeback will not be able to calculate unused charge for PDB entities.

## Configuring Metric Collection for Enterprise Manager Database Services

Metric collection for Enterprise Manager database services is disabled by default for the following entity types:

- Database instance metered by database service
- RAC metered by database service or PDB
- CDB (both single instance and RAC)
- Pool databases used for provisioning schema services and pluggable database services provided as part of a PaaS Infrastructure zone

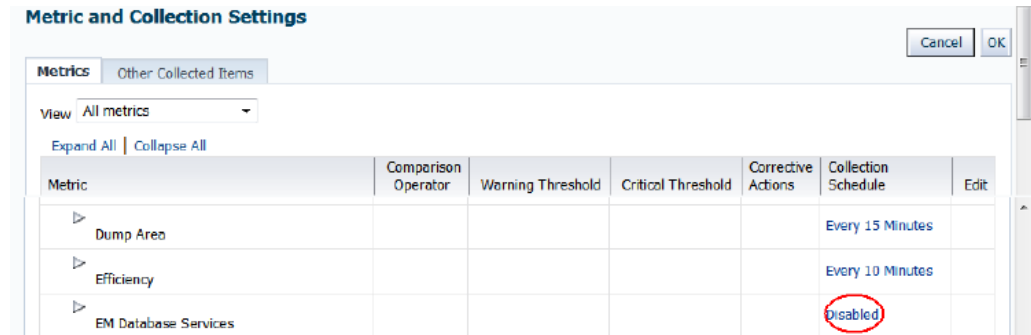
You have to enable metric collection before Chargeback can manage resources on these entities.

To effect change to metric data collections, you must be assigned the `MANAGE_TARGET_METRICS` role on the specific target.

1. From the **Targets** menu, select **Databases**.
2. Locate the target in the table and open its home page (provide credentials if requested).
3. From the **Oracle Database** menu, select **Monitoring**, then select **Metric and Collection Settings**.

4. On the Metric and Collection Settings page, change the view to **All Metrics**.
5. As shown in [Figure 28-5](#), scroll down to **EM Database Services** (not simply Database Services), click **Disabled**, and complete the enabling process.

**Figure 28-5 Enabling Metric Collection for Database Services**



Do this for each cluster member in a RAC and for each CDB instance.

Alternatively, you can use the following EMCLI command to enable the metric collection on the corresponding database entity instance:

```
emcli modify_collection_schedule -targetType='oracle_database' -
targetNames=target_name1;target_name2 -collectionStatus='ENABLED' -
collectionName='DBService' -preview='N';
```

Where *target\_name* is an appropriate database target instance.

## Selecting Entities for Chargeback

Step 1 in the Add Entities wizard is to select the entities you want to add to Chargeback and establish a usage mode where applicable.

For certain database entity types, you have to enable Enterprise Manager metric collection before you can add entities of these types to Chargeback:

- Database instance where metering is by service
- Cluster database where metering is by service
- CDB (both single instance and RAC)
- Pool databases used for provisioning Oracle Database Services and pluggable database services provided as part of a PaaS Infrastructure zone

For information on enabling metric collection, see [Configuring Metric Collection for Enterprise Manager Database Services](#).

1. Click the **Add** button.
2. In the dialog that opens search for the entity types you want to add. Use criteria to filter your search.

To add a database as a service entity type (DBaaS or SchaaS), select the PaaS Infrastructure Zone entity type. Database services and PDBs appear as children of the zone parent.

 **Note:**

Database (single instance and RAC) and CDB entities that provision service entities for a PaaS Infrastructure Zone cannot themselves be added as entities to Chargeback. To do so may lead to nondeterministic behavior in charge plan assignments. Thus, in cases of conflict no plan assignment is allowed.

3. In the search results list, select the specific entities you want to add. Note that you can multiselect entities. Click **Select**.

The dialog closes and a progress indicator notes the search for associated entities. The selected entities then appear in the table. For a composite entity, its members are accounted for in the Members column, provided they are new members that can be added to Chargeback. A check mark in the **Valid** column indicates that metrics and configuration data will be collected for the entity and used in charge calculations. So, for example, the metered check mark is not set for a WebLogic domain because data collection occurs at the WebLogic Server level.

4. Optional. Set the usage mode to other than the default where applicable to declare how to perform metering.

Select the usage mode from the drop-down list. Choices depend on the entity type; in some cases, there is only one choice, Metered. A database, for example, offers three choices: Metered by Database Instance, Metered by Service, or Metered by PDB.

5. Click **Next** to make charge plan and cost center assignments.

## Making Assignments

Step 2 in the Add Entities wizard is to make charge plan and cost center assignments.

Charge plans provide a basis for calculating the cost of resource consumption.

1. Select the entity in the table and click the **Assign Plan** button.
2. In the dialog that opens:
  - a. Specify plan inheritance. **Propagate** assigns the plan to children of the entity if they have no plan assigned. **Override** assigns the plan regardless, removing the current plan assignment, if any.
  - b. Select the extended charge plan appropriate to entity selection.
  - c. Click **OK**.

The dialog closes, and the plan assignment appears in the entity table row.

You can opt not to assign charge plans now and assign them after adding the entities for Chargeback. See [Assigning Charge Plans to Entities](#) for more information.

Cost centers provide a way to aggregate the charges accrued for resource consumption.

1. Select the entity in the table and click the **Assign Cost Center** button.
2. In the dialog that opens:
  - a. Specify cost center inheritance. **Propagate** assigns the cost center to children of the entity if they have no cost center assigned. **Override** assigns the cost center regardless, removing the current cost center assignment, if any.
  - b. Select the cost center appropriate to entity selection.
  - c. Click **OK**.

The dialog closes, and the cost center assignment appears in the entity table row.

You can opt not to assign cost centers now and assign them after adding the entities for Chargeback. See [Assigning Cost Centers to Entities](#) for details.

When done, click **Next** to review entity setup and complete the task of adding entities to Chargeback.

## Reviewing Entity Setup

Step 3 in the Add Entities wizard provides an opportunity to review your selections and assignments, before completing the task. If satisfied, click **Submit**.

You return to the **Entities** tab where a message confirms that  $n$  number of entities were successfully added. For more information on what happens after entities are added, see [After Adding Entities to Chargeback](#).

## After Adding Entities to Chargeback

After adding entities to Chargeback, you can use various filtering criteria in the search pane on the left to alter the display in the table on the right. When you select a check box, the display changes to reflect your selections.

- Use the filtering capabilities to search by entity type or entities within type.
- Search to differentiate between entities that are assigned a cost center or charge plan and those that are unassigned.
- Use filtering criteria to check on collection status.
- Follow charge trends for those entities with a history of data collection and charge activity.

Use the save search capability as follows:

1. Click the save icon to preserve your search criteria.
2. Select **Manage Saved Search** from the drop-down menu to set or clear the default search or to remove a saved search.
3. Select a saved search from the drop-down menu to execute the search.

Note that the entities table has a flat structure. When you add entities that include members, they appear as singular entries in the table, without regard to hierarchy. To see the hierarchical relationship, select an entity row and click the **Hierarchy** subtab in the **Details** region. For more information, see [Viewing an Entity's Collected Metric Data and Other Entity Details](#).

## Defining Plan Assignment Rules

You can define rules to assign a charge plan to an entity based on criteria you select. Rules fire prior to the daily data collection job. Entities without assigned charge plans are assigned a plan based on rule order.

When you make a plan assignment, you have the option of selecting a plan from a list of available plans or of letting rules criteria determine the plan.

### Note:

There is a system rule that establishes plan inheritance from the closest parent. This rule is uneditable.



1. From the **Enterprise** menu, select **Chargeback** and click the **Entities** tab.
2. From the **Action** menu, select **Set Plan Assignment Rules**.
3. Click the **Add** button.
4. Select a charge plan to assign from the drop-down list and provide a description for the rule.
5. Click **Add Group** to define criteria.
  - a. Select the left operand from the drop-down list (Entity Type, Parent Entity, Tenant).
  - b. Select an operator (Equals, Not Equals).
  - c. Click the search icon to select the right operand. The left operand determines the list of available choices. For example, if the left operand is Tenants, the list of available tenants known to Chargeback appears in the right operand drop-down list.
6. To add additional criteria, click the **Add Item** button. A new set of selection drop-down boxes appear that includes a Boolean operator. Set the Boolean to AND or OR to indicate whether all sets of criteria must match or any one constitutes a match.

Select the operands and operator as above.
7. When done with criteria, click **Add** to complete rule creation.
8. Rules fire in the order of appearance. Use the **Move Up** and **Move Down** buttons to reorder rule precedence as necessary.

## Assigning Cost Centers to Entities

Cost centers are a way of distributing charges for resource usage. A cost center is automatically assigned to an SSA entity as part of SSA setup (Cost Center target property). Use this manual process only for assigning cost centers to non-SSA entities.

 **Note:**

You also can perform cost center assignment when adding an entity for Chargeback. See Step 2 of the Add Entities wizard described in [Making Assignments](#).

1. From the **Enterprise** menu, select **Chargeback**.
2. Select the **Entities** tab.
3. Select the entity to which you want to assign a cost center and click the **Assign Cost Center** button.
4. In the dialog that opens:
  - a. Specify cost center inheritance. **Propagate** assigns the cost center to children of the entity if they have no cost center assigned. **Override** assigns the cost center regardless, removing the current cost center assignment, if any.
  - b. Select the cost center appropriate to entity selection.
  - c. Click **OK**.

The dialog closes, and the table of entity assignments refreshes to reflect the assignment.

When charges are calculated, unassigned entities are assigned to the default cost center. Note that assigning a cost center to a composite entity maps directly to the composite entity, and to any children that otherwise have no direct cost center assignment.

A group member with one cost center assignment who is a member of another group with a different cost center assignment is in conflict as noted on the **Entities** tab for the affected group member. It is also possible that a group member is part of a regular target hierarchy as well as a group. For example, a database (DB1) appears under a zone (PaaS zone 1) and under a group (Group 1). In these cases, charges continue to be calculated, but are charged to the default cost center until an administrator resolves the conflict, at which time charges will accrue against the appropriate cost center.

Shared services under a RAC node can be assigned to different cost centers.

 **Note:**

For entities requested and provisioned through SSA, the Cost Center target property is set to the user login. The SSA user appears under the associated Enterprise Manager user cost center as a consequence of adding the SSA entity to Chargeback. If there was no Enterprise Manager user cost center assigned, the SSA user appears under the Chargeback default cost center. You cannot change the cost center assignment of an SSA entity, but you can reassign the SSA user out of the default cost center to a more appropriate cost center, if desired, as described in [Creating High-Level Cost Centers in Chargeback](#).

To unassign a cost center, select the entities involved and select **Unassign Cost Center** from the **Action** menu.

## Assigning Charge Plans to Entities

When assigning charge plans to entities, you have the option of assigning plans individually to child members or assigning at an ancestor level and having the child members inherit the assigned plan.

An extended charge plan includes parameters for how to apply universal charge rates to an assigned entity. You also can replace an extended plan by reassigning the universal plan to an entity.

For SSA entities (zones), the person performing SSA setup assigns the charge plan to the zone as part of setup so that all entities within the zone inherit the plan.

 **Note:**

You also can perform charge plan assignment when adding an entity for Chargeback. See Step 2 of the Add Entities wizard described in [Making Assignments](#).

1. From the **Enterprise** menu, select **Chargeback**.
2. Select the **Entities** tab. A list of entities appears showing assigned cost centers and charge plans.
3. Select the entity to which you want to assign a charge plan click the **Assign Plan** button, then choose the appropriate action.

4. **Rule Based Assignment** asks to confirm that you want to run rules to assign a plan. Click **OK**. Rules fire to determine plan assignment based on rules criteria. For more information, see [Defining Plan Assignment Rules](#).
5. **Direct Assignment** opens a dialog that displays a list of plans that apply only to the entity type. Proceed as follows:
  - a. Specify plan inheritance. **Propagate** assigns the plan to children of the entity if they have no plan assigned. **Override** assigns the plan regardless, removing the current plan assignment, if any.
  - b. Select the extended charge plan appropriate to entity selection.
  - c. Click **OK**.

The dialog closes, and the table of entity assignments refreshes to reflect the assignment.

A group member with one plan assignment who is a member of another group with a different plan assignment is in conflict as noted on the **Entities** tab for the affected group member. It is also possible that a group member is part of a regular target hierarchy as well as a group. For example, a database (DB1) appears under a zone (PaaS zone 1) and under a group (Group 1). In these cases, no charges are calculated for the entity until an administrator resolves the conflict, at which time calculations resume. If there is no resolution before the close of the reporting cycle, charges can no longer be calculated.

A RAC can be metered by database instance, database service, or PDB. Each RAC member appears under the RAC node in the tree hierarchy and can be assigned to different charge plans and different cost centers.

To unassign a charge plan, select the entities involved and select **Unassign Plan** from the **Action** menu.

## Running the Daily Data Collection Job

The daily data collection in Chargeback is an ETL—extract, transform, load—process where information is extracted from one source, transformed into an appropriate format, and loaded into a repository.

Enterprise Manager collects metric and configuration information on entities and stores it in the Management Repository. These collections occur with varying frequencies. When an entity is added to Chargeback, the application extracts the data from the repository and transforms it for use in Chargeback-dedicated tables. This process of extracting and transforming data is the Chargeback data collection process, which is scheduled to run every 24 hours. Chargeback maintains its own data collection tables because it needs to perform various transformations on the data, and to provide a historical data reference.

Given the 24-hour cycle, any Chargeback activity is not immediately apparent. For example, if you change a cost center assignment, it may take up to 24 hours (until the next data collection job runs) for reports to show the change. To circumvent the cycle, you can run the collection job on-demand to update the tables immediately.

1. From the **Enterprise** menu, select **Chargeback**.
2. Select the **Entities** tab.
3. From the **Action** menu, select **On-demand data collection**.

Chargeback data collection tables are updated to reflect the most recent activity.

To check on the job schedule:

1. From the **Enterprise** menu, select **Job**, then select **Activity**.

2. On the Job Activity page, click **Advanced Search**.
3. In the Advanced Search region, select **Chargeback Data Loader** from the Job Type drop-down list, then click **Go**.
4. Check the **Scheduled** column for the next scheduled job execution.

Do not change the job schedule.

### Chargeback Data Retention Period

Chargeback retains the data it collects as follows:

- Hourly data remains available for three months by default. To see what your current retention period is for hourly data, execute the following query:

```
select * from EM_INT_PARTITIONED_TABLES where table_name like@
'EMCT_CBA_CHARGE_1HOURL'
```

To adjust the hourly retention period, execute the following command sequence:

```
begin
gc_interval_partition_mgr.SET_RETENTION('SYSMAN', 'EMCT_CBA_CHARGE_1HOURL',
4);
end;
```

This example extends the hourly retention period to four months.

- Daily data remains available for 24 months by default. To see what your current retention period is for daily data, execute the following query:

```
select * from EM_INT_PARTITIONED_TABLES where table_name like
@ 'EMCT_CBA_CHARGE_1DAY'
```

To adjust the daily retention period, execute the following command sequence:

```
begin
gc_interval_partition_mgr.SET_RETENTION('SYSMAN', 'EMCT_CBA_CHARGE_1DAY',
36);
end;
```

This example extends the daily retention period to 36 months.

## Self Service Applications and Zones within Chargeback

A key component of cloud computing is availability of self service applications. Enterprise Manager includes SSAs for Oracle VM, database, and middleware.

1. To access the respective portal, from the **Enterprise** menu, select **Cloud**, then select **Self Service Portal**.
2. On the Self Service Portal page, select a service type from the **Manage** drop-down menu.
3. Click the **Chargeback** icon in the left pane to view charge trends and details for the selected service type, provided it was configured for Chargeback.

While performing cloud setup, you can link directly into Chargeback to configure the respective zone. Note that zone setup is a prerequisite.

1. From the **Setup** menu, select **Cloud**, then select as follows:
  - **Infrastructure**—to set up VM types.
  - **PaaS Infrastructure Zones**—to manage PaaS Infrastructure zones.

- **Database**—to set up database resource pools.
  - **Middleware**—to set up middleware resource pools.
  - **Testing**—to add application types for use by test designers to organize test-related activities.
2. Each respective home page has a **Chargeback** selection on the left. Click it to display an informational page on Chargeback setup that includes links into Chargeback to perform setup.

Chargeback supports several zones including Oracle VM and PaaS Infrastructure, which includes DBaaS, Schema as a Service (SchaaS), and Pluggable Database as a Service (PdbaaS).

Within Chargeback, the respective zone hierarchies appear as follows on the **Show Hierarchy** subtab of the **Entities** tab, PaaS Infrastructure under the Cloud category and Oracle VM under the Servers, Storage and Network category:



**Note:**

A PaaS Infrastructure zone can contain a database instance, a RAC instance, a database service, a composite application, or any combination of these, as represented below.

Zones	Zone Hierarchy
PaaS Infrastructure	PaaS Infrastructure Zone Single Instance Database Cluster Database Database Instance1 Database Instance2 Schema Service Pluggable Database Oracle Composite Application WebLogic Domain WebLogic Cluster Oracle WebLogic Server1 Oracle WebLogic Server2 Oracle WebLogic Server
Oracle VM	Oracle VM Zone Oracle VM Server Pool Oracle VM Guest1 Oracle VM Guest2

The following characteristics apply to all entity type zones:

- Adding a zone to Chargeback automatically includes all child instances.
- Removing a zone from Chargeback automatically removes all child instances.
- A child instance with no explicitly assigned charge plan inherits the plan of its nearest ancestor above it in the hierarchy.

- A child instance with no explicitly assigned cost center inherits the cost center of its nearest ancestor above it in the hierarchy.
- Querying on charges at a given level within the hierarchy will include all charges for the levels below (either directly or indirectly).
- New members discovered or added to a zone are automatically recognized by Chargeback at the next data collection cycle.

As the Chargeback Administrator with respect to self service, you should perform all configuration-related tasks on the self service zone rather than on child entities.

The SSA user is automatically associated with the SSA entity as the cost center, when the SSA entity is added to Chargeback. See [Assigning Cost Centers to Entities](#) to learn about assigning cost centers. When assigning charge plans, a plan assigned to a zone applies to all members within the zone that do not otherwise have a plan assigned. See [Assigning Charge Plans to Entities](#) to learn about assigning charge plans.

## Accessing Chargeback Information

Once a Chargeback data collection cycle completes, you can begin to parse the information in a variety of ways. This section covers the following topics

- [Following Usage and Charge Trends](#)
- [Viewing an Entity's Collected Metric Data and Other Entity Details](#)
- [Generating and Distributing Chargeback Reports](#)
- [Viewing Chargeback Information in the Self Service Portal](#)
- [Sharing Chargeback Data with Other Applications](#)

### Following Usage and Charge Trends

Once you define charge plans, set up cost centers, and begin to monitor entities, trends in usage and charges emerge. Trending reports show metric or charge trends over a defined period of time and are useful for end users who want to see how their charges change over time. They are also useful to the IT department for capacity planning purposes.

The **Home** tab displays bar graphs that denote usage and charge trends over time. Each trend region has an **Option** link in the upper-right corner that opens a dialog where you can customize the display.

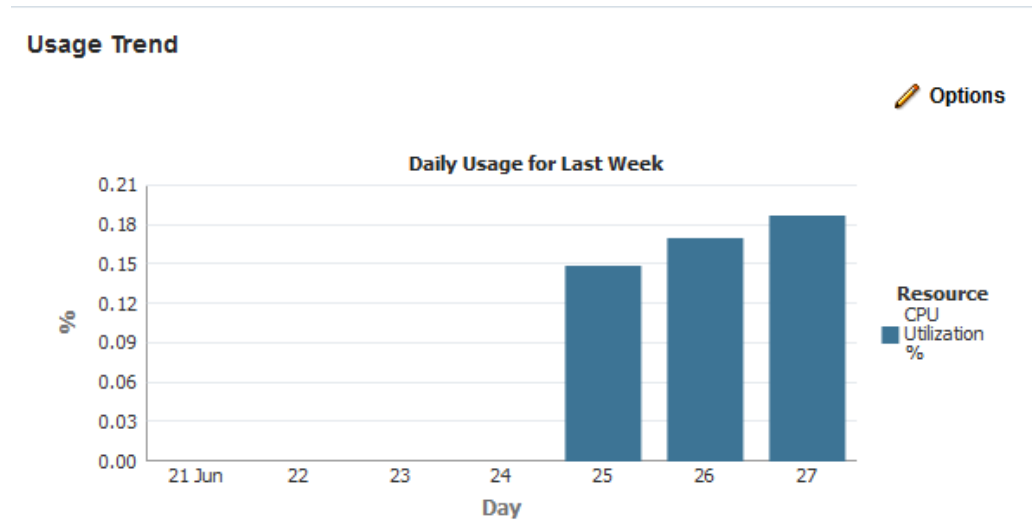
#### Usage Trend Options

Customize the usage trend display as follows:

- **Time Period**—Select the desired time period to chart usage trends; default is the current year
- **Aggregation**—Select how to group usage across the selected time period; default is monthly
- **Usage Value Type**—Show usage as a percent (utilization) or as a consumptive value; default is utilization
- **Resource**—Show usage in terms of a particular metric (CPU, memory, or storage); default is the three metrics

[Figure 28-6](#) displays a usage trend showing CPU, disk, and memory utilization over the past week, aggregated daily.

Figure 28-6 Sample Usage Trend Graph



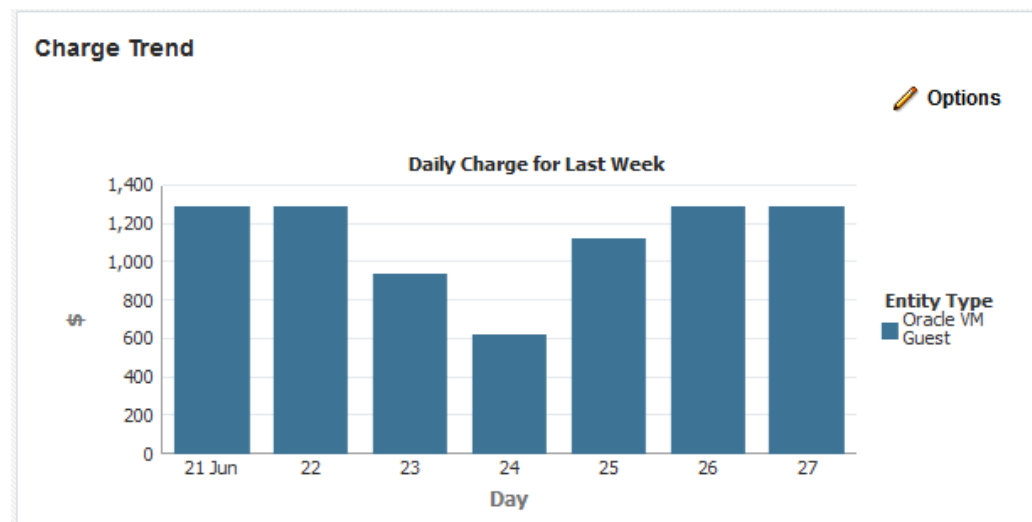
### Charge Trend Options

Customize the charge trend display as follows:

- **Time Period**—Select the desired time period to chart charge trends; default is current year
- **Aggregation**—Select how to group charges across the selected time period; default is monthly
- **Group By**—Group charges by either cost center or entity type; default is cost center
- **Cost Center**—Display charge trends for all cost centers, a particular cost center, or for unassigned users; default is all

Figure 28-7 displays a charge trend showing last week’s charges for the VM Guest entity type, aggregated daily.

Figure 28-7 Sample Charge Trend Graph



## Viewing an Entity's Collected Metric Data and Other Entity Details

View a selected entity's metric data and other relevant information such as collection status, any associated problems, current rate of recovery, an audit trail of activities affecting the entity, and more.

You can view an entity's metrics in graph form or as a time-stamped report of raw metric data. You can export the latter view to an external application such as a spreadsheet.

Note that you might have to expand the metric data region at the bottom of the **Entities** tab to expose the subtabs referenced in the instructions below.

1. From the **Enterprise** menu, select **Chargeback**.
2. Select the **Entities** tab and then select an entity to view.
  - Select the **Metered Data (Chart)** subtab below the entities list, to view a wave graph of data metrics for the entity. Select the metric to display from the drop-down list on the right. The metric selection is entity-type dependent. For a WebLogic Server metered by J2EE application, the metrics are per application. For a database metered by service, the metrics are service-related. For a RAC, metrics are represented as a multiline graph grouped by cluster member, where each line maps to usage by a particular member for the selected service.
  - Select the **Metered Data (Table)** subtab to view the raw numbers. In this view, you can filter the data and export it as a csv-formatted file. You also can change the focus to another entity. For a RAC, the view shows the same service data for all cluster members within the RAC.
  - Select the **Show Hierarchy** subtab to view the hierarchical relationships of a container entity and its chargeable entities
  - Select the **Collection Status** subtab to glean statistical data such as error count and when metric data was last collected. For a RAC, collection status is for all cluster members within the RAC regardless of service selected.
  - Select the **Problems** subtab to view any problems related to the selected entity such as with the data collection process. The summary entry links directly to Incident Manager where you can learn more about the problem and potential solutions. A service request (SR) number appears if assigned. There is also a **Problems** subtab on the **Home** tab that notes issues related to the whole of Chargeback. There are here likewise direct links to Incident Manager.

### Note:

Within Incident Manager, you can view, track, and manage the life cycle of a problem and its associated incidents. Support Workbench allows you to further investigate and report a problem. As the Chargeback Administrator, you require full privileges on all hosts and Management Agents associated with the Oracle Management Service to view problem details in the Support Workbench.

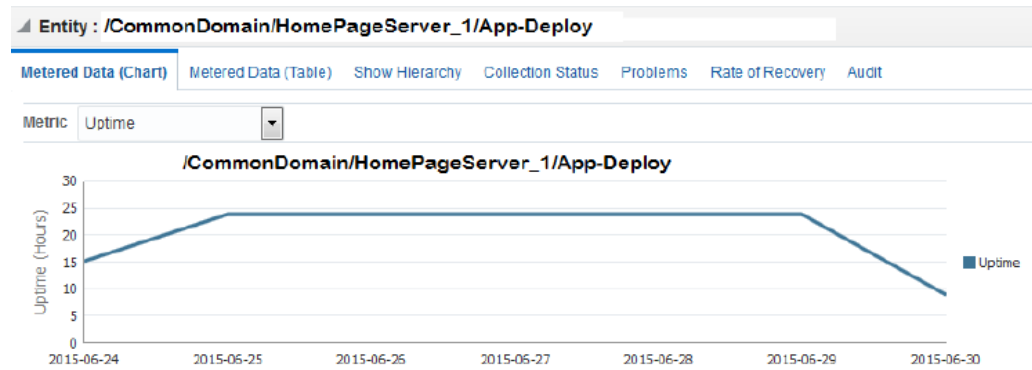
- Select the **Rate of Recovery** subtab to see if an entity is on-track to meet the projected monthly figure the Plan Advisor calculated.
- Select the **Audit** subtab to see who performed certain tasks such as assigning a cost center to the entity and when.



- Click the help icon that appears in a charge details row to see a pop-up description of the applicable charge item.

Figure 28-8 shows a chart tracking instance uptime for the selected entity over a span of seven days.

**Figure 28-8 Sample Entity Metric Data**



Note that you can see additional details on the Job Activity page.

1. From the **Enterprise** menu, select **Job**, then select **Activity**.
2. Click Advanced Search and specify the following filtering criteria:
  - Select **Chargeback Data Loader** as Job Type.
  - Select **Targetless** as Target Type.
  - Select appropriate values for Status and Scheduled Start.
3. Click **Go**.

The log output for each job step captures any warnings or errors encountered.

## Generating and Distributing Chargeback Reports

Chargeback reports are a powerful analytical tool for tracking resource usage and charge distributions. These summary reports show information related to charge or resource utilization broken down by cost center, entity type and resource. They enable you to quickly assess the entities or cost centers with the greatest charges or resource utilization. Summary reports are primarily useful for drill-down purposes.

Data collection occurs once a day. The daily data collection job for the current cycle is based on charge plan and cost center assignments. The reporting cycle defines the time period for which to calculate charges. The cycle is for the current month starting on the first day of the month.

 **Note:**

Changes in Chargeback setup are not immediately reflected in reports. For example, if you change a cost center assignment, it may take up to 24 hours (until the next data collection job runs) for reports to show the change. If you have SYSMAN Super Administrator privileges, however, you can initiate data collection on-demand from the **Entities** tab. To do this, select **On-demand data collection** from the **Action** menu.

To generate ad hoc reports:

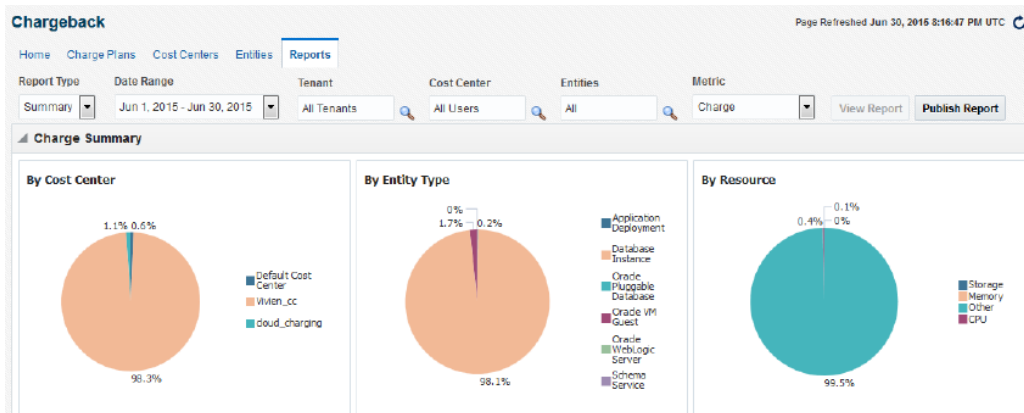
1. From the **Enterprise** menu, select **Chargeback**.
2. Select the **Reports** tab.
3. Design your report from the following options:
  - Use the current report cycle or customize a date range to report on.
  - Choose between summary and trending report types. A summary report presents a pie-chart breakdown, while a trending report uses a y-axis multiple bar chart to denote usage trends.
  - Select specific or all tenants.
  - Select specific cost centers or report on all users.
  - Select specific entities or entity types or report on all entities within all entity types.
  - Choose the metric to report on.

Click **View Report** to see the results.

The report displays color-coded graphs summarizing charges by cost center, entity type, and resource, with details displayed in the table at the bottom. Hover over a color box link in the respective graph to highlight the report contents for the color-coded selection, for example memory in the resource graph.

Figure 28-9 displays a summary report showing charges for the current reporting cycle for all tenants, cost centers, and entity types, with a breakdown by resource.

**Figure 28-9 Summary Report for a Cost Center and Entity Type**



4. Filter the details by choosing from the drop-down list; the default is All. Use the query-by-example feature (icon to the right of the action buttons) to search report details. The icon

acts as a toggle; clicking it alternately shows or hides text and selection boxes above the table columns. The feature is also available in the **View** menu. Enter search criteria in various combinations by selecting a date and by typing values in the respective columns. Press **Enter** to activate the search.

5. Click the **Export** button in the details region to export report contents to file.
6. Click **Publish Report** to make report contents public. This action integrates with BI Publisher, where you can:
  - Save reports in a variety of formats (Excel, PowerPoint, HTML, PDF)
  - Distribute generated reports to e-mail lists (users who do not have access to Enterprise Manager, for example) on a defined schedule

For information on BI Publisher setup, see the "Installing BI Publisher on Enterprise Manager" chapter in the *Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

### Reporting on Uptime

When you choose to report on the uptime metric, the details display the fractions of hours in a day a entity was available over the course of the reporting cycle. You can see the adjustment for down time when you report on the charge metric. The report shows the charge, the adjustment, and the adjusted charge.

### Making Manual Adjustments

If necessary, you can make manual adjustments to charges for an entity after reporting on the charge metric. These manual adjustments can be positive or negative. Perhaps the customer is entitled to a discount, or maybe an incorrect charge rate was applied.

1. Run a report based on the charge metric.
2. Select the entity in the details portion of the report, then click the **Adjust Charges** button.
3. Enter a notation justifying the adjustment in the space provided.
4. Specify the amount of the adjustment in the space provided. Place a minus sign (-) before the number to reduce the charge.
5. Click **Update** to review the result of the adjustment. If satisfied, click **Save**.

The system updates the report with the adjusted charge.

The adjustment will be reflected on the charge date or at the start of the report cycle, as applicable.

## Viewing Chargeback Information in the Self Service Portal

You can access Chargeback information as it relates to self service applications from the self service portal.

1. From the **Enterprise** menu, select **Cloud**, then select **Self Service Portal**.
2. On the Self Service Portal page, select a service type from the various categories of services.
3. On the selected services page, click the **Chargeback** icon in the left pane to view charge trends and details for the selected service type, provided it was configured for Chargeback. The informational breakdown is as follows:
  - The top portion of the page breaks down total charges by resource or service type selected from the **View By** drop-down menu on the right. Click a charge number to isolate the details.

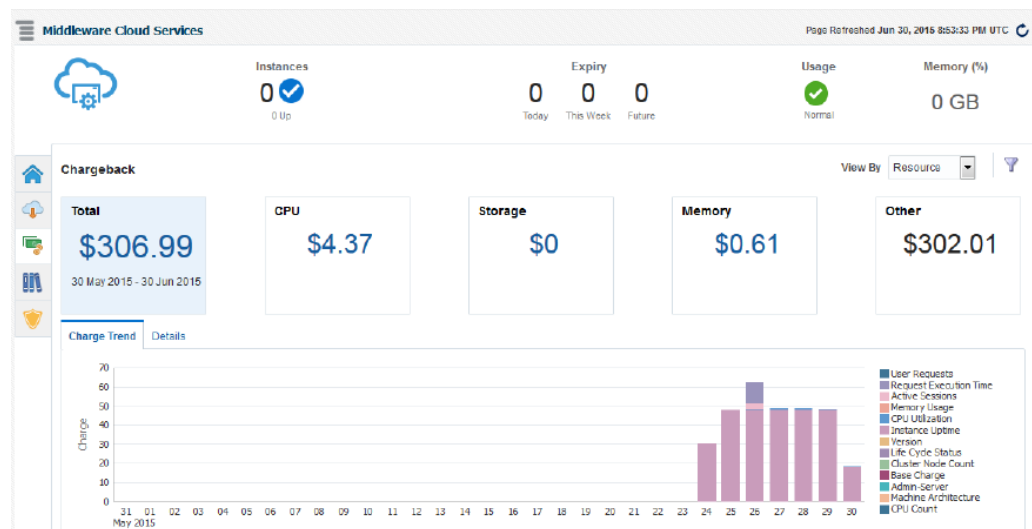
- The bottom portion of the page offers display alternatives:
  - **Charge Trend** calculates charges across a date range for various metrics. If you hover over a metric, memory for example, the bar graph changes to reflect only that metric.
  - **Details** breaks down the summary charges displayed in the top portion across the complete spectrum of Chargeback attributes. You can reorder the data by selecting from the **Detail Level** drop-down menu. You can also display additional information by exposing more columns.

When the detail level is by date, an **Hourly Details** button appears. Click the button to display a pop-up showing a break down by the hour.

You can make manual adjustments to charges by selecting a table row and clicking the **Adjust Charges** button.

Figure 28-10 shows a sample Chargeback informational breakdown in the self service portal for Middleware Cloud Services.

**Figure 28-10 Chargeback Breakdown for a Self Service Application**



## Sharing Chargeback Data with Other Applications

Amassed Chargeback data is a valuable commodity that can be made available to other applications. There are several ways to do this:

- Export administrative reports (**Export** button on the **Reports** tab in Chargeback)
- Publish administrative reports via BI Publisher (**Publish** button on the **Reports** tab in Chargeback)
- Export details of charge trends for self service applications (**Export** button on the **Chargeback** tab in the self service portal)
- Execute the EM CLI verb `get_metering_data` to generate comma-separated output on usage and, optionally, charge data (see [Chargeback and Metering EMCLI Verbs](#), for more information)

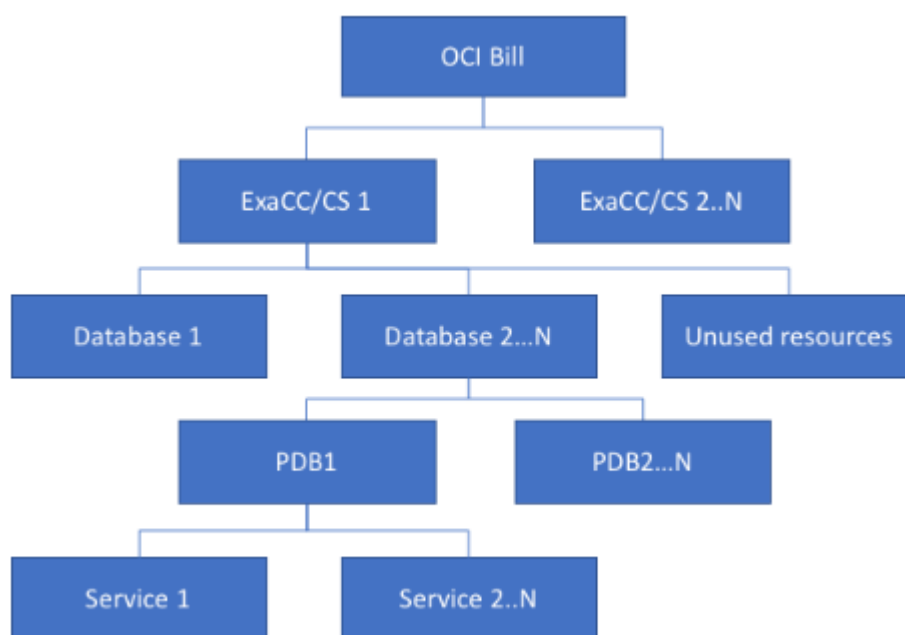
In addition, Enterprise Manager supports repository views to access information in the Management Repository for further processing and presentation. There are two views

available (MGMT\$EMCT\_CBA\_CHARGE\_HOURLY and MGMT\$EMCT\_CBA\_CHARGE\_DAILY) to access Chargeback information in the Management Repository. See the *Enterprise Manager Cloud Control Extensibility Programmer's Reference* for more information.

# Chargeback for Oracle Cloud Infrastructure

Chargeback allows you to divide the cost of Oracle Cloud Infrastructure (OCI) entities and charge internal customers based on their respective usage via an easy-to-use wizard.

You can choose Exadata Cloud Service and Exadata Cloud at Customer target type to initiate *OCI Recharging* flow to get a breakdown of charges for all supported member targets. Typically, customers are billed by allocation in OCI. Chargeback lets you divide the cost by usage and re-bill the application owners by usage as shown in the following breakdown example.



As shown in the illustration, you can perform Chargeback operations against single member targets. When working with large numbers of targets, it may be easier to use dynamic groups to simplify these operations. For more information about dynamic groups, see *Overview of Dynamic Groups* in the *Oracle Enterprise Manager Cloud Control Administrator's Guide*.

## Prerequisites

Before you set up Chargeback for OCI, ensure the following conditions have been met:

- Chargeback must be enabled for Exadata Cloud Service and Exadata Cloud at Customer member targets (DB Instance or PDB), as well as Database-as-a-Service and on-premises databases.
- If Chargeback operations are going to be performed against groups (instead of individual member targets), then Chargeback must be enabled for these groups. For more information about groups, see [Managing Groups](#) and [Using Administration Groups](#) in the *Enterprise Manager Cloud Control Administrator's Guide*.

- The daily data collection in Chargeback is an *extract, transform, load* (ETL) process where information is extracted from one source, transformed into an appropriate format and loaded into a repository. Chargeback data collection for the time period under consideration must have already happened for the targets.

## Getting Started

Enterprise Manager Chargeback provides an easy-to-use wizard to simplify the Chargeback setup for OCI targets.

- From the Enterprise menu, select **Chargeback**. The Chargeback homepage appears.
- Click **Cost Recharging**. The Chargeback wizard appears.

The screenshot shows the Oracle Enterprise Manager Chargeback interface. The main dashboard has a 'Summary' section with a 'Cost Recharging' button highlighted in red. A red arrow points from this button to a larger, detailed view of the 'Cost Recharging' wizard. The wizard is a multi-step process with four steps: 1. Entity Type/Entities, 2. Cost Per Period, 3. Rate Suggestions, and 4. Report. The current step is 'Entity Type/Entities', which includes a 'Select Entity type' section with a table of entity types and a 'Configuration' table.

Entity type	Configuration	Chargeable Entities
Database Instance	None. All entities have the same rates.	2
Host	None. All entities have the same rates.	3
Oracle Pluggable Database		

### Note:

You can also access the **Cost Recharging** button from the Chargeback *Reports* page.

### Chargeback Templates

The Chargeback wizard simplifies the Chargeback setup for OCI targets, however, having to set up Chargeback for a large number of targets can be cumbersome. To simplify this task, you can save repetitive step input from a wizard session to a template. The saved template can then be loaded and input applied to future Chargeback target setup sessions.

*If no templates have been created* for the session, from any step of the wizard, you can select **Save as Template** from the **Save** drop-down menu. This lets you begin saving the session input to a template.

Entity type	Configuration	Estimated Instances	Recovery Cost (\$)	Recovery Cost (%)*	Recovery Rate (\$ per Month per Entity)
Database Instance	None. All entities have the same rates.	1	1,000.00	100.00	30,000.00
Total			1,000.00	100.00	

Once the template creation process has been initiated, clicking **Save Template** on subsequent steps saves any new input for that step to the template.

*If templates have already been created, each time you begin a Chargeback wizard session, you will have the option creating a new template or selecting from a list of existing template.*

Entity type	Chargeable Entities
No data to display.	

To view the input saved to a specific template, select a template from the drop-down list and click **View Template Details**.

## Adding Entities

On the Entity type/Entities page, you specify the entities you want as part of your Chargeback analysis.

1. Click **+Add**. The *Select Entity Type* dialog appears.
2. Left-click in the **Select** field to and select the one or more entity types you want to include as part of the Chargeback session.
3. Click **OK**. The selected entity types appear in the Select Entity Type table.
4. Select an entity type from the table and click **Select Chargeable Entities**. The Select Entities dialog appears.



 **Note:**

You can select predefined Enterprise Manager Groups to simplify dealing with large numbers of targets. For more information about Groups, see *Managing Groups and Using Administration Groups in the Enterprise Manager Cloud Control Administrator's Guide*. For large numbers of entities, you can search by name or member entity type.

5. Select the desired entities from the Entity Name list and click **Select**. For Group entity types, a list of chargeable entities now appears in the Chargeable Entities column. For a each entity type, the number of selected entities displays. You can click on the chargeable entity in the table to display the list of the selected entities and remove entities if desired.

**Changing Entity Configurations (Optional)**

Once you've selected the chargeable entities, they will appear in the *Configuration* table where you can specify different charge rates for entities based on their configuration. By default, all entities will have the same rate. If desired, you can change entity configuration.

 **Note:**

Changing the entity configuration is optional. You can skip this step if you are happy with the default configuration.

To change the charge configuration for an entity type:

1. Select an entity type from the table and click **Set Up Configurations...** The Select Configuration dialog appears.

### Select Configuration

Configuration	Configuration Values and Entity Counts
Edition	Enterprise Edition(5)
Life Cycle Status	1(5)
Release	Oracle Database 19c(5)
Version	19.0.0.0.0(5)

2. Select the entity configuration attribute and click **OK**. The updated configuration attribute appears in the Configuration table for that entity type.
3. Click **Next** to define *Costs Per Period*.

## Defining Cost Per Period

You now need to specify the costs, Chargeback period, and the recovery costs for your chargeable entities.

1. From the *Cost Per Period* wizard page, specify the **Charge Period Start** and **End** dates.

 **Note:**

Ensure that data collection has already occurred for the specified time period.

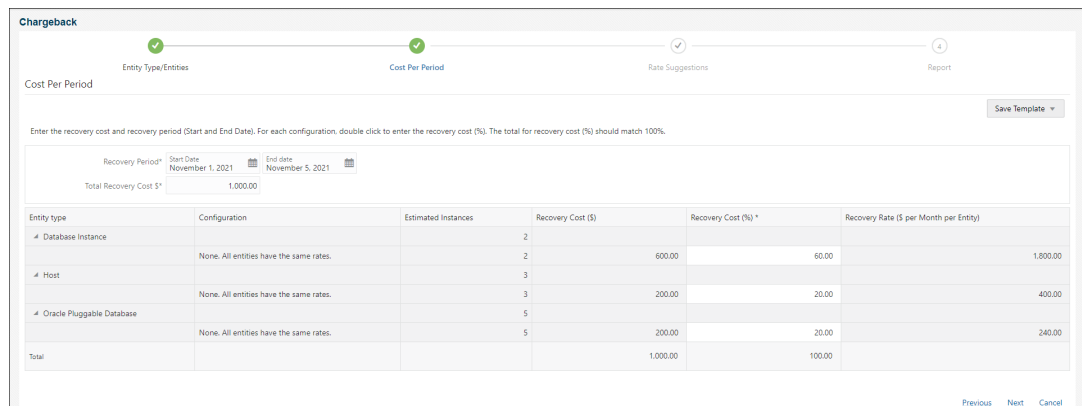
2. Enter a value for the **Recovery Cost**. This can be obtained from the OCI Bill.
3. You now need to specify the cost breakdown per entity. Enter the percentage recovery cost breakdown by first double-clicking on the entity **Recovery Cost (%)** column entry field and then specifying a percentage value between 0 and 100. The total recovery cost must equal 100.

Once you've entered the percentages, Chargeback will calculate the per entity Recovery Cost and Recovery Rate (\$ per month per entity).

 **Note:**

A dollar sign is used for the currency symbol by default. If desired, you can change the currency symbol by navigating to the Chargeback **Home** page. Click on the **Settings** tab at the lower left. Enter a new **Currency Symbol** and click **Save**.

Changing the Currency Symbol only changes the symbol. No currency conversion is performed.



Entity type	Configuration	Estimated Instances	Recovery Cost (\$)	Recovery Cost (%) *	Recovery Rate (\$ per Month per Entity)
Database Instance	None. All entities have the same rates.	2	600.00	60.00	1,800.00
Host	None. All entities have the same rates.	3	200.00	20.00	400.00
Oracle Pluggable Database	None. All entities have the same rates.	5	200.00	20.00	240.00
<b>Total</b>			<b>1,000.00</b>	<b>100.00</b>	

4. Click **Next** to define the Chargeback rates.

## Specifying Chargeback Rates

Chargeback uses entity information that Enterprise Manager collects as a basis for calculating metering.

On the *Rate Suggestions* page, you define the rates to be charged per entity based on the collected metric data. Rate suggestions are calculated using the *Change Period* and *Recovery Cost* (both set on the *Cost Per Period* page). The *Recovery Rate* per month for each entity and *Average Daily Usage* values are also calculated using these values.

1. In the Rate Suggestions tree list, you will see entity configurations listed for each entity type. Click on an entity configuration to display the Recovery Rate and Average Daily Usage values for the configuration.
2. Enter the weighting percentage by first double-clicking the **Weighting (%)** column entry field for that configuration and then specifying a percentage value between 0 and 100 for that entity. Once a weighting percentage has been entered, the Chargeback calculates the *Cost/Month* and *Suggested Rate*.

**Figure 29-1** Graphic shows the Rate Suggestions page.

The screenshot displays the 'Rate Suggestions' configuration page in Oracle Enterprise Manager. At the top, there are navigation tabs for 'Entity Type/Entities', 'Cost Per Period', 'Rate Suggestions', and 'Report'. The 'Rate Suggestions' tab is active. Below the tabs, there are fields for 'Recovery Period Start' (August 10, 2022), 'Recovery Period End' (August 16, 2022), and 'Total Recovery Cost' (\$ 1,000.00). A table lists various metrics with columns for 'Cost/Month (\$)', 'Weighting (%)', 'Average Daily Usage', 'Unit', and 'Suggested Rate'. A dropdown menu for 'Unused Resource Assignment' is open, showing options for 'Same Entity' and 'Associated Host Entity'. The table includes metrics like CPU Utilization, SGA Size, Tablespace Size, and Base Charge.

	Cost/Month (\$)	Weighting (%) *	Average Daily Usage	Unit	Suggested Rate
Universal					
CPU Utilization	200.00	50.00	27.87 %		\$ \$ 0.2392 / CPU / Per Day
SGA Size	120.00	30.00	1202.21 GB		\$ \$ 0.0033 / GB / Per Day
Tablespace Size	80.00	20.00	239.31 GB		\$ \$ 0.0111 / GB / Per Day
Fixed					
Base Charge					\$
<b>Total</b>	<b>0.00</b>	<b>0.00</b>			

**Note:**

- Starting with Oracle Enterprise Manager 13.5c Release Update 10 an additional drop-down **Unused Resource Assignment** is available. It allows you to specify whether unused resource charge needs to be added to a Same Entity or an Associated Host Entity.
- Starting with Oracle Enterprise Manager 13.5c Release Update 10 the additional **Fixed** item type has been added into Recovery Rate, it is shown directly under Universal. This item type shows the fixed costs involved in operating consumed resources such as power, real-estate and admin salary.
- If no metric data has been collected during the *Charge Period*, you will not be allowed to specify a weighting percentage.

3. Repeat step 2 until all weighting percentages have been specified. Note: The total weighing percentages must equal 100%.
4. Click **Next** to view a report containing a comprehensive breakdown of charges.

## Viewing the Chargeback Report

The final page of the Chargeback wizard displays a tabular report detailing a full breakdown of charges per entity.

### Viewing the Report

The screenshot shows the 'Chargeback' report interface. At the top, there are four progress indicators: 'Entity Type/Entities' (green checkmark), 'Cost Per Period' (green checkmark), 'Rate Suggestions' (green checkmark), and 'Report' (blue 'x' icon). Below these, there are filters for 'Recovery Period' (Start Date: November 1, 2021; End date: November 5, 2021) and 'Total Recovery Cost \$ 1,000.00'. A 'Save Template' dropdown menu is visible on the right. The main table has columns for 'Cost Center Display Name', 'Entity Name', 'Entity Type', 'Usage Charge (\$)', 'Adjustment (\$)', and 'Total Charge (\$)'. The table lists various entities and their associated charges, with a 'Total' row at the bottom showing a total charge of 1,000.00.

Cost Center Display Name	Entity Name	Entity Type	Usage Charge (\$)	Adjustment (\$)	Total Charge (\$)	
EM_DEV	RATL_RAT11	Database Instance		300.00	0.00	300.00
EM_DEV	RATL_RAT12	Database Instance		300.00	0.00	300.00
EM_PM	RATL_CDBROOT	Oracle Pluggable Database	121.84		77.95	199.79
EM_PM	RATL_RATEMEA	Oracle Pluggable Database		0.07	0.04	0.11
EM_PM	RATL_RATEPAC	Oracle Pluggable Database		0.02	0.01	0.03
EM_PM	RATL_RATLAD	Oracle Pluggable Database		0.02	0.01	0.03
EM_PM	RATL_RATNATO	Oracle Pluggable Database		0.02	0.01	0.03
EM_PM	den0yov.us.oracle.com	Host	62.95		16.04	78.99
EM_PM	slcm21adm02.us.oracle.com	Host	48.22		12.29	60.51
EM_PM	slcm21adm01.us.oracle.com	Host	48.22		12.29	60.51
		Total				1,000.00

The following is shown for each target:

- **Cost Center:** The cost center to which the entity belongs.
- **Entity Name:** The name of the entity.
- **Entity Type:** The entity type.
- **Usage Charge:** Total usage charge for the charge period.
- **Adjustment:** The adjustment charge compensates for times (any hour in a day) during a charge period when an entity is down or not uploading metric data for Chargeback to use in its calculations. The adjustment fills charging shortfalls created by the missing data. The adjustment charge uses a proportionate cost split per entity that provides a percentage cost approximation.  
**Example:** Let's say you have two entities that consist of 30% and 70% of the breakup of the cost respectively and one of the entities goes down for a day. Chargeback uses the 30% and 70% proportional split to approximate the charges. So, if there is a \$100 gap between *Total Recovery Cost* and the *Total Charge* shown in the report, the adjustment charge would be added proportionally between the two entities.
- **Total Charge:** Total charge for the entity for the charge period.

 **Note:**

Starting with Oracle Enterprise Manager 13.5c Release Update 10 an additional drop-down **Unused Resource Assignment** is available, if you select this the Reports page will display the unused charge.

- If the **Same Entity** option is selected for Unused Resource Assignment, the Unused Charge will be assigned to the entity.
- If the **Associated Host Entity** option is selected for Unused Resource Assignment, the Unused Charge will be assigned to the associated or underlying Host entity.

If the HOST entity is not selected in the Specifying Chargeback Rates, and **Associated Host Entity** is selected. The unused database resource charge will be displayed in the Reports page as an additional row.

If the Database and associated Host entity is selected in Specifying Chargeback Rates, the charge for unused database resource will be added to the unused Host resource and displayed.

**Warning:** A database and its associated or underlying host should not be part of same Cost Recharging flow. This can result in duplicate unused resource computations.

### Updating the Report

To update the report, click **Previous** to go back and change any entity configuration/charge parameters.

### Saving the Report

To save the report, you can export the report data to a comma separated value file. To do so, click **Report** and select **Save as CSV**.

### Saving the Session as a Template

To save the Chargeback session input for future use with other targets, you can save the session as a template. To do so, click **Save Template** and select **Save** or **Save as Template**.

### Ending the Chargeback Session

To end the Chargeback wizard session, click **Finish**.

# Part XI

## Using the Cloud APIs

This section describes the cloud application programming interfaces (APIs) and the RESTful (Representational State Transfer) API.

It contains the following chapters:

- [Introduction to Cloud APIs](#)
- [Cloud Resource Models](#)
- [EM CLI Verbs for Database as a Service Administrator](#) .
- [Database as a Service Administrator REST APIs.](#)
- [Database as a Service SSA User REST APIs.](#)
- [DBaaS REST APIs and EM CLI Verbs Based Use Cases.](#)
- [SSA Administration REST APIs](#) .
- [SSA Portal Management REST APIs.](#)
- [Chargeback and Metering EMCLI Verbs.](#)

# Introduction to Cloud APIs

Cloud computing is a style of computing in which dynamically scalable and deployed resources are provided as a service over the network.

Users need not have knowledge of, expertise in, or control over the underlying infrastructure in the cloud that supports the services rendered to the users. As enterprises (companies, governments, and other organizations) integrate their existing IT infrastructures and IT resources with the sharable cloud paradigm, it is imperative for cloud enablers to provide a uniform API that these enterprises can use to tailor the cloud to their business processes and economic models.

The Representational State Transfer (REST) API presented here focuses on the resource models and their attributes.

This chapter contains the following sections:

- [Introduction](#)
- [When to Use Cloud REST APIs](#)
- [Common Behaviors](#)

## Introduction

As IT deployments become more complex, an abstraction of the infrastructure resources becomes more relevant to address concerns of compliance and configuration. Furthermore, such abstractions enable consumers to self serve the exact service they need and operationally control these services without any significant administrator involvement.

The REST API enables an infrastructure provider to service their customers by allowing them to perform the following:

- Browse templates that contain definitions and metadata of a logical unit of service.
- Deploy a template into the cloud and form an IT topology on demand.
- Perform operations (such as ONLINE, OFFLINE) on the resources.

The REST API is based on the HTTP protocol and GET, POST, PUT, and DELETE requests are all used. Resource representations documented here are in JavaScript Object Notation (JSON).

The REST API presupposes no particular structure in the Uniform Resource Identifier (URI) space. The starting point is a URI, supplied by the cloud service provider, that identifies the cloud itself. The cloud's representation contains URIs for the other resources in the cloud. Operations on the cloud resources are performed by making an HTTP request against the URI of the resource.

The specification of this Cloud REST API includes the following:

- Common behaviors that apply across all requests and responses, error messages, and common resource attributes.
- Resource models, which describe the JSON data structures used in requests and responses.

- Requests that may be sent to cloud resources and the responses expected.

## When to Use Cloud REST APIs

The Cloud REST APIs can be used to integrate Enterprise Manager with custom-built or 3rd party self service consoles and service desks. A few example scenarios include:

- Deploying databases and Oracle VM assemblies from custom-built self-service consoles.
- Integration into a bigger orchestration flow, such as a provisioning preceded with approval workflows.
- Deploying databases and Oracle VM assemblies from service desks.
- As a part of public clouds where the tenant interface of the cloud is typically different and serves service procurement, tenant registration, and so on.

## Common Behaviors

The following sections specify constraints that apply to all the requests and responses that occur in the REST APIs supported by the Oracle Cloud Computing Platform.

### Transport Protocol

All of the platform APIs are based on the Hypertext Transfer Protocol (HTTP), version 1.1 (RFC 2616). Each request will be authenticated using HTTP Basic Authentication (RFC 2617) unless otherwise noted. Therefore, requests sent from the public Internet (and not on a secure channel such as a VPN) must use the HTTPS protocol.

### URI Space

The resources in the system are identified by URIs. To begin operations, the URI for a resource must be known. Dereferencing the URI yields a representation of the resource containing resource attributes and links to associated resources.

Assumptions about the layout of the URIs or the structure of resource URIs should not be made.

### Media Types

In this specification, resource representations and request bodies are encoded in JavaScript Object Notation (JSON), as specified in RFC 4627. Each type of resource has its own media-type, which matches the following pattern:

```
application/oracle.com.cloud.common.Xxxxx+json
```

where `Xxxxx` represents the portion of the identifier unique to a particular representation format for each resource. The identifier must be globally unique in the space of `vnd.com.oracle.cloud`, and the media type should be registered in accordance to RFC 4288.

The Platform must provide representations of all resources available in JSON. The Platform must accept requests encoded in JSON.



## Request Headers

In requests made to services implementing Oracle Cloud Platform APIs, several specific HTTP headers are used as described in the following table:

**Table 30-1 Request Headers**

Header	Supported Values	Description	Required
Accept	Comma-delimited list of media types or media type patterns	Indicates to the server what media types are acceptable.	Recommended on requests that will produce a response message body.
Authorization	"Basic" plus user name and password (per RFC 2617).	Identifies the user making this request.	Yes on most of the requests.
Content-Length	Length (in bytes) of the request message body.	Describes the size of the message body.	Yes on requests that contain a message body.
Content-Type	Media type describing the request message body.	Describes the representation and syntax of the request message body.	Yes on requests that contain a message body.
Host	Identifies the host receiving the message.	Required to allow support of multiple origin hosts at a single IP address.	All requests.
X-YYYYYClient-Specification-Version	String containing a specification version number.	Declares the specification version of the YYYYY API that this client was programmed against.	No.

## Response Headers

Specific HTTP headers included in the responses returned from the platform are described in the following table:

**Table 30-2 Response Headers**

Header	Supported Values	Description	Required
Content-Type	Media type describing the response message body.	Describes the representation and syntax of the response message body.	Yes, on responses that contain a message body.
Location	Canonical URI of the resource, either newly created, or the original referenced resource.	Returns a URI that can be used to request a representation of the resource.	Yes, on responses to requests that create a new resource, or change an existing resource.

**Table 30-2 (Cont.) Response Headers**

Header	Supported Values	Description	Required
Cache-Control	Max-age, public, no-store, mustrevalidate, proxyrevalidate.	How the representation of the resource should be cached, and its freshness.	No. For public resources (such as a list of public assemblies or templates) that do not change frequently, allowing lenient cache-control to optimize the response.  This will never be returned on a privileged resource or a resource request that contains an authorization header.

## HTTP Status Codes

Oracle Cloud Computing Platform APIs return standard HTTP response codes as described in the following table, under the conditions listed in the description.

**Table 30-3 HTTP Response Codes**

Header	Description
100 Continue	The client should continue with its request. This interim response is used to inform the client that the initial part of the request has been received and has not yet been rejected by the platform. The client should continue by sending the remainder of the request or, if the request has already been completed, ignore this response.
200 OK	The request was successfully completed. If this request created a new resource that is addressable with a URI, and a response body is returned containing a representation of the new resource, a 200 status will be returned with a location header containing the canonical URI for the newly created resource.
201 Created	A request that created a new resource was completed and no response body containing a representation of the new resource is being returned. A location header containing the canonical URI for the newly created resource will be returned.
202 Accepted	The request has been accepted for processing, but the processing has not been completed. Per the HTTP/1.1 specification, the returned entity (if any) should include an indication of the request's current status. A location header containing the canonical URI for the not-yet completed resource is returned along with the status attribute indicating its progress.
400 Bad Request	The request could not be processed because it contains missing or invalid information (such as validation error on an input field, a missing required value, and so on).
401 Unauthorized	The authentication credentials included with this request are missing or invalid.
403 Forbidden	The server recognized your credentials, but you do not possess authorization to perform this request.
404 Not Found	The request specified a URI of a resource that does not exist.
405 Method Not Allowed	The HTTP verb specified in the request (DELETE, GET, HEAD, POST, PUT) is not supported for this request URI.
406 Not Acceptable	The resource identified by this request is not capable of generating a representation corresponding to one of the media types in the Accept header of the request.

**Table 30-3 (Cont.) HTTP Response Codes**

Header	Description
409 Conflict	A creation or update request could not be completed because it would cause a conflict in the current state of the resources supported by the platform. For example, an attempt is made to create a new resource with a unique identifier that is already assigned to some existing resource or an attempt is made to modify a resource attribute which is not yet completed.
410 Gone	The requested resource is no longer available at the server and no forwarding address is known. This condition is expected to be considered permanent. Clients with link editing capabilities should delete references to the Request-URI after user approval.  If the server does not know, or has no facility to determine, whether or not the condition is permanent, the status code 404 (Not Found) should be used instead. This response is cacheable unless indicated otherwise.
412 Precondition Failed	The precondition given in one or more of the request-header fields evaluated to + when it was tested on the server. This response code allows the client to place preconditions on the current resource meta-information (header field data) and thus prevent the requested method from being applied to a resource other than the one intended.
500 Internal Server Error	The server encountered an unexpected condition which prevented it from fulfilling the request.
501 Not Implemented	The server does not (currently) support the functionality required to fulfill the request.
503 Service Unavailable	The server is currently unable to handle the request due to temporary overloading or maintenance of the server.

## Common Resource Attributes

All the resource entities in this specification may contain the following common resource attributes.

### Resource State

This attribute denotes the state of the resource describing the lifecycle of the resource. This differs from the status of the entity represented by the resource which has entity specific semantics.

The following table shows the Data Model of this attribute.

**Table 30-4 ResourceState Data Model**

Field	Type	Description	Occurs
state	String	The current state of the resource as last known. This is a label containing lifecycle state (for example, INITIATED, CREATING, CREATED, DESTROYING, DESTROYED, READY).  When there are vendor extensions, the vendor shall publish and document their semantics.	1
progress	Integer between 0 and 100	This indicates the progress made as an approximate percentage. Not all state labels assign semantic meaning to this field.	0..1

**Table 30-4 (Cont.) ResourceState Data Model**

Field	Type	Description	Occurs
messages	Message[]	Include the message data model instances to denote noteworthy communications.	0..1

## Collection

This attribute is a meta resource that represents a collection field in a resource. For example, a VDC contains a collection of VMs and the field that represents the list of VMs is implemented in this type.

In the resource model, a collection field is denoted as `Collection<type>`, for example, `Collection<VM>`.

**Table 30-5 Collection<type> Data Model**

Field	Type	Description	Occurs
uri	URI	URI that represents the collection of entities.	1
type	String	Type of the entity that this collection contains.	1
total	Integer	Total number of elements that can be safely assumed to be in the elements list.	0..1
elements	<TYPE>[]	List of entities in this collection. The URI of the entities must be populated by the platform. When dereferencing the URI, the client must use the type field in the Accept header (except in the case where type = URI).  If this is not returned, then the collection is an empty list.	0..1

In addition to the resource type, the collection also supports `Collection<URI>` where the type field is "URI". This basic type collection requires additional type casting where the URI can be dereferenced properly.

This basic type collection requires additional type casting where the URI can be dereferenced properly. It is also permissible to have a collection of type collection, for example, `Collection<Collection<Server>>`.

## Error Response Message

Successful requests will generally return an HTTP status code of 200 (OK), 201 (Created), 202 (Accepted), or 204 (No Content) to indicate that the requested action has been successfully performed or submitted.

In addition, a response message body (with an appropriate media type) containing a representation of the requested information might also be included. However, it is possible for a number of things to go wrong.

The various underlying causes are described by various HTTP status codes in the range 400-499 (for client side errors) or 500-599 (for server side problems).

If a response is returned with an error status code (400-499 or 500-599), the server will also return a response message body containing a message data model, with zero or more

message data models, describing what went wrong. The text values of such messages might be used, for example, to communicate with a human user of the client side application.

The entire list of messages included in a single error response is encapsulated in a messages data model. The media type shall be returned in the Content-Type header. The client shall not include the Messages media type in the Accept header.

**Table 30-6 Messages Data Model**

Field	Type	Description	Occurs
messages	Message	Zero or more message data for each individual message.	0..n

An individual message contains the following fields:

**Table 30-7 Individual Message Data Model**

Field	Type	Description	Occurs
code	String	Zero or more message data for each individual message.	0..1
field	String	Name of the field from the request data model that this message is associated with.	0..1
hint	String	Localized text further describing the nature of the problem, possibly including potential workarounds that the client could try.	0..1
text	String	Localized text describing the nature of the problem reported by this message.	1
severity	String	Label indicating the severity of the error condition represented by this message. Vendor shall publish the enumerators that are associated with this field and their semantics.	0..1
stack_trace	String	Vendor specific stack trace associated with this message.	0..1
source	String	Symbolic identifier of the service implementation component that triggered this message.	0..1

# Cloud Resource Models

This chapter specifies the representations of the resources that the Enterprise Manager Cloud REST APIs operate on.

This chapter specifies the representations of the resources that the REST APIs operate on. It contains the following sections:

- [Enterprise Manager Cloud Resource Model 10001](#)
- [About Cloud Resources](#)
- [Resource Data Models](#)

## Enterprise Manager Cloud Resource Model 10001

This version of the Cloud resource model is the culmination of the XaaS implementation for Cloud Service Portal Plug-in, where additional service types can be used to support the creation and lifecycle management of service instances.

For this release of Enterprise Manager Cloud Control's Cloud Service Portal Plug-in, 10001 is the default version when /em/cloud is accessed by the client. Specifically, the client can specify x-specification-version: 10001 in the HTTP header to examine whether or not a resource supports version 10001. It is important to note that the resource type from different versions may not be inter-mixed in a request. For example, 10001 may reject a request where the content is shaped like the 10000 version of the resource.

The following table contains the top level description of the resources:

**Table 31-1 Top Level Resource Descriptions**

Resource	Description
application/ oracle.com.cloud.common	This media type namespace contains "common" resources that are not specific to resource types in XaaS implementation. It is customary that XaaS implementation may extend a common resource type by responding to the request where the accept/content-type is the base type. This is similar to Java's class typing where one can always typecast the base class to an implementation class.
Cloud	This is the top level media type of the entry point /em/cloud where the client can get a high level view of the Cloud as a whole.
ServiceTemplate	This is the common media type that represents a service template each XaaS can extend to create a service instance.
ServiceInstance	This represents the common media type that represents a service instance. Each XaaS can extend this media type to represent the service instances that it supports.
ServiceFamilyType	This represents XaaS or a service family.
InstanceType	This represents a type of service instance. For example, VM is an extending media type of ServiceInstance and there is a corresponding InstanceType? that describes what a VM instance may contain.

**Table 31-1 (Cont.) Top Level Resource Descriptions**

Resource	Description
Metric	This represents a metric of a resource. For example, performance metrics such as CPU utilization and network utilization are metrics of a VM instance. This does not need to be constrained to performance metrics only. Any measurable or observable time series data can be represented as a metric.
MultipartMetric	This extends the Metric, but represents a multi-dimensional observation.
CloudInteractions	This represents the collection of interactions that are supported by the Cloud. The data of this resource would be protocol dependent. For example, in HTTP protocol, the data would consist of the supported HTTP request triple of (request method, accept type, and content type).
QuotaUsage	This represents the quota information in the context of a service family.

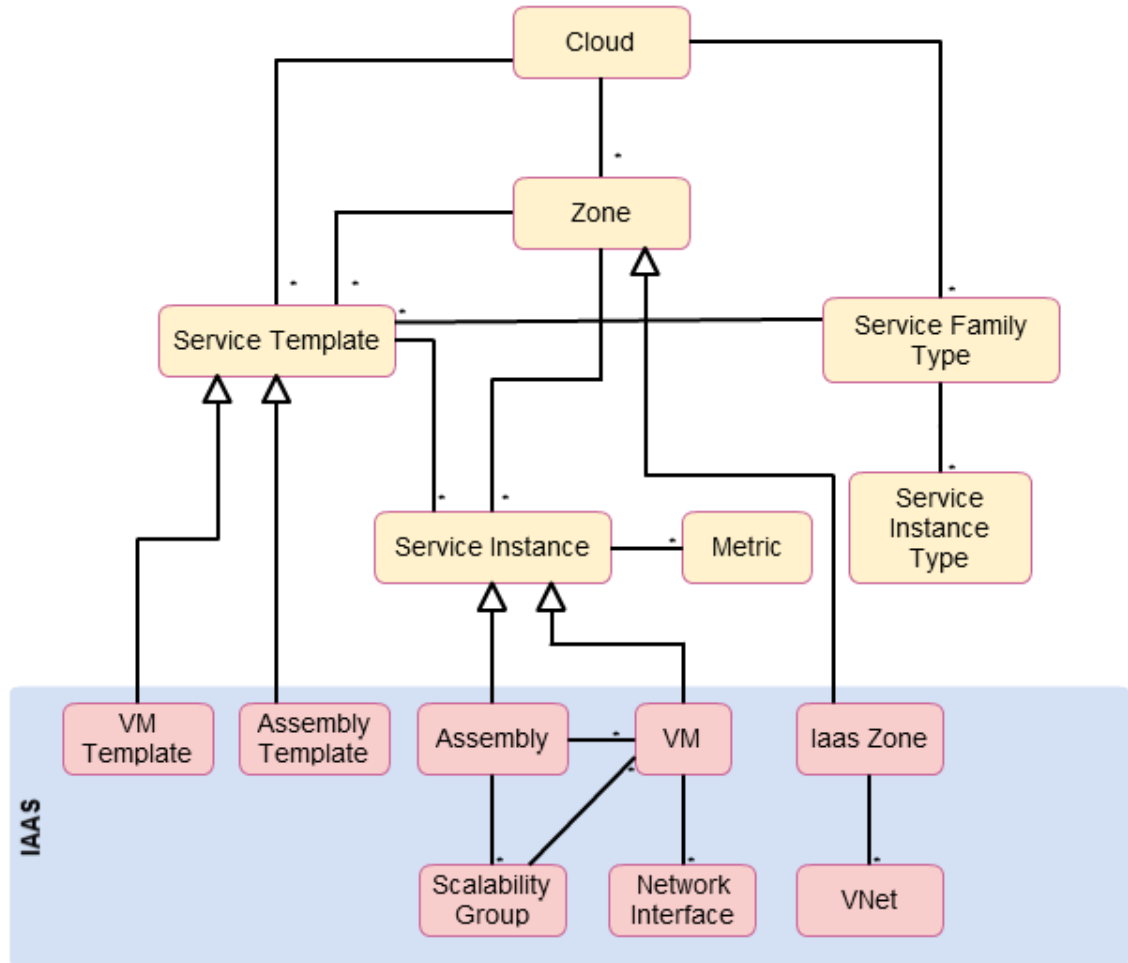
## About Cloud Resources

Cloud resource representations are made up of fields, each with a name and value, encoded using a JavaScript Object Notation (JSON) dictionary. The values may be lists, dictionaries, or numeric or string literals, each of which is represented in JSON in accordance with RFC 4627.

Each type of cloud resource has its own Internet Media Type, the media type **MUST** conform to the pattern `application/oracle.com.cloud.common.Xxxxxxxx+json`, and the specific media type for each resource model is included in square brackets in the corresponding section header.

Cloud resources are now organized by common service entities where specific services provide resources extending common service entities where appropriate. The figure below shows the resource model relationships on common resources.

Figure 31-1 Cloud Resource Model



## Resource Data Models

The following sections provide details on the different cloud resource data models.

### Cloud [application/oracle.com.cloud.common.Cloud+json]

A Cloud represents the user's starting view of all accessible resources. The following table describes the cloud data model.

Table 31-2 Cloud Data Model

Field	Type	Occurs	Description	Since
uri	URI	1	GET against this URI refreshes the client representation of the resources accessible to this user.	12.1.0.1
name	String	1	Human readable name. It is a UNICODE string to support different languages.	12.1.0.1
description	String	0..1	Brief description. This is a UNICODE string to support different languages.	12.1.0.1



**Table 31-2 (Cont.) Cloud Data Model**

Field	Type	Occurs	Description	Since
service_templates	Collection<Service Templates>	0..1	List of service templates that are accessible to the user.	12.1.0.4
service_family_types	Collection <ServiceFamilyType>	0..1	The list of service family types that are supported by the Cloud.	12.1.0.4
zones	Collection<Zone>	0..1	List of zones that are supported by the cloud and accessible to the user.	12.1.0.2
resource_state	ResourceState	0..1	Cloud that is online and running would have READY as its state. If this field is not returned, the client can assume the cloud is READY. If the state of the returned field is not READY, the client cannot assume the viability of subsequent interactions into the cloud.	12.1.0.1
media_type	String	1	Value of this media type with the payload format. For example, application/oracle.com.cloud.common.Cloud+json.	12.1.0.4

## ServiceTemplate [application/ oracle.com.cloud.common.ServiceTemplate+json]

A ServiceTemplate represents the definition of the deployable service. For a user, a ServiceTemplate represents the definition of the deployable service. Users can create cloud resources by interacting with the URI of a ServiceTemplate. The cloud shall instantiate the resources and their configurations as specified in the definition of the ServiceTemplate.

VMTemplate is a subclass to the ServiceTemplate resource and therefore it is possible to get the ServiceTemplate from the URI of a VMTemplate. The following table shows the ServiceTemplate Data Model.

**Table 31-3 ServiceTemplate Data Model**

Field	Type	Occurs	Description	Since
uri	URI	1	GET against this URI refreshes the client representation of the ServiceTemplate definition to this user.	12.1.0.4
name	String	1	Human readable name given to the ServiceTemplate. It is a UNICODE string to support different languages.	12.1.0.4
description	String	0..1	A brief description given to the ServiceTemplate. It is a UNICODE string to support different languages.	12.1.0.4
type	String	1	The string that describes the type of the service template.	12.1.0.4
created	Timestamp	1	Date and time, in ISO 8601 format, when the ServiceTemplate was created.	12.1.0.4

**Table 31-3 (Cont.) ServiceTemplate Data Model**

Field	Type	Occurs	Description	Since
service_family_type	String	0..1	The name of the service family type under which this service template is categorized.	12.1.0.4
default_instance_media_type	String	0..1	The default media type of the service instance that can be created using this template.  For example, a VMTemplate would have VM for this attribute to indicate that VMTemplate can be deployed into a VM service instance.	12.1.0.4
resource_state	ResourceState	1	Only a service template with a READY state can be deployed.	12.1.0.4
deployment_params	List of Deployment Parameters	0..1	Contains the list of data structure of Deployment Parameters to indicate the parameters that may be specified during the service instance deployment using this template	12.1.0.4
zones	List of Zones	0..1	Contains the list of Zone resources that this service template can be used to create service instances with	12.1.0.4
service_instances	Collection<?>	0..1	Contains the list of service instances that are created with this template.	12.1.0.4

The following table describes the structure of the Deployment Parameters.

**Table 31-4 Deployment Parameter Structure**

Field	Type	Occurs	Description
name	String	1	The name of the parameter that needs to be specified during deployment.
description	String	0..1	A brief description of the deployment parameter.
type	String	1	The type of the deployment parameter. It is an enumeration of the following values, STRING, INTEGER, NUMBER, and LIST.
default_value	String	0..1	The default value for this parameter.
required	Boolean	1	TRUE if this parameter is required, FALSE otherwise.
sensitive	Boolean	1	TRUE if this parameter denotes a password. FALSE otherwise.

## Zone [application/oracle.com.cloud.common.Zone+json]

A Zone represents a logical boundary where the resources may reside. A Zone can represent a particular geographically location such as Europe Zone, North America Zone, East Asia Zone. A zone can also represent characteristics, such as high network bandwidth or DMZ secured. Furthermore, a Zone can be organizational in nature, such as Financial Department Zone, Testing Zone, and Development Zone.

There should not be any assumption of exclusivity of underlying infrastructures in the Zones unless otherwise noted. For example, Zone A and Zone B can be on the same physical

network serving two different departments, but their physical infrastructure setup is transparent to cloud users.

**Table 31-5 Zone Data Model**

Field	Type	Occurs	Description	Since
uri	URI	1	GET against this URI refreshes the client representation of the Zone definition to this user.	12.1.0.1
name	String	1	Name of the Zone.	12.1.0.1
description	String	0..1	Human readable description of the Zone. It is a UNICODE string to support different languages.	12.1.0.1
media_type	String	1	The media type of the resource.	12.1.0.4
resource_state	ResourceState	0..1	The resource state of the resource.	12.1.0.1
service_family_type	String	0..1	The name of the service family type that this zone is associated with. Each Zone is contextualized in the service family type.	12.1.0.4
service_templates	Collection <ServiceTemplate>	0..1	Collection of the service templates that this zone supports and can be deployed into.	12.1.0.4
service_instances	Collection <ServiceInstance>	0..1	Collection of the service instances that are in this zone.	12.1.0.4

## Service Family Type [application/oracle.com.cloud.common.ServiceFamilyType+json]

A service family type is a category of services that are offered by the cloud. For example, PaaS is a category that encapsulates infrastructure services. This category is predefined.

The following table describes the ServiceFamilyType Data Model

**Table 31-6 Service Family Type**

Field	Type	Occurs	Description	Since
uri	URI	1	A GET against this URI refreshes the client representation of the ServiceFamilyType definition to this user.	12.1.0.4
name	String	1	Name of the ServiceFamilyType.	12.1.0.4
description	String	0..1	Human readable description of the Service Family Type. Shall be a UNICODE string to support different languages.	12.1.0.4
resource_state	ResourceState	0..1	The resource state of the resource.	12.1.0.4
media_type	String	1	The media type of the resource.	12.1.0.4

**Table 31-6 (Cont.) Service Family Type**

Field	Type	Occurs	Description	Since
service_templates	Collection <ServiceTemplate>	0..1	The collection of service templates that are of this service family type.	12.1.0.4
zones	Collection<Zone>	0..1	The collection of zones that support service instances of this service family type.	12.1.0.4
instance_types	Collection <InstanceType>	0..1	The collection of instance types that are supported by this service family type.	12.1.0.4
quota_usages	Collection <QuotaUsage>	0..1	The collection of quota usages of the perspective family type of the authenticated user.	12.1.0.5
quota_def	Json Object	0..1	The family type specific quota metadata information, this may include some permission information.  The structure of this object would be documented in the perspective family type resource model.	12.1.0.5

## Service Instance Type [application/ oracle.com.cloud.common.InstanceType+json]

A service instance type describes the common metadata about service instances of the type. This can be interpreted analogously as a Class where the service instance of the type is an instantiation of the class.

The following table describes the ServiceFamilyType Data Model.

**Table 31-7 Service Instance Type**

Field	Type	Occurs	Description	Since
uri	URI	1	A GET against this URI refreshes the client representation of the ServiceInstanceType definition to this user.	12.1.0.4
name	String	1	Name of the ServiceInstanceType.	12.1.0.4
description	String	0..1	Human readable description of the Service Instance Type. Shall be a UNICODE string to support different languages.	12.1.0.4
resource_state	ResourceState	0..1	The resource state of the resource.	12.1.0.4
media_type	String	1	The media type of the resource.	12.1.0.4
instance_media_type	String	0..1	The media type of the instance of this type.	12.1.0.4

**Table 31-7 (Cont.) Service Instance Type**

Field	Type	Occurs	Description	Since
metrics	List<List<String>>	0..1	List of metrics that may be supported by the instance type. Each list element represents the triple of "name", "description", and "type" of the metric.	12.1.0.4

## Metric [application/oracle.com.cloud.common.Metric+json]

This resource represents a time series data that may be performance or configuration related. For example, CPU utilization could be a metric for a VM resource, Tablespace usages could be a metric for a Database resource.

The following table describes the Metric Data Model.

**Table 31-8 Metric Data Model**

Field	Type	Occurs	Description	Since
uri	URI	1	A GET against this URI refreshes the client representation of the Metric definition to this user.	12.1.0.4
name	String	1	Name of the Metric.	12.1.0.4
description	String	0..1	Human readable description of the Metric. SHALL be a UNICODE string to support different languages.	12.1.0.4
resource_state	ResourceState	0..1	The resource state of the resource.	12.1.0.4
media_type	String	1	The media type of the resource.	12.1.0.4
type	String	1	The type of the metric value. This is an enumeration of STRING, INTEGER, PERCENTAGE, NUMBER, MIX.	12.1.0.4
current_value	String	0..1	The latest known value of the metric	12.1.0.4
current_time	ISO 8601 Date	0..1	The UTC time when the current_value was last observed	12.1.0.4
time_range	List of 2 ISO 8601 Dates	0..1	The first one is begin date, and the second one is end date. This range determines the time series window of "values" attribute	12.1.0.4
rollup_unit	String	0..1	The rollup unit for the time series data. Could be one of DAY, DAILY, DAYLY, HOUR, HOURLY, RAW	12.1.0.4
values	List of objects	0..1	For rollup_unit = RAW, this would be a list of object each containing "time_utc", and "value" attributes to indicate a timed observation.  For all other rollup_unit, this would be a list of object each containing "time_utc", "average", "min", "max", "std" attributes to indicate an aggregated observations where supported.	12.1.0.4

**Table 31-8 (Cont.) Metric Data Model**

Field	Type	Occurs	Description	Since
time_range_epoch	List of 2 Number	0..1	Same as time_range, but in the form of epoch time.	12.1.0.4

## Service Instance [application/oracle.com.cloud.common.ServiceInstance+json]

A service instance describes the some common metadata about service instances. This is an abstract media type where the actual implementation would be provided by each XaaS service. It is expected that the extending resources respect GET request with this abstract media type.

The following table describes the Service Instance Data Model.

**Table 31-9 Service Instance Data Model**

Field	Type	Occurs	Description	Since
uri	URI	1	A GET against this URI refreshes the client representation of the ServiceInstance definition to this user.	12.1.0.4
name	String	1	Name of the ServiceInstance.	12.1.0.4
description	String	0..1	Human readable description of the Service Instance. Shall be a UNICODE string to support different languages.	12.1.0.4
resource_state	ResourceState	1	The resource state of the resource.	12.1.0.4
media_type	String	1	The media type of the resource.	12.1.0.4
metrics	Collection <Metric>	0..1	Collection of metrics that are observed on the resource.	12.1.0.4
service_family_type	String	1	The name of the ServiceFamilyType that this service instance is in context of.	12.1.0.4
status	String	0..1	The status of the entity represented by the service instance. For example, for service instance VM, the value could be STARTED, STOPPED, or any other values that are appropriate for VM. Each extending resource should describe the enumeration of status that are applicable.	12.1.0.4
created	ISO 8601 Date	0..1	The date of which the service instance is created.	12.1.0.4

## Quota Usage [application/oracle.com.cloud.common.QuotaUsage+json]

A quota usage describes the amount of some resource used by the authentication used in the context of a service family type. For example, in PaaS, there were quota defined for CPU, Memory, number of servers, where the usages of each is encapsulated into a Quota Usage resource.

The following table describes the Quota Usage Data Model.

**Table 31-10 QuotaUsage Data Model**

Field	Type	Occurs	Description	Since
uri	URI	1	A GET against this URI refreshes the client representation of the QuotaUsage	12.1.0.5
name	String	1	Name of the QuotaUsage.	12.1.0.5
description	String	0..1	Human readable description of the Service Instance. Shall be a UNICODE string to support different languages.	12.1.0.5
media_type	String	1	The media type of the resource.	12.1.0.5
id	String	1	The identification representation of the resource.	12.1.0.5
type	String	1	The service family type of the resource.	12.1.0.5
used	Number	1	How much of the resource is used. The type is represented by the "unit" attribute.	12.1.0.5
maxAllowed	Number	0..1	What is the maximum amount of resource that may be used by the authenticated user.	12.1.0.5
unit	String	1	The unit of the resource.	12.1.0.5

## Service Template Finds [application/ oracle.com.cloud.common.ServiceTemplateFinds+json]

Service Template Finds is a resource that would search and filter service templates under the entire cloud given the search criteria. Each service family type shall document the scope of support (for example, list of filter attributes).

The following table describes the Service Template Finds Data Model.

**Table 31-11 ServiceTemplateFinds Data Model**

Field	Type	Occurs	Description	Since
uri	URI	1	A GET against this URI refreshes the client representation of the Service TemplateFinds. If service templates were added/removed that matched the criteria, refreshing the link will reflect the changes.	12.1.0.5
name	String	1	Name of the ServiceTemplateFinds.	12.1.0.5
description	String	0..1	Human readable description of the Service Instance. Shall be a UNICODE string to support different languages.	12.1.0.5
filters	Json Object	1	Map of key-value pair to indicate the filter criteria.	12.1.0.5
finds	Collection <*>	1	.Collection of entities (could be any sub type of the service template) that satisfies the filter criteria.	12.1.0.5

The following table describes the attributes supported in the filters:

## Cloud REST API Examples

The following sections provide examples of different interactions in Enterprise Manager Cloud Control 12.1.0.2 with the 12.1.0.5 Cloud Service Portal Plug-in. These examples illustrate the shape of the various resources. In this version, default x-specification-version is assumed at 10001.

### Service Instance Type Resource

This is the resource that describes the type of services that are provided by a particular Service Family Type.

**Table 31-12 Service Instance Type Resource**

Feature	Description
URL	https://example.oracle.com/em/cloud/instance_type/vm%40iaas
Headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Method	GET
Since	12.1.0.4 Cloud Service Portal Plug-in

The following is the Service Instance Type resource:

```
{
  "uri" : "/em/cloud/instance_type/vm%40iaas" ,
  "name" : "vm" ,
  "description" : "A Virtual Machine represents a computational unit that contains CPU,
Memory, Network Instances, and Disks" ,
  "media_type" : "application/oracle.com.cloud.common.InstanceType+json" ,
  "instance_media_type" : "application/oracle.com.cloud.common.VM+json" ,
  "metrics" :
  [
    [
      "CPU_Utilization" ,
      "CPU Utilization of the Server" ,
      "GENERIC"
    ] ,
    [
      "Total_Network_Throughput" ,
      "Total Network Throughput of the Server" ,
      "GENERIC"
    ] ,
    [
      "Total_Disk_Throughput" ,
      "Total Disk Throughput of the Server" ,
      "GENERIC"
    ] ,
    [
      "Filesystem_Total_Used" ,
      "Summary of the total file system usage" ,
      "GENERIC"
    ]
  ] ,
  "instance_options" :
  [
    {
```



```

        "name" : "Medium" ,
        "cpu" : "4" ,
        "memory" : "8192" ,
        "local_storage" : "512000" ,
        "id" : "2"
    } ,
    {
        "name" : "Large" ,
        "cpu" : "8" ,
        "memory" : "15360" ,
        "local_storage" : "1024000" ,
        "id" : "3"
    } ,
    {
        "name" : "Small" ,
        "cpu" : "2" ,
        "memory" : "4096" ,
        "local_storage" : "256000" ,
        "id" : "1"
    }
    ]
}

```

## Zone Resource

The following table shows the features of the Zone resource:

**Table 31-13 ZoneResource**

Feature	Description
URL	<a href="https://example.oracle.com/em/cloud/dbaas/zone/D73AF0D42C8459E11419862797D1F37D">https://example.oracle.com/em/cloud/dbaas/zone/D73AF0D42C8459E11419862797D1F37D</a>
Headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Method	GET
Since	12.1.0.4 Cloud Service Portal Plug-in

The following is the Zone resource, automatically cast to the application/oracle.com.cloud.dbaas.Zone+json media type

```

{
  "uri" : "/em/cloud/dbaas/zone/D73AF0D42C8459E11419862797D1F37D" ,
  "name" : "cloud_zone" ,
  "resource_state" : {
    "state" : "READY"
  } ,
  "context_id" : "D73AF0D42C8459E11419862797D1F37D" ,
  "media_type" : "application/oracle.com.cloud.dbaas.Zone+json" ,
  "service_family_type" : "dbaas" ,
  "type" : "VM_ZONE" ,
  "service_templates" : {
    "media_type" : "application/oracle.com.cloud.common.ServiceTemplate+json" ,
    "total" : "7" ,
    "elements" :
    [
      {
        "uri" : "/em/cloud/dbaas/servicetemplate/vm/
oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Aacmp%3AVirtualization%3ATemplate%3AC76CE
B5563EA5E13E040578CDA817FAF%3A0.1" ,

```

```
    "name" : "template_sanity" ,
    "media_type" : "application/oracle.com.cloud.common.VMTemplate+json" ,
    "type" : "Template"
  } ,
  {
    "uri" : "/em/cloud/dbaas/servicetemplate/assembly/
oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3AVirtualization%3AAssembly%3AC75E8
8B04D7FEDEDE040578CDA810E49%3A0.1" ,
    "name" : "sidb_assembly" ,
    "media_type" : "application/oracle.com.cloud.common.AssemblyTemplate+json" ,
    "type" : "Assembly"
  } ,
  {
    "uri" : "/em/cloud/dbaas/servicetemplate/assembly/
oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3AVirtualization%3AAssembly%3AC7712
2B0A916D95CE040578CDA814854%3A0.1" ,
    "name" : "sidbasmA_abby" ,
    "media_type" : "application/oracle.com.cloud.common.AssemblyTemplate+json" ,
    "type" : "Assembly"
  } ,
  {
    "uri" : "/em/cloud/dbaas/servicetemplate/assembly/
oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3AVirtualization%3AAssembly%3AC769B
1F361529309E040578CDA813D57%3A0.1" ,
    "name" : "wls_assembly" ,
    "media_type" : "application/oracle.com.cloud.common.AssemblyTemplate+json" ,
    "type" : "Assembly"
  } ,
  {
    "uri" : "/em/cloud/dbaas/servicetemplate/assembly/
oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3AVirtualization%3AAssembly%3AC76C1
44A4A245B62E040578CDA8163B9%3A0.1" ,
    "name" : "fmw_abby" ,
    "media_type" : "application/oracle.com.cloud.common.AssemblyTemplate+json" ,
    "type" : "Assembly"
  } ,
  {
    "uri" : "/em/cloud/dbaas/servicetemplate/assembly/
oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3AVirtualization%3AAssembly%3AC76C8
792DE2A0937E040578CDA81795E%3A0.1" ,
    "name" : "WLS_abby" ,
    "media_type" : "application/oracle.com.cloud.common.AssemblyTemplate+json" ,
    "type" : "Assembly"
  } ,
  {
    "uri" : "/em/cloud/dbaas/servicetemplate/assembly/
oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3AVirtualization%3AAssembly%3AC76F7
33BC7A41AF7E040578CDA812CDC%3A0.1" ,
    "name" : "fmw_venkat" ,
    "media_type" : "application/oracle.com.cloud.common.AssemblyTemplate+json" ,
    "type" : "Assembly"
  }
]
} ,
"service_instances" : {
  "media_type" : "application/oracle.com.cloud.common.ServiceInstance+json" ,
  "total" : "0" ,
  "elements" :
  [
  ]
} ,
"vnets" : {
  "media_type" : "application/oracle.com.cloud.common.VNet+json" ,
```

```

        "total" : "3" ,
        "elements" :
        [
            {
                "uri" : "/em/cloud/dbaas/
oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3AnetConfig%3AC76CEADBBBE6B23FE040578CDA8
17FB1" ,
                "context_id" :
                "oracle:defaultService:em:provisioning:1:netConfig:C76CEADBBBE6B23FE040578CDA817FB1" ,
                "media_type" : "application/oracle.com.cloud.common.VNet+json" ,
                "id" :
                "oracle:defaultService:em:provisioning:1:netConfig:C76CEADBBBE6B23FE040578CDA817FB1"
            } ,
            {
                "uri" : "/em/cloud/dbaas/
oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3AnetConfig%3AC77076C8FDEC6BD7E040578CDA8
13B2B" ,
                "context_id" :
                "oracle:defaultService:em:provisioning:1:netConfig:C77076C8FDEC6BD7E040578CDA813B2B" ,
                "media_type" : "application/oracle.com.cloud.common.VNet+json" ,
                "id" :
                "oracle:defaultService:em:provisioning:1:netConfig:C77076C8FDEC6BD7E040578CDA813B2B"
            } ,
            {
                "uri" : "/em/cloud/dbaas/
oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3AnetConfig%3AC76F741AFD7EB760E040578CDA8
12CD8" ,
                "context_id" :
                "oracle:defaultService:em:provisioning:1:netConfig:C76F741AFD7EB760E040578CDA812CD8" ,
                "media_type" : "application/oracle.com.cloud.common.VNet+json" ,
                "id" :
                "oracle:defaultService:em:provisioning:1:netConfig:C76F741AFD7EB760E040578CDA812CD8"
            }
        ]
    } ,
    "delegated_credentials" : {
        "media_type" : "application/oracle.com.cloud.ZoneCredential+json" ,
        "total" : "0" ,
        "elements" :
        [
        ]
    }
}

```

## Service Template Resource

As can be seen from the previous examples, the elements in the collection shown all have `media_type` as an attribute to clearly indicate what its resource type is. The following table shows the features of the Service Template resource:

**Table 31-14 Service Template Resource**

Feature	Description
URL	<code>https://example.oracle.com/em/cloud/dbaas/servicetemplate/vm/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3AVirtualization%3ATemplate%3AC76CEB5563EA5E13E040578CDA817FAF%3A0.1</code>
Headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Method	GET
Since	12.1.0.4 Cloud Service Portal Plug-in

This is the resource returned as the complete VMTemplate resource.

```
{
  "uri" : "/em/cloud/dbaas/servicetemplate/vm/
oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3AVirtualization%3ATemplate%3AC76CE
B5563EA5E13E040578CDA817FAF%3A0.1" ,
  "name" : "template_sanity" ,
  "description" : "test template" ,
  "resource_state" : {
    "state" : "READY"
  } ,
  "context_id" :
"oracle:defaultService:em:provisioning:1:cmp:Virtualization:Template:C76CEB5563EA5E13E040
578CDA817FAF:0.1" ,
  "media_type" : "application/oracle.com.cloud.common.VMTemplate+json" ,
  "type" : "Template" ,
  "created" : "2012-08-17T11:53:26+0000" ,
  "default_instance_media_type" : "application/oracle.com.cloud.common.VM+json" ,
  "zones" : {
    "media_type" : "application/oracle.com.cloud.dbaas.Zone+json" ,
    "total" : "1" ,
    "elements" :
    [
      {
        "uri" : "/em/cloud/dbaas/zone/D73AF0D42C8459E11419862797D1F37D" ,
        "name" : "cloud_zone" ,
        "media_type" : "application/oracle.com.cloud.dbaas.Zone+json" ,
        "service_family_type" : "dbaas" ,
        "type" : "VM_ZONE"
      }
    ]
  } ,
  "service_instances" : {
    "media_type" : "application/oracle.com.cloud.common.ServiceInstance+json" ,
    "total" : "0" ,
    "elements" :
    [
      ]
    } ,
  "deployment_params" :
  [
    {
      "name" : "zone" ,
      "description" : "'zone' attribute is the URI of the zone that the 'application/
oracle.com.cloud.common.VM' resource is to be created in" ,
      "type" : "STRING" ,
      "require" : "false" ,
      "sensitive" : "false"
    } ,
    {
      "name" : "based_on" ,
      "description" : "'based_on' attribute is the URI of the service template or
format String of the originated source which the deployed 'application/
oracle.com.cloud.common.VM' resource is to be followed" ,
      "type" : "STRING" ,
      "require" : "false" ,
      "sensitive" : "false"
    } ,
    {
      "name" : "cpu" ,
      "description" : "The information that determined how much 'CPU' is to be
allocated to the deployed resource" ,
      "type" : "LIST" ,

```

```
        "require" : "false" ,
        "sensitive" : "false"
    } ,
    {
        "name" : "memory" ,
        "description" : "The information that determined how much 'MEMORY' is to be
allocated to the deployed resource" ,
        "type" : "NUMBER" ,
        "require" : "false" ,
        "sensitive" : "false"
    } ,
    {
        "name" : "disks" ,
        "description" : "The list of disks to be included in the deployed resource" ,
        "type" : "LIST" ,
        "require" : "false" ,
        "sensitive" : "false"
    } ,
    {
        "name" : "params.domain_type" ,
        "description" : "The domain type of the Virtual Machine" ,
        "type" : "STRING" ,
        "require" : "false" ,
        "sensitive" : "false"
    } ,
    {
        "name" : "params.network_profile" ,
        "description" : "The identifier of the network profile to be used for the
network instances of the Virtual Machine" ,
        "type" : "STRING" ,
        "require" : "false" ,
        "sensitive" : "false"
    } ,
    {
        "name" : "params.server_prefix" ,
        "description" : "The server prefix to be specified for the Virtual Machine" ,
        "type" : "STRING" ,
        "require" : "true" ,
        "sensitive" : "false"
    } ,
    {
        "name" : "params.server_size" ,
        "description" : "The name of the server instance size" ,
        "type" : "STRING" ,
        "require" : "false" ,
        "sensitive" : "false"
    } ,
    {
        "name" : "params.request_name" ,
        "description" : "The request name to be tracked for the Virtual Machine
creation" ,
        "type" : "STRING" ,
        "require" : "false" ,
        "sensitive" : "false"
    } ,
    {
        "name" : "params.request_description" ,
        "description" : "The request description to be tracked for the Virtual Machine
creation" ,
        "type" : "STRING" ,
        "require" : "false" ,
        "sensitive" : "false"
    }
```

```
    } ,
    {
      "name" : "params.vnc_password" ,
      "description" : "The VNC password for the Virtual Machine" ,
      "type" : "STRING" ,
      "require" : "true" ,
      "sensitive" : "true"
    } ,
    {
      "name" : "params.root_password" ,
      "description" : "The Root password for the Virtual Machine" ,
      "type" : "STRING" ,
      "require" : "true" ,
      "sensitive" : "true"
    } ,
    {
      "name" : "params.start_vm" ,
      "description" : "Whether or not the Virtual Machine should be started after
creation" ,
      "type" : "STRING" ,
      "defaultValue" : "YES" ,
      "require" : "false" ,
      "sensitive" : "false"
    } ,
    {
      "name" : "params.ha_enabled" ,
      "description" : "Whether or not the Virtual Machine should be HA enabled" ,
      "type" : "STRING" ,
      "defaultValue" : "NO" ,
      "require" : "false" ,
      "sensitive" : "false"
    } ,
    {
      "name" : "params.disks_overwrite" ,
      "description" : "Whether or not the default Virtual Machine disks should be
overwritten" ,
      "type" : "STRING" ,
      "defaultValue" : "NO" ,
      "require" : "false" ,
      "sensitive" : "false"
    } ,
    {
      "name" : "params.networks" ,
      "description" : "Whether or not the default Virtual Machine disks should be
overwritten" ,
      "type" : "LIST" ,
      "require" : "false" ,
      "sensitive" : "false"
    }
  ] ,
  "directory" : "COMP_Components" ,
  "updated" : "2012-08-17T11:53:26+0000" ,
  "creator" : "DMBHAT1" ,
  "last_modified_by" : "DMBHAT1" ,
  "componenttype" : "Virtualization" ,
  "oracle_owned" : "false"
}
```

## Metric Resource

A metric contains time series information and depending on the type of the metric, rollup information can also be retrieved. For example,

**Table 31-15 Service Template Resource**

Feature	Description
URL	<a href="https://example.oracle.com/em/cloud/metric/iaas%3Avm%3ACPU_Utilization%3A523CAE80A305928C9C5BE8A67A4181FD">https://example.oracle.com/em/cloud/metric/iaas%3Avm%3ACPU_Utilization%3A523CAE80A305928C9C5BE8A67A4181FD</a>
Headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Method	GET
Since	12.1.0.4 Cloud Service Portal Plug-in

Here is the response from the web service:

```
{
  "uri" : "/em/cloud/metric/
iaas%3Avm%3ACPU_Utilization%3A523CAE80A305928C9C5BE8A67A4181FD" ,
  "name" : "CPU_Utilization" ,
  "media_type" : "application/oracle.com.cloud.common.Metric+json" ,
  "resource_state" : {
    "state" : "READY"
  } ,
  "type" : "NUMBER" ,
  "current_value" : "52.53868103027344" ,
  "current_time" : "2012-08-22T01:28:14+0000" ,
  "time_range" :
  [
    "2012-08-22T01:18:14+0000" ,
    "2012-08-22T01:28:14+0000"
  ] ,
  "time_range_epoch" :
  [
    "1345598294965" ,
    "1345598894965"
  ] ,
  "rollup_unit" : "RAW" ,
  "values" :
  [
    {
      "time_utc" : "2012-08-22T01:21:44+0000" ,
      "value" : "52.53868103027344"
    }
  ] ,
  "key" : "iaas:vm:CPU_Utilization:523CAE80A305928C9C5BE8A67A4181FD"
}
```

The default time range is 10 minutes. To modify the time range, query parameters can be used to specify the time range. For example, the following would get the metric data for the last 50 minutes:

**Table 31-16 Service Template Resource**

Feature	Description
URL	https://example.oracle.com/em/cloud/metric/iaas%3Avm%3ACPU_Utilization%3A523CAE80A305928C9C5BE8A67A4181FD?time_range_epoch=1345595894965~1345598894965
Headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Method	GET
Since	12.1.0.4 Cloud Service Portal Plug-in

The query parameter "time\_range\_epoch" contains 2 numbers separated by "~" to indicate FROM time and TO time, inclusive. Here is the response:

```
{
  "uri" : "/em/cloud/metric/
iaas%3Avm%3ACPU_Utilization%3A523CAE80A305928C9C5BE8A67A4181FD" ,
  "name" : "CPU_Utilization" ,
  "media_type" : "application/oracle.com.cloud.common.Metric+json" ,
  "resource_state" : {
    "state" : "READY"
  } ,
  "type" : "NUMBER" ,
  "current_value" : "52.53868103027344" ,
  "current_time" : "2012-08-22T01:29:19+0000" ,
  "time_range" :
  [
    "2012-08-22T00:38:14+0000" ,
    "2012-08-22T01:28:14+0000"
  ] ,
  "time_range_epoch" :
  [
    "1345595894965" ,
    "1345598894965"
  ] ,
  "rollup_unit" : "RAW" ,
  "values" :
  [
    {
      "time_utc" : "2012-08-22T01:21:44+0000" ,
      "value" : "52.53868103027344"
    } ,
    {
      "time_utc" : "2012-08-22T01:16:44+0000" ,
      "value" : "52.67461395263672"
    } ,
    {
      "time_utc" : "2012-08-22T01:11:44+0000" ,
      "value" : "51.93536376953125"
    } ,
    {
      "time_utc" : "2012-08-22T01:06:44+0000" ,
      "value" : "52.61101531982422"
    } ,
    {
      "time_utc" : "2012-08-22T01:01:44+0000" ,
      "value" : "52.30859375"
    } ,
    {

```



```

        "time_utc" : "2012-08-22T00:56:44+0000" ,
        "value" : "52.778690338134766"
    } ,
    {
        "time_utc" : "2012-08-22T00:51:44+0000" ,
        "value" : "52.08208084106445"
    } ,
    {
        "time_utc" : "2012-08-22T00:46:44+0000" ,
        "value" : "52.42387771606445"
    } ,
    {
        "time_utc" : "2012-08-22T00:41:44+0000" ,
        "value" : "52.2672004699707"
    }
    ] ,
    "key" : "iaas:vm:CPU_Utilization:523CAE80A305928C9C5BE8A67A4181FD"
}

```

Similarly, to specify a different rollup unit, the following interaction shows the HOURLY rollup for the last 7 hours:

**Table 31-17 Service Template Resource**

Feature	Description
URL	<a href="https://example.oracle.com/em/cloud/metric/iaas%3Avm%3ACPU_Utilization%3A523CAE80A305928C9C5BE8A67A4181FD?time_range_epoch=1345571178252~1345611178252&amp;rollup_unit=HOURLY">https://example.oracle.com/em/cloud/metric/iaas%3Avm%3ACPU_Utilization%3A523CAE80A305928C9C5BE8A67A4181FD?time_range_epoch=1345571178252~1345611178252&amp;rollup_unit=HOURLY</a>
Headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Method	GET
Since	12.1.0.4 Cloud Service Portal Plug-in

Here is the response from the web service for the aggregated information:

```

{
  "uri" : "/em/cloud/metric/
iaas%3Avm%3ACPU_Utilization%3A523CAE80A305928C9C5BE8A67A4181FD" ,
  "name" : "CPU_Utilization" ,
  "media_type" : "application/oracle.com.cloud.common.Metric+json" ,
  "resource_state" : {
    "state" : "READY"
  } ,
  "type" : "NUMBER" ,
  "current_value" : "52.37758255004883" ,
  "current_time" : "2012-08-22T04:55:13+0000" ,
  "time_range" :
  [
    "2012-08-21T17:46:18+0000" ,
    "2012-08-22T04:52:58+0000"
  ] ,
  "time_range_epoch" :
  [
    "1345571178252" ,
    "1345611178252"
  ] ,
  "rollup_unit" : "HOURLY" ,
  "values" :
  [
    {

```



**Table 31-18 Supported Methods for Service Request**

Method	Query Parameters	Request Payload	Response Payload	Canonical Link	Description
PUT	NA	{"newdate": "8/23/2013 4:46:12 AM"}	Status Message (json payload)	em/websvcs/restful/ extws/ cloudservices/ssa/cf w/v1/ servicerequests/<id>	Reschedules service request based on the id and attributes. Date must be specified in the format yyyy-MM- dd'T'HH:mm:ss'Z
DELETE	NA	None	None	em/websvcs/restful/ extws/ cloudservices/ssa/cf w/v1/ servicerequests/ <service-request-id>	Cancels GET specified ServiceRequest
GET	NA	NA	List of requests as json payload	em/websvcs/restful/ extws/ cloudservices/ssa/cf w/v1/ servicerequests/	Retrieves a list of all service requests.

## Service Request Collection

ServiceRequestCollection is a collection resource representing a Cloud Administrator's view of all the accessible Service Request resources (which can be canceled or rescheduled). The following table describes the ServiceRequestCollection data model.

**Table 31-19 ServiceRequestCollection Data Model**

Field	Type	Occurs	Description
name	String	1	Displays the name of this collection resource.
type	String	1	Indicates the type of collection resource.
hasMore	Boolean	1	Indicates whether there are more elements in the collection.
count	Integer	1	Number of elements in the collection resource.
items	Collection <Request>	1	List of ServiceRequest resources. If there are no instance, this list will be blank.
totalCount	Integer	1	Total number of requests.
canonicalLink	URI	1	A GET against this URI refreshes the client representation of this resource.
selfLink	URI	1	Refers to the resource equivalent of the containing elements.

# EM CLI Verbs for Database as a Service Administrator

This chapter provides details on the Enterprise Manager Command Line Interface (EM CLI) verbs for Enterprise Manager Self Service Applications administration users for Database as a Service (DBaaS). For other EM CLI verbs related to cloud administration see *Enterprise Manager Command Line Interface Guide*.

The EM CLI enables you to access Enterprise Manager Cloud Control functionality from text-based consoles (shells and command windows) for a variety of operating systems. You can call Enterprise Manager functionality using custom scripts, such as SQL\*Plus, OS shell, Perl, or Tcl, thus easily integrating Enterprise Manager Functionality with a company's business process.

The following sections are covered in this chapter:

- [PaaS Zone EM CLI Verbs](#)
- [Software Pool EM CLI Verbs](#)
- [Database Quota EM CLI Verbs](#)
- [Database Request Settings EM CLI Verbs](#)
- [Database Size EM CLI Verbs](#)
- [Database Profile EM CLI Verbs](#)
  - [About Database Provisioning Profile Types](#)
  - [Creating Provisioning Profiles using EM CLI](#)
  - [Sample EM CLI Property Files](#)
  - [Database Profile EM CLI Verbs](#)
  - [Creating a Database Profile Using EM CLI Verbs](#)
  - [Editing a Database Profile Using EM CLI Verbs](#)
  - [Deleting a Database Profile Using EM CLI Verbs](#)
  - [Viewing All the Database Profiles](#)
  - [Refreshing a Database Profile Using EM CLI Verbs](#)
- [Service Template EM CLI Verbs](#)
- [Pluggable Database Profile EM CLI Verbs](#)
- [Service Template Executable .json Files](#)
- [Creating a Database Clone Using EM CLI Verbs](#)
- [Refreshing a Database Using EM CLI Verbs](#)
- [Deleting a Database Using EM CLI Verbs](#)
- [Deleting a Database Clone Using EM CLI Verbs](#)
- [Database Fleet Maintenance EM CLI Verbs](#)

- Database Request Handling EM CLI Verbs
- Cloning a Pluggable Database
- Creating a Test Master Pluggable Database
- Transferring Data Between Databases
- Backing Up Datafiles and Metadata of a Pluggable Database
- Importing Data from Export Dumps to a Database
- Using the db\_clone\_management EM CLI Verb
- Invoking a REST API Using EM CLI Verb

All PaaS infrastructure zone EM CLI operations are available only to users with a EM\_CLOUD\_ADMINISTRATOR role and Software pool operations are available only to users with a EM\_SSA\_ADMINISTRATOR role. EM CLI verbs will obtain user information from the security context and grant permission only those users authorized to perform these operations.

## PaaS Zone EM CLI Verbs

The following table provides details of the supported verbs for the PaaS zone resource.

Table 32-1 PaaS Zone EM CLI Verbs

Verb	Description	Format
emcli create_paas_zone	<p>Creates a PaaS infrastructure zone.</p> <ul style="list-style-type: none"> <li>• name - Name of the PaaS infrastructure zone to be created.</li> <li>• credential - Global named credentials to be used for provisioning in this PaaS infrastructure zone.</li> <li>• hosts - Comma separated list of the host targets to be added as members of this Paas infrastructure zone. PaaS infrastructure zone can contain either hosts or Oracle VM zones as members.</li> <li>• ovm_zones - Comma separated list of the Oracle VM zone targets to be added as members of this Paas infrastructure zone.</li> <li>• roles - Comma separated list of SSA roles that can access this PaaS infrastructure zone.</li> <li>• description - Description of the PaaS infrastructure zone.</li> <li>• cpu_utilization - This placement policy constraint allows the cloud administrator to set maximum thresholds for any host. Value entered must be between 1 and 100. If not provided, the default value is taken to be 80 percent. This parameter is not needed if Oracle VM zone targets are added as members.</li> <li>• memory_utilization - This is a placement policy constraint for the PaaS infrastructure zone. The value entered must be between 1 and 100. If it is not provided, the default value is taken to be 80 percent. This parameter is not needed if Oracle VM zone targets are added as members.</li> </ul> <p><b>Example:</b></p> <pre>emcli create_paas_zone   -name=MyPaaSZone   -credential=AIME_N   -hosts=xyxy.example.com   -roles="SSA_USER_ROLE1"   -description="Test PaaS zone"   -cpu_utilization=90   -memory_utilization=90</pre> <p><b>Sample Output:</b></p> <pre>PaaS Infrastructure Zone "MyPaaSZone" created successfully.</pre>	<pre>emcli create_paas_zone -name=&lt;Name of PaaS zone&gt; -credential=&lt;Global Named Credential&gt; [-hosts=&lt;Host1,Host2,Host3...&gt;] [- ovm_zones=&lt;OVMZone1,OVMZone2,OVMZone3...&gt;] [-roles=&lt;SsaRole1,SsaRole2,...&gt;] [-description=&lt;Description of PaaS zone&gt;] [-cpu_utilization=&lt;Value between 1 and 100&gt;] [-memory_utilization=&lt;Value between 1 and 100&gt;]</pre>

Table 32-1 (Cont.) PaaS Zone EM CLI Verbs

Verb	Description	Format
emcli update_paas_zone	<p>Updates a PaaS infrastructure zone.</p> <ul style="list-style-type: none"> <li>name - Name of the existing PaaS infrastructure zone.</li> <li>credential - Global named credentials to be updated.</li> <li>add_hosts - Comma separated list of the host targets to be added as members of the Paas infrastructure zone. The hosts to be added should not have been added to other existing PaaS zones.</li> <li>remove_hosts - Comma separated list of the host targets to be removed from the Paas infrastructure zone.</li> <li>add_ovm_zones - Comma separated list of the Oracle VM zone targets to be added as members of the Paas infrastructure zone. The Oracle VM zones to be added should not have been added to other existing PaaS zones.</li> <li>remove_ovm_zones - Comma separated list of the Oracle VM zone targets to be removed from the Paas infrastructure zone.</li> <li>add_roles - Comma separated list of SSA roles to be added that can access the PaaS infrastructure zone.</li> <li>remove_roles - Comma separated list of SSA roles to be removed from the PaaS infrastructure zone.</li> <li>description - Updated description of the PaaS infrastructure zone.</li> <li>cpu_utilization - This placement policy constraint allows the cloud administrator to set maximum thresholds for any host. The value entered must be between 1 and 100.</li> <li>memory_utilization - This placement policy constraint is for the memory utilization of the PaaS infrastructure zone. The value entered must be between 1 and 100.</li> </ul> <p>Example:</p> <pre>emcli update_paas_zone -name=MyPaaSZone -credential=AIME_N -add_hosts=xyxy.example.com -remove_hosts=xyxy.example.com -add_roles="SSA_USER_ROLE1" -remove_roles="SSA_USER_ROLE2" -description="Test PaaS zone" -cpu_utilization=90 -memory_utilization=90</pre> <p><b>Sample Output:</b></p> <pre>PaaS Infrastructure Zone "MyPaaSZone" updated successfully.</pre>	<pre>emcli update_paas_zone -name=&lt;Name of PaaS zone&gt; [-description=&lt;Description of PaaS zone&gt;] [-credential=&lt;Global Named Credential&gt;] [- add_hosts=&lt;Host1,Host2,Host3... &gt;] [-remove_hosts=&lt;Host4,Host5...&gt;] [- add_ovm_zones=&lt;OVMZone1,OV MZone2,OVMZone3...&gt;] [- remove_ovm_zones=&lt;OVMZone4, OVMZone5...&gt;] [- add_roles=&lt;SsaRole1,SsaRole2,.. .&gt;] [- remove_roles=&lt;SsaRole3,SsaRol e4,...&gt;] [-cpu_utilization=&lt;Value between 1 and 100&gt;] [-memory_utilization=&lt;Value between 1 and 100&gt;]</pre>

Table 32-1 (Cont.) PaaS Zone EM CLI Verbs

Verb	Description	Format
emcli delete_paas_zone	<p>Deletes a PaaS infrastructure zone. The PaaS infrastructure zone cannot be deleted if there is an existing Software pool associated with it.</p> <ul style="list-style-type: none"> <li>name - Name of the existing PaaS infrastructure zone to be deleted.</li> </ul> <p>Example:</p> <pre>emcli delete_paas_zone       -name=MyPaaSZone</pre> <p><b>Sample Output:</b> PaaS Infrastructure Zone "MyPaaSZone" deleted successfully</p>	emcli delete_paas_zone -name=<Name of PaaS zone>
emcli get_paas_zone_detail	<p>Retrieves the PaaS infrastructure zone details.</p> <ul style="list-style-type: none"> <li>name - Details of the existing PaaS infrastructure zone, such as Name, Description, Named Credentials, Number of Hosts, Roles, Maximum Memory Allocation (%), and Maximum CPU Utilization (%).</li> </ul> <p>Example:</p> <pre>emcli get_paas_zone_detail       -name=MyPaaSZone</pre> <p><b>Sample Output:</b></p> <pre>Name                MyPaaSZone Description         TEST zone Named Credentials   AIME_N Number of Hosts     1 Roles               SSA_USER_ROLE1 Maximum Memory Allocation (%)  90 Maximum CPU Utilization (%)   90</pre>	emcli get_paas_zone_detail -name=<Name of PaaS zone>

## Software Pool EM CLI Verbs

The following table provides details of the supported verbs for the Software pool resource.



**Table 32-2 Software Pool EM CLI Verbs**

Verb	Description	Format
emcli create_pool	<p>Creates a database, schema, or pluggable database pool.</p> <ul style="list-style-type: none"> <li>name - Name of the Software pool to be created.</li> <li>target_type - Target type of the Software pool to be created. For example: mwaas_zone for middleware pool, oracle_cloud_zone for database pool, and schaas_pool for schema pool.</li> <li>paas_zone - Name of PaaS infrastructure zone in which the Software pool is to be created.</li> <li>members - Comma separated list of targets to be added as members of the Software pool.</li> <li>description - Description of the Software pool.</li> <li>placement_constraints - Comma separated key value pairs of the placement constraints that allow the self service administrator to set maximum ceilings for resource utilization. This provides protection for the members of the database pool in terms of resource consumption. Use the <code>get_pool_allowed_placement_constraints</code> verb to get the available placement constraints for a pool target type.</li> <li>member_constraints - Comma separated key value pairs that restricts the addition of member targets to a software pool with a set criteria. Use to the <code>get_pool_allowed_member_constraints</code> verb to get the available member constraints and their possible values for a pool target type.</li> <li>properties - Comma separated key value pairs for additional properties that need to be specified based on the software pool target type.</li> </ul> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>To procure the GUID run the following command:</li> </ul> <pre>emcli get_procedures [-type={procedure type}]</pre> <p><b>Sample command:</b> <pre>emcli get_procedures -type=DBPROV</pre> <ul style="list-style-type: none"> <li>Root credentials are optional. They are required if you want to use the pool for snap cloned database requests.</li> <li>Grid Infrastructure credentials are optional. They are required if you are creating only a RAC database.</li> <li>ASM credentials are optional. They are required if you want to use the database pool for live cloning of a database using ASM.</li> <li>An existing pool with similar configuration can be associated to the new database pool as a standby pool. To do so use the <code>standby_pools</code> property. To associate multiple pools the pool names should be separated using the pipe symbol.</li> </ul> <p>Examples:</p> <ul style="list-style-type: none"> <li>Database pool -</li> </ul> <pre>emcli create_pool -name=MyDbPool -target_type=oracle_cloud_zone -paas_zone=MyPaaSZone -members=OraDb11g_home1_1_slc03qtn -description="Test Database Pool"</pre> </p>	<pre>emcli create_pool -name=&lt;Name of Software Pool&gt; -target_type=&lt;Target type of Software Pool&gt; -paas_zone=&lt;PaaS Infrastructure Zone of Software Pool&gt; -members=&lt;Member1, Member2...&gt; [-description=&lt;Description of Software Pool&gt;] [-placement_constraints=&lt;constraint1=value1, constraint2=value2...&gt;] [-member_constraints=&lt;constraint1=value1, constraint2=value2&gt;] [-properties=&lt;property1=value1, property2=value2&gt;]</pre>

Table 32-2 (Cont.) Software Pool EM CLI Verbs

Verb	Description	Format
	<pre>-member_constraints=   "CONFIGURATION=oracle_database,   VERSION=11.2.0.2.0,   PLATFORM=226" -placement_constraints=   "MAX_INSTANCES=7" -properties= "host_credential_guid=DBA449B8967AAF77E040F00A73B11F55 , root_credential_guid=DBA449B8967AAF77E040F00A73B11F55" grid_credential_guid=DBA449B8967AAF77E040F00A73B11F55, asm_credential_guid=DBA449B8967AAF77E040F00A73B11F55, standby_pools=DB_POOL1 DB_POOL2</pre> <p><b>Sample Output:</b> Software Pool "MyDbPool" created successfully.</p> <ul style="list-style-type: none"> <li>• <b>Schema pool -</b></li> </ul> <pre>emcli create_pool -name= MySchemaPool -target_type= schaas_pool -paas_zone=MyPaaSZone -members= simple.us.example.com -description="Test Schema Pool" -member_constraints=   " TARGET_TYPE=oracle_database,   VERSION=11.2.0.2.0,   PLATFORM=226" -placement_constraints=   "MAX_SERVICES=7,   USE_WORKLOAD=true,   MAX_CPU_USAGE=90,   MAX_MEMORY_USAGE=90,   ENFORCE_CPU=true" -properties= "host_credential_guid=DBA449B8967AAF77E040F00A73B11F55 , database_credential_guid =DBA449B8967AAF77E040F00A73B11F55"</pre> <p><b>Sample Output:</b> Software Pool "MySchemaPool" created successfully.</p> <ul style="list-style-type: none"> <li>• <b>Pluggable database pool -</b></li> </ul> <pre>emcli create_pool -name= MyPdbPool -target_type= pdbaas_pool -paas_zone=MyPaaSZone -members= database -description="Test PDB Pool" -member_constraints=   TARGET_TYPE_CDB=oracle_database,   VERSION_CDB=12.1.0.1.0,   PLATFORM_CDB=226" -placement_constraints=   "MAX_PDB_SERVICES=7,   PDBS_USE_WORKLOAD=true,</pre>	

Table 32-2 (Cont.) Software Pool EM CLI Verbs

Verb	Description	Format
	<pre>MAX_CPU_USAGE_BY_PDBS=90, MAX_MEMORY_USAGE_BY_PDBS=90, PDBS_ENFORCE_CPU=true" -properties= "host_credential_guid=DBA449B8967AAF77E040F00A73B11F55 , gi_credential_guid=DBA449B8967AAF77E040F00A73B11F55, cdb_credential_guid =DBA449B8967AAF77E040F00A73B11F55"</pre>	
	<p><b>Sample Output:</b> Software Pool "MySchemaPool" created successfully</p>	

**Table 32-2 (Cont.) Software Pool EM CLI Verbs**

Verb	Description	Format
emcli update_pool	<p>Updates a a database, schema, or pluggable database pool (whichever specified).</p> <ul style="list-style-type: none"> <li>name - Name of the existing Software pool.</li> <li>target_type - Target type of the existing Software pool. For example: mwaas_zone for middleware pool, oracle_cloud_zone for database pool, and schaas_pool for schema pool.</li> <li>description - Description of the Software pool.</li> <li>add_members - Comma separated list of targets to be added as members of the Software pool. The targets to be added must satisfy the member constraints of the Software pool.</li> <li>remove_members - Member targets to be removed from the Software pool.</li> <li>placement_constraints - Comma separated key value pairs of the placement constraints that allow the self service administrator to set maximum ceilings for resource utilization. This provides protection for the members of the Software pool in terms of resource consumption.</li> <li>properties - Comma separated key value pairs for properties that need to be updated based on the Software pool target type.</li> </ul> <p>Examples:</p> <ul style="list-style-type: none"> <li>Database pool -</li> </ul> <pre>emcli update_pool   -name=MyDbPool   -target_type=oracle_cloud_zone   -paas_zone=MyPaaSZone   -add_members=     OraDb11g_home1_1_slc03qtn   -remove_members=     OraDb11g_home1_2_slc01mdr   -description="Test Database Pool"   -placement_constraints=     "MAX_INSTANCES=7"   -properties=     "host_credential_guid=DBA449B8967AAF77E040F00A73B11F55     /     root_credential_guid=DBA449B8967AAF77E040F00A73B11F55"</pre> <p><b>Sample Output:</b> Software Pool "MyDbPool" updated successfully.</p> <li>Schema pool -</li> <pre>emcli update_pool   -name= MySchemaPool   -target_type= schaas_pool   -add_members=     simple.us.example.com   -remove_members=     Simple1.us.example.com   -description="Test Database Pool"   -placement_constraints=     "MAX_SERVICES=17,     USE_WORKLOAD=false,     MAX_CPU_USAGE=90,</pre>	<pre>emcli update_pool -name=&lt;Name of Software Pool&gt; -target_type=&lt;Target type of Software Pool&gt; [-description=&lt;Description of Software Pool&gt;] [-add_members=&lt;Member1, Member2...&gt;] [-remove_members=&lt;Member4, Member5...&gt;] [- placement_constraints=&lt;constrain t1=value1,constraint2=value2...&gt;] [-properties=&lt;property1=value1, property2=value2&gt;]</pre>

**Table 32-2 (Cont.) Software Pool EM CLI Verbs**

Verb	Description	Format
	<pre>MAX_MEMORY_USAGE=90, ENFORCE_CPU=false"</pre> <p><b>Sample Output:</b> Software Pool "MySchemaPool" updated successfully.y.</p> <ul style="list-style-type: none"> <li>• <b>Pluggable database pool -</b></li> </ul> <pre>emcli update_pool -name= MyPdbPool -target_type= pdbaas_pool -paas_zone=MyPaaSZone -add_members=database -remove_members=database -description="Test PDB Pool" -placement_constraints= "MAX_PDB_SERVICES=7, PDBS_USE_WORKLOAD=true, MAX_CPU_USAGE_BY_PDBS=90, MAX_MEMORY_USAGE_BY_PDBS=90, PDBS_ENFORCE_CPU=true" -properties= "host_credential_guid=DBA449B8967AAF77E040F00A73B11F55 , gi_credential_guid=DBA449B8967AAF77E040F00A73B11F55, cdb_credential_guid =DBA449B8967AAF77E040F00A73B11F55"</pre> <p><b>Sample Output:</b> Software Pool "MyPdbPool" updated successfully.</p>	
emcli delete_pool	<p>Deletes a database, scheme, or pluggable database pool. The software pool cannot be deleted if there is an existing Service template associated with it.</p> <ul style="list-style-type: none"> <li>• name - Name of an existing software pool.</li> <li>• target - Target type of the software pool.</li> </ul> <p>Examples:</p> <ul style="list-style-type: none"> <li>• <b>Database pool -</b></li> </ul> <pre>emcli delete_pool -name=MyDbPool -target_type=oracle_cloud_zone</pre> <p><b>Sample Output:</b> Software Pool "MyDbPool" deleted successfully.</p> <ul style="list-style-type: none"> <li>• <b>Schema pool -</b></li> </ul> <pre>emcli delete_pool -name=MySchemaPool -target_type= schaas_pool</pre> <p><b>Sample Output:</b> Software Pool "MySchemaPool" deleted successfully.</p> <ul style="list-style-type: none"> <li>• <b>Pluggable database pool -</b></li> </ul> <pre>emcli delete_pool -name= MyPdbPool -target_type= pdbaas_pool</pre> <p><b>Sample Output:</b> Software Pool "MyPdbPool" deleted successfully.</p>	<pre>emcli delete_pool -name=&lt;Name of Software Pool&gt; -target_type=&lt;Target type of Software Pool&gt;</pre>

Table 32-2 (Cont.) Software Pool EM CLI Verbs

Verb	Description	Format
emcli get_pool_detail	<p>Retrieves the software pool details, such as name, target type, description, PaaS infrastructure zone, number of members, placement constraints, and member constraints.</p> <ul style="list-style-type: none"> <li>• name - Name of the Software pool.</li> <li>• target - Target type of the Software pool</li> </ul> <p>Examples:</p> <ul style="list-style-type: none"> <li>• Database pool -</li> </ul> <pre>emcli get_pool_detail       -name=MyDbPool       -target_type=oracle_cloud_zone</pre> <p><b>Sample Output:</b></p> <pre>Name                MyDbPool Target Type         oracle_cloud_zone Description         Test Database Pool Paas Infrastructure Zone SLC01MDR_ZONE Number of Members   1 Placement Constraints MAX_INSTANCES : 10 Member Constraints CONFIGURATION : DatabaseInstance VERSION : 11.2.0.2.0 , PLATFORM : Linux x86-64</pre> <ul style="list-style-type: none"> <li>• Schema pool -</li> </ul> <pre>emcli get_pool_detail       -name=MySchemaPool       -target_type= schaas_pool</pre> <p><b>Sample Output:</b></p> <pre>Name                MyRchemaPool Target Type         schaas_pool Description         Test Schema Pool Paas Infrastructure Zone SLC01MDR_ZONE Number of Members   1 Placement Constraints MAX_CPU_USAGE : 90 , ENFORCE_CPU : false , MAX_MEMORY_USAGE : 90 , MAX_SERVICES : 17 , USE_WORKLOAD : false Member Constraints VERSION : 11.2.0.2.0 , PLATFORM : Linux x86-64 , TARGET_TYPE : Database Instance</pre> <ul style="list-style-type: none"> <li>• Pluggable database pool -</li> </ul> <pre>emcli get_pool_detail       -name= MyPdbPool       -target_type= pdbaas_pool</pre> <p><b>Sample Output:</b></p> <pre>Name                MyPdbPool Target Type         pdbaas_pool Description         Test PDB Pool</pre>	<pre>emcli get_pool_detail -name=&lt;Name of Software Pool&gt; -target_type=mwaas_zone</pre>

**Table 32-2 (Cont.) Software Pool EM CLI Verbs**

Verb	Description	Format
	Paas Infrastructure Zone PDB_ZONE Number of Members 1 Placement Constraints MAX_MEMORY_USAGE_BY_PDBS : 90 , MAX_CPU_USAGE_BY_PDBS : 90 , MAX_PDB_SERVICES : 7 , PDBS_ENFORCE_CPU : false ,  PDBS_USE_WORKLOAD :false  Member Constraints PLATFORM_CDB : Linux x86-64 , TARGET_TYPE_CDB : Database Instance, VERSION_CDB : 12.1.0.1.0	

## Database Quota EM CLI Verbs

The following table provides details of the supported verbs for Database quota.

**Table 32-3 Database Quota Em CLI Verbs**

Verb	Description	Format
emcli create_dbaas_quota	Creates database quota for a EM_SSA_USER role. <ul style="list-style-type: none"> <li>role_name: Name of SSA user Role for which quota is to be created</li> <li>databases: Number of database service requests allowed.</li> <li>schema_services: Number of schema service requests allowed.</li> <li>pluggable_databases: Number of pluggable database requests allowed.</li> <li>memory: Amount of memory usage allowed.</li> <li>storage: Amount of storage usage allowed.</li> </ul> Example	emcli create_dbaas_quota -role_name="<Name of SSA User Role>" -databases="<Number of Database Requests>" -schema_services="<Number of Schema Service Requests>" -pluggable_databases="<Number of Pluggable Database Service Requests>" -memory="<Memory(GB)>" -storage="<Storage(GB)>"
	Sample Output Quota for "MyRole" setup successfully.	

**Table 32-3 (Cont.) Database Quota Em CLI Verbs**

Verb	Description	Format
emcli update_dbaas_quota	<p>Updates the database quota for the SSA user role.</p> <ul style="list-style-type: none"> <li>role_name - Name of the SSA user role for which quota is to be updated.</li> <li>databases - Number of database service requests allowed.</li> <li>schema_services - Number of schema service requests allowed.</li> <li>pluggable_databases - Number of PDB service requests allowed.</li> <li>memory - Amount of memory usage allowed.</li> <li>storage - Amount of storage space usage allowed.</li> </ul> <p>Example</p> <pre>emcli update_dbaas_quota   -role_name="My Role"   -databases="10"   -schema_services="10"   -pluggable_databases="10"   -memory="99"   -storage="99"</pre> <p>Sample Output Quota for "My Role" updated successfully.</p>	<pre>emcli update_dbaas_quota   -role_name="&lt;Name of SSA User Role&gt;"   -databases="&lt;Number of Database Requests&gt;"   -schema_services="&lt;Number of Schema Service Requests&gt;"   -pluggable_databases="&lt;Number of Pluggable Database Service Requests&gt;"   -memory="&lt;Memory(GB)&gt;"   -storage="&lt;Storage(GB)&gt;"</pre>
emcli delete_dbaas_quota	<p>Deletes the database quota for a SSA User Role.</p> <ul style="list-style-type: none"> <li>role_name - Name of the SSA user role for which quota is to be deleted.</li> </ul> <p>Example</p> <pre>emcli delete_dbaas_quota   role_name="My Role"</pre> <p>Sample Output Quota for "My Role" deleted successfully.</p>	<pre>emcli delete_dbaas_quota   -role_name="&lt;Name of SSA User Role"&gt;</pre>



**Table 32-3 (Cont.) Database Quota Em CLI Verbs**

Verb	Description	Format
emcli get_dbaas_quota	Lists the database quota setup for SSA user roles.  Example  emcli get_dbaas_quota  <b>Sample Output:</b> ROLE_NAME: SSA_USER_ROLE1 NUMBER_OF_SCHEMA_SERVICES: 99 MEMORY: 99 STORAGE: 99 NUMBER_OF_PLUGGABLE_DATABASES: 99NUMBER_OF_DB_INSTANCES : 99  Quotas for Roles retrieved successfully	emcli get_dbaas_quota

## Database Request Settings EM CLI Verbs

The following table provides details of the supported verbs for Database request settings.

**Table 32-4 Database Request Settings EM CLI Verbs**

Verb	Description	Format
emcli update_dbaas_request_settings	Updates the Database request settings.  <ul style="list-style-type: none"> <li>future_reservation_length - The time duration before which a Self Service user can schedule a request.</li> <li>maximum_archive_duration - The duration of time after which the "Completed", Self service create requests will be purged from the repository.</li> <li>default_retirement_period - The maximum amount of time for which Self service user can retain a service instance.</li> </ul> Example:  emcli update_dbaas_request_settings -future_reservation_length="2 Months" -maximum_archive_duration="10 Weeks" -default_retirement_period="No Reservation"  <b>Sample Output:</b> Request settings updated successfully	emcli update_dbaas_request_settings - future_reservation_length="<Future Request Scheduling Period>" - maximum_archive_duration="<Request Purging Duration>" - default_retirement_period="<Default Retention Duration>"
emcli get_dbaas_request_settings	Retrieves the PaaS infrastructure zone details.  Example:  emcli get_dbaas_request_settings <b>Sample Output:</b> Future Reservation Length : 2 Months Maximum Archive Duration : 10 Weeks Default Retirement Period : 1 Years Request Settings retrieved successfully.	emcli get_dbaas_request_settings

## Database Size EM CLI Verbs

The table below lists the supported verbs for Database size resource.

**Table 32-5 Database Size EM CLI Verbs**

Verb	Description	Format
emcli create_database_size	<p>Specify one or more attributes that make up this database size. The different attributes are separated by a semicolon (;). Attributes specified in the database size override values specified in the service template</p> <ul style="list-style-type: none"> <li>• name- Create a name for the size.</li> <li>• description - Create a description for the size.</li> <li>• attributes - The different attributes are separated by a semicolon (;). Users can specify values for the following attributes: <ul style="list-style-type: none"> <li>– cpu: Total number of CPU cores.</li> <li>– memory: Total maximum memory in GB.</li> <li>– processes: Total number of processes that can simultaneously connect to Oracle.</li> <li>– storage: Total storage that is allocated to Oracle (in GB).</li> </ul> </li> </ul> <p><b>Example:</b></p> <pre>emcli create_database_size -name=Small - description="Small size database" - attributes="cpu:4;storage:50;memory:4"</pre> <p><b>Sample Output:</b> Database size 'Small' has been successfully created.</p>	<pre>emcli create_database_size -name="&lt;Size name&gt;" -description="&lt;Size description&gt;" [-attributes="cpu:&lt;number of cores&gt;; memory:&lt;memory in GB&gt;; processes:&lt;max number of processes&gt;; storage:&lt;Total Storage in GB allocated to database&gt;," ]</pre>
emcli update_database_size	<p>Specify one or more attributes that have to be modified. The different attributes are separated by a semicolon (;). If you want to remove an attribute from the database size definition, specify 'remove' against that attribute.</p> <ul style="list-style-type: none"> <li>• name - Name of the existing database.</li> <li>• description - Updates the description of the existing size.</li> <li>• attributes - The different attributes are separated by a semicolon (;). Users can specify values for the following attributes: <ul style="list-style-type: none"> <li>– cpu: Total number of CPU cores.</li> <li>– memory: Total maximum memory in GB.</li> <li>– processes: Total number of processes that can simultaneously connect to Oracle.</li> <li>– storage: Total storage that is allocated to Oracle (in GB).</li> </ul> </li> </ul> <p><b>Example:</b></p> <pre>emcli update_database_size -name=Small - description="Small size database" - attributes="cpu:4;storage:50;memory:4"</pre> <p><b>Sample Output:</b> Database size 'Small' has been successfully updated.</p>	<pre>emcli update_database_size -name="&lt;Existing size name&gt;" -description="&lt;Size description&gt;" [-attributes="cpu:&lt;number of cores&gt;; memory:&lt;memory in GB&gt;; processes:&lt;max number of processes&gt;; storage:&lt;Total storage in GB allocated to database&gt;,"]</pre>

**Table 32-5 (Cont.) Database Size EM CLI Verbs**

Verb	Description	Format
emcli delete_database_size	<p>Deletes database size.</p> <p>name - Name of the existing database size.</p> <p>Example:</p> <pre>emcli delete_database_size -name=small</pre> <p><b>Sample Output:</b></p> <p>Database size 'Small' has been successfully deleted.</p>	<pre>emcli delete_database_size -name="&lt;Existing size name&gt;"</pre>
emcli list_database_sizes	<p>Lists all the database sizes that have been created.</p> <p>[name]: A complete or a partial string.</p> <p>Example:</p> <pre>eemcli list_database_size emcli list_database_sizes -name="Extra*"</pre> <p><b>Sample Output:</b></p> <p>Name:Extra-Small Description:Extra-small CPU(cores):4 Memory(GB):4 Storage(GB):Not Specified Processes(Units):Not Specified</p> <p>Name:Small Description:Small database CPU(cores):8 Memory(GB):8 Storage(GB):Not Specified Processes(Units):Not Specified</p>	<pre>emcli list_database_sizes[name]: A complete or a partial string.</pre>

## Database Profile EM CLI Verbs

This section explains the different database provisioning profiles used for Database as a Service. It also explains how these profiles can be created using the EM CLI verbs. The following topics are covered:

- [About Database Provisioning Profile Types](#)
- [Creating Provisioning Profiles using EM CLI](#)
- [Creating a Database Profile Using EM CLI Verbs](#)
- [Editing a Database Profile Using EM CLI Verbs](#)
- [Deleting a Database Profile Using EM CLI Verbs](#)
- [Viewing All the Database Profiles](#)
- [Refreshing a Database Profile Using EM CLI Verbs](#)

## About Database Provisioning Profile Types

Given below are the four types of Database provisioning profiles used in Database as a Service and Schema as a Service:

- [DBCA Template](#)
- [RMAN](#)
- [Snapclone](#)
- [Schema](#)

## DBCA Template

The DBCA template supports both structure plus data and structure only types. This database provisioning profile is created from the production or source database registered with Enterprise Manager.



### Note:

Structure and data requires a shutdown of the database. It should be used for very small databases (< 50GB).

## RMAN

This data content of this database provisioning profile comprises the RMAN backup pieces. Any of the following methods can be used to create the RMAN profile:

- Hot RMAN backup - This option is enabled only when the archive log mode on the source database is turned ON.
- Cold RMAN backup - In this case, the source database is brought down to take the RMAN backup.
- Existing backup - This option can be used when the RMAN backup is already taken on the source and you want to use one of the existing RMAN backups to create a profile.
- Existing backup pieces when there is no access to the source database - Create profile source database using existing backup pieces when there is no access to the source database. This option can be used when the RMAN backup is already taken on the source and kept in a known location. This option is only supported using EM CLI verbs.

## Snapclone

The data content of this database provisioning profile is derived from Snapshot information on the filer (NetApp or SunZFS filer) of all the volumes where the datafiles for the source database are residing.

## Schema

The data content of this database provisioning profile is compiled from an export dump created using the Data pump tool. You can choose to export Schema objects (structure only) or the Schema with data (structure and data).

Note that you cannot export empty schemas or include Oracle schemas (these schemas are not available for selection). Schemas that are filtered out are listed below:

**Table 32-6 Filtered Out Schema**

Schema	Schema	Schema	Schema	Schema
ANONYMOUS	DMSYS	OASPUBLIC	OWBSYS	TSMSYS
APEX_030200	EXFSYS	ODM	OWBSYS_AUDIT	WEBSYS
APEX_PUBLIC_USER	FLows_	ODM_MTR	SCOTT	WK_PROXY
APPQOSSYS	FLows_03000	OLAPSYS	SI_INFORMTN_SCHEMA	WK_TEST
AURORA\$JIS\$UTILITY\$	FLows_FILES	ORACLE_OCM	SPATIAL_CSW_ADMIN_U SR	WKPROXY
AURORA\$ORB\$UNAUTHENTICATED	LBACSYS	ORDDATA	SPATIAL_WFS_ADMIN_U SR	WKSYS
BI	MDDATA	ORDPLUGINS	SYS	WMSYS
CTXSYS	MDSYS	ORDSYS	SYSMAN	XDB
DBSNMP	MGMT_VIEW	OSE\$HTTP\$ADMIN	SYSTEM	XS\$NULL
DIP	MTSSYS	OUTLN	TRACESRV	

## Creating Provisioning Profiles using EM CLI

This method allows the administrators or cloud provisioning operators to create the database provisioning profile using EM CLI verbs. The following is the syntax of the verb:

```
emcli create_dbprofile -input_file=data:<Prop file name>
```

For the verb description and options see [Table 32-13](#).

For the steps to be followed to create a database profile, see [Creating a Database Profile Using EM CLI Verbs](#).

This command takes in a property file that completely describes the type of profile that will be created and the options used. For property files of different database provisioning profiles, see [Sample EM CLI Property Files](#).

## Sample EM CLI Property Files

The following sections provide sample EMCLI property files for the database provisioning profiles:

- [DBCA Template](#)
- [New RMAN Backup from the Source Database](#)
- [Existing RMAN Backup from the Source Database](#)
- [Existing RMAN Backup on the Stage Location](#)
- [Snapclone Database](#)
- [Schema Database](#)

## DBCA Template

Table 32-7 EMCLI Property Files for DBCA Template

Name	Required	Description	Variable
Reference Database	true	The source database from which the profile will be created.	REFERENCE_DATABASE=
Type of the reference database	true	The target type of the source database (oracle_database or rac_database)	REFERENCE_DATABASE_TYPE=
Reference Node	false	The reference node from which the profile will be created. Applicable only for RAC and Cluster targets	REF_NODE_SELECTED=
Create the database gold image	false	Includes the database gold image as part of the profile.	DATABASE_GOLD_IMAGE_TYPE=
Create the GI gold image	false	Includes the GI gold image as part of the profile.	GI_GOLD_IMAGE_TYPE=
Create the database gold image	false	Includes the database gold image as part of the profile.	DATA_CONTENT_MODE=
Create mode for the data content	false	The create mode decides whether to use existing data or create new data.	CREATE_DATA_OPTION=
The content that will be included in the backup	false	The data content that gets included in the backup can be metadata or data.	DATA_CONTENT=
Reference Host Credentials	false	The credentials to be used for OS authentication.	REF_HOST_CREDENTIALS=
Database Credentials	false	The credentials to be used for performing database related operations.	REF_DB_CREDENTIALS=
Grid Infrastructure Credentials	false	The credentials to be used for OS authentication for grid infrastructure.	REF_GI_CREDENTIALS=
Root Credentials	false	Root credentials to be required to perform privileged operations on host.	REF_HOST_ROOT_CREDENTIALS=
Convert to OFA format	false	Converts to the OFA format.	CONVERT_TO_OFA=
Profile Name	true	Name of the profile.	PROFILE_NAME=
Profile Description	false	Name with which the profile should be created.	PROFILE_DESC=
Profile location	true	Location of the profile in the software library.	PROFILE_LOCATION=
Profile Version	false	Version of the profile. If nothing is specified, the Database version is used.	PROFILE_VERSION=
Profile Vendor	false	Vendor of the profile. The default is Oracle.	PROFILE_VENDOR=

**Table 32-7 (Cont.) EMCLI Property Files for DBCA Template**

Name	Required	Description	Variable
Profile notes	false	Notes for the profile.	PROFILE_NOTES=
Create Image version flag	false	Flag to indicate if only the image version needs to be created.	DB_GOLD_IMAGE_CREATE_VERSION_ONLY=
Create Image version flag	false	Flag to indicate if only the image version needs to be created.	GI_GOLD_IMAGE_CREATE_VERSION_ONLY=
GI Home gold image id	false	Entity ID of the gold image.	GI_GOLD_IMAGE_ID=
Database home gold image id	false	Entity ID of the gold image.	DB_GOLD_IMAGE_ID=
Database gold image id	false	Entity ID of the gold image.	DB_GOLD_IMAGE_ID=
Database gold image name	false	Entity name of the database gold image.	DB_GOLD_IMAGE_ENTITY_NAME=
Grid Infrastructure gold image name	false	Entity name of the database gold image.	GI_GOLD_IMAGE_ENTITY_NAME=
Data gold image name	false	Entity name of the data gold image.	DATA_GOLD_IMAGE_ENTITY_NAME=
Working Directory	false	Working directory is the location where the files are staged.	WORKING_DIRECTORY=
Storage Type	false	The list of valid storage types are NFS, AGENT, and OmsShared.	STORAGE_TYPE_FOR_SOFTWARE=
Storage Name	false	The storage name as configured in the software library.	STORAGE_NAME_FOR_SOFTWARE=
NFS Mount Point	false	Location at which the NFS server is mounted on the host.	NFS_LOCAL_MOUNT_POINT_FOR_SOFTWARE=
Storage Type	false	The list of valid storage types are NFS, AGENT, and OmsShared	STORAGE_TYPE_FOR_DATA=
Storage Name	false	The storage name as configured in the software library.	STORAGE_NAME_FOR_DATA=
NFS Mount Point	false	Location at which the NFS server is mounted on the host.	NFS_LOCAL_MOUNT_POINT_FOR_DATA=
Is the profile initiated by end user	false	Indicates if the profile initiated by end user ia a part of backup process or the database.	USER_INITIATED=
Is Database target available	false	Indicates if the Database target is available.	DB_TARGET_AVAILABLE=

**Table 32-7 (Cont.) EMCLI Property Files for DBCA Template**

Name	Required	Description	Variable
Platform Name of Source Database	false	Platform Name of Source Database. For example: Linux x86-64, Oracle Solaris on x86-64 (64-bit) etc.	SOURCE_DB_PLATFORM_NAME=
Schedule for Profile Execution	false	Schedule for the profile execution.	PROFILE_SCHEDULE=
Profile Single Refresh	false	Single refresh of the profile.	PROFILE_SINGLE_REFRESH=
Profile Purge Policy Type	false	Profile purge policy type.	PROFILE_PURGE_POLICY_TYPE=
Profile Purge Policy Value	false	Profile purge policy value.	PROFILE_PURGE_POLICY_VALUE=
Profile Image Version	false	Profile image version.	PROFILE_IMAGE_VERSION=
Profile location list	false	Location of the profile list.	PROFILE_LOC_LIST

## New RMAN Backup from the Source Database

**Table 32-8 EMCLI Property Files for a New RMAN Backup**

Name	Required	Description	Variable
Reference Database	true	The source database from which the profile will be created	REFERENCE_DATABASE=
Type of the reference database	true	The target type of the source database (oracle_database or rac_database)	REFERENCE_DATABASE_TYPE=
Reference Node	false	The reference node from which the profile will be created. Applicable only for RAC and Cluster targets	REF_NODE_SELECTED=
Backup mechanism for data	false	Variable to identify what mode needs to be used for creating backup data. Possible values are EXPORT, DBCA_TEMPLATE, RMAN, and THIN_PROVISIONING	DATA_CONTENT_MODE=RMAN
The content that will be included in the backup	false	The data content that gets included in the backup can be metadata or data. Possible values are METADATA_ONLY and METADATA_AND_DATA.	DATA_CONTENT=METADATA_AND_DATA
Reference Host Credentials	true	The credentials that will be used for OS authentication. Format is <Cred Name:Owner>. If this is not provided, preferred credentials will be checked against NormalHostCreds.	REF_HOST_CREDENTIALS=



**Table 32-8 (Cont.) EMCLI Property Files for a New RMAN Backup**

Name	Required	Description	Variable
Database Credentials	false	The credentials that will be used for performing database authentication. Format is <Cred Name:Owner>. If this is not provided, preferred credentials will be checked against SysDbuCreds	REF_DB_CREDENTIALS=
Profile Name	true	Name of the profile	PROFILE_NAME=
Profile Description	false	Name with which the profile should be created.	PROFILE_DESC=
Profile location	true	Location of the profile in software library	PROFILE_LOCATION=
Profile Version	false	Version of the profile. If none is specified, the Database version shall be used.	PROFILE_VERSION=
Profile Vendor	false	Vendor of the profile. Default is Oracle.	PROFILE_VENDOR=
Profile notes	false	Notes for the profile.	PROFILE_NOTES=
Working Directory	false	Working directory is the location where the files are staged.	WORKING_DIRECTORY=
Is the profile initiated by end user	true	Is the profile initiated by end user as part of backup process or the database.	USER_INITIATED=false
Is Database target available	false	Is Database target available. Must be set to 'true' for this use case.	DB_TARGET_AVAILABLE=true
Backup Type	false	Backup type.	RMAN.BACKUP_TYPE=
Number of RMAN Channels to use(Default No of Channels : 2	false	Number of Channels to be used. Possible Values: like 1, 2 or 3.	RMAN.RMAN_CHANNELS=
Retain backup until	false	Retain backup until. Format: mm/dd/yyyy.	RMAN.RETAIN_UNTIL=
Encryption Type	false	Encryption Type. Possible Values: ON, OFF.	RMAN.ENCRYPTION_TYPE=
Encryption Password/Key	false	Encryption key which was used to encrypt the backup.	RMAN.ENCRYPTION_PASSWORD=
Compression Type	false	Compression type. Possible Values: HIGH, MEDIUM, LOW.	RMAN.COMPRESSION_TYPE=
RMAN Backup Location	true	Location of the RMAN Backups.	RMAN.RMAN_BACKUP_LOCATION=
Backup file format	false	Backup file format.	RMAN.BACKUP_FILE_FORMAT=
Backup file tag	false	Backup file tag.	RMAN.BACKUP_FILE_TAG=
Source: Control File Location	false	Location of the Control File.	RMAN.CONTROL_FILE_NAME=

**Table 32-8 (Cont.) EMCLI Property Files for a New RMAN Backup**

Name	Required	Description	Variable
Control File Tag	false	Control File Tag.	RMAN.CONTROL_FILE_TAG=
Source: Database SID	false	Database SID of the source database.	RMAN.ORACLE_DB_SID=
Initialize File Name	false	Initialize file name.	RMAN.INIT_FILE_NAME=
User List File Name	false	Name of the users list file. this file should be kept in location specified for RMAN_BACKUP_LOCATION .	RMAN.USERLIST_FILE_NAME =
GDB Name of source Db	false	GDB Name of source Db.	RMAN.DATABASE_NAME=
use existing RMAN Backup	true	use existing RMAN Backup. This should be set to 'NO' for this use case.	RMAN.USE_EXISTING_BACKUP=NO

## Existing RMAN Backup from the Source Database

**Table 32-9 EMCLI Property Files for a Existing RMAN Backup**

Name	Required	Description	Variable
Reference Database	true	The source database from which the profile will be created	REFERENCE_DATABASE=
Type of the reference database	true	The target type of the source database (oracle_database or rac_database)	REFERENCE_DATABASE_TYPE=
Reference Node	false	The reference node from which the profile will be created. Applicable only for RAC and Cluster targets	REF_NODE_SELECTED=
Backup mechanism for data	false	Variable to identify what mode needs to be used for creating backup data. Possible values are EXPORT, DBCA_TEMPLATE, RMAN, and THIN_PROVISIONING	DATA_CONTENT_MODE=RMAN
The content that will be included in the backup	false	The data content that gets included in the backup can be metadata or data. Possible values are METADATA_ONLY and METADATA_AND_DATA.	DATA_CONTENT=METADATA_AND_DATA
Reference Host Credentials	true	The credentials that will be used for OS authentication. Format is <Cred Name:Owner>. If this is not provided,preferred credentials will be checked against NormalHostCreds.	REF_HOST_CREDENTIALS=

**Table 32-9 (Cont.) EMCLI Property Files for a Existing RMAN Backup**

Name	Required	Description	Variable
Database Credentials	false	The credentials that will be used for performing database authentication. Format is <Cred Name:Owner>. If this is not provided, preferred credentials will be checked against SysDbuCreds	REF_DB_CREDENTIALS=
Profile Name	true	Name of the profile	PROFILE_NAME=
Profile Description	false	Name with which the profile should be created.	PROFILE_DESC=
Profile location	true	Location of the profile in software library.	PROFILE_LOCATION=
Profile Version	false	Version of the profile. If none is specified, the Database version shall be used.	PROFILE_VERSION=
Profile Vendor	false	Vendor of the profile. Default is Oracle.	PROFILE_VENDOR=
Profile notes	false	Notes for the profile.	PROFILE_NOTES=
Working Directory	false	Working directory is the location where the files are staged.	WORKING_DIRECTORY=
Is the profile initiated by end user	true	Is the profile initiated by end user as part of backup process or the database.	USER_INITIATED=false
Is Database target available	false	Is Database target available. Must be set to 'true' for this use case.	DB_TARGET_AVAILABLE=true
Platform Name of Source Database	false	Platform Name of Source Database. For example, Linux x86-64 or Oracle Solaris on x86-64 (64-bit).	SOURCE_DB_PLATFORM_NAME=
Backup Type	false	Backup type.	RMAN.BACKUP_TYPE=
Number of RMAN Channels to use(Default No of Channels : 2	false	Number of Channels to be used. Possible Values: like 1, 2 or 3.	RMAN.RMAN_CHANNELS=
Retain backup until	false	Retain backup until. Format: mm/dd/yyyy.	RMAN.RETAIN_UNTIL=
Encryption Type	false	Encryption Type. Possible Values: ON, OFF.	RMAN.ENCRYPTION_TYPE=
Source:Encryption Password/Key	false	Encryption key which was used to encrypt the backup.	RMAN.ENCRYPTION_PASSWORD=
Compression Type	false	Compression type. Possible Values: HIGH, MEDIUM, LOW.	RMAN.COMPRESSION_TYPE=
RMAN Backup Location	true	Location of the RMAN Backups.	RMAN.RMAN_BACKUP_LOCATION=
Backup file format	false	Backup file format.	RMAN.BACKUP_FILE_FORMAT=
Backup file tag	false	Backup file tag.	RMAN.BACKUP_FILE_TAG=
Source: Control File Location	false	Location of the Control File.	RMAN.CONTROL_FILE_NAME=
Control File Tag	false	Control File Tag.	RMAN.CONTROL_FILE_TAG=

**Table 32-9 (Cont.) EMCLI Property Files for a Existing RMAN Backup**

Name	Required	Description	Variable
Source: Database SID	false	Database SID of the source database.	RMAN.ORACLE_DB_SID=
Initialize File Name	false	Initialize file name.	RMAN.INIT_FILE_NAME=
User List File Name	false	Name of the users list file. this file should be kept in location specified for RMAN_BACKUP_LOCATION.	RMAN.USERLIST_FILE_NAME=
GDB Name of source Db	false	GDB Name of source Db.	RMAN.DATABASE_NAME=
use existing RMAN Backup	true	use existing RMAN Backup. This should be set to 'YES' for this use case.	RMAN.USE_EXISTING_BACKUP=YES

## Existing RMAN Backup on the Stage Location

**Table 32-10 EMCLI Property Files for a Existing RMAN Backup on the Stage Location**

Name	Required	Description	Variable
Reference Database	true	The source database from which the profile will be created	REFERENCE_DATABASE=
Type of the reference database	true	The target type of the source database (oracle_database or rac_database)	REFERENCE_DATABASE_TYPE=
Reference Node	false	The reference node from which the profile will be created. Applicable only for RAC and Cluster targets	REF_NODE_SELECTED=
Backup mechanism for data	false	Variable to identify what mode needs to be used for creating backup data. Possible values are EXPORT, DBCA_TEMPLATE, RMAN, and THIN_PROVISIONING	DATA_CONTENT_MODE=RMAN
The content that will be included in the backup	false	The data content that gets included in the backup can be metadata or data. Possible values are METADATA_ONLY and METADATA_AND_DATA.	DATA_CONTENT=METADATA_AND_DATA
Reference Host Credentials	true	The credentials that will be used for OS authentication. Format is <Cred Name:Owner>. If this is not provided, preferred credentials will be checked against NormalHostCreds.	REF_HOST_CREDENTIALS=
Database Credentials	false	The credentials that will be used for performing database authentication. Format is <Cred Name:Owner>. If this is not provided, preferred credentials will be checked against SysDbuCreds	REF_DB_CREDENTIALS=
Profile Name	true	Name of the profile	PROFILE_NAME=

**Table 32-10 (Cont.) EMCLI Property Files for a Existing RMAN Backup on the Stage Location**

Name	Required	Description	Variable
Profile Description	false	Name with which the profile should be created.	PROFILE_DESC=
Profile location	true	Location of the profile in software library.	PROFILE_LOCATION=
Profile Version	false	Version of the profile. If none is specified, the Database version shall be used.	PROFILE_VERSION=
Profile Vendor	false	Vendor of the profile. Default is Oracle.	PROFILE_VENDOR=
Profile notes	false	Notes for the profile.	PROFILE_NOTES=
Working Directory	false	Working directory is the location where the files are staged.	WORKING_DIRECTORY=
Is the profile initiated by end user	true	Is the profile initiated by end user as part of backup process or the database.	USER_INITIATED=false
Is Database target available	false	Is Database target available. Must be set to 'false' for this use case.	DB_TARGET_AVAILABLE=false
Platform Name of Source Database	false	Platform Name of Source Database. For example, Linux x86-64 or Oracle Solaris on x86-64 (64-bit).	SOURCE_DB_PLATFORM_NAME=
Backup Type	false	Backup type.	RMAN.BACKUP_TYPE=
Number of RMAN Channels to use(Default No of Channels : 2	false	Number of Channels to be used. Possible Values: like 1, 2 or 3.	RMAN.RMAN_CHANNELS=
Retain backup until	false	Retain backup until. Format: mm/dd/yyyy.	RMAN.RETAIN_UNTIL=
Encryption Type	false	Encryption Type. Possible Values: ON, OFF.	RMAN.ENCRYPTION_TYPE=
Source:Encryption Password/Key	false	Encryption key which was used to encrypt the backup.	RMAN.ENCRYPTION_PASSWORD=
Compression Type	false	Compression type. Possible Values: HIGH, MEDIUM, LOW.	RMAN.COMPRESSION_TYPE=
RMAN Backup Location	true	Location of the RMAN Backups.	RMAN.RMAN_BACKUP_LOCATION=
Backup file format	false	Backup file format. Possible Values: %U	RMAN.BACKUP_FILE_FORMAT=
Source: Control File Location	false	Location of the Control File.	RMAN.CONTROL_FILE_NAME=
Control File Tag	false	Control File Tag. Default: control01.ctl	RMAN.CONTROL_FILE_TAG=
Source: Database SID	false	Database SID of the source database.	RMAN.ORACLE_DB_SID=
Initialize File Name	false	Initialize file name.	RMAN.INIT_FILE_NAME=
User List File Name	false	Name of the users list file. this file should be kept in location specified for RMAN_BACKUP_LOCATION.	RMAN.USERLIST_FILE_NAME=

**Table 32-10 (Cont.) EMCLI Property Files for a Existing RMAN Backup on the Stage Location**

Name	Required	Description	Variable
GDB Name of source Db	false	GDB Name of source Db.	RMAN.DATABASE_NAME=
RMDB Version	false	RMDBS version	RMAN.DATABASE_VERSION=

## Snapclone Database

**Table 32-11 EMCLI Property Files for Snapclone Database**

Name	Required	Description	Variable
Reference Database	true	The source database from which the profile will be created.	REFERENCE_DATABASE=
Type of the reference database	true	The target type of the source database (oracle_database or rac_database).	REFERENCE_DATABASE_TYPE=
Reference Node	false	The reference node from which the profile will be created. Applicable only for RAC and Cluster targets.	REF_NODE_SELECTED=
Create the database gold image	false	Includes the database gold image as part of the profile.	DATABASE_GOLD_IMAGE_TYPE=
Create the GI gold image	false	Includes the GI gold image as part of the profile.	GI_GOLD_IMAGE_TYPE=
Create the database gold image	false	Includes the database gold image as part of the profile.	DATA_CONTENT_MODE=
Create mode for the data content	false	The create mode decides whether to use existing data or create new data.	CREATE_DATA_OPTION=
The content that will be included in the backup	false	The data content that gets included in the backup can be metadata or data.	DATA_CONTENT=
Reference Host Credentials	false	The credentials to be used for OS authentication.	REF_HOST_CREDENTIALS=
Database Credentials	false	The credentials to be used for performing database related operations.	REF_DB_CREDENTIALS=
Grid infrastructure credentials	false	The credentials to be used for OS authentication for grid infrastructure.	REF_GI_CREDENTIALS=
Root Credentials	false	Root credentials that will be required to perform privileged operations on host.	REF_HOST_ROOT_CREDENTIALS=
Convert to OFA format	false	Converts to the OFA format.	CONVERT_TO_OFA=
Profile Name	true	Name of the profile.	PROFILE_NAME=
Profile Description	false	Name with which the profile should be created.	PROFILE_DESC=

**Table 32-11 (Cont.) EMCLI Property Files for Snapclone Database**

Name	Required	Description	Variable
Profile location	true	Location of the profile in the software library.	PROFILE_LOCATION=
Profile Version	false	Version of the profile. If nothing is specified, the Database version is used.	PROFILE_VERSION=
Profile Vendor	false	Vendor of the profile. The default is Oracle.	PROFILE_VENDOR=
Profile notes	false	Notes for the profile.	PROFILE_NOTES=
Create Image version flag	false	Flag to indicate if only image version needs to be created.	DB_GOLD_IMAGE_CREATE_VERSION_ONLY=
Create Image version flag	false	Flag to indicate if only image version needs to be created.	GI_GOLD_IMAGE_CREATE_VERSION_ONLY=
GI Home gold image id	false	Entity ID of the gold image.	GI_GOLD_IMAGE_ID=
Database home gold image id	false	Entity ID of the gold image.	DB_GOLD_IMAGE_ID=
Database gold image id	false	Entity ID of the gold image.	DB_GOLD_IMAGE_ID=
Database gold image name	false	Entity name of the database gold image.	DB_GOLD_IMAGE_ENTITY_NAME=
Grid Infrastructure gold image name	false	Entity name of the database gold image.	GI_GOLD_IMAGE_ENTITY_NAME=
Data gold image name	false	Entity name of the data gold image.	DATA_GOLD_IMAGE_ENTITY_NAME=
Working Directory	false	Working directory is the location where the files are staged.	WORKING_DIRECTORY=
Storage Type	false	The list of valid storage types are NFS, AGENT, and OmsShared.	STORAGE_TYPE_FOR_SOFTWARE=
Storage Name	false	The storage name as configured in the software library.	STORAGE_NAME_FOR_SOFTWARE=
NFS Mount Point	false	Location at which the NFS server is mounted on the host.	NFS_LOCAL_MOUNT_POINT_FOR_SOFTWARE=
Storage Type	false	The list of valid storage types are NFS, AGENT, and OmsShared.	STORAGE_TYPE_FOR_DATA=
Storage Name	false	The storage name as configured in the software library.	STORAGE_NAME_FOR_DATA=
NFS Mount Point	false	Location at which the NFS server is mounted on the host.	NFS_LOCAL_MOUNT_POINT_FOR_DATA=
Is the profile initiated by end user	false	Is the profile initiated by the end user a part of backup process or the database.	USER_INITIATED=

**Table 32-11 (Cont.) EMCLI Property Files for Snapclone Database**

Name	Required	Description	Variable
Is Database target available	false	Is the Database target available.	DB_TARGET_AVAILABLE=
Platform Name of Source Database	false	Platform Name of Source Database. For example: Linux x86-64, Oracle Solaris on x86-64 (64-bit) etc.	SOURCE_DB_PLATFORM_NAME=
Schedule for Profile Execution	false	Schedule for profile execution.	PROFILE_SCHEDULE=
Profile Single Refresh	false	Single refresh of the profile.	PROFILE_SINGLE_REFRESH=
Profile Purge Policy Type	false	Profile purge policy type.	PROFILE_PURGE_POLICY_TYPE=
Profile Purge Policy Value	false	Profile purge policy value.	PROFILE_PURGE_POLICY_VALUE=
Profile Image Version	false	Profile image version.	PROFILE_IMAGE_VERSION=
Profile location list	false	Location of the profile list.	PROFILE_LOC_LIST=

## Schema Database

**Table 32-12 EMCLI Property Files for Schema Database**

Name	Required	Description	Variable
The content that will be included in the backup	false	The data content that gets included in the backup can be metadata or data. Possible values are METADATA_ONLY and METADATA_AND_DATA.	DATA_CONTENT=METADATA_AND_DATA
Reference Database	true	The source database from which the profile will be created	REFERENCE_DATABASE=
Type of the reference database	true	The target type of the source database (oracle_database or rac_database)	REFERENCE_DATABASE_TYPE=
Reference Node	false	The reference node from which the profile will be created. Applicable only for RAC and Cluster targets	REF_NODE_SELECTED=
Backup mechanism for data	false	Variable to identify what mode needs to be used for creating backup data. Possible values are EXPORT, DBCA_TEMPLATE, RMAN, and THIN_PROVISIONING	DATA_CONTENT_MODE=EXPORT



**Table 32-12 (Cont.) EMCLI Property Files for Schema Database**

Name	Required	Description	Variable
Reference Host Credentials	true	The credentials that will be used for OS authentication. Format is <Cred Name:Owner>. If this is not provided, preferred credentials will be checked against NormalHostCreds.	REF_HOST_CREDENTIALS=
Database Credentials	false	The credentials that will be used for performing database authentication. Format is <Cred Name:Owner>. If this is not provided, preferred credentials will be checked against SysDbuCreds	REF_DB_CREDENTIALS=
Profile Name	true	Name of the profile	PROFILE_NAME=
Profile Description	false	Name with which the profile should be created.	PROFILE_DESC=
Profile location	true	Location of the profile in software library.	PROFILE_LOCATION=
Profile Version	false	Version of the profile. If none is specified, the Database version shall be used.	PROFILE_VERSION=
Profile Vendor	false	Vendor of the profile. Default is Oracle.	PROFILE_VENDOR=
Profile notes	false	Notes for the profile.	PROFILE_NOTES=
Data gold image name	true	Entity name of the data gold image	DATA_GOLD_IMAGE_ENTITY_NAME=
Working Directory	false	Working directory is the location where the files are staged.	WORKING_DIRECTORY=
Schemas to be exported	true	List of schemas that needs to be included as part of the export.	EXPORT.SCHEMA_INCLUDE_LIST.0=
Dump Directories	false	List of directory objects that needs to be used for storing export. Format: directory=dir1,file_name=file1%U.dmp[,max_size=1MB].	EXPORT.DUMP_DIRECTORY_LIST.0=
Log Directory	false	Log directory location where the log file generated during export.	PORT.LOG_FILE_DIRECTORY=
Degree of Parallelism	false	Degree of Parallelism indicates the number of threads. For example, 1 or 2 or 3...	EXPORT.DEGREE_OF_PARALLELISM=

## Database Profile EM CLI Verbs

The table below provides the verbs related to database profile.

**Table 32-13 Database Profile EM CLI Verbs**

Verb	Description	Format
emcli create_dbprofile	<p>Creates a new database profile.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>-input_file - A property file which completely describes the type of profile that will be created and the options used. Enter <code>emcli help describe_dbprofile_input</code> for help with populating values for the property file. For property file details see <a href="#">Sample EM CLI Property Files</a>.</li> <li>-schedule <ul style="list-style-type: none"> <li>frequency: Frequency type with which the Database Profile will be created. It can be interval(in minutes), weekly, monthly or yearly.</li> <li>start_time: Denotes the starting time of database profile component creation in the format yy-MM-dd HH:mm.</li> <li>end_time: Denotes the end time of database profile component creation repetition in the format yy-Mm-dd HH:mm.</li> <li>repeat: Repetition rate at which database profile will be created. If the frequency is interval, then repeat will be in minutes.</li> <li>months: Number of months after which repetition of database profile component creation should occur.</li> <li>days: Number of days after which repetition of database profile component creation should occur.</li> <li>tz: Time zone ID. For example tz:America/New_York.</li> <li>grace_period: A period of time in minutes that defines the maximum permissible delay when attempting to create a database profile. If the job system cannot start the execution within a time period equal to the scheduled time + grace period, it will set the create database profile to be skipped.By default, grace period is indefinite.</li> </ul> </li> <li>-purge_policy - Purges the collected data based on number of days or count of snapshots. If it is not specified, the default is NONE. Allowed values are DAYS, and SNAPSHOT. <ul style="list-style-type: none"> <li>DAYS specifies the number of days after which the data component should be purged.</li> <li>SNAPSHOT specifies the count or number of data components, after which the older data will be purged.</li> </ul> </li> </ul> <p>Example</p> <pre>emcli create_dbprofile -input_file="data:/tmp/ profile.txt" - schedule="frequency:interval;start_time:14-10-05 05:30;end_time:14-10-12 05:23;repeat:30;grace_period:60;tz:America/ New_York" -purge_policy=DAYS:2</pre>	<pre>emcli create_dbprofile -input_file=data:"absolute file path" [-schedule= [frequency:interval weekly monthly  yearly]; start_time:yy-MM-dd HH:mm; end_time:yy-MM-dd HH:mm; [repeat:#m]; [months:#,#,#,...]; [days:#,#,#,...]; [tz:{timezone ID}]; [grace_period:xxx]; ] [-purge_policy=DAYS SNAPSHOTS: number]</pre>

**Table 32-13 (Cont.) Database Profile EM CLI Verbs**

Verb	Description	Format
emcli edit_dbprofile	<p>Updates the cloned database profile.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>[-comp_loc] - Indicates the database profile component location in the software library.</li> <li>[-schedule] - Indicates the schedule for cloning. <ul style="list-style-type: none"> <li>[frequency:interval  daily  weekly monthly yearly];</li> <li>start_time:yy-MM-dd HH:mm;</li> <li>end_time:yy-MM-dd HH:mm;</li> <li>[repeat:#m];</li> <li>[months:#,#,#,...];</li> <li>[days:#,#,#,...];</li> <li>[tz:{java timezone ID}];</li> <li>[grace_period:xxx];</li> </ul> </li> <li>[-purge_policy] - Indicates the duration after which the purge occurs.</li> </ul> <p>Example:</p> <pre>emcli edit_dbprofile -comp_loc="Database Provisioning Profiles/11.2.0.4.0/ linux_x64/Database xyxy.us.example.com Profile100" -schedule="start_time:14-07-22 03:00;frequency:interval;end_time:14-07-22 23:00;repeat:30" -purge_policy="DAYS:1"</pre>	<pre>emcli edit_dbprofile -comp_loc="Database Profile component location in software library" [-schedule= [frequency:interval daily  weekly  monthly yearly]; start_time:yy-MM-dd HH:mm; end_time:yy-MM-dd HH:mm; [repeat:#m]; [months:#,#,#,...]; [days:#,#,#,...]; [tz:{java timezone ID}]; [grace_period:xxx]; [-purge_policy=days  snapshots: number]</pre>
emcli delete_dbprofile	<p>Deletes the database profile.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>comp_loc - Indicates the database profile component location in the software library.</li> <li>[-version] - Indicates the database profile component version name.</li> </ul> <p>Examples:</p> <ul style="list-style-type: none"> <li>emcli delete_dbprofile -comp_loc="Database Provisioning Profiles/11.2.0.4.0/linux_x64/Database xyxy.example.com Profile101"</li> <li>emcli delete_dbprofile -comp_loc="Database Provisioning Profiles/11.2.0.4.0/linux_x64/Database xyxy.example.com Profile101" -version="THIN_PROVISIONING_07_25_2014_03_00_AM"</li> </ul>	<pre>emcli delete_dbprofile -comp_loc="Database Profile component location in software library" [-version="Database Profile component version name"]</pre>
emcli list_dbprofiles	<p>Lists the database profiles.</p> <p>Option:</p> <ul style="list-style-type: none"> <li>[-details] - Provides details of the database profiles.</li> </ul> <p>Example:</p> <pre>emcli list_dbprofiles -details</pre>	<pre>emcli list_dbprofiles [-details]</pre>

**Table 32-13 (Cont.) Database Profile EM CLI Verbs**

Verb	Description	Format
emcli refresh_dbprofile	<p>Refreshes the database profile.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>-comp_loc - Indicates the database profile component location in the software library.</li> </ul> <p>Example:</p> <pre>emcli refresh_dbprofile -comp_loc="Database Provisioning Profiles/11.2.0.4.0/linux_x64/Database xyxy.example.com Profile102"</pre>	<pre>emcli refresh_dbprofile -comp_loc="Database Profile component location in software library"</pre>
emcli delete_database	<p>Deletes the database.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>input_file - Indicates the file containing properties required for deleting a database. For details, see <a href="#">Deleting a Database Using EM CLI Verbs</a>.</li> </ul> <p>Example:</p> <pre>emcli delete_database -input_file=data:u01/files/delete_clone.props</pre> <p>The properties file contains the following:</p> <pre>DB_TARGET_GUID=&lt;TARGET GUID for database to be deleted&gt; HOST_CREDS=&lt;Name of EM Credential:EM User&gt; HOST_NAME=&lt;Host Name Database Resides on&gt; ORACLE_BASE=&lt;Database to be removed Base&gt; ORACLE_HOME=&lt;Database to be removed Home&gt; DBNAME=&lt;Database Name&gt; DB_SID=&lt;Database SID, Not Service Name&gt; DB_TARGET_NAME=&lt;Target name of Database in EM&gt;</pre>	<pre>emcli delete_database -input_file=data:"File containing properties required for deleting a database"</pre>



**Table 32-13 (Cont.) Database Profile EM CLI Verbs**

Verb	Description	Format
emcli delete_oracle_database <command>	<p>Deletes the single instance database based on the &lt;command&gt; entered.</p> <p>Command:</p> <ul style="list-style-type: none"> <li>software - deletes the Single Instance database home.</li> <li>listeners - deletes or de-configures listeners running from the Oracle home.</li> <li>all - deletes the instances, listeners and the software home.</li> </ul> <p>Options:</p> <ul style="list-style-type: none"> <li>input_file - Indicates the file containing properties required for deleting a database.</li> <li>[-schedule] - Indicates the schedule for cleanup: <ul style="list-style-type: none"> <li>frequency - Frequency type with which the Oracle Database will be removed. It can be interval (in minutes), weekly, monthly or yearly</li> <li>start_time - Denotes the starting time of Cleanup Oracle Database in the format yy-MM-dd HH:mm</li> <li>end_time - Denotes the end time of Cleanup Oracle Database in the format yy-Mm-dd HH:mm</li> <li>repeat - Repetition rate at Cleanup Oracle Database. If the frequency is interval, then repeat will be in minutes</li> <li>months - Number of months after which repetition of Cleanup Oracle Database occurs</li> <li>days - Number of days after which repetition of Cleanup Oracle Database occurs</li> <li>tz - Time Zone ID for example tz:America/New_York</li> </ul> </li> </ul> <p>Example:</p> <pre>emcli delete_oracle_database -all - input_file=data:u01/loc/del_db.props</pre> <p>The properties file contains the following:</p> <pre>ORACLE_HOME_TARGET_LIST= Oracle Home Target Name in Enterprise Manager ORACLE_HOME_NORMAL_CRED_NAME= Oracle Home credential name in the format &lt;cred name&gt;:&lt;cred owner&gt; ORACLE_HOME_ROOT_CRED_NAME= Oracle Home root credentials in the format &lt;cred name&gt;:&lt;cred owner&gt; TMP_DIR_LOC= Temporary Working Directory</pre>	<pre>emcli delete_oracle_database &lt;command&gt;: software [-listeners]-all [-input_file=data:"File containing properties required for deleting a clone"] [-schedule= [frequency:interval daily  weekly  monthly yearly]; start_time:yy-MM-dd HH:mm; end_time:yy-MM-dd HH:mm; [repeat:#m]; [months:#,#,#,...]; [days:#,#,#,...]; [tz:{java timezone ID}]; [grace_period:xxx];</pre>

**Table 32-13 (Cont.) Database Profile EM CLI Verbs**

Verb	Description	Format
emcli delete_oracle_restart <command>	<p>De-configures and deletes the Oracle Restart (SIHA and instances) based on the &lt;command&gt; entered.</p> <p>Commands:</p> <ul style="list-style-type: none"> <li>instance - de-configures the Oracle Restart (SIHA) instance only.</li> <li>software - deletes the empty Oracle Restart (SIHA) home.</li> <li>all - de-configures and deletes Oracle Restart (SIHA) home.</li> </ul> <p>Options:</p> <ul style="list-style-type: none"> <li>input_file - Indicates the file containing properties required for deleting a database.</li> <li>[-schedule] - Indicates the schedule for cleanup and restart: <ul style="list-style-type: none"> <li>frequency - Frequency type with which the Oracle Database will be removed. It can be interval (in minutes), weekly, monthly or yearly</li> <li>start_time - Denotes the starting time of Cleanup Oracle Database in the format yy-MM-dd HH:mm</li> <li>end_time - Denotes the end time of Cleanup Oracle Database in the format yy-Mm-dd HH:mm</li> <li>repeat - Repetition rate at Cleanup Oracle Database. If the frequency is interval, then repeat will be in minutes</li> <li>months - Number of months after which repetition of Cleanup Oracle Database occurs</li> <li>days - Number of days after which repetition of Cleanup Oracle Database occurs</li> <li>tz - Time Zone ID for example tz:America/New_York</li> </ul> </li> </ul> <p>Example:</p> <pre>emcli delete_oracle_restart -all - input_file=data:u01/loc/del_siha.props</pre> <p>The properties file contains the following:</p> <pre>ORACLE_HOME_TARGET_LIST=Oracle Home Target Name in Enterprise Manager ORACLE_HOME_NORMAL_CRED_NAME= Oracle Home credential name in the format &lt;cred name&gt;:&lt;cred owner&gt; ORACLE_HOME_ROOT_CRED_NAME= Oracle Home root credentials in the format &lt;cred name&gt;:&lt;cred owner&gt; TMP_DIR_LOC= Temporary Working Directory</pre>	<pre>emcli delete_oracle_database &lt;command&gt;: instance [-software]-all [-input_file=data:"File containing properties required for deleting a clone"] [-schedule= [frequency:interval daily  weekly  monthly yearly]; start_time:yy-MM-dd HH:mm; end_time:yy-MM-dd HH:mm; [repeat:#m]; [months:#,#,#,...]; [days:#,#,#,...]; [tz:{java timezone ID}]; [grace_period:xxx];</pre>

**Table 32-13 (Cont.) Database Profile EM CLI Verbs**

Verb	Description	Format
emcli db_clone_management - refreshDatabase	<p>Refreshes the database.</p> <p>Commands:</p> <p>Options:</p> <ul style="list-style-type: none"> <li>-input_file - Indicates the input file that defines the input field values.</li> </ul> <p>Example:</p> <pre>emcli db_clone_management -refreshDatabase - input_file=data:"/tmp/refr.txt"</pre>	<pre>emcli db_clone_management - refreshDatabase -input_file=data:"file:path"</pre>
<div style="border: 1px solid #0070C0; padding: 10px; background-color: #E6F2FF;"> <p> <b>Note:</b></p> <p>To know the input file parameters that need to be set/provided, enter the command, <code>emcli db_clone_management -refreshDatabase -print_properties</code>.</p> </div>		
emcli db_clone_management - deleteDatabase	<p>Deletes the database.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>input_file - Indicates the file containing properties required for deleting a database. For details, see <a href="#">Deleting a Database Clone Using EM CLI Verbs</a>.</li> </ul> <p>Example:</p> <pre>emcli db_clone_management -deleteDatabase - input_file=data:u01/files/delete_clone.props</pre>	<pre>emcli db_clone_management - deleteDatabase -input_file="File containing properties required for deleting a clone"</pre>
<div style="border: 1px solid #0070C0; padding: 10px; background-color: #E6F2FF;"> <p> <b>Note:</b></p> <ul style="list-style-type: none"> <li>To know the input file parameters that need to be set/provided, enter the command, <code>emcli db_clone_management -deleteDatabase -print_properties</code>.</li> <li>The delete database verb uses the Named credentials that is set in the software pool and not the Preferred credentials.</li> </ul> </div>		

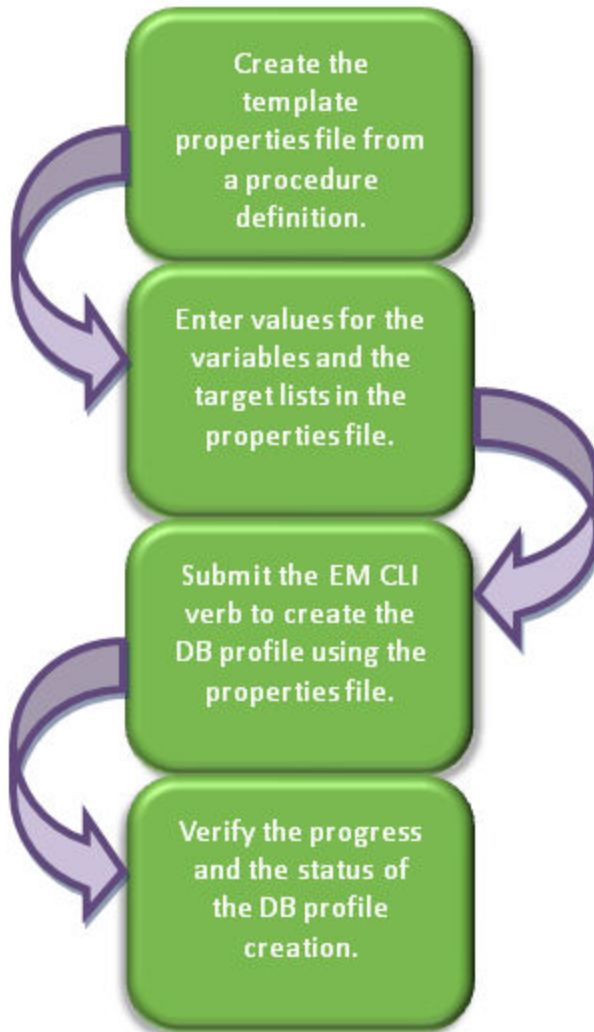
## Creating a Database Profile Using EM CLI Verbs

This section describes the procedure to create a database profile, RMAN backup, RMAN image backup or a Snapshot backup using EM CLI verbs.

 **Note:**

The procedure to create a RMAN backup, RMAN image backup or Snapshot database is the same as the procedure to be followed to create a database profile. However, the only difference is in the property file used for the different flavours.

**Figure 32-1** Creating a Database Profile Using EM CLI Verbs



Follow the steps below to create a database profile:

1. Create a template properties file from a procedure definition.

To create a template properties file follow the steps below:

- a. Retrieve the GUID or the name of the procedure. Run the following command to retrieve these.



```
emcli get_procedures
[-type={procedure type}]
```

**Sample command:**

```
emcli get_procedures -type=DBPROV
```

**Sample output:**

GUID	Type	Name	Version	Owner	Parent Procedure
0A15E9DC285B2EF5E053E87BF00A6701	DBPROV	CLOUD_DEPLOY_SOFTWARE_NAME		ORACLE	Software
0A15E9DC20712EF5E053E87BF00A6701	DBPROV	CLEANUP_DB_PROC	14.52	ORACLE	Cleanup
0A15E9DC205C2EF5E053E87BF00A6701	DBPROV	DBREPLAYCLIENTDP_NG	13.0	ORACLE	Provision
0A15E9DC204E2EF5E053E87BF00A6701	DBPROV	SIHA_SIDB_PROC	14.0	ORACLE	Provision

- b. Input the GUID or the name as an input value in the following command to generate a template properties file.

```
emcli describe_procedure_input
[-procedure={procedure GUID}]
[-name={procedure name or procedure configuration}]
[-owner={owner of the procedure or procedure configuration}]
[-parent_proc={procedure of the procedure configuration. This only applies to
describe a procedure configuration with the same name}]
```

**Sample command:**

```
emcli describe_procedure_input -procedure=0A15E9DC204E2EF5E053E87BF00A6701> /tmp/
snapprofile.txt
```

2. Enter new values in the properties file.

Use an editor to edit the properties file. Enter the desired values for the variables and save the properties file.

For different flavours of database profile see the following:

- To create a new database profile with data and structure configure the mandatory parameters, and required optional parameter (DATA\_CONTENT=METADATA\_AND\_DATA) in the [Table 32-14](#).
- To create a new database profile with data only configure the mandatory parameters, and required optional parameter (DATA\_CONTENT=DATA) in the [Table 32-14](#).
- To create an RMAN backup, see [Table 32-15](#).
- To create an RMAN image backup see [Table 32-16](#).
- To create an snapshot database, configure the mandatory parameters along with the REF\_NODE\_SELECTED, DATA\_CONTENT, REF\_HOST\_CREDENTIALS, REF\_DB\_CREDENTIALS, PROFILE\_VERSION, and PROFILE\_VENDOR parameters in [Table 32-15](#).

**Table 32-14 Sample Properties File for Creating a New Database Profile**

Parameters	Sample values	Description
<b>Mandatory Parameters</b> REFERENCE_DATABASE SE	REFERENCE_DATABASE= dbname.xyz.com	The source database from which the profile is to be created.

**Table 32-14 (Cont.) Sample Properties File for Creating a New Database Profile**

Parameters	Sample values	Description
REFERENCE_DATABASE_TYPE	REFERENCE_DATABASE_TYPE=oracle_database	The target type of the source database. Accepted values are oracle_database or rac_database.
DATA_CONTENT_MODE	DATA_CONTENT_MODE=STORAGE_SNAPSHOT	Data Mode for which the database profile needs to be submitted. The accepted values are: EXPORT, DBCA_TEMPLATE, RMAN, DNFS, and STORAGE_SNAPSHOT.
PROFILE_NAME	PROFILE_NAME=Profile_snapshot	Name of the profile.
PROFILE_LOCATION	PROFILE_LOCATION=Database Provisioning Profiles/11.2.0.4.0/linux_x64/	Location of the profile in the software library.
<b>Optional Parameters</b>		
REF_NODE_SELECTED	REF_NODE_SELECTED=xxxy.us.example.com	The reference node from which the profile is to be created. This parameter is applicable only for RAC and cluster targets.
DATABASE_GOLD_IMAGE_TYPE	N/A	Includes the database gold image as part of the profile.
GI_GOLD_IMAGE_TYPE	N/A	Includes the GI gold image as part of the profile.
CREATE_DATA_OPTION	N/A	Indicates if existing data is to be used or to create new data.
DATA_CONTENT	DATA_CONTENT=METADATA_AND_DATA	The data content that gets included in the backup can be METADATA_AND_DATA or METADATA_ONLY.
REF_HOST_CREDENTIALS	REF_HOST_CREDENTIALS=AE_2COOL:ARA1	The credentials for OS authentication.
REF_DB_CREDENTIALS	REF_DB_CREDENTIALS=SYS_WD:RAH	The credentials for performing database related operation.
REF_GI_CREDENTIALS	N/A	The credentials for OS authentication of grid infrastructure.
REF_HOST_ROOT_CREDENTIALS	REF_HOST_ROOT_CREDENTIALS=AE_2COOL:RA1	Root credentials required to perform privileged operations on host.
CONVERT_TO_OFA	N/A	Converts to OFA format.
PROFILE_DESC	PROFILE_DESC=11204 SnapClone profile 1	Description of the profile.
PROFILE_VERSION	N/A	Version of the profile. If this parameter is not specified, the database version is used.
PROFILE_VENDOR	N/A	Vendor of the profile. The default is Oracle.
PROFILE_NOTES	N/A	Notes for the profile.
DB_GOLD_IMAGE_CREATE_VERSION_ONLY	N/A	Flag to indicate if only image version needs to be created.
GI_GOLD_IMAGE_CREATE_VERSION_ONLY	N/A	Flag to indicate if only image version needs to be created.
GI_GOLD_IMAGE_ID	N/A	Entity ID of the GI gold image.
DB_GOLD_IMAGE_ID	N/A	Entity ID of the DB gold image.

**Table 32-14 (Cont.) Sample Properties File for Creating a New Database Profile**

Parameters	Sample values	Description
DB_GOLD_IMAGE_ENTITY_NAME	N/A	Entity name of the database gold image.
GI_GOLD_IMAGE_ENTITY_NAME	N/A	Entity name of the GI gold image.
DATA_GOLD_IMAGE_ENTITY_NAME	N/A	Entity name of the data gold image.
WORKING_DIRECTORY	WORKING_DIRECTORY=/tmp	Working directory is the location where the files are staged.
STORAGE_TYPE_FOR_SOFTWARE	N/A	The list of valid storage types are NFS, AGENT, and OmsShare.
STORAGE_NAME_FOR_SOFTWARE	N/A	The storage name as configured in the software library.
NFS_LOCAL_MOUNT_POINT_FOR_SOFTWARE	N/A	Location at which the NFS server is mounted on the host.
STORAGE_TYPE_FOR_DATA	N/A	The list of valid storage types are NFS, AGENT, and OmsShared.
STORAGE_NAME_FOR_DATA	N/A	The storage name as configured in the software library.
NFS_LOCAL_MOUNT_POINT_FOR_DATA	N/A	Location at which the NFS server is mounted on the host.
USER_INITIATED	N/A	Indicates if the profile initiated by end user is a part of backup process or the database.
DB_TARGET_AVAILABLE	N/A	Indicates if the database target is available.
SOURCE_DB_PLATFORM_NAME	N/A	Platform name of source database. For example: Linux x86-64, Oracle Solaris on x86-64 (64-bit), etc.
PROFILE_SCHEDULE	N/A	Schedule for profile execution.
PROFILE_SINGLE_REFRESH	N/A	Single refresh of the profile.
PROFILE_PURGE_POLICY_TYPE	N/A	Type of profile purge policy. Accepted values are SNAPSHOTS or DAYS. The default value is NONE.
PROFILE_PURGE_POLICY_VALUE	N/A	Value of profile purge policy.
PROFILE_IMAGE_VERSION	N/A	Version of the profile image.

**Table 32-15 Sample Properties File for Creating a Full Backup Profile**

Parameters	Sample values	Description
<b>Mandatory Parameters</b> REFERENCE_DATABASE	REFERENCE_DATABASE=dbname.xyz.com	The source database from which the profile will be created.

**Table 32-15 (Cont.) Sample Properties File for Creating a Full Backup Profile**

Parameters	Sample values	Description
REFERENCE_DATABASE_TYPE	REFERENCE_DATABASE_TYPE=oracle_database	The target type of the source database. It can be oracle_database or rac_database.
DATA_CONTENT_MODE	DATA_CONTENT_MODE=STORAGE_SNAPSHOT	Data Mode for which the database profile needs to be submitted. It can have the following values: EXPORT, DBCA_TEMPLATE, RMAN, DNFS, CONT_SYNC, and STORAGE_SNAPSHOT.
PROFILE_NAME	PROFILE_NAME=Profile_s nap	Name of the profile.
PROFILE_LOCATION	PROFILE_LOCATION=Data base Provisioning Profiles/ 11.2.0.4.0/linux_x64/	Location of the profile in software library.
BACKUP_FILE_TAG	BACKUP_FILE_TAG=data_ backup_1419417051961	Tag of backup files.
BACKUP_TYPE	BACKUP_TYPE=OFFLINE	Type of backup. Accepted values are OFFLINE or ONLINE. The default is OFFLINE.
BACKUP_FILE_FORMAT	BACKUP_FILE_FORMAT=b ackup_%U	Format of backup file.
RMAN_CHANNELS	RMAN_CHANNELS=2	Number of RMAN channels.
RMAN_BACKUP_LOCATION	RMAN_BACKUP_LOCATION= =/oradbnas/ aime_slc05ntg/sec	Location where RMAN backup files will be created. This parameter is mandatory if IS_SAVE_TARGET_PROFILE is set to Y and DATA_CONTENT_MODE is RMAN or DNFS.
CONT_SYNC.MOUNT_POINT_LIST.0	CONT_SYNC.MOUNT_POI NT_LIST.0=/smf/cont_sync	Mount point list.
CONT_SYNC.MOUNT_POINT_LIST.1	CONT_SYNC.MOUNT_POI NT_LIST.1=/smfslot/sun1	Mount point list.
CONT_SYNC.WRITABLE_SPACE_LIST.0	CONT_SYNC.WRITABLE_S PACE_LIST.0=10	Writable space list.
CONT_SYNC.WRITABLE_SPACE_LIST.1	CONT_SYNC.WRITABLE_S PACE_LIST.1=10	Writable space list.
CONT_SYNC.STORAGE_HARDWARE_NAME_LIST.0	CONT_SYNC.STORAGE_H ARDWARE_NAME_LIST.0= sl.example.com	Storage hardware name list.
CONT_SYNC.STORAGE_HARDWARE_NAME_LIST.1	CONT_SYNC.STORAGE_H ARDWARE_NAME_LIST.1= sl.example.com	Storage hardware name list.
CONT_SYNC.STORAGE_PROJECT_NAME_LIST.0	CONT_SYNC.STORAGE_P ROJECT_NAME_LIST.0=e mdev01	Storage project name list.
CONT_SYNC.STORAGE_PROJECT_NAME_LIST.1	CONT_SYNC.STORAGE_P ROJECT_NAME_LIST.1=e mdev01	Storage project name list.
<b>Optional Parameters</b> REF_NODE_SELECTED	REF_NODE_SELECTED= slch.xyz.com	The reference node from which the profile will be created. This parameter is applicable only for RAC and cluster targets.

**Table 32-15 (Cont.) Sample Properties File for Creating a Full Backup Profile**

Parameters	Sample values	Description
DATABASE_GOLD_IMAGE_TYPE	N/A	Includes the database gold image as part of the profile.
GI_GOLD_IMAGE_TYPE	N/A	Includes the GI gold image as part of the profile.
CREATE_DATA_OPTION	NA	Indicates if existing data is to be used or to create new data.
DATA_CONTENT	DATA_CONTENT=METADATA_AND_DATA	The data content that gets included in the backup can be METADATA_AND_DATA or DATA.
REF_HOST_CREDENTIALS	REF_HOST_CREDENTIALS=AE_2COL:RA1	The credentials for OS authentication.
REF_DB_CREDENTIALS	REF_DB_CREDENTIALS=SYS_WL1:RA1	The credentials for performing database related operation.
REF_GI_CREDENTIALS	N/A	The credentials for OS authentication of grid infrastructure.
REF_HOST_ROOT_CREDENTIALS	REF_HOST_ROOT_CREDENTIALS=AE_2L:RA1	Root credentials required to perform privileged operations on host.
CONVERT_TO_OFA	N/A	Converts to OFA format.
PROFILE_DESC	PROFILE_DESC=11204 SnapClone profile 1	Description of the profile.
PROFILE_VERSION	N/A	Version of the profile. If this parameter is not specified, the database version is used.
PROFILE_VENDOR	N/A	Vendor of the profile. The default is Oracle.
PROFILE_NOTES	N/A	Notes for the profile.
DB_GOLD_IMAGE_CREATE_VERSION_ONLY	N/A	Flag to indicate if only image version needs to be created.
GI_GOLD_IMAGE_CREATE_VERSION_ONLY	N/A	Flag to indicate if only image version needs to be created.
GI_GOLD_IMAGE_ID	N/A	Entity ID of the GI gold image.
DB_GOLD_IMAGE_ID	N/A	Entity ID of the DB gold image.
DB_GOLD_IMAGE_ENTITY_NAME	N/A	Entity name of the database gold image.
GI_GOLD_IMAGE_ENTITY_NAME	N/A	Entity name of the GI gold image.
DATA_GOLD_IMAGE_ENTITY_NAME	N/A	Entity name of the data gold image.
WORKING_DIRECTORY	WORKING_DIRECTORY=/tmp	Working directory is the location where the files are staged.
STORAGE_TYPE_FOR_SOFTWARE	N/A	The list of valid storage types are NFS, AGENT, and OmsShared.
STORAGE_NAME_FOR_SOFTWARE	N/A	The storage name as configured in the software library.
NFS_LOCAL_MOUNT_POINT_FOR_SOFTWARE	N/A	Location at which the NFS server is mounted on the host.

**Table 32-15 (Cont.) Sample Properties File for Creating a Full Backup Profile**

Parameters	Sample values	Description
STORAGE_TYPE_FOR_DATA	N/A	The list of valid storage types are NFS, AGENT, and OmsShared.
STORAGE_NAME_FOR_DATA	N/A	The storage name as configured in the software library.
NFS_LOCAL_MOUNT_POINT_FOR_DATA	N/A	Location at which the NFS server is mounted on the host.
USER_INITIATED	N/A	Indicates if the profile initiated by end user is a part of backup process or the database.
DB_TARGET_AVAILABLE	N/A	Indicates if the database target is available.
SOURCE_DB_PLATFORM_NAME	N/A	Platform name of source database. For example: Linux x86-64, Oracle Solaris on x86-64 (64-bit), etc.
PROFILE_SCHEDULE	N/A	Schedule for profile execution.
PROFILE_SINGLE_REFRESH	N/A	Single refresh of the profile.
PROFILE_PURGE_POLICY_TYPE	N/A	Type of profile purge policy. Accepted values are SNAPSHOTS or DAYS. The default value is NONE.
PROFILE_PURGE_POLICY_VALUE	N/A	Value of profile purge policy.
PROFILE_IMAGE_VERSION	N/A	Version of the profile image.

**Table 32-16 Sample Properties File for Creating a Thin Backup Profile**

Parameters	Sample values	Description
<b>Mandatory Parameters</b> REFERENCE_DATABASE	REFERENCE_DATABASE=dbname.example.com	The source database from which the profile will be created.
REFERENCE_DATABASE_TYPE	REFERENCE_DATABASE_TYPE=oracle_database	The target type of the source database. It can be oracle_database or rac_database.
DATA_CONTENT_MODE	DATA_CONTENT_MODE=STORAGE_SNAPSHOT	Data Mode for which the database profile needs to be submitted. It can have the following values: EXPORT, DBCA_TEMPLATE, RMAN, DNFS, CONT_SYNC, and STORAGE_SNAPSHOT
PROFILE_NAME	PROFILE_NAME=Profile_snap	Name of the profile.
PROFILE_LOCATION	PROFILE_LOCATION=Database Provisioning Profiles/11.2.0.4.0/linux_x64/	Location of the profile in software library.
DNFS.BACKUP_FILE_TAG	DNFS.BACKUP_FILE_TAG=data_backup_1419417051961	Tag of backup files.

**Table 32-16 (Cont.) Sample Properties File for Creating a Thin Backup Profile**

Parameters	Sample values	Description
DNFS.BACKUP_TYPE	DNFS.BACKUP_TYPE=OFFLINE	Type of backup. Accepted values are OFFLINE or ONLINE. The default is OFFLINE.
DNFS.BACKUP_FILE_FORMAT	DNFS.BACKUP_FILE_FORMAT=backup_%U	Format of backup file.
DNFS.BACKUP_LOCATION	DNFS.BACKUP_LOCATION=/oradbnas/aime_slc05ntg/suk	Location where RMAN backup files will be created. It is mandatory if IS_SAVE_TARGET_PROFILE is set to Y and DATA_CONTENT_MODE is RMAN or DNFS.
DNFS.BACKUP_IMAGE_MODE	DNFS.BACKUP_IMAGE_MODE=OfflineImage	Backup Image Mode
DNFS.BACKUP_IMAGE_TYPE	DNFS.BACKUP_IMAGE_TYPE=RMANImage	Type of backup Image.
CONT_SYNC.MOUNT_POINT_LIST.0	CONT_SYNC.MOUNT_POINT_LIST.0=/smf/cont_sync	Mount point list.
CONT_SYNC.MOUNT_POINT_LIST.1	CONT_SYNC.MOUNT_POINT_LIST.1=/smfslot/sun1	Mount point list.
CONT_SYNC.WRITABLE_SPACE_LIST.0	CONT_SYNC.WRITABLE_SPACE_LIST.0=10	Writable space list.
CONT_SYNC.WRITABLE_SPACE_LIST.1	CONT_SYNC.WRITABLE_SPACE_LIST.1=10	Writable space list.
CONT_SYNC.STORAGE_HARDWARE_NAME_LIST.0	CONT_SYNC.STORAGE_HARDWARE_NAME_LIST.0=sl.example.com	Storage hardware name list.
CONT_SYNC.STORAGE_HARDWARE_NAME_LIST.1	CONT_SYNC.STORAGE_HARDWARE_NAME_LIST.1=sl.example.com	Storage hardware name list.
CONT_SYNC.STORAGE_PROJECT_NAME_LIST.0	CONT_SYNC.STORAGE_PROJECT_NAME_LIST.0=emdev01	Storage project name list.
CONT_SYNC.STORAGE_PROJECT_NAME_LIST.1	CONT_SYNC.STORAGE_PROJECT_NAME_LIST.1=emdev01	Storage project name list.
<b>Optional Parameters</b>		
REF_NODE_SELECTED	REF_NODE_SELECTED=slnh.us.example.com	The reference node from which the profile will be created. This parameter is applicable only for RAC and cluster targets.
DATABASE_GOLD_IMAGE_TYPE	N/A	Includes the database gold image as part of the profile.
GI_GOLD_IMAGE_TYPE	N/A	Includes the GI gold image as part of the profile.
CREATE_DATA_OPTION	N/A	Indicates if existing data is to be used or to create new data.
DATA_CONTENT	DATA_CONTENT=METADATA_AND_DATA	The data content that gets included in the backup can be METADATA_AND_DATA or DATA.
REF_HOST_CREDENTIALS	REF_HOST_CREDENTIALS=AE_2CL:RA1	The credentials for OS authentication.

**Table 32-16 (Cont.) Sample Properties File for Creating a Thin Backup Profile**

Parameters	Sample values	Description
REF_DB_CREDENTIALS	REF_DB_CREDENTIALS=SYS_W1:RA1	The credentials for performing database related operation.
REF_GI_CREDENTIALS	N/A	The credentials for OS authentication of grid infrastructure.
REF_HOST_ROOT_CREDENTIALS	REF_HOST_ROOT_CREDENTIALS=AE_2CL:RA1	Root credentials required to perform privileged operations on host.
CONVERT_TO_OFA	N/A	Converts to OFA format.
PROFILE_DESC	PROFILE_DESC=11204 SnapClone profile 1	Description of the profile.
PROFILE_VERSION	N/A	Version of the profile. If this parameter is not specified, the database version is used.
PROFILE_VENDOR	N/A	Vendor of the profile. The default is Oracle.
PROFILE_NOTES	N/A	Notes for the profile.
DB_GOLD_IMAGE_CREATE_VERSION_ONLY	N/A	Flag to indicate if only image version needs to be created.
GI_GOLD_IMAGE_CREATE_VERSION_ONLY	N/A	Flag to indicate if only image version needs to be created.
GI_GOLD_IMAGE_ID	N/A	Entity ID of the GI gold image.
DB_GOLD_IMAGE_ID	N/A	Entity ID of the DB gold image.
DB_GOLD_IMAGE_ENTITY_NAME	N/A	Entity name of the database gold image.
GI_GOLD_IMAGE_ENTITY_NAME	N/A	Entity name of the GI gold image.
DATA_GOLD_IMAGE_ENTITY_NAME	N/A	Entity name of the data gold image.
WORKING_DIRECTORY	WORKING_DIRECTORY=/tmp	Working directory is the location where the files are staged.
STORAGE_TYPE_FOR_SOFTWARE	N/A	The list of valid storage types are NFS, AGENT, and OmsShared.
STORAGE_NAME_FOR_SOFTWARE	N/A	The storage name as configured in the software library.
NFS_LOCAL_MOUNT_POINT_FOR_SOFTWARE	N/A	Location at which the NFS server is mounted on the host.
STORAGE_TYPE_FOR_DATA	N/A	The list of valid storage types are NFS, AGENT, and OmsShared.
STORAGE_NAME_FOR_DATA	N/A	The storage name as configured in the software library.
NFS_LOCAL_MOUNT_POINT_FOR_DATA	N/A	Location at which the NFS server is mounted on the host.
USER_INITIATED	N/A	Indicates if the profile initiated by end user is a part of backup process or the database.
DB_TARGET_AVAILABLE	N/A	Indicates if the database target is available.



**Table 32-16 (Cont.) Sample Properties File for Creating a Thin Backup Profile**

Parameters	Sample values	Description
SOURCE_DB_PLATFO RM_NAME	N/A	Platform name of source database. For example: Linux x86-64, Oracle Solaris on x86-64 (64-bit), etc.
PROFILE_SCHEDULE	N/A	Schedule for profile execution.
PROFILE_SINGLE_REF RESH	N/A	Single refresh of the profile.
PROFILE_PURGE_POL ICY_TYPE	N/A	Type of profile purge policy. Accepted values are SNAPSHOTS or DAYS. The default value is NONE.
PROFILE_PURGE_POL ICY_VALUE	N/A	Value of profile purge policy.
PROFILE_IMAGE_VER SION	N/A	Version of the profile image.
USE_EXISTING_BACK UP	N/A	Whether exiting backup is to be used.

- Execute the following EM CLI verb to create a database profile, using the updated properties file as the input file.

```
emcli create_dbprofile
    -input_file=data:"file:path"
    [-schedule=
        [frequency:interval|daily|weekly|monthly|yearly];
        start_time:yy-MM-dd HH:mm;
        end_time:yy-MM-dd HH:mm;
        [repeat:#m];
        [months:#,#,#,...];
        [days:#,#,#,...];
        [tz:{java timezone ID}];
        [grace_period:xxx];
        [-purge_policy=days|snapshots: number]
```

**Samples:**

```
emcli create_dbprofile -input_file=data:"/tmp/snapprofile.txt" -
schedule="start_time:14-06-23 01:00;frequency:yearly;end_time:14-05-28
01:00;days:1,3,8,7,10;months:1,3,9,11,1" -purge_policy="SNAPSHOTS:1"
```

```
emcli create_dbprofile -input_file=data:"/tmp/snapprofile.txt" -
schedule="start_time:14-05-28 01:00;frequency:monthly;end_time:14-05-28
01:00;days:1,3,8,7" -purge_policy="DAYS:1"
```

```
emcli create_dbprofile -input_file=data:"/tmp/snapprofile.txt" -
schedule="start_time:14-05-28 01:00;frequency:weekly;end_time:14-05-28
01:00;days:1,3,7" -purge_policy="SNAPSHOTS:1"
```

```
emcli create_dbprofile -input_file=data:"/tmp/snapprofile.txt" -
schedule="start_time:14-05-28 01:00;frequency:daily;end_time:14-05-28 01:00" -
purge_policy="DAYS:1" -purge_policy="SNAPSHOTS:1"
```

```
emcli create_dbprofile -input_file=data:"/tmp/snapprofile.txt" -
schedule="start_time:14-07-22 03:00;frequency:interval;end_time:14-07-22
07:00;repeat:30" -purge_policy="SNAPSHOTS:1"
```

**Sample output:**

Create Database Profile deployment procedure has been submitted successfully with

```
the instance name :
'CreateDatabaseProfile_SYSMAN_06_23_2014_01_00_PM' and
execution_guid='0AE6096550756B26E0539878B10A6FF5'
You can track the status of profile creation using the following command:
emcli get_instance_status -exe=0AE6096550756B26E0539878B10A6FF5 -xml -details -
showJobOutput
```

4. Verify the status of the database profile creation by executing the following EM CLI verb.

```
emcli get_instance_status
[-instance={instance guid}]
[-exe=execution guid]
[-xml]
[-details]
[-showJobOutput]
[-tailLength={last N characters}]]
```

**Sample:**

```
emcli get_instance_status -exe=0AE6096550756B26E0539878B10A6FF5
```

**Sample Output:**

```
0AE6096550716B26E0539878B10A6FF5, PROFILE,
CreateDatabaseProfile_SYSMAN_12_23_2014_23_18_PM, Running
```

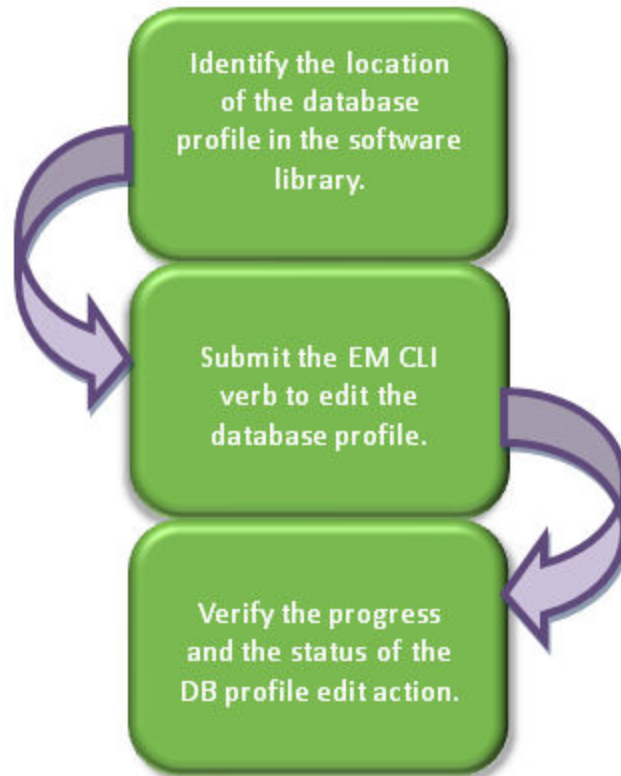
To know the complete status of each of the steps in xml format, execute the following command.

```
emcli get_instance_status -exe=0AE6096550756B26E0539878B10A6FF5 -xml -details -
showJobOutput
```

## Editing a Database Profile Using EM CLI Verbs

This section describes the procedure to edit a database profile using EM CLI verbs.

Figure 32-2 Editing a Database Profile Using EM CLI Verbs



Follow the steps below to edit a database profile:

1. Identify the location of the database profile in the software library.

Execute the following command to locate the database profile.

```
emcli list_dbprofiles
[-details]
```

**Sample command:**

```
emcli list_dbprofiles
```

**Sample output:**

```
Name=Profile_snap,Location=Database Provisioning Profiles/11.2.0.4.0/linux_x64/
Name=Profile_rman,Location=Database Provisioning Profiles/11.2.0.4.0/linux_x64/
```

2. Edit the database profile with the following command, using the obtained location.

```
emcli edit_dbprofile
-comp_loc="Database Profile component location in software library"
[-schedule=
    [frequency:interval| daily |weekly|monthly|yearly];
    start_time:yy-MM-dd HH:mm;
    end_time:yy-MM-dd HH:mm;
    [repeat:#m];
    [months:#,#,#,...];
    [days:#,#,#,...];
    [tz:{java timezone ID}];
    [grace_period:xxx];
```

```
]
[-purge_policy=days| snapshots: number]
```

**Sample command:**

```
emcli edit_dbprofile -comp_loc="Database Provisioning Profiles/11.2.0.4.0/linux_x64/
Profile_snap " -schedule="start_time:14-07-22
03:00;frequency:interval;end_time:14-07-22 23:00;repeat:30" -purge_policy="DAYS:1"
```

**Sample output:**

The Create Database Profile deployment procedure with new schedule and purge policy has been submitted successfully with the instance name :  
'CreateDatabaseProfile\_SYSMAN\_07\_22\_2014\_03\_00\_PM' and execution\_guid=  
'0AE6096550756B26E0539878B10A6FF5'  
You can track the status of profile creation using the following command:  
emcli get\_instance\_status -exe=0AE6096550756B26E0539878B10A6FF5 -xml -details -  
showJobOutput

**3. Verify the status of the database profile edit by executing the following EM CLI verb.**

```
emcli get_instance_status
[-instance={instance guid}]
[-exe=execution guid]
[-xml]
[-details]
[-showJobOutput]
[-tailLength={last N characters}]
```

**Sample:**

```
emcli get_instance_status -exe=0AE6096550756B26E0539878B10A6FF5
```

**Sample output:**

```
0AE6096550716B26E0539878B10A6FF5, PROFILE,
CreateDatabaseProfile_SYSMAN_07_22_2014_03_00_PM, Running
```

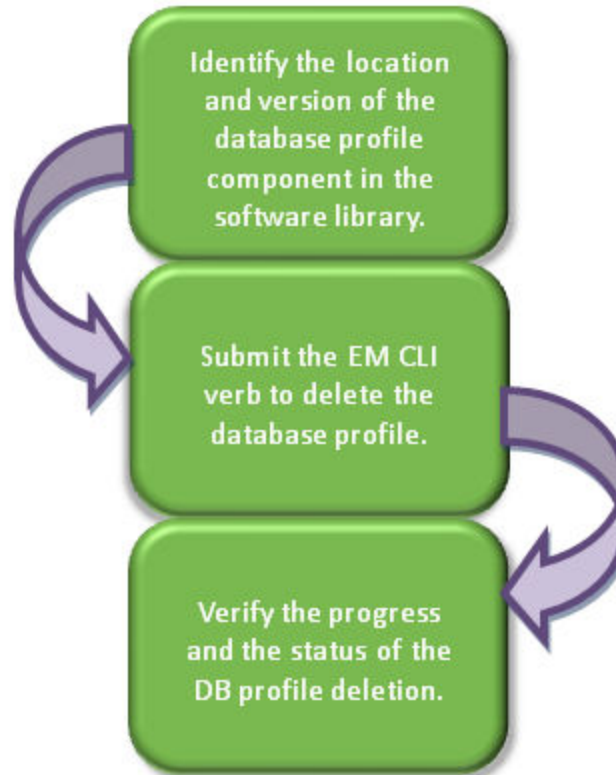
To know the complete status of each of the steps in xml format, execute the following command.

```
emcli get_instance_status -exe=0AE6096550756B26E0539878B10A6FF5 -xml -details -
showJobOutput
```

## Deleting a Database Profile Using EM CLI Verbs

This section describes the procedure to delete a database profile using EM CLI verbs.

**Figure 32-3 Deleting a Database Profile Using EM CLI Verbs**



Follow the steps below to delete a database profile:

1. Identify the location and version of the database profile component in the software library.

Execute the following command to locate the database profile.

```
emcli list_dbprofiles
[-details]
```

**Sample command:**

```
emcli list_dbprofiles
```

**Sample output:**

```
Name=Profile_snap,Location=Database Provisioning Profiles/11.2.0.4.0/
linux_x64/,Type=STORAGE_SNAPSHOT,Status=Ready,Description= Database Reference
Profile 05-11-2014 12:40 PM from database.mycompany.com
Version: STORAGE
SNAPSHOT_05_11_2014_12_40_PM: ,contains=STORAGE_SNAPSHOT(s),removalOverdue=0,
sourceDatabaseName=database.mycompany.com.

Name=Profile_rman,Location=Database Provisioning Profiles/11.2.0.4.0/
linux_x64/,Type=RMAN,Status=Ready,Description=Database Reference Profile 04-11-2014
12:40 PM from database.mycompany.com
Version : RMAN_04_11_2014_12_40_PM,contains=RMAN(s),removalOverdue=0,
sourceDatabaseName=database.mycompany.com.
```

2. Delete the database profile with the following command, using the obtained location and version.

```
emcli delete_dbprofile
  -comp_loc="Database Profile component location in software library"
  [-version="Database Profile component version name"]
```

**Sample command:**

```
emcli delete_dbprofile -comp_loc="Database Provisioning Profiles/11.2.0.4.0/
linux_x64/Profile_snap"
```

```
emcli delete_dbprofile -comp_loc="Database Provisioning Profiles/11.2.0.4.0/
linux_x64/ Profile_snap" -version="STORAGE SNAPSHOT__05_11_2014_12_40_PM"
```

**Sample output:**

Delete Database Profile deployment procedure has been submitted successfully with the instance name : 'DeleteDatabaseProfile\_SYSMAN\_07\_22\_2014\_03\_00\_PM' and execution\_guid='0AE6096550756B26E0539878B10A6FF5'

You can track the status of profile creation using the following command:

```
emcli get_instance_status -exe=0AE6096550756B26E0539878B10A6FF5 -xml -details -
showJobOutput
```

**3. Verify the status of the database profile deletion by executing the following EM CLI verb.**

```
emcli get_instance_status
  [-instance={instance guid}]
  [-exe=execution guid]
  [-xml]
  [-details]
  [-showJobOutput]
  [-tailLength={last N characters}]]
```

**Sample:**

```
emcli get_instance_status -exe=0AE6096550756B26E0539878B10A6FF5
```

**Sample output:**

```
0AE6096550716B26E0539878B10A6FF5, PROFILE,
DeleteDatabaseProfile_SYSMAN_07_22_2014_03_00_PM, COMPLETED
```

To know the complete status of each of the steps in xml format, execute the following command.

```
emcli get_instance_status -exe=0AE6096550756B26E0539878B10A6FF5 -xml -details -
showJobOutput
```

## Viewing All the Database Profiles

Execute the following command to view all the database profiles with their details.

```
emcli list_dbprofiles
  [-details]
```

**Sample command:**

```
emcli list_dbprofiles
```

**Sample output:**

```
Name=Profile_snap,Location=Database Provisioning Profiles/11.2.0.4.0/
linux_x64/,Type=STORAGE_SNAPSHOT,Status=Ready,Description= Database Reference Profile
05-11-2014 12:40 PM from database.mycompany.com
Version: STORAGE
SNAPSHOT_05_11_2014_12_40_PM: ,contains=STORAGE_SNAPSHOT(s),removalOverdue=0,
sourceDatabaseName=database.mycompany.com.
```

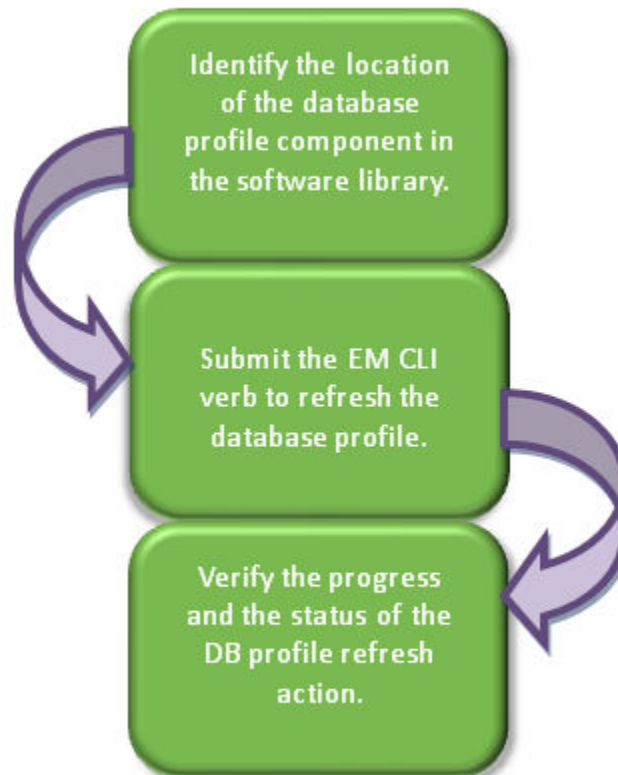
```
Name=Profile_rman,Location=Database Provisioning Profiles/11.2.0.4.0/
linux_x64/,Type=RMAN,Status=Ready,Description=Database Reference Profile 04-11-2014
```

```
12:40 PM from database.mycompany.com  
Version : RMAN_04_11_2014_12_40_PM,contains=RMAN(s),removalOverdue=0,  
sourceDatabaseName=database.mycompany.com.
```

## Refreshing a Database Profile Using EM CLI Verbs

This section describes the procedure to refresh a database profile using EM CLI verbs.

**Figure 32-4 Refreshing a Database Profile Using EM CLI Verbs**



Follow the steps below to refresh a database profile:

1. Identify the location of the database profile component in the software library.

Execute the following command to locate the database profile.

```
emcli list_dbprofiles  
[-details]
```

**Sample command:**

```
emcli list_dbprofiles
```

**Sample output:**

```
Name=Profile_snap,Location=Database Provisioning Profiles/11.2.0.4.0/linux_x64/  
Name=Profile_rman,Location=Database Provisioning Profiles/11.2.0.4.0/linux_x64/
```

2. Refresh the database profile with the following command, using the obtained location.

```
emcli refresh_dbprofile  
-comp_loc="Database Profile component location in software library"
```

**Sample command:**

```
emcli refresh_dbprofile -comp_loc="Database Provisioning Profiles/11.2.0.4.0/  
linux_x64/ Profile_snap"
```

**Sample output:**

A Refresh Single Profile procedure has been submitted successfully with the instance name :

```
'RefreshSingleProfile_SYSMAN_07_22_2014_03_00_PM' and execution_guid=  
'0AE6096550756B26E0539878B10A6FF5'
```

You can track the status of profile creation using the following command:

```
emcli get_instance_status -exe=0AE6096550756B26E0539878B10A6FF5 -xml -details -  
showJobOutput
```

**3. Verify the status of the database profile refresh by executing the following EM CLI verb.**

```
emcli get_instance_status  
[-instance={instance guid}]  
[-exe=execution guid]  
[-xml]  
[-details]  
[-showJobOutput]  
[-tailLength={last N characters}]]
```

**Sample:**

```
emcli get_instance_status -exe=0AE6096550756B26E0539878B10A6FF5
```

**Sample output:**

```
0AE6096550716B26E0539878B10A6FF5, PROFILE,  
RefreshSingleProfile_SYSMAN_07_22_2014_03_00_PM, Running
```

To know the complete status of each of the steps in xml format, execute the following command.

```
emcli get_instance_status -exe=0AE6096550756B26E0539878B10A6FF5 -xml -details -  
showJobOutput
```

## Service Template EM CLI Verbs

The table below lists the supported verbs for Service Template resource.

The .json file content samples are provided in [Service Template Executable .json Files](#).



**Table 32-17 Service Template EM CLI Verbs**

Verb	Description	Format
emcli create_service_template	<p>Creates a database, schema, or pluggable database service template.</p> <p>The <code>input_file</code> should be a JSON based metadata file which should have the necessary configuration for the specific service template creation.</p> <p>Samples of the JSON service executable metadata files are available at <a href="#">Service Template Executable .json Files</a>.</p> <p>Examples:</p> <ul style="list-style-type: none"> <li> <b>Database service template-</b> <pre>emcli create_service_template -name="Database service template" -service_family="DBAAS" -service_type="DB" -pool_target_type="oracle_cloud_zone" -software_pools="MyPoolOH" -roles="SSA_USER_ROLE" -description="Database small instance service template." -input_file="data:executable.json"</pre> <p><b>Sample Output:</b> Service Template "My Service Template" created successfully</p> </li> <li> <b>Schema service template-</b> <pre>emcli create_service_template -name="Schema service template" -service_family="DBAAS" -service_type="SCHEMA" -pool_target_type="schaas_pool" -software_pools="MySCHPool" -roles="SSA_USER_ROLE" -description="Schema small instance service template." -input_file="data:executable.json"</pre> <p><b>Sample Output:</b> Service Template "My Schema Service Template" created successfully</p> </li> <li> <b>Pluggable database service template -</b> <pre>emcli create_service_template -name="PDB service template" -service_family="DBAAS" -service_type="PDB" -pool_target_type="pdbaas_pool" -software_pools="MyPDBPool" -roles="SSA_USER_ROLE" -description="PDB small instance service template." -input_file="data:executable.json"</pre> <p><b>Sample Output:</b> Service Template "My PDB Service Template" created successfully.</p> </li> </ul>	<pre>emcli create_service_template -name="&lt;Name of Service Template&gt;" -service_family="&lt;Service family for which the Service Template is being created&gt;" -service_type="&lt;Service type for which the Service Template is being created&gt;"] -pool_target_type="Target type of Software Pools to be associated with the Service Template" - software_pools="&lt;SwPool1,SwPo ol2,SwPool3,...&gt;" [-roles="&lt;SsaRole1,SsaRole2,..&gt;"] [-description="&lt;Description of Service Template&gt;"] [-input_file="data:&lt;Name of Service executable MetaData File&gt;"]</pre>

**Table 32-17 (Cont.) Service Template EM CLI Verbs**

Verb	Description	Format
emcli delete_service_template	<p>Deletes the Service template.</p> <p>Example:</p> <pre>emcli delete_service_template   -name="Database service template"   -service_family="DBAAS"</pre> <p><b>Sample Output:</b> Service Template with name " Database service template " and service family " DBAAS " deleted successfully.</p>	<pre>emcli delete_service_template -name="&lt;Name of Service Template&gt;"] -service_family="&lt;Service family to which the Service Template belongs&gt;"]</pre>
emcli get_service_templates	<p>Retrieves the list of available service templates based on the service family passed.</p> <p>Example:</p> <pre>emcli get_service_templates   -service_family="DBAAS"</pre> <p><b>Sample Output:</b> Name Service Family Description</p> <pre>ServiceTemplatel                               DBAAS ServiceTemplatelDescription</pre>	<pre>emcli get_service_templates [-service_family="&lt;Service family filter used for filtering the service templates&gt;"]</pre>

## Pluggable Database Profile EM CLI Verbs

The table below lists the supported verbs for Pluggable Database profiles.

**Table 32-18 Pluggable Database Profile EM CLI Verbs**

Verb	Description	Format
emcli list_dataprofiles	<p>Lists the existing PDB Data Profiles.</p> <p>Option:</p> <ul style="list-style-type: none"> <li>-details - Provides details of the existing PDB data profiles.</li> <li>-owner - Owner of the dataprofile entity.</li> <li>-name - Name of the dataprofile entity.</li> </ul> <p>Example:</p> <pre>emcli list_dataprofiles -owner=SSA1 -name=cdb:m</pre> <p>The value of name is case-insensitive match. “:m” in the above emcli determines if a character string matches a pattern</p>	<pre>emcli create_dataprofiles -details emcli list_dataprofiles -owner emcli list_dataprofiles -name</pre>
emcli delete_dataprofile	<p>Deletes the existing data profile.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>-profile_name - Name of the PDB dataprofile.</li> <li>host_cred - Credentials of the host in &lt;Credentials name&gt;:&lt;Credentials owner&gt; format.</li> </ul>	<pre>emcli delete_dataprofile - profile_name="PDB_Profile" host_cred=credname:credowner</pre>

**Table 32-18 (Cont.) Pluggable Database Profile EM CLI Verbs**

Verb	Description	Format
emcli cleanup_dbaas_requests	<p>Creates a PDB Data profile on deletion.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>-ids - The request ID to be used for filtering cloud requests separated by semicolon(;).</li> <li>-preserve_backup_of_instance - Creates a PDB profile on deletion.</li> <li>-save_as - Name of the profile to be saved.</li> <li>-description - Description of the profile.</li> </ul>	<p>emcli cleanup_dbaas_requests -ids=&lt;requested&gt; -preserve_backup_of_instance -save_as="profile name " -description="profile description"</p>

## Service Template Executable .json Files

Samples of Service Template executable .json files are listed below:

- [DBCA Based Service Template .json File](#)
- [Standby DBCA Based Service Template .json File](#)
- [RMAN Based Single Instance Database Service Template .json File](#)
- [RMAN Based Single Instance Database with Single Instance Standby Service Template .json File](#)
- [RMAN Based RAC One Node Database Service Template .json File](#)
- [RMAN Based RAC One Node Database with Standby Service Template .json File](#)
- [RMAN Based RAC Database with Single Instance Standby Service Template .json File](#)
- [RAC Database with Standby Using a DBCA Template Service Template .json File](#)
- [DNFS Based Database Service Template .json File](#)
- [Snap Clone Single Instance Database with Archiving Enabled Service Template .json File](#)
- [Schema Based Service Template .json File](#)
- [Pluggable Database Service Template .json File](#)
- [RAC Pluggable Database Using an Empty Pluggable Database Service Template .json File](#)
- [RAC Pluggable Database Using a Profile Pluggable Database Service Template .json File](#)
- [Clone DB Based Service Template .json File](#)
- [Full Clone Using an RMAN Duplicate Service Template .json File](#)
- [Snapclone Database Using Live Clone Template on EMC Storage Service Template .json File](#)

### DBCA Based Service Template .json File

```
{
  "name": "Create ST for SI Db using DBCA Template - ASM Subh_2",
  "description": "Creates Single Instance DB",
  "roles": [ "SSA_USER_ROLE" ],
  "serviceType": "DB",
  "serviceTemplateTypeId": "61",
  "rscProvAssocOption": [ "byRscProvInst" ],
  "resourceProvider": {
```

```

"lookupCharacteristics": [
  {
    "characteristics": [
      {
        "name": "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",
        "values": [ "137F74D7A8359A60762ED550341A5F47" ],
        "targetType": {
          "targetType": "oracle_cloud_zone",
          "targetTypeName": "Database Pool",
          "parentTargetType": "self_service_zone",
          "parentTargetTypeName": "PaaS Infrastructure Zone"
        }
      }
    ],
    "purposeId": 1
  }
],
"payloads": [ { "name": "PROFILE_COMPONENT_URN", "value":
"oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:269BA6C90E6A500
OE053C075B10A51A3:0.1" } ],
"configurations": [
  { "name": "REF_ZONE", "value": "Salt Lake City Zone" },
  { "name": "REF_POOL", "value": "SI Databases Pool_Oracle_DB_11g" },
  { "name": "REF_HOST", "value": "xyz.example.com" },
  { "name": "REF_TGT", "value": "xyz.example.com" },
  { "name": "DBCA_TEMPLATE:DB_STORAGE_TYPE", "value": "ASM" },
  { "name": "DBCA_TEMPLATE:REC_STORAGE_TYPE_SAME_AS_DB_FILES", "value": "Y" },
  { "name": "DBCA_TEMPLATE:FLASH_RECOVERY_AREA_SIZE", "value": "4038" },
  { "name": "DBCA_TEMPLATE:DATA_FILE_LOCATION", "value": "DATA" },
  { "name": "DBCA_TEMPLATE:REDO_FILE_LOCATION", "value": "RECO" },
  { "name": "DBCA_TEMPLATE:ARCHIVE_LOG_MODE", "value": "Y" },
  { "name": "DBCA_TEMPLATE:RECOVERY_FILE_LOCATION", "value": "RECO" },
  { "name": "DATABASE_TYPE", "value": "oracle_database" },
  { "name": "COMMON_DOMAIN_NAME", "value": "us.example.com" },
  { "name": "ORACLE.SYSMAN.SSA.PROVISIONING_TYPE", "values": [ "DBCA_TEMPLATE" ] },
  { "name": "ENTITY_TYPE", "value": "USE_PROFILE" },
  { "name": "PROFILE_COMPONENT_URN", "value":
"oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:269BA6C90E6A500
OE053C075B10A51A3:0.1" },
  {
    "name": "USER_PRIVILEGES",
    "value": "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY OPERATOR,
CREATE ANY PROCEDURE, CREATE ANY SEQUENCE, CREATE ANY INDEX, CREATE JOB, CREATE ANY
MATERIALIZED VIEW, CREATE ANY TABLE, CREATE ANY TRIGGER, CREATE ANY TYPE, CREATE ANY
VIEW, CREATE ANY SYNONYM, CREATE ANY DIRECTORY, SELECT ANY DICTIONARY"
  },
  { "name": "SID_OPTION", "value": "ssauser" },
  { "name": "SELECT_ORACLE_HOME_OPTION", "value": "SELECT_ORACLE_HOME_AT_RUNTIME"},
  { "name": "COMMON_DB_SYS_PASSWORD", "value": "welcome"},
  { "name": "DB_ADMIN_PASSWORD_SAME", "value": "true" },
  { "name": "INIT_PARAMS", "values": [
    "sga_target=1073741824",
    "pga_aggregate_target=1073741824"
  ]
}
],
{ "name": "LISTENER_PORT", "value": "1521" },
{ "name": "TARGET_PROP_LIST",
"values": [
  "Site:null:false:false",
  "Contact:xxxx:false:true",
  "Downtime Contact:null:false:false",

```

```

        "Location:null:false:false",
        "LifeCycle Status:null:false:false",
        "Department:null:false:false",
        "Comment:Testing:false:true",
        "Line of Business:null:false:false"
    ]
}
]
}

```

### Note:

In the JSON body mentioned above:

- To get the software library ID of the "DBAAS\_SSA\_CUSTOM\_PRE\_SCRIPTS\_URN" and "DBAAS\_SSA\_CUSTOM\_POST\_SCRIPTS\_URN" run the EM CLI command `emcli list_swlib_entities -name="<Pre or Post Standby Database Script>" -show_entity_rev_id`. The ID is provided at the end of the output. For example, in the output shown below, `oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1` is the ID.  
  

```

Pre or Post Standby Database Script,0.1,Pre or Post Standby Database
Script,Ready,Directives,,Production,ORACLE,,,oracle:defaultService:em:provis
ioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1

```
- To derive the REF\_ZONE to be associated with the Service template, execute a GET request as shown in [About Cloud Resources](#).
- To derive the ID of the Software Pool that needs to be entered as "values" (under "lookupCharacteristics"), execute a GET request as shown in [Viewing Details of the Software Pools Resource](#).
- To derive the `serviceTemplateTypeId` value, perform a GET operation on the URI - `em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes` and locate `serviceType:DB` in the JSON response. Note the `serviceTemplateTypeId` under `serviceType:DB` and use the value in the POST body shown above.
- REF\_ZONE indicates the reference zone among the zones to be associated with the template.
- REF\_POOL indicates the reference pool among the pools to be associated with the template.
- REF\_HOST indicates the host of the reference target from the pool targets.
- REF\_TGT indicates the reference target from the pool targets.
- SELECT\_ORACLE\_HOME\_OPTION allows the Oracle home to be automatically selected by entering the value as `SELECT_ORACLE_HOME_AT_RUNTIME`, or to be selected by the SSA user by entering the value as `SELECT_ORACLE_HOME_FROM_REQUEST`.

These parameters are mandatory and are required to identify the reference target to create the database.

## DBCA Template Structure-only Profile .json

```

{
  "name": "ST using DBCA Struct only profile",
  "serviceType": "DB",
  "serviceFamily": "DBAAS",
  "description": "DBCA struct only profile",
  "poolIds": ["0379E3B4B1EA97A09DF0F7FC62FCE6F2"],
  "roles": [{"name": "JA_SSA_USER_ROLE"}],
  "serviceExecutableMeta": {
    "type": "CDP",
    "configurations": [
      {"name": "PROFILE_COMPONENT_URN", "value":
"oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:A727
8C59639E6A3DE0538E0DF80A1154:0.1"},
      {"name": "DATABASE_TYPE", "value": "oracle_database"},
      {"name": "COMMON_DB_SYSTEM_PASSWORD", "value": "welcome"},
      {"name": "COMMON_DB_DBSNMP_PASSWORD", "value": "welcome"},
      {"name": "COMMON_DB_SYS_PASSWORD", "value": "welcome"},
      {"name": "COMMON_DB_SID", "value": "mydb"},
      {"name": "COMMON_DOMAIN_NAME", "value": "mycompany.com"},
      {"name": "LISTENER_PORT", "value": "1521"},
      {"name": "REF_ZONE", "value": "JA_PaaS_Zone"},
      {"name": "REF_POOL", "value": "JA_Database19_Pool"},
      {"name": "REF_HOST", "value": "hostabc.mycompany.com"},
      {"name": "REF_TGT", "value": "hostabc.mycompany.com"},
      {"name": "DBCA_TEMPLATE:DB_STORAGE_TYPE", "value": "FS"},
      {"name": "DBCA_TEMPLATE:FRA_STORAGE_TYPE", "value": "FS"},
      {"name": "DBCA_TEMPLATE:DATA_FILE_LOCATION", "value": "/scratch/"},
      {"name": "DBCA_TEMPLATE:REC_STORAGE_TYPE_SAME_AS_DB_FILES", "value": "Y"},
      {"name": "DBCA_TEMPLATE:ARCHIVE_LOG_MODE", "value": "N"},
      {"name": "DBCA_TEMPLATE:FLASH_RECOVERY_AREA_SIZE", "value": "2048"},
      {"name": "DBCA_TEMPLATE:RECOVERY_FILE_LOCATION", "value": "/scratch/
fast_recovery_area"},
      {"name": "DBCA_TEMPLATE:REDO_FILE_LOCATION", "value": "/scratch/
fast_recovery_area"},
      {"name": "DBCA_TEMPLATE:USE_ARCHIVING", "value": "Y"},
      {"name": "DBCA_TEMPLATE:ENABLE_LIVE_CLONE", "value": false},
      {"name": "ROLE_NAME", "value": "JA_SSA_USER_ROLE"},
      {"name": "ROLE_DESC", "value": "Role"},
      {"name": "USER_PRIVILEGES", "value": "CREATE SESSION, ALTER SESSION, CREATE
INDEXTYPE, CREATE ANY OPERATOR, CREATE ANY PROCEDURE, CREATE ANY SEQUENCE,
CREATE ANY INDEX, CREATE JOB, CREATE ANY MATERIALIZED VIEW, CREATE ANY TABLE,
CREATE ANY TRIGGER, CREATE ANY TYPE, CREATE ANY VIEW, CREATE ANY SYNONYM,
CREATE ANY DIRECTORY, SELECT ANY DICTIONARY"},
      {
        "name": "INIT_PARAMS",
        "subconfigurations": [
          {"name": "INIT_PARAMS:1", "value": "sga_target=1073741824"},
          {"name": "INIT_PARAMS:2", "value": "pga_aggregate_target=1073741824"}
        ]},
      {"name": "STANDBY_REQUIRED", "value": "false"},
      {"name": "DB_USER_NAMES", "value": "ssa_user"},
      {"name": "DB_USER_PASSWORDS", "value": "auniquepw"},

```

```

{"name":"CHARSET_FROM_PROFILE","value":"false"},
{"name": "CHARSET_LIST","values":
["AL32UTF8","AR8ISO8859P6","AR8MSWIN1256","BLT8ISO8859P13","BLT8MSWIN1257","CL
8ISO8859P5","TH8TISASCII","NEE8ISO8859P4"]}
]
}
}

```

This is the start of your topic.

### Note:

In the JSON body mentioned above:

- To get the software library ID of the "DBAAS\_SSA\_CUSTOM\_PRE\_SCRIPTS\_URN" and "DBAAS\_SSA\_CUSTOM\_POST\_SCRIPTS\_URN" run the EM CLI command `emcli list_swlib_entities -name="<Pre or Post Standby Database Script>" -show_entity_rev_id`. The ID is provided at the end of the output. For example, in the output shown below, `oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1` is the ID.

```

Pre or Post Standby Database Script,0.1,Pre or Post Standby Database
Script,Ready,Directives,,Production,ORACLE,,,oracle:defaultService:em:provis
ioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1

```
- To derive the REF\_ZONE to be associated with the Service template, execute a GET request as shown in [About Cloud Resources](#).
- To derive the ID of the Software Pool that needs to be entered as "values" (under "lookupCharacteristics"), execute a GET request as shown in [Viewing Details of the Software Pools Resource](#).
- To derive the `serviceTemplateTypeId` value, perform a GET operation on the URI - `em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes` and locate `serviceType:DB` in the JSON response. Note the `serviceTemplateTypeId` under `serviceType:DB` and use the value in the POST body shown above.
- REF\_ZONE indicates the reference zone among the zones to be associated with the template.
- REF\_POOL indicates the reference pool among the pools to be associated with the template.
- REF\_HOST indicates the host of the reference target from the pool targets.
- REF\_TGT indicates the reference target from the pool targets.
- SELECT\_ORACLE\_HOME\_OPTION allows the Oracle home to be automatically selected by entering the value as `SELECT_ORACLE_HOME_AT_RUNTIME`, or to be selected by the SSA user by entering the value as `SELECT_ORACLE_HOME_FROM_REQUEST`.

These parameters are mandatory and are required to identify the reference target to create the database.

CHARSET\_LIST values are the supported character sets from DBCA.

## Standby DBCA Based Service Template .json File

```

{
  "name": "TestDbTemplate1",
  "serviceType": "DB",
  "serviceFamily": "DBAAS",
  "description": "This is a test database dbca service template 1",
  "poolIds": [ "D125A1536E9ADC36CC24EAB058B9E7AC" ],
  "serviceExecutableMeta": {
    "type": "CDP",
    "configurations": [
      { "name": "PROFILE_COMPONENT_URN",
        "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:F1EA40D2AE964994E0436051F20AFE32:0.1" },
      { "name": "DATABASE_TYPE", "value": "rac_database" },
      { "name": "COMMON_DB_SYSTEM_PASSWORD", "value": "welcome" },
      { "name": "COMMON_DB_DBSNMP_PASSWORD", "value": "welcome" },
      { "name": "COMMON_DB_SYS_PASSWORD", "value": "welcome" },
      { "name": "DB_ADMIN_PASSWORD_SAME", "value": "true" },
      { "name": "INSTANCE_COUNT", "value": "2" },
      { "name": "SID_OPTION", "value": "ssauser" },
      { "name": "COMMON_DB_SID", "value": "mydb1" },
      { "name": "COMMON_DOMAIN_NAME", "value": "us.example.com" },
      { "name": "LISTENER_PORT", "value": "1521" },
      { "name": "STAGE_LOCATION", "value": "/scratch" },
      { "name": "REF_ZONE", "value": "SLC00ECPQ_ZONE" },
      { "name": "REF_POOL", "value": "PRIMARY_RAC_POOL" },
      { "name": "REF_HOST", "value": "xyxy.example.com" },
      { "name": "REF_TGT", "value": "xxy.example.com" },
      { "name": "ROLE_NAME", "value": "ROLE_Oct_31_2014_17_59_PM" },
      { "name": "ROLE_DESC", "value": "New database role to be assigned to master account." },
      { "name": "USER_PRIVILEGES", "value": "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE,
CREATE ANY OPERATOR, CREATE ANY PROCEDURE, CREATE ANY SEQUENCE, CREATE ANY INDEX, CREATE
JOB, CREATE ANY MATERIALIZED VIEW, CREATE ANY TABLE, CREATE ANY TRIGGER, CREATE ANY
TYPE, CREATE ANY VIEW, CREATE ANY SYNONYM, CREATE ANY DIRECTORY, SELECT ANY
DICTIONARY" },
      { "name": "DEFAULT_DATABASE_SIZE", "value": "small" },
      { "name": "DATABASE_SIZES", "value": "", "values": ["small", "medium"] },
      { "name": "TARGET_PROP_LIST", "value": "",
        "values": [
          "Department:value:false:false",
          "Location:null:false:false",
          "Comment:null:false:false",
          "LifeCycle Status:null:false:false",
          "Line of Business:null:false:false",
          "Contact:null:false:false"
        ]
      },
      { "name": "CUSTOM_TARGET_PROP_LIST", "value": "",
        "values": [
          "Department:value:false:false"
        ]
      },
      { "name": "DBCA_TEMPLATE:DB_STORAGE_TYPE", "value": "ASM" },
      { "name": "DBCA_TEMPLATE:DATA_FILE_LOCATION", "value": "DATA" },
      { "name": "DBCA_TEMPLATE:REC_STORAGE_TYPE_SAME_AS_DB_FILES", "value": "Y" },
      { "name": "DBCA_TEMPLATE:ARCHIVE_LOG_MODE", "value": "Y" },
      { "name": "DBCA_TEMPLATE:FLASH_RECOVERY_AREA_SIZE", "value": "2048" },
      { "name": "DBCA_TEMPLATE:RECOVERY_FILE_LOCATION", "value": "RECO" },
      { "name": "DBCA_TEMPLATE:REDO_FILE_LOCATION", "value": "RECO" },
      {
        "name": "INIT_PARAMS",

```



```
"subconfigurations":[
  { "name":"INIT_PARAMS:1", "value":"sga_target=1073741824" },
  { "name":"INIT_PARAMS:2", "value":"pga_aggregate_target=1073741824"  }
]
},
{ "name":"STANDBY_REQUIRED", "value":"true" },
{ "name":"STANDBY_REQUIRED_LOCK", "value":"false" },
{ "name":"STANDBY_WORK_DIR", "value":"/tmp" },
{ "name":"PRIMARY_PROTECTION_MODE", "value":"MAXIMIZE AVAILABILITY" },
{ "name":"DBAAS_SSA_STANDBY_CUSTOM_PRE_SCRIPTS_URN", "value":"" },
{ "name":"DBAAS_SSA_STANDBY_CUSTOM_POST_SCRIPTS_URN", "value":"" },
{ "name":"STANDBY_DB_DETAILS", "value":"","values":[
"pool=RAC_11204_Tier_2;databaseSIDPrefix=;databaseType=rac_database;standbyConfigName=Near
DR;redoMode=SYNC;realtimeQuery=true;databaseRACInstanceCount=2;databaseDelay=30;databaseU
niqueName=;standbyStorageType=FS;standbyStorageLocation=;standbyFRAType=FS;standbyFRALoca
tion=;standbyFRASize=;standbyLsnrPort=;domainName=us.example.com",
"pool=SI_11204;databaseSIDPrefix=;databaseType=oracle_database;standbyConfigName=Far
DR;redoMode=ASYNC;realtimeQuery=false;databaseRACInstanceCount=2;databaseDelay=60;databas
eUniqueName=;standbyStorageType=FS;standbyStorageLocation=;standbyFRAType=FS;standbyFRALo
cation=;standbyFRASize=;standbyLsnrPort=;domainName=us.example.com"]}
]
}
}
```

 **Note:**

In the JSON body mentioned above:

- To get the software library ID of the "DBAAS\_SSA\_CUSTOM\_PRE\_SCRIPTS\_URN" and "DBAAS\_SSA\_CUSTOM\_POST\_SCRIPTS\_URN" run the EM CLI command `emcli list_swlib_entities -name="<Pre or Post Standby Database Script>" -show_entity_rev_id`. The ID is provided at the end of the output. For example, in the output shown below, `oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1` is the ID.
 

```
Pre or Post Standby Database Script,0.1,Pre or Post Standby Database
Script,Ready,Directives,,Production,ORACLE,,,oracle:defaultService:em:provis
ioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1
```
- To derive the REF\_ZONE to be associated with the Service template, execute a GET request.
- To derive the ID of the Software Pool that needs to be entered as "values" (under "lookupCharacteristics"), execute a GET request as shown in [Viewing Details of the Software Pools Resource](#).
- To derive the `serviceTemplateTypeId` value, perform a GET operation on the URI - `em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes` and locate `serviceType:DB` in the JSON response. Note the `serviceTemplateTypeId` under `serviceType:DB` and use the value in the POST body shown above.
- REF\_ZONE indicates the reference zone among the zones to be associated with the template.
- REF\_POOL indicates the reference pool among the pools to be associated with the template.
- REF\_HOST indicates the host of the reference target from the pool targets.
- REF\_TGT indicates the reference target from the pool targets.
- SELECT\_ORACLE\_HOME\_OPTION allows the Oracle home to be automatically selected by entering the value as `SELECT_ORACLE_HOME_AT_RUNTIME`, or to be selected by the SSA user by entering the value as `SELECT_ORACLE_HOME_FROM_REQUEST`.

These parameters are mandatory and are required to identify the reference target to create the database.

## RMAN Based Single Instance Database Service Template .json File

```
{
  "name": "Database Service - RMAN Based with archiving with SI Standby",
  "description": "This creates Database Archiving log mode.",
  "serviceType": "DB",
  "serviceTemplateTypeId": "81",
  "rscProvAssocOption": [
    "byRscProvInst"
  ],
  "resourceProvider": {
```

```
"lookupCharacteristics": [
  {
    "characteristics": [
      {
        "name": "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",
        "values": [
          "1898CF93BD39C19BF032672271BC4B44"
        ],
        "targetType": {
          "targetType": "oracle_cloud_zone",
          "targetTypeName": "Database Pool",
          "parentTargetType": "self_service_zone",
          "parentTargetTypeName": "PaaS Infrastructure Zone"
        }
      }
    ],
    "purposeId": 1
  }
],
"payloads": [
  {
    "name": "PROFILE_COMPONENT_URN",
    "value":
"oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:1C14BB2B2E127E2
3E053C075B10AE31F:0.1"
  }
],
"configurations": [
  {
    "name": "STAGE_LOCATION",
    "value": "/scratch/emga/backups/rman/"
  },
  {
    "name": "PROFILE_COMPONENT_URN",
    "value":
"oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:1C14BB2B2E127E2
3E053C075B10AE31F:0.1"
  },
  {
    "name": "SELECT_ORACLE_HOME_OPTION",
    "value": "SELECT_ORACLE_HOME_FROM_REQUEST"
  },
  {
    "name": "REF_TGT",
    "value": "xyz.example.com"
  },
  {
    "name": "REF_HOST",
    "value": "xyz.example.com"
  },
  {
    "name": "REF_ZONE",
    "value": "Salt Lake City Zone"
  },
  {
    "name": "zoneTargetName",
    "value": "Salt Lake City Zone"
  },
  {
    "name": "REF_POOL",
    "value": "Databases Pool"
  }
]
```

```
    },
    {
      "name": "DATABASE_TYPE",
      "value": "oracle_database"
    },
    {
      "name": "COMMON_DB_SYS_PASSWORD",
      "value": "welcome"
    },
    {
      "name": "LISTENER_PORT",
      "value": "1521"
    },
    {
      "name": "PROFILE_VERSION",
      "value": "latest"
    },
    {
      "name": "COMMON_DB_SID",
      "value": "db"
    },
    {
      "name": "TARGET_PROP_LIST",
      "values": [
        "Contact:9980697299:false:false",
        "Location:null:false:false",
        "LifeCycle Status:null:false:false",
        "Department:null:false:false",
        "Comment:null:false:false",
        "Line of Business:null:false:false"
      ]
    },
    {
      "name": "USER_PRIVILEGES",
      "value": "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY OPERATOR,
CREATE ANY PROCEDURE"
    },
    {
      "name": "RMAN.DB_STORAGE_TYPE",
      "value": "FS"
    },
    {
      "name": "RMAN.FRA_STORAGE_TYPE",
      "value": "FS"
    },
    {
      "name": "RMAN.FRA_SIZE",
      "value": "4038"
    },
    {
      "name": "RMAN.USE_ARCHIVING",
      "value": "YES"
    },
    {
      "name": "RMAN.DATA_FILE_LOCATION",
      "value": "/scratch/emga/app/emga/oradata"
    },
    {
      "name": "RMAN.REDO_FILE_LOCATION",
      "value": "/scratch/emga/app/emga/fast_recovery_area"
    },
    {

```

```

        "name": "RMAN.RECOVERY_FILE_LOCATION",
        "value": "/scratch/emga/app/emga/fast_recovery_area"
    },
    {
        "name": "RMAN.WORK_DIR_LOC",
        "value": "/tmp/work"
    },
    {
        "name": "RMAN.DB_ADMIN_PASSWORD_SAME",
        "value": "Y"
    },
    {
        "name": "RMAN.DATABASE_PASSWORDS",
        "value": "welcome"
    },
    {
        "name": "RMAN.BACKUP_LOCATION",
        "value": "/scratch/emga/backups/rman/"
    },
    {
        "name": "RMAN.USE_OFA",
        "value": "N"
    },
    {
        "name": "COMMON_DOMAIN_NAME",
        "value": "us.example.com"
    },
    {
        "name": "STANDBY_DB_DETAILS",
        "values": [
            "pool=Near DR
Pool;databaseSIDPrefix=;databaseType=oracle_database;standbyConfigName=Near
DR;redoMode=ASYNC;realtimeQuery=false;databaseDelay=60;databaseUniqueName=;standbyStorage
Type=FS;standbyStorageLocation=;standbyFRAType=FS;standbyFRALocation=;standbyFRASize=;sta
ndbyLsnrPort=;domainName=us.example.com"
        ]
    }
]
}

```

 **Note:**

In the JSON body mentioned above:

- To get the software library ID of the "DBAAS\_SSA\_CUSTOM\_PRE\_SCRIPTS\_URN" and "DBAAS\_SSA\_CUSTOM\_POST\_SCRIPTS\_URN" run the EM CLI command `emcli list_swlib_entities -name="<Pre or Post Standby Database Script>" -show_entity_rev_id`. The ID is provided at the end of the output. For example, in the output shown below, `oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1` is the ID.  
  
`Pre or Post Standby Database Script,0.1,Pre or Post Standby Database Script,Ready,Directives,,Production,ORACLE,,,oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1`
- To derive the REF\_ZONE to be associated with the Service template, execute a GET request as shown in [About Cloud Resources](#).
- To derive the ID of the Software Pool that needs to be entered as "values" (under "lookupCharacteristics"), execute a GET request as shown in [Viewing Details of the Software Pools Resource](#).
- To derive the `serviceTemplateTypeId` value, perform a GET operation on the URI - `em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes` and locate `serviceType:DB` in the JSON response. Note the `serviceTemplateTypeId` under `serviceType:DB` and use the value in the POST body shown above.
- REF\_ZONE indicates the reference zone among the zones to be associated with the template.
- REF\_POOL indicates the reference pool among the pools to be associated with the template.
- REF\_HOST indicates the host of the reference target from the pool targets.
- REF\_TGT indicates the reference target from the pool targets.
- SELECT\_ORACLE\_HOME\_OPTION allows the Oracle home to be automatically selected by entering the value as `SELECT_ORACLE_HOME_AT_RUNTIME`, or to be selected by the SSA user by entering the value as `SELECT_ORACLE_HOME_FROM_REQUEST`.

These parameters are mandatory and are required to identify the reference target to create the database.

## RMAN Based Single Instance Database with Single Instance Standby Service Template .json File

```
{
  "name": "Database Service - RMAN Based with archiving with SI Standby",
  "description": "This creates Database Archiving log mode.",
  "serviceType": "DB",
  "serviceTemplateTypeId": "81",
  "rscProvAssocOption": [
    "byRscProvInst"
  ]
}
```

```

    ],
    "resourceProvider": {
      "lookupCharacteristics": [
        {
          "characteristics": [
            {
              "name": "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",
              "values": [
                "1898CF93BD39C19BF032672271BC4B44"
              ],
              "targetType": {
                "targetType": "oracle_cloud_zone",
                "targetTypeName": "Database Pool",
                "parentTargetType": "self_service_zone",
                "parentTargetTypeName": "PaaS Infrastructure Zone"
              }
            }
          ],
          "purposeId": 1
        }
      ],
      "payloads": [
        {
          "name": "PROFILE_COMPONENT_URN",
          "value":
"oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:1C14BB2B2E127E2
3E053C075B10AE31F:0.1"
        }
      ],
      "configurations": [
        {
          "name": "STAGE_LOCATION",
          "value": "/scratch/emga/backups/rman/"
        },
        {
          "name": "PROFILE_COMPONENT_URN",
          "value":
"oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:1C14BB2B2E127E2
3E053C075B10AE31F:0.1"
        },
        {
          "name": "SELECT_ORACLE_HOME_OPTION",
          "value": "SELECT_ORACLE_HOME_FROM_REQUEST"
        },
        {
          "name": "REF_TGT",
          "value": "xyz.example.com"
        },
        {
          "name": "REF_HOST",
          "value": "xyz.example.com"
        },
        {
          "name": "REF_ZONE",
          "value": "Salt Lake City Zone"
        },
        {
          "name": "zoneTargetName",
          "value": "Salt Lake City Zone"
        }
      ]
    }
  ]
}

```

```
    "name": "REF_POOL",
    "value": "Databases Pool"
  },
  {
    "name": "DATABASE_TYPE",
    "value": "oracle_database"
  },
  {
    "name": "COMMON_DB_SYS_PASSWORD",
    "value": "welcome"
  },
  {
    "name": "LISTENER_PORT",
    "value": "1521"
  },
  {
    "name": "PROFILE_VERSION",
    "value": "latest"
  },
  {
    "name": "COMMON_DB_SID",
    "value": "db"
  },
  {
    "name": "TARGET_PROP_LIST",
    "values": [
      "Contact:9980697299:false:false",
      "Location:null:false:false",
      "LifeCycle Status:null:false:false",
      "Department:null:false:false",
      "Comment:null:false:false",
      "Line of Business:null:false:false"
    ]
  },
  {
    "name": "USER_PRIVILEGES",
    "value": "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY OPERATOR,
CREATE ANY PROCEDURE"
  },
  {
    "name": "RMAN.DB_STORAGE_TYPE",
    "value": "FS"
  },
  {
    "name": "RMAN.FRA_STORAGE_TYPE",
    "value": "FS"
  },
  {
    "name": "RMAN.FRA_SIZE",
    "value": "4038"
  },
  {
    "name": "RMAN.USE_ARCHIVING",
    "value": "YES"
  },
  {
    "name": "RMAN.DATA_FILE_LOCATION",
    "value": "/scratch/emga/app/emga/oradata"
  },
  {
    "name": "RMAN.REDO_FILE_LOCATION",
    "value": "/scratch/emga/app/emga/fast_recovery_area"
  }
}
```



```

    },
    {
      "name": "RMAN.RECOVERY_FILE_LOCATION",
      "value": "/scratch/emga/app/emga/fast_recovery_area"
    },
    {
      "name": "RMAN.WORK_DIR_LOC",
      "value": "/tmp/work"
    },
    {
      "name": "RMAN.DB_ADMIN_PASSWORD_SAME",
      "value": "Y"
    },
    {
      "name": "RMAN.DATABASE_PASSWORDS",
      "value": "welcome"
    },
    {
      "name": "RMAN.BACKUP_LOCATION",
      "value": "/scratch/emga/backups/rman/"
    },
    {
      "name": "RMAN.USE_OFA",
      "value": "N"
    },
    {
      "name": "COMMON_DOMAIN_NAME",
      "value": "us.example.com"
    },
    {
      "name": "STANDBY_DB_DETAILS",
      "values": [
        "pool=Near DR
Pool;databaseSIDPrefix=;databaseType=oracle_database;standbyConfigName=Near
DR;redoMode=ASYNC;realtimeQuery=false;databaseDelay=60;databaseUniqueName=;standbyStorage
Type=FS;standbyStorageLocation=;standbyFRAType=FS;standbyFRALocation=;standbyFRASize=;sta
ndbyLsnrPort=;domainName=us.example.com"
      ]
    }
  ]
}

```

 **Note:**

In the JSON body mentioned above:

- To get the software library ID of the "DBAAS\_SSA\_CUSTOM\_PRE\_SCRIPTS\_URN" and "DBAAS\_SSA\_CUSTOM\_POST\_SCRIPTS\_URN" run the EM CLI command `emcli list_swlib_entities -name="<Pre or Post Standby Database Script>" -show_entity_rev_id`. The ID is provided at the end of the output. For example, in the output shown below, `oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1` is the ID.
 

```
Pre or Post Standby Database Script,0.1,Pre or Post Standby Database
Script,Ready,Directives,,Production,ORACLE,,,oracle:defaultService:em:provis
ioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1
```
- To derive the REF\_ZONE to be associated with the Service template, execute a GET request.
- To derive the ID of the Software Pool that needs to be entered as "values" (under "lookupCharacteristics"), execute a GET request as shown in [Viewing Details of the Software Pools Resource](#).
- To derive the `serviceTemplateTypeId` value, perform a GET operation on the URI - `em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes` and locate `serviceType:DB` in the JSON response. Note the `serviceTemplateTypeId` under `serviceType:DB` and use the value in the POST body shown above.
- REF\_ZONE indicates the reference zone among the zones to be associated with the template.
- REF\_POOL indicates the reference pool among the pools to be associated with the template.
- REF\_HOST indicates the host of the reference target from the pool targets.
- REF\_TGT indicates the reference target from the pool targets.
- SELECT\_ORACLE\_HOME\_OPTION allows the Oracle home to be automatically selected by entering the value as `SELECT_ORACLE_HOME_AT_RUNTIME`, or to be selected by the SSA user by entering the value as `SELECT_ORACLE_HOME_FROM_REQUEST`.

These parameters are mandatory and are required to identify the reference target to create the database.

## RMAN Based RAC One Node Database Service Template .json File

```
{
  "name": "Create Databases on RAC One database",
  "description": "Creates Databases on RAC.",
  "serviceType": "DB",
  "serviceTemplateTypeId": "81",
  "rscProvAssocOption": [
    "byRscProvInst"
  ],
  "resourceProvider": {
```

```

"lookupCharacteristics": [
  {
    "characteristics": [
      {
        "name": "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",
        "values": [
          "647E8750A1C3835557165B499B269FB3"
        ],
        "targetType": {
          "targetType": "oracle_cloud_zone",
          "targetTypeName": "Database Pool",
          "parentTargetType": "self_service_zone",
          "parentTargetTypeName": "PaaS Infrastructure Zone"
        }
      }
    ],
    "purposeId": 1
  }
],
"payloads": [
  {
    "name": "PROFILE_COMPONENT_URN",
    "value":
"oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:1E4F60D72C91216
0E053C075B10A29F5:0.1"
  }
],
"configurations": [
  {"name": "STAGE_LOCATION",
   "value": "/scratch/emga/backups/rman/"},
  {"name": "PROFILE_COMPONENT_URN",
   "value":
"oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:1E4F60D72C91216
0E053C075B10A29F5:0.1"},
  {"name": "SELECT_ORACLE_HOME_OPTION",
   "value": "SELECT_ORACLE_HOME_FROM_REQUEST"},
  {"name": "REF_TGT",
   "value": "abc.example.com"},
  {"name": "REF_HOST",
   "value": "adc.example.com"},
  {"name": "REF_ZONE",
   "value": "Salt Lake City Zone"},
  {"name": "zoneTargetName",
   "value": "Salt Lake City Zone"},
  {"name": "REF_POOL",
   "value": "RAC Databases Pool"},
  {"name": "DATABASE_TYPE",
   "value": "rac_database"},
  {"name": "IS_RAC_ONE",
   "value": "Y"},
  {"name": "COMMON_DB_SYS_PASSWORD",
   "value": "welcome"},
  {"name": "LISTENER_PORT",
   "value": "1521"},
  {"name": "PROFILE_VERSION",
   "value": "latest"},
  {"name": "COMMON_DB_SID",
   "value": "db"},
  {"name": "TARGET_PROP_LIST",
   "values": [
     "Contact:9980697299:false:false",

```

```
        "Location:null:false:false",
        "LifeCycle Status:null:false:false",
        "Department:null:false:false",
        "Comment:null:false:false",
        "Line of Business:null:false:false"
    ]
},
{"name": "USER_PRIVILEGES",
 "value": "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY OPERATOR,
CREATE ANY PROCEDURE"},
{"name": "RMAN:DB_STORAGE_TYPE",
 "value": "FS"},
{"name": "RMAN:FRA_SIZE",
 "value": "4038"},
{"name": "RMAN:USE_ARCHIVING",
 "value": "NO"},
{"name": "RMAN:DATA_FILE_LOCATION",
 "value": "/scratch/emga/app/emga/oradata"},
{"name": "RMAN:WORK_DIR_LOC",
 "value": "/tmp/work"},
{"name": "RMAN:DB_ADMIN_PASSWORD_SAME",
 "value": "Y"},
{"name": "RMAN:DATABASE_PASSWORDS",
 "value": "welcome"},
{"name": "RMAN:BACKUP_LOCATION",
 "value": "/oradbnas/backups/rman/"},
{"name": "RMAN:USE_OFA",
 "value": "N"},
{"name": "COMMON_DOMAIN_NAME",
 "value": "us.example.com"}
]
}
```

 **Note:**

In the JSON body mentioned above:

- To get the software library ID of the "DBAAS\_SSA\_CUSTOM\_PRE\_SCRIPTS\_URN" and "DBAAS\_SSA\_CUSTOM\_POST\_SCRIPTS\_URN" run the EM CLI command `emcli list_swlib_entities -name="<Pre or Post Standby Database Script>" -show_entity_rev_id`. The ID is provided at the end of the output. For example, in the output shown below, `oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1` is the ID.  
  
`Pre or Post Standby Database Script,0.1,Pre or Post Standby Database Script,Ready,Directives,,Production,ORACLE,,,oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1`
- To derive the REF\_ZONE to be associated with the Service template, execute a GET request.
- To derive the ID of the Software Pool that needs to be entered as "values" (under "lookupCharacteristics"), execute a GET request as shown in [Viewing Details of the Software Pools Resource](#).
- To derive the `serviceTemplateTypeId` value, perform a GET operation on the URI - `em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes` and locate `serviceType:DB` in the JSON response. Note the `serviceTemplateTypeId` under `serviceType:DB` and use the value in the POST body shown above.
- REF\_ZONE indicates the reference zone among the zones to be associated with the template.
- REF\_POOL indicates the reference pool among the pools to be associated with the template.
- REF\_HOST indicates the host of the reference target from the pool targets.
- REF\_TGT indicates the reference target from the pool targets.
- SELECT\_ORACLE\_HOME\_OPTION allows the Oracle home to be automatically selected by entering the value as `SELECT_ORACLE_HOME_AT_RUNTIME`, or to be selected by the SSA user by entering the value as `SELECT_ORACLE_HOME_FROM_REQUEST`.

These parameters are mandatory and are required to identify the reference target to create the database.

## RMAN Based RAC One Node Database with Standby Service Template .json File

```
{
  "name": "RAC One Database Provisioning with RAC One Standby and SI Standby",
  "description": "Creates RAC One Databases with RAC One Standby and SI Standby.",
  "serviceType": "DB",
  "serviceTemplateTypeId": "81",
  "rscProvAssocOption": [
    "byRscProvInst"
  ]
}
```

```
],
"resourceProvider": {
  "lookupCharacteristics": [
    {
      "characteristics": [
        {
          "name": "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",
          "values": [
            "647E8750A1C3835557165B499B269FB3"
          ],
          "targetType": {
            "targetType": "oracle_cloud_zone",
            "targetTypeName": "Database Pool",
            "parentTargetType": "self_service_zone",
            "parentTargetTypeName": "PaaS Infrastructure Zone"
          }
        }
      ]
    },
    {
      "purposeId": 1
    }
  ]
},
"payloads": [
  {
    "name": "PROFILE_COMPONENT_URN",
    "value":
"oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:1E4F60D72C91216
0E053C075B10A29F5:0.1"
  }
],
"configurations": [
  {
    "name": "STAGE_LOCATION",
    "value": "/scratch/emga/backups/rman/"
  },
  {
    "name": "PROFILE_COMPONENT_URN",
    "value":
"oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:1E4F60D72C91216
0E053C075B10A29F5:0.1",
    "name": "SELECT_ORACLE_HOME_OPTION",
    "value": "SELECT_ORACLE_HOME_FROM_REQUEST",
    "name": "REF_TGT",
    "value": "adc.example.com",
    "name": "REF_HOST",
    "value": "adc.example.com",
    "name": "REF_ZONE",
    "value": "Salt Lake City Zone",
    "name": "zoneTargetName",
    "value": "Salt Lake City Zone",
    "name": "REF_POOL",
    "value": "RAC Databases Pool",
    "name": "DATABASE_TYPE",
    "value": "rac_database",
    "name": "IS_RAC_ONE",
    "value": "Y",
    "name": "COMMON_DB_SYS_PASSWORD",
    "value": "welcome",
    "name": "LISTENER_PORT",
    "value": "1521",
    "name": "PROFILE_VERSION",
    "value": "latest",
    "name": "COMMON_DB_SID",
    "value": "db",
    "name": "TARGET_PROP_LIST",
    "values": [
      "Contact:9980697299:false:false",
    ]
  }
]
```

```

        "Location:null:false:false",
        "LifeCycle Status:null:false:false",
        "Department:null:false:false",
        "Comment:null:false:false",
        "Line of Business:null:false:false"
    ]
},
{"name": "USER_PRIVILEGES",
 "value": "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY OPERATOR,
CREATE ANY PROCEDURE"},
{"name": "RMAN:DB_STORAGE_TYPE",
 "value": "FS"},
{"name": "RMAN:FRA_SIZE",
 "value": "4038"},
{"name": "RMAN:USE_ARCHIVING",
 "value": "NO"},
{"name": "RMAN:DATA_FILE_LOCATION",
 "value": "/scratch/emga/app/emga/oradata"},
{"name": "RMAN:WORK_DIR_LOC",
 "value": "/tmp/work"},
{"name": "RMAN:DB_ADMIN_PASSWORD_SAME",
 "value": "Y"},
{"name": "RMAN:DATABASE_PASSWORDS",
 "value": "welcome"},
{"name": "RMAN:BACKUP_LOCATION",
 "value": "/oradbnas/backups/rman/"},,
{"name": "RMAN:USE_OFA",
 "value": "N"},
{"name": "COMMON_DOMAIN_NAME",
 "value": "us.example.com"},
{"name": "STANDBY_REQUIRED",
 "value": "true"},
{"name": "STANDBY_DB_DETAILS",
 "value": "",
 "values": [
    "pool=SI Databases Zone - Oracle 11g -
Standby;databaseSIDPrefix=st;databaseType=oracle_database;standbyConfigName=Near
DR;redoMode=ASYNC;realtimeQuery=false;databaseDelay=60;databaseUniqueName=;standbyStorage
Type=FS;standbyStorageLocation=;standbyFRAType=FS;standbyFRALocation=;standbyFRASize=;sta
ndbyLsnrPort=;domainName=us.example.com"
    ]
}
]
}

```

 **Note:**

In the JSON body mentioned above:

- To get the software library ID of the "DBAAS\_SSA\_CUSTOM\_PRE\_SCRIPTS\_URN" and "DBAAS\_SSA\_CUSTOM\_POST\_SCRIPTS\_URN" run the EM CLI command `emcli list_swlib_entities -name="<Pre or Post Standby Database Script>" -show_entity_rev_id`. The ID is provided at the end of the output. For example, in the output shown below, `oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1` is the ID.  
  
`Pre or Post Standby Database Script,0.1,Pre or Post Standby Database Script,Ready,Directives,,Production,ORACLE,,,oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1`
- To derive the REF\_ZONE to be associated with the Service template, execute a GET request.
- To derive the ID of the Software Pool that needs to be entered as "values" (under "lookupCharacteristics"), execute a GET request as shown in [Viewing Details of the Software Pools Resource](#).
- To derive the `serviceTemplateTypeId` value, perform a GET operation on the URI - `em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes` and locate `serviceType:DB` in the JSON response. Note the `serviceTemplateTypeId` under `serviceType:DB` and use the value in the POST body shown above.
- REF\_ZONE indicates the reference zone among the zones to be associated with the template.
- REF\_POOL indicates the reference pool among the pools to be associated with the template.
- REF\_HOST indicates the host of the reference target from the pool targets.
- REF\_TGT indicates the reference target from the pool targets.
- SELECT\_ORACLE\_HOME\_OPTION allows the Oracle home to be automatically selected by entering the value as `SELECT_ORACLE_HOME_AT_RUNTIME`, or to be selected by the SSA user by entering the value as `SELECT_ORACLE_HOME_FROM_REQUEST`.

These parameters are mandatory and are required to identify the reference target to create the database.

## RMAN Based RAC Database with Single Instance Standby Service Template .json File

```
{
  "name" : "Create Databases on RAC with SI Standby",
  "description" : "Creates Databases on RAC.",
  "serviceType" : "DB",
  "serviceTemplateTypeId" : "81",
  "rscProvAssocOption" : [ "byRscProvInst" ],
  "resourceProvider" : {
```



```

"lookupCharacteristics" : [ {
  "characteristics" : [ {
    "name" : "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",
    "values" : [ "647E8750A1C3835557165B499B269FB3" ],
    "targetType" : {
      "targetType" : "oracle_cloud_zone",
      "targetTypeName" : "Database Pool",
      "parentTargetType" : "self_service_zone",
      "parentTargetTypeName" : "PaaS Infrastructure Zone"
    }
  } ],
  "purposeId" : 1
} ],
},
"payloads" : [ {
  "name" : "PROFILE_COMPONENT_URN",
  "value" :
"oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:1E4F60D72C91216
0E053C075B10A29F5:0.1"
} ],
"configurations" : [ {
  "name" : "STAGE_LOCATION",
  "value" : "/scratch/emga/backups/rman/",
  {"name" : "PROFILE_COMPONENT_URN",
  "value" :
"oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:1E4F60D72C91216
0E053C075B10A29F5:0.1"}
  {"name":"SELECT_ORACLE_HOME_OPTION",
  "value":"SELECT_ORACLE_HOME_FROM_REQUEST"},
  {"name" : "REF_TGT",
  "value" : "adc.us.example.com"},
  {"name" : "REF_HOST",
  "value" : "adc.us.example.com"},
  {"name" : "REF_ZONE",
  "value" : "Salt Lake City Zone"},
  {"name" : "zoneTargetName",
  "value" : "Salt Lake City Zone"},
  {"name" : "REF_POOL",
  "value" : "RAC Databases Pool"},
  {"name" : "DATABASE_TYPE",
  "value" : "oracle_database"},
  {"name" : "COMMON_DB_SYS_PASSWORD",
  "value" : "welcome"},
  {"name" : "LISTENER_PORT",
  "value" : "1521"},
  {"name" : "PROFILE_VERSION",
  "value" : "latest"},
  {"name" : "COMMON_DB_SID",
  "value" : "db"},
  {"name" : "TARGET_PROP_LIST",
  "values" : [ "Contact:9980697299:false:false", "Location:null:false:false",
"LifeCycle Status:null:false:false", "Department:null:false:false",
"Comment:null:false:false", "Line of Business:null:false:false" ]},
  {"name" : "USER_PRIVILEGES",
  "value" : "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY OPERATOR,
CREATE ANY PROCEDURE"},
  {"name" : "RMAN:DB_STORAGE_TYPE",
  "value" : "FS"},
  {"name" : "RMAN:FRA_SIZE",
  "value" : "4038"},
  {"name" : "RMAN:USE_ARCHIVING",
  "value" : "NO"},

```

```

    {"name": "RMAN:DATA_FILE_LOCATION",
     "value": "/scratch/emga/app/emga/oradata"},
    {"name": "RMAN:WORK_DIR_LOC",
     "value": "/tmp/work"},
    {"name": "RMAN:DB_ADMIN_PASSWORD_SAME",
     "value": "Y"},
    {"name": "RMAN:DATABASE_PASSWORDS",
     "value": "welcome"},
    {"name": "RMAN:BACKUP_LOCATION",
     "value": "/oradbnas/backups/rman/"},
    {"name": "RMAN:USE_OFA",
     "value": "N"},
    {"name": "COMMON_DOMAIN_NAME",
     "value": "us.example.com"},
    {"name": "CUSTOM_PRE_CREATE_SCRIPTS_URN",

"value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B767
1E0537850B10A9B85:0.1"},,
     {"name": "CUSTOM_POST_CREATE_SCRIPTS_URN",

"value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B767
1E0537850B10A9B85:0.1"},,
     {"name": "STANDBY_REQUIRED",
      "value": "true"},
     {"name": "STANDBY_DB_DETAILS",
      "value": "",
      "values": [
        "pool=SI Databases Zone - Oracle 11g -
Standby;databaseSIDPrefix=st;databaseType=oracle_database;standbyConfigName=Near
DR;redoMode=ASYNC;realtimeQuery=false;databaseDelay=60;databaseUniqueName=;standbyStorage
Type=FS;standbyStorageLocation=;standbyFRAType=FS;standbyFRALocation=;standbyFRASize=;sta
ndbyLsnrPort=;domainName=us.example.com"
      ]
    }
  ]
}

```

 **Note:**

In the JSON body mentioned above:

- To get the software library ID of the "DBAAS\_SSA\_CUSTOM\_PRE\_SCRIPTS\_URN" and "DBAAS\_SSA\_CUSTOM\_POST\_SCRIPTS\_URN" run the EM CLI command `emcli list_swlib_entities -name="<Pre or Post Standby Database Script>" -show_entity_rev_id`. The ID is provided at the end of the output. For example, in the output shown below, `oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1` is the ID.  
  
`Pre or Post Standby Database Script,0.1,Pre or Post Standby Database Script,Ready,Directives,,Production,ORACLE,,,oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1`
- To derive the REF\_ZONE to be associated with the Service template, execute a GET request.
- To derive the ID of the Software Pool that needs to be entered as "values" (under "lookupCharacteristics"), execute a GET request as shown in [Viewing Details of the Software Pools Resource](#).
- To derive the `serviceTemplateTypeId` value, perform a GET operation on the URI - `em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes` and locate `serviceType:DB` in the JSON response. Note the `serviceTemplateTypeId` under `serviceType:DB` and use the value in the POST body shown above.
- REF\_ZONE indicates the reference zone among the zones to be associated with the template.
- REF\_POOL indicates the reference pool among the pools to be associated with the template.
- REF\_HOST indicates the host of the reference target from the pool targets.
- REF\_TGT indicates the reference target from the pool targets.
- SELECT\_ORACLE\_HOME\_OPTION allows the Oracle home to be automatically selected by entering the value as `SELECT_ORACLE_HOME_AT_RUNTIME`, or to be selected by the SSA user by entering the value as `SELECT_ORACLE_HOME_FROM_REQUEST`.

These parameters are mandatory and are required to identify the reference target to create the database.

## RAC Database with Standby Using a DBCA Template Service Template .json File

```
{
  "name": "Create RAC Db with Standby using DBCA Template - BofA -ASM",
  "description": "Service Template for Non-CDB; 12cR1_2(12.1.0.2); RAC; ASM",
  "serviceType": "DB",
  "serviceTemplateTypeId": "61",
  "rscProvAssocOption": [
    "byRscProvInst"
  ]
}
```

```
],
"roles": [
  "SSAUSERROLE"
],
"resourceProvider": {
  "lookupCharacteristics": [
    {
      "characteristics": [
        {
          "name": "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",
          "values": [
            "4C5795E605D71F59BAF9F6AD702E25E1"
          ],
          "targetType": {
            "targetType": "oracle_cloud_zone",
            "targetTypeName": "Database Pool",
            "parentTargetType": "self_service_zone",
            "parentTargetTypeName": "PaaS Infrastructure Zone"
          }
        }
      ]
    },
    {
      "purposeId": 1
    }
  ]
},
"payloads": [
  {
    "name": "PROFILE_COMPONENT_URN",
    "value":
"oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:246E84D11ED13BD
0E050F90AE5852BC8:0.1"
  }
],
"configurations": [
  {
    "name": "REF_ZONE",
    "value": "Clusters Zone - Oracle DB 12c"
  },
  {
    "name": "REF_HOST",
    "value": "xyz.example.com"
  },
  {
    "name": "REF_POOL",
    "value": "RAC Databases Pool_Oracle_DB_12c"
  },
  {
    "name": "DBCA_TEMPLATE:DB_STORAGE_TYPE",
    "value": "ASM"
  },
  {
    "name": "DBCA_TEMPLATE:REC_STORAGE_TYPE_SAME_AS_DB_FILES",
    "value": "Y"
  },
  {
    "name": "DBCA_TEMPLATE:ARCHIVE_LOG_MODE",
    "value": "N"
  },
  {
    "name": "DBCA_TEMPLATE:FLASH_RECOVERY_AREA_SIZE",
    "value": "4038"
  }
],
```

```

    {
      "name": "DBCA_TEMPLATE:DATA_FILE_LOCATION",
      "value": "DATA"
    },
    {
      "name": "DBCA_TEMPLATE:REDO_FILE_LOCATION",
      "value": "DATA1"
    },
    {
      "name": "DBCA_TEMPLATE:RECOVERY_FILE_LOCATION",
      "value": "DATA1"
    },
    {
      "name": "DATABASE_TYPE",
      "value": "rac_database"
    },
    {
      "name": "INSTANCE_COUNT",
      "value": "2"
    },
    {
      "name": "COMMON_DOMAIN_NAME",
      "value": "us.example.com"
    },
    {
      "name": "ORACLE.SYSMAN.SSA.PROVISIONING_TYPE",
      "values": [
        "DBCA_TEMPLATE"
      ]
    },
    {
      "name": "ENTITY_TYPE",
      "value": "USE_PROFILE"
    },
    {
      "name": "REF_TGT",
      "value": "xyz.example.com"
    },
    {
      "name": "SID_OPTION",
      "value": "prefix"
    },
    {
      "name": "PROFILE_COMPONENT_URN",
      "value":
"oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:246E84D11ED13BD
0E050F90AE5852BC8:0.1"
    },
    {
      "name": "PROFILE_VERSION",
      "value": "latest"
    },
    {
      "name": "USER_PRIVILEGES",
      "value": "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY OPERATOR,
CREATE ANY PROCEDURE, CREATE ANY SEQUENCE, CREATE ANY INDEX, CREATE JOB, CREATE ANY
MATERIALIZED VIEW, CREATE ANY TABLE, CREATE ANY TRIGGER, CREATE ANY TYPE, CREATE ANY
VIEW, CREATE ANY SYNONYM, CREATE ANY DIRECTORY, SELECT ANY DICTIONARY"
    },
    {
      "name": "COMMON_DB_SID",
      "value": "RFTDB"
    }
  ]
}

```

```

    },
    {
      "name": "INIT_PARAMS",
      "subconfigurations": [
        "sga_target=1073741824",
        "pga_aggregate_target=1073741824"
      ]
    },
    {
      "name": "SELECT_ORACLE_HOME_OPTION",
      "value": "SELECT_ORACLE_HOME_AT_RUNTIME"
    },
    {
      "name": "COMMON_DB_SYS_PASSWORD",
      "value": "welcomepw"
    },
    {
      "name": "DB_ADMIN_PASSWORD_SAME",
      "value": "true"
    },
    {
      "name": "LISTENER_PORT",
      "value": "1521"
    },
    {
      "name": "STANDBY_REQUIRED",
      "value": "true"
    },
    {
      "name": "STANDBY_DB_DETAILS",
      "value": "",
      "values": [
        "pool=SI Databases Zone - Oracle 11g -
Standby;databaseSIDPrefix=st;databaseType=oracle_database;standbyConfigName=Near
DR;redoMode=ASYNC;realtimeQuery=false;databaseDelay=60;databaseUniqueName=;standbyStorage
Type=FS;standbyStorageLocation=;standbyFRAType=FS;standbyFRALocation=;standbyFRASize=;sta
ndbyLsnrPort=;domainName=us.example.com"
      ]
    },
    {
      "name": "DATABASE_SIZES",
      "values": [
        "Big",
        "Small"
      ]
    },
    {
      "name": "DEFAULT_DATABASE_SIZE",
      "value": "Big"
    }
  ]
}

```

 **Note:**

In the JSON body mentioned above:

- To get the software library ID of the "DBAAS\_SSA\_CUSTOM\_PRE\_SCRIPTS\_URN" and "DBAAS\_SSA\_CUSTOM\_POST\_SCRIPTS\_URN" run the EM CLI command `emcli list_swlib_entities -name="<Pre or Post Standby Database Script>" -show_entity_rev_id`. The ID is provided at the end of the output. For example, in the output shown below, `oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1` is the ID.  
  
`Pre or Post Standby Database Script,0.1,Pre or Post Standby Database Script,Ready,Directives,,Production,ORACLE,,,oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1`
- To derive the REF\_ZONE to be associated with the Service template, execute a GET request.
- To derive the ID of the Software Pool that needs to be entered as "values" (under "lookupCharacteristics"), execute a GET request as shown in [Viewing Details of the Software Pools Resource](#).
- To derive the `serviceTemplateTypeId` value, perform a GET operation on the URI - `em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes` and locate `serviceType:DB` in the JSON response. Note the `serviceTemplateTypeId` under `serviceType:DB` and use the value in the POST body shown above.
- REF\_ZONE indicates the reference zone among the zones to be associated with the template.
- REF\_POOL indicates the reference pool among the pools to be associated with the template.
- REF\_HOST indicates the host of the reference target from the pool targets.
- REF\_TGT indicates the reference target from the pool targets.
- SELECT\_ORACLE\_HOME\_OPTION allows the Oracle home to be automatically selected by entering the value as `SELECT_ORACLE_HOME_AT_RUNTIME`, or to be selected by the SSA user by entering the value as `SELECT_ORACLE_HOME_FROM_REQUEST`.

These parameters are mandatory and are required to identify the reference target to create the database.

## DNFS Based Database Service Template .json File

```
{
  "name" : "DB Clones",
  "description" : "This clones a database based on NFS.",
  "serviceType" : "DB",
  "serviceTemplateTypeId" : "81",
  "rscProvAssocOption" : [ "byRscProvInst" ],
  "resourceProvider" : {
    "lookupCharacteristics" : [ {
      "characteristics" : [ {
```

```

        "name" : "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",
        "values" : [ "1898CF93BD39C19BF032672271BC4B44" ],
        "targetType" : {
            "targetType" : "oracle_cloud_zone",
            "targetTypeName" : "Database Pool",
            "parentTargetType" : "self_service_zone",
            "parentTargetTypeName" : "PaaS Infrastructure Zone"
        }
    } ],
    "purposeId" : 1
} ]
},
"payloads" : [ {
    "name" : "PROFILE_COMPONENT_URN",
    "value" :
"oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:1C14BB2B2E127E2
3E053C075B10AE31F:0.1"
} ],
"configurations" : [ {
    "name" : "STAGE_LOCATION",
    "value" : "/scratch/emga/backups/rman/"
}, {
    "name" : "PROFILE_COMPONENT_URN",
    "value" :
"oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:1C14BB2B2E127E2
3E053C075B10AE31F:0.1"
}, {
    "name": "SELECT_ORACLE_HOME_OPTION",
    "value": "SELECT_ORACLE_HOME_FROM_REQUEST",
}, {
    "name" : "REF_TGT",
    "value" : "abc.example.com"
}, {
    "name" : "REF_HOST",
    "value" : "abc.example.com"
}, {
    "name" : "REF_ZONE",
    "value" : "Salt Lake City Zone"
}, {
    "name" : "zoneTargetName",
    "value" : "Salt Lake City Zone"
}, {
    "name" : "REF_POOL",
    "value" : "Databases Pool"
}, {
    "name" : "DATABASE_TYPE",
    "value" : "oracle_database"
}, {
    "name" : "COMMON_DB_SYS_PASSWORD",
    "value" : "welcome"
}, {
    "name" : "LISTENER_PORT",
    "value" : "1521"
}, {
    "name" : "PROFILE_VERSION",
    "value" : "latest"
}, {
    "name" : "COMMON_DB_SID",
    "value" : "db"
}, {
    "name" : "TARGET_PROP_LIST",
    "values" : [ "Contact:9980697299:false:false", "Location:null:false:false",
"LifeCycle Status:null:false:false", "Department:null:false:false",
"Comment:null:false:false", "Line of Business:null:false:false" ]
}, {
    "name" : "USER_PRIVILEGES",
    "value" : "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY OPERATOR,
CREATE ANY PROCEDURE"
}, {
    "name" : "DNFS.DATA_FILE_LOCATION",
    "value" : "/scratch/emga/app/emga/oradata"
}, {
    "name" : "DNFS.REDO_FILE_LOCATION",
    "value" : "/scratch/emga/app/emga/fast_recovery_area"
}, {
    "name" : "DNFS.RECOVERY_FILE_LOCATION",
    "value" : "/scratch/emga/app/emga/fast_recovery_area"
}, {
    "name" : "DNFS.FRA_SIZE",
    "value" : "4038"
}

```



```
    {"name" : "DNFS.USE_ARCHIVING",  
     "value" : "YES"}  
    {"name" : "DNFS.WORK_DIR_LOC",  
     "value" : "/tmp/work"}  
    {"name" : "DNFS.DB_ADMIN_PASSWORD_SAME",  
     "value" : "Y"}  
    {"name" : "DNFS.BACKUP_LOCATION",  
     "value" : "/scratch/emga/backups/rman_image/" }  
    {"name" : "DNFS.USE_OFA",  
     "value" : "N"}  
    {"name" : "COMMON_DOMAIN_NAME",  
     "value" : "us.example.com"} ]  
}
```

 **Note:**

In the JSON body mentioned above:

- To get the software library ID of the "DBAAS\_SSA\_CUSTOM\_PRE\_SCRIPTS\_URN" and "DBAAS\_SSA\_CUSTOM\_POST\_SCRIPTS\_URN" run the EM CLI command `emcli list_swlib_entities -name="<Pre or Post Standby Database Script>" -show_entity_rev_id`. The ID is provided at the end of the output. For example, in the output shown below, `oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1` is the ID.  
  
`Pre or Post Standby Database Script,0.1,Pre or Post Standby Database Script,Ready,Directives,,Production,ORACLE,,,oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1`
- To derive the REF\_ZONE to be associated with the Service template, execute a GET request.
- To derive the ID of the Software Pool that needs to be entered as "values" (under "lookupCharacteristics"), execute a GET request as shown in [Viewing Details of the Software Pools Resource](#).
- To derive the `serviceTemplateTypeId` value, perform a GET operation on the URI - `em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes` and locate `serviceType:DB` in the JSON response. Note the `serviceTemplateTypeId` under `serviceType:DB` and use the value in the POST body shown above.
- REF\_ZONE indicates the reference zone among the zones to be associated with the template.
- REF\_POOL indicates the reference pool among the pools to be associated with the template.
- REF\_HOST indicates the host of the reference target from the pool targets.
- REF\_TGT indicates the reference target from the pool targets.
- SELECT\_ORACLE\_HOME\_OPTION allows the Oracle home to be automatically selected by entering the value as `SELECT_ORACLE_HOME_AT_RUNTIME`, or to be selected by the SSA user by entering the value as `SELECT_ORACLE_HOME_FROM_REQUEST`.

These parameters are mandatory and are required to identify the reference target to create the database.

## Snap Clone Single Instance Database with Archiving Enabled Service Template .json File

```
{
  "name" : "Create Snap Database using Snapshots",
  "description" : "Creates Databases on SI hosts.",
  "serviceType" : "DB",
  "serviceTemplateTypeId" : "81",
  "rscProvAssocOption" : [ "byRscProvInst" ],
  "resourceProvider" : {
```

```

"lookupCharacteristics" : [ {
  "characteristics" : [ {
    "name" : "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",
    "values" : [ "503073C7912B1C65B66E240C433012A9" ],
    "targetType" : {
      "targetType" : "oracle_cloud_zone",
      "targetTypeName" : "Database Pool",
      "parentTargetType" : "self_service_zone",
      "parentTargetTypeName" : "PaaS Infrastructure Zone"
    }
  } ],
  "purposeId" : 1
} ],
},
"payloads" : [ {
  "name" : "PROFILE_COMPONENT_URN",
  "value" :
"oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:247BF4B378FF253
FE053C075B10A794A:0.1"
} ],
"configurations" : [ {
  "name" : "STAGE_LOCATION",
  "value" : "/scratch/emga/backups/rman/"
}, {
  "name" : "PROFILE_COMPONENT_URN",
  "value" :
"oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:247BF4B378FF253
FE053C075B10A794A:0.1"
}, {
  "name" : "REF_TGT",
  "value" : "xyz.example.com"
}, {
  "name" : "REF_HOST",
  "value" : "xyz.example.com"
}, {
  "name" : "REF_ZONE",
  "value" : "Single Instances Zone"
}, {
  "name" : "zoneTargetName",
  "value" : "Single Instances Zone"
}, {
  "name" : "REF_POOL",
  "value" : "SI Databases Pool - Version 11_2_0_4"
}, {
  "name" : "DATABASE_TYPE",
  "value" : "oracle_database"
}, {
  "name" : "COMMON_DB_SYS_PASSWORD",
  "value" : "welcome"
}, {
  "name" : "LISTENER_PORT",
  "value" : "1521"
}, {
  "name" : "PROFILE_VERSION",
  "value" : "latest"
}, {
  "name" : "COMMON_DB_SID",
  "value" : "db"
}, {
  "name" : "TARGET_PROP_LIST",
  "values" : [ "Contact:9980697299:false:false", "Location:null:false:false",
"LifeCycle Status:null:false:false", "Department:null:false:false",

```

```
"Comment:null:false:false", "Line of Business:null:false:false" ]
}, {
  "name" : "USER_PRIVILEGES",
  "value" : "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY OPERATOR,
CREATE ANY PROCEDURE"
}, {
  "name" : "THIN_PROVISIONING:LISTENER_PORT",
  "value" : "1522"
}, {
  "name" : "THIN_PROVISIONING:REDO_LOG_GROUP_COUNT",
  "value" : "2"
}, {
  "name" : "THIN_PROVISIONING:TEMP_TABLESPACE_SIZE",
  "value" : "520"
}, {
  "name" : "THIN_PROVISIONING:USE_ARCHIVING",
  "value" : "YES"
}, {
  "name" : "THIN_PROVISIONING:MOUNT_POINT_LIST",
  "values" : [ "/hkdb" ]
}, {
  "name" : "THIN_PROVISIONING:MOUNT_ADDL_SIZE_LIST",
  "values" : [ "5.0" ]
}, {
  "name" : "THIN_PROVISIONING:REDO_LOG_FILE_TYPE",
  "value" : "Same as source"
}, {
  "name" : "INIT_PARAMS",
  "values" : [ "sga_target=1073741824", "pga_aggregate_target=1073741824" ]
}, {
  "name" : "COMMON_DOMAIN_NAME",
  "value" : "us.example.com"
} ]
}
```

 **Note:**

In the JSON body mentioned above:

- To get the software library ID of the "DBAAS\_SSA\_CUSTOM\_PRE\_SCRIPTS\_URN" and "DBAAS\_SSA\_CUSTOM\_POST\_SCRIPTS\_URN" run the EM CLI command `emcli list_swlib_entities -name="<Pre or Post Standby Database Script>" -show_entity_rev_id`. The ID is provided at the end of the output. For example, in the output shown below, `oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1` is the ID.  
  
`Pre or Post Standby Database Script,0.1,Pre or Post Standby Database Script,Ready,Directives,,Production,ORACLE,,,oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1`
- To derive the REF\_ZONE to be associated with the Service template, execute a GET request.
- To derive the ID of the Software Pool that needs to be entered as "values" (under "lookupCharacteristics"), execute a GET request as shown in [Viewing Details of the Software Pools Resource](#).
- To derive the `serviceTemplateTypeId` value, perform a GET operation on the URI - `em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes` and locate `serviceType:DB` in the JSON response. Note the `serviceTemplateTypeId` under `serviceType:DB` and use the value in the POST body shown above.
- REF\_ZONE indicates the reference zone among the zones to be associated with the template.
- REF\_POOL indicates the reference pool among the pools to be associated with the template.
- REF\_HOST indicates the host of the reference target from the pool targets.
- REF\_TGT indicates the reference target from the pool targets.
- SELECT\_ORACLE\_HOME\_OPTION allows the Oracle home to be automatically selected by entering the value as `SELECT_ORACLE_HOME_AT_RUNTIME`, or to be selected by the SSA user by entering the value as `SELECT_ORACLE_HOME_FROM_REQUEST`.

These parameters are mandatory and are required to identify the reference target to create the database.

## Schema Based Service Template .json File

```
{
  "name": "TestSchaasTemplate3",
  "serviceType": "SCHEMA",
  "serviceFamily": "DBAAS",
  "description": "This is a test schaaS service template 1",
  "poolIds": [ "9D3187DE6B1115791D71D2827FB98558" ],
  "roles": [
    { "name": "SSA_USER_ROLE1" }
  ],
}
```

```
"serviceExecutableMeta":{
  "type":"CDP",
  "configurations":[
    { "name":"ROLE_NAME", "value":"SampleRole" },
    { "name":"MAX_NUMBER_OF_SCHEMAS", "value":"2" },
    { "name":"ENFORCE_STORAGE_CONSTRAINT", "value":"NO_LIMIT" },
    { "name":"AUTO_EXTEND_BLOCK_SIZE", "value":"1024" },
    { "name":"REF_ZONE", "value":"ABC_ZONE" },
    { "name":"REF_POOL", "value":"SCH_POOL" },
    { "name":"REF_HOST", "value":"abc.mycompany.com" },
    { "name":"REF_DB", "value":"simple.us.example.com" },
    { "name":"CREATE_SCHEMA_OPTION", "value":"EMPTY_SCHEMAS" },

    { "name":"SCHAAS_CUSTOM_PRE_SCRIPTS_URN", "value":"oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1"},

    { "name":"SCHAAS_CUSTOM_POST_SCRIPTS_URN", "value":"oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1"},
    {
      "name":"REMAP_TABLESPACE_LIST",
      "value":"",
      "values":["TBSP1", "TBSP2", "TBSP3"]
    },
    {
      "name":"REMAP_TABLESPACE_INIT_SIZE_LIST",
      "value":"",
      "values":["TBSP1:0.1", "TBSP2:0.2", "TBSP3:0.3"]
    },
    {
      "name":"REMAP_TABLESPACE_INCR_SIZE_LIST",
      "value":"",
      "values":["TBSP1:0.1", "TBSP2:0.2", "TBSP3:0.3"]
    },
    {
      "name":"REMAP_TABLESPACE_MAX_SIZE_LIST",
      "value":"",
      "values":["TBSP1:50.0", "TBSP2:30", "TBSP3:20"]
    },

    { "name":"CREATE_SCHEMA_OPTION", "value":"EMPTY_SCHEMAS" },
    {
      "name":"WORKLOADS",
      "subconfigurations":[
        {
          "name":"WORK_LOADS:1",
          "subconfigurations":[
            { "name":"name", "value":"large " },
            { "name":"description", "value":"large workload" },
            { "name":"default", "value":"Y" },
            { "name":"CPU", "value":"6" },
            { "name":"Memory", "value":"4048" },
            { "name":"Storage", "value":"2024" }
          ]
        }
      ]
    }
  ]
}
```

## Pluggable Database Service Template .json File

```

{
  "name": "TestPdbTemplate1",
  "serviceType": "PDB",
  "serviceFamily": "DBAAS",
  "description": "This is a test pluggable database service template 1",
  "poolIds": [ "FF394120842D8C71CC92BE6A4D5A488E" ],
  "roles": [
    { "name": "SSA_USER_ROLE1" }
  ],
  "serviceExecutableMeta": {
    "type": "CDP",
    "configurations": [
      {
        "name": "TABLESPACE_ENCRYPTION_ALGORITHM",
        "subconfigurations": [
          { "name": "name", "value": "NONE" }
        ]
      },
      { "name": "MAX_TABLESPACE_ALLOWED", "value": "2" },
      { "name": "PDB_SID_PREFIX", "value": "mypdb" },
      { "name": "ENFORCE_STORAGE_CONSTRAINT", "value": "NO_LIMIT" },
      { "name": "AUTO_EXTEND_BLOCK_SIZE", "value": "1024" },
      { "name": "REF_DATA_ZONE", "value": "PDB_Zone" },
      { "name": "REF_DATA_TARGET", "value": "database" },
      { "name": "REF_DATA_TARGET_TYPE", "value": "oracle_database" },
      { "name": "REF_DATA_POOL", "value": "PDB_POOL" },
      { "name": "REF_DATA_HOST", "value": "abc.mycompany.com" },
      { "name": "SELECT_TARGET_OPTION", "value": "SELECT_TARGET_FROM_REQUEST" },
      { "name": "CREATE_PDB_OPTION", "value": "EMPTY_PDB" },

      { "name": "PDBAAS_CUSTOM_PRE_SCRIPTS_URN", "value": "oracle:defaultService:em:provisioning:1:
cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1" },

      { "name": "PDBAAS_CUSTOM_POST_SCRIPTS_URN", "value": "oracle:defaultService:em:provisioning:1:
cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1" },
      { "name": "PRIVILEGES",
        "value": "",
        "values": ["CREATE TYPE", "CREATE VIEW", "CREATE DIMENSION", "CREATE
SESSION", "CREATE TRIGGER", "CREATE OPERATOR", "CREATE SYNONYM", "CREATE TABLE", "CREATE
PROCEDURE", "CREATE INDEXTYPE", "CREATE SEQUENCE"]
      },
      { "name": "ROLE_OPTION", "value": "CUSTOM_NEW_ROLE" },
      {
        "name": "INIT_PARAMS",
        "subconfigurations": [
          { "name": "INIT_PARAMS:1", "value": "*.cursor_sharing=EXACT" },
          { "name": "INIT_PARAMS:2", "value": "*.open_cursors=200" }
        ]
      },
      {
        "name": "WORKLOADS",
        "subconfigurations": [
          {
            "name": "WORK_LOADS:1",
            "subconfigurations": [
              { "name": "name", "value": "SmallPdb" },
              { "name": "description", "value": "small workload" },
              { "name": "default", "value": "N" },
              { "name": "CPU", "value": "2" },
            ]
          }
        ]
      }
    ]
  }
}

```





```
"roles": [
  "SSA_USER_ROLE"
],
"resourceProvider": {
  "lookupCharacteristics": [
    {
      "characteristics": [
        {
          "name": "ORACLE.SYSMAN.SSA.PDBAAS_POOL",
          "values": [
            "DFB8F2A53429AF99EF2020C56E11FEE9"
          ],
          "targetType": {
            "targetType": "pdbaas_pool",
            "targetTypeName": "Pluggable Database Pool",
            "parentTargetType": "self_service_zone",
            "parentTargetTypeName": "PaaS Infrastructure Zone"
          }
        }
      ]
    },
    {
      "purposeId": 1
    }
  ]
},
"payloads": [
  {
    "name": "DBDELETE_PRESCRIPT",
    "value":
"oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:246A484D511C1CFFE053C07
5B10AEF2D:0.1"
  },
  {
    "name": "DBDELETE_POSTSCRIPT",
    "value":
"oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:246A484D51201CFFE053C07
5B10AEF2D:0.1"
  }
],
"characteristics": [
  {
    "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_DEPARTMENT",
    "displayName": "Department",
    "value": "Development",
    "required": true,
    "editable": false,
    "visible": true
  },
  {
    "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LOCATION",
    "displayName": "Location",
    "values": "Bangalore",
    "required": false,
    "editable": true,
    "visible": true
  }
],
"configurations": [
  {
    "name": "REF_DATA_ZONE",
    "value": "Single Instances Zone"
  },
  {
```

```

{
  "name": "SELECT_TARGET_OPTION"
  "value": "SELECT_TARGET_FROM_REQUEST"
},
  "name": "CUSTOM_ROLE_NAME",
  "value": "PDBAAS_NOV_13_2015_16_51_PM"
},
{
  "name": "TARGET_PROP_LIST",
  "values": [
    "Site:null:false:false",
    "Contact:null:false:false",
    "Downtime Contact:null:false:false",
    "Location:null:false:false",
    "LifeCycle Status:null:false:false",
    "Department:Development:true:true",
    "Comment:This is for testing:false:false",
    "Line of Business:null:false:false"
  ]
},
{
  "name": "PDBAAS_CUSTOM_PRE_SCRIPTS_URN",
  "value":
"oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:2469CA4C8C7B4E34E053C07
5B10A74AD:0.2"
},
{
  "name": "WORKLOADS",
  "subvalues": [
    {
      "name": "Small",
      "subvalues": [
        {
          "name": "name",
          "value": "SmallPdb"
        },
        {
          "name": "description",
          "value": "small workload"
        },
        {
          "name": "default",
          "value": "N"
        }
      ],
      {
        "name": "CPU",
        "value": "2"
      },
      {
        "name": "Memory",
        "value": "2"
      },
      {
        "name": "Storage",
        "value": "5"
      },
      {
        "name": "Sessions",
        "value": "100"
      }
    ]
  ]
}

```

```

    ]
  },
  {
    "name": "PRIVILEGES",
    "type": "VECTOR",
    "description": "List of privileges of custom new role that will be applied on
pluggable database administrator.",
    "displayName": "PRIVILEGES",
    "required": false,
    "secret": false,
    "values": [
      "CREATE SESSION",
      "ALTER SESSION",
      "CREATE DIMENSION",
      "CREATE INDEXTYPE",
      "CREATE ANY OPERATOR",
      "CREATE ANY PROCEDURE",
      "CREATE ANY SEQUENCE",
      "CREATE ANY INDEX",
      "CREATE JOB",
      "CREATE ANY MATERIALIZED VIEW",
      "CREATE ANY TABLE",
      "CREATE ANY TRIGGER",
      "CREATE ANY TYPE",
      "CREATE ANY VIEW",
      "CREATE ANY SYNONYM",
      "CREATE ANY DIRECTORY",
      "SELECT ANY DICTIONARY",
      "SELECT ANY TABLE"
    ]
  },
  {
    "name": "REF_DATA_TARGET_TYPE",
    "value": "rac_database"
  },
  {
    "name": "REF_DATA_ZONE",
    "value": "Clusters Zone - Oracle DB 12c"
  },
  {
    "name": "REF_DATA_HOST",
    "value": "xyz.example.com"
  },
  {
    "name": "REF_DATA_TARGET",
    "value": "cdbfs"
  },
  {
    "name": "REF_DATA_POOL",
    "value": "RAC Pluggable DBs"
  },
  {
    "name": "PDBAAS_CUSTOM_POST_SCRIPTS_URN",
    "value":
"oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:2469CA4C8C7F4E34E053C07
5B10A74AD:0.2"
  },
  {
    "name": "SELECT_TARGET_OPTION",
    "value": "SELECT_TARGET_AT_RUNTIME"
  },
  {

```

```

    "name": "MAX_TABLESPACE_ALLOWED",
    "value": "1"
  },

  {
    "name": "ROLE_OPTION",
    "value": "CUSTOM_NEW_ROLE"
  },
  {
    "name": "CREATE_PDB_OPTION",
    "value": "EMPTY_PDB"
  }, {
    "name": "INIT_PARAMS",
    "values": [
      "*.cursor_sharing=EXACT",
      "*.open_cursors=300"
    ]
  }
]
}
}
}

```

 **Note:**

- To get the software library ID of the "PDBAAS\_CUSTOM\_PRE\_SCRIPTS\_URN" and "PDBAAS\_CUSTOM\_POST\_SCRIPTS\_URN" run the EM CLI command `emcli list_swlib_entities -name="<Pre or Post Standby Database Script>" -show_entity_rev_id`. The ID is provided at the end of the output. For example, in the output shown below, `oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1` is the ID.
 

```

Pre or Post Standby Database Script,0.1,Pre or Post Standby Database
Script,Ready,Directives,,Production,ORACLE,,,oracle:defaultService:em:provis
ioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1

```
- To derive the REF\_DATA\_ZONE to be associated with the Service template, execute a GET request.
- To derive the ID of the Software Pool that needs to be entered as "poolIds", execute a GET request as shown in [Viewing Details of the Software Pools Resource](#).
- To derive the serviceTemplateTypeId value, perform a GET operation on the URI - `em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes` and locate "serviceType": "DB" in the JSON response. Note the serviceTemplateTypeId under "serviceType": "DB" and use the value in the POST body shown above.
- In the table above, the SELECT\_TARGET\_OPTION parameter defines if the SSA User has the option to select the Container Database (CDB) while requesting for a PDB. If the value for the parameter is set as SELECT\_TARGET\_FROM\_REQUEST, then the SSA User has the option to choose the CDB. If no value is defined, or if the value is set to SELECT\_TARGET\_AT\_RUNTIME, then the placement algorithm selects the CDB.

## RAC Pluggable Database Using a Profile Pluggable Database Service Template .json File

```

{
  "name": "Create RAC PDBs using Profile PDB option",
  "description": "Creates PDBs on cluster.",
  "serviceType": "PDB",
  "serviceTemplateTypeId": "94",
  "rscProvAssocOption": [
    "byRscProvInst"
  ],
  "roles": [
    "SSA_USER_ROLE"
  ],
  "resourceProvider": {
    "lookupCharacteristics": [
      {
        "characteristics": [
          {
            "name": "ORACLE.SYSMAN.SSA.PDBAAS_POOL",
            "values": [
              "DFB8F2A53429AF99EF2020C56E11FEE9"
            ],
            "targetType": {
              "targetType": "pdbaas_pool",
              "targetTypeName": "Pluggable Database Pool",
              "parentTargetType": "self_service_zone",
              "parentTargetTypeName": "PaaS Infrastructure Zone"
            }
          }
        ],
        "purposeId": 1
      }
    ]
  },
  "payloads": [
    {
      "name": "DBDELETE_PRESCRIPT",
      "value":
"oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:246A484D511C1CFFE053C07
5B10AEF2D:0.1"
    },
    {
      "name": "DBDELETE_POSTSCRIPT",
      "value":
"oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:246A484D51201CFFE053C07
5B10AEF2D:0.1"
    }
  ],
  "characteristics": [
    {
      "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_CONTACT",
      "displayName": "Contact",
      "values": [],
      "required": false,
      "editable": true,
      "visible": true
    },
    {
      "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_COST_CENTER",

```

```
        "displayName": "Cost Center",
        "values": [],
        "required": false,
        "editable": true,
        "visible": true
    },
    {
        "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_DEPARTMENT",
        "displayName": "Department",
        "values": [],
        "required": false,
        "editable": true,
        "visible": true
    },
    {
        "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_DOWNTIME_CONTACT",
        "displayName": "Downtime Contact",
        "values": [],
        "required": false,
        "editable": true,
        "visible": true
    },
    {
        "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LIFECYCLE_STATUS",
        "displayName": "Lifecycle Status",
        "values": [
            "Development",
            "MissionCritical",
            "Production",
            "Stage",
            "Test"
        ],
        "required": false,
        "editable": true,
        "visible": true
    },
    {
        "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LINE_OF_BUS",
        "displayName": "Line of Business",
        "values": [],
        "required": false,
        "editable": true,
        "visible": true
    },
    {
        "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LOCATION",
        "displayName": "Location",
        "values": [],
        "required": false,
        "editable": true,
        "visible": true
    }
],
"configurations": [
    {
        "name": "REF_DATA_ZONE",
        "value": "Single Instances Zone"
    },
    {
        "name": "SELECT_TARGET_OPTION"
        "value": "SELECT_TARGET_FROM_REQUEST"
    },
],
```

```
{
  "name": "TARGET_PROP_LIST",
  "values": [
    "Site:null:false:false",
    "Contact:null:false:false",
    "Downtime Contact:null:false:false",
    "Location:null:false:false",
    "LifeCycle Status:null:false:false",
    "Department:Development:true:true",
    "Comment:This is for testing:false:false",
    "Line of Business:null:false:false"
  ]
},
{
  "name": "PDBAAS_CUSTOM_PRE_SCRIPTS_URN",
  "value":
  "oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:2469CA4C8C7B4E34E053C07
  5B10A74AD:0.2"
},
{
  "name": "WORKLOADS",
  "subvalues": [
    {
      "name": "Small",
      "subvalues": [
        {
          "name": "name",
          "value": "SmallPdb"
        },
        {
          "name": "description",
          "value": "small workload"
        },
        {
          "name": "default",
          "value": "N"
        },
        {
          "name": "CPU",
          "value": "2"
        },
        {
          "name": "Memory",
          "value": "2"
        },
        {
          "name": "Storage",
          "value": "5"
        },
        {
          "name": "Sessions",
          "value": "100"
        }
      ]
    }
  ]
},
{
  "name": "ROLE_OPTION",
  "value": "CUSTOM_NEW_ROLE"
},
{
```

```
    "name": "CUSTOM_ROLE_NAME",
    "value": "PDBAAS_NOV_13_2015_16_51_PM"
  },
  {
    "name": "CUSTOM_ROLE_DESC",
    "value": "New db role to be assigned to pluggable database administrator."
  },
  {
    "name": "PRIVILEGES",
    "values": [
      "CREATE SESSION",
      "ALTER SESSION",
      "CREATE DIMENSION",
      "CREATE INDEXTYPE",
      "CREATE ANY OPERATOR",
      "CREATE ANY PROCEDURE",
      "CREATE ANY SEQUENCE",
      "CREATE ANY INDEX",
      "CREATE JOB",
      "CREATE ANY MATERIALIZED VIEW",
      "CREATE ANY TABLE",
      "CREATE ANY TRIGGER",
      "CREATE ANY TYPE",
      "CREATE ANY VIEW",
      "CREATE ANY SYNONYM",
      "CREATE ANY DIRECTORY",
      "SELECT ANY DICTIONARY",
      "SELECT ANY TABLE"
    ]
  },
  {
    "name": "REF_DATA_TARGET_TYPE",
    "value": "rac_database"
  },
  {
    "name": "REF_DATA_ZONE",
    "value": "Clusters Zone - Oracle DB 12c"
  },
  {
    "name": "REF_DATA_HOST",
    "value": "xyz.example.com"
  },
  {
    "name": "REF_DATA_TARGET",
    "value": "cdbfs"
  },
  {
    "name": "REF_DATA_POOL",
    "value": "RAC Pluggable DBs"
  },
  {
    "name": "PDBAAS_CUSTOM_POST_SCRIPTS_URN",
    "value":
"oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:2469CA4C8C7F4E34E053C07
5B10A74AD:0.2"
  },
  {
    "name": "SELECT_TARGET_OPTION",
    "value": "SELECT_TARGET_AT_RUNTIME"
  },
  {
    "name": "MAX_TABLESPACE_ALLOWED",
```



```
        "value": "1"
    },
    {
        "name": "CREATE_PDB_OPTION",
        "value": "PDB_FROM_PROFILE"
    },
    {
        "name": "PROFILE_URN",
        "value":
"oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:246C1E85296C29A
1E053C075B10A7DFA:0.1"
    },
    {
        "name": "SHARED_STAGE_LOCATION",
        "value": "/u04/app/hhkaur/product/12.1.0/dbhome_2/rdbms/xml/schema"
    },
    {
        "name": "TABLESPACE_SIZE",
        "values": [
            "0.7715",
            "0.6152",
            "0.0586",
            "0.0049"
        ]
    },
    {
        "name": "INIT_PARAMS",
        "values": [
            "*.cursor_sharing=EXACT",
            "*.open_cursors=300"
        ]
    },
    {
        "name": "PDB_SID_PREFIX",
        "value": "prp"
    }
]
}
```

 **Note:**

- To get the software library ID of the "PDBAAS\_CUSTOM\_PRE\_SCRIPTS\_URN" and "PDBAAS\_CUSTOM\_POST\_SCRIPTS\_URN" run the EM CLI command `emcli list_swlib_entities -name="<Pre or Post Standby Database Script>" -show_entity_rev_id`. The ID is provided at the end of the output. For example, in the output shown below,  

```
oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1
```

is the ID.  

```
Pre or Post Standby Database Script,0.1,Pre or Post Standby Database Script,Ready,Directives,,Production,ORACLE,,,oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1
```
- To derive the REF\_DATA\_ZONE to be associated with the Service template, execute a GET request.
- To derive the ID of the Software Pool that needs to be entered as "poolIds", execute a GET request as shown in [Viewing Details of the Software Pools Resource](#).
- To derive the serviceTemplateTypeId value, perform a GET operation on the URI - `em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes` and locate "serviceType":"DB" in the JSON response. Note the serviceTemplateTypeId under "serviceType":"DB" and use the value in the POST body shown above.
- In the table above, the SELECT\_TARGET\_OPTION parameter defines if the SSA User has the option to select the Container Database (CDB) while requesting for a PDB. If the value for the parameter is set as SELECT\_TARGET\_FROM\_REQUEST, then the SSA User has the option to choose the CDB. If no value is defined, or if the value is set to SELECT\_TARGET\_AT\_RUNTIME, then the placement algorithm selects the CDB.

## Clone DB Based Service Template .json File

```
{
  "type":"CDP",
  "configurations":[
    { "name":"PROFILE_COMPONENT_URN",
      "value":"oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:E9F67B964802DD32E040F20A60514EB5:0.1" },
    { "name":"DATABASE_TYPE","value":"oracle_database" },
    { "name":"COMMON_DB_SYSTEM_PASSWORD", "value":"welcome" },
    { "name":"COMMON_DB_DBSNMP_PASSWORD", "value":"welcome" },
    { "name":"COMMON_DB_SYS_PASSWORD","value":"welcome" },
    { "name":"COMMON_DB_SID","value":"norm" },
    { "name":"COMMON_DOMAIN_NAME","value":"us.example.com" },
    { "name":"LISTENER_PORT", "value":"1521"},
    { "name":"STAGE_LOCATION", "value":"/tmp/rman_backup/backup1383140909156"},
    { "name":"REF_ZONE", "value":"SLC01HZK_ZONE" },
    { "name":"SID_OPTION", "value":"ssauser" },
    { "name":"COMMON_DB_SID","value":"mydb1" },
    { "name":"REF_POOL", "value":"PRIMARY_DB2" },
    { "name":"REF_HOST", "value":"xyxy.example.com" },
    { "name":"REF_TGT","value":"xxxxy.example.com" },
    { "name":"ROLE_NAME","value":"ROLE_Oct_31_2014_17_59_PM" },

```

```

    { "name":"ROLE_DESC","value":"New database role to be assigned to master account." },
    { "name":"USER_PRIVILEGES","value":"CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE,
CREATE ANY OPERATOR, CREATE ANY PROCEDURE, CREATE ANY SEQUENCE, CREATE ANY INDEX, CREATE
JOB, CREATE ANY MATERIALIZED VIEW, CREATE ANY TABLE, CREATE ANY TRIGGER, CREATE ANY
TYPE, CREATE ANY VIEW, CREATE ANY SYNONYM, CREATE ANY DIRECTORY, SELECT ANY
DICTIONARY" },
    { "name":"DEFAULT_DATABASE_SIZE","value":"small" },
    { "name":"DATABASE_SIZES","value":"","values":["small","medium"]},
    { "name":"ENTITY_TYPE","value":"USE_PROFILE"},
    { "name":"PROFILE_VERSION","value":"latest"},
    { "name":"TARGET_PROP_LIST","value":"","
      "values":[
        "Department:value:false:false",
        "Location:null:false:false",
        "Comment:null:false:false",
        "LifeCycle Status:null:false:false",
        "Line of Business:null:false:false",
        "Contact:null:false:false"]
    },
    { "name":"CUSTOM_TARGET_PROP_LIST","value":"","
      "values":[
        "Department:value:false:false
      ]
    },
    { "name":"RMAN:DB_STORAGE_TYPE", "value":"FS" },
    { "name":"RMAN:FRA_STORAGE_TYPE", "value":"FS" },
    { "name":"RMAN:DATA_FILE_LOCATION","value":"/scratch/app/oracle/oradata" },
    { "name":"RMAN:RECOVERY_FILE_LOCATION","value":"/scratch/app/oracle/fra" },
    { "name":"RMAN:REDO_FILE_LOCATION", "value":"/scratch/app/oracle/fra" },
    { "name":"RMAN:FRA_SIZE", "value":"5000" },
    { "name":"RMAN:REC_STORAGE_TYPE SAME AS DB FILES", "value":"Y" },
    { "name":"RMAN:ARCHIVE_LOG_MODE", "value":"Y" },
    { "name":"RMAN:FLASH_RECOVERY_AREA_SIZE", "value":"5000" },
    { "name":"CLONE_OR_FULL_DB", "value":"CLONE_DB" },
    { "name":"USER_INITIATED_BACKUP_LOCATION", "value":"/tmp" },
    { "name":"ALLOW_BACKUPS", "value":"true" },
    { "name":"MAX_BACKUPS_ALLOWED", "value":"7" },
    { "name":"STAGE_LOCATION", "value":"/tmp" },
    { "name":"RMAN:USE_ARCHIVING", "value":"Y" },
    {
      "name":"INIT_PARAMS",
      "subconfigurations":[
        { "name":"INIT_PARAMS:1", "value":"sga_target=314572800" },
        { "name":"INIT_PARAMS:2", "value":"pga_aggregate_target=209715200" },
        { "name":"INIT_PARAMS:3", "value":"*.control_files='/scratch/app/oracle/oradata/simple/
control01.ctl','/scratch/app/oracle/fast_recovery_area/simple/control02.ctl'" },
        { "name":"INIT_PARAMS:4", "value":"*.db_name='simple'" }
      ]
    }
  ]
}

```

## Full Clone Using an RMAN Duplicate Service Template .json File

```

{
  "type":"CDP",
  "configurations":[
    { "name":"DATABASE_TYPE","value":"oracle_database" },
    { "name":"COMMON_DB_SYSTEM_PASSWORD", "value":"welcome" },
    { "name":"COMMON_DB_DBSNMP_PASSWORD", "value":"welcome" },
    { "name":"COMMON_DB_SYS_PASSWORD","value":"welcome" },
    { "name":"COMMON_DB_SID","value":"norm" },
  ]
}

```

```

{ "name":"COMMON_DOMAIN_NAME","value":"us.example.com" },
{ "name":"LISTENER_PORT", "value":"1521"},
{ "name":"STAGE_LOCATION", "value":"/tmp/rman_backup/backup1383140909156"},
{ "name":"REF_ZONE", "value":"SLC01HZK_ZONE" },
{ "name":"SID_OPTION", "value":"ssauser" },
{ "name":"COMMON_DB_SID","value":"mydb1" },
{ "name":"REF_POOL", "value":"PRIMARY_DB2" },
{ "name":"REF_HOST", "value":"xyxy.example.com" },
{ "name":"REF_TGT", "value":"xxxy.example.com" },
{ "name":"ROLE_NAME","value":"ROLE_Oct_31_2014_17_59_PM" },
{ "name":"ROLE_DESC","value":"New database role to be assigned to master account." },
{ "name":"USER_PRIVILEGES","value":"CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE,
CREATE ANY OPERATOR, CREATE ANY PROCEDURE, CREATE ANY SEQUENCE, CREATE ANY INDEX, CREATE
JOB, CREATE ANY MATERIALIZED VIEW, CREATE ANY TABLE, CREATE ANY TRIGGER, CREATE ANY
TYPE, CREATE ANY VIEW, CREATE ANY SYNONYM, CREATE ANY DIRECTORY, SELECT ANY
DICTIONARY" },
{ "name":"DEFAULT_DATABASE_SIZE","value":"small" },
{ "name":"DATABASE_SIZES","value":"","values":["small","medium"]},
{ "name":"LIVE_CLONE_DATABASE_GUID","value":"75D1AA10AE406B671F72A601AA8DC86F"},
{ "name":"ENTITY_TYPE","value":"USE_DATABASE"},
{ "name":"LIVE_CLONE_TYPE","value":"USE_FULLCLONE"},
{ "name":"SRC_HOST_CREDS","value":"CREDNAME:OWNER" },
{ "name":"SRC_DB_CREDS","value":"CREDNAME:OWNER" },
{ "name":"TARGET_PROP_LIST","value":"","
    "values":[
        "Department:value:false:false",
        "Location:null:false:false",
        "Comment:null:false:false",
        "LifeCycle Status:null:false:false",
        "Line of Business:null:false:false",
        "Contact:null:false:false"
    ]
},
{ "name":"CUSTOM_TARGET_PROP_LIST","value":"","
    "values":[
        "Department:value:false:false
    ]
},
{
    "name":"INIT_PARAMS"
    "subconfigurations":[
        { "name":"INIT_PARAMS:1", "value":"sga_target=314572800" },
        { "name":"INIT_PARAMS:2", "value":"pga_aggregate_target=209715200" },
        { "name":"INIT_PARAMS:3", "value":"*.control_files='/scratch/app/oracle/oradata/simple/
control01.ctl','/scratch/app/oracle/fast_recovery_area/simple/control02.ctl'" },
        { "name":"INIT_PARAMS:4", "value":"*.db_name='simple'" }
    ]
}
}
}

```

## Snapclone Database Using Live Clone Template on EMC Storage Service Template .json File

```

{
    "type":"CDP",
    "configurations":[
        { "name":"DATABASE_TYPE","value":"oracle_database" },
        { "name":"COMMON_DB_SYSTEM_PASSWORD", "value":"welcome" },
        { "name":"COMMON_DB_DBSNMP_PASSWORD", "value":"welcome" },
        { "name":"COMMON_DB_SYS_PASSWORD","value":"welcome" },
        { "name":"COMMON_DB_SID","value":"norm" },
    ]
}

```

```

{ "name":"COMMON_DOMAIN_NAME","value":"us.example.com" },
{ "name":"LISTENER_PORT", "value":"1521"},
{ "name":"STAGE_LOCATION", "value":"/tmp/rman_backup/backup1383140909156"},
{ "name":"REF_ZONE", "value":"SLC01HZK_ZONE" },
{ "name":"SID_OPTION", "value":"ssouser" },
{ "name":"COMMON_DB_SID","value":"mydb1" },
{ "name":"REF_POOL", "value":"PRIMARY_DB2" },
{ "name":"REF_HOST", "value":"xyxy.example.com" },
{ "name":"REF_TGT", "value":"xxxy.example.com" },
{ "name":"ROLE_NAME","value":"ROLE_Oct_31_2014_17_59_PM" },
{ "name":"ROLE_DESC","value":"New database role to be assigned to master account." },
{ "name":"USER_PRIVILEGES","value":"CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE,
CREATE ANY OPERATOR, CREATE ANY PROCEDURE, CREATE ANY SEQUENCE, CREATE ANY INDEX, CREATE
JOB, CREATE ANY MATERIALIZED VIEW, CREATE ANY TABLE, CREATE ANY TRIGGER, CREATE ANY
TYPE, CREATE ANY VIEW, CREATE ANY SYNONYM, CREATE ANY DIRECTORY, SELECT ANY
DICTIONARY" },
{ "name":"DEFAULT_DATABASE_SIZE","value":"small" },
{ "name":"DATABASE_SIZES","value":"","values":["small","medium"]},
{ "name":"LIVE_CLONE_DATABASE_GUID","value":"75D1AA10AE406B671F72A601AA8DC86F"}
{ "name":"ENTITY_TYPE","value":"USE_DATABASE"},
{ "name":"LIVE_CLONE_TYPE","value":"USE_SNAPCLONE"},
{ "name":"SRC_HOST_CREDS","value":"CREDNAME:OWNER" },
{ "name":"SRC_DB_CREDS","value":"CREDNAME:OWNER" },
{ "name":"TARGET_PROP_LIST","value":"","
    "values":[
        "Department:value:false:false",
        "Location:null:false:false",
        "Comment:null:false:false",
        "LifeCycle Status:null:false:false",
        "Line of Business:null:false:false",
        "Contact:null:false:false"
    ]
},
{ "name":"CUSTOM_TARGET_PROP_LIST","value":"","
    "values":[
        "Department:value:false:false
    ]
},
{
    "name":"INIT_PARAMS",
    "subconfigurations":[
        { "name":"INIT_PARAMS:1", "value":"sga_target=314572800" },
        { "name":"INIT_PARAMS:2", "value":"pga_aggregate_target=209715200" },
        { "name":"INIT_PARAMS:3", "value":"*.control_files='/scratch/app/oracle/oradata/simple/
control01.ctl','/scratch/app/oracle/fast_recovery_area/simple/control02.ctl'" },
        { "name":"INIT_PARAMS:4", "value":"*.db_name='simple'" }
    ]
}
]
}

```

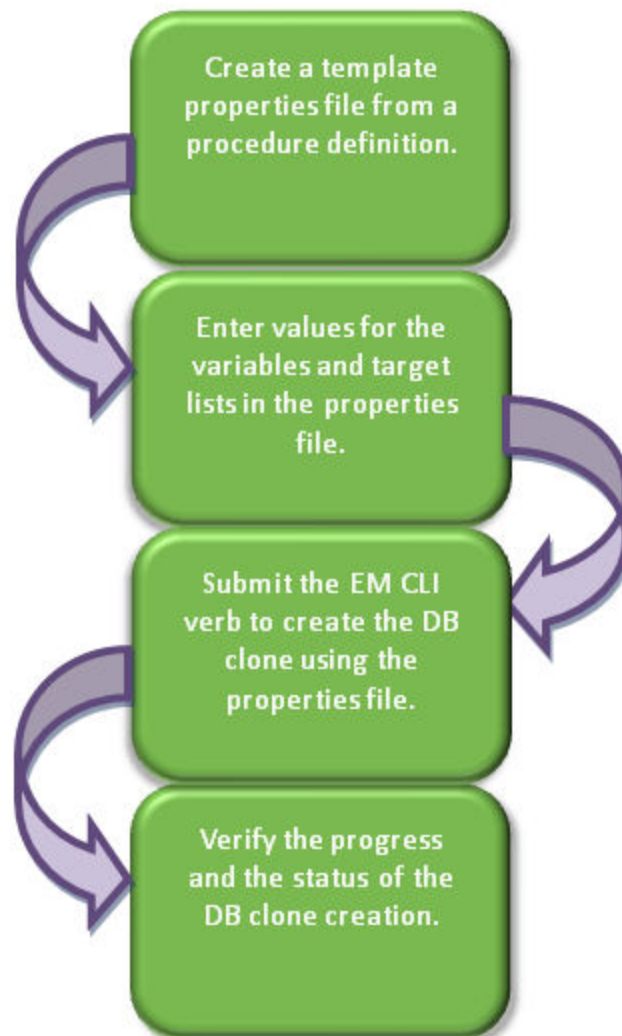
## Creating a Database Clone Using EM CLI Verbs

This section describes the procedure to create a database clone using EM CLI verbs.

 **Note:**

The procedure to create a Test master database is the same as the procedure to be followed to create a database clone. However, the only difference is in the property file parameters used to create the clone when compared to the property file parameters for Test master database.

**Figure 32-5** Creating a Database Clone Using EM CLI Verbs



Follow the steps below to create a database clone or a Test master database:

1. Create a template properties file from a procedure definition.

There are two approaches for creating a template properties file. Follow either method 1 or method 2 (given below).

- **Method 1: Using Enterprise Manager UI to create a clone of a database and generate the properties file from it**

To create a template properties file follow the steps below:

- a. Create a database clone via the Enterprise Manger UI.

Note down the **Deployment Procedure Instance Name** while creating the clone.

For example, Deployment Procedure Instance Name =  
 CloneDatabase\_SYSMAN\_12\_24\_2014\_15\_58\_PM.

- b. Use the instance name in the following command to generate a template properties file.

```
emcli get_instance_data
[-instance={instance_guid}]
[-exec={execution_guid}]
[-name={execution name}]
[-owner={execution owner}]
```

**Sample:**

```
emcli get_instance_data -name='CloneDatabase_SYSMAN_12_24_2014_15_58_PM' -
owner='SYSMAN' > /tmp/create_clone.props
```

- **Method 2: Generating the properties file using EM CLI verbs**

To create a template properties file using EM CLI verbs, follow the steps below:

- a. Retrieve the GUID or the name of the procedure. Run the following command to retrieve these.

```
emcli get_procedures
[-type={procedure type}]
```

**Sample command:**

```
emcli get_procedures -type=DBConfig
```

**Sample output:**

GUID	Type	Name	Parent	Procedure
0A15E9DC20772EF5E053E87BF00A6701	DBConfig	db_clone_eb_procedure		
db_clone_eb_procedure	2.12	ORACLE		
0A15E9DC20A12EF5E053E87BF00A6701	DBConfig	db_config_procedure		DB
Snap Clone	2.2	ORACLE		
0A15E9DC20422EF5E053E87BF00A6701	DBConfig	config_db_create_procedure		
Create Oracle Database	1.5	ORACLE		

- b. Input the GUID or the name as an input value in the following command to generate a template properties file.

```
emcli describe_procedure_input
[-procedure={procedure GUID}]
[-name={procedure name or procedure configuration}]
[-owner={owner of the procedure or procedure configuration}]
[-parent_proc={procedure of the procedure configuration. This only applies
to describe a procedure configuration with the same name}]
```

**Sample command:**

```
emcli describe_procedure_input -procedure=0A15E9DC20A12EF5E053E87BF00A6701
> /tmp/create_clone.props
```

2. Enter new values in the properties file.

Use an editor to edit the properties file. Enter the desired values for the variables and save the properties file.

The table below shows the properties file parameters used to create a database clone. To see the properties file parameters for creating a Test master database, see [Table 32-20](#).

 **Note:**

To see the list of required and optional variables in the properties file, enter the command `emcli db_clone_management <command> -print_properties`. Where, `<command>` can be one of the following: `-createFullClone`, `-createTestMaster`, `-createCloneDB`, `-createSnapClone`, `-createSnapshotClone`, or `-cloneToCloud`.

**Table 32-19 Sample Properties File for Creating a Database Clone**

Parameters	Sample values	Description
<b>Mandatory Parameters</b> CLONE_TYPE	CLONE_TYPE=DUPLICATE	Type of clone. Valid values are DUPLICATE, SNAP, DNFS_PROFILE, CONT_SYNC_PROFILE, and RMAN_PROFILE.
SRC_DB_TARGET_NAME	SRC_DB_TARGET_NAME=xxy.us.example.com	Source database target name.
SRC_DB_TARGET_TYPE	SRC_DB_TARGET_TYPE=oracle_database	Source database target type. Valid values are oracle_database and rac_database.
SRC_DB_CRED	SRC_DB_CRED=NC_CRED:SYS	Source database credentials in the format: <NAME:OWNER>.
SRC_HOST_NORMAL_NAMED_CRED	SRC_HOST_NORMAL_NAMED_CRED=NC_HOST_CRED:SYS	Source host credentials in the format: <NAME:OWNER>.
COMMON_GLOBAL_DB_NAME	COMMON_GLOBAL_DB_NAME=clonedb.example.com	Global database name of the clone database.
COMMON_DB_SID	COMMON_DB_SID=clonedb	SID of the clone database.
DB_TARGET_NAME	DB_TARGET_NAME=clonedb.xxy.example.com	Clone database target name.
DATABASE_TYPE	DATABASE_TYPE=dbTypeSI	Indicates the type of database. Accepted values are - dbTypeSI and dbTypeRAC.
TARGET_HOST_LIST	TARGET_HOST_LIST=desthost.example.com	Destination host name where the clone database will be created.
ORACLE_HOME_NAME	ORACLE_HOME_NAME=oraDB12Home2_29	Name of destination Oracle home.
ORACLE_HOME_LOC	ORACLE_HOME_LOC=/scratch/app/product/11.2.0./dbhome_1	Location of destination Oracle home.
ORACLE_BASE_LOC	ORACLE_BASE_LOC=/scratch/app	Location of destination Oracle base.
HOST_NORMAL_NAMED_CRED	HOST_NORMAL_NAMED_CRED=NC_HOST_CRED:SYS	Destination host credentials in the format: <NAME:OWNER>.



**Table 32-19 (Cont.) Sample Properties File for Creating a Database Clone**

Parameters	Sample values	Description
DB_STORAGE_TYPE	DB_STORAGE_TYPE=FS	Database files storage type. Valid values are FS and ASM.
DB_FILE_LOC	DB_FILE_LOC=/scratch/app/oradata	Location where database files will be created for the clone database..
FRA_STORAGE_TYPE	FRA_STORAGE_TYPE=FS	Fast Recovery Area storage type. Valid values are FS and ASM.
FLASH_REC_AREA	FLASH_REC_AREA=/scratch/user/app/fra	Location where recovery related files (archived redo logs, RMAN backups, and other related files) are created.
FRA_SIZE	FRA_SIZE=4395	Fast Recovery Area size.
ARCHIVE_LOG_MODE	ARCHIVE_LOG_MODE=NO	Whether the clone database should be in ARCHIVELOG mode. Accepted values are YES and NO.
DEST_LISTENER_SELECTION	DEST_LISTENER_SELECTION=DEST_DB_HOME	Indicates whether the listener specified is a Grid Home listener. Valid values are GRID_INFRA and DEST_DB_HOME.
LISTENER_PORT	LISTENER_PORT=1526	Port of the listener with which the clone database is to be registered.
ENABLE_LIVE_CLONE	ENABLE_LIVE_CLONE=true	Indicates if live clone is to be enabled. Accepted values are true and false.
DB_ADMIN_PASSWORD_SAME	DB_ADMIN_PASSWORD_SAME=true	Indicates if the passwords for SYSTEM, SYS and DBSNMP users are same or different. Accepted values are true or false.
DATABASE_PASSWORDS	DATABASE_PASSWORDS=right1	Common password of SYSTEM, SYS and DBSNMP users. This is applicable only when the parameter DB_ADMIN_PASSWORD_SAME=true.
DB_TEMPLATE_STAGE	DB_TEMPLATE_STAGE=temp	Temporary staging area used to store files transferred from source host.
<b>Optional Parameters</b> CLUSTERNAME	CLUSTERNAME=cluster	Name of the destination cluster. This is applicable only if DATABASE_TYPE=dbTypeRAC.
RAC_CONFIG_TYPE	RAC_CONFIG_TYPE=ADMIN_MANAGED	Destination cluster database type. This is applicable only if DATABASE_TYPE=dbTypeRAC. Valid value is ADMIN_MANAGED.
RAC_NODE_LIST	RAC_NODE_LIST=node1,node2	List of RAC nodes where the clone database will be created. This is applicable only if DATABASE_TYPE= dbTypeRAC.
IS_RAC_ONE	IS_RAC_ONE=false	Indicates if it's a RAC One node. This is applicable only if DATABASE_TYPE= dbTypeRAC
SRC_HOST_NORMAL_PREF_CRED_SET_NAME	SRC_HOST_NORMAL_PREF_CRED_SET_NAME=HostCredsNormal	Source database preferred credentials.
ASMSYSPWD	ASMSYSPWD=String1	Source ASM password. This is applicable only if the source database is on ASM.

**Table 32-19 (Cont.) Sample Properties File for Creating a Database Clone**

Parameters	Sample values	Description
HOST_NORMAL_PREF_CRED_SET_NAME	HOST_NORMAL_PREF_CRED_SET_NAME=HostCredsNormal	Destination host preferred credentials.
HOST_PRIV_NAMED_CRED	HOST_PRIV_NAMED_CRED=HOST_PRIV_CRED:SYSCO	Destination host root credentials. This is applicable only if CLONE_TYPE=SNAP.
HOST_PRIV_PREF_CRED_SET_NAME	HOST_PRIV_PREF_CRED_SET_NAME=HostCredsPriv	Destination host preferred root credentials. This is applicable only if CLONE_TYPE=SNAP.
PROFILE_INTERNAL_PATH	N/A	Profile internal path of the backup. This is applicable only if a profile is used for clone.
PROFILE_VERSION_URN	N/A	Profile version URN of the backup. This is applicable only if a profile is used for clone.
BACKUP_LOCATION_NAME	BACKUP_LOCATION_NAME=/scratch/databkp	Database backups' location. This is applicable if it's not a live clone.
BACKUP_TAG	N/A	Datafiles tag of the RMAN legacy backup. This is applicable only if using non-profile based RMAN backups for clone.
CONTROL_FILE_TAG	N/A	Control files tag of the RMAN legacy backup. This is applicable only if using non-profile based RMAN backups for clone.
PIT_DATETIME	N/A	Point in time recovery using date and time. This is applicable if it's not a live clone.
PIT_SCN	N/A	Point in time recovery using SCN. This is applicable if it's not a live clone.
IS_SAVE_PROFILE	N/A	Indicates that a snapshot profile of the source database will be created. This is applicable only if CLONE_TYPE=SNAP.
COMMON_DOMAIN_NAME	COMMON_DOMAIN_NAME=xyy.example.com	Domain of clone database.
COMMON_DB_DBSNMP_PASSWORD	COMMON_DB_DBSNMP_PASSWORD=right	DBSNMP user password for the clone database. This is applicable only when the parameter DB_ADMIN_PASSWORD_SAME=false.
COMMON_DB_SYSTEM_PASSWORD	COMMON_DB_SYSTEM_PASSWORD=right	SYSTEM user password for the clone database. This is applicable only when the parameter DB_ADMIN_PASSWORD_SAME=false.
COMMON_DB_SYS_PASSWORD	COMMON_DB_SYS_PASSWORD=right	SYS user password for the clone database. This is applicable only when the parameter DB_ADMIN_PASSWORD_SAME=false.
MOUNT_POINT_PREFIX	MOUNT_POINT_PREFIX=/vol1/prefix	Mount point prefix. This parameter is applicable only if CLONE_TYPE=SNAP.
MOUNT_POINT_LIST	MOUNT_POINT_LIST=volume1	Storage Volume name. This parameter is applicable only if CLONE_TYPE=SNAP.
MOUNT_ADDL_SIZE_LIST	MOUNT_ADDL_SIZE_LIST=2	Writable space. This parameter is applicable only if CLONE_TYPE=SNAP.

**Table 32-19 (Cont.) Sample Properties File for Creating a Database Clone**

Parameters	Sample values	Description
USE_OFA	USE_OFA=false	Indicates if Oracle Flexible Architecture should be used for customizations of the database storage files locations. Valid values are true and false.
OFA_TEMP_FILE_LOCATION	OFA_TEMP_FILE_LOCATION=/scratch/user/app/oradata/temp	Location where temporary files are to be created. This parameter is applicable only if USE_OFA=true.
OFA_REDO_LOG_LOCATION	OFA_REDO_LOG_LOCATION=/scratch/user/app/oradata/rlog	Location where Redo log files are to be created. This parameter is applicable only if USE_OFA=true.
OFA_CONTROL_FILE_LOCATION	OFA_CONTROL_FILE_LOCATION=/scratch/user/app/control	Location where the control files are to be created. This parameter is applicable only if USE_OFA=true.
IS_SAVE_TARGET_PROFILE	IS_SAVE_TARGET_PROFILE=Y	Indicates if a profile of the clone database should be created. Valid values are Y and N.
NEW_PROFILE_LOCATION	NEW_PROFILE_LOCATION=Database Provisioning Profiles/12.1.0.1.0/Linux86_64	Location of the profile in software library. This parameter is applicable only if IS_SAVE_TARGET_PROFILE=Y.
NEW_PROFILE_NAME	NEW_PROFILE_NAME=Clone Profile	Name of the new DB Profile to be created. This parameter is applicable only if IS_SAVE_TARGET_PROFILE=Y
PROFILE_DESC	PROFILE_DESC=Database Reference Profile 24-12-2014 04:00 PM from orcl.xyc.example.com Version : 12.1.0.1.0	Description of the profile. This parameter is applicable only if IS_SAVE_TARGET_PROFILE=Y.
PROFILE_NOTES	PROFILE_NOTES=Host Name: xyz.example.com Database: orcl.xyc.example.com	Notes for the profile. This parameter is applicable only if IS_SAVE_TARGET_PROFILE=Y.
PROFILE_VENDOR	PROFILE_VENDOR=Oracle	Vendor of the profile. This parameter is applicable only if IS_SAVE_TARGET_PROFILE=Y
PROFILE_VERSION	PROFILE_VERSION=12.1.0.1.0	Version of the profile. This parameter is applicable only if IS_SAVE_TARGET_PROFILE=Y
DATA_CONTENT_MODE	DATA_CONTENT_MODE=RMAN	Data mode for the database profile. The accepted values are: RMAN, and DNFS. This parameter is applicable only if IS_SAVE_TARGET_PROFILE=Y.
RMAN_BACKUP_LOCATION	RMAN_BACKUP_LOCATION=/scratch/user/app/backup	Location where RMAN backup files will be created. This is applicable only if IS_SAVE_TARGET_PROFILE=Y and DATA_CONTENT_MODE is RMAN or DNFS.
BACKUP_FILE_TAG	BACKUP_FILE_TAG=data_backup_1419417051961	Tag to be associated with backup files. This parameter is mandatory if IS_SAVE_TARGET_PROFILE is set to Y and DATA_CONTENT_MODE is RMAN.

**Table 32-19 (Cont.) Sample Properties File for Creating a Database Clone**

Parameters	Sample values	Description
BACKUP_TYPE	BACKUP_TYPE=OFFLINE	Type of backup. It can be OFFLINE or ONLINE. The default is Offline. This parameter is applicable only if IS_SAVE_TARGET_PROFILE =Y.
PROFILE_PURGE_POLICY_TYPE	PROFILE_PURGE_POLICY_TYPE=SNAPSHOTS,	Profile purge policy type. Accepted values are SNAPSHOTS or DAYS. This parameter is applicable only if IS_SAVE_TARGET_PROFILE =Y.
PROFILE_PURGE_POLICY_VALUE	PROFILE_PURGE_POLICY_VALUE=1	Profile purge policy value. This parameter is applicable only if IS_SAVE_TARGET_PROFILE =Y
PROFILE_SCHEDULE	N/A	Schedule for profile creation.
IS_TESTMASTER_DATABASE	IS_TESTMASTER_DATABASE=N	Indicates your choice of creating the clone database as the Test master database. Accepted values are Y or N.
ENABLE_DATA_MASK	ENABLE_DATA_MASK=true	Indicates if data mask needs to be applied. Accepted values are true and false.
MASKING_DEFINITION_NAME	MASKING_DEFINITION_NAME=MASK_DEF_10	Name of the masking definition. This parameter is applicable only if ENABLE_DATA_MASK= true.
CUSTOM_PRE_SCRIPT_URN	N/A	URN of the pre-cloning script in software library.
CUSTOM_POST_SCRIPT_URN	N/A	URN of the post-cloning script in software library.
POST_SQL_SCRIPT_URN	N/A	URN of the post-cloning SQL script in software library.
RUN_AS_USER	RUN_AS_USER =sys	Name of the user to run post-cloning SQL script. This parameter is applicable only if POST_SQL_SCRIPT_URN is specified.
RUN_AS_USER_PWD	RUN_AS_USER_PWD =right	Password of the user to run post-cloning SQL script. This parameter is applicable only if POST_SQL_SCRIPT_URN is specified.
EXECUTION_MODE	EXECUTION_MODE = PROVISIONING	Mode of execution.
CONFIGURE_WITH_ORACLE_RESTART	CONFIGURE_WITH_ORACLE_RESTART=N	Indicates if the clone database should be configured with Oracle restart.

**Table 32-20 Sample Properties File for Creating a Test Master Database**

Parameters	Sample values	Description
<b>Mandatory Parameters</b> CLONE_TYPE	CLONE_TYPE=DUPLICATE	Type of clone. The default value is DUPLICATE.
COMMON_DB_DBSNMP_PASSWORD	COMMON_DB_DBSNMP_PASSWORD=come	Password to be set for DBSNMP user in the clone database.
COMMON_DB_SID	COMMON_DB_SID=clonedb	SID of the clone database.

**Table 32-20 (Cont.) Sample Properties File for Creating a Test Master Database**

Parameters	Sample values	Description
COMMON_DB_SYSTEM_PASSWORD	COMMON_DB_SYSTEM_PASSWORD=sysco	Password to be set for SYSTEM user in the clone database.
COMMON_DB_SYS_PASSWORD	COMMON_DB_SYS_PASSWORD=sysco	Password to be set for SYS user in the clone database.
DATABASE_PASSWORDS	DATABASE_PASSWORDS=Sysco1	Password of clone database.
COMMON_GLOBAL_DATABASE_NAME	COMMON_GLOBAL_DATABASE_NAME=clonedb.xyz.com	Global clone database name.
DB_ADMIN_PASSWORDS_SAME	DB_ADMIN_PASSWORDS_SAME=true	Whether the passwords for SYSTEM, SYS and DBSNMP users are same or different. Accepted values are true or false.
DEST_LISTENER_SELECTION	DEST_LISTENER_SELECTION=DEST_DB_HOME	Oracle home location of the destination.
HOST_NORMAL_NAME_CRED	HOST_NORMAL_NAME_CRED=HOST:SYSCO	Credentials of the host.
IS_TESTMASTER_DATABASE	IS_TESTMASTER_DATABASE=Y	Indicates if you want create the clone database as Test master database. Accepted values are Y or N. The default value is N.
USAGE_MODE	USAGE_MODE = testMaster	Mode of use of the clone database.
CLOUD_TARGET	CLOUD_TARGET = true	Indicates if the cloud target is allowed.
LISTENER_PORT	LISTENER_PORT=1526	Port of the listener with which the clone database is to be registered.
ORACLE_BASE_LOC	ORACLE_BASE_LOC=/scratch/app	Location of Oracle base.
ORACLE_HOME_LOC	ORACLE_HOME_LOC=/scratch/app/product/11.2.0./dbhome_1	Location of Oracle home.
EM_USER	EM_USER=sys	EM user name.
EM_PWD	EM_PWD=Sys1	EM password.
SRC_DB_CRED	SRC_DB_CRED=DB:SYSCO	Credentials of the source database.
SRC_DB_TARGET_NAME	SRC_DB_TARGET_NAME=orcl.xyz.com	Source database target name.
SRC_HOST_NORMAL_NAME_CRED	SRC_HOST_NORMAL_NAME_CRED=HOST:SYSCO	Credentials of the host database.
TARGET_HOST_LIST	TARGET_HOST_LIST=blr22.xyz.com	List of target hosts.
<b>Optional Parameters</b> ARCHIVE_LOG_MODE	ARCHIVE_LOG_MODE=NO	Indicates if the clone database should be in archive log mode. The default value is NO.
BACKUP_FILE_TAG	BACKUP_FILE_TAG=data_backup_1419417051961	Tag to be associated with backup files. This parameter is mandatory if IS_SAVE_TARGET_PROFILE is set to Y and DATA_CONTENT_MODE is RMAN.

**Table 32-20 (Cont.) Sample Properties File for Creating a Test Master Database**

Parameters	Sample values	Description
BACKUP_TYPE	BACKUP_TYPE=OFFLINE	Type of backup. Accepted values are OFFLINE or ONLINE. The default value is OFFLINE.
COMMON_DOMAIN_NAME	COMMON_DOMAIN_NAME=xy.example.com	Domain of the clone database.
CONFIGURE_WITH_ORACLE_RESTART	CONFIGURE_WITH_ORACLE_RESTART=N	Indicates if you want to configure clone database with oracle restart. The default value is N.
DATABASE_TYPE	DATABASE_TYPE=dbTypeSI	Accepted values are - Single Instance Database, RAC Database and RAC One Node Database. The default value is Single Instance Database.
DATA_CONTENT_MODE	DATA_CONTENT_MODE=RMAN	Data mode for which the database profile needs to be submitted. It can have the following values: EXPORT, DBCA_TEMPLATE, RMAN, DNFS, CONT_SYNC, and STORAGE_SNAPSHOT.
DB_FILE_LOC	DB_FILE_LOC=/scratch/app/oradata	Location where data files, tmp files, redo log files, and control files are created.
DB_STORAGE_TYPE	DB_STORAGE_TYPE=FS	Database storage type. Accepted values are File System (FS) and ASM. The default value is FS.
DB_TARGET_NAME	DB_TARGET_NAME=clone.db.xy.example.com	Clone database target name.
DB_TEMPLATE_STAGE	DB_TEMPLATE_STAGE=/scratch/view_storage/emagent/gcagent/em_staging	Staging area used to store files transferred from source host.
ENABLE_LIVE_CLONE	ENABLE_LIVE_CLONE=true	Indicates if live clone is to be enabled. The default value is true.
IS_SAVE_TARGET_PROFILE	IS_SAVE_TARGET_PROFILE=Y	Indicates if you want to create a DB profile using the clone database. Accepted values are Y or N. The default value is N.
NEW_PROFILE_LOCATION	NEW_PROFILE_LOCATION=Database Provisioning Profiles/12.1.0.1.0/Linux86_64	Location of the profile in software library. This parameter is mandatory if IS_SAVE_TARGET_PROFILE is set to Y.
NEW_PROFILE_NAME	NEW_PROFILE_NAME=Clone Profile	Name of the new DB profile to be created. It is mandatory if IS_SAVE_TARGET_PROFILE is set to Y.
ORACLE_HOME_NAME	ORACLE_HOME_NAME=oraDB12Home2_29_idc.example.com	Name of Oracle home.
PDB_ADMIN_PASSWORD	N/A	Pluggable database admin password.

**Table 32-20 (Cont.) Sample Properties File for Creating a Test Master Database**

Parameters	Sample values	Description
PROFILE_DESC	PROFILE_DESC=Database Reference Profile 24-12-2014 04:00 PM from orcl.xyc.example.com Version : 12.1.0.1.0	Description of the profile.
PROFILE_NOTES	PROFILE_NOTES=Host Name: xyz.example.com Database: orcl.xyz.example.com Content: Structure and Data	Notes for the profile.
PROFILE_VENDOR	PROFILE_VENDOR=Oracle	Vendor of the profile. The default is Oracle.
PROFILE_VERSION	PROFILE_VERSION=12.1.0.1.0	Version of the profile. If no value is specified, the database version is used.
RMAN_BACKUP_LOCATION	RMAN_BACKUP_LOCATION=N=/scratch/app/backup	Location where RMAN backup files is to be created. This parameter is mandatory if IS_SAVE_TARGET_PROFILE is set to Y and DATA_CONTENT_MODE is RMAN or DNFS.
SRC_DB_TARGET_TYPE	SRC_DB_TARGET_TYPE=oracle_database	Type of source database.
MASKING_DEFINITION_NAME	MASKING_DEFINITION_NAME=MASK_DEF_10	Name of the masking definition to be applied after cloning the database.
ENABLE_DATA_MASK	ENABLE_DATA_MASK=true	Indicates if data mask is to be enabled. The default value is false.
PROFILE_PURGE_POLICY_TYPE	PROFILE_PURGE_POLICY_TYPE=SNAPSHOTS,	Profile purge policy type. Accepted values are SNAPSHOTS or DAYS. The default value is NONE.
PROFILE_PURGE_POLICY_VALUE	PROFILE_PURGE_POLICY_VALUE=1	Profile purge policy value.
PROFILE_SCHEDULE	N/A	Schedule for profile execution.
WORKING_DIRECTORY	WORKING_DIRECTORY=/tmp	The location where the files are staged.
FLASH_REC_AREA	N/A	Location where recovery related files (archived redo logs, RMAN backups, and other related files) are created. The storage type of Fast Recovery Area will be same as that of database files location.
FRA_STORAGE_TYPE	N/A	Is the same as Database storage type.

3. Execute one of the following EM CLI verbs to create a database clone (or Test master), using the updated properties file as the input file:

- For a full database clone - `emcli db_clone_management -createFullClone -input_file="path to the cloning properties file"`
- For a DNFS profile based database clone - `emcli db_clone_management -createCloneDB -input_file="path to the cloning properties file"`
- For a database snap clone - `emcli db_clone_management -createSnapClone -input_file="path to the cloning properties file"`

- For a database snapshot clone - `emcli db_clone_management -createSnapshotClone -input_file="path to the cloning properties file"`
- For a database clone on to the cloud - `emcli db_clone_management -cloneToCloud -input_file="path to the cloning properties file"`
- For creating a Test Master database - `emcli db_clone_management -createTestMaster -input_file="path to the cloning properties file"`

**Samples:**

```
emcli db_clone_management -createFullClone -inputFile=/tmp/create_clone.props
emcli db_clone_management -createCloneDB -input_file=/tmp/create_clone.props
emcli db_clone_management -createSnapClone -inputFile=/tmp/create_clone.props
emcli db_clone_management -createSnapshotClone -input_file=/tmp/create_clone.props
emcli db_clone_management -cloneToCloud -inputFile=/tmp/create_clone.props
emcli db_clone_management -createTestMaster -inputFile=/tmp/create_clone.props
```

**Sample output:**

```
Submitting clone database procedure... 0AF491A8D9FE29F2E0539878B10A6333 Deployment
procedure submitted successfully
```

4. Verify the status of the database clone creation by executing the following EM CLI verb.

```
emcli get_instance_status
[-instance={instance guid}]
[-exe=execution guid]
[-xml]
[-details]
[-showJobOutput]
[-tailLength={last N characters}]]
```

**Sample:**

```
emcli get_instance_status -instance=0AF491A8D9FE29F2E0539878B10A6333
```

**Sample output:**

```
0AF491A8DA0529F2E0539878B10A6333, DBConfig, db_config_procedure 1419435633924,
COMPLETED
```

To know the complete status of each of the steps in xml format, execute the following command.

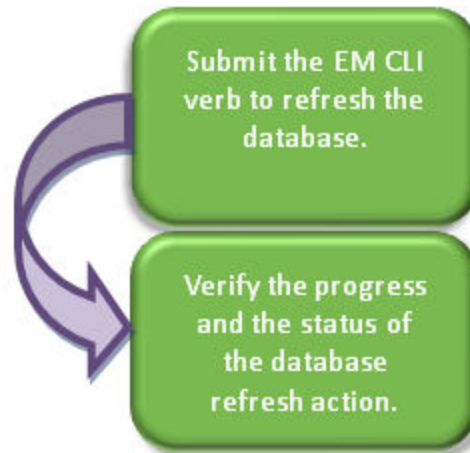
```
emcli get_instance_status -instance=0AF491A8D9FE29F2E0539878B10A6333 -xml -details -
showJobOutput
```

## Refreshing a Database Using EM CLI Verbs

This section describes the procedure to refresh a database using EM CLI verbs.



**Figure 32-6 Refreshing a Database Using EM CLI Verbs**



Follow the steps below to refresh a database:

1. Refresh the database by executing the `emcli db_clone_management -refreshDatabase` command mentioned below.

The EM CLI command requires a properties file as an input. The properties file details are mentioned in the table below.

 **Note:**

To see the list of required and optional variables in the properties file, enter the command `emcli db_clone_management -refreshDatabase -print_properties`.

**Table 32-21 Sample Properties File for Refreshing a Database**

Parameters	Sample values	Description
<b>Mandatory Parameters</b> DB_TEMPLATE_STAGE	DB_TEMPLATE_STAGE=/tmp	Staging area used to store files transferred from source host.
COMMON_DB_SYSTEM_PASSWORD	COMMON_DB_SYSTEM_PASSWORD=come	Password to be set for SYSTEM user.
COMMON_DB_DBSNMP_PASSWORD	COMMON_DB_DBSNMP_PASSWORD=come	Password to be set for DBSNMP user.
COMMON_DB_SYS_PASSWORD	COMMON_DB_SYS_PASSWORD=come	Password to be set for SYS user.
ASMSYSPWD	ASMSYSPWD=come	ASM SYS password to login to ASM. This parameter is only applicable if database files are on ASM. Otherwise, it is not required.
CLONE_TYPE	CLONE_TYPE=RMAN_PROFILE	Type of clone.

**Table 32-21 (Cont.) Sample Properties File for Refreshing a Database**

Parameters	Sample values	Description
TARGET_TYPE	TARGET_TYPE=rac_database	Type of target. Accepted values are oracle_database or rac_database.
TARGET_NAME	TARGET_NAME=database1	Name of the target.
<b>Optional Parameters</b>	ORACLE_HOME_LOC=/u01/user/app/user/product/11.2.0/dbhome_1	Location of Oracle home.
ORACLE_HOME		
SRC_SYS_PWD	SRC_SYS_PWD=Come	Source SYS password.
SRC_SID	SRC_SID=orcl	Source database SID.

```
emcli db_clone_management -refreshDatabase
                        -input_file=data:"file:path"
```

**Sample:**

```
emcli db_clone_management -refreshDatabase -input_file=data:"/tmp/refr.txt"
```

**Output:**

```
Refresh Database deployment procedure has been submitted successfully with the
instance
name:"RefreshDatabase_SYSMAN_06_23_2014_01_00_PM" and
execution_guid='0AE6096550756B26E0539878B10A6FF5'
```

To know the status of the procedure in xml format, execute the following command.

```
emcli get_instance_status -exec=0AE6096550756B26E0539878B10A6FF5 -xml -details -
showJobOutput
```

2. Verify the status of the database refresh by executing the following EM CLI verb.

```
emcli get_instance_status
[-instance={instance guid}]
[-exe=execution guid]
[-xml]
[-details]
[-showJobOutput]
[-tailLength={last N characters}]
```

**Sample:**

```
emcli get_instance_status -exe=0AFDFE7D36525B18E0539878B10A39FB
```

**Sample output:**

```
00AFDFE7D36555B18E0539878B10A39FB, DBPROV,
RefreshDatabase_SYSMAN_06_23_2014_01_00_PM, COMPLETED
```

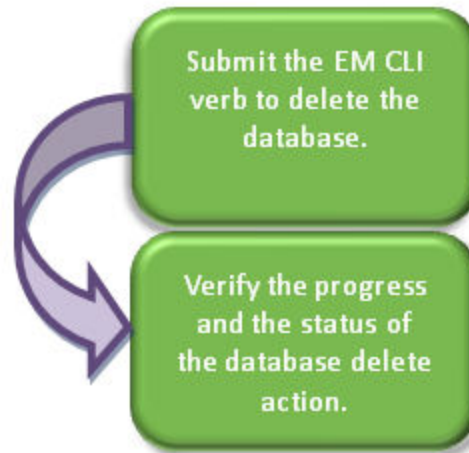
To know the complete status of each of the steps in xml format, execute the following command.

```
emcli get_instance_status -exe=0AF491A8D9FE29F2E0539878B10A6333 -xml -details -
showJobOutput
```

## Deleting a Database Using EM CLI Verbs

This section describes the procedure to delete a database using EM CLI verbs.

**Figure 32-7 Deleting a Database Using EM CLI Verbs**



Follow the steps below to delete a database :

1. Delete the database with the `emcli delete_database` command mentioned below.

The EM CLI command requires a properties file as an input. The properties file details are mentioned in the table below.

**Table 32-22 Sample Properties File for Deleting a Database**

Parameters	Sample values	Description
<b>Mandatory Parameters</b> HOST_CREDS	HOST_CREDS=sys:come,	Credentials of the host in <Credentials name>:<Credentials owner> format.
DB_TARGET_GUID	DB_TARGET_GUID=083B2D3F9B911BD3E0539878B10A3096	GUID of the target database. Select the Target_GUID from mgmt\$target, where target_name='MyDB.example.com' and target_type='rac_database'
DATABASE_TYPE	DATABASE_TYPE=dbTypeSI ,	Type of database. Permissible values are either dbTypeSI or dbTypeRAC.
DB_ORACLE_HOME_LOC	DB_ORACLE_HOME_LOC=/u01/oracle/product/dbhome,	Location of Oracle home.
DB_TARGET_NAME	DB_TARGET_NAME=m2.xyz.com,	Name of the target database.
DB_SID	DB_SID=clem	Database SID. In case of a RAC database provide the same value as provided for DB_TARGET_NAME.

**Table 32-22 (Cont.) Sample Properties File for Deleting a Database**

Parameters	Sample values	Description
HOST_NAME	HOST_NAME=abc.example.com,	Name of the host in case of a SI database. In case of a RAC database enter the Cluster database target host name. To retrieve it, use the EM repository query (select host_name from mgmt\$target where target_name='MyDB.example.com' and target_type='rac_database').
ORACLE_BASE	ORACLE_BASE=/u01/app/oracle	Oracle base location.
DBNAME	DBNAME=clem	Database name in case of SI database. In case of a RAC database enter the Cluster database target 'DBName' Target property. To retrieve this property use the EM repository query (select property_value from mgmt\$target_properties where target_name='MyDB.example.com' and target_type='rac_database' and property_name='DBName')
<b>Optional Parameters</b> ROOT_CREDS	ROOT_CREDS=ABDCGA45268SDF	Privileged credentials GUID. This parameter is required if the target database is snapshot based and mounted on a volume.

```
emcli delete_database
-input_file=data:"Path of file containing properties required for deleting a
database"
```

**Sample:**

```
emcli delete_database -input_file=data:u01/files/delete_clone.props
```

**Output:**

```
Submitting delete database procedure...
0AFDFE7D36525B18E0539878B10A39FB
Deployment procedure submitted successfully
```

 **Note:**

The delete database verb uses the Named credentials that is set in the software pool and not the Preferred credentials.

2. Verify the status of the database deletion by executing the following EM CLI verb.

```
emcli get_instance_status
[-instance={instance guid}]
[-exe=execution guid]
[-xml]
[-details]
[-showJobOutput]
[-tailLength={last N characters}]
```

**Sample:**

```
emcli get_instance_status -instance=0AFDFE7D36525B18E0539878B10A39FB
```

**Output:**

```
0AFDFE7D36555B18E0539878B10A39FB, DBPROV, DB_CLEANUP_PROC 1419457116034, COMPLETED
```

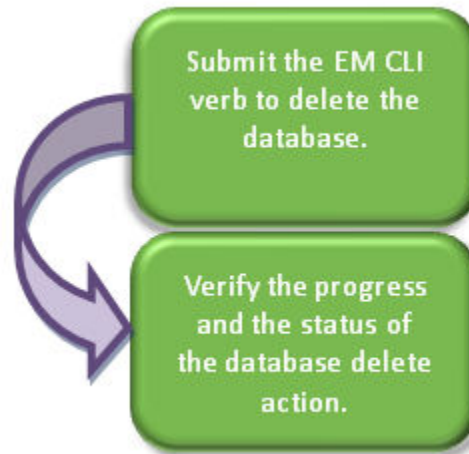
To know the complete status of each of the steps in xml format, execute the following command.

```
emcli get_instance_status -instance=0AF491A8D9FE29F2E0539878B10A6333 -xml -details -showJobOutput
```

## Deleting a Database Clone Using EM CLI Verbs

This section describes the procedure to delete a database clone using EM CLI verbs.

**Figure 32-8** Deleting a Database Clone Using EM CLI Verbs



Follow the steps below to delete a database clone:

1. Delete the database clone with the `emcli db_clone_management -deleteDatabase` command mentioned below.

The EM CLI command requires a properties file as an input. The properties file details are mentioned in the table below.

 **Note:**

To see the list of required and optional variables in the properties file, enter the command `emcli db_clone_management -deleteDatabase -print_properties`.

**Table 32-23** Sample Properties File for Deleting a Database

Parameters	Sample values	Description
<b>Mandatory Parameters</b> HOST_CREDS	HOST_CREDS=sys:come,	Credentials of the host in <Credentials name>:<Credentials owner> format.

**Table 32-23 (Cont.) Sample Properties File for Deleting a Database**

Parameters	Sample values	Description
DB_TARGET_GUID	DB_TARGET_GUID=083B2D3F9B911BD3E0539878B10A3096	GUID of the target database. Select the Target_GUID from mgmt\$target, where target_name='MyDB.example.com' and target_type='rac_database'
DATABASE_TYPE	DATABASE_TYPE=dbTypeSI,	Type of database. Permissible values are either dbTypeSI or dbTypeRAC.
DB_ORACLE_HOME_LO C	DB_ORACLE_HOME_LO C=/u01/oracle/product/ dbhome,	Location of Oracle home.
DB_TARGET_NAME	DB_TARGET_NAME=m2.xy z.com,	Name of the target database.
DB_SID	DB_SID=clem	Database SID. In case of a RAC database provide the same value as provided for DB_TARGET_NAME.
HOST_NAME	HOST_NAME=abc.example .com,	Name of the host in case of a SI database. In case of a RAC database enter the Cluster database target host name. To retrieve it, use the EM repository query (select host_name from mgmt\$target where target_name='MyDB.example.com' and target_type='rac_database').
ORACLE_BASE	ORACLE_BASE=/u01/app/ oracle	Oracle base location.
DBNAME	DBNAME=clem	Database name in case of SI database. In case of a RAC database enter the Cluster database target 'DBName' Target property. To retrieve this property use the EM repository query (select property_value from mgmt\$target_properties where target_name='MyDB.example.com' and target_type='rac_database' and property_name='DBName')
<b>Optional Parameters</b> ROOT_CREDS	ROOT_CREDS=ABDCGA4 5268SDF	Privileged credentials GUID. This parameter is required if the target database is snapshot based and mounted on a volume.

```
emcli db_clone_management -deleteDatabase
-input_file=data:"Path of file containing properties required for deleting a clone"
```

**Sample:**

```
emcli db_clone_management -deleteDatabase -input_file=data:u01/files/
delete_clone.props
```

**Output:**

```
Submitting delete database procedure...
0AFDFE7D36525B18E0539878B10A39FB
Deployment procedure submitted successfully
```

 **Note:**

The delete database verb uses the Named credentials that is set in the software pool and not the Preferred credentials.

2. Verify the status of the database clone deletion by executing the following EM CLI verb.

```
emcli get_instance_status  
[-instance={instance guid}]  
[-exe=execution guid]  
[-xml]  
[-details]  
[-showJobOutput]  
[-tailLength={last N characters}]
```

**Sample:**

```
emcli get_instance_status -instance=0AFDFE7D36525B18E0539878B10A39FB
```

**Output:**

```
0AFDFE7D36555B18E0539878B10A39FB, DBPROV, DB_CLEANUP_PROC 1419457116034, COMPLETED
```

To know the complete status of each of the steps in xml format, execute the following command.

```
emcli get_instance_status -instance=0AF491A8D9FE29F2E0539878B10A6333 -xml -details -  
showJobOutput
```

## Database Fleet Maintenance EM CLI Verbs

The following table provides details of the verbs supported for Database fleet maintenance.

 **Note:**

The EM CLI verb options mentioned in square brackets - [] are optional.

**Table 32-24 Database Software Maintenance EM CLI Verbs**

Verb	Description	Format
emcli db_software_maintenance -createSoftwareImage	<p>Creates a new software image provided in the oracle home. The <code>createSoftwareImage</code> verb takes either data (a <code>.txt</code> file) or <code>getInputVariableList</code> from the command line.</p> <ul style="list-style-type: none"> <li><code>input_file</code>- Path of the input file.</li> <li><code>getInputVariableList</code> - Provides the list of variables to be specified in the input file.</li> </ul> <p>Examples:</p> <ul style="list-style-type: none"> <li>To get the list of all the parameters to be passed inside the data file, run the following command:  <pre>emcli db_software_maintenance - createSoftwareImage - getInputVariableList=true</pre> </li> <li>To create a new image and a version, use the following example:  <pre>emcli createSoftwareImage - input_file="data:/home/user/input_rac"</pre> <p>Where the contents of the <code>input_rac</code> file are:</p> <ul style="list-style-type: none"> <li><code>IMAGE_NAME=DbGoldImage</code></li> <li><code>IMAGE_DESCRIPTION=Gold Image for 11g db</code></li> <li><code>REF_TARGET_NAME=ORACLE_HOME</code></li> <li><code>IMAGE_SWLIB_LOC=Oracle Home Provisioning Profiles/11.2.0.3.0/linux_x64</code></li> <li><code>REF_HOST_CREDENTIALS=ZONE_CREDS:TESTSUPERADMIN</code></li> <li><code>WORKING_DIRECTORY=/tmp</code></li> <li><code>STORAGE_TYPE_FOR_SWLIB=OmsShared</code></li> <li><code>STORAGE_NAME_FOR_SWLIB=swlib</code></li> <li><code>VERSION_NAME=Version1</code></li> </ul> </li> <li>To only create a new version into an existing image, see the following example:  <pre>emcli db_software_maintenance - createSoftwareImage - input_file="data:/home/user/input_rac"</pre> <p>Where the contents of the <code>input_rac</code> file are:</p> <ul style="list-style-type: none"> <li><code>IMAGE_ID=01B5F14FD57D7B89E05313B2F00A739F</code></li> <li><code>REF_TARGET_NAME=ORACLE_HOME</code></li> <li><code>IMAGE_SWLIB_LOC=Oracle Home Provisioning Profiles/11.2.0.3.0/linux_x64</code></li> <li><code>REF_HOST_CREDENTIALS=ZONE_CREDS:TESTSUPERADMIN</code></li> <li><code>WORKING_DIRECTORY=/tmp</code></li> <li><code>STORAGE_TYPE_FOR_SWLIB=OmsShared</code></li> <li><code>STORAGE_NAME_FOR_SWLIB=swlib</code></li> <li><code>VERSION_NAME=Version1</code></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>emcli db_software_maintenance -createSoftwareImage -getInputVariableList=true</li> <li>emcli createSoftwareImage -input_file="data:/home/user/ input_rac"</li> </ul>



**Table 32-24 (Cont.) Database Software Maintenance EM CLI Verbs**

Verb	Description	Format
emcli db_software_maintenance -createVersion	<p>Creates a new version in an existing image using an existing software library component.</p> <ul style="list-style-type: none"> <li>version_name - Name of the version.</li> <li>image_id - Name of the image.</li> <li>external_id - External ID of the version. For example, the URN of the software library gold image.</li> <li>status - Status of the version. For example, DRAFT, ACTIVE, CURRENT, or RESTRICTED.</li> </ul> <p>Example:</p> <pre>emcli db_software_maintenance - createVersion -version_name="Version1" - image_id="01B5F14FD57D7B89E05313B2F00A739F" - external_id="oracle:defaultService:em:provi sioning:1:cmp:COMP_Component:SUB_OracleDB:0 191172464DD36B6E05313B2F00AB90A:0.1" - status=CURRENT</pre>	<pre>emclu db_software_maintenance -createVersion- version_name="Versionx" -image_id="xxxx" -external_id="yyyy" -status="CURRENT"</pre>
emcli db_software_maintenance -subscribeTarget	<p>Creates a new or modifies the existing target subscription.</p> <ul style="list-style-type: none"> <li>target_name - Name of the target.</li> <li>target_type - Target type.</li> <li>[parent_target_name] - Parent target name.</li> <li>[parent_target_type] - Parent target type.</li> <li>image_id - Name of the image.</li> <li>version_id - Name of the version</li> </ul> <p>Example:</p> <pre>emcli db_software_maintenance - subscribeTarget -target_name="POOL NAME" - target_type=oracle_cloud_zone - image_id=FE55AD7AB28974EFE04313B2F00AD4A0</pre>	<pre>emcli db_software_maintenance -subscribeTarget -target_name="xxx" -target_type="yyy" -parent_target_name="xxx" -parent_target_type="yyy" -image_id="zzz" -version_id="xxx"</pre>
emcli db_software_maintenance -updateVersionStatus	<p>Updates version of the image.</p> <ul style="list-style-type: none"> <li>version_id - Id of the version.</li> <li>status - Status of the version. For example, DRAFT, ACTIVE, CURRENT, or RESTRICTED.</li> </ul> <p>Example:</p> <pre>emcli db_software_maintenance - updateVersionStatus - version_id=02A635A0D8D904A4E05362F3E40ADFD8 -status=CURRENT</pre>	<pre>emcli db_software_maintenance -updateVersionStatus -version_id="xxx" -status="CURRENT"</pre>
emcli db_software_maintenance -getImageSubscriptions	<p>Returns the list of subscribed targets.</p> <ul style="list-style-type: none"> <li>image_id- Name of the image.</li> </ul> <p>Example:</p> <pre>emcli db_software_maintenance - getImageSubscriptions - image_id="01B5F14FD57D7B89E05313B2F00A739F"</pre>	<pre>emcli db_software_maintenance -getImageSubscriptions -image_id="xxx"</pre>

**Table 32-24 (Cont.) Database Software Maintenance EM CLI Verbs**

Verb	Description	Format
emcli db_software_maintenance -deleteImage	<p>Deletes an image.</p> <ul style="list-style-type: none"> <li>image_id - Name of the image to be deleted.</li> <li>[force] - Deletes forcibly even if the image has subscribed targets.</li> </ul> <p>Example:</p> <pre>emcli db_software_maintenance -deleteImage - image_id="01B5F14FD57D7B89E05313B2F00A739F"</pre>	<pre>emcli db_software_maintenance -deleteImage -image_id="xxxx"</pre>
emcli db_software_maintenance -unsubscribeTarget	<p>Unsubscribes the target.</p> <ul style="list-style-type: none"> <li>target_name - Name of the target.</li> <li>target_type - Target type.</li> <li>image_id - Name of the image.</li> </ul> <p>Example:</p> <pre>emcli db_software_maintenance - unsubscribeTarget -target_name="POOL NAME" -target_type=oracle_cloud_zone - image_id=FE55AD7AB28974EFE04313B2F00AD4A0</pre>	<pre>emcli db_software_maintenance -unsubscribeTarget -target_name="xxx" -target_type=yyyy -image_id=zzz</pre>
emcli db_software_maintenance -searchImage	<p>Searches the image based on the provided filters. Use '%' for wildcard.</p> <ul style="list-style-type: none"> <li>[name_pattern] - Indicates the name pattern.</li> <li>[version_pattern] - Indicates the version pattern.</li> <li>[description_pattern] - Indicates the version pattern.</li> <li>[owner] - Indicates the owner name.</li> <li>[target_type] - Indicates the target type.</li> <li>[platform_id] - Indicates the platform ID. For example, 226 for Linux x86_64.</li> </ul> <p>Examples:</p> <ul style="list-style-type: none"> <li>emcli db_software_maintenance -searchImage -name_pattern="%GI%"</li> <li>emcli db_software_maintenance -searchImage -platform_id="226"</li> </ul>	<pre>emcli db_software_maintenance -searchImage -platform_id="xxx" -[name_pattern="name_pattern"] -[version_pattern="version_pattern"] -[description_pattern="description_pattern"] -[owner="owner"] -[target_type="target_type"] -[platform_id="platform_id"]</pre>
emcli db_software_maintenance -getTargetSubscriptions	<p>Returns the list of subscriptions for the given target.</p> <ul style="list-style-type: none"> <li>target_name - Name of the target.</li> <li>target_type - Target type.</li> <li>image_type - Type of the image.</li> </ul> <p>Example:</p> <pre>emcli db_software_maintenance - getTargetSubscriptions -target_name="POOL NAME" -target_type="oracle_cloud_zone"</pre>	<pre>emcli db_software_maintenance -getTargetSubscriptions -target_name="xxxx" -target_type="yyyy" -image_type="zzzz"</pre>
emcli db_software_maintenance -getVersions	<p>Returns the list of the versions for the given image.</p> <ul style="list-style-type: none"> <li>image_id - Name of the image.</li> <li>[version_status] - Status filter for the version.</li> </ul> <p>Example:</p> <pre>emcli db_software_maintenance -getVersions image_id="01B5F14FD57D7B89E05313B2F00A739F" -version_status=CURRENT</pre>	<pre>emcli db_software_maintenance -getVersions -image_id="xxxx" -version_status=CURRENT</pre>

**Table 32-24 (Cont.) Database Software Maintenance EM CLI Verbs**

Verb	Description	Format
emcli db_software_maintenance -getImages	Returns the list of image present in the system. Example: emcli db_software_maintenance -getImages	emcli db_software_maintenance -getImages
emcli db_software_maintenance -getSubscriptionsForContainer	Return the subscriptions for the container target such as the database pool. <ul style="list-style-type: none"> <li>image_id - Name of the image.</li> <li>target_name - Name of the target.</li> <li>target_type - Target type in EM.</li> </ul> Example: emcli db_software_maintenance -getSubscriptionsForContainer -target_name="POOL NAME" -target_type=oracle_cloud_zone -image_id=FE55AD7AB28974EFE04313B2F00AD4A0	emcli db_software_maintenance -getSubscriptionsForContainer -target_name="xxxx" -target_type="yyyy" -image_id="zzzz"
emcli db_cloud_maintenance -activateSoftware	Activates a new software of the pool. <ul style="list-style-type: none"> <li>pool_name - Name of the pool.</li> <li>pool_type - Type of the pool.</li> <li>[force] - Forcibly activates the new members.</li> </ul> Example: emcli db_cloud_maintenance -activateSoftware -pool_name=POOL -pool_type=oracle_cloud_zone -force=true	emcli db_cloud_maintenance -activateSoftware -pool_name=xxxx -pool_type="yyy" -force="true"

**Table 32-24 (Cont.) Database Software Maintenance EM CLI Verbs**

Verb	Description	Format
emcli db_cloud_maintenance - performOperation	<p>Creates a new cloud maintenance operation.</p> <ul style="list-style-type: none"> <li>name= "name" - Name of the operation.</li> <li>description= "description" - Description of the operation.</li> <li>purpose= "purpose" - Purpose of the maintenance window.</li> </ul> <p>The possible values are: UPDATE_DB, UPDATE_RACDB, UPDATE_GI, DEPLOY_DB_SOFTWARE, DEPLOY_GI_SOFTWARE, DEPLOY_RAC_SOFTWARE, ROLLBACK_DB, ROLLBACK_GI, ROLLBACK_RACDB, and CLEANUP_SOFTWARE.</p> <ul style="list-style-type: none"> <li>[start_schedule= "start_schedule"] - Start Schedule. The input for start_schedule is of the format- yyyy-MM-dd HH:mm:ss. For example, start_schedule="2013-11-11 12:15:30". The default start time is - immediate.</li> <li>pool_name= "pool_name" - Name of the pool.</li> <li>pool_type= "pool_type" - Type of the pool.</li> <li>[input_file= "data:input_file"] - Input data for the maintenance action. For example, input_file="data:~/input_files/data.</li> <li>[target_type= "target_type"] - Target type. The default target type is identified based on the purpose. For example, if purpose is DEPLOY_DB, the default target type is oracle_home.</li> <li>[target_list= "target_list"] - Comma separated target list.</li> </ul> <p>The target list is the list of entities based on the target type that is selected. For example, target_type=rac_database target_list="rac1.example.com, rac2.example.com". The default target_list is based on the purpose. For example if the purpose is DEPLOY_DB, the default target list is the list of oracle homes present in the pool.</p> <p>Example:</p> <pre>emcli db_cloud_maintenance - performOperation -name="Update RAC Database " -description="Update RAC database Instance" -purpose="UPDATE_RACDB" - start_schedule="start_time:2014/09/01 00:00" -pool_name="POOL NAME" - pool_type=oracle_cloud_zone - target_type=rac_database - target_list="rac1.example.com"</pre>	<pre>emcli db_cloud_maintenance -performOperation -name="update" -description="Update RAC database Instance" -purpose="UPDATE_RACDB" - start_schedule="start_time:2014/09/01 00:00" -pool_name="xxx" -pool_type="yyy" -target_type=rac_database -target_list="rac1.example.com"</pre>

## Database Request Handling EM CLI Verbs

The table below lists the supported verbs for database request handling.

**Table 32-25 Force Cleanup EM CLI Verbs**

Verb	Description	Format
emcli cleanup_dbaas_requests	<p>Removes/cleans-up a failed request from the host and EM.</p> <p>Cleans-up all failed requests from a pool. Optionally, it cleans-up failed requests for a specific user.</p> <p>The options -ids and -pool_name cannot be used together.</p> <ul style="list-style-type: none"> <li>ids - The request ID to be used for filtering cloud requests separated by semicolon(;).</li> <li>pool_name - The name of the pool from which requests have to be cleaned-up.</li> <li>pool_type - The type of pool. The possible values are: <ul style="list-style-type: none"> <li>For Database pools: database</li> <li>For Schema pools: schema</li> <li>For Pluggable database pools: pluggable_database</li> </ul> </li> <li>user - User Name to be used for filtering requests for delete.</li> <li>all - Cleans-up all requests - both successful and failed, cancels the requests that are in scheduled state, and leaves the "in progress" requests as is. If this option is not specified, cleanup will be performed on failed requests only.</li> </ul> <p><b>Note:</b> The clean-up operation explained here can also be performed using a REST API. For details, see <a href="#">Clearing a Collection of Service Requests</a>.</p> <p><b>Example:</b></p> <pre>emcli cleanup_dbaas_requests -ids="10" emcli helpemcli cleanup_dbaas_requests -ids="10;11;12" emcli cleanup_dbaas_requests -pool_name="database_pool" -pool_type="database" emcli cleanup_dbaas_requests -pool_name="database_pool" -pool_type="database" -all emcli cleanup_dbaas_requests -pool_name="database_pool" -pool_type="database" -all -user="SSA_USER"</pre> <p><b>Sample Output:</b></p> <pre>Service Template "My Schema Service Template" created successfully</pre>	<pre>emcli cleanup_dbaas_requests [-ids="&lt;request id&gt;"] [-name="&lt;size name&gt;"] [-target_name="&lt;target name&gt;"] [-target_type="&lt;rac_database oracle_database oracle_dbsvc oracle_pdb&gt;"] [-host_creds="&lt;credname:credowner&gt;"] [-root_creds="&lt;credname:credowner&gt;"] [-pool_name="&lt;pool name&gt;"] [-pool_type="&lt;database schema pluggable_database&gt;"] [-user="&lt;SSA User name&gt;"] [-all] [-description="&lt;size description&gt;"] [-attributes="&lt;cpu:&lt;value&gt;;memory:&lt;value&gt;;storage:&lt;value&gt;&gt;"]</pre>

Table 32-25 (Cont.) Force Cleanup EM CLI Verbs

Verb	Description	Format
emcli dbaas_artifacts - list_reserved_artifacts	Lists the existing reserved artifacts. Examples: <ul style="list-style-type: none"> <li>emcli dbaas_artifacts - list_reserved_artifacts -type="SID"</li> </ul> <p>For Single Instance databases, enter type= "SID", where SID is the user readable artifact name of the ORACLE_SID.</p> <ul style="list-style-type: none"> <li>emcli dbaas_artifacts - list_reserved_artifacts - type="SERVICE_NAME" (for database instances)</li> <li>emcli dbaas_artifacts - list_reserved_artifacts - type="PDB_NAME" (for pluggable databases)</li> <li>emcli dbaas_artifacts - list_reserved_artifacts - type="TABLESPACE_NAME" (for schemas)</li> <li>emcli dbaas_artifacts - list_reserved_artifacts -all (for databases, pluggable databases and schemas)</li> </ul>	emcli dbaas_artifacts - list_reserved_artifacts -type -requestId [-all]
emcli dbaas_artifacts - remove_reserved_artifact	Removes/cleans-up the specified reserved names and artifacts. To identify or derive the values for the type and value parameters, refer the previous command (emcli dbaas_artifacts -list_reserved_artifacts). Examples: <ul style="list-style-type: none"> <li>emcli dbaas_artifacts - remove_reserved_artifact -type=SID - value="DBS1"</li> <li>emcli dbaas_artifacts - remove_reserved_artifact - type=SERVICE_NAME -value="DBS1s"</li> </ul>	emcli dbaas_artifacts - remove_reserved_artifact -type=<SID, or SERVICE_NAME, or PDB_NAME, or TABLESPACE_NAME> -value=<value for the specified type>

## Cloning a Pluggable Database

The EM CLI verb `emcli pdb_clone_management` creates a new clone of an existing pluggable database.

The details of the verb are as follows:

**Table 32-26 Pluggable Database Cloning EM CLI Verb**

Verb	Description	Format
emcli pdb_clone_management	<p>Creates a new clone of an existing pluggable database.</p> <ul style="list-style-type: none"> <li>-input_file - Location of the file containing properties required for cloning the pluggable database. See <a href="#">Table 32-27</a> for details.</li> <li>[-cloneToOracleCloud] - Indicates that the destination container database (CDB) is on Oracle Cloud.</li> <li>[-enableTestMaster] - Enables the given PDB target as Test Master in Enterprise Manager.</li> <li>[-diabileTestMaster] - Removes the given PDB target as Test Master in Enterprise Manager.</li> </ul> <p>Example:</p> <pre>emcli pdb_clone_management - input_file=data:/u01/files/pdb_clone.props</pre>	<p>emcli pdb_clone_management</p> <p>-input_file</p> <p>[-cloneToOracleCloud]</p> <p>[-enableTestMaster]</p> <p>[-disableTestMaster]</p>

The table below explains the required parameters and values in the properties file that needs to be used as an input file for cloning a pluggable database. You can either have a full clone of the pluggable database or a snapshot clone. For details of full clone and snapshot clones see, [Pluggable Database Full Clone Methods](#), and [Pluggable Database Snapshot Clone Types](#).

**Table 32-27 Sample Properties File for Cloning a Pluggable Database**

Parameters	Sample values	Description
<b>Mandatory Parameters</b> SRC_PDB_TARGET	SRC_PDB_TARGET=cdb_pr od_PDB	Enterprise Manager (EM) target name of the source pluggable database (PDB).
SRC_HOST_CREDS	SRC_HOST_CREDS=NC_H OST_SHYSYSO	Named credentials for the source target host.
SRC_CDB_CREDS	SRC_CDB_CREDS=NC_DB _SYS:SYSCO	Named credentials for the source CDB.
SRC_WORK_DIR	SRC_WORK_DIR=/tmp/ source	Work directory at the source host where files are temporarily stored. If this parameter is not provided, the agent work directory is used.
DEST_HOST_CREDS	DEST_HOST_CREDS=NC_ SLEO_SSH:SYSCO	Named credentials for the destination target host. If destination host is on Oracle Cloud, then the value for this parameter should be the host SSH credentials.
DEST_LOCATION	DEST_LOCATION=/ scratch/app/cdb_tm/ HR_TM_PDB6	Data file location in the destination where the new PDB should be hosted.
DEST_CDB_TARGET	DEST_CDB_TARGET=cdb_t m	EM target name of CDB where the new PDB should be cloned.
DEST_CDB_TYPE	DEST_CDB_TYPE=oracle_d atabase	EM target type of the destination CDB.
DEST_CDB_CREDS	DEST_CDB_CREDS=NC_D B_SYS:SYSCO	Named credentials for the destination CDB.
DEST_PDB_NAME	DEST_PDB_NAME=HR_TM _PDB6	Name of the new PDB.

**Table 32-27 (Cont.) Sample Properties File for Cloning a Pluggable Database**

Parameters	Sample values	Description
<b>Optional Parameters</b> SRC_CDB_TARGET	SRC_CDB_TARGET=cdb_pr odt_DB	EM target name of the CDB containing the source PDB.
SRC_CDB_TYPE	N/A	EM target type of the CDB containing the source PDB.
IS_SNAPSHOT_COPY	IS_SNAPSHOT_COPY=true	Indicates that the clone is a snapshot clone.
SRC_HOST	SRC_HOST=xyz.example.co m	EM target name of the host containing the source CDB. If this value is not provided, it will be derived from the CDB.
DEST_HOST	DEST_HOST=xyz.example.c om	EM target name of host containing the destination CDB. If this value is not provided, it will be derived from the CDB.
EXISTING_BACKUP	EXISTING_BACKUP=/user1/ pdbackup/app/ PROD_PDB_Backup_14297 779	Indicates the absolute location of the existing backup in the file system, and if it should be used to clone the new PDB.
EXISTING_BACKUP_ME TADATA	EXISTING_BACKUP_META DATA=/user1/pdbackup	Absolute location of the metadata template of the backup. This parameter is required, if EXISTING_BACKUP is provided.
BACKUP_TYPE	BACKUP_TYPE=OSIMAGE	Indicates the backup type. The accepted values are TAR, OSIMAGE, and RMAN.  If an existing backup (EXISTING_BACKUP parameter) is provided, this parameter represents the type of the backup. If not, this parameter represents the type of backup that should be taken during job execution. If both, EXISTING_BACKUP and BACKUP_TYPE are not provided, the source PDB, will be unplugged, and copied over to the destination for creating a new clone. Once the datafiles are copied, the source PDB will be plugged back.

## Pluggable Database Full Clone Methods

The different methods of full cloning that are possible with a pluggable database are mentioned below. The process of achieving them are by configuring certain parameters in the properties file, while using the `emcli pdb_clone_management verb`.

- Operating System (OS) Image backup (supported only for Oracle Cloud)  
Takes a backup of the source PDB and creates a new PDB. The BACKUP\_TYPE parameter should specify the type of backup. The EXISTING\_BACKUP and EXISTING\_BACKUP\_METADATA parameters should not be provided.
- Existing backup (supported for on-premise PDBs and Oracle Cloud PDBs)  
Uses an existing backup of the source PDB and creates a new PDB. The BACKUP\_TYPE parameter should specify the type of backup. The EXISTING\_BACKUP parameter should specify the location with the backup name and EXISTING\_BACKUP\_METADATA should specify the location and the metadata file name for the backup.



 **Note:**

If the destination PDB and the source PDB are in different CDBs wherein, both the CDBs are on-premise (or on Oracle Cloud), then ensure that the source PDB is in read-write mode. This is necessary since a database link is created in the destination CDB for cloning the PDB, and a temporary user is created in the source PDB for using the database link. If there is an existing database link in the destination CDB that connects to the source PDB, then use the parameter `EXISTING_DB_LINK_NAME` to provide the database link name in the properties file.

- **Unplug/plug** (supported only for Oracle Cloud)  
Unplugs the source PDB and creates a new PDB at the destination using the unplugged source, and then plugs the source back. Both, `EXISTING_BACKUP` and `BACKUP_TYPE` parameters should not be provided.

## Pluggable Database Snapshot Clone Types

The different methods of snapshot cloning that are possible with a pluggable database on-premise are mentioned below. The process of achieving them are by configuring certain parameters in the properties file, while using the `emcli pdb_clone_management verb`.

 **Note:**

For all the snapshot clone types, in addition to the mandatory parameters in [Table 32-27](#), add the parameter `IS_SNAPSHOT_COPY=true`, to the properties file. A sample of the properties file is shown below:

```
#-----#
# SOURCE                                     #
#-----#
SRC_PDB_TARGET=tmcdb_Host1.mycompany.com_PPDB1_TM1
SRC_CDB_TARGET=tmcdb_Host1.mycompany.com
SRC_CDB_TYPE=oracle_database
SRC_CDB_CREDS=NC_SYS_CDB:SYSMAN
SRC_HOST_CREDS=NC_HOST_EXA:SYSMAN
#-----#
# DESTINATION                               #
#-----#
DEST_PDB_NAME=PPDB1_SCL1
DEST_CDB_TARGET=tmcdb_Host1.mycompany.com
DEST_CDB_TYPE=oracle_database
DEST_CDB_CREDS=NC_SYS_CDB:SYSMAN
DEST_HOST_CREDS=NC_HOST_EXA:SYSMAN
DEST_LOCATION=+SPARSEDG
DEST_PDB_ADMIN_NAME=PDBADMIN
DEST_PDB_ADMIN_PWD=admpass
DEST_PDB_DISPLAY_NAME=PRD_SnapshotCopy_1
DEST_WORK_DIR=/tmp
#-----#
# Snapshot Copy flag                         #
#-----#
IS_SNAPSHOT_COPY = true
```

- **Exadata sparse clone snapshot**  
The Exadata sparse clone snapshot will work only if the destination PDB data file location is in sparse ASM disk group in an Exadata machine, and the source and destination PDB data files share the same ASM instance.  
Set the value of the DEST\_LOCATION to create an Exadata sparse clone. The DEST\_LOCATION should be the name of the ASM sparse disk group. For example, +SPARCEDG.
- **ACFS (ASM cluster file system) snapshot**  
The ACFS snapshot will work only if the source and destination PDB data file location is in common ACFS file system.
- **CLONEDB initialization parameter set to FALSE**  
When you create a snapshot clone of a source PDB and the CLONEDB initialization parameter of the destination host is set to FALSE, the underlying file system for the source PDB's files must support storage snapshots. Such file systems include Oracle Automatic Storage Management Cluster File System (Oracle ACFS) and Direct NFS Client storage.
- **CLONEDB initialization parameter set to TRUE**  
When you create a clone of a source PDB and the CLONEDB initialization parameter of the destination host is set to TRUE, the underlying file system for the source PDB's files can be any local file system, network file system (NFS), or clustered file system that has Direct NFS enabled. However, the source PDB must remain in open read-only mode as long as any clones exist.

## Creating a Test Master Pluggable Database

The EM CLI verb `emcli pdb_clone_management` creates a new clone of an existing pluggable database. The same verb is used to create a Test Master of a pluggable database. However, the properties file used for the verb is different. For details of the verb see [Table 32-26](#). For details of the properties file used to create the Test Master see [Table 32-28](#).

**Table 32-28 Sample Properties File for Creating a Pluggable Database Test Master**

Parameters	Sample values	Description
<b>Mandatory Parameters to Create a Test Master</b> SRC_PDB_TARGET	SRC_PDB_TARGET=cdb_pr od_PDB	Enterprise Manager (EM) target name of the source pluggable database (PDB).
SRC_HOST_CREDS	SRC_HOST_CREDS=NC_H OST_SAY:SYSCO	Named credentials for the source target host.
SRC_CDB_CREDS	SRC_CDB_CREDS=NC_DB _SYS:SYSCO	Named credentials for the source CDB.
SRC_WORK_DIR	SRC_WORK_DIR=/tmp/ source	Work directory at the source host where files are temporarily stored. If this parameter is not provided, the agent work directory is used.
DEST_HOST_CREDS	DEST_HOST_CREDS=NC_ SLO_SSH:SYSCO	Named credentials for the destination target host. If destination host is on Oracle Cloud, then the value for this parameter should be the host SSH credentials.
DEST_LOCATION	DEST_LOCATION=/ scratch/app/cdb_tm/ HR_TM_PDB6	Data file location in the destination where the new PDB should be hosted.

**Table 32-28 (Cont.) Sample Properties File for Creating a Pluggable Database Test Master**

Parameters	Sample values	Description
DEST_CDB_TARGET	DEST_CDB_TARGET=cdb_tm	EM target name of CDB where the new PDB should be cloned.
DEST_CDB_TYPE	DEST_CDB_TYPE=oracle_database	EM target type of the destination CDB.
DEST_CDB_CREDS	DEST_CDB_CREDS=NC_DB_SYS:SYSCO	Named credentials for the destination CDB.
DEST_PDB_NAME	DEST_PDB_NAME=HR_TM_PDB6	Name of the new PDB.
IS_CREATE_AS_TESTMASTER	IS_CREATE_AS_TESTMASTER=true	Flag to set the cloned PDB as a Test Master PDB in the EM.
<b>Mandatory Parameters (along with the above) to Create a Test Master on Exadata ASM</b>	ACL_DF_GROUP=oinstall	Group name to provide the permission to the Exadata ASM disk group data files of the cloned PDB.
ACL_DF_GROUP		
ACL_DF_OWNER	ACL_DF_OWNER=oracle	Owner name to provide the required permission to the Exadata ASM disk group data files of the cloned PDB.
<b>Optional Parameters</b>	MASKING_DEFINITION_NAME=CRM_Masking_Defn	Name of the masking definition in EM that will be applied on the cloned PDB.
MASKING_DEFINITION_NAME		
CUSTOM_PRE_SCRIPTS_URN	CUSTOM_PRE_SCRIPTS_URN=oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:14288BACD7B765FE0533B79B10AA480:0.3	Software library URN of the script to be run before creating the clone PDB in the destination host.
CUSTOM_POST_SCRIPTS_URN	CUSTOM_POST_SCRIPTS_URN=oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:14288BACD7C1765FE0533B79B10AA480:0.3	Software library URN of the script to be run after creating the clone PDB in the destination host.
POST_SQL_SCRIPT_URN	POST_SQL_SCRIPT_URN=oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_Generic:142899134B2C25E8E0533B79B10A2D54:0.1	Software library URN of the SQL script to be run in the destination CDB after creating the clone PDB.
RUN_AS_USER	RUN_AS_USER=sys	User name to run the post SQL script.
RUN_AS_USER_PWD	RUN_AS_USER_PWD=gosard	Password to run the post SQL script.
ACL_DF_GROUP_PERM	ACL_DF_GROUP_PERM=read only	Level of permission to be given to the group for the Exadata ASM disk group data files of the cloned PDB.
ACL_DF_OWNER_PERM	ACL_DF_OWNER_PERM=read only	Level of permission to be given to the owner for the Exadata ASM disk group data files of the cloned PDB.

**Table 32-28 (Cont.) Sample Properties File for Creating a Pluggable Database Test Master**

Parameters	Sample values	Description
ACL_DF_OTHER_PERM	ACL_DF_OTHER_PERM=read only	Level of permission to be given to others for the Exadata ASM disk group data files of the cloned PDB.
SRC_CDB_TARGET	SRC_CDB_TARGET=cdb_prod_DB	EM target name of the CDB containing the source PDB.
SRC_CDB_TYPE	N/A	EM target type of the CDB containing the source PDB.
SRC_HOST	SRC_HOST=xyz.example.com	EM target name of the host containing the source CDB. If this value is not provided, it will be derived from the CDB.
DEST_HOST	DEST_HOST=xyz.example.com	EM target name of host containing the destination CDB. If this value is not provided, it will be derived from the CDB.
EXISTING_BACKUP	EXISTING_BACKUP=/user1/pdbbackup/app/PROD_PDB_Backup_14297779	Indicates the absolute location of the existing backup in the file system, and if it should be used to clone the new PDB.
EXISTING_BACKUP_METADATA	EXISTING_BACKUP_METADATA=/user1/pdbbackup	Absolute location of the metadata template of the backup. This parameter is required, if EXISTING_BACKUP is provided.
BACKUP_TYPE	BACKUP_TYPE=OSIMAGE	Indicates the backup type. The accepted values are TAR, OSIMAGE, and RMAN. If an existing backup (EXISTING_BACKUP parameter) is provided, this parameter represents the type of the backup. If not, this parameter represents the type of backup that should be taken during job execution. If both, EXISTING_BACKUP and BACKUP_TYPE are not provided, the source PDB, will be unplugged, and copied over to the destination for creating a new clone. Once the datafiles are copied, the source PDB will be plugged back.

A sample of the properties file for creating a Test Master PDB on Exadata is shown below:

```
#-----#
# SOURCE                                     #
#-----#
SRC_PDB_TARGET=ProdCDB_Host1.mycompany.com_PROD_PDB1
SRC_CDB_TARGET=ProdCDB_Host1.mycompany.com
SRC_CDB_TYPE=oracle_database
SRC_CDB_CREDS=NC_SYS_CDB:SYSMAN
SRC_HOST_CREDS=NC_HOST_EXA:SYSMAN
#-----#
# DESTINATION                               #
#-----#
DEST_PDB_NAME=PPDB1_TM1
DEST_CDB_TARGET=tmcdb_Host1.mycompany.com
DEST_CDB_TYPE=oracle_database
DEST_CDB_CREDS=NC_SYS_CDB:SYSMAN
DEST_HOST_CREDS=NC_HOST_EXA:SYSMAN
```

```

DEST_LOCATION=+DATA1
DEST_PDB_ADMIN_NAME=PDBADMIN
DEST_PDB_ADMIN_PWD=admpass
DEST_PDB_DISPLAY_NAME=PRD_TestMaster
DEST_WORK_DIR=/tmp
#-----#
# Exadata Test Master related props#
#-----#
IS_CREATE_AS_TESTMASTER=true
ACL_DF_OWNER=oracle
ACL_DF_GROUP=oinstall
#-----#
# PDB Clone Pre & Post Processing #
#-----#
MASKING_DEFINITION_NAME=CRM_Masking_Defn
CUSTOM_PRE_SCRIPTS_URN=oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:1
4288BACD7BB765FE0533B79B10AA480:0.3
CUSTOM_POST_SCRIPTS_URN=oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:
14288BACD7C1765FE0533B79B10AA480:0.3
POST_SQL_SCRIPT_URN=oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_Generi
c:142899134B2C25E8E0533B79B10A2D54:0.1
RUN_AS_USER=sys
RUN_AS_USER_PWD=syspass

```

## Transferring Data Between Databases

The details of the EM CLI verb used to transfer data are as follows:

**Table 32-29 Data Transfer EM CLI Verb**

Verb	Description	Format
emcli data_transfer	Transfers data from the source database to the target database. <ul style="list-style-type: none"> <li>-input_file - Location of the file containing the properties required for transferring data. See <a href="#">Table 32-30</a> for details.</li> </ul> <p>Example:</p> <pre>emcli data_transfer - input_file=data:/u01/files/ data_transfer.props</pre>	emcli data_transfer -input_file

The table below explains the required parameters and values in the properties file that needs to be used as an input file for transferring data.

**Table 32-30 Sample Properties File for Transferring Data**

Parameters	Sample values	Description
<b>Mandatory Parameters</b> SOURCE_LOCATION	SOURCE_LOCATION=/tmp/ newp/ PDB_Backup_142800380393 8	Location of the data at the source host.
SRC_HOST	SRC_HOST=bl.example.com	The source host containing the data.
SRC_HOST_CREDS	SRC_HOST_CREDS=NC_H OST_SHY:SYS	Credentials for the host on which the data is located. If the source host is on Oracle Cloud, the value should be host SSH credentials.

**Table 32-30 (Cont.) Sample Properties File for Transferring Data**

Parameters	Sample values	Description
DEST_HOST	DEST_HOST=slc0.example.com	The destination host where the data should be copied to.
DEST_HOST_CREDS	DEST_HOST_CREDS=NC_SLO_SSH	Credentials for the host where the data should be copied to. If the destination host is on Oracle Cloud, the value should be host SSH credentials.
DEST_LOCATION	DEST_LOCATION=/scratch/app3/oradata/migda	Location on the destination host where the data should be copied to.

## Backing Up Datafiles and Metadata of a Pluggable Database

The details of the EM CLI verb used to backup datafiles and metadata of a pluggable database are as follows:

**Table 32-31 EM CLI Verb for Datafile and Metadata Backup of Pluggable Databases**

Verb	Description	Format
emcli pdb_backup	<p>Takes a backup of datafiles and metadata xml of the specified pluggable database.</p> <ul style="list-style-type: none"> <li>-input_file - Location of the file containing the properties required for taking a backup of the PDB. See <a href="#">Table 32-32</a> for details.</li> </ul> <p>Example:</p> <pre>emcli pdb_backup -input_file=data:/u01/files/pdb_backup.props</pre>	emcli pdb_backup -input_file

The table below explains the required parameters and values in the properties file that needs to be used as an input file for backup of datafiles and metadata of a pluggable database.

**Table 32-32 Sample Properties File for Datafile and Metadata Backup of a Pluggable Database**

Parameters	Sample values	Description
<b>Mandatory Parameters</b>		
TARGET_HOST_LIST	TARGET_HOST_LIST=xyz.a bccorp.com	Host on which the target Container database (CDB)/Pluggable database (PDB) is hosted.
HOST_NORMAL_NAME_CRED	HOST_NORMAL_NAMED_CRED=XYZ_CRED:CRED_OWNER	Host credentials.
SRC_CDB_NAMED_CRED	SRC_CDB_NAMED_CRED=CDB1_CRED:CRED_OWNER	SYSDBA credentials of the source CDB.
SRC_CDB_TARGET_NAME	SRC_CDB_TARGET_NAME=CDB1	The target name of the CDB which hosts the PDB.
SRC_CDB_TARGET_TYPE	SRC_CDB_TARGET_TYPE=oracle_database	CDB target type.

**Table 32-32 (Cont.) Sample Properties File for Datafile and Metadata Backup of a Pluggable Database**

Parameters	Sample values	Description
SRC_PDB_TARGET_NAME	SRC_PDB_TARGET_NAME=CDB1_PDB1	The target name of the PDB whose backup is required.
BACKUP_LOCATION	BACKUP_LOCATION=/scratch/pdbBackup	Path of the file system where the backup should be copied to.
WORK_DIR_LOCATION	WORK_DIR_LOCATION=/tmp	Temporary staging location on the source host.
ORACLE_HOME_LOC	ORACLE_HOME_LOC=/scratch/d121hmcasm/product/12.1.0/dbhome_1	Oracle home of the CDB.

## Importing Data from Export Dumps to a Database

The details of the EM CLI verb used to import data from export dumps to a database are as follows:

**Table 32-33 EM CLI Verb for Importing Data from Export Dumps to a Database**

Verb	Description	Format
emcli dbimport	Imports data from export dumps to the specified database target. <ul style="list-style-type: none"> <li>-input_file - Location of the file containing the properties required for importing data from export dumps. See <a href="#">Table 32-34</a> for details.</li> </ul> <p>Example:</p> <pre>emcli dbimport -inputFile=data:/u01/files/dbimport.props</pre>	emcli dbimport -input_file

The table below explains the required parameters and values in the properties file that needs to be used as an input file for importing data from export dumps to a database.

**Table 32-34 Sample Properties File for Importing Data from Export Dumps to a Database**

Parameters	Sample values	Description
<b>Mandatory Parameters</b> DESTINATION_TARGET	DESTINATION_TARGET=SS _OPC_DB	Destination PDB target (or DB target) where the schema should be imported.
DESTINATION_TARGET_TYPE	DESTINATION_TARGET_TYPE=oracle_database	The destination target type.
DATABASE_CREDENTIAL	DATABASE_CREDENTIAL=SYSDBA:SYS	SYSDBA credentials of the target.
HOST_NAMED_CREDENTIAL	HOST_NAMED_CREDENTIAL=AE_NC:SYS	Credentials of the host where the destination target is hosted.

**Table 32-34 (Cont.) Sample Properties File for Importing Data from Export Dumps to a Database**

Parameters	Sample values	Description
PROFILE_LOCATION	PROFILE_LOCATION=Database Provisioning Profiles/12.1.0.1.0/linux_x64/Export Dump of Sample schemas10	Location of the profile which is created during export.
REMAP_SCHEMA_LIST.(x)	REMAP_SCHEMA_LIST.0=HR REMAP_SCHEMA_LIST.1=OE REMAP_SCHEMA_LIST.2=PM REMAP_SCHEMA_LIST.3=IX REMAP_SCHEMA_LIST.4=SH REMAP_SCHEMA_LIST.5=BI	List of schemas that needs to be imported.
REMAP_TABLESPACE_LIST.(x)	REMAP_TABLESPACE_LIST.0=EXAMPLE:MYTBSP1 REMAP_TABLESPACE_LIST.1=USERS:MYTBSP1 REMAP_TABLESPACE_LIST.2=SYSTEM:MYTBSP1	Schema corresponding tablespaces for the schema import.
DEGREE_OF_PARALLELISM	DEGREE_OF_PARALLELISM=1	Indicates if the data needs to be imported in parallel.
DUMP_FILE_LIST.(x)	DUMP_FILE_LIST.0=/scratch/aime/dumpdir/sampleschemas.dmp	Location of the dump file in the destination host.
IMPORT_LOG_FILE_DIRECTORY	IMPORT_LOG_FILE_DIRECTORY=DATA_PUMP_DIR	Location where the log files should be stored. This is a directory object inside the database.
FORWARDER_HOST	FORWARDER_HOST=slo.us.example.com	Indicates the forwarder host.
FORWARDER_CRED	FORWARDER_CRED=AIME_NC:SYSMAN	Indicates the forwarder host credentials.
WORKING_DIRECTORY	WORKING_DIRECTORY=/tmp	Temporary staging location on the source host.

## Using the db\_clone\_management EM CLI Verb

emcli db\_clone\_management is an umbrella EM CLI verb which can be used to perform various tasks for database management. For various actions though the verb remains the same the command within the verb varies. For details, see the table below.



**Table 32-35 db\_clone\_management EM CLI Verb Description**

Verb	Description	Format
emcli db_clone_management <command> <options>	<p>Verb for database clone life-cycle management.</p> <p>Commands:</p> <ul style="list-style-type: none"> <li>-createFullClone - Creates a full clone database.</li> <li>-createTestMaster - Creates a Test Master database.</li> <li>-createCloneDB - Creates a CloneDB database.</li> <li>-createSnapClone - Creates a Snap Clone database.</li> <li>-createSnapshotClone - Creates an Exadata Sparse clone database.</li> <li>-cloneToCloud - Clones a database to Oracle Cloud.</li> <li>-enableTestMaster - Enables a database as Test Master.</li> <li>-disableTestMaster - Disables a Test Master database.</li> <li>-refreshDatabase - Refreshes a database from its source.</li> <li>-deleteDatabase - Deletes a database and removes the target from Enterprise Manager.</li> <li>-listClones - Lists the clones of a database.</li> <li>-listTestMasters - Lists the Test Master databases.</li> <li>-listDatabaseBackups - Lists RMAN backup and image profiles of a database.</li> <li>-listDatabaseSnapshots - Lists snapshot profiles of a database.</li> </ul> <p>Options:</p> <ul style="list-style-type: none"> <li>-target_name - Name of the database target.</li> <li>-target_type - Type of the database target. Possible values are: "oracle_database" for a single instance database or "rac_database" for a RAC database. This option needs to be specified if -target_name option is specified.</li> <li>-clone_type - Type of clone. Possible values are: "LIVE" to perform a live clone or "POINT_IN_TIME" to perform a prior point in time clone.</li> <li>-input_file - Path of the file containing input properties.</li> </ul> <p>Help options:</p> <ul style="list-style-type: none"> <li>-print_properties - Lists the input properties required for database clone procedures. This option mandates the presence of -target_name and -target_type.</li> <li>-usage - Use this option to show detailed usage of the verb.</li> </ul>	<p>emcli db_clone_management &lt;command&gt;</p> <p>-target_name="database target name"</p> <p>-target_type="database target type - oracle_database   rac_database&gt;"</p> <p>[-clone_type="clone type - &lt;LIVE   POINT_IN_TIME&gt;"]</p> <p>{-input_file="path of the input properties file"   -print_properties="print properties for the input file"}</p> <p>{-usage}</p>

## Invoking a REST API Using EM CLI Verb

emcli invoke\_ws is an EM CLI verb used to invoke a REST API to perform the action expected by the REST API. The medium however is Enterprise Manager command line interface.

**Table 32-36 Invoking a REST API Using an EM CLI Verb**

Verb	Description	Format
emcli invoke_ws	<p>Invokes the Enterprise Manager Web service to act as per the REST API passed via this verb.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>• -wsname - Indicates the URI of the resource.</li> <li>• -method - Specifies of the REST method.</li> <li>• -payload - Indicates the json/xml input payload.</li> <li>• -accept - Payload type. These are standard REST API values.</li> <li>• -type - Standard REST API response types.</li> <li>• -param - This option is used to pass a form/query parameter value. For example, -param="name:value". More than one parameter can be specified. For example, -param="name:value" -param="zip:12345".</li> </ul> <p>The parameter can be provided through a file. For example, the parameters can be specified in a text file with name file.txt and the command can have the options as: -param="name:tag" -input_file="tag:file.txt", wherein the parameter name will derive the value from the input file file.txt.</p> <ul style="list-style-type: none"> <li>• -input_file - Use this option to pass in payload or param value from file.</li> </ul> <p>Examples:</p> <ul style="list-style-type: none"> <li>• emcli invoke_ws -wsname=/em/websvcs/restful/emws/core/v0/list/dataservice -method=get -param="name:Administrators" <b>Invokes list resource and sources all administrators</b></li> <li>• emcli invoke_ws -wsname=/em/websvcs/restful/emws/core/v0/list/dataservice -method=get -param="name:tag" -input_file="tag:file.txt" <b>Invokes list resource and sources all administrators. The name parameter is read from file.txt.</b></li> </ul>	<p>emcli invoke_ws</p> <p>-wsname=&lt;WebService Name&gt;</p> <p>-method=&lt;method name&gt;</p> <p>[-payload=&lt;Payload&gt;]</p> <p>[-accept=&lt;accept type&gt;</p> <p>[-type=response type]</p> <p>[-param=Query Parameters]</p> <p>[-input_file=&lt;Input File for payload data&gt;]</p>

A sample of the contents of the file.txt is shown below.

```
Name:Administrators
Zip:23456
```

# Database as a Service Administrator REST APIs

This chapter describes the resource models for the Administration flows of Database as a Service (DBaaS) REST APIs, and their responses.

The following topics are covered in this chapter:

- [Summary of Database as a Service Administrator REST APIs](#)
- [Creating a New DBaaS Cloud Setup Using REST APIs](#)
- [Database as a Service Administrator Operations REST APIs](#)
  - [PaaS Zones and PaaS Zone REST APIs](#)
  - [Software Pools and Software Pool REST APIs](#)
  - [Database Request Settings REST APIs](#)
  - [Database Quota REST APIs](#)
  - [Service Template REST APIs](#)
- [DB Onboarding on DBaaS Cloud REST API](#)
- [DB Relocation REST API](#)
- [PDB Onboarding on DBaaS Cloud REST API](#)
- [PDB Relocation REST API](#)
- [PDB Upgrade REST API](#)
- [Pluggable Database Profile REST API Examples](#)

## Summary of Database as a Service Administrator REST APIs

The table below shows a summary of all the DBaaS Administrator REST APIs covered in this chapter.

**Table 33-1 Summary of Administrator DBaaS REST APIs**

Resource	Data Model	GET	POST	PUT	DELETE
PaaS zones	<a href="#">Table 33-3</a>	<a href="#">Viewing Details of the PaaS Zones Resource</a>	<a href="#">Creating a PaaS Zone</a>	<a href="#">Updating a PaaS Zone</a>	Not Supported
PaaS zone	<a href="#">Table 33-5</a>	<a href="#">Viewing Details of a PaaS Zone Resource</a>	Not Supported	Not Supported	<a href="#">Deleting a PaaS Zone</a>

Table 33-1 (Cont.) Summary of Administrator DBaaS REST APIs

Resource	Data Model	GET	POST	PUT	DELETE
Software pools	<a href="#">Table 33-12</a>	<a href="#">Viewing Details of the Software Pools Resource</a>	<ul style="list-style-type: none"> <li>Database pool - <a href="#">Creating a Database Pool</a>;</li> <li>Schema pool - <a href="#">Creating a Schema Pool</a>;</li> <li>Pluggable database pool - <a href="#">Creating a Pluggable Database Pool</a></li> </ul>	<ul style="list-style-type: none"> <li>Database pool - <a href="#">Updating a Database Pool</a></li> <li>Schema pool - <a href="#">Updating a Schema Pool</a></li> <li>Pluggable database pool - <a href="#">Updating a Pluggable Database Pool</a></li> </ul>	Not supported
Software pool	<a href="#">Table 33-14</a>	<ul style="list-style-type: none"> <li><a href="#">Viewing Details of a Software Pool Resource</a></li> <li><a href="#">Viewing Details of a Software Pool Capacity</a></li> </ul>	Not supported	Not supported	<a href="#">Deleting a Database / Schema / Pluggable Database Pool</a>
DBaaS request settings	<a href="#">Table 33-26</a>	<a href="#">Viewing Details of the Dbaas Request Settings Resource</a>	<a href="#">Creating Database Request Settings</a>	Not supported	Not supported
DBaaS quota	<a href="#">Table 33-30</a>	<a href="#">Viewing Details of the DBaaS Quota Resource</a>	<a href="#">Creating DBaaS Quota for a Role</a>	<a href="#">Updating DBaaS Quota for a Role</a>	<a href="#">Deleting DBaaS Quota for a Role</a>
Service templates	<a href="#">Table 33-36</a>	<a href="#">Viewing Details of the Service Templates Resource</a>	<a href="#">Service Templates and Service Template REST API Examples</a>	Not supported	Not Supported
Service template	<a href="#">Table 33-38</a>	<a href="#">Viewing Details of the ServiceTemplate Resource</a>	Not supported	Supported	<a href="#">Deleting a Database / Schema / Pluggable Database Service Template</a>

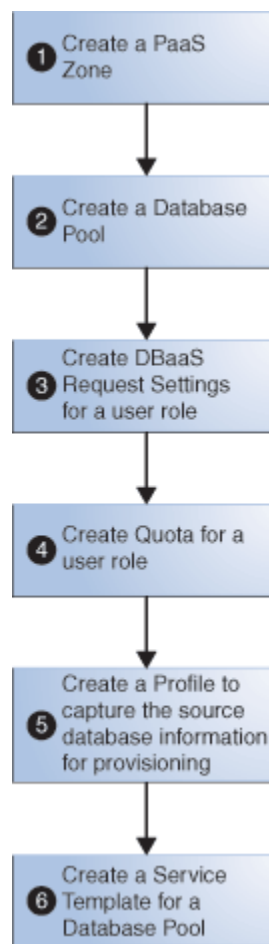
 **Note:**

In the table above, "supported" indicates that the operation is supported on the resource. However, there is no example in the chapter for this operation.

## Creating a New DBaaS Cloud Setup Using REST APIs

The Cloud Administrator sets up the cloud infrastructure for DBaaS. The figure below illustrates the steps to be followed to setup the DBaaS cloud setup.

**Figure 33-1** Creating a New DBaaS Cloud Resource



As an example, [Table 33-2](#) illustrates a step-by-step process to create DBaaS using REST APIs and EM CLI verbs (where necessary).



**Note:**

The process below provides references to the REST APIs wherever possible. However, you can perform the same operations using EM CLI verbs. To know the corresponding EM CLI verbs see [EM CLI Verbs for Database as a Service Administrator](#) .

**Table 33-2 Creating DBaaS using REST APIs**

Step	Action
1	<p>Create a PaaS infrastructure zone. Refer to <a href="#">Creating a PaaS Zone</a>.</p> <p><b>Note:</b> To view the existing PaaS zones perform a GET operation. Refer to <a href="#">Viewing Details of the PaaS Zones Resource</a>.</p>
2	<p>Create one of the following Database Pools:</p> <ul style="list-style-type: none"> <li>• Database Pool - refer to <a href="#">Creating a Database Pool</a></li> <li>• Schema Pool - refer to <a href="#">Creating a Schema Pool</a></li> <li>• Pluggable Database Pool - refer to <a href="#">Creating a Pluggable Database Pool</a></li> </ul> <p><b>Note:</b> To view the existing Database Pools perform a GET operation. Refer to <a href="#">Viewing Details of the Software Pools Resource</a></p>
3	<p>Create DBaaS Request Settings for a user role. Refer to <a href="#">Creating Database Request Settings</a>.</p>
4	<p>Create Quota for a user role. Refer to <a href="#">Creating DBaaS Quota for a Role</a>.</p> <p><b>Note:</b> This step is optional.</p>
5	<p>Create a Profile to capture the source database information for provisioning. Refer to <a href="#">EM CLI Verbs for Database as a Service Administrator</a> .</p> <p>A profile can represent a complete database or a set of related schemas that form an application.</p>
6	<p>Create a Service Template for any one of the following based on the selected Database Pool:</p> <ul style="list-style-type: none"> <li>• Database Pool - refer to: <ul style="list-style-type: none"> <li>– <a href="#">Creating a Service Template for DBCA Based Database</a></li> <li>– <a href="#">Creating a Service Template for RMAN Based Single Instance Database</a></li> <li>– <a href="#">Creating a Service Template for RMAN Based Single Instance Database with Single Instance Standby</a></li> <li>– <a href="#">Creating a Service Template for RMAN Based RAC One Node Database</a></li> <li>– <a href="#">Creating a Service Template for RMAN Based RAC One Node Database With Standby</a></li> <li>– <a href="#">Creating a Service Template for RMAN Based RAC Database With Standby</a></li> <li>– <a href="#">Creating a Service Template for DNFS Based Database</a></li> </ul> </li> <li>• Schema Pool - refer to <a href="#">Creating a Service Template for a Schema</a></li> <li>• Pluggable Database Pool - refer to <a href="#">Creating a Service Template for a Pluggable Database</a></li> </ul>

The DBaaS cloud setup is ready to be administered.

## Database as a Service Administrator Operations REST APIs

This section covers all the REST APIs for the Cloud Administrator flows. The REST APIs in this section are classified as follows:

- [PaaS Zones and PaaS Zone REST APIs](#)
- [Software Pools and Software Pool REST APIs](#)
- [Database Request Settings REST APIs](#)

- [Database Quota REST APIs](#)
- [Service Template REST APIs](#)

## PaaS Zones and PaaS Zone REST APIs

The REST APIs in this section are categorized as PaaS zones REST APIs and PaaS zone REST APIs. PaaS zone represents a PaaS Infrastructure Zone whereas PaaS zones is a collection resource representing a Cloud Administrator's view of a group of all the accessible individual PaaS zone resources.

This section covers the following:

- [PaaS Zones REST APIs](#)
- [PaaS Zone REST APIs](#)
- [PaaS Zones and PaaS Zone REST API Examples](#)

## PaaS Zones REST APIs

PaaS zones is a collective representation of all the individual PaaS zone resources. PaaS zones has the media type `application/oracle.com.cloud.common.PaaSZones+json`.

The following table describes the PaaS zones data model.

**Table 33-3 PaaS Zones Data Model**

Field	Type	Description	Occurs
Name	String	Displays name of this collection resource.	1
Type	String	Type of this collection resource.	1
hasMore	Boolean	Indicates whether there are more elements in the collection.	1
Count	Integer	Number of elements returned.	1
Items	Collection <PaaSZone>	List of PaaS zone resources. If there are no instances, the items will be present but will be empty.	1
totalCount	Integer	Total number of PaaS zone resources.	1
canonicalLink	URI	A GET against this URI refreshes the client representation of this resource.	1
selfLink	URI	Refers to the resource equivalent to the containing elements.	1

## Supported Request Methods for PaaS Zones

The following table lists all the operations that are supported on the PaaS zones resources.

**Table 33-4 Supported Request Methods for PaaS Zones**

GET	POST	PUT	DELETE
Yes	Yes	Yes	No

## PaaS Zone REST APIs

This resource represents a PaaS Infrastructure Zone. PaaS zone has the media type `application/oracle.com.cloud.common.PaaSZone+json`.

The following table describes the PaaS zone data model.

**Table 33-5 PaaS Zone Data Model**

Field	Name	Description	Occurs
Name	String	A human readable name given to the PaaS zone. This field is non-editable.	1
displayName	String	Display name for the PaaS zone.	0..1
guid	String	Unique GUID of the PaaS zone that identifies the resource.	1
description	String	A brief description of the PaaS zone.	0..1
targetType	String	Target type of the PaaS zone to be created..	1
Members	Collection<members>	Members of PaaS zone. These must be added as EM targets in advance.	1
credentials	Collection <PaaSzone_Credential>	Credentials associated with the PaaS zone.	1
placementConstraints	Collection <EntityValue Holder>	Placement constraints for the PaaS zone that allows the cloud administrator to set a maximum ceilings for resource utilization.	0..1
characteristics	Collection <EntityValue Holder>	Characteristics associated with the PaaS zone.	1
canonicalLink	URI	A GET against this URI refreshes the client representation of the PaaS zone.	1

## Supported Request Methods for PaaS Zone

The following table lists all the operations that are supported on the PaaS zone resources.

**Table 33-6 Supported Request Methods for PaaS Zone**

GET	POST	PUT	DELETE
Yes	No	No	Yes

## PaaS Zones and PaaS Zone REST API Examples

The following sections provide examples of interaction with Enterprise Manager Cloud Control 12.1.0.3 with Cloud Application plug-in 12.1.0.7 and higher. The following examples are covered:

- [Viewing Details of the PaaS Zones Resource](#)
- [Viewing Details of a PaaS Zone Resource](#)
- [Creating a PaaS Zone](#)



- [Updating a PaaS Zone](#)
- [Deleting a PaaS Zone](#)

## Viewing Details of the PaaS Zones Resource

A GET request issued on the Resource Providers resource with the query parameter "type=self\_service\_zone" provides the details of all the individual PaaS zones which are already existing in the PaaS zones resource.

**Table 33-7 GET Request Configuration for Viewing Details of the PaaS Zones Resource**

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders?type=self_service_zone
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below:

```
{
  "name": "Resource Providers",
  "type": "Resource Provider",
  "canonicalLink": {
    "href": "https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders"
  },
  "totalResults": 1,
  "cfwItems": [
    {
      "id": "15",
      "name": "pzone1",
      "type": "self_service_zone",
      "guid": "A3CF2D49CFF3F3E664D073303EA51F8E",
      "canonicalLink": {
        "href": "https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/15"
      }
    },
    {
      "id": "16",
      "name": "Test Zone 2",
      "type": "self_service_zone",
      "guid": "EF3830C71CC54B50B963376F9217AB95",
      "canonicalLink": {
        "href": "https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/16"
      }
    },
    {
      "id": "17",
      "name": "test paas zone",
      "type": "self_service_zone",
      "guid": "5D7548C1B879A51CFD894CEA8D5FB19B",
      "canonicalLink": {
```

```

        "href": "https://example.com/em/websvcs/restful/extws/cloudservices/
admin/cfw/v2/resourceproviders/17"
    },
    {
        "id": "18",
        "name": "Test Zone",
        "type": "self_service_zone",
        "guid": "34405E0876B271E754B1A829BDFD06B9",
        "canonicalLink": {
            "href": "https://example.com/em/websvcs/restful/extws/cloudservices/
admin/cfw/v2/resourceproviders/18"
        }
    }
]
}

```

## Viewing Details of a PaaS Zone Resource

The GET request on the PaaS zone resource can be issued to retrieve its details. The configuration for GET to PaaS zone is as follows:

**Table 33-8 GET Request Configuration for Viewing Details of a PaaS Zones Resource**

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/23
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below:

```

{
  "name": "My Test Zone",
  "type": "self_service_zone",
  "memberTargetType": "host",
  "members": [
    "example.com"
  ],
  "credentials": [
    { "name": "normal_credential_guid",
      "value": "NC_HOST_2015-10-09-095917" }
  ],
  "placementConstraints": [
    { "name": "MAX_CPU_UTILIZATION",
      "value": [ "80" ] },
    { "name": "MAX_MEMORY_ALLOCATION",
      "value": [ "80" ] }
  ],
  "memberConstraints": [],
  "characteristics": [
    { "name": "ORACLE.SYSMAN.CFW.SELF_SERVICE_ZONE",
      "value": [ "34405E0876B271E754B1A829BDFD06B9" ] },
    { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_CONTACT",
      "value": [ ] },
  ]
}

```

```

    { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_COST_CENTER",
      "value": [] },
    { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_DEPARTMENT",
      "value": [] },
    { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_DOWNTIME_CONTACT",
      "value": [] },
    { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LIFECYCLE_STATUS",
      "value": [] },
    { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LINE_OF_BUS",
      "value": [] },
    { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LOCATION",
      "value": [] }
  ],
  "canonicalLink": { "href": "https://example.com/em/websvcs/restful/extws/
cloudservices/admin/cfw/v2/resourceproviders/23" }
}

```

## Creating a PaaS Zone

A PaaS zone is created with a POST request on the PaaS zones collection resource.

The configuration for POST to PaaS zones is as follows:

**Table 33-9 POST Request Configuration for Creating a PaaS Zone**

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	<pre> {  "useExistingTarget": false,     "name": "My Test Zone",     "type": "self_service_zone",     "credentials": [       { "name": "normal_credential_guid",         "value": "MY_ZONE_CREDS0afb3e85-f" }     ],     "memberTargetType": "host",     "members": [ "example.com" ],     "placementConstraints": [       { "name": "MAX_CPU_UTILIZATION",         "value": "90" }     ] } </pre>
Request method	POST

A sample of the response received is shown below.

```

{
  "message": "Resource provider with name \"My Test Zone\" and type
\"self_service_zone\" created successfully.",
  "canonicalLink": {
    "href": "https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
resourceproviders/23"
  }
}

```

## Updating a PaaS Zone

The PUT request with payload updates an existing PaaS Infrastructure Zone.

The configuration for PUT to PaaS zones is as follows:

**Table 33-10 PUT Request Configuration for Updating a PaaS Zone**

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/23
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	<pre>{   "memberTargetType": "host",   "credentials": [     {"name": "normal_credential_guid",       "value": "NC_HOST_2015-10-09-095917" }   ],   "placementConstraints": [     {"name": "MAX_CPU_UTILIZATION",       "value": [ "92" ] }   ] }</pre>
Request method	PUT

A sample of the response received is shown below.

```
{
  "message": "Resource provider with ID \"23\" updated successfully."
}
```

## Deleting a PaaS Zone

The DELETE request on the URI of the PaaS zone can be issued to delete a PaaS zone Instance. The configuration for deleting in PaaS zone is as follows:

**Table 33-11 DELETE Request Configuration to delete a PaaS Zone**

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/23
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	DELETE

A sample of the response received is shown below.

```
{
  "message": "Resource provider with ID \"23\" deleted successfully."
}
```

## Software Pools and Software Pool REST APIs

This section covers the following:

- [Software Pools](#)
- [Software Pool](#)
- [Software Pool REST API Examples](#)

### Software Pools

Software pools is a collection resource representing an SSA Administrator's view of all the accessible individual Software pool resources. Software pools has the media type `application/oracle.com.cloud.common.SoftwarePools+json`.

The following table describes the Software pools data model.

**Table 33-12 Software Pools Data Model**

Field	Type	Description	Occurs
Name	String	Displays name of this collection resource.	1
Type	String	Type of this collection resource.	1
hasMore	Boolean	Indicates whether there are more elements in the collection.	1
Count	Integer	Number of elements returned.	1
Items	Collection <PaaSZone>	List of PaaS zone resources. If there are no instances, the items will be present but will be empty.	1
totalCount	Integer	Total number of PaaS zone resources.	1
canonicalLink	URI	A GET against this URI refreshes the client representation of this resource.	1
selfLink	URI	Refers to the resource equivalent to the containing elements.	1

### Supported Request Methods for Software Pools

The following table lists all the operations that are supported on the Software pools resources.

**Table 33-13 Supported Request Methods for Software Pools**

GET	POST	PUT	DELETE
Yes	Yes	Yes	No

### Software Pool

A Software pool resource represents a collection of homogeneous servers or clusters that are used to service requests within a PaaS Infrastructure Zone. All members within a Software pool must be of the same type and must belong to the same PaaS Infrastructure Zone. Software pool has the media type `application/oracle.com.cloud.common.SoftwarePool+json`.

The following table describes the Software pool data model.

**Table 33-14 Software Pool Data Model**

Field	Type	Description	Occurs
Name	String	A human readable name given to the Software pool.	1
ID	String	Pool GUID that uniquely identifies the resource.	1
Description	String	As brief description given to the software pool.	0..1
poolTargetType	String	Target type of the Software Pool to be created. Example : "oracle_cloud_zone" for Database Pool, "schaas_pool" for Schema Pool, "pdbaas_pool" for Pluggable Database Pool.	1
paasZone	String	Name of the PaaS zone associated with this Software Pool.	1
Members	Collection <String>	Members of PaaS zone. They can be either Host members or Oracle VM Zone members.	1
memberType	String	The target type of the members of PaaS zone. It can be either "host" for Host members or "oracle_vm_zone" for Oracle VM Zone members.	1
Constraints	Collection <Entity Value Holder>	Placement Policy Constraints for a software pool allow the self service administrator to set maximum ceilings for resource utilization.	0..1
Filters	Collection <EntityValueHolder>	Filters on a Software Pool restrict the addition of member targets to it with a set criteria.	1
Properties	Collection <String>	Additional properties that need to be specified for a specific pool target type.	1
membersToAdd	Collection <String>	Targets to be added to an existing Software Pool while editing it.	0..1
membersToRemove	Collection <String>	Targets to be removed from an existing Software Pool while editing it.	0..1
canonicalLink	URI	A GET against this URI refreshes the client representation of this resource.	1

## Supported Request Methods for Software Pool

The following table lists all the operations that are supported on the Software pool resources.

**Table 33-15 Supported Request Methods for Software Pool**

GET	POST	PUT	DELETE
Yes	No	No	Yes

## Software Pool REST API Examples

The following sections provide examples of interaction with Enterprise Manager Cloud Control 12.1.0.3 with Cloud Application plug-in 12.1.0.7 and higher. The following examples are covered here:

- [Viewing Details of the Software Pools Resource](#)

- [Viewing Details of a Software Pool Resource](#)
- [Viewing Details of a Software Pool Capacity](#)
- [Creating a Database Pool](#)
- [Updating a Database Pool](#)
- [Creating a Schema Pool](#)
- [Updating a Schema Pool](#)
- [Creating a Pluggable Database Pool](#)
- [Updating a Pluggable Database Pool](#)
- [Deleting a Database / Schema / Pluggable Database Pool](#)

## Viewing Details of the Software Pools Resource

**Table 33-16 GET Request Configuration for Viewing Details of the Software Pools Resource**

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "name": "Software Pools",
  "type": "Software Pool",
  "hasMore": false,
  "count": 4,
  "items": [
    {
      "name": "SI Databases Zone",
      "type": "oracle_cloud_zone",
      "id": "EF658526512C5CFEF593EB295D0CFAD5",
      "zoneName": "Salt Lake City Zone",
      "canonicalLink": "https://xyz.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/EF658526512C5CFEF593EB295D0CFAD5"
    },
    {
      "name": "Pluggable Databases Pool",
      "type": "pdbaas_pool",
      "id": "9FC634F035161C9260CD943970BAC1C8",
      "zoneName": "Salt Lake City Zone",
      "canonicalLink": "https://xyz.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/9FC634F035161C9260CD943970BAC1C8"
    },
    {
      "name": "Primary DB Pool",
      "type": "oracle_cloud_zone",
      "id": "B1E3A8872D1A503DA1F1756CD18207B4",
      "zoneName": "Salt Lake City II",
      "canonicalLink": "https://xyz.example.com:4473/em/websvcs/restful/extws/"
    }
  ]
}
```

```

cloudservices/admin/cfw/v1/softwarepools/B1E3A8872D1A503DA1F1756CD18207B4"
  },
  {
    "name": "Standby DB Pool",
    "type": "oracle_cloud_zone",
    "id": "A5B6272EC680EFAB1B53842EC4256AAB",
    "zoneName": "Salt Lake City II",
    "canonicalLink": "https://xyz.example.com:4473/em/websvcs/restful/extws/
cloudservices/admin/cfw/v1/softwarepools/A5B6272EC680EFAB1B53842EC4256AAB"
  }
],
"totalCount": 4,
"canonicalLink": "https://xyz.example.com:4473/em/websvcs/restful/extws/cloudservices/
admin/cfw/v1/softwarepools",
"selfLink": "https://xyz.example.com:4473/em/websvcs/restful/extws/cloudservices/
admin/cfw/v1/softwarepools"
}

```

## Viewing Details of a Software Pool Resource

The GET request on the Software pool URI can be issued to retrieve its details.

The configuration for GET on Software pool is as follows:

**Table 33-17 GET Request Configuration for Viewing Details of the Software Pool Resource**

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/E827809080C16F75E040F20A60511EA2
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```

{
  "name": "DB_POOL",
  "description": "Database Pool of Oracle Homes",
  "type": "Database Zone",
  "id": "E827809080C16F75E040F20A60511EA2",
  "zoneName": "SLC01MDR_ZONE",
  "members": {
    "canonicalLink": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/
admin/cfw/v1/softwarepools/E827809080C16F75E040F20A60511EA2/members",
    "numberOfPoolMembers": "1"
  },
  "constraints": {
    "canonicalLink": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/
admin/cfw/v1/softwarepools/E827809080C16F75E040F20A60511EA2/constraints",
    "numberOfConstraints": "1"
  },
  "filters": {
    "canonicalLink": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/
admin/cfw/v1/softwarepools/E827809080C16F75E040F20A60511EA2/filters",
    "numberOfFilters": "3"
  }
},

```



```

    "properties":{
      "canonicalLink":https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/
admin/cfw/v1/softwarepools/E827809080C16F75E040F20A60511EA2/properties",
      "numberOfPropertiess":"0"
    },
    "createdOn":"2013-10-07 06:27:17",
    "createdBy":null,
    "modifiedOn":null,
    "modifiedBy":null,
    "owner":"SYSMAN",
    "etag":null,
    "lastModified":null,
    "canonicalLink":"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/
admin/cfw/v1/softwarepools/E827809080C16F75E040F20A60511EA2",
    "selfLink":"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/
admin/cfw/v1/softwarepools/E827809080C16F75E040F20A60511EA2"
  }
}

```

## Viewing Details of a Software Pool Capacity

The GET request on the Software pool capacity URI can be issued to retrieve its details.

In the table below, the URI to view the Software pool capacity is `/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/CODE0DEB3A8195A4707704360463060B/capacity`. However, it can be modified to add certain query parameters to view the desired output. The query parameters and their descriptions are given below:

- `showUsageSummary`: Includes resource utilization data at pool level. Values can be "yes", "y", or "true" which are all case insensitive. If value is not provided or if the given value is other than the listed values, "usageSummary" will not be available in the response.
- `showMemberLevelUsage`: Includes resource utilization data at pool member level. Values can be "yes", "y", or "true" which are all case insensitive. If value is not provided or if the given value is other than the listed values, "memberLevelUsage" will not be available in the response.
- `diskGroups`: Provides the list of ASM disk group names for storage computation. If the value is not provided, storage values will not be available in the response. Multiple values can be provided by using the format given below in the request URI:  
`diskGroups=<Value1>&diskGroups=<Value2>&...`
- `cpuMemAveUtilDays`: Indicates the number of days to include the collected metrics for computing CPU and memory utilization. If no value is provided, the default value is taken as 7 days.

The configuration for GET on Software pool is as follows:

**Table 33-18 GET Request Configuration for Viewing Details of the Software Pool Capacity**

Feature	Description
URI	<code>em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/D4BDB6E28A68A58A46670FCCB9F79B91/capacity??showMemberLevelUsage=y&amp;showUsageSummary=true&amp;diskGroups=RECO1&amp;diskGroups=DATA1</code>
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json

**Table 33-18 (Cont.) GET Request Configuration for Viewing Details of the Software Pool Capacity**

Feature	Description
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "name": "PDBPool",
  "type": "pdbaas_pool",
  "PoolInfo": {
    "poolName": "PDBPool",
    "poolId": "D4BDB6E28A68A58A46670FCCB9F79B91",
    "poolDescription": null,
    "dbConfiguration": "Single Instance Database",
    "dbVersion": "19.0.0.0.0",
    "paasZone": "Zone"
  },
  "usageSummary": {
    "numberOfCDBs": "1",
    "cores": {
      "total": "4",
      "accounted": "0",
      "allocated": "0",
      "available": "0",
      "unit": "cores"
    },
    "memory": {
      "total": "1.44",
      "accounted": "0",
      "allocated": "0",
      "available": "0",
      "unit": "GB"
    },
    "sessions": {
      "total": "504",
      "allocated": "0",
      "available": "504",
      "unit": "sessions"
    }
  },
  "canonicalLink": https://
emdb021.subnet1rg1bomsu.emdevinfrabom.oraclevcn.com:14488/em/websvcs/restful/
extws/cloudservices/admin/cfw/v1/softwarepools/
D4BDB6E28A68A58A46670FCCB9F79B91/capacity
}
```

## Creating a Database Pool

A POST operation is issued on Software Pools Collection resource to create a Database Pool.

The configuration for POST to Software pools is as follows:

**Table 33-19 POST Request Configuration for Creating a Database Pool**

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json

**Table 33-19 (Cont.) POST Request Configuration for Creating a Database Pool**

Feature	Description
Body	<pre> {   "name": "DB_POOL",   "poolTargetType": "oracle_cloud_zone",   "description": "Database Pool of Oracle Homes",   "paasZone": "SLC01MDR_ZONE",   "members": [     "OraDb11g_home1_2_slc01mdr"   ],   "serviceFamily": "DBAAS",   "serviceType": "DBAAS",   "constraints": {     "items": [       { "name": "MAX_INSTANCES",         "value": "10" }     ]   },   "filters": {     "items": [       { "name": "CONFIGURATION",         "value": "oracle_database" },       { "name": "VERSION",         "value": "11.2.0.2.0" },       { "name": "PLATFORM",         "value": "226" }     ]   },   "properties": {     "items": [       { "name": "host_credential_guid",         "value": "E84E88308E46A725E040F20A605125DD" },       { "name": "root_credential_guid",         "value": "E84E88308E46A725E040F20A605125DD" },       { "name": "standby_pools",         "value": "DB_POOL1  DB_POOL2" }     ]   } } </pre>
	<p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• name: Indicates the name of the pool.</li> <li>• poolTargetType: Indicates the target type for DBaaS pool. oracle_cloud_zone is the target type specific for DB OH pool.</li> <li>• paasZone: Indicates the name of the PaaS infrastructure zone.</li> <li>• members: Is a comma and string separated list of target names of Oracle homes, and members of the pool.</li> <li>• constraints: Indicates the constraints on the pool. Allowed values is MAX_INSTANCES.</li> <li>• filters: Indicates the filters applicable to define the version and type of the oracle homes of the pool, including VERSION, CONFIGURATION (oracle_database, rac_database) and PLATFORM (provide reference to list of code, for example, 226 for linux).</li> <li>• properties: Indicates the collection resource to define properties of the pool like Host credential GUID, Root credential GUID, and Standby pools. To identify the Named credential GUID use the EM CLI verb <code>emcli list_named_credential</code> or <code>emcli get_named_credential</code>.</li> </ul>

**Table 33-19 (Cont.) POST Request Configuration for Creating a Database Pool**

Feature	Description
Request method	POST

A sample of the response received is shown below.

```
{
  "name": "DB_POOL",
  "description": "Database Pool of Oracle Homes",
  "type": "Database Zone",
  "id": "E827809080C16F75E040F20A60511EA2",
  "zoneName": "SLC01MDR_ZONE",
  "members": {
    "canonicalLink": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/E827809080C16F75E040F20A60511EA2/members",
    "numberOfPoolMembers": "1"
  },
  "constraints": {
    "canonicalLink": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/E827809080C16F75E040F20A60511EA2/constraints",
    "numberOfConstraints": "1"
  },
  "filters": {
    "canonicalLink": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/E827809080C16F75E040F20A60511EA2/filters",
    "numberOfFilters": "3"
  },
  "properties": {
    "canonicalLink": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/E827809080C16F75E040F20A60511EA2/properties",
    "numberOfProperties": "0"
  },
  "createdOn": "2013-10-07 06:27:17",
  "createdBy": null,
  "modifiedOn": null,
  "modifiedBy": null,
  "owner": "SYSMAN",
  "etag": null,
  "lastModified": null,
  "canonicalLink": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/E827809080C16F75E040F20A60511EA2",
  "selfLink": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/E827809080C16F75E040F20A60511EA2"
}
```

## Updating a Database Pool

A PUT operation is issued on Software Pools Collection resource to update a Database Pool.

The configuration for PUT to Software pools is as follows:

**Table 33-20 PUT Request Configuration for Updating a Database Pool**

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools

**Table 33-20 (Cont.) PUT Request Configuration for Updating a Database Pool**

Feature	Description
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	<pre>{   "name": "DB_POOL",   "poolTargetType": "oracle_cloud_zone",   "description": "Database Pool of Oracle Homes",   "membersToAdd": [     "OraDb11g_home1_2_abc"],   "membersToRemove": [     "OraDb11g_home1_2_abc"],   "constraints": {     "items": [{"name": "MAX_INSTANCES", "value": "8"}]},   "properties": {     "items": [       {"name": "host_credential_guid", "value": "E84E88308E46A725E040F20A605125DD"},       {"name": "root_credential_guid", "value": "E84E88308E46A725E040F20A605125DD"},       {"name": "standby_pools", "value": "DB_POOL"}     ]   } }</pre> <p><b>Note:</b> Ensure at least one member remains as a part of the pool while issuing the request. If all the members are added to the <code>membersToRemove</code> attribute, the PUT request may fail.</p>
Request method	PUT

A sample of the response received is shown below.

```
Status 200 OK
Content-Type: application/json
{
  message: "Software Pool  " DB_POOL" updated successfully."
}
```

## Creating a Schema Pool

A POST operation is issued on Software Pools Collection resource to create a Software Pool.

The configuration for POST to Software pools is as follows:

**Table 33-21 POST Request Configuration for Creating a Schema Pool**

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json

**Table 33-21 (Cont.) POST Request Configuration for Creating a Schema Pool**

Feature	Description
Body	<pre>{   "name": "SCHEMA_POOL",   "poolTargetType": "schaas_pool",   "description": "Schema Service Pool",   "paasZone": "SLC01MDR_ZONE",   "members": ["simple.example.com"],   "serviceFamily": "DBAAS",   "serviceType": "SCHEMA",   "constraints":     {       "items": [         {"name": "MAX_SERVICES", "value": "20"},         {"name": "USE_WORKLOAD", "value": "true"},         {"name": "MAX_CPU_USAGE", "value": "90"},         {"name": "MAX_MEMORY_USAGE", "value": "90"},         {"name": "ENFORCE_CPU", "value": "true"}       ]     },   "filters":     {       "items": [         {"name": "TARGET_TYPE", "value": "oracle_database"},         {"name": "VERSION", "value": "11.2.0.2.0"},         {"name": "PLATFORM", "value": "226"}       ]     } }</pre>
Request method	POST

A sample of the response received is shown below.

```
Status 201 Created
Content-Type: application/json
{
  "name": "SCHEMA_POOL",
  "description": "Schema Service Pool",
  "type": "Schema Pool",
  "id": "2CFF36A9E92AAD533253871374857D8C",
  "zoneName": "SLC01MDR_ZONE",
  "members": {
    "canonicalLink": "https://xyxy.example.com:11180/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/2CFF36A9E92AAD533253871374857D8C/members",
    "numberOfPoolMembers": "1"},
  "constraints": {
    "canonicalLink": "https://xyxy.example.com:11180/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/2CFF36A9E92AAD533253871374857D8C/constraints",
    "numberOfConstraints": "5"},
  "filters": {
    "canonicalLink": "https://xyxy.example.com:11180/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/2CFF36A9E92AAD533253871374857D8C/filters",
    "numberOfFilters": "3"},
  "properties": {
    "canonicalLink": "https://xyxy.example.com:11180/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/2CFF36A9E92AAD533253871374857D8C/properties",
```

```

    "numberOfPropertiess": "0"},
    "createdOn": "2013-10-07 08:13:48",
    "createdBy": null,
    "modifiedOn": null,
    "modifiedBy": null,
    "owner": "SYSMAN",
    "etag": null,
    "lastModified": null,
    "canonicalLink": "https://xyxy.example.com:11180/em/websvcs/restful/extws/
cloudservices/admin/cfw/v1/softwarepools/2CFF36A9E92AAD533253871374857D8C",
    "selfLink": "https://xyxy.example.com:11180/em/websvcs/restful/extws/cloudservices/
admin/cfw/v1/softwarepools/2CFF36A9E92AAD533253871374857D8C"
  }
}

```

## Updating a Schema Pool

A PUT operation is issued on Software Pools Collection resource to update a Software Pool.

The configuration for PUT to Software pools is as follows:

**Table 33-22 PUT Request Configuration for Updating a Schema Pool**

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	<pre> {   "name": "SCHEMA_POOL",   "poolTargetType": "schaas_pool",   "description": "Schema Service Pool",   "membersToAdd": [     "xyxy.example.com"],   "membersToRemove": [     "simple.us.example.com"],   "constraints":     {       "items": [         {"name": "MAX_SERVICES", "value": "10"},         {"name": "USE_WORKLOAD", "value": "false"},         {"name": "MAX_CPU_USAGE", "value": "90"},         {"name": "MAX_MEMORY_USAGE", "value": "90"},         {"name": "ENFORCE_CPU", "value": "false"}       ]     }, } </pre>
Request method	PUT

**Note:** Ensure at least one member remains as a part of the pool while issuing the request. If all the members are added to the `membersToRemove` attribute, the PUT request may fail.

A sample of the response received is shown below.

```

Status 200 OK
Content-Type: application/json
{

```



```
message: "Software Pool "SCHEMA_POOL" updated successfully.
}
```

## Creating a Pluggable Database Pool

A POST operation is issued on Software Pools collection resource to create a Software Pool. The configuration for POST to Software pools is as follows:

**Table 33-23 POST Request Configuration for Creating a Pluggable Database Pool**

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	<pre>{   "name": "PDB_POOL",   "poolTargetType": "pdbaas_pool",   "description": "Pluggable Database Pool",   "paasZone": "PDB_ZONE",   "members": ["database"],   "serviceFamily": "DBAAS",   "serviceType": "PDB",   "constraints":     {       "items": [         {"name": "MAX_PDB_SERVICES", "value": "20"},         {"name": "PDBS_USE_WORKLOAD", "value": "true"},         {"name": "MAX_CPU_USAGE_BY_PDBS", "value": "90"},         {"name": "MAX_MEMORY_USAGE_BY_PDBS", "value": "90"},         {"name": "PDBS_ENFORCE_CPU", "value": "true"}       ]     },   "filters":     {       "items": [         {"name": "TARGET_TYPE_CDB", "value": "oracle_database"},         {"name": "VERSION_CDB", "value": "12.1.0.1.0"},         {"name": "PLATFORM_CDB", "value": "226"}       ]     } }</pre>
Request method	POST

A sample of the response received is shown below.

```
Status 201 Created
Content-Type: application/json
{
  "name": "PDB_POOL",
  "description": "Pluggable Database Pool",
  "type": "Pdb Pool",
  "id": "E82952BD4C94D443E040F20A605114E6",
  "zoneName": "PDB_ZONE",
  "members": {
    "canonicalLink": "https://xyxy.example.com:11180/em/websvcs/restful/extws/"
```

```

cloudservices/admin/cfw/v1/softwarepools/E82952BD4C94D443E040F20A605114E6/members",
  "numberOfPoolMembers": "1"
},
"constraints": {
  "canonicalLink": "https://xyxy.example.com:11180/em/websvcs/restful/extws/
cloudservices/admin/cfw/v1/softwarepools/E82952BD4C94D443E040F20A605114E6/constraints",
  "numberOfConstraints": "5"
},
"filters": {
  "canonicalLink": "https://xyxy.example.com:11180/em/websvcs/restful/extws/
cloudservices/admin/cfw/v1/softwarepools/E82952BD4C94D443E040F20A605114E6/filters",
  "numberOfFilters": "3"
},
"properties": {
  "canonicalLink": "https://xyxy.example.com:11180/em/websvcs/restful/extws/
cloudservices/admin/cfw/v1/softwarepools/E82952BD4C94D443E040F20A605114E6/properties",
  "numberOfPropertiess": "0"},
  "createdOn": "2013-10-07 08:29:51",
  "createdBy": null,
  "modifiedOn": null,
  "modifiedBy": null,
  "owner": "SYSMAN",
  "etag": null,
  "lastModified": null,
  "canonicalLink": "https://xyxy.example.com:11180/em/websvcs/restful/extws/
cloudservices/admin/cfw/v1/softwarepools/E82952BD4C94D443E040F20A605114E6",
  "selfLink": "https://xyxy.example.com:11180/em/websvcs/restful/extws/cloudservices/
admin/cfw/v1/softwarepools/E82952BD4C94D443E040F20A605114E6"
}
}

```

A sample json for creating pluggable database pool is shown below:

```

{
  "name": "PDBaaS_NEW_POOL",
  "useExistingTarget" : false,
  "type": "pdbaaS_pool",
  "memberTargetType": "rac_database",
  "members": ["EM12CDB"],
  "parentResourceProviderId": "161",
  "credentials": [
    { "name": "cdb_credential_guid", "value": "SSA_POC_DBAAS_ADMIN"
    },
    { "name": "cdb_wallet_password", "value": null },
    {
      "name": "gi_credential_guid", "value": "SSA_POC_ORACLE"
    },
    { "name": "host_credential_guid", "value": "SSA_POC_ORACLE"
    }
  ],
  "placementConstraints": [
    {
      "name": "MAX_PDB_SERVICES", "value": [ "99" ] },
    { "name": "MAX_CPU_USAGE_BY_PDBS", "value": [ "90" ] },
    { "name": "MAX_MEMORY_USAGE_BY_PDBS", "value": [ "90" ] },
    { "name": "PDBS_USE_WORKLOAD", "value": [ "true" ] },
    { "name": "PDBS_ENFORCE_CPU", "value": [ "true" ] }
  ],
  "memberConstraints": [
    {
      "name": "ORACLE.SYSMAN.SSA.CONFIGURATION", "value": ["rac_database" ] },
    { "name": "ORACLE.SYSMAN.CFW.PLATFORM", "value": [ "226" ] },
    { "name": "ORACLE.SYSMAN.CFW.VERSION", "value": [ "12.1.0.2.0" ] }
  ]
}

```

```
    ]
  }
```

## Updating a Pluggable Database Pool

A PUT operation is issued on Software Pools Collection resource to update a Software Pool. The configuration for PUT to Software pools is as follows:

**Table 33-24 PUT Request Configuration for Updating a Pluggable Database Pool**

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	<pre>{   "name": "PDB_POOL",   "poolTargetType": "pdbaas_pool",   "description": "Pluggable Database Pool",   "membersToAdd": [     "simple.us.example.com"],   "membersToRemove": [     "simple1.us.example.com"],   "constraints":     {       "items": [         {"name": "MAX_PDB_SERVICES", "value": "10"},         {"name": "PDBS_USE_WORKLOAD", "value": "false"},         {"name": "MAX_CPU_USAGE_BY_PDBS", "value": "90"},         {"name": "MAX_MEMORY_USAGE_BY_PDBS", "value": "90"},         {"name": "PDBS_ENFORCE_CPU", "value": "false"}       ]     } }</pre> <p><b>Note:</b> Ensure at least one member remains as a part of the pool while issuing the request. If all the members are added to the <code>membersToRemove</code> attribute, the PUT request may fail.</p>
Request method	PUT

A sample of the response received is shown below.

```
Status 200 OK
Content-Type: application/json
{
  message: "Software Pool  "PDB_POOL" updated successfully."
}
```

## Deleting a Database / Schema / Pluggable Database Pool

To delete a SoftwarePool Instance raise the DELETE request on the URI of the Database pool. The configuration for deleting a Software pool is as follows:

**Table 33-25 DELETE Request Configuration for Deleting a Database/Schema/Pluggable Database Pool**

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/E827809080C16F75E040F20A60511EA2
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	DELETE

A sample of the response received is shown below.

```
Status 200 OK
Content-Type: application/json
{
  message: "Software Pool " E827809080C16F75E040F20A60511EA2" deleted successfully."
}
```

## Database Request Settings REST APIs

This section describes the REST request/response interactions for Database Request Settings.



### Note:

Request Settings REST APIs are only supported by the Oracle Cloud Application plug-in version 12.1.0.7.0 and higher.

The topics covered in this section are:

- [Database Request Settings Resource Model](#)
- [Dbaas Request Settings Resource](#)
- [Supported Operations for Dbaas Request Settings](#)
- [Dbaas Request Settings REST API Examples](#)

## Database Request Settings Resource Model

Cloud resources are organized by common service entities, and specific services (for example, Database Request Settings) provide resources by extending these common service entities. The Database Request Settings is a cloud resource for which instance does not exist. The following sections describe the resources that are supported by the Database Request Settings REST APIs and provide examples of supported operations.

## Dbaas Request Settings Resource

The Dbaas Request Settings extends the cloud resource. It describes the database request settings related to service instances. Dbaas Request Settings has media type - `application/oracle.com.cloud.common.DbaasRequestSettings+json`.

The following table describes the DbaaS Request Settings data model.

**Table 33-26 DBaaS Request Settings Data Model**

Field	Type	Description	Occurs
uri	URI	A GET against this URI refreshes the client representation of the resources accessible to this user.	1
name	String	A human readable name given to the template.	1
description	String	A brief description given to the template	1
resource_state	ResourceState	The validity of the fields on a GET should be guaranteed only when the resource state is READY. Otherwise, the client should not assume the validity of the fields.	1
media_type	String	The media type of the service template.	1
service_family_type	String	DbaaS	1
canonicalLink	URI	Can be used to perform cloud interactions like GET and POST.	1
RequestSettings	String	The current database request settings.	1

## Supported Operations for DbaaS Request Settings

The following table lists all the operations that are supported on the database quota service resources.

**Table 33-27 Supported Operations for DBaaS Request Settings**

GET	POST	PUT	DELETE
Yes	Yes	Yes	Yes

## DbaaS Request Settings REST API Examples

The following sections provide examples of interaction with Enterprise Manager Cloud Control. The following examples are covered:

- [Viewing Details of the DbaaS Request Settings Resource](#)
- [Creating Database Request Settings](#)

### Viewing Details of the DbaaS Request Settings Resource

The table below shows the REST API configuration for viewing details of the DBaaS request setting resource.

**Table 33-28 GET Request Configuration for Viewing Details of the DBaaS Request Setting Resource**

Feature	Description
URI	/em/cloud/dbaaS/requestsettings

**Table 33-28 (Cont.) GET Request Configuration for Viewing Details of the DBaaS Request Setting Resource**

Feature	Description
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "uri" : "/em/cloud/dbaas/requestsettings" ,
  "name" : "Dbaas Request Settings" ,
  "description" : "Dbaas Request settings" ,
  "resource_state" : {
    "state" : "READY"
  } ,
  "media_type" : "application/oracle.com.cloud.common.DbaasRequestSettings+json" ,
  "service_family_type" : "dbaas" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/requestsettings" ,
  "Request Settings" : {
    "futureReservationLength" : "No Reservation" ,
    "defaultRetirementPeriod" : "No Reservation" ,
    "maximumArchiveDuration" : "No Reservation"
  }
}
```

## Creating Database Request Settings

This section describes how to create the request settings using the cloud resources.

The configuration for POST to DbaasRequestSettings is as follows:

**Table 33-29 POST Request Configuration for Creating DBaaS Request Settings**

Feature	Description
URI	em/cloud/dbaas/requestsettings
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/oracle.com.cloud.common.DbaasRequestSettings+json Accept: application/oracle.com.cloud.common.DbaasRequestSettings+json
Body	{ "future_reservation_length" : "2 Months", "maximum_archive_duration" : "10 Weeks", "default_retirement_period" : "No Reservation" }
Request method	POST

A sample of the response received is shown below.

```
{
  "uri" : "/em/cloud/dbaas/requestsettings" ,
}
```

```

"name" : "Dbaas Request Settings" ,
"description" : "Dbaas Request settings" ,
"resource_state" : {
  "state" : "READY" ,
  "messages" :
  [
    {
      "date" : "2013-08-27T09:13:03+0000" ,
      "text" : "Request settings have been updated."
    }
  ]
} ,
"media_type" : "application/oracle.com.cloud.common.DbaasRequestSettings+json" ,
"service_family_type" : "dbaas" ,
"canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/requestsettings"
}

```

## Database Quota REST APIs

This section describes the REST request/response interactions for setting up Quota.



### Note:

Quota REST APIs are only supported by the Oracle Cloud Application plug-in version 12.1.0.7.0 and higher.

The topics covered in this section are:

- [Database Quota Resource Model](#)
- [Dbaas Quota Resource](#)
- [Supported Operations for DbaaS Quota](#)
- [Database Quota REST API Examples](#)

## Database Quota Resource Model

Cloud resources are organized by common service entities, and specific services (for example, Database Quota) provide resources by extending these common service entities. The Database Quota is a cloud resource for which an instance does not exist.

The following sections describe the resources that are supported by the Database Quota REST APIs and provide examples of supported operations.

## Dbaas Quota Resource

The Dbaas Quota extends the cloud resource. It describes the quota settings for all roles. Dbaas Quota has the media type `application/oracle.com.cloud.common.DbaasQuota+json`.

The following table describes the Dbaas Quota data model.

**Table 33-30 DbaaS Quota Data Model**

Field	Type	Description	Occurs
uri	URI	A GET against this URI refreshes the client representation of the resources accessible to this user.	1
name	String	A human readable name given to the template.	1
description	String	A brief description given to the template	1
resource_state	String	The validity of the fields on a GET should be guaranteed only when the resource state is READY. Otherwise, the client should not assume the validity of the fields.	1
media_type	String	The media type of the service template that. this type represents	1
service_family_type	String	DbaaS	1
canonicalLink	URI	Can be used to perform cloud interactions like GET and POST.	1
databases	String	The databases usage report.	1
schema_services	String	The schema services usage report.	1
pluggable_databases	String	The pluggable databases usage report.	1
memory	String	The memory usage report.	1
storage	String	The storage usage report.	1
Quota	String	The Quota setup details for a role.	1

## Supported Operations for DbaaS Quota

The following table lists all the operations that are supported on the Database quota resources.

**Table 33-31 Supported Operations for DbaaS Quota**

GET	POST	PUT	DELETE
Yes	Yes	Yes	Yes

## Database Quota REST API Examples

The following sections provide examples of interaction with Enterprise Manager Cloud Control 12.1.0.3 with Cloud Application plug-in 12.1.0.7 and higher. The following examples are covered:

- [Viewing Details of the DBaaS Quota Resource](#)
- [Creating DBaaS Quota for a Role](#)
- [Updating DBaaS Quota for a Role](#)
- [Deleting DBaaS Quota for a Role](#)

### Viewing Details of the DBaaS Quota Resource



**Table 33-32 GET Request Configuration for Viewing Details of the DBaaS Quota Resource**

Feature	Description
URI	/em/cloud/dbaas/quota
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "uri" : "/em/cloud/dbaas/quota" ,
  "name" : "Dbaas User Quota" ,
  "description" : "User Quota for the user" ,
  "resource_state" : {
    "state" : "READY"
  } ,
  "media_type" : "application/oracle.com.cloud.common.DbaasQuota+json" ,
  "service_family_type" : "dbaas" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/quota" ,
  "databases" : {
    "quota" : "Unlimited" ,
    "used" : "1" ,
    "unit" : "Instance"
  } ,
  "schema_services" : {
    "quota" : "Unlimited" ,
    "used" : "1" ,
    "unit" : "Instance"
  } ,
  "pluggable_databases" : {
    "quota" : "Unlimited" ,
    "used" : "1" ,
    "unit" : "Instance"
  } ,
  "memory" : {
    "quota" : "Unlimited" ,
    "used" : "0.79" ,
    "unit" : "GB"
  } ,
  "storage" : {
    "quota" : "Unlimited" ,
    "used" : "3.38" ,
    "unit" : "GB"
  } ,
  "Quotas" :
  [
    {
      "Role Name" : "DBAAS_ROLE" ,
      "Memory(GB)" : "99" ,
      "Storage(GB)" : "99" ,
      "Number of Database Requests" : "99" ,
      "Number of Schema Service Requests" : "99" ,
      "Number of Pluggable database Service Requests" : "99"
    }
  ]
}
```

```
]
}
```

## Creating DBaaS Quota for a Role

This section describes how to create/setup a quota for a role using the Cloud resources.

The configuration for POST to Dbaas Quota is as follows:

**Table 33-33 POST Request Configuration for Creating a DBaaS Quota for a Role**

Feature	Description
URI	/em/cloud/dbaas/quota
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/oracle.com.cloud.common.DbaasQuota+json Accept: application/oracle.com.cloud.common.DbaasQuota+json
Body	<pre>{   "role_name" : "DBAAS_ROLE",   "databases" : "10",   "schema_services" : "21",   "pluggable_databases" : "22",   "storage" : "99",   "memory" : "99" }</pre>
Request method	POST

A sample of the response received is shown below.

```
{
  "uri" : "/em/cloud/dbaas/quota" ,
  "name" : "Dbaas User Quota" ,
  "description" : "User Quota for the user" ,
  "resource_state" : {
    "state" : "READY" ,
    "messages" :
    [
      {
        "date" : "2013-08-27T08:58:48+0000" ,
        "text" : "Quota for Role DBAAS_ROLE setup successfully."
      }
    ]
  } ,
  "media_type" : "application/oracle.com.cloud.common.DbaasQuota+json" ,
  "service_family_type" : "dbaas" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/quota"
}
```

## Updating DBaaS Quota for a Role

This section describes how update the quota already setup for a role using the Cloud resources. The configuration for PUT to DBaaS Quota is as shown in the table below.

**Table 33-34 PUT Request Configuration for Updating a DBaaS Quota for a Role**

Feature	Description
URI	em/cloud/dbaas/quota
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/oracle.com.cloud.common.DbaasQuota+json Accept: application/oracle.com.cloud.common.DbaasQuota+json
Body	<pre>{   "role_name" : "DBAAS_ROLE",   "databases" : "10",   "schema_services" : "21",   "pluggable_databases" : "22",   "storage" : "99",   "memory" : "99" }</pre>
Request method	PUT

A sample of the response received is shown below.

```
{
  "uri" : "/em/cloud/dbaas/quota" ,
  "name" : "Dbaas User Quota" ,
  "description" : "User Quota for the user" ,
  "resource_state" : {
    "state" : "READY" ,
    "messages" :
    [
      {
        "date" : "2013-08-27T09:01:56+0000" ,
        "text" : "Quota for Role DBAAS_ROLE updated successfully."
      }
    ]
  } ,
  "media_type" : "application/oracle.com.cloud.common.DbaasQuota+json" ,
  "service_family_type" : "dbaas" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/quota"
}
```

## Deleting DBaaS Quota for a Role

This section describes how delete the quota setup for a role using the Cloud resources. The configuration for deleting in DBaaS Quota is as follows:

**Table 33-35 DELETE Request Configuration for Deleting a DBaaS Quota for a Role**

Feature	Description
URI	em/cloud/dbaas/quota
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/oracle.com.cloud.common.DbaasQuota+json Accept: application/oracle.com.cloud.common.DbaasQuota+json

**Table 33-35 (Cont.) DELETE Request Configuration for Deleting a DBaaS Quota for a Role**

Feature	Description
Body	<pre>{   "role_name" : "SSA_USER_ROLE" }</pre>
Request method	DELETE

A sample of the response received is shown below.

```
{
  "uri": "/em/cloud/dbaas/quota",
  "name": "Dbaas User Quota",
  "description": "User Quota for the user",
  "resource_state": {
    "state": "READY",
    "messages": [
      {
        "text": "Quota for Role SSA_USER_ROLE deleted successfully.",
        "date": "2015-12-08T07:18:08+0000"
      }
    ]
  },
  "media_type": "application/oracle.com.cloud.common.DbaasQuota+json",
  "service_family_type": "dbaas",
  "canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/quota"
}
```

## Service Template REST APIs

This section covers the following:

- [Service Templates Resource](#)
- [Service Template Resource](#)
- [Service Templates and Service Template REST API Examples](#)

## Service Templates Resource

Service Templates is a collection resource representing a Cloud Administrator's view of all the accessible service template resources. Service Templates has the media type `application/oracle.com.cloud.common.ServiceTemplates+json`.

The following table describes the Service Templates data model.

**Table 33-36 Service Templates Data Model**

Field	Type	Description	Occurs
Name	String	Displays name of this collection resource.	1
Type	String	Type of this collection resource.	1

**Table 33-36 (Cont.) Service Templates Data Model**

Field	Type	Description	Occurs
hasMore	Boolean	Indicates whether there are more elements in the collection.	1
Count	Integer	Number of elements returned.	1
Items	Collection <ServiceTemplate>	The elements of this collection.	1
totalCount	Integer	Total number of PaaS zone resources.	1
canonicalLink	URI	A GET against this URI refreshes the client representation of this resource.	1
selfLink	URI	Refers to the resource equivalent to the containing elements.	1

## Supported Operations for Service Templates

The following table lists all the operations that are supported on the Service Templates resource.

**Table 33-37 Supported Operations for Service Templates**

GET	POST	PUT	DELETE
Yes	Yes	No	No

## Service Template Resource

A service template is a standardized service definition that can be used by self service users to provision a service instance. Service Template has the media type `application/oracle.com.cloud.common.ServiceTemplate+json`.

The following table describes the Service Template data model.

**Table 33-38 Service Template Data Model**

Field	Type	Description	Occurs
Name	String	A human readable name given to the ServiceTemplate.	1
ID	String	Service Template ID that uniquely identifies the resource.	1
Description	String	As brief description given to the zone.	0..1
canonicalLink	URI	A GET against this URI refreshes the client representation of this resource.	1
serviceFamily	String	Service family	1
serviceType	String	Service type.	1
Roles	Collection <Role>	SSA roles that can access this service template.	0..1

**Table 33-38 (Cont.) Service Template Data Model**

Field	Type	Description	Occurs
poolIds	Collection <String>	Software Pool Ids associated with this service template.	1
createdOn	String(Date/ Time)	Time when the resource was created.	0..1
createdBy	String	The user who created the resource.	1
modifiedOn	String(Date/ Time)	Time when the resource was last modified.	0..1
rolesToRemove	Collection <String>	SSA roles to be deleted while editing a PaaS zone.	0..1

## Supported Operations for Service Template

The following table lists all the operations that are supported on the Service Template resource.

**Table 33-39 Supported Operations for Service Template**

GET	POST	PUT	DELETE
Yes	No	Yes	Yes

## Service Templates and Service Template REST API Examples

The following sections provide examples of interaction with Enterprise Manager Cloud Control 12.1.0.3 with Cloud Application plug-in 12.1.0.7 and higher. The following examples are covered:

- [Viewing Details of the Service Templates Resource](#)
- [Viewing Details of the ServiceTemplate Resource](#)
- [Creating a Service Template for DBCA Based Database](#)
- [Creating a Service Template for RMAN Based Single Instance Database](#)
- [Creating a Service Template for RMAN Based Single Instance Database with Single Instance Standby](#)
- [Creating a Service Template for RMAN Based RAC One Node Database](#)
- [Creating a Service Template for RMAN Based RAC One Node Database With Standby](#)
- [Creating a Service Template for RMAN Based RAC Database With Standby](#)
- [Creating a Service Template for RAC Database with Standby Using a DBCA Template](#)
- [Creating a Service Template for DNFS Based Database](#)
- [Creating a Service Template for Snap Clone Single Instance Database \(with Archiving Enabled\)](#)
- [Creating a Service Template for Snap Clone Single Instance Database \(without Archiving Enabled\)](#)
- [Creating a Service Template for a Schema](#)

- [Creating a Service Template for a Pluggable Database](#)
- [Creating a Service Template for RAC Pluggable Database Using an Empty Pluggable Database](#)
- [Creating a Service Template for RAC Pluggable Database Using a Profile Pluggable Database](#)
- [Deleting a Database / Schema / Pluggable Database Service Template](#)

## Viewing Details of the Service Templates Resource

The configuration for GET request is shown in the table below.

**Table 33-40 GET Request Configuration for Viewing Details of the Service Templates Resource**

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "name": "Service Templates",
  "type": "Service Template",
  "totalResults": 5,
  "cfwItems": [
    {
      "id": "1",
      "name": "Database Creation on Individual Hosts",
      "guid": "203D5C842C2C17C3E053C075B10A73E3",
      "canonicalLink": {
        "href": "https://xyz.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/1"
      }
    },
    {
      "id": "21",
      "name": "Create Databases on 12_1_0_1_x",
      "guid": "204E31F679D421E8E053C075B10A409A",
      "canonicalLink": {
        "href": "https://xyz.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/21"
      }
    },
    {
      "id": "81",
      "name": "Create Databases on Clusters - Based on DB Template",
      "guid": "2068CDF3C0200D7CE053C075B10A7811",
      "canonicalLink": {
        "href": "https://xyz.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/81"
      }
    }
  ]
}
```

```

    },
    {
      "id": "61",
      "name": "RMAN ST",
      "guid": "205046BB4D38762EE053C075B10AF091",
      "canonicalLink": {
        "href": "https://xyz.example.com:4473/em/websvcs/restful/extws/cloudservices/
admin/cfw/v2/servicetemplates/61"
      }
    },
    {
      "id": "41",
      "name": "Database Creation on Cluster",
      "guid": "204F067E22C12CFDE053C075B10A8A26",
      "canonicalLink": {
        "href": "https://xyz.example.com:4473/em/websvcs/restful/extws/cloudservices/
admin/cfw/v2/servicetemplates/41"
      }
    }
  ],
  "canonicalLink": {
    "href": "https://xyz.example.com:4473/em/websvcs/restful/extws/cloudservices/
admin/cfw/v2/servicetemplates"
  }
}

```

## Viewing Details of the ServiceTemplate Resource

The GET request on the ServiceTemplate URI can be issued to retrieve its details. The configuration for GET to ServiceTemplate is as follows:

**Table 33-41 GET Request Configuration for Viewing Details of the Service Template Resource**

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/61
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```

{
  "id": "61",
  "guid": "205046BB4D38762EE053C075B10AF091",
  "name": "RMAN ST",
  "displayName": "RMAN ST",
  "serviceType": "DB",
  "serviceTemplateTypeId": "81",
  "createdOn": "2015-09-22T05:32:07Z",
  "createdBy": "SYSMAN",
  "modifiedOn": "2015-09-22T05:32:07Z",
  "owner": "SYSMAN",
  "lastModified": "2015-09-22T05:32:07Z",
  "payloads": [

```



```

    { "name": "SERVICE_TEMPLATE_PROV_SOURCE",
      "value": null,
      "required": null},
    { "name": "PROFILE_COMPONENT_URN",
      "value":
"oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:204D498A85D42C6
AE053C075B10A6B09:0.1",
      "required": null},
    { "name": "DBDELETE_PRESCRIPT",
      "value": null,
      "required": null},
    { "name": "DBDELETE_POSTSCRIPT",
      "value": null,
      "required": null}
  ],
  "characteristics": [
    { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_CONTACT",
      "displayName": "Contact",
      "values": [],
      "required": false,
      "editable": true,
      "visible": true},
    { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_COST_CENTER",
      "displayName": "Cost Center",
      "values": [],
      "required": false,
      "editable": true,
      "visible": true},
    { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_DEPARTMENT",
      "displayName": "Department",
      "values": [],
      "required": false,
      "editable": true,
      "visible": true},
    { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_DOWNTIME_CONTACT",
      "displayName": "Downtime Contact",
      "values": [],
      "required": false,
      "editable": true,
      "visible": true},
    { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LIFECYCLE_STATUS",
      "displayName": "Lifecycle Status",
      "values": [
        "Development",
        "MissionCritical",
        "Production",
        "Stage",
        "Test"
      ],
      "required": false,
      "editable": true,
      "visible": true},
    { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LINE_OF_BUS",
      "displayName": "Line of Business",
      "values": [],
      "required": false,
      "editable": true,
      "visible": true},
    { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LOCATION",
      "displayName": "Location",
      "values": [],
      "required": false,

```

```

        "editable": true,
        "visible": true},
    { "name": "ORACLE.SYSMAN.SSA.PROVISIONING_TYPE",
      "displayName": "Provisioning Type",
      "values": ["RMAN"],
      "required": false,
      "editable": false,
      "visible": false}
  ],
  "resourceProvider": {
    "lookupCharacteristics": [
      {
        "purposeId": 1,
        "characteristics": [
          { "name": "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",
            "displayName": "oracle.sysman.ssa.oracle_cloud_zone",
            "targetType": {
              "targetType": "oracle_cloud_zone",
              "targetTypeName": "Database Pool",
              "parentTargetType": "self_service_zone",
              "parentTargetTypeName": "PaaS Infrastructure Zone"},
            "targets": [
              { "guid": "0CAF930826EDE90D8072E4E3ACA8072A",
                "displayName": "RAC Databases Pool_11_2_0_4" }
            ]
          }
        ]
      }
    ]
  },
  "configurations": [
    { "name": "ssaUser",
      "type": "STRING",
      "value": "",
      "displayName": "ssaUser",
      "required": false,
      "secret": false},
    { "name": "STANDBY_WORK_DIR",
      "type": "STRING",
      "value": "",
      "displayName": "STANDBY_WORK_DIR",
      "required": false,
      "secret": false},
    { "name": "SID_OPTION",
      "type": "STRING",
      "description": "Database SID Option to be used. values are ssauser/prefix",
      "value": "prefix",
      "displayName": "Database SID Option",
      "required": false,
      "secret": false},
    { "name": "PROFILE_VERSION",
      "type": "STRING",
      "description": "Profile version to use",
      "value": "latest",
      "displayName": "Profile version",
      "required": false,
      "secret": false},
    { "name": "DB_TARGET_DISPLAY_NAME",
      "type": "STRING",
      "value": "",
      "displayName": "DB_TARGET_DISPLAY_NAME",
      "required": false,

```

```

    "secret": false},
  { "name": "REF_TGT",
    "type": "STRING",
    "value": "xxy.example.com",
    "displayName": "REF_TGT",
    "required": false,
    "secret": false},
  { "name": "USER_PRIVILEGES",
    "type": "STRING",
    "description": "Comma Seperated List of privileges that will be applied on role
assigned to the master account.",
    "value": "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY OPERATOR,
CREATE ANY PROCEDURE, CREATE ANY SEQUENCE, CREATE ANY INDEX, CREATE JOB, CREATE ANY
MATERIALIZED VIEW, CREATE ANY TABLE, CREATE ANY TRIGGER, CREATE ANY TYPE, CREATE ANY
VIEW, CREATE ANY SYNONYM, CREATE ANY DIRECTORY, SELECT ANY DICTIONARY",
    "displayName": "User Privileges",
    "required": false,
    "secret": false},
  { "name": "COMMON_DB_SID",
    "type": "STRING",
    "description": "Database SID Prefix",
    "value": "rmanri",
    "displayName": "Database SID Prefix",
    "required": false,
    "secret": false},
  { "name": "DBAAS_SSA_STANDBY_CUSTOM_PRE_SCRIPTS_URN",
    "type": "STRING",
    "description": "Urn of the software library component which has the standby custom
post sql script",
    "value": "",
    "displayName": "URN of the standby pre sql custom script",
    "required": false,
    "secret": false},
  { "name": "DBAAS_SSA_STANDBY_CUSTOM_POST_SCRIPTS_URN",
    "type": "STRING",
    "description": "Urn of the software library component which has the standby custom
post sql script",
    "value": "",
    "displayName": "URN of the standby post sql custom script",
    "required": false,
    "secret": false},
  { "name": "ssaTargetName",
    "type": "STRING",
    "value": "",
    "displayName": "ssaTargetName",
    "required": false,
    "secret": false},
  { "name": "DB_USER_NAMES",
    "type": "STRING",
    "description": "Database users from source",
    "value": "",
    "displayName": "Database Users from source",
    "required": false,
    "secret": false},
  { "name": "ssaTargetType",
    "type": "STRING",
    "value": "",
    "displayName": "ssaTargetType",
    "required": false,
    "secret": false},
  { "name": "RAC_ONE_SERVICE_NAME",
    "type": "STRING",

```

```

    "description": "The name of service for RAC One Node database.",
    "value": "",
    "displayName": "RAC One Service Name",
    "required": false,
    "secret": false},
  { "name": "RUN_AS_USER",
    "type": "STRING",
    "value": "sys",
    "displayName": "RUN_AS_USER",
    "required": false,
    "secret": false},
  { "name": "NONADMIN_SSA_ACC_DB_USER_NAMES",
    "type": "STRING",
    "description": "Database users from source",
    "value":
"OUTLN,ORACLE_OCM,APPQOSSYS,WMSYS,EXFSYS,CTXSYS,XDB,ORDSYS,ORDDATA,ORDPLUGINS,SI_INFORMTN
_SCHEMA,MDSYS,OLAPSYS,SYSMAN,APEX_030200,FLAWS_FILES,SCOTT,OWBSYS_AUDIT,OWBSYS",
    "displayName": "Database Users from source",
    "required": false,
    "secret": false},
  { "name": "INIT_PARAMS",
    "type": "VECTOR",
    "description": "The list of initialization values that are as
paramName=paramValue",
    "displayName": "INIT_PARAMS",
    "required": false,
    "secret": false,
    "values": [
      "*.db_block_size=8192",
      "*.audit_trail='db'",
      "*.db_name='mdb00008'",
      "*.cpu_count=0",
      "myracdb1.__sga_target=1275068416",
      "*.diagnostic_dest='/u01/app/emga/11.2.0.4'",
      "*.control_files='/oradbnas/mdb00008/controlfile/control01.ctl','/oradbnas//
mdb00008/controlfile/control02.ctl'",
      "*.audit_file_dest='/u01/app/emga/11.2.0.4/admin/mdb00008/adump'",
      "*.pga_aggregate_target=423624704",
      "*.processes=150",
      "*.db_create_file_dest='/oradbnas/mdb00008'",
      "*.db_recovery_file_dest='/oradbnas//mdb00008'",
      "*.log_archive_format='%t_%s_%r.dbf'",
      "*.compatible='11.2.0.4.0'",
      "*.db_recovery_file_dest_size=2097152000",
      "*.open_cursors=300",
      "*.remote_login_passwordfile='exclusive'",
      "*.undo_tablespace='UNDOTBS01'",
      "*.db_domain=''
    ]},
  { "name": "COMMON_DB_DBSNMP_PASSWORD",
    "type": "STRING",
    "description": "DBSNMP Account password",
    "value": "yourpw",
    "displayName": "DBSNMP Account password",
    "required": false,
    "secret": true},
  { "name": "DB_ADMIN_PASSWORD_SAME",
    "type": "STRING",
    "description": "Use the same passwords for SYS, SYSTEM and DBSNMP account",
    "value": "true",
    "displayName": "Use the same passwords for SYS, SYSTEM and DBSNMP account",
    "required": false,

```

```

    "secret": false},
  { "name": "DEFAULT_DATABASE_SIZE",
    "type": "STRING",
    "value": "",
    "displayName": "DEFAULT_DATABASE_SIZE",
    "required": false,
    "secret": false},
  { "name": "DBAAS_SSA_CUSTOM_PRE_SCRIPTS_URN",
    "type": "STRING",
    "description": "Urn of the software library component which has the custom post
sql script",
    "value": "",
    "displayName": "URN of the pre sql custom script",
    "required": false,
    "secret": false},
  { "name": "RUN_AS_USER_PWD",
    "type": "STRING",
    "value": "",
    "displayName": "RUN_AS_USER_PWD",
    "required": false,
    "secret": false},
  { "name": "IS_RAC_ONE",
    "type": "STRING",
    "description": "Boolean value to show RAC One Target Type, (true/false)",
    "value": "N",
    "displayName": "RAC One Target Type",
    "required": false,
    "secret": false},
  { "name": "PROFILE_VERSION_URN",
    "type": "STRING",
    "description": "Profile Version Selected by user for creating database.",
    "value": "",
    "displayName": "Profile Version Selected",
    "required": false,
    "secret": false},
  { "name": "HOSTS_FOR_PLACEMENT",
    "type": "STRING",
    "description": "Comma separated value of the name of hosts which will be used for
the custom placement of the requested database instance. This list of hosts should have
their database homes present in the selected zone and pool of the service template.",
    "value": "",
    "displayName": "Host(s) name to be selected in the DB pool for custom placement",
    "required": false,
    "secret": false},
  { "name": "PROVISIONING_TYPE",
    "type": "STRING",
    "value": "",
    "displayName": "PROVISIONING_TYPE",
    "required": false,
    "secret": false},
  { "name": "STANDBY_REQUIRED_LOCK",
    "type": "STRING",
    "value": "",
    "displayName": "STANDBY_REQUIRED_LOCK",
    "required": false,
    "secret": false},
  { "name": "LOCK_DOMAIN_NAME",
    "type": "STRING",
    "description": "Accepts Database Domain Name from SSA user",
    "value": "false",
    "displayName": "Accepts the database Domain Name from SSA user ",
    "required": false,

```

```

    "secret": false},
  { "name": "ROLE_NAME",
    "type": "STRING",
    "description": "Name of the database role which will assigned to the master
account.",
    "value": "ROLE_Sep_22_2015_11_01_AM",
    "displayName": "Database Role Name",
    "required": false,
    "secret": false},
  { "name": "STANDBY_DATABASE_MASTER",
    "type": "STRING",
    "value": "",
    "displayName": "STANDBY_DATABASE_MASTER",
    "required": false,
    "secret": false},
  { "name": "ASM_DSKGRP_PREFIX",
    "type": "STRING",
    "description": "ASM Diskgroup prefix to be used for all the new diskgroups to be
created",
    "value": "",
    "displayName": "ASM Diskgroup Prefix for all new diskgroups",
    "required": false,
    "secret": false},
  { "name": "DB_USER_PASSWORDS",
    "type": "STRING",
    "description": "Passwords for Database users from source",
    "displayName": "Passwords for Database Users from source",
    "required": false,
    "secret": true},
  { "name": "ASM_OPTION",
    "type": "STRING",
    "description": "ASM Diskgroup Option to be used. values are ssauser/prefix",
    "value": "",
    "displayName": "ASM Diskgroup Option",
    "required": false,
    "secret": false},
  { "name": "SELECT_ORACLE_HOME_OPTION",
    "type": "STRING",
    "description": "Option for selecting the DB Oracle Home that includes runtime
selection or user selection. Possible values are SELECT_ORACLE_HOME_AT_RUNTIME or
SELECT_ORACLE_HOME_FROM_REQUEST",
    "value": "SELECT_ORACLE_HOME_AT_RUNTIME",
    "displayName": "Option for selecting the DB Oracle home",
    "required": false,
    "secret": false},
  { "name": "LISTENER_PORT",
    "type": "STRING",
    "description": "Listener Port (required only for Single Instance Database)",
    "value": "1524",
    "displayName": "Listener Port",
    "required": false,
    "secret": false},
  { "name": "STANDBY_DB_MASTER_DETAILS",
    "type": "VECTOR",
    "displayName": "STANDBY_DB_MASTER_DETAILS",
    "required": false,
    "secret": false,
    "values": []},
  { "name": "COMMON_DOMAIN_NAME",
    "type": "STRING",
    "description": "Database Domain Name",
    "value": "us.example.com",

```

```

        "displayName": "Database Domain Name",
        "required": false,
        "secret": false},
    { "name": "WORKLOADS",
      "type": "VECTOR",
      "displayName": "WORKLOADS",
      "required": false,
      "secret": false},
    { "name": "STANDBY_COMMON_DB_SID",
      "type": "STRING",
      "value": "",
      "displayName": "STANDBY_COMMON_DB_SID",
      "required": false,
      "secret": false},
    { "name": "LIVE_CLONE_DATABASE_GUID",
      "type": "STRING",
      "description": "Database Guid to be cloned",
      "value": "",
      "displayName": "Database Guid to be cloned",
      "required": false,
      "secret": false},
    { "name": "COMMON_DB_SYSTEM_PASSWORD",
      "type": "STRING",
      "description": "SYSTEM Account password",
      "value": "yourpw",
      "displayName": "SYSTEM Account password",
      "required": false,
      "secret": true},
    { "name": "USER_INITIATED_BACKUP_LOCATION",
      "type": "STRING",
      "value": "",
      "displayName": "USER_INITIATED_BACKUP_LOCATION",
      "required": false,
      "secret": false},
    { "name": "ssaRequestId",
      "type": "STRING",
      "value": "",
      "displayName": "ssaRequestId",
      "required": false,
      "secret": false},
    { "name": "TARGET_PROP_LIST",
      "type": "VECTOR",
      "description": "The list of initialization values that are as
paramName=paramValue",
      "displayName": "TARGET_PROP_LIST",
      "required": false,
      "secret": false,
      "values": [
        "Site:null:false:false",
        "Contact:null:false:false",
        "Downtime Contact:null:false:false",
        "Location:null:false:false",
        "LifeCycle Status:null:false:false",
        "Department:null:false:false",
        "Comment:null:false:false",
        "Line of Business:null:false:false"
      ]
    },
    { "name": "LIVE_CLONE_TYPE",
      "type": "STRING",
      "description": "Live Clone Type USE_FULLCLONE/USE_SNAPCLONE",
      "value": "",
      "displayName": "Type of Live Clone",

```

```

    "required": false,
    "secret": false},
  { "name": "REF_HOST",
    "type": "STRING",
    "value": "xxy.example.com",
    "displayName": "REF_HOST",
    "required": false,
    "secret": false},
  { "name": "CUSTOM_TARGET_PROP_LIST",
    "type": "VECTOR",
    "description": "The list of initialization values that are as
paramName=paramValue",
    "displayName": "CUSTOM_TARGET_PROP_LIST",
    "required": false,
    "secret": false,
    "values": []},
  { "name": "STANDBY_LISTENER_PORT",
    "type": "STRING",
    "value": "",
    "displayName": "STANDBY_LISTENER_PORT",
    "required": false,
    "secret": false},
  { "name": "CLONE_OR_FULL_DB",
    "type": "STRING",
    "value": "",
    "displayName": "CLONE_OR_FULL_DB",
    "required": false,
    "secret": false},
  { "name": "DATABASE_TYPE",
    "type": "STRING",
    "description": "Database Type (oracle_database/rac_database)",
    "value": "rac_database",
    "displayName": "Database Type",
    "required": false,
    "secret": false},
  { "name": "PROFILE_COMPONENT_URN",
    "type": "STRING",
    "description": "URN of the Profile component in software library with which the
Database will be created",
    "value":
"oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:204D498A85D42C6
AE053C075B10A6B09:0.1",
    "displayName": "URN of the Profile Component to be used for Database Creation",
    "required": false,
    "secret": false},
  { "name": "VALIDATION_SQL",
    "type": "STRING",
    "description": "Sql script for primary database validation",
    "value": "",
    "displayName": "Sql script for primary database validation",
    "required": false,
    "secret": false},
  { "name": "REFRESH_DATABASE",
    "type": "STRING",
    "value": "",
    "displayName": "REFRESH_DATABASE",
    "required": false,
    "secret": false},
  { "name": "REF_ZONE",
    "type": "STRING",
    "value": "Salt Lake City Zone",
    "displayName": "REF_ZONE",

```



```

        "required": false,
        "secret": false},
    { "name": "STANDBY_DELAY_DATABASE_MASTER",
      "type": "STRING",
      "value": "",
      "displayName": "STANDBY_DELAY_DATABASE_MASTER",
      "required": false,
      "secret": false},
    { "name": "zoneTargetName",
      "type": "STRING",
      "value": "",
      "displayName": "zoneTargetName",
      "required": false,
      "secret": false},
    { "name": "PRIMARY_PROTECTION_MODE",
      "type": "STRING",
      "value": "",
      "displayName": "PRIMARY_PROTECTION_MODE",
      "required": false,
      "secret": false},
    { "name": "INSTANCE_COUNT",
      "type": "STRING",
      "description": "Number of RAC Database instances required",
      "value": "2",
      "displayName": "Number of RAC instances",
      "required": false,
      "secret": false},
    { "name": "USER_PASSWORD",
      "type": "STRING",
      "description": "User Password to login to the given User Name database account",
      "displayName": "User Password",
      "required": true,
      "secret": true},
    { "name": "MAX_BACKUPS_ALLOWED",
      "type": "STRING",
      "description": "The number of backups enabled for the Database",
      "value": "",
      "displayName": "Number of Backups allowed for the Database",
      "required": false,
      "secret": false},
    { "name": "ENTITY_TYPE",
      "type": "STRING",
      "description": "Entity TYPe USE_PROFILE/USE_DATABASE",
      "value": "USE_PROFILE",
      "displayName": "Entity Type",
      "required": false,
      "secret": false},
    { "name": "DBCREATE_POST_SQL_SCRIPT",
      "type": "STRING",
      "value": "",
      "displayName": "DBCREATE_POST_SQL_SCRIPT",
      "required": false,
      "secret": false},
    { "name": "DBAAS_SSA_CUSTOM_POST_SCRIPTS_URN",
      "type": "STRING",
      "description": "Urn of the software library component which has the custom post
sql script",
      "value": "",
      "displayName": "URN of the post sql custom script",
      "required": false,
      "secret": false},
    { "name": "USER_NAME",

```

```

        "type": "STRING",
        "description": "User Name (cannot be any of Oracle default accounts) used to login
to the requested database",
        "value": "",
        "displayName": "User Name (cannot be any of Oracle default accounts)",
        "required": true,
        "secret": false},
    { "name": "DATABASE_SIZES",
      "type": "VECTOR",
      "displayName": "DATABASE_SIZES",
      "required": false,
      "secret": false,
      "values": []},
    { "name": "ALLOW_BACKUPS",
      "type": "STRING",
      "description": "Should the backup be enabled for the Database",
      "value": "",
      "displayName": "Enable Backups for the Database",
      "required": false,
      "secret": false},
    { "name": "zoneTargetType",
      "type": "STRING",
      "value": "",
      "displayName": "zoneTargetType",
      "required": false,
      "secret": false},
    { "name": "STANDBY_REQUIRED",
      "type": "STRING",
      "value": "false",
      "displayName": "STANDBY_REQUIRED",
      "required": false,
      "secret": false},
    { "name": "STANDBY_DB_DETAILS",
      "type": "VECTOR",
      "displayName": "STANDBY_DB_DETAILS",
      "required": false,
      "secret": false,
      "values": []},
    { "name": "COMMON_DB_SYS_PASSWORD",
      "type": "STRING",
      "description": "SYS Account password",
      "value": "yourpw",
      "displayName": "SYS Account password",
      "required": false,
      "secret": true},
    { "name": "REF_POOL",
      "type": "STRING",
      "value": "RAC Databases Pool _11_2_0_4",
      "displayName": "REF_POOL",
      "required": false,
      "secret": false}
  ],
  "canonicalLink": {"href": "https://xyz.example.com:4473/em/websvcs/restful/extws/
cloudservices/admin/cfw/v2/servicetemplates/61"},
  "selfLink": {"href": "https://xyz.example.com:4473/em/websvcs/restful/extws/
cloudservices/admin/cfw/v2/servicetemplates/61"},
  "active": true
}

```

## Creating a Service Template for DBCA Based Database

A POST operation is issued on Service Templates collection resource to create a DBCA based Database Service Template. The configuration for POST to Service Templates is as follows:

**Table 33-42 POST Request Configuration for Creating a Service Template for DBCA Based Database**

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json

**Table 33-42 (Cont.) POST Request Configuration for Creating a Service Template for DBCA Based Database**

Feature	Description
Body	<pre> {   "name": "Create ST for SI Db using DBCA Template - ASM Subh_2",   "description": "Creates Single Instance DB",   "roles": [ "SSA_USER_ROLE" ],   "serviceType": "DB",   "serviceTemplateTypeId": "61",   "rscProvAssocOption": [ "byRscProvInst" ],   "resourceProvider": {     "lookupCharacteristics": [       {         "characteristics": [           {             "name": "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",             "values": [ "137F74D7A8359A60762ED550341A5F47" ],             "targetType": {               "targetType": "oracle_cloud_zone",               "targetTypeName": "Database Pool",               "parentTargetType": "self_service_zone",               "parentTargetTypeName": "PaaS Infrastructure Zone"             }           }         ],         "purposeId": 1       }     ],     "payloads": [ { "name": "PROFILE_COMPONENT_URN", "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component: SUB_DbProfile:269BA6C90E6A5000E053C075B10A51A3:0.1" } ],     "configurations": [       { "name": "REF_ZONE", "value": "Salt Lake City Zone" },       { "name": "REF_POOL", "value": "SI Databases Pool_Oracle_DB_11g" },       { "name": "REF_HOST", "value": "xyz.example.com" },       { "name": "REF_TGT", "value": "xyz.example.com" },       { "name": "DBCA_TEMPLATE:DB_STORAGE_TYPE", "value": "ASM" },       { "name": "DBCA_TEMPLATE:REC_STORAGE_TYPE_SAME_AS_DB_FILES", "value": "Y" },       { "name": "DBCA_TEMPLATE:FLASH_RECOVERY_AREA_SIZE", "value": "4038" },       { "name": "DBCA_TEMPLATE:DATA_FILE_LOCATION", "value": "DATA" },       { "name": "DBCA_TEMPLATE:REDO_FILE_LOCATION", "value": "RECO" },       { "name": "DBCA_TEMPLATE:ARCHIVE_LOG_MODE", "value": "Y" },       { "name": "DBCA_TEMPLATE:RECOVERY_FILE_LOCATION", "value": "RECO" },       { "name": "DATABASE_TYPE", "value": "oracle_database" }, </pre>

**Table 33-42 (Cont.) POST Request Configuration for Creating a Service Template for DBCA Based Database**

Feature	Description
	<pre> { "name": "COMMON_DOMAIN_NAME", "value": "us.example.com" }, { "name": "ORACLE.SYSMAN.SSA.PROVISIONING_TYPE", "values": [ "DBCA_TEMPLATE" ] }, { "name": "ENTITY_TYPE", "value": "USE_PROFILE" }, { "name": "PROFILE_COMPONENT_URN", "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component: SUB_DbProfile:269BA6C90E6A5000E053C075B10A51A3:0.1" }, { "name": "USER_PRIVILEGES", "value": "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY OPERATOR, CREATE ANY PROCEDURE, CREATE ANY SEQUENCE, CREATE ANY INDEX, CREATE JOB, CREATE ANY MATERIALIZED VIEW, CREATE ANY TABLE, CREATE ANY TRIGGER, CREATE ANY TYPE, CREATE ANY VIEW, CREATE ANY SYNONYM, CREATE ANY DIRECTORY, SELECT ANY DICTIONARY" }, { "name": "SID_OPTION", "value": "ssauser" }, { "name": "SELECT_ORACLE_HOME_OPTION", "value": "SELECT_ORACLE_HOME_AT_RUNTIME"}, { "name": "COMMON_DB_SYS_PASSWORD", "value": "welcome"}, { "name": "DB_ADMIN_PASSWORD_SAME", "value": "true" }, { "name": "INIT_PARAMS", "values": [ "sga_target=1073741824", "pga_aggregate_target=1073741824" ] }, { "name": "LISTENER_PORT", "value": "1521" }, { "name": "TARGET_PROP_LIST", "values": [ "Site:null:false:false", "Contact:xxxx:false:true", "Downtime Contact:null:false:false", "Location:null:false:false", "LifeCycle Status:null:false:false", "Department:null:false:false", "Comment:Testing:false:true", "Line of Business:null:false:false" ] } ] } </pre>
	<p><b>Note:</b></p> <ul style="list-style-type: none"> <li>To get the software library ID of the "DBAAS_SSA_CUSTOM_PRE_SCRIPTS_URN" and "DBAAS_SSA_CUSTOM_POST_SCRIPTS_URN" run the EM CLI command <code>emcli list_swlib_entities -name="&lt;Pre or Post Standby Database Script&gt;" -show_entity_rev_id</code>. The ID is provided at the end of the output. For example, in the output shown below, <code>oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1</code> is the ID.</li> </ul>

**Table 33-42 (Cont.) POST Request Configuration for Creating a Service Template for DBCA Based Database**

Feature	Description
	<p>Pre or Post Standby Database Script,0.1,Pre or Post Standby Database Script,Ready,Directives,,Production,ORACLE,,,oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1</p> <ul style="list-style-type: none"> <li>To derive the ID of the Software Pool that needs to be entered as "values" (under "lookupCharacteristics"), execute a GET request as shown in <a href="#">Viewing Details of the Software Pools Resource</a>.</li> <li>To derive the serviceTemplateTypeId value, perform a GET operation on the URI - em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes and locate "serviceType": "DB" in the JSON response. Note the serviceTemplateTypeId under "serviceType": "DB" and use the value in the POST body shown above.</li> </ul>
Request method	POST

 **Note:**

In the REST API body mentioned above:

- REF\_ZONE indicates the reference zone among the zones to be associated with the template.
- REF\_POOL indicates the reference pool among the pools to be associated with the template.
- REF\_HOST indicates the host of the reference target from the pool targets.
- REF\_TGT indicates the reference target from the pool targets.
- SELECT\_ORACLE\_HOME\_OPTION allows the Oracle home to be automatically selected by entering the value as SELECT\_ORACLE\_HOME\_AT\_RUNTIME, or to be selected by the SSA user by entering the value as SELECT\_ORACLE\_HOME\_FROM\_REQUEST.

These parameters are mandatory and are required to identify the reference target to create the database.

A sample of the response received is shown below.

```
{
  "message": "Service template with ID \"1C39F32393A709C3E053C075B10AEE15\" created successfully."
}
```

## Creating a Service Template for RMAN Based Single Instance Database

A POST operation is issued on Service Templates collection resource to create a RMAN based Single Instance Database Service Template. The configuration for POST to Service Templates is as follows:

**Table 33-43 POST Request Configuration for Creating a Service Template for RMAN Based Single Instance Database**

Feature	Description
URI	em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json

**Table 33-43 (Cont.) POST Request Configuration for Creating a Service Template for RMAN Based Single Instance Database**

Feature	Description
Body	<pre> {   "name": "Database Service - RMAN Based with archiving",   "description": "This creates Database Archiving log mode.",   "serviceType": "DB",   "serviceTemplateTypeId": "81",   "rscProvAssocOption": [     "byRscProvInst"   ],   "resourceProvider": {     "lookupCharacteristics": [       {         "characteristics": [           {             "name": "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",             "values": [               "1898CF93BD39C19BF032672271BC4B44"             ],             "targetType": {               "targetType": "oracle_cloud_zone",               "targetTypeName": "Database Pool",               "parentTargetType": "self_service_zone",               "parentTargetTypeName": "PaaS Infrastructure Zone"             }           }         ]       },       {         "purposeId": 1       }     ]   },   "payloads": [     {       "name": "PROFILE_COMPONENT_URN",       "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfi le:1C14BB2B2E127E23E053C075B10AE31F:0.1"     }   ],   "configurations": [     {       "name": "STAGE_LOCATION",       "value": "/scratch/emga/backups/rman/"     },     {       "name": "PROFILE_COMPONENT_URN",       "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfi le:1C14BB2B2E127E23E053C075B10AE31F:0.1"     },     {       "name": "SELECT_ORACLE_HOME_OPTION",       "value": "SELECT_ORACLE_HOME_FROM_REQUEST"     },     {       "name": "REF_TGT", </pre>



**Table 33-43 (Cont.) POST Request Configuration for Creating a Service Template for RMAN Based Single Instance Database**

Feature	Description
	<pre> "value": "sxy.us.example.com" }, { "name": "REF_HOST", "value": "xyz.example.com" }, { "name": "REF_ZONE", "value": "Salt Lake City Zone" }, { "name": "zoneTargetName", "value": "Salt Lake City Zone" }, { "name": "REF_POOL", "value": "Databases Pool" }, { "name": "DATABASE_TYPE", "value": "oracle_database" }, { "name": "COMMON_DB_SYS_PASSWORD", "value": "welcome" }, { "name": "LISTENER_PORT", "value": "1521" }, { "name": "PROFILE_VERSION", "value": "latest" }, { "name": "COMMON_DB_SID", "value": "db" }, { "name": "TARGET_PROP_LIST", "values": [ "Contact:9980697299:false:false", "Location:null:false:false", "LifeCycle Status:null:false:false", "Department:null:false:false", "Comment:null:false:false", "Line of Business:null:false:false" ] }, { "name": "USER_PRIVILEGES", "value": "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY OPERATOR, CREATE ANY PROCEDURE" }, </pre>

**Table 33-43 (Cont.) POST Request Configuration for Creating a Service Template for RMAN Based Single Instance Database**

Feature	Description
	<pre> {   "name": "RMAN.DB_STORAGE_TYPE",   "value": "FS" }, {   "name": "RMAN.FRA_STORAGE_TYPE",   "value": "FS" }, {   "name": "RMAN.FRA_SIZE",   "value": "4038" }, {   "name": "RMAN.USE_ARCHIVING",   "value": "YES" }, {   "name": "RMAN.DATA_FILE_LOCATION",   "value": "/scratch/emga/app/emga/oradata" }, {   "name": "RMAN.REDO_FILE_LOCATION",   "value": "/scratch/emga/app/emga/fast_recovery_area" }, {   "name": "RMAN.RECOVERY_FILE_LOCATION",   "value": "/scratch/emga/app/emga/fast_recovery_area" }, {   "name": "RMAN.WORK_DIR_LOC",   "value": "/tmp/work" }, {   "name": "RMAN.DB_ADMIN_PASSWORD_SAME",   "value": "Y" }, {   "name": "RMAN.DATABASE_PASSWORDS",   "value": "welcome" }, {   "name": "RMAN.BACKUP_LOCATION",   "value": "/scratch/emga/backups/rman/" }, {   "name": "RMAN.USE_OFA",   "value": "N" }, {   "name": "COMMON_DOMAIN_NAME",   "value": "us.example.com" }, {   "name": "CUSTOM_PRE_CREATE_SCRIPTS_URN", </pre>

**Table 33-43 (Cont.) POST Request Configuration for Creating a Service Template for RMAN Based Single Instance Database**

Feature	Description
	<pre> "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6 F25F31B7671E0537850B10A9B85:0.1" }, {   "name": "CUSTOM_POST_CREATE_SCRIPTS_URN",   "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6 F25F31B7671E0537850B10A9B85:0.1" } ] } </pre>
	<p><b>Note:</b></p> <ul style="list-style-type: none"> <li>To get the software library ID of the "DBAAS_SSA_CUSTOM_PRE_SCRIPTS_URN" and "DBAAS_SSA_CUSTOM_POST_SCRIPTS_URN" run the EM CLI command <code>emcli list_swlib_entities -name="&lt;Pre or Post Standby Database Script&gt;" -show_entity_rev_id</code>. The ID is provided at the end of the output. For example, in the output shown below, <code>oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1</code> is the ID.</li> </ul> <pre> Pre or Post Standby Database Script,0.1,Pre or Post Standby Database Script,Ready,Directives,,Production,ORACLE,,oracle:defaultService: em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850 B10A9B85:0.1 </pre> <ul style="list-style-type: none"> <li>To derive the ID of the Software Pool that needs to be entered as "values" (under "lookupCharacteristics"), execute a GET request as shown in <a href="#">Viewing Details of the Software Pools Resource</a>.</li> <li>To derive the <code>serviceTemplateTypeId</code> value, perform a GET operation on the URI - <code>em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes</code> and locate "serviceType": "DB" in the JSON response. Note the <code>serviceTemplateTypeId</code> under "serviceType": "DB" and use the value in the POST body shown above.</li> </ul>
Request method	POST

 **Note:**

In the REST API body mentioned above:

- REF\_ZONE indicates the reference zone among the zones to be associated with the template.
- REF\_POOL indicates the reference pool among the pools to be associated with the template.
- REF\_HOST indicates the host of the reference target from the pool targets.
- REF\_TGT indicates the reference target from the pool targets.
- SELECT\_ORACLE\_HOME\_OPTION allows the Oracle home to be automatically selected by entering the value as SELECT\_ORACLE\_HOME\_AT\_RUNTIME, or to be selected by the SSA user by entering the value as SELECT\_ORACLE\_HOME\_FROM\_REQUEST.

These parameters are mandatory and are required to identify the reference target to create the database.

A sample of the response received is shown below.

```
{
  "message": "Service template with ID \"1C39F32393A709C3E053C075B10AEE15\" created
successfully."
}
```

## Creating a Service Template for RMAN Based Single Instance Database with Single Instance Standby

A POST operation is issued on Service Templates collection resource to create a RMAN based Single Instance Database with Single Instance standby Service Template. The configuration for POST to Service Templates is as follows:

**Table 33-44 POST Request Configuration for Creating a Service Template for RMAN Based Single Instance Database With Single Instance Standby**

Feature	Description
URI	em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json

**Table 33-44 (Cont.) POST Request Configuration for Creating a Service Template for RMAN Based Single Instance Database With Single Instance Standby**

Feature	Description
Body	<pre> {   "name": "Database Service - RMAN Based with archiving with SI Standby",   "description": "This creates Database Archiving log mode.",   "serviceType": "DB",   "serviceTemplateTypeId": "81",   "rscProvAssocOption": [     "byRscProvInst"   ],   "resourceProvider": {     "lookupCharacteristics": [       {         "characteristics": [           {             "name": "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",             "values": [               "1898CF93BD39C19BF032672271BC4B44"             ],             "targetType": {               "targetType": "oracle_cloud_zone",               "targetTypeName": "Database Pool",               "parentTargetType": "self_service_zone",               "parentTargetTypeName": "PaaS Infrastructure Zone"             }           }         ]       },       {         "purposeId": 1       }     ]   },   "payloads": [     {       "name": "PROFILE_COMPONENT_URN",       "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:1C14BB2B2E127E23E053C075B10AE31F:0.1"     }   ],   "configurations": [     {       "name": "STAGE_LOCATION",       "value": "/scratch/emga/backups/rman/"     },     {       "name": "PROFILE_COMPONENT_URN",       "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:1C14BB2B2E127E23E053C075B10AE31F:0.1"     },     {       "name": "SELECT_ORACLE_HOME_OPTION",       "value": "SELECT_ORACLE_HOME_FROM_REQUEST"     }   ] } </pre>

**Table 33-44 (Cont.) POST Request Configuration for Creating a Service Template for RMAN Based Single Instance Database With Single Instance Standby**

Feature	Description
	<pre> "name": "REF_TGT", "value": "xyz.example.com" }, { "name": "REF_HOST", "value": "xyz.example.com" }, { "name": "REF_ZONE", "value": "Salt Lake City Zone" }, { "name": "zoneTargetName", "value": "Salt Lake City Zone" }, { "name": "REF_POOL", "value": "Databases Pool" }, { "name": "DATABASE_TYPE", "value": "oracle_database" }, { "name": "COMMON_DB_SYS_PASSWORD", "value": "welcome" }, { "name": "LISTENER_PORT", "value": "1521" }, { "name": "PROFILE_VERSION", "value": "latest" }, { "name": "COMMON_DB_SID", "value": "db" }, { "name": "TARGET_PROP_LIST", "values": [ "Contact:9980697299:false:false", "Location:null:false:false", "LifeCycle Status:null:false:false", "Department:null:false:false", "Comment:null:false:false", "Line of Business:null:false:false" ] }, { "name": "USER_PRIVILEGES", "value": "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY OPERATOR, CREATE ANY PROCEDURE" </pre>

**Table 33-44 (Cont.) POST Request Configuration for Creating a Service Template for RMAN Based Single Instance Database With Single Instance Standby**

Feature	Description
	<pre> }, {   "name": "RMAN.DB_STORAGE_TYPE",   "value": "FS" }, {   "name": "RMAN.FRA_STORAGE_TYPE",   "value": "FS" }, {   "name": "RMAN.FRA_SIZE",   "value": "4038" }, {   "name": "RMAN.USE_ARCHIVING",   "value": "YES" }, {   "name": "RMAN.DATA_FILE_LOCATION",   "value": "/scratch/emga/app/emga/oradata" }, {   "name": "RMAN.REDO_FILE_LOCATION",   "value": "/scratch/emga/app/emga/fast_recovery_area" }, {   "name": "RMAN.RECOVERY_FILE_LOCATION",   "value": "/scratch/emga/app/emga/fast_recovery_area" }, {   "name": "RMAN.WORK_DIR_LOC",   "value": "/tmp/work" }, {   "name": "RMAN.DB_ADMIN_PASSWORD_SAME",   "value": "Y" }, {   "name": "RMAN.DATABASE_PASSWORDS",   "value": "welcome" }, {   "name": "RMAN.BACKUP_LOCATION",   "value": "/scratch/emga/backups/rman/" }, {   "name": "RMAN.USE_OFA",   "value": "N" }, {   "name": "COMMON_DOMAIN_NAME",   "value": "us.example.com" }, { </pre>

**Table 33-44 (Cont.) POST Request Configuration for Creating a Service Template for RMAN Based Single Instance Database With Single Instance Standby**

Feature	Description
	<pre data-bbox="570 359 1474 730"> "name": "STANDBY_DB_DETAILS", "values": [   "pool=Near DR Pool;databaseSIDPrefix=;databaseType=oracle_database;standbyConfigName= Near DR;redoMode=ASYNC;realtimeQuery=false;databaseDelay=60;databaseUniqueNa me=;standbyStorageType=FS;standbyStorageLocation=;standbyFRAType=FS;sta ndbyFRALocation=;standbyFRASize=;standbyLsnrPort=;domainName=us.example .com" ] } ] } </pre> <p data-bbox="570 762 634 783"><b>Note:</b></p> <ul data-bbox="570 793 1474 1444" style="list-style-type: none"> <li data-bbox="570 793 1474 1050">• To get the software library ID of the "DBAAS_SSA_CUSTOM_PRE_SCRIPTS_URN" and "DBAAS_SSA_CUSTOM_POST_SCRIPTS_URN" run the EM CLI command <code>emcli list_swlib_entities -name="&lt;Pre or Post Standby Database Script&gt;" -show_entity_rev_id</code>. The ID is provided at the end of the output. For example, in the output shown below, <code>oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1</code> is the ID.</li> <li data-bbox="570 1060 1474 1192">• Pre or Post Standby Database Script,0.1,Pre or Post Standby Database Script,Ready,Directives,,Production,ORACLE,,oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1</li> <li data-bbox="570 1203 1474 1287">• To derive the ID of the Software Pool that needs to be entered as "values" (under "lookupCharacteristics"), execute a GET request as shown in <a href="#">Viewing Details of the Software Pools Resource</a>.</li> <li data-bbox="570 1297 1474 1444">• To derive the serviceTemplateTypeId value, perform a GET operation on the URI - <code>em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes</code> and locate "serviceType": "DB" in the JSON response. Note the serviceTemplateTypeId under "serviceType": "DB" and use the value in the POST body shown above.</li> </ul>
Request method	POST



 **Note:**

In the REST API body mentioned above:

- REF\_ZONE indicates the reference zone among the zones to be associated with the template.
- REF\_POOL indicates the reference pool among the pools to be associated with the template.
- REF\_HOST indicates the host of the reference target from the pool targets.
- REF\_TGT indicates the reference target from the pool targets.
- SELECT\_ORACLE\_HOME\_OPTION allows the Oracle home to be automatically selected by entering the value as SELECT\_ORACLE\_HOME\_AT\_RUNTIME, or to be selected by the SSA user by entering the value as SELECT\_ORACLE\_HOME\_FROM\_REQUEST.

These parameters are mandatory and are required to identify the reference target to create the database.

A sample of the response received is shown below.

```
{
  "message": "Service template with ID \"xxxx\" created successfully."
}
```

## Creating a Service Template for RMAN Based RAC One Node Database

A POST operation is issued on Service Templates collection resource to create a RMAN based RAC One Node Database Service Template. The configuration for POST to Service Templates is as follows:

**Table 33-45 POST Request Configuration for Creating a Service Template for RMAN Based RAC One Node Database**

Feature	Description
URI	em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json

**Table 33-45 (Cont.) POST Request Configuration for Creating a Service Template for RMAN Based RAC One Node Database**

Feature	Description
Body	<pre> {   "name": "Create Databases on RAC One database",   "description": "Creates Databases on RAC.",   "serviceType": "DB",   "serviceTemplateTypeId": "81",   "rscProvAssocOption": [     "byRscProvInst"   ],   "resourceProvider": {     "lookupCharacteristics": [       {         "characteristics": [           {             "name": "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",             "values": [               "647E8750A1C3835557165B499B269FB3"             ],             "targetType": {               "targetType": "oracle_cloud_zone",               "targetTypeName": "Database Pool",               "parentTargetType": "self_service_zone",               "parentTargetTypeName": "PaaS Infrastructure Zone"             }           }         ]       },       {         "purposeId": 1       }     ]   },   "payloads": [     {       "name": "PROFILE_COMPONENT_URN",       "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfi le:1E4F60D72C912160E053C075B10A29F5:0.1"     }   ],   "configurations": [     {"name": "STAGE_LOCATION",      "value": "/scratch/emga/backups/rman/"},     {"name": "PROFILE_COMPONENT_URN",      "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfi le:1E4F60D72C912160E053C075B10A29F5:0.1"},     {"name": "SELECT_ORACLE_HOME_OPTION",      "value": "SELECT_ORACLE_HOME_FROM_REQUEST"},     {"name": "REF_TGT",      "value": "abc.example.com"},     {"name": "REF_HOST",      "value": "adc.example.com"},     {"name": "REF_ZONE",      "value": "Salt Lake City Zone"},     {"name": "zoneTargetName",      "value": "Salt Lake City Zone"}, </pre>

**Table 33-45 (Cont.) POST Request Configuration for Creating a Service Template for RMAN Based RAC One Node Database**

Feature	Description
	<pre> {"name": "REF_POOL",  "value": "RAC Databases Pool"}, {"name": "DATABASE_TYPE",  "value": "rac_database"}, {"name": "IS_RAC_ONE",  "value": "Y"}, {"name": "COMMON_DB_SYS_PASSWORD",  "value": "welcome"}, {"name": "LISTENER_PORT",  "value": "1521"}, {"name": "PROFILE_VERSION",  "value": "latest"}, {"name": "COMMON_DB_SID",  "value": "db"}, {"name": "TARGET_PROP_LIST",  "values": [  "Contact:9980697299:false:false",  "Location:null:false:false",  "LifeCycle Status:null:false:false",  "Department:null:false:false",  "Comment:null:false:false",  "Line of Business:null:false:false"  ] }, {"name": "USER_PRIVILEGES",  "value": "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY OPERATOR, CREATE ANY PROCEDURE"}, {"name": "RMAN:DB_STORAGE_TYPE",  "value": "FS"}, {"name": "RMAN:FRA_SIZE",  "value": "4038"}, {"name": "RMAN:USE_ARCHIVING",  "value": "NO"}, {"name": "RMAN:DATA_FILE_LOCATION",  "value": "/scratch/emga/app/emga/oradata"}, {"name": "RMAN:WORK_DIR_LOC",  "value": "/tmp/work"}, {"name": "RMAN:DB_ADMIN_PASSWORD_SAME",  "value": "Y"}, {"name": "RMAN:DATABASE_PASSWORDS",  "value": "welcome"}, {"name": "RMAN:BACKUP_LOCATION",  "value": "/oradbnas/backups/rman/"}, {"name": "RMAN:USE_OFA",  "value": "N"}, {"name": "COMMON_DOMAIN_NAME",  "value": "us.example.com"} ] } </pre>

**Note:**

- To get the software library ID of the "DBAAS\_SSA\_CUSTOM\_PRE\_SCRIPTS\_URN" and "DBAAS\_SSA\_CUSTOM\_POST\_SCRIPTS\_URN" run the EM CLI command

**Table 33-45 (Cont.) POST Request Configuration for Creating a Service Template for RMAN Based RAC One Node Database**

Feature	Description
	<p>emcli list_swlib_entities -name="&lt;Pre or Post Standby Database Script&gt;" -show_entity_rev_id. The ID is provided at the end of the output. For example, in the output shown below, oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1 is the ID.</p> <pre>Pre or Post Standby Database Script,0.1,Pre or Post Standby Database Script,Ready,Directives,,Production,ORACLE,,,oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1</pre> <ul style="list-style-type: none"> <li>To derive the ID of the Software Pool that needs to be entered as "values" (under "lookupCharacteristics"), execute a GET request as shown in <a href="#">Viewing Details of the Software Pools Resource</a>.</li> <li>To derive the serviceTemplateTypeId value, perform a GET operation on the URI - em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes and locate "serviceType": "DB" in the JSON response. Note the serviceTemplateTypeId under "serviceType": "DB" and use the value in the POST body shown above.</li> </ul>
Request method	POST

A sample of the response received is shown below.

```
{
  "message": "Service template with ID \"xxxx\" created successfully."
}
```

### Creating a Service Template for RMAN Based RAC One Node Database With Standby

A POST operation is issued on Service Templates collection resource to create a RMAN based RAC One Node Database with Standby Service Template.

In the example shown below there are two standbys created, one standby RAC one node database is a Near DR (disaster recovery) created on the same pool as the primary RAC one node database, and the other standby Far DR database is a single instance database created on a different pool. This setup is essential for a disaster recovery setup wherein two standby databases are created for data protection. The POST body shown below can be modified to have only one standby database (either SI or RAC one node) as well.

The configuration is as follows:

**Table 33-46 POST Request Configuration for Creating a Service Template for RMAN Based RAC One Node Database With Standby**

Feature	Description
URI	em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json

**Table 33-46 (Cont.) POST Request Configuration for Creating a Service Template for RMAN Based RAC One Node Database With Standby**

Feature	Description
Body	<pre> {   "name": "RAC One Database Provisioning with RAC One Standby and SI Standby",   "description": "Creates RAC One Databases with RAC One Standby and SI Standby.",   "serviceType": "DB",   "serviceTemplateTypeId": "81",   "rscProvAssocOption": [     "byRscProvInst"   ],   "resourceProvider": {     "lookupCharacteristics": [       {         "characteristics": [           {             "name": "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",             "values": [               "647E8750A1C3835557165B499B269FB3"             ],             "targetType": {               "targetType": "oracle_cloud_zone",               "targetTypeName": "Database Pool",               "parentTargetType": "self_service_zone",               "parentTargetTypeName": "PaaS Infrastructure Zone"             }           }         ]       },       {         "purposeId": 1       }     ]   },   "payloads": [     {       "name": "PROFILE_COMPONENT_URN",       "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:1E4F60D72C912160E053C075B10A29F5:0.1"     }   ],   "configurations": [     {       "name": "STAGE_LOCATION",       "value": "/scratch/emga/backups/rman/"     },     {       "name": "PROFILE_COMPONENT_URN",       "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:1E4F60D72C912160E053C075B10A29F5:0.1"     },     {       "name": "SELECT_ORACLE_HOME_OPTION",       "value": "SELECT_ORACLE_HOME_FROM_REQUEST"     },     {       "name": "REF_TGT",       "value": "adc.example.com"     },     {       "name": "REF_HOST",       "value": "adc.example.com"     },     {       "name": "REF_ZONE",       "value": "Salt Lake City Zone"     },     {       "name": "zoneTargetName",       "value": "Salt Lake City Zone"     }   ] } </pre>

**Table 33-46 (Cont.) POST Request Configuration for Creating a Service Template for RMAN Based RAC One Node Database With Standby**

Feature	Description
	<pre> {"name": "REF_POOL",  "value": "RAC Databases Pool"}, {"name": "DATABASE_TYPE",  "value": "rac_database"}, {"name": "IS_RAC_ONE",  "value": "Y"}, {"name": "COMMON_DB_SYS_PASSWORD",  "value": "welcome"}, {"name": "LISTENER_PORT",  "value": "1521"}, {"name": "PROFILE_VERSION",  "value": "latest"}, {"name": "COMMON_DB_SID",  "value": "db"}, {"name": "TARGET_PROP_LIST",  "values": [   "Contact:9980697299:false:false",   "Location:null:false:false",   "LifeCycle Status:null:false:false",   "Department:null:false:false",   "Comment:null:false:false",   "Line of Business:null:false:false"  ] }, {"name": "USER_PRIVILEGES",  "value": "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY OPERATOR, CREATE ANY PROCEDURE"}, {"name": "RMAN:DB_STORAGE_TYPE",  "value": "FS"}, {"name": "RMAN:FRA_SIZE",  "value": "4038"}, {"name": "RMAN:USE_ARCHIVING",  "value": "NO"}, {"name": "RMAN:DATA_FILE_LOCATION",  "value": "/scratch/emga/app/emga/oradata"}, {"name": "RMAN:WORK_DIR_LOC",  "value": "/tmp/work"}, {"name": "RMAN:DB_ADMIN_PASSWORD_SAME",  "value": "Y"}, {"name": "RMAN:DATABASE_PASSWORDS",  "value": "welcome"}, {"name": "RMAN:BACKUP_LOCATION",  "value": "/oradbnas/backups/rman/"}, {"name": "RMAN:USE_OFA",  "value": "N"}, {"name": "COMMON_DOMAIN_NAME",  "value": "us.example.com"}, {"name": "STANDBY_REQUIRED",  "value": "true"}, {"name": "STANDBY_DB_DETAILS",  "value": "",  "values": [   "pool=SI Databases Zone - Oracle 11g - Standby;databaseSIDPrefix=st;databaseType=oracle_database;standbyConfig </pre>

**Table 33-46 (Cont.) POST Request Configuration for Creating a Service Template for RMAN Based RAC One Node Database With Standby**

Feature	Description
	<pre>Name=Near DR;redoMode=ASYNCR;realtimeQuery=false;databaseDelay=60;databaseUniqueName=;standbyStorageType=FS;standbyStorageLocation=;standbyFRAType=FS;standbyFRALocation=;standbyFRASize=;standbyLsnrPort=;domainName=us.example.com"     ]   } ] }</pre>
	<p><b>Note:</b></p> <ul style="list-style-type: none"> <li>To get the software library ID of the "DBAAS_SSA_CUSTOM_PRE_SCRIPTS_URN" and "DBAAS_SSA_CUSTOM_POST_SCRIPTS_URN" run the EM CLI command <code>emcli list_swlib_entities -name="&lt;Pre or Post Standby Database Script&gt;" -show_entity_rev_id</code>. The ID is provided at the end of the output. For example, in the output shown below, <code>oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1</code> is the ID.</li> </ul> <pre>Pre or Post Standby Database Script,0.1,Pre or Post Standby Database Script,Ready,Directives,,Production,ORACLE,,oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1</pre> <ul style="list-style-type: none"> <li>To derive the ID of the Software Pool that needs to be entered as "values" (under "lookupCharacteristics"), execute a GET request as shown in <a href="#">Viewing Details of the Software Pools Resource</a>.</li> <li>To derive the <code>serviceTemplateTypeId</code> value, perform a GET operation on the URI - <code>em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes</code> and locate "serviceType": "DB" in the JSON response. Note the <code>serviceTemplateTypeId</code> under "serviceType": "DB" and use the value in the POST body shown above.</li> </ul>
Request method	POST

A sample of the response received is shown below.

```
{
  "message": "Service template with ID \"xxxx\" created successfully."
}
```

### Creating a Service Template for RMAN Based RAC Database With Standby

A POST operation is issued on Service Templates collection resource to create a RMAN based RAC Database with Standby Service Template.

The configuration to create a RAC database with single instance standby database is similar to the configuration for a RAC database with a RAC one node standby. The only difference in the payloads to create different standbys is defined by the configuration parameter `STANDBY_DB_DETAILS`.

The sample value for the STANDBY\_DB\_DETAILS parameter for creating a RAC database with RAC one node standby is:

```
"pool=Near RAC DR
Pool;databaseSIDPrefix=;databaseType=rac_database;isRACOne=Y;standbyConfigName=Near
ar
DR;redoMode=ASYNC;realtimeQuery=false;databaseDelay=60;databaseUniqueName=;standbyStorageType=FS;standbyStorageLocation=;standbyFRAType=FS;standbyFRALocation=;standbyFRASize=;standbyLsnrPort=;domainName=us.example.com"
```

Whereas, the sample value for the STANDBY\_DB\_DETAILS parameter for creating a RAC database with single instance standby is:

```
"pool=Near DR
Pool;databaseSIDPrefix=;databaseType=oracle_database;standbyConfigName=Near
DR;redoMode=ASYNC;realtimeQuery=false;databaseDelay=60;databaseUniqueName=;standbyStorageType=FS;standbyStorageLocation=;standbyFRAType=FS;standbyFRALocation=;standbyFRASize=;standbyLsnrPort=;domainName=us.example.com"
```

The sample POST configuration shown below is for a RAC database with single instance standby Service Template. Apply the required value for the STANDBY\_DB\_DETAILS parameter in the sample shown below:

**Table 33-47 POST Request Configuration for Creating a Service Template for RMAN Based RAC Database With Single Instance Standby**

Feature	Description
URI	em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json



**Table 33-47 (Cont.) POST Request Configuration for Creating a Service Template for RMAN Based RAC Database With Single Instance Standby**

Feature	Description
Body	<pre> {   "name" : "Create Databases on RAC with SI Standby",   "description" : "Creates Databases on RAC.",   "serviceType" : "DB",   "serviceTemplateTypeId" : "81",   "rscProvAssocOption" : [ "byRscProvInst" ],   "resourceProvider" : {     "lookupCharacteristics" : [ {       "characteristics" : [ {         "name" : "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",         "values" : [ "647E8750A1C3835557165B499B269FB3" ],         "targetType" : {           "targetType" : "oracle_cloud_zone",           "targetTypeName" : "Database Pool",           "parentTargetType" : "self_service_zone",           "parentTargetTypeName" : "PaaS Infrastructure Zone"         }       }     ]   },   "purposeId" : 1 } ] }, "payloads" : [ {   "name" : "PROFILE_COMPONENT_URN",   "value" : "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:1E4F60D72C912160E053C075B10A29F5:0.1" } ], "configurations" : [ {   "name" : "STAGE_LOCATION",   "value" : "/scratch/emga/backups/rman/",   {"name" : "PROFILE_COMPONENT_URN",   "value" : "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:1E4F60D72C912160E053C075B10A29F5:0.1"}   {"name":"SELECT_ORACLE_HOME_OPTION",   "value":"SELECT_ORACLE_HOME_FROM_REQUEST"},   {"name" : "REF_TGT",   "value" : "adc.us.example.com"},   {"name" : "REF_HOST",   "value" : "adc.us.example.com"},   {"name" : "REF_ZONE",   "value" : "Salt Lake City Zone"},   {"name" : "zoneTargetName",   "value" : "Salt Lake City Zone"},   {"name" : "REF_POOL",   "value" : "RAC Databases Pool"},   {"name" : "DATABASE_TYPE",   "value" : "oracle_database"},   {"name" : "COMMON_DB_SYS_PASSWORD",   "value" : "welcome"},   {"name" : "LISTENER_PORT",   "value" : "1521"},   {"name" : "PROFILE_VERSION",   "value" : "latest"}, </pre>

**Table 33-47 (Cont.) POST Request Configuration for Creating a Service Template for RMAN Based RAC Database With Single Instance Standby**

Feature	Description
	<pre> {"name" : "COMMON_DB_SID", "value" : "db"}, {"name" : "TARGET_PROP_LIST", "values" : [ "Contact:9980697299:false:false", "Location:null:false:false", "LifeCycle Status:null:false:false", "Department:null:false:false", "Comment:null:false:false", "Line of Business:null:false:false" ]}, {"name" : "USER_PRIVILEGES", "value" : "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY OPERATOR, CREATE ANY PROCEDURE"}, {"name" : "RMAN:DB_STORAGE_TYPE", "value" : "FS"}, {"name" : "RMAN:FRA_SIZE", "value" : "4038"}, {"name" : "RMAN:USE_ARCHIVING", "value" : "NO"}, {"name" : "RMAN:DATA_FILE_LOCATION", "value" : "/scratch/emga/app/emga/oradata"}, {"name" : "RMAN:WORK_DIR_LOC", "value" : "/tmp/work"}, {"name" : "RMAN:DB_ADMIN_PASSWORD_SAME", "value" : "Y"}, {"name" : "RMAN:DATABASE_PASSWORDS", "value" : "welcome"}, {"name" : "RMAN:BACKUP_LOCATION", "value" : "/oradbnas/backups/rman/"}, {"name" : "RMAN:USE_OFA", "value" : "N"}, {"name" : "COMMON_DOMAIN_NAME", "value" : "us.example.com"}, {"name": "CUSTOM_PRE_CREATE_SCRIPTS_URN",  "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:no ne:01AB6F25F31B7671E0537850B10A9B85:0.1"},, {"name": "CUSTOM_POST_CREATE_SCRIPTS_URN",  "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:no ne:01AB6F25F31B7671E0537850B10A9B85:0.1"},, {"name": "STANDBY_REQUIRED", "value": "true"}, {"name": "STANDBY_DB_DETAILS", "value": "", "values": [ "pool=SI Databases Zone - Oracle 11g - Standby;databaseSIDPrefix=st;databaseType=oracle_database;standbyConfig Name=Near DR;redoMode=ASYNC;realtimeQuery=false;databaseDelay=60;databaseUniqueNa me=;standbyStorageType=FS;standbyStorageLocation=;standbyFRAType=FS;sta ndbyFRALocation=;standbyFRASize=;standbyLsnrPort=;domainName=us.example .com" ] } } </pre>

**Table 33-47 (Cont.) POST Request Configuration for Creating a Service Template for RMAN Based RAC Database With Single Instance Standby**

Feature	Description
	<p><b>Note:</b></p> <ul style="list-style-type: none"> <li>To get the software library ID of the "DBAAS_SSA_CUSTOM_PRE_SCRIPTS_URN" and "DBAAS_SSA_CUSTOM_POST_SCRIPTS_URN" run the EM CLI command <code>emcli list_swlib_entities -name="&lt;Pre or Post Standby Database Script&gt;" -show_entity_rev_id</code>. The ID is provided at the end of the output. For example, in the output shown below, <code>oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1</code> is the ID.</li> </ul> <pre>Pre or Post Standby Database Script,0.1,Pre or Post Standby Database Script,Ready,Directives,,Production,ORACLE,,oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1</pre> <ul style="list-style-type: none"> <li>To derive the ID of the Software Pool that needs to be entered as "values" (under "lookupCharacteristics"), execute a GET request as shown in <a href="#">Viewing Details of the Software Pools Resource</a>.</li> <li>To derive the <code>serviceTemplateTypeId</code> value, perform a GET operation on the URI - <code>em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes</code> and locate "serviceType": "DB" in the JSON response. Note the <code>serviceTemplateTypeId</code> under "serviceType": "DB" and use the value in the POST body shown above.</li> </ul>
Request method	POST

A sample of the response received is shown below.

```
{
  "message": "Service template with ID \"xxxx\" created successfully."
}
```

### Creating a Service Template for RAC Database with Standby Using a DBCA Template

A POST operation is issued on ServiceTemplates Collection resource to create a ServiceTemplate for a RAC database with standby using a DBCA template. The configuration for POST to ServiceTemplates is as follows:

**Table 33-48 POST Request Configuration for Creating a Service Template for RAC Database with Standby Using a DBCA Template**

Feature	Description
URI	<code>em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates</code>
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json

**Table 33-48 (Cont.) POST Request Configuration for Creating a Service Template for RAC Database with Standby Using a DBCA Template**

Feature	Description
Body	<pre> {   "name": "Create RAC Db with Standby using DBCA Template - BofA -ASM",   "description": "Service Template for Non-CDB; 12cR1_2(12.1.0.2); RAC; ASM",   "serviceType": "DB",   "serviceTemplateTypeId": "61",   "rscProvAssocOption": [     "byRscProvInst"   ],   "roles": [     "SSAUSERROLE"   ],   "resourceProvider": {     "lookupCharacteristics": [       {         "characteristics": [           {             "name": "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",             "values": [               "4C5795E605D71F59BAF9F6AD702E25E1"             ],             "targetType": {               "targetType": "oracle_cloud_zone",               "targetTypeName": "Database Pool",               "parentTargetType": "self_service_zone",               "parentTargetTypeName": "PaaS Infrastructure Zone"             }           }         ],         "purposeId": 1       }     ],     "payloads": [       {         "name": "PROFILE_COMPONENT_URN",         "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfi le:246E84D11ED13BD0E050F90AE5852BC8:0.1"       }     ],     "configurations": [       {         "name": "REF_ZONE",         "value": "Clusters Zone - Oracle DB 12c"       },       {         "name": "REF_HOST",         "value": "xyz.example.com"       },       {         "name": "REF_POOL",         "value": "RAC Databases Pool_Oracle_DB_12c"       }     ]   } } </pre>

**Table 33-48 (Cont.) POST Request Configuration for Creating a Service Template for RAC Database with Standby Using a DBCA Template**

Feature	Description
	<pre> {   "name": "DBCA_TEMPLATE:DB_STORAGE_TYPE",   "value": "ASM" }, {   "name": "DBCA_TEMPLATE:REC_STORAGE_TYPE_SAME_AS_DB_FILES",   "value": "Y" }, {   "name": "DBCA_TEMPLATE:ARCHIVE_LOG_MODE",   "value": "N" }, {   "name": "DBCA_TEMPLATE:FLASH_RECOVERY_AREA_SIZE",   "value": "4038" }, {   "name": "DBCA_TEMPLATE:DATA_FILE_LOCATION",   "value": "DATA" }, {   "name": "DBCA_TEMPLATE:REDO_FILE_LOCATION",   "value": "DATA1" }, {   "name": "DBCA_TEMPLATE:RECOVERY_FILE_LOCATION",   "value": "DATA1" }, {   "name": "DATABASE_TYPE",   "value": "rac_database" }, {   "name": "INSTANCE_COUNT",   "value": "2" }, {   "name": "COMMON_DOMAIN_NAME",   "value": "us.example.com" }, {   "name": "ORACLE.SYSMAN.SSA.PROVISIONING_TYPE",   "values": [     "DBCA_TEMPLATE"   ] }, {   "name": "ENTITY_TYPE",   "value": "USE_PROFILE" }, {   "name": "REF_TGT",   "value": "xyz.example.com" }, </pre>

**Table 33-48 (Cont.) POST Request Configuration for Creating a Service Template for RAC Database with Standby Using a DBCA Template**

Feature	Description
	<pre> {   "name": "SID_OPTION",   "value": "prefix" }, {   "name": "PROFILE_COMPONENT_URN",   "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfi le:246E84D11ED13BD0E050F90AE5852BC8:0.1" }, {   "name": "PROFILE_VERSION",   "value": "latest" }, {   "name": "USER_PRIVILEGES",   "value": "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY OPERATOR, CREATE ANY PROCEDURE, CREATE ANY SEQUENCE, CREATE ANY INDEX, CREATE JOB, CREATE ANY MATERIALIZED VIEW, CREATE ANY TABLE, CREATE ANY TRIGGER, CREATE ANY TYPE, CREATE ANY VIEW, CREATE ANY SYNONYM, CREATE ANY DIRECTORY, SELECT ANY DICTIONARY" }, {   "name": "COMMON_DB_SID",   "value": "RFTDB" }, {   "name": "INIT_PARAMS",   "subconfigurations": [     "sga_target=1073741824",     "pga_aggregate_target=1073741824"   ] }, {   "name": "SELECT_ORACLE_HOME_OPTION",   "value": "SELECT_ORACLE_HOME_AT_RUNTIME" }, {   "name": "COMMON_DB_SYS_PASSWORD",   "value": "auniquepw" }, {   "name": "DB_ADMIN_PASSWORD_SAME",   "value": "true" }, {   "name": "LISTENER_PORT",   "value": "1521" }, {   "name": "STANDBY_REQUIRED",   "value": "true" }, { </pre>

**Table 33-48 (Cont.) POST Request Configuration for Creating a Service Template for RAC Database with Standby Using a DBCA Template**

Feature	Description
	<pre>                 "name": "STANDBY_DB_DETAILS",                 "value": "",                 "values": [                     "pool=SI Databases Zone - Oracle 11g - Standby;databaseSIDPrefix=st;databaseType=oracle_database;standbyConfig Name=Near DR;redoMode=ASYNC;realtimeQuery=false;databaseDelay=60;databaseUniqueNa me=;standbyStorageType=FS;standbyStorageLocation=;standbyFRAType=FS;sta ndbyFRALocation=;standbyFRASize=;standbyLsnrPort=;domainName=us.example .com"                 ]             },             {                 "name": "DATABASE_SIZES",                 "values": [                     "Big",                     "Small"                 ]             },             {                 "name": "DEFAULT_DATABASE_SIZE",                 "value": "Big"             }         ]     } </pre>
<b>Note:</b>	<ul style="list-style-type: none"> <li>To get the software library ID of the "DBAAS_SSA_CUSTOM_PRE_SCRIPTS_URN" and "DBAAS_SSA_CUSTOM_POST_SCRIPTS_URN" run the EM CLI command <code>emcli list_swlib_entities -name="&lt;Pre or Post Standby Database Script&gt;" -show_entity_rev_id</code>. The ID is provided at the end of the output. For example, in the output shown below, <code>oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1</code> is the ID.  Pre or Post Standby Database Script,0.1,Pre or Post Standby Database Script,Ready,Directives,,Production,ORACLE,,,oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1</li> <li>To derive the ID of the Software Pool that needs to be entered as "values" (under "lookupCharacteristics"), execute a GET request as shown in <a href="#">Viewing Details of the Software Pools Resource</a>.</li> <li>To derive the serviceTemplateTypeId value, perform a GET operation on the URI - <code>em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes</code> and locate "serviceType": "DB" in the JSON response. Note the serviceTemplateTypeId under "serviceType": "DB" and use the value in the POST body shown above.</li> </ul>
Request method	POST

A sample of the response received is shown below.

```
{  
  "message": "Service template with ID \"xxxxx\" created successfully."  
}
```

## Creating a Service Template for DNFS Based Database

A POST operation is issued on Service Templates collection resource to create a DNFS based database Service Template.

The sample POST configuration is shown below:

**Table 33-49 POST Request Configuration for Creating a Service Template for DNFS Based Database**

Feature	Description
URI	em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json



**Table 33-49 (Cont.) POST Request Configuration for Creating a Service Template for DNFS Based Database**

Feature	Description
Body	<pre> {   "name" : "DB Clones",   "description" : "This clones a database based on NFS.",   "serviceType" : "DB",   "serviceTemplateTypeId" : "81",   "rscProvAssocOption" : [ "byRscProvInst" ],   "resourceProvider" : {     "lookupCharacteristics" : [ {       "characteristics" : [ {         "name" : "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",         "values" : [ "1898CF93BD39C19BF032672271BC4B44" ],         "targetType" : {           "targetType" : "oracle_cloud_zone",           "targetTypeName" : "Database Pool",           "parentTargetType" : "self_service_zone",           "parentTargetTypeName" : "PaaS Infrastructure Zone"         }       }     ]   },   "purposeId" : 1 } ] }, "payloads" : [ {   "name" : "PROFILE_COMPONENT_URN",   "value" : "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:1C14BB2B2E127E23E053C075B10AE31F:0.1" } ], "configurations" : [ {   "name" : "STAGE_LOCATION",   "value" : "/scratch/emga/backups/rman/" }, {   "name" : "PROFILE_COMPONENT_URN",   "value" : "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:1C14BB2B2E127E23E053C075B10AE31F:0.1" }, {   "name": "SELECT_ORACLE_HOME_OPTION",   "value": "SELECT_ORACLE_HOME_FROM_REQUEST" }, {   "name" : "REF_TGT",   "value" : "abc.example.com" }, {   "name" : "REF_HOST",   "value" : "abc.example.com" }, {   "name" : "REF_ZONE",   "value" : "Salt Lake City Zone" }, {   "name" : "zoneTargetName",   "value" : "Salt Lake City Zone" }, {   "name" : "REF_POOL",   "value" : "Databases Pool" }, {   "name" : "DATABASE_TYPE",   "value" : "oracle_database" }, {   "name" : "COMMON_DB_SYS_PASSWORD",   "value" : "welcome" }, {   "name" : "LISTENER_PORT",   "value" : "1521" }, {   "name" : "PROFILE_VERSION",   "value" : "latest" } ] </pre>

**Table 33-49 (Cont.) POST Request Configuration for Creating a Service Template for DNFS Based Database**

Feature	Description
	<pre> {"name" : "COMMON_DB_SID", "value" : "db"} {"name" : "TARGET_PROP_LIST", "values" : [ "Contact:9980697299:false:false", "Location:null:false:false", "LifeCycle Status:null:false:false", "Department:null:false:false", "Comment:null:false:false", "Line of Business:null:false:false" ]} {"name" : "USER_PRIVILEGES", "value" : "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY OPERATOR, CREATE ANY PROCEDURE"} {"name" : "DNFS.DATA_FILE_LOCATION", "value" : "/scratch/emga/app/emga/oradata"} {"name" : "DNFS.REDO_FILE_LOCATION", "value" : "/scratch/emga/app/emga/fast_recovery_area"} {"name" : "DNFS.RECOVERY_FILE_LOCATION", "value" : "/scratch/emga/app/emga/fast_recovery_area"} {"name" : "DNFS.FRA_SIZE", "value" : "4038"} {"name" : "DNFS.USE_ARCHIVING", "value" : "YES"} {"name" : "DNFS.WORK_DIR_LOC", "value" : "/tmp/work"} {"name" : "DNFS.DB_ADMIN_PASSWORD_SAME", "value" : "Y"} {"name" : "DNFS.BACKUP_LOCATION", "value" : "/scratch/emga/backups/rman_image/"} {"name" : "DNFS.USE_OFA", "value" : "N"} {"name" : "COMMON_DOMAIN_NAME", "value" : "us.example.com"} ] } </pre>
	<p><b>Note:</b></p>
	<ul style="list-style-type: none"> <li>To get the software library ID of the "DBAAS_SSA_CUSTOM_PRE_SCRIPTS_URN" and "DBAAS_SSA_CUSTOM_POST_SCRIPTS_URN" run the EM CLI command <code>emcli list_swlib_entities -name="&lt;Pre or Post Standby Database Script&gt;" -show_entity_rev_id</code>. The ID is provided at the end of the output. For example, in the output shown below, <code>oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1</code> is the ID. <pre> Pre or Post Standby Database Script,0.1,Pre or Post Standby Database Script,Ready,Directives,,Production,ORACLE,,,oracle:defaultService: em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850 B10A9B85:0.1 </pre> </li> <li>To derive the ID of the Software Pool that needs to be entered as "values" (under "lookupCharacteristics"), execute a GET request as shown in <a href="#">Viewing Details of the Software Pools Resource</a>.</li> <li>To derive the <code>serviceTemplateTypeId</code> value, perform a GET operation on the URI - <code>em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes</code> and locate <code>"serviceType": "DB"</code> in the JSON response. Note</li> </ul>

**Table 33-49 (Cont.) POST Request Configuration for Creating a Service Template for DNFS Based Database**

Feature	Description
	the serviceTemplateTypeId under "serviceType": "DB" and use the value in the POST body shown above.
Request method	POST

A sample of the response received is shown below.

```
{
  "message": "Service template with ID \"xxxx\" created successfully."
}
```

### Creating a Service Template for Snap Clone Single Instance Database (with Archiving Enabled)

A POST operation is issued on Service Templates collection resource to create a Snap Clone single instance database (with archiving enabled) Service Template.

The sample POST configuration is shown below:

**Table 33-50 POST Request Configuration for Creating a Service Template for Snap Clone Single Instance Database (with Archiving Enabled)**

Feature	Description
URI	em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json

**Table 33-50 (Cont.) POST Request Configuration for Creating a Service Template for Snap Clone Single Instance Database (with Archiving Enabled)**

Feature	Description
Body	<pre> {   "name" : "Create Snap Database using Snapshots",   "description" : "Creates Databases on SI hosts.",   "serviceType" : "DB",   "serviceTemplateTypeId" : "81",   "rscProvAssocOption" : [ "byRscProvInst" ],   "resourceProvider" : {     "lookupCharacteristics" : [ {       "characteristics" : [ {         "name" : "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",         "values" : [ "503073C7912B1C65B66E240C433012A9" ],         "targetType" : {           "targetType" : "oracle_cloud_zone",           "targetTypeName" : "Database Pool",           "parentTargetType" : "self_service_zone",           "parentTargetTypeName" : "PaaS Infrastructure Zone"         }       }     ]   },   "purposeId" : 1 } ] }, "payloads" : [ {   "name" : "PROFILE_COMPONENT_URN",   "value" : "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:247BF4B378FF253FE053C075B10A794A:0.1" } ], "configurations" : [ {   "name" : "STAGE_LOCATION",   "value" : "/scratch/emga/backups/rman/" }, {   "name" : "PROFILE_COMPONENT_URN",   "value" : "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:247BF4B378FF253FE053C075B10A794A:0.1" }, {   "name" : "REF_TGT",   "value" : "xyz.example.com" }, {   "name" : "REF_HOST",   "value" : "xyz.example.com" }, {   "name" : "REF_ZONE",   "value" : "Single Instances Zone" }, {   "name" : "zoneTargetName",   "value" : "Single Instances Zone" }, {   "name" : "REF_POOL",   "value" : "SI Databases Pool - Version 11_2_0_4" }, {   "name" : "DATABASE_TYPE",   "value" : "oracle_database" }, { </pre>

**Table 33-50 (Cont.) POST Request Configuration for Creating a Service Template for Snap Clone Single Instance Database (with Archiving Enabled)**

Feature	Description
	<pre>                 "name" : "COMMON_DB_SYS_PASSWORD",                 "value" : "welcome"             }, {                 "name" : "LISTENER_PORT",                 "value" : "1521"             }, {                 "name" : "PROFILE_VERSION",                 "value" : "latest"             }, {                 "name" : "COMMON_DB_SID",                 "value" : "db"             }, {                 "name" : "TARGET_PROP_LIST",                 "values" : [ "Contact:9980697299:false:false", "Location:null:false:false", "LifeCycle Status:null:false:false", "Department:null:false:false", "Comment:null:false:false", "Line of Business:null:false:false" ]             }, {                 "name" : "USER_PRIVILEGES",                 "value" : "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY OPERATOR, CREATE ANY PROCEDURE"             }, {                 "name" : "THIN_PROVISIONING:LISTENER_PORT",                 "value" : "1522"             }, {                 "name" : "THIN_PROVISIONING:REDO_LOG_GROUP_COUNT",                 "value" : "2"             }, {                 "name" : "THIN_PROVISIONING:TEMP_TABLESPACE_SIZE",                 "value" : "520"             }, {                 "name" : "THIN_PROVISIONING:USE_ARCHIVING",                 "value" : "YES"             }, {                 "name" : "THIN_PROVISIONING:MOUNT_POINT_LIST",                 "values" : [ "/hkdb" ]             }, {                 "name" : "THIN_PROVISIONING:MOUNT_ADDL_SIZE_LIST",                 "values" : [ "5.0" ]             }, {                 "name" : "THIN_PROVISIONING:REDO_LOG_FILE_TYPE",                 "value" : "Same as source"             }, {                 "name" : "INIT_PARAMS",                 "values" : [ "sga_target=1073741824", "pga_aggregate_target=1073741824" ]             }, {                 "name" : "COMMON_DOMAIN_NAME",                 "value" : "us.example.com"             }         ] ]     } </pre>

**Note:**

**Table 33-50 (Cont.) POST Request Configuration for Creating a Service Template for Snap Clone Single Instance Database (with Archiving Enabled)**

Feature	Description
	<ul style="list-style-type: none"> <li data-bbox="570 338 1468 579">To get the software library ID of the "DBAAS_SSA_CUSTOM_PRE_SCRIPTS_URN" and "DBAAS_SSA_CUSTOM_POST_SCRIPTS_URN" run the EM CLI command <code>emcli list_swlib_entities -name="&lt;Pre or Post Standby Database Script&gt;" -show_entity_rev_id</code>. The ID is provided at the end of the output. For example, in the output shown below, <code>oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1</code> is the ID.  Pre or Post Standby Database Script,0.1,Pre or Post Standby Database Script,Ready,Directives,,Production,ORACLE,,oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1</li> <li data-bbox="570 747 1468 835">To derive the ID of the Software Pool that needs to be entered as "values" (under "lookupCharacteristics"), execute a GET request as shown in <a href="#">Viewing Details of the Software Pools Resource</a>.</li> <li data-bbox="570 842 1468 993">To derive the <code>serviceTemplateTypeId</code> value, perform a GET operation on the URI - <code>em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes</code> and locate "serviceType": "DB" in the JSON response. Note the <code>serviceTemplateTypeId</code> under "serviceType": "DB" and use the value in the POST body shown above.</li> </ul>
Request method	POST

A sample of the response received is shown below.

```
{
  "message": "Service template with ID \"xxxx\" created successfully."
}
```

### Creating a Service Template for Snap Clone Single Instance Database (without Archiving Enabled)

A POST operation is issued on Service Templates collection resource to create a Snap Clone single instance database (without archiving enabled) Service Template.

All the configuration values for the REST API for Snap Clone without archiving would remain the same as in the REST API for Snap Clone with archiving, except for the THIN\_PROVISIONING:USE\_ARCHIVING parameter. Ensure that the configuration value for "name": "THIN\_PROVISIONING:USE\_ARCHIVING" in the body is set to "value": "No" in the [Table 33-50](#) for creating a Snap Clone single instance database (without Archiving enabled) Service template.

### Creating a Service Template for a Schema

A POST operation is issued on Service Templates Collection resource to create a Schema Service Template. The configuration for POST to ServiceTemplates is as follows:

**Table 33-51 POST Request Configuration for Creating a Service Template for a Schema**

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json

**Table 33-51 (Cont.) POST Request Configuration for Creating a Service Template for a Schema**

Feature	Description
Body	<pre> {   "name": "TestSchaasTemplate3",   "serviceType": "SCHEMA",   "serviceFamily": "DBAAS",   "description": "This is a test schaaS service template 1",   "poolIds": [ "9D3187DE6B1115791D71D2827FB98558" ],   "roles": [     { "name": "SSA_USER_ROLE1" }   ],   "serviceExecutableMeta": {     "type": "CDP",     "configurations": [       { "name": "ROLE_NAME", "value": "SampleRole" },       { "name": "MAX_NUMBER_OF_SCHEMAS", "value": "2" },       { "name": "ENFORCE_STORAGE_CONSTRAINT", "value": "NO_LIMIT" },       { "name": "AUTO_EXTEND_BLOCK_SIZE", "value": "1024" },       { "name": "REF_ZONE", "value": "ABC_ZONE" },       { "name": "REF_POOL", "value": "SCH_POOL" },       { "name": "REF_HOST", "value": "abc.mycompany.com" },       { "name": "REF_DB", "value": "simple.us.example.com" },       { "name": "CREATE_SCHEMA_OPTION", "value": "EMPTY_SCHEMAS" },        { "name": "SCHAAS_CUSTOM_PRE_SCRIPTS_URN", "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1"},        { "name": "SCHAAS_CUSTOM_POST_SCRIPTS_URN", "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1"},       {         "name": "REMAP_TABLESPACE_LIST",         "value": "",         "values": ["TBSP1", "TBSP2", "TBSP3"]       },       {         "name": "REMAP_TABLESPACE_INIT_SIZE_LIST",         "value": "",         "values": ["TBSP1:0.1", "TBSP2:0.2", "TBSP3:0.3"]       },       {         "name": "REMAP_TABLESPACE_INCR_SIZE_LIST",         "value": "",         "values": ["TBSP1:0.1", "TBSP2:0.2", "TBSP3:0.3"]       },       {         "name": "REMAP_TABLESPACE_MAX_SIZE_LIST",         "value": "",         "values": ["TBSP1:50.0", "TBSP2:30", "TBSP3:20"]       },       { "name": "CREATE_SCHEMA_OPTION", "value": "EMPTY_SCHEMAS" },       {         "name": "WORKLOADS",         "subconfigurations": [ </pre>



**Table 33-51 (Cont.) POST Request Configuration for Creating a Service Template for a Schema**

Feature	Description
	<pre> "name": "WORK_LOADS:1", "subconfigurations": [   { "name": "name", "value": "large " },   { "name": "description", "value": "large workload" },   { "name": "default", "value": "Y" },   { "name": "CPU", "value": "6" },   { "name": "Memory", "value": "4048" },   { "name": "Storage", "value": "2024" } ] } ] } ] } } </pre>
	<p><b>Note:</b></p> <p>To get the software library ID of the "SCHAAS_CUSTOM_PRE_SCRIPTS_URN" and "SCHAAS_CUSTOM_POST_SCRIPTS_URN" run the EM CLI command <code>emcli list_swlib_entities -name="&lt;Pre or Post Standby Database Script&gt;" -show_entity_rev_id</code>. The ID is provided at the end of the output. For example, in the output shown below,</p> <pre> oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1 is the ID. </pre> <p>Pre or Post Standby Database Script,0.1,Pre or Post Standby Database Script,Ready,Directives,,Production,ORACLE,,oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1</p>
Request method	POST

A sample of the response received is shown below.

```

{
  "name": "TestSchaasTemplate3",
  "serviceFamily": "DBAAS",
  "serviceType": "SCHEMA",
  "type": "Service Template",
  "description": "This is a test schaaS service template 1",
  "id": "E87A364660A25B39E040F20A60510FDD",
  "pools": [
    {
      "name": "SCH_POOL",
      "id": "9D3187DE6B1115791D71D2827FB98558",
      "type": "schaas_pool",
      "zone": {
        "id": "2F1E72A95EC21F8F666451B5413FF99A",
        "name": "ABC_ZONE"
      }
    }
  ],
  "roles": [
    {
      "name": "SSA_USER_ROLE1",
      "description": null
    }
  ]
}

```

```
    }
  ],
  "serviceExecutableMeta": {
    "type": "CDP",
    "configurations": [
      {
        "id": "targets",
        "name": "targets",
        "value": ""
      },
      {
        "id": "ssaRequestId",
        "name": "ssaRequestId",
        "value": ""
      },
      {
        "id": "ssaUser",
        "name": "ssaUser",
        "value": ""
      },
      {
        "id": "ssaTargetName",
        "name": "ssaTargetName",
        "value": ""
      },
      {
        "id": "ssaTargetType",
        "name": "ssaTargetType",
        "value": ""
      },
      {
        "id": "zoneTargetName",
        "name": "zoneTargetName",
        "value": ""
      },
      {
        "id": "zoneTargetType",
        "name": "zoneTargetType",
        "value": ""
      },
      {
        "id": "REQUEST_NAME",
        "name": "REQUEST_NAME",
        "value": ""
      },
      {
        "id": "SERV_TEMPLATE_GUID",
        "name": "SERV_TEMPLATE_GUID",
        "value": ""
      },
      {
        "id": "CREATE_SCHEMA_OPTION",
        "name": "Option for creating user schemas",
        "value": "EMPTY_SCHEMAS"
      },
      {
        "id": "MAX_NUMBER_OF_SCHEMAS",
        "name": "Maximum number of schemas permissible",
        "value": "2"
      },
      {
        "id": "DB_PROFILE_URN",
```

```

    "name": "Database Profile Component's URN",
    "value": ""
  },
  {
    "id": "REMAP_SCHEMA_LIST",
    "name": "Schema list",
    "value": "",
    "values": []
  },
  {
    "id": "MASTER_ACCOUNT",
    "name": "Master Account",
    "value": ""
  },
  {
    "id": "ROLE_NAME",
    "name": "Database Role Name",
    "value": "TestSchaasTemplate3_Oct_11_"
  },
  {
    "id": "SCHEMA_PRIVILEGES",
    "name": "Schema Privileges",
    "value": "",
    "values": [
      "CREATE TYPE",
      "CREATE SEQUENCE",
      "CREATE DIMENSION",
      "CREATE INDEXTYPE",
      "CREATE SESSION",
      "CREATE SYNONYM",
      "CREATE OPERATOR",
      "CREATE VIEW",
      "CREATE TABLE",
      "CREATE TRIGGER",
      "CREATE PROCEDURE"
    ]
  },
  {
    "id": "ENFORCE_STORAGE_CONSTRAINT",
    "name": "Enforces Storage Constraint",
    "value": "false"
  },
  {
    "id": "INITIAL_BLOCK_SIZE",
    "name": "Initial Storage Size",
    "value": ""
  },
  {
    "id": "AUTO_EXTEND_BLOCK_SIZE",
    "name": "Auto extend block size",
    "value": ""
  },
  {
    "id": "TABLESPACE_ENCRYPTION_ALGORITHM",
    "name": "Tablespace Encryption",
    "value": ""
  },
  {
    "id": "SHARED_STAGE_LOCATION",
    "name": "Staging Location",
    "value": ""
  },
}

```

```

    {
      "id": "WORKING_DIRECTORY",
      "name": "Working Directory",
      "value": ""
    },
    {
      "id": "SCHAAS_CUSTOM_PRE_SCRIPTS_URN",
      "name": "Pre-script",
      "value": ""
    },
    {
      "id": "SCHAAS_CUSTOM_POST_SCRIPTS_URN",
      "name": "Post-script",
      "value": ""
    },
    {
      "id": "SCHEMA_PASSWORD_LIST",
      "name": "Schema password list",
      "value": "",
      "values": []
    },
    {
      "id": "CUSTOM_USER_SELECTED_SCRIPT_URN",
      "name": "Custom Script URN",
      "value": "",
      "values": []
    },
    {
      "id": "DBSERVICE_NAME",
      "name": "Database Service Name",
      "value": ""
    }
  ]
  "createdOn": null,
  "createdBy": null,
  "modifiedOn": null,
  "modifiedBy": null,
  "owner": "SYSMAN",
  "etag": null,
  "lastModified": null,
  "canonicalLink": "https://abc.mycompany.com:11180/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates/E87A364660A25B39E040F20A60510FDD",
  "selfLink": "https://abc.mycompany.com:11180/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates/E87A364660A25B39E040F20A60510FDD"
}

```

## Creating a Service Template for a Pluggable Database

A POST operation is issued on ServiceTemplates Collection resource to create a Pluggable Database ServiceTemplate. The configuration for POST to ServiceTemplates is as follows:

**Table 33-52 POST Request Configuration for Creating a Service Template for a Pluggable Database**

Feature	Description
URI	/em/websvcs/restful/extws/ cloudservices/admin/cfw/v1/servicetemplates
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json

**Table 33-52 (Cont.) POST Request Configuration for Creating a Service Template for a Pluggable Database**

Feature	Description
Body	<pre> {   "name":"TestPDbTemplate1",   "serviceType":"PDB",   "serviceFamily":"DBAAS",   "description":"This is a test pluggable database service template 1",   "poolIds":[ "FF394120842D8C71CC92BE6A4D5A488E" ],   "roles":[     { "name":"SSA_USER_ROLE1" }   ],   "serviceExecutableMeta":{     "type":"CDP",     "configurations":[       {         "name":"TABLESPACE_ENCRYPTION_ALGORITHM",         "subconfigurations":[           { "name":"name", "value":"NONE" }         ]       },       { "name":"MAX_TABLESPACE_ALLOWED", "value":"2" },       { "name":"PDB_SID_PREFIX", "value":"mypdb" },       { "name":"ENFORCE_STORAGE_CONSTRAINT", "value":"NO_LIMIT" },       { "name":"AUTO_EXTEND_BLOCK_SIZE", "value":"1024" },       { "name":"REF_DATA_ZONE", "value":"PDB_Zone" },       { "name":"REF_DATA_TARGET", "value":"database" },       { "name":"REF_DATA_TARGET_TYPE", "value":"oracle_database" },       { "name":"REF_DATA_POOL", "value":"PDB_POOL" },       { "name":"REF_DATA_HOST", "value":"abc.mycompany.com" },       { "name":"SELECT_TARGET_OPTION", "value":"SELECT_TARGET_FROM_REQUEST" },       { "name":"CREATE_PDB_OPTION", "value":"EMPTY_PDB" },        {"name":"PDBAAS_CUSTOM_PRE_SCRIPTS_URN","value":"oracle:defaultService: em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A 9B85:0.1"},        {"name":"PDBAAS_CUSTOM_POST_SCRIPTS_URN","value":"oracle:defaultService :em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10 A9B85:0.1"},       { "name":"PRIVILEGES",         "value":"",         "values":["CREATE TYPE","CREATE VIEW","CREATE DIMENSION","CREATE SESSION","CREATE TRIGGER","CREATE OPERATOR","CREATE SYNONYM","CREATE TABLE","CREATE PROCEDURE","CREATE INDEXTYPE","CREATE SEQUENCE"]       },       { "name":"ROLE_OPTION","value":"CUSTOM_NEW_ROLE" },       {         "name":"INIT_PARAMS",         "subconfigurations":[           { "name":"INIT_PARAMS:1", "value":"*.cursor_sharing=EXACT" },           { "name":"INIT_PARAMS:2", </pre>

**Table 33-52 (Cont.) POST Request Configuration for Creating a Service Template for a Pluggable Database**

Feature	Description
	<pre> "value": "*.open_cursors=200"  }     ]   },   {     "name": "WORKLOADS",     "subconfigurations": [       {         "name": "WORK_LOADS:1",         "subconfigurations": [           { "name": "name", "value": "SmallPdb" },           { "name": "description", "value": "small workload" },           { "name": "default", "value": "N" },           { "name": "CPU", "value": "2" },           { "name": "Memory", "value": "2048" },           { "name": "Storage", "value": "1024" },           { "name": "Sessions", "value": "100" }         ]       }     ]   } ] } } } } </pre>
	<p>Note:</p> <ul style="list-style-type: none"> <li>To get the software library ID of the "PDBAAS_CUSTOM_PRE_SCRIPTS_URN" and "PDBAAS_CUSTOM_POST_SCRIPTS_URN" run the EM CLI command <code>emcli list_swlib_entities -name="&lt;Pre or Post Standby Database Script&gt;" -show_entity_rev_id</code>. The ID is provided at the end of the output. For example, in the output shown below, <code>oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1</code> is the ID. <pre> Pre or Post Standby Database Script,0.1,Pre or Post Standby Database Script,Ready,Directives,,Production,ORACLE,,oracle:defaultService: em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850 B10A9B85:0.1 </pre> </li> <li>To derive the ID of the Software Pool that needs to be entered as "poolIds", execute a GET request as shown in <a href="#">Viewing Details of the Software Pools Resource</a>.</li> <li>To derive the <code>serviceTemplateTypeId</code> value, perform a GET operation on the URI - <code>em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes</code> and locate "serviceType": "DB" in the JSON response. Note the <code>serviceTemplateTypeId</code> under "serviceType": "DB" and use the value in the POST body shown above.</li> </ul>
Request method	POST

 **Note:**

In the table above, the `SELECT_TARGET_OPTION` parameter defines if the SSA User has the option to select the Container Database (CDB) while requesting for a PDB. If the value for the parameter is set as `SELECT_TARGET_FROM_REQUEST`, then the SSA User has the option to choose the CDB. If no value is defined, or if the value is set to `SELECT_TARGET_AT_RUNTIME`, then the placement algorithm selects the CDB.

A sample of the response received is shown below.

```
{
  "name": "TestPdbTemplate1",
  "serviceFamily": "DBAAS",
  "serviceType": "PDB",
  "type": "Service Template",
  "description": "This is a test pluggable database service template 1",
  "id": "E8887DEEE424BEAEE040F20A605118CE",
  "pools": [
    {
      "name": "PDB_POOL",
      "id": "FF394120842D8C71CC92BE6A4D5A488E",
      "type": "pdbaas_pool",
      "zone": {
        "id": "B60C4DA1398F41BEBBC862D5A10A0C713",
        "name": "PDB_Zone"
      }
    }
  ],
  "roles": [
    {
      "name": "SSA_USER_ROLE1",
      "description": null
    }
  ],
  "serviceExecutableMeta": {
    "type": "CDF",
    "configurations": [
      {
        "id": "CREATE_PDB_OPTION",
        "name": "Option for creating Pluggable Database",
        "value": "EMPTY_PDB"
      },
      {
        "id": "PROFILE_URN",
        "name": "Profile Component's URN",
        "value": ""
      },
      {
        "id": "MAX_TABLESPACE_ALLOWED",
        "name": "Maximum number of Tablespaces",
        "value": "2"
      },
      {
        "id": "ENFORCE_STORAGE_CONSTRAINT",
        "name": "Enforce Storage Constraint",
        "value": "false"
      },
      {
        "id": "TABLESPACE_ENCRYPTION_ALGORITHM",
        "name": "Tablespace Encryption",
        "value": "",
        "values": ["NONE"]
      },
      {
        "id": "TABLESPACE_SIZE",
        "name": "Tablespace Size",
        "value": "",
        "values": []
      },
      {
        "id": "SHARED_STAGE_LOCATION",
        "name": "Staging Location",
        "value": ""
      },
      {
        "id": "WORKING_DIRECTORY",
        "name": "Working Directory",
        "value": ""
      },
      {
        "id": "PDBAAS_CUSTOM_PRE_SCRIPTS_URN",
        "name": "URN of the pre sql custom script",
        "value": ""
      },
      {
        "id": "PDBAAS_CUSTOM_POST_SCRIPTS_URN",
        "name": "URN of the post sql custom script",
        "value": ""
      },
      {
        "id": "PDB_SID_PREFIX",
        "name": "Pluggable Database SID Prefix",
        "value": "mypdb"
      },
      {
        "id": "PDB_ADMIN_USER_NAME",
        "name": "Pluggable Database Administrator",
        "value": ""
      },
      {
        "id": "PDB_ADMIN_PASSWORD",
        "name": "Pluggable Administrator Password"
      },
      {
        "id": "PDB_SERVICE_NAME_PREFIX",
        "name": "Pluggable Database Service Name Prefix",
        "value": ""
      },
      {
        "id": "PDBSERVICE_NAME",
        "name": "Pluggable Database Service Name",
        "value": ""
      },
      {
        "id": "ROLE_OPTION",
        "name": "Role Option Custom New Role/ Existing Roles",
        "value": "CUSTOM_NEW_ROLE"
      },
      {
        "id": "INIT_PARAMS",
        "name": "Initialization parameter values passed as list",
        "value": "",
        "values": ["*.open_cursors=200", "*.cursor_sharing=EXACT"]
      },
      {
        "id": "CUSTOM_ROLE_NAME",
        "name": "Database Role Name",
        "value": "PDBAAS_OCT_12_2013_02_13_AM"
      },
      {
        "id": "CUSTOM_ROLE_DESC",
        "name": "Database Role Description",
        "value": "New db role to"
      }
    ]
  }
}
```

```

be assigned to pluggable database administrator.}),
  {"id":"PRIVILEGES","name":"Custom Role Privileges","value":"","values":["CREATE ANY
SYNONYM","CREATE ANY OPERATOR","CREATE SESSION","CREATE JOB","CREATE ANY TYPE","CREATE
INDEXTYPE","SELECT ANY DICTIONARY","CREATE ANY SEQUENCE","CREATE DIMENSION","CREATE ANY
DIRECTORY","CREATE ANY INDEX","CREATE ANY TABLE","CREATE ANY PROCEDURE","ALTER
SESSION","CREATE ANY MATERIALIZED VIEW","CREATE ANY TRIGGER","CREATE ANY VIEW"]},
  {"id":"ROLES","name":"List of roles selected from reference
database","value":"","values":[]}
  ]
},
"createdOn":null,
"createdBy":null,
"modifiedOn":null,
"modifiedBy":null,
"owner":"SYSMAN",
"etag":null,
"lastModified":null,
"canonicalLink":"https://abc.mycompany.com:11180/em/websvcs/restful/extws/cloudservices/
admin/cfw/v1/servicetemplates/E8887DEEE424BEAEE040F20A605118CE",
"selfLink":"https://abc.mycompany.com:11180/em/websvcs/restful/extws/cloudservices/
admin/cfw/v1/servicetemplates/E8887DEEE424BEAEE040F20A605118CE"
}

```

## Creating a Service Template for RAC Pluggable Database Using an Empty Pluggable Database

A POST operation is issued on ServiceTemplates Collection resource to create a ServiceTemplate for a RAC Pluggable database using an empty Pluggable database. The configuration for POST to ServiceTemplates is as follows:

**Table 33-53 POST Request Configuration for Creating a Service Template for RAC Pluggable Database Using an Empty Pluggable Database**

Feature	Description
URI	em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json



**Table 33-53 (Cont.) POST Request Configuration for Creating a Service Template for RAC Pluggable Database Using an Empty Pluggable Database**

Feature	Description
Body	<pre> {   "name": "Create RAC PDBs using empty PDB option",   "description": "Creates PDBs on cluster.",   "serviceType": "PDB",   "serviceTemplateTypeId": "94",   "rscProvAssocOption": [     "byRscProvInst"   ],   "roles": [     "SSA_USER_ROLE"   ],   "resourceProvider": {     "lookupCharacteristics": [       {         "characteristics": [           {             "name": "ORACLE.SYSMAN.SSA.PDBAAS_POOL",             "values": [               "DFB8F2A53429AF99EF2020C56E11FEE9"             ],             "targetType": {               "targetType": "pdbaas_pool",               "targetTypeName": "Pluggable Database Pool",               "parentTargetType": "self_service_zone",               "parentTargetTypeName": "PaaS Infrastructure Zone"             }           }         ],         "purposeId": 1       }     ],   },   "payloads": [     {       "name": "DBDELETE_PRESCRIPT",       "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:246A4 84D511C1CFFE053C075B10AEF2D:0.1"     },     {       "name": "DBDELETE_POSTSCRIPT",       "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:246A4 84D51201CFFE053C075B10AEF2D:0.1"     }   ],   "characteristics": [     {       "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_DEPARTMENT",       "displayName": "Department",       "value": "Development",       "required": true,       "editable": false,       "visible": true     }   ] } </pre>

**Table 33-53 (Cont.) POST Request Configuration for Creating a Service Template for RAC Pluggable Database Using an Empty Pluggable Database**

Feature	Description
	<pre> }, {   "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LOCATION",   "displayName": "Location",   "values": "Bangalore",   "required": false,   "editable": true,   "visible": true } ], "configurations": [   {     "name": "REF_DATA_ZONE",     "value": "Single Instances Zone"   },   {     "name": "SELECT_TARGET_OPTION",     "value": "SELECT_TARGET_FROM_REQUEST"   },   {     "name": "CUSTOM_ROLE_NAME",     "value": "PDBAAS_NOV_13_2015_16_51_PM"   },   {     "name": "TARGET_PROP_LIST",     "values": [       "Site:null:false:false",       "Contact:null:false:false",       "Downtime Contact:null:false:false",       "Location:null:false:false",       "LifeCycle Status:null:false:false",       "Department:Development:true:true",       "Comment:This is for testing:false:false",       "Line of Business:null:false:false"     ]   },   {     "name": "PDBAAS_CUSTOM_PRE_SCRIPTS_URN",     "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:2469C A4C8C7B4E34E053C075B10A74AD:0.2"   },   {     "name": "WORKLOADS",     "subvalues": [       {         "name": "Small",         "subvalues": [           {             "name": "name",             "value": "SmallPdb"           },           {             "name": "description", </pre>

**Table 33-53 (Cont.) POST Request Configuration for Creating a Service Template for RAC Pluggable Database Using an Empty Pluggable Database**

Feature	Description
	<pre>                 "value": "small workload"             },             {                 "name": "default",                 "value": "N"             },             {                 "name": "CPU",                 "value": "2"             },             {                 "name": "Memory",                 "value": "2"             },             {                 "name": "Storage",                 "value": "5"             },             {                 "name": "Sessions",                 "value": "100"             }         ]     } } ], {     "name": "PRIVILEGES",     "type": "VECTOR",     "description": "List of privileges of custom new role that will be applied on pluggable database administrator.",     "displayName": "PRIVILEGES",     "required": false,     "secret": false,     "values": [         "CREATE SESSION",         "ALTER SESSION",         "CREATE DIMENSION",         "CREATE INDEXTYPE",         "CREATE ANY OPERATOR",         "CREATE ANY PROCEDURE",         "CREATE ANY SEQUENCE",         "CREATE ANY INDEX",         "CREATE JOB",         "CREATE ANY MATERIALIZED VIEW",         "CREATE ANY TABLE",         "CREATE ANY TRIGGER",         "CREATE ANY TYPE",         "CREATE ANY VIEW",         "CREATE ANY SYNONYM",         "CREATE ANY DIRECTORY",         "SELECT ANY DICTIONARY",         "SELECT ANY TABLE"     ] } </pre>

**Table 33-53 (Cont.) POST Request Configuration for Creating a Service Template for RAC Pluggable Database Using an Empty Pluggable Database**

Feature	Description
	<pre> }, {   "name": "REF_DATA_TARGET_TYPE",   "value": "rac_database" }, {   "name": "REF_DATA_ZONE",   "value": "Clusters Zone - Oracle DB 12c" }, {   "name": "REF_DATA_HOST",   "value": "xyz.example.com" }, {   "name": "REF_DATA_TARGET",   "value": "cdbfs" }, {   "name": "REF_DATA_POOL",   "value": "RAC Pluggable DBs" }, {   "name": "PDBAAS_CUSTOM_POST_SCRIPTS_URN",   "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:2469C A4C8C7F4E34E053C075B10A74AD:0.2" }, {   "name": "SELECT_TARGET_OPTION",   "value": "SELECT_TARGET_AT_RUNTIME" }, {   "name": "MAX_TABLESPACE_ALLOWED",   "value": "1" },  {   "name": "ROLE_OPTION",   "value": "CUSTOM_NEW_ROLE" }, {   "name": "CREATE_PDB_OPTION",   "value": "EMPTY_PDB" }, {   "name": "INIT_PARAMS",   "values": [     "*.cursor_sharing=EXACT",     "*.open_cursors=300"   ] } ] } </pre>

**Table 33-53 (Cont.) POST Request Configuration for Creating a Service Template for RAC Pluggable Database Using an Empty Pluggable Database**

Feature	Description
	<p>Note:</p> <ul style="list-style-type: none"> <li>To get the software library ID of the "PDBAAS_CUSTOM_PRE_SCRIPTS_URN" and "PDBAAS_CUSTOM_POST_SCRIPTS_URN" run the EM CLI command <code>emcli list_swlib_entities -name="&lt;Pre or Post Standby Database Script&gt;" -show_entity_rev_id</code>. The ID is provided at the end of the output. For example, in the output shown below, <code>oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1</code> is the ID.</li> </ul> <pre>Pre or Post Standby Database Script,0.1,Pre or Post Standby Database Script,Ready,Directives,,Production,ORACLE,,,oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1</pre> <ul style="list-style-type: none"> <li>To derive the ID of the Software Pool that needs to be entered as "poolIds", execute a GET request as shown in <a href="#">Viewing Details of the Software Pools Resource</a>.</li> <li>To derive the <code>serviceTemplateTypeId</code> value, perform a GET operation on the URI - <code>em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes</code> and locate "serviceType": "DB" in the JSON response. Note the <code>serviceTemplateTypeId</code> under "serviceType": "DB" and use the value in the POST body shown above.</li> </ul>
Request method	POST

**Note:**

In the table above, the `SELECT_TARGET_OPTION` parameter defines if the SSA User has the option to select the Container Database (CDB) while requesting for a PDB. If the value for the parameter is set as `SELECT_TARGET_FROM_REQUEST`, then the SSA User has the option to choose the CDB. If no value is defined, or if the value is set to `SELECT_TARGET_AT_RUNTIME`, then the placement algorithm selects the CDB.

A sample of the response received is shown below.

```
{
  "message": "Service template with ID \"xxxxx\" created successfully."
}
```

## Creating a Service Template for RAC Pluggable Database Using a Profile Pluggable Database

A POST operation is issued on ServiceTemplates Collection resource to create a ServiceTemplate for a RAC Pluggable database using a profile Pluggable database. The configuration for POST to ServiceTemplates is as follows:

**Table 33-54 POST Request Configuration for Creating a Service Template for RAC Pluggable Database Using a Profile Pluggable Database**

Feature	Description
URI	em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json

**Table 33-54 (Cont.) POST Request Configuration for Creating a Service Template for RAC Pluggable Database Using a Profile Pluggable Database**

Feature	Description
Body	<pre> {   "name": "Create RAC PDBs using Profile PDB option",   "description": "Creates PDBs on cluster.",   "serviceType": "PDB",   "serviceTemplateTypeId": "94",   "rscProvAssocOption": [     "byRscProvInst"   ],   "roles": [     "SSA_USER_ROLE"   ],   "resourceProvider": {     "lookupCharacteristics": [       {         "characteristics": [           {             "name": "ORACLE.SYSMAN.SSA.PDBAAS_POOL",             "values": [               "DFB8F2A53429AF99EF2020C56E11FEE9"             ],             "targetType": {               "targetType": "pdbaas_pool",               "targetTypeName": "Pluggable Database Pool",               "parentTargetType": "self_service_zone",               "parentTargetTypeName": "PaaS Infrastructure Zone"             }           }         ],         "purposeId": 1       }     ],     "payloads": [       {         "name": "DBDELETE_PRESCRIPT",         "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:246A4 84D511C1CFFE053C075B10AEF2D:0.1"       },       {         "name": "DBDELETE_POSTSCRIPT",         "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:246A4 84D51201CFFE053C075B10AEF2D:0.1"       }     ],     "characteristics": [       {         "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_CONTACT",         "displayName": "Contact",         "values": [],         "required": false,         "editable": true,         "visible": true       }     ]   } } </pre>

**Table 33-54 (Cont.) POST Request Configuration for Creating a Service Template for RAC Pluggable Database Using a Profile Pluggable Database**

Feature	Description
	<pre> }, {   "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_COST_CENTER",   "displayName": "Cost Center",   "values": [],   "required": false,   "editable": true,   "visible": true }, {   "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_DEPARTMENT",   "displayName": "Department",   "values": [],   "required": false,   "editable": true,   "visible": true }, {   "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_DOWNTIME_CONTACT",   "displayName": "Downtime Contact",   "values": [],   "required": false,   "editable": true,   "visible": true }, {   "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LIFECYCLE_STATUS",   "displayName": "Lifecycle Status",   "values": [     "Development",     "MissionCritical",     "Production",     "Stage",     "Test"   ],   "required": false,   "editable": true,   "visible": true }, {   "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LINE_OF_BUS",   "displayName": "Line of Business",   "values": [],   "required": false,   "editable": true,   "visible": true }, {   "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LOCATION",   "displayName": "Location",   "values": [],   "required": false,   "editable": true,   "visible": true </pre>



**Table 33-54 (Cont.) POST Request Configuration for Creating a Service Template for RAC Pluggable Database Using a Profile Pluggable Database**

Feature	Description
	<pre> } ], "configurations": [   {     "name": "REF_DATA_ZONE",     "value": "Single Instances Zone"   },   {     "name": "SELECT_TARGET_OPTION"     "value": "SELECT_TARGET_FROM_REQUEST"   },   {     "name": "TARGET_PROP_LIST",     "values": [       "Site:null:false:false",       "Contact:null:false:false",       "Downtime Contact:null:false:false",       "Location:null:false:false",       "LifeCycle Status:null:false:false",       "Department:Development:true:true",       "Comment:This is for testing:false:false",       "Line of Business:null:false:false"     ]   },   {     "name": "PDBAAS_CUSTOM_PRE_SCRIPTS_URN",     "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:2469C A4C8C7B4E34E053C075B10A74AD:0.2"   },   {     "name": "WORKLOADS",     "subvalues": [       {         "name": "Small",         "subvalues": [           {             "name": "name",             "value": "SmallPdb"           },           {             "name": "description",             "value": "small workload"           },           {             "name": "default",             "value": "N"           },           {             "name": "CPU",             "value": "2"           },           {             "name": "Memory", </pre>

**Table 33-54 (Cont.) POST Request Configuration for Creating a Service Template for RAC Pluggable Database Using a Profile Pluggable Database**

Feature	Description
	<pre>                 "value": "2"             },             {                 "name": "Storage",                 "value": "5"             },             {                 "name": "Sessions",                 "value": "100"             }         ]     } }, {     "name": "ROLE_OPTION",     "value": "CUSTOM_NEW_ROLE" }, {     "name": "CUSTOM_ROLE_NAME",     "value": "PDBAAS_NOV_13_2015_16_51_PM" }, {     "name": "CUSTOM_ROLE_DESC",     "value": "New db role to be assigned to pluggable database administrator." }, {     "name": "PRIVILEGES",     "values": [         "CREATE SESSION",         "ALTER SESSION",         "CREATE DIMENSION",         "CREATE INDEXTYPE",         "CREATE ANY OPERATOR",         "CREATE ANY PROCEDURE",         "CREATE ANY SEQUENCE",         "CREATE ANY INDEX",         "CREATE JOB",         "CREATE ANY MATERIALIZED VIEW",         "CREATE ANY TABLE",         "CREATE ANY TRIGGER",         "CREATE ANY TYPE",         "CREATE ANY VIEW",         "CREATE ANY SYNONYM",         "CREATE ANY DIRECTORY",         "SELECT ANY DICTIONARY",         "SELECT ANY TABLE"     ] }, {     "name": "REF_DATA_TARGET_TYPE",     "value": "rac_database" }, </pre>

**Table 33-54 (Cont.) POST Request Configuration for Creating a Service Template for RAC Pluggable Database Using a Profile Pluggable Database**

Feature	Description
	<pre> {   "name": "REF_DATA_ZONE",   "value": "Clusters Zone - Oracle DB 12c" }, {   "name": "REF_DATA_HOST",   "value": "xyz.example.com" }, {   "name": "REF_DATA_TARGET",   "value": "cdbfs" }, {   "name": "REF_DATA_POOL",   "value": "RAC Pluggable DBs" }, {   "name": "PDBAAS_CUSTOM_POST_SCRIPTS_URN",   "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:2469C A4C8C7F4E34E053C075B10A74AD:0.2" }, {   "name": "SELECT_TARGET_OPTION",   "value": "SELECT_TARGET_AT_RUNTIME" }, {   "name": "MAX_TABLESPACE_ALLOWED",   "value": "1" }, {   "name": "CREATE_PDB_OPTION",   "value": "PDB_FROM_PROFILE" }, {   "name": "PROFILE_URN",   "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfi le:246C1E85296C29A1E053C075B10A7DFA:0.1" }, {   "name": "SHARED_STAGE_LOCATION",   "value": "/u04/app/hhkaur/product/12.1.0/dbhome_2/rdbms/xml/ schema" }, {   "name": "TABLESPACE_SIZE",   "values": [     "0.7715",     "0.6152",     "0.0586",     "0.0049"   ] }, </pre>

**Table 33-54 (Cont.) POST Request Configuration for Creating a Service Template for RAC Pluggable Database Using a Profile Pluggable Database**

Feature	Description
<pre> {   "name": "INIT_PARAMS",   "values": [     "*.cursor_sharing=EXACT",     "*.open_cursors=300"   ] }, {   "name": "PDB_SID_PREFIX",   "value": "prp" } ] } </pre>	<p>Note:</p> <ul style="list-style-type: none"> <li>To get the software library ID of the "PDBAAS_CUSTOM_PRE_SCRIPTS_URN" and "PDBAAS_CUSTOM_POST_SCRIPTS_URN" run the EM CLI command <code>emcli list_swlib_entities -name="&lt;Pre or Post Standby Database Script&gt;" -show_entity_rev_id</code>. The ID is provided at the end of the output. For example, in the output shown below, <code>oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1</code> is the ID.</li> </ul> <pre> Pre or Post Standby Database Script,0.1,Pre or Post Standby Database Script,Ready,Directives,,Production,ORACLE,,,oracle:defaultService: em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850 B10A9B85:0.1 </pre> <ul style="list-style-type: none"> <li>To derive the ID of the Software Pool that needs to be entered as "poolIds", execute a GET request as shown in <a href="#">Viewing Details of the Software Pools Resource</a>.</li> <li>To derive the <code>serviceTemplateTypeId</code> value, perform a GET operation on the URI - <code>em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes</code> and locate "serviceType": "DB" in the JSON response. Note the <code>serviceTemplateTypeId</code> under "serviceType": "DB" and use the value in the POST body shown above.</li> </ul>
Request method	POST



**Note:**

In the table above, the `SELECT_TARGET_OPTION` parameter defines if the SSA User has the option to select the Container Database (CDB) while requesting for a PDB. If the value for the parameter is set as `SELECT_TARGET_FROM_REQUEST`, then the SSA User has the option to choose the CDB. If no value is defined, or if the value is set to `SELECT_TARGET_AT_RUNTIME`, then the placement algorithm selects the CDB.

A sample of the response received is shown below.

```
{
  "message": "Service template with ID \"xxxxx\" created successfully."
}
```

## Deleting a Database / Schema / Pluggable Database Service Template

The DELETE request on the URI of the Service Template can be issued to delete a ServiceTemplate Instance. The configuration for deleting in ServiceTemplate is as follows:

**Table 33-55 DELETE Request Configuration for Deleting a Database/Schema/Pluggable Database Service Template**

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates/E87A364660A25B39E040F20A60510FDD <b>Note:</b> For Database Service Templates the URI is em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/61
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	DELETE

A sample of the response received is shown below.

```
{
  "message": "Service Template \"E87A364660A25B39E040F20A60510FDD\" deleted successfully."
}
```

## DB Onboarding on DBaaS Cloud REST API

The configuration for POST to DB Onboarding on DBaaS Cloud is as follows:

**Table 33-56 POST Request Configuration for DB Onboarding on DBaaS Cloud**

Feature	Description
URI	https://<OMS_CONSOLE_HOST>:<OMS_CONSOLE_PORT>/em/cloud/dbaas/zone/<zone-guid>
Request Headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/oracle.com.cloud.common.DbPlatformInstance+json Accept: application/oracle.com.cloud.common.DbPlatformInstance+json
Request Method	Post

**Table 33-56 (Cont.) POST Request Configuration for DB Onboarding on DBaaS Cloud**

Feature	Description
Payload	<pre> {   "DEST_TARGET_NAME": "=&lt;EM Target name of the DB Target to be managed via Self Service Portal&gt;",   "DEST_TARGET_TYPE": "&lt;oracle_database  rac_database&gt;",   "DB_SERVICE_NAME": "&lt;Name of the new DB service that will be created for the DB Target&gt;",   "DEST_POOL_NAME": "&lt;Destination Pool&gt;",   "DEST_POOL_TYPE": "oracle_cloud_zone",   "DEST_DB_CRED": "&lt;EM Named Credential for Target DB SYS user in the format CREDENTIAL_NAME:CREDENTIAL_OWNER&gt;",   "MASTER_USER_CREDS": "&lt;EM Named Credential for DB Master Account user in the format CREDENTIAL_NAME:CREDENTIAL_OWNER. Master account user will be created in the DB &gt;",   "SSA_USER": "&lt;Username of EM SSA user with EM_SSA_USER role privileges &gt;",   "operation": "DISCOVER" } </pre>

 **Note:**

- In case the target DB is in Dataguard Configuration, only primary DB will be discovered
- This is an administrator driven operation to be initiated by an EM administrator with EM\_SSA\_ADMINISTRATOR role privileges.
- To fetch Zone GUID, see [Viewing Details of the PaaS Zones Resource](#).

## DB Relocation REST API

The configuration for POST for DB Relocation is as follows:

**Table 33-57 POST Request Configuration for DB Relocation**

Feature	Description
URI	https:// <OMS_CONSOLE_HOST>:<OMS_CONSOLE_P ORT>/em/cloud/dbaas/dbplatforminstance/ byrequest/<instance-id>
Request Headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/ oracle.com.cloud.common.DbPlatformInstance+js on Accept: application/ oracle.com.cloud.common.DbPlatformInstance+js on
Request Method	Post

Table 33-57 (Cont.) POST Request Configuration for DB Relocation

Feature	Description
Payload	<pre> {  "SRC_TARGET_NAME": "&lt;EM target name of the srouce DB&gt;", "SRC_TARGET_TYPE": "&lt;oracle_database  rac_database&gt;", "DEST_HOST_NAME": "&lt;EM target name of the destination host&gt;", "DEST_POOL_NAME": "&lt;Destination Pool&gt;", "SRC_DB_CRED": "&lt;EM Named Credential for Target DB SYS user in the format CREDENTIAL_NAME:CREDENTIAL_OWNER&gt;", "SELECT_ORACLE_HOME_OPTION": "RUNTIME" / "DELETE_SRC_TARGET"="Y", "DEST_TARGET_NAME"="&lt;New EM target name for the destination DB&gt;", "DEST_DATABASE_AREA"="&lt;absolute_path_ to_destination_datafiles_location&gt;", "DEST_FAST_RECOVERY_AREA"="&lt;absolute_ path_to_destination_fast_recovery_are a&gt;", "operation": "RELOCATE", "registrationOnly": "false" } </pre>
	<p>JSON Payload Optional parameters:</p> <ul style="list-style-type: none"> <li>• "SELECT_ORACLE_HOME_OPTION": "RUNTIME", to be provided if destination host in the destination pool is to be selected automatically</li> <li>• "DELETE_SRC_TARGET"="Y", to be provided if you want to delete the source DB and EM target for the source DB</li> <li>• "DEST_TARGET_NAME"="&lt;New EM target name for the destination DB&gt;"</li> <li>• "DEST_DATABASE_AREA"="&lt;absolute_path_to_destination_datafiles_location&gt;"</li> <li>• "DEST_FAST_RECOVERY_AREA"="&lt;absolute_path_to_destination_fast_recovery_area&gt;"</li> </ul>



 **Note:**

- This functionality is not supported for Thin Clone Database(s).
- This is an administrator driven operation to be initiated by an EM administrator with EM\_SSA\_ADMINISTRATOR role privileges.
- To fetch the instance-id of target DB, use GET /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances?expanded=true.

## PDB Onboarding on DBaaS Cloud REST API

The configuration for POST for PDB Onboarding on DBaaS cloud is as follows:

**Table 33-58 POST Request Configuration for PDB Onboarding on DBaaS Cloud**

Feature	Description
URI	https:// <OMS_CONSOLE_HOST>:<OMS_CONSOLE_PORT>/em/cloud/dbaas/zone/<zone-guid>
Request Headers	Authorization: basic basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/ oracle.com.cloud.common.PluggableDbPlatformInstance+json Accept: application/ oracle.com.cloud.common.PluggableDbPlatformInstance+json
Request Method	Post

**Table 33-58 (Cont.) POST Request Configuration for PDB Onboarding on DBaaS Cloud**

Feature	Description
Payload	<pre> {   "DEST_PDB_NAME": "&lt;EM Target name of the Pluggable Database&gt;",   "DEST_CDB_TARGET_NAME": "&lt;EM Target name of the destination Container Database&gt;",   "DEST_CDB_TARGET_TYPE": "&lt;oracle_datab ase rac_database&gt;",   "PDBSERVICE_NAME": "&lt;Name of the service to be created for the target Pluggable Database&gt;",   "DEST_CDB_POOL_NAME": "&lt;Destination Pluggable Database Pool name&gt;",   "DEST_CDB_CRED": "&lt;EM Named Credential for Target Container Database SYS user in the format CREDENTIAL_NAME:CREDENTIAL_OWNER&gt;",   "MASTER_USER_CREDS": "&lt;EM Named Credential for Master Account user to be created in Target Pluggable Database in the format CREDENTIAL_NAME:CREDENTIAL_OWNER&gt;",   "PDBAAS_SSA_USER": "&lt;Username of EM SSA user with EM_SSA_USER role privileges&gt;",   "operation": "DISCOVER" } </pre>

 **Note:**

- This is an administrator driven operation to be initiated by an EM administrator with EM\_SSA\_ADMINISTRATOR role privileges.
- To fetch Zone GUID, see [Viewing Details of the PaaS Zones Resource](#).

## PDB Relocation REST API

The configuration for POST for PDB Relocation is as follows:

**Table 33-59 POST Request Configuration for PDB Relocation**

Feature	Description
URI	https:// <OMS_CONSOLE_HOST>:<OMS_CONSOLE_P ORT>/em/cloud/dbaas/ pluggabledbplatforminstance /byrequest/<instance- id>
Request Headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/ oracle.com.cloud.common.PluggableDbPlatformIns tance+json Accept: application/ oracle.com.cloud.common.PluggableDbPlatformIns tance+json
Request Method	Post

Table 33-59 (Cont.) POST Request Configuration for PDB Relocation

Feature	Description
Payload	<pre> { "SRC_PDB_TARGET_NAME": "&lt;EM Target name of the PDB to be relocated&gt;", "DEST_CDB_TARGET_NAME": "&lt;EM Target name of the destination Target Container DB&gt;", "DEST_CDB_TARGET_TYPE": "&lt;oracle_datab ase rac_database&gt;", "USE_SAME_STORAGE_LOCATION": "Y", "STORAGE_LOCATION" = "&lt;Storage location for destination PDB&gt;", "DEST_WORK_DIR" = "&lt;absolute path to temporary work directory at destination&gt;", "SELECT_TARGET_OPTION" = "RUNTIME" &lt;needed if destination CDB needs to be selected automatically&gt;, "DEST_CDB_POOL_NAME" = "&lt;Destination Pluggable Database Pool name needed only when SELECT_TARGET_OPTION parameter is specified&gt;", "USE_SAME_STORAGE_LOCATION" = "Y" &lt;needed in case PDB relocation is to be performed without moving PDB datafiles, target PDB datafile(s) storage location must also be visible to destination Container DB&gt;, "operation": "RELOCATE", "registrationOnly": "false" } </pre>
	<p>JSON Payload Optional parameters:</p> <ul style="list-style-type: none"> <li>• STORAGE_LOCATION = &lt;Storage location for destination PDB&gt;</li> <li>• DEST_WORK_DIR = &lt;absolute path to temporary work directory at destination&gt;</li> <li>• SELECT_TARGET_OPTION = RUNTIME, needed if destination CDB needs to be selected automatically.</li> <li>• DEST_CDB_POOL_NAME, Destination Pluggable Database Pool name needed only when SELECT_TARGET_OPTION parameter is specified".</li> <li>• USE_SAME_STORAGE_LOCATION = Y, needed in case PDB relocation is to be performed without moving PDB datafiles, target PDB datafile(s) storage location must also be visible to destination Container DB.</li> </ul>

 **Note:**

- This is an administrator driven operation to be initiated by an EM administrator with EM\_SSA\_ADMINISTRATOR role privileges.
- To fetch the instance-id of target PDB, use GET /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances?expanded=true.

## PDB Upgrade REST API

You can upgrade the PDB on REST API as follows:

**Table 33-60 Upgrading the PDB on REST API**

Feature	Description
URI	/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/<request_id>
Request Headers	Authorization Basic xxxxxxxxxxxxxxxxxxxxxxxxxxxx Content-Type application/oracle.com.cloud.common.PluggableDbPlatformInstance+json
Request Method	Post
Payload	<pre>{   "operation" : "UPGRADE_PDB",   "destinationCdb" : "&lt;EM Target Name of destination CDB&gt;", #Optional   "useSameStorageLocation": "true",   #Optional, to be used only with destinationCdb   "workload": "&lt;EM Workload name from the successor service template&gt;",   "update_schedule" : "" }</pre>

 **Note:**

- Successor PDB Pool and successor Service Template must be configured before initiating the upgrade.
- This is an administrator driven operation to be initiated by an EM administrator with EM\_SSA\_ADMINISTRATOR role privileges.
- To fetch the instance-id of target PDB, use GET /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances?expanded=true
- For more information, see [PDB Fleet Maintenance: Upgrading PDB](#).

## Pluggable Database Profile REST API Examples

The following topics cover examples of interaction with Enterprise Manager Cloud Control.

- [Creating a Pluggable Database profile on Deletion](#)
- [Viewing Details of the Pluggable Database Profile](#)
- [Viewing Details of the Pluggable Database Profile Based on Owner and Profile Name](#)
- [Deleting a Pluggable Database Profile](#)

### Creating a Pluggable Database profile on Deletion

The configuration for DELETE for data profile creation is as follows:

**Table 33-61 DELETE Request Configuration for Creating PDB Profile**

Feature	Description
URI	https://<hostName>:<port>/em/cloud/dbaas/pluggabledbplatforminstance/byrequest
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/ oracle.com.cloud.common.PluggableDbPlatformInstance+json Accept: application/ oracle.com.cloud.common.PluggableDbPlatformInstance+json
Body	<pre>{   "preserve_backup_of_instance": "true",   "save_as": "mypdb2_TTT1_18-01-2019 02:43 PM",   "description": "mypdb2_TTT1 18-01-2019 02:43 PM" }</pre>
Request method	DELETE

### Viewing Details of the Pluggable Database Profile

The GET request on the Pluggable Database can be issued to retrieve its details. The configuration for GET to Pluggable Database is as follows:

**Table 33-62 GET Request Configuration for Viewing PDB Profile**

Feature	Description
URI	https:// <hostName>:<port /em/cloud/dbaas/pluggabledbplatform/dataprofiles
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

## Viewing Details of the Pluggable Database Profile Based on Owner and Profile Name

The GET request on the Pluggable Database can be issued to filter profile details based on the owner and profile name. The configuration for GET to Pluggable Database is as follows:

**Table 33-63 GET Request Configuration for Viewing PDB Profile Based on Owner and Profile Name**

Feature	Description
URI	https://<hostName>:<port>/em/cloud/dbaas/pluggabledbplatform/dataprofiles?owner=ssa&profileName=mypdb
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

## Deleting a Pluggable Database Profile

The configuration for DELETE for data profile deletion is as follows:

**Table 33-64 DELETE Request Configuration for Deleting PDB Profile**

Feature	Description
URI	https://<hostName>:<port>/em/cloud/dbaas/pluggabledbplatform/dataprofiles
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/oracle.com.cloud.common.PluggableDbPlatformInstance+json Accept: application/oracle.com.cloud.common.PluggableDbPlatformInstance+json
Body	{ "profile_name": "mypdb2_pdb1_11_Jan 8:18 AM", "host_cred": " credname:credowner", "host_target_name": "yourserver.yourhost.com" }
Request method	DELETE

## Database as a Service SSA User REST APIs

This chapter describes the resource models of Database as a Service (DBaaS) REST APIs for SSA user, and their responses.

The REST APIs for the SSA user are classified based on the database type. The first section in this chapter provides a summary of all the REST APIs in this chapter whereas the following sections cover the REST APIs based on the database type. The sections in this chapter are as follows:

- [Summary of Database as a Service SSA User REST APIs](#)
- [Database as a Service](#)
  - [DB Zone](#)
  - [DB Platform Template](#)
  - [DB Platform Instance](#)
- [Schema as a Service](#)
  - [Schema Platform Template](#)
  - [Schema Platform Instance](#)
- [Pluggable Database as a Service](#)
  - [Pluggable DB Platform Template](#)
  - [Pluggable DB Platform Instance](#)

### Summary of Database as a Service SSA User REST APIs

The table below shows a summary of all the DBaaS SSA user REST APIs covered in this chapter.

**Table 34-1 Summary of DBaaS SSA User REST APIs**

Resource	Data Model	GET	POST	PUT	DELETE
Cloud	Not applicable	<ul style="list-style-type: none"> <li>• <a href="#">Viewing Details of All the Cloud Resources</a></li> <li>• <a href="#">Filtering Output for Specific Resource Attributes</a></li> </ul>	Not supported	Not supported	Not supported
Service family type	Not applicable	<a href="#">Viewing Details of the Service Family Type Resource</a>	Not supported	Not supported	Not supported



**Table 34-1 (Cont.) Summary of DBaaS SSA User REST APIs**

Resource	Data Model	GET	POST	PUT	DELETE
Service instance type	Not applicable	<a href="#">Viewing Details of the Service Instance Type Resource</a>	Not supported	Not supported	Not supported
Service request	Not applicable	<a href="#">Viewing Details of a Service Requests Resource</a>	Not applicable	Not applicable	Not applicable
Database zone	<a href="#">Table 34-2</a>	<a href="#">Viewing Details of the DB Zone</a>	<ul style="list-style-type: none"> <li>• <a href="#">Creating a Database by Passing a Request on the DB Zone</a></li> <li>• <a href="#">Creating a Schema by Passing a Request on the DB Zone</a></li> <li>• <a href="#">Creating a Pluggable Database by Passing a Request on the DB Zone</a></li> </ul>	Not supported	Not supported
Database platform template	<a href="#">Table 34-3</a>	<a href="#">Viewing Details of the DB Platform Template Resource</a>	<a href="#">Creating a Database by Passing a Request on the DB Platform Template</a>	Not supported	Not supported
Database platform instance	<a href="#">Table 34-4</a>	<a href="#">Viewing the Database Creation Details</a>	<ul style="list-style-type: none"> <li>• <a href="#">Updating a Database</a></li> <li>• <a href="#">Lifecycle operations on a Database Instance</a></li> <li>• <a href="#">Lifecycle operations on a Snap clone Database Instance</a></li> </ul>	Not supported	<a href="#">Deleting a Database Instance</a>
Schema platform template	<a href="#">Table 34-30</a>	<a href="#">Viewing Details of the Schema Platform Template Resource</a>	<a href="#">Creating a Schema by Passing a Request on the Schema Platform Template</a>	Not supported	Not supported

**Table 34-1 (Cont.) Summary of DBaaS SSA User REST APIs**

Resource	Data Model	GET	POST	PUT	DELETE
Schema platform instance	<a href="#">Table 34-31</a>	<a href="#">Viewing Details of the Schema Service Creation</a>	<a href="#">Life Cycle Operations of a Schema Service</a>	Not supported	<a href="#">Deleting a Schema Service</a>
Pluggable database platform template	<a href="#">Table 34-43</a>	<a href="#">Viewing Details of the Pluggable Db Platform Template Resource</a>	<a href="#">Creating a Pluggable Database by Passing a Request on the Pluggable DB Platform Template</a>	Not supported	Not supported
Pluggable database platform instance	<a href="#">Table 34-44</a>	<a href="#">Viewing Details of the Pluggable Database Creation</a>	<a href="#">Lifecycle operations on a Pluggable Database Instance</a>	Not supported	<a href="#">Deleting a Pluggable Database Instance</a>

**Note:**

In the table above, "supported" indicates that the operation is supported on the resource. However, there is no example in the chapter for this operation.

## Database as a Service

This section describes the resource model for Database as a Service (DBaaS) REST APIs, and the REST request or response interactions.

This section contains the following topics:

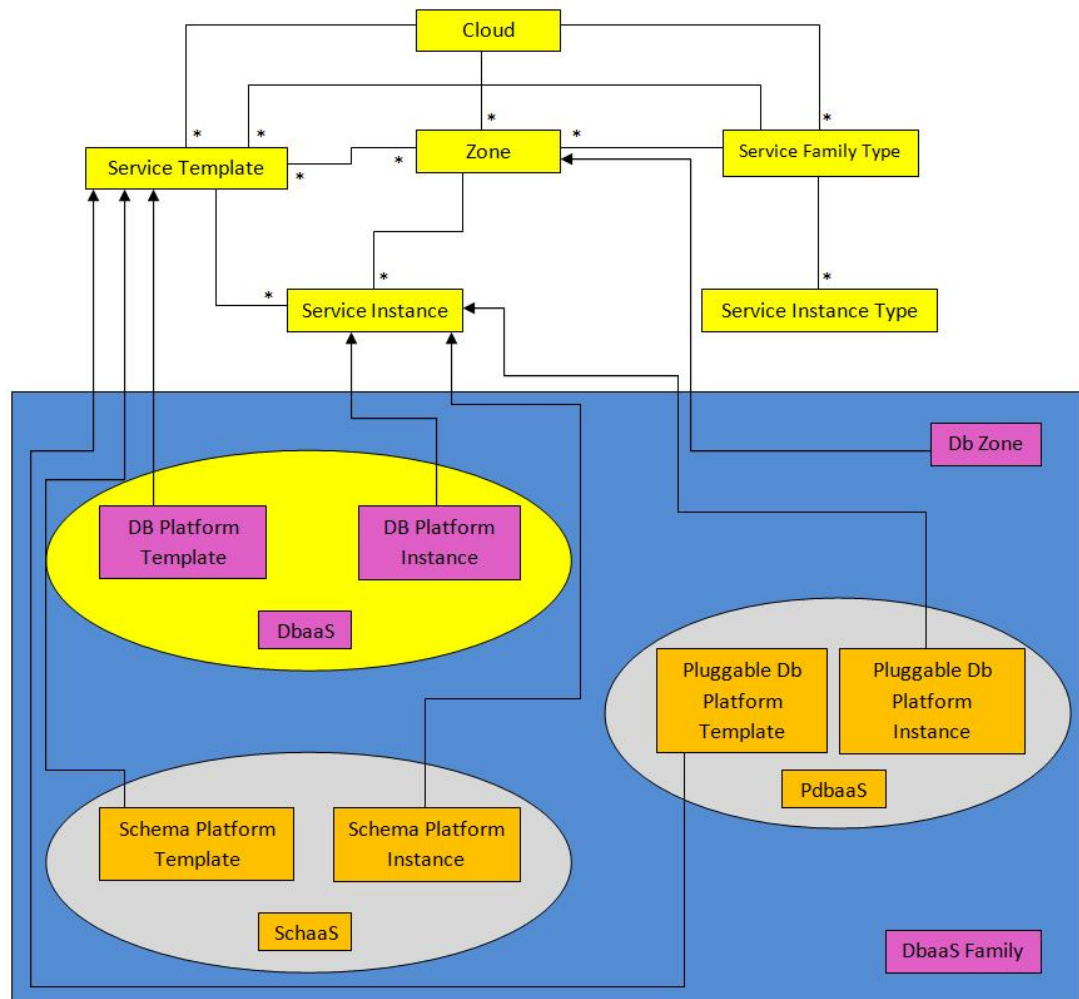
- [Database as a Service Resource Model](#)
- [Supported Operations for Database as a Service Resources](#)
- [Database as a Service REST API Examples](#)

### Database as a Service Resource Model

Cloud resources are organized by common service entities and specific services (for example, Database as a Service) provide resources by extending these common service entities.

[Figure 34-1](#) shows the DBaaS resource model:

Figure 34-1 Database as a Service Resource Model



The following sections describe the resources that are supported by the Database as a Service family type and provide examples of supported operations.

The resource models are:

- [DB Zone](#)
- [DB Platform Template](#)
- [DB Platform Instance](#)

## DB Zone

DB Zone extends `application/oracle.com.cloud.common.Zone`. This resource represents the view of a PaaS Infrastructure Zone that supports DBaaS resources. DB Zone has the media type `application/oracle.com.cloud.common.DbZone+json`, and the URI format is `/em/cloud/dbaas/zone/<zone id>`.

The following table describes the DB Zone data model.

**Table 34-2 DB Zone Data Model**

Field	Type	Description	Occurs
uri	URI	A GET against this URI refreshes the client representation of the Zone definition to this user.	1
name	String	Name of the Zone. SHALL be a UNICODE string to support different languages.	1
description	String	Human readable description of the Zone. SHALL be a UNICODE string to support different languages.	0..1
resource_state	ResourceState	The resource state of the resource.	1
service_family_type	String	The name of the service family type that this zone is associated with. It is "dbaas" for this.	1
templates	Collection <ServiceTemplate>	Collection of the service templates that this zone supports and can be deployed into. Currently, DBPlatformTemplate is the only supported type.	1
service_instances	Collection <ServiceInstance>	Collection of the service instances that are created in this zone.	1
media_type	String	The media type of the resource.	1
type	String	The type of the zone which is "self_service_zone" by default.	1
context_id	String	Zone GUID	1
canonicalLink	URI	Can be used to perform cloud interactions like GET and POST.	1
default_db_size_name	String	Selected default database size.	1
db_sizes	List<Object>	List of available database sizes.	1

## DB Platform Template

The DB Platform Template extends the Service Template resource. This resource represents service templates created for creating databases. The databases may be created using profiles which are created using database templates, rman backups, and SnapClone. It is permissible to accept the Service Template media type on an instance of DB Platform Template. It is a preconfigured deployable service that realizes a DB Platform Instance resource. DB Platform Template has the media type `application/oracle.com.cloud.common.DbPlatformTemplate+json`, and the URI format is `/em/cloud/dbaas/dbplatformtemplate/<template id>`.

The following table describes the DB Platform Template data model.

**Table 34-3 DB Platform Template Data Model**

Field	Type	Description	Occurs
uri	URI	A GET against this URI refreshes the client representation of the resources accessible to this user.	1
name	String	A human readable name given to the template.	1

**Table 34-3 (Cont.) DB Platform Template Data Model**

Field	Type	Description	Occurs
description	String	A brief description given to the template	0..1
created	Timestamp	Date and time, in ISO 8601 format, when the template was created/last modified.	1
zones	Collection <DbZone>	List of all zones on which this service template is published	1
resource_state	ResourceState	The validity of the fields on a GET should be guaranteed only when the resource state is READY. Otherwise, the client should not assume the validity of the fields.	1
service_family_type	String	Denotes the type of Service Template. For example, "dbaas".	1
service_instances	Collection <DBPlatformInstance>	All service instances created based on this DBPlatformTemplate.	1
media_type	String	The media type of the service template that this type represents.	1
db_type	String	Type of the Database when provisioned. It can have one of the two values: "oracle_database" and "rac_database".	1
instance_configurable_params	String[]	List of parameters required to provision a DbPlatformInstance from this template. Username, Password, SID and Service name in this case.	1
deployment_params	List<Object>	Description of the parameters which are required while creating a service instance.	1
type	String	The type of the service template which is "dbaas" by default.	1
subtype	String	The sub type of the instance created based on this template. It has a value "db" in this case.	1
node_count		Number of Nodes. Implicit 1 for SI DB and explicit count for the RAC Db types.	0..1
db_version	String	Version of the database which can be created using this template.	0..1
context_id	URI	The unique id of the template.	1
canonicalLink	URI	Can be used to perform cloud interactions like GET and POST.	1
sid_option	String	Option for the ssa user to specify database SID while requesting DB. This field can have either of the following values: <ul style="list-style-type: none"> <li>'ssauser' - SSA user needs to specify SID</li> <li>'prefix' - SSA user need not to specify SID</li> </ul>	1
standby_enabled	String	Indicates whether standby is enabled in the template.	1
standbydbs	List<Object>	List of standby database configurations.	1
standby_protection_mode	String	Indicates the protection mode of the standby database.	1
db_sizes	List<Object>	List of available database sizes.	1

**Table 34-3 (Cont.) DB Platform Template Data Model**

Field	Type	Description	Occurs
default_db_size _name	String	Selected default database size.	1

## DB Platform Instance

The DB Platform Instance extends the Service Instance resource. It is linked to an Oracle Database Instance or Cluster Database target in Enterprise Manager Cloud Control. DB Platform Instance has the media type `application/oracle.com.cloud.common.DbPlatformInstance+json`, and the URI format is `/em/cloud/dbaas/dbplatforminstance/byrequest/<request id>`.

The following table describes the DB Platform Instance Data Model.

**Table 34-4 DB Platform Instance Data Model**

Field	Type	Description	Occurs
uri	URI	A GET against this URI refreshes the client representation of the resources accessible to this user.	1
name	String	A human readable name given to the instance. [POST]	1
destination_zone	Zone	The Zone to which the instance is deployed. [POST]	1
media_type	String	Indicates the additional media type that clients can use to perform a GET.	1
available_space	Float	Available space for this database instance.	0..1
resource_state	ResourceState	The validity of the fields on a GET should be guaranteed only when the resource state is READY. Otherwise, the client should not assume the validity of the fields.	1
based_on	DbPlatformTemplate	The db platform template on which this instance is published.	1
connect_string	String	Connect String required to establish a connection to this database instance.	0..1
created	String	Time of creation.	1
target_type	String	Indicates the type of the database: "oracle_database" for Single Instance database and "rac_database" for RAC database.	1
status	String	Status of the Database instance.	1
db_version	String	Version of the Database.	0..1
last_backup	Timestamp	Time at which the last backup of this database was taken.	0..1
load	Float	Current average active sessions of this instance.	0..1
master_username	String	Name of the master user of this database.	1
total_sessions	Integer	Total number of sessions for this database	0..1

**Table 34-4 (Cont.) DB Platform Instance Data Model**

Field	Type	Description	Occurs
total_sga^	Float	Total SGA for this database.	0..1
up_time^	Integer	Total number of hours since when this database is up.	1
context_id	String	The request id of this instance.	1
canonicalLink	URI	Can be used to perform cloud interactions like GET and DELETE for this instance.	1
instances	List<Object>	List all the node level details of the database instance (exists only when the type is "rac_database").	0..1
measurable_attributes	List<Object>	List of all the attributes with their units which can be measured.	1
total_memory*^	String	Total memory used by the instance (node).	0..1
active_sessions*	Float	Current average active sessions for this instance (node).	0..1
cpu_utilization*^	Percentage	CPU utilization of this instance (node).	0..1
db_time*^	Float	Database time of this instance (node).	0..1
cpu_count*^	Integer	Number of CPU cores on the host on which the instance (node) is deployed.	0..1
allocated_sessions*	Integer	Number of sessions currently allocated.	0..1
name*	String	Name of the node (exists as a field in the list of "instances" field).	0..1
standby_databases	List<Object>	List of standby databases configured for this instance.	1
standby_database_configured	String	Indicates if standby database is configured for this service instance.	1

 **Note:**

\* In case of database instance type "oracle\_database", the above fields exist as it is in the DBPlatformInstance Data model. In case of type "rac\_database", these fields exist as part of "instances" field and occur for each node of the cluster database.

^ - These attributes can be measured in units and so are represented as Json Objects (like a map) having "name" (as the name of the attribute), "value" (as the value of the attribute) and "units" (as the unit of the attribute). Each such field is a list element of "measurable\_attributes" field (which exists at instance level for oracle\_database and at RAC node level in case of rac\_database).

## Supported Operations for Database as a Service Resources

The following table lists all the operations that are supported on the various Database as a Service resources.

**Table 34-5 Supported Operations for DBaaS Resources**

Resource	GET	POST	PUT	DELETE
Cloud	Yes	No	No	No
Service Family Type	Yes	No	No	No
DB Zone	Yes	Yes	No	No
DB Platform Template [Service Template]	Yes	Yes	No	No
DB Platform Instance [Service Instance]	Yes	Yes	No	Yes

## Database as a Service REST API Examples

The following sections provide examples of interaction with Enterprise Manager Cloud Control with Cloud Application plug-in 12.1.0.4 and higher. The following examples are covered:

- [Viewing Details of All the Cloud Resources](#)
- [Filtering Output for Specific Resource Attributes](#)
- [Viewing Details of the Service Family Type Resource](#)
- [Viewing Details of the Service Instance Type Resource](#)
- [Viewing Details of a Service Requests Resource](#)
- [Viewing Details of the DB Zone](#)
- [Viewing Details of the DB Platform Template Resource](#)
- [Creating a Database Instance](#)
  - [Creating a Database by Passing a Request on the DB Zone](#)
  - [Creating a Database by Passing a Request on the DB Platform Template](#)
- [Viewing the Database Creation Details](#)
- [Updating a Database](#)
- [Deleting a Database Instance](#)
- [Lifecycle operations on a Database Instance](#)
  - [Shutting down a Database](#)
  - [Starting up a Database](#)
  - [Scheduling a Backup of the Database](#)
  - [Restoring a Database from a Backup](#)
  - [Adding a Standby Database](#)
  - [Removing a Standby Database](#)
  - [Refreshing a Database](#)
- [Lifecycle operations on a Snap clone Database Instance](#)
  - [Creating a Snapshot](#)
  - [Restoring from a Snapshot List](#)



## – Deleting a Snapshot

## Viewing Details of All the Cloud Resources

Use the top level `/em/cloud` to introspect the Cloud resource. The operation explained herein lists all the resources accessible to the user.

**Table 34-6 GET Request Configuration for Viewing Details of All the Cloud Resources**

Feature	Description
URI	<code>https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/cloud?service_family_types,named</code>
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

A sample of the Cloud resource is shown below.

```
{
  "uri": "/em/cloud",
  "name": "Oracle Cloud by Enterprise Manager",
  "description": "This represents the Cloud resource of the Oracle Enterprise Manager
Cloud Management solution",
  "resource_state": {
    "state": "READY"
  },
  "media_type": "application/oracle.com.cloud.common.Cloud+json",
  "canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud",
  "zones": {
    "media_type": "application/oracle.com.cloud.common.Zone+json",
    "total": "4",
    "elements": [
      {
        "uri": "/em/cloud/jaas/zone/9708491651C090AB4B847C2F3CD177DE",
        "name": "SLC00ECXY_ZONE",
        "media_type": "application/oracle.com.cloud.jaas.Zone+json",
        "service_family_type": "jaas",
        "type": "jaas",
        "canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/
cloud/jaas/zone/9708491651C090AB4B847C2F3CD177DE"
      },
      {
        "uri": "/em/cloud/jaas/zone/B329742A13BE0D63703BF0C0E4F98FB9",
        "name": "SLC01NBV_ZONE",
        "media_type": "application/oracle.com.cloud.jaas.Zone+json",
        "service_family_type": "jaas",
        "type": "jaas",
        "canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/
cloud/jaas/zone/B329742A13BE0D63703BF0C0E4F98FB9"
      },
      {
        "uri": "/em/cloud/dbaas/zone/9708491651C090AB4B847C2F3CD177DE",
        "name": "SLC00ECXY_ZONE",
        "description": "",
        "media_type": "application/oracle.com.cloud.common.DbZone+json",
        "service_family_type": "dbaas",
        "type": "self_service_zone",

```

```

        "canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/
cloud/dbaas/zone/9708491651C090AB4B847C2F3CD177DE"
    },
    {
        "uri": "/em/cloud/dbaas/zone/B329742A13BE0D63703BF0C0E4F98FB9",
        "name": "SLC01NBV_ZONE",
        "description": "SLC01NBV_ZONE",
        "media_type": "application/oracle.com.cloud.common.DbZone+json",
        "service_family_type": "dbaas",
        "type": "self_service_zone",
        "canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/
cloud/dbaas/zone/B329742A13BE0D63703BF0C0E4F98FB9"
    }
]
},
"service_templates": {
    "media_type": "application/oracle.com.cloud.common.ServiceTemplate+json",
    "total": "2",
    "elements": [
        {
            "uri": "/em/cloud/dbaas/dbplatformtemplate/DEC94FE6D49DAA21E040F20A60511D14",
            "name": "SLC01NBV_SNAPCLONE_ST",
            "description": "",
            "media_type": "application/oracle.com.cloud.common.DbPlatformTemplate+json",
            "service_family_type": "dbaas",
            "type": "dbaas",
            "canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/
cloud/dbaas/dbplatformtemplate/DEC94FE6D49DAA21E040F20A60511D14"
        },
        {
            "uri": "/em/cloud/dbaas/dbplatformtemplate/DECCA0E18357F28DE040F20A60514D49",
            "name": "SLC00ECXY_DBCA_ST",
            "description": "",
            "media_type": "application/oracle.com.cloud.common.DbPlatformTemplate+json",
            "service_family_type": "dbaas",
            "type": "dbaas",
            "canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/
cloud/dbaas/dbplatformtemplate/DECCA0E18357F28DE040F20A60514D49"
        }
    ]
},
"service_family_types": {
    "media_type": "application/oracle.com.cloud.common.ServiceFamilyType+json",
    "total": "4",
    "elements": [
        {
            "uri": "/em/cloud/service_family_type/jaas",
            "name": "jaas",
            "media_type": "application/oracle.com.cloud.common.ServiceFamilyType+json",
            "type": "jaas",
            "canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/
cloud/service_family_type/jaas"
        },
        {
            "uri": "/em/cloud/service_family_type/dbaas",
            "name": "dbaas",
            "media_type": "application/oracle.com.cloud.common.ServiceFamilyType+json",
            "type": "dbaas",
            "canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/
cloud/service_family_type/dbaas"
        }
    ]
}

```

```

        "uri": "/em/cloud/service_family_type/opc",
        "name": "opc",
        "media_type": "application/oracle.com.cloud.common.ServiceFamilyType+json",
        "type": "opc",
        "canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/
cloud/service_family_type/opc"
    },
    ]
},
"service_requests": {
    "media_type": "application/oracle.com.cloud.common.Request+json",
    "total": "1",
    "elements": [
        {
            "uri": "/em/cloud/request/DEC87CE5B1DA175DE040F20A605150F8",
            "name": "SLC01NBV_DBCA_ST - Mon Jun 10 00:20:08 PDT 2013_CREATE_20_25",
            "media_type": "application/oracle.com.cloud.common.Request+json",
            "status": "SUCCESS",
            "lifecycle_type": "CREATE",
            "canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/
cloud/request/DEC87CE5B1DA175DE040F20A605150F8"
        }
    ]
}
}
}

```



**Note:**

Even though the Accept type was not specified, the Web service still unambiguously returns the cloud resource as the "/em/cloud" address uniquely identifies the cloud as the default resource to be returned.

## Filtering Output for Specific Resource Attributes

The following description indicates the interaction with the cloud resource for identifying specific attributes (service family type in this case):

**Table 34-7 GET Request Configuration for Filtering Specific Resource Attributes**

Feature	Description
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/cloud?service_family_types,name
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

A sample of the response received is shown below.

```

{
  "name": "Oracle Cloud by Enterprise Manager",
  "service_family_types": {
    "media_type": "application/oracle.com.cloud.common.ServiceFamilyType+json",
    "total": "4",
    "elements": [

```

```

    {
      "uri": "/em/cloud/service_family_type/jaas",
      "name": "jaas",
      "media_type": "application/oracle.com.cloud.common.ServiceFamilyType+json",
      "type": "jaas",
      "canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/
cloud/service_family_type/jaas"
    },
    {
      "uri": "/em/cloud/service_family_type/dbaas",
      "name": "dbaas",
      "media_type": "application/oracle.com.cloud.common.ServiceFamilyType+json",
      "type": "dbaas",
      "canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/
cloud/service_family_type/dbaas"
    },
    {
      "uri": "/em/cloud/service_family_type/opc",
      "name": "opc",
      "media_type": "application/oracle.com.cloud.common.ServiceFamilyType+json",
      "type": "opc",
      "canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/
cloud/service_family_type/opc"
    },
  ]
}

```

This feature, where only selective attributes are gathered and returned to the client, is supported on all the common resources.

## Viewing Details of the Service Family Type Resource

The GET operation on the Service Family Type resource lists all the DBaaS resources accessible to a user. The configuration for the Service Family Type resource is as follows:

**Table 34-8 GET Request Configuration for Viewing Details of the Service Family Type Resource**

Feature	Description
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/cloud/service_family_types/dbaas
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

A sample of the response received is shown below.

```

X-specification-version: 10001
Content-Type: application/oracle.com.cloud.common.ServiceFamilyType+json;
charset=ISO-8859-1
{
  "uri": "/em/cloud/service_family_type/dbaas",
  "name": "dbaas",
  "resource_state": {
    "state": "READY"
  },
}

```

```

    "media_type": "application/oracle.com.cloud.common.ServiceFamilyType+json",
    "canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
service_family_type/dbaas",
    "type": "dbaas",
    "service_templates": {
      "media_type": "application/oracle.com.cloud.common.ServiceTemplate+json",
      "total": "2",
      "elements": [
        {
          "uri": "/em/cloud/dbaas/dbplatformtemplate/DEC94FE6D49DAA21E040F20A60511D14",
          "name": "SLC01NBV_SNAPCLONE_ST",
          "description": "",
          "media_type": "application/oracle.com.cloud.common.DbPlatformTemplate+json",
          "service_family_type": "dbaas",
          "type": "dbaas",
          "canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/
cloud/dbaas/dbplatformtemplate/DEC94FE6D49DAA21E040F20A60511D14"
        },
        {
          "uri": "/em/cloud/dbaas/dbplatformtemplate/DECCA0E18357F28DE040F20A60514D49",
          "name": "SLC00ECXY_DBCA_ST",
          "description": "",
          "media_type": "application/oracle.com.cloud.common.DbPlatformTemplate+json",
          "service_family_type": "dbaas",
          "type": "dbaas",
          "canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/
cloud/dbaas/dbplatformtemplate/DECCA0E18357F28DE040F20A60514D49"
        }
      ]
    },
    "zones": {
      "media_type": "application/oracle.com.cloud.common.Zone+json",
      "total": "2",
      "elements": [
        {
          "uri": "/em/cloud/dbaas/zone/9708491651C090AB4B847C2F3CD177DE",
          "name": "SLC00ECXY_ZONE",
          "description": "",
          "media_type": "application/oracle.com.cloud.common.DbZone+json",
          "service_family_type": "dbaas",
          "type": "self_service_zone",
          "canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/
cloud/dbaas/zone/9708491651C090AB4B847C2F3CD177DE"
        },
        {
          "uri": "/em/cloud/dbaas/zone/B329742A13BE0D63703BF0C0E4F98FB9",
          "name": "SLC01NBV_ZONE",
          "description": "SLC01NBV_ZONE",
          "media_type": "application/oracle.com.cloud.common.DbZone+json",
          "service_family_type": "dbaas",
          "type": "self_service_zone",
          "canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/
cloud/dbaas/zone/B329742A13BE0D63703BF0C0E4F98FB9"
        }
      ]
    },
    "instance_types": {
      "media_type": "application/oracle.com.cloud.common.InstanceType+json",
      "total": "1",
      "elements": [
        {
          "uri": "/em/cloud/instance_type/dbPlatformInstance%40dbaas",

```

```

        "name": "dbPlatformInstance",
        "description": "Db Instance",
        "media_type": "application/oracle.com.cloud.common.InstanceType+json",
        "instance_media_type": "application/
oracle.com.cloud.common.DbPlatformInstance+json",
        "canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/
cloud/instance_type/dbPlatformInstance%40dbaas"
    }
  ]
},
"service_requests": {
  "media_type": "application/oracle.com.cloud.common.Request+json",
  "total": "1",
  "elements": [
    {
      "uri": "/em/cloud/request/DEC87CE5B1DA175DE040F20A605150F8",
      "name": "SLC01NBV_DBCA_ST - Mon Jun 10 00:20:08 PDT 2013_CREATE_20_25",
      "media_type": "application/oracle.com.cloud.common.Request+json",
      "status": "SUCCESS",
      "lifecycle_type": "CREATE",
      "canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/
cloud/request/DEC87CE5B1DA175DE040F20A605150F8"
    }
  ]
}
}
}

```

The media type `application/oracle.com.cloud.common.ServiceFamilyType+json` is returned automatically as the most detailed resource.

## Viewing Details of the Service Instance Type Resource

A GET request on a Service Instance Type resource list all the supported services that are provided by a particular service family type.

**Table 34-9 GET Request Configuration for Viewing Details of the Service Instance Type Resource**

Feature	Description
URI	<code>https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/cloud/instance_type/dbPlatformInstance%40dbaas</code>
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

A sample of the response received is shown below.

```

{
  "uri" : "/em/cloud/instance_type/dbPlatformInstance%40dbaas" ,
  "name" : "dbPlatformInstance" ,
  "description" : "Db Instance" ,
  "media_type" : "application/oracle.com.cloud.common.InstanceType+json" ,
  "instance_media_type" : "application/
oracle.com.cloud.common.DbPlatformInstance+json" , ,
  "canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
instance_type/dbPlatformInstance%40dbaas"
}

```

## Viewing Details of a Service Requests Resource

A GET request on a Service Requests resource lists the details of a service request.

**Table 34-10 GET Request Configuration for Viewing Details of a Service Request Resource**

Feature	Description
URI	<code>https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/&lt;request_id&gt;</code>
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "id": "21",
  "name": "Request a RAC One Database_CREATE_43_47#21",
  "status": "SUCCESS",
  "serviceType": "DB",
  "serviceFamily": "DBAAS",
  "actionName": "Create Database",
  "startDate": "2015-07-21T17:13:47Z",
  "createdOn": "2015-07-21T17:13:47Z",
  "createdBy": "SYSMAN",
  "owner": "SYSMAN",
  "canonicalLink":
  {
    "href": "https://blr.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/21"
  },
  "description": "Create Database for \"Request a RAC One Database\".",
  "executionLogs": "https://blr.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/21/logs"
}
```

## Viewing Details of the DB Zone

A GET request on a zone lists all the resources available in the zone. The DB zone resource configuration is as follows:

**Table 34-11 GET Request Configuration for Viewing Details of the DB Zone**

Feature	Description
URI	<code>https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/cloud/dbaas/zone/82CF1C28FA20A183C99D138FF8065F19</code>
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "uri" : "/em/cloud/dbaas/zone/B49F86387B81DAED9A3D672D722CF29D" ,
  "name" : "RAC SSAZONE" ,
  "description" : "SSA Zone with RAC Nodes" ,
  "resource_state" : {
    "state" : "READY"
  } ,
  "context_id" : "B49F86387B81DAED9A3D672D722CF29D" ,
  "media_type" : "application/oracle.com.cloud.common.DbZone+json" ,
  "service_family_type" : "dbaas" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/zone/B49F86387B81DAED9A3D672D722CF29D" ,
  "type" : "self_service_zone" ,
  "service_instances" : {
    "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
    "total" : "1" ,
    "elements" :
    [
      {
        "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/1" ,
        "name" : "db000000.mycompany.com" ,
        "media_type" : "application/
oracle.com.cloud.common.DbPlatformInstance+json" ,
        "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/
cloud/dbaas/dbplatforminstance/byrequest/1" ,
        "type" : "rac_database"
      }
    ]
  } ,
  "templates" : {
    "media_type" : "application/oracle.com.cloud.common.DbPlatformTemplate+json" ,
    "total" : "1" ,
    "elements" :
    [
      {
        "uri" : "/em/cloud/dbaas/dbplatformtemplate/
DE039DAC33FFEA6FE040E80A687848A6" ,
        "name" : "12101_RACFileSystem_ServiceTemplate" ,
        "description" : "12101 RAC FileSystem Service Template" ,
        "media_type" : "application/
oracle.com.cloud.common.DbPlatformTemplate+json" ,
        "service_family_type" : "dbaas" ,
        "type" : "dbaas" ,
        "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/
cloud/dbaas/dbplatformtemplate/DE039DAC33FFEA6FE040E80A687848A6"
      }
    ]
  }
}
```

## Viewing Details of the DB Platform Template Resource

A GET request on the DB Platform Template resource provides details of a DB Service Template.

As shown in previous examples, the elements in the collection shown all have `media_type` as an attribute to clearly indicate what its resource type is.



**Table 34-12 GET Request Configuration for Viewing Details of the DB Platform Template Resource**

Feature	Description
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/cloud//dbaas/dbplatformtemplate/CC3BBB665A6BC6FFE040F00AEF252456
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "uri" : "/em/cloud/dbaas/dbplatformtemplate/F985CAE9AB916591E043A4BBF00A235D" ,
  "name" : "Platinum - Star Hotel Application on 2-node RAC Database with Multiple Standbys" ,
  "description" : "Provisions Star Hotel Application on 2-node 11.2.0.4 RAC Database with RAC & SI Standbys" ,
  "resource_state" : {
    "state" : "READY"
  } ,
  "media_type" : "application/oracle.com.cloud.common.DbPlatformTemplate+json" ,
  "service_family_type" : "dbaas" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatformtemplate/F985CAE9AB916591E043A4BBF00A235D" ,
  "type" : "dbaas" ,
  "created" : "2014-05-16T13:57:22+0000" ,
  "zones" : {
    "media_type" : "application/oracle.com.cloud.common.DbZone+json" ,
    "total" : "1" ,
    "elements" :
    [
      {
        "uri" : "/em/cloud/dbaas/zone/F985A268D9175B9FE043A4BBF00A3573" ,
        "name" : "Salt Lake City DC" ,
        "description" : "" ,
        "context_id" : "F985A268D9175B9FE043A4BBF00A3573" ,
        "media_type" : "application/oracle.com.cloud.common.DbZone+json" ,
        "service_family_type" : "dbaas" ,
        "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/zone/F985A268D9175B9FE043A4BBF00A3573" ,
        "type" : "self_service_zone"
        "clusters_for_placement" :
        [
          {
            "clusterName" : "cluster1" ,
            "hostsInCluster" :
            [
              "abc.mycompany.com" ,
              "def.mycompany.com" ,
              "ghi.mycompany.com"
            ]
          } ,
          {
            "clusterName" : "cluster2" ,
            "hostsInCluster" :
            [
              "xyz.mycompany.com" ,

```

```

                "pqr.mycompany.com"
            ]
        }
    ]
} ,
"service_instances" : {
    "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
    "total" : "1" ,
    "elements" :
    [
        {
            "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/1" ,
            "name" : "xyyy.example.com" ,
            "media_type" : "application/
oracle.com.cloud.common.DbPlatformInstance+json" ,
            "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/
cloud/dbaas/dbplatforminstance/byrequest/1" ,
            "target_type" : "rac_database"
        }
    ]
} ,
"deployment_params" :
[
    {
        "name" : "username" ,
        "description" : "Master account Username" ,
        "type" : "STRING" ,
        "require" : "true" ,
        "sensitive" : "false"
    } ,
    {
        "name" : "password" ,
        "description" : "Password for the Master account" ,
        "type" : "STRING" ,
        "require" : "true" ,
        "sensitive" : "true"
    } ,
    {
        "name" : "database_sid" ,
        "description" : "Database SID. Required only if sid_option is ssouser." ,
        "type" : "STRING" ,
        "require" : "true" ,
        "sensitive" : "false"
    } ,
    {
        "name" : "service_name" ,
        "description" : "Database Service Name" ,
        "type" : "STRING" ,
        "require" : "true" ,
        "sensitive" : "false"
    } ,
    {
        "name" : "database_host_name" ,
        "description" : "Name of the host(s) to be chosen for creating the database
instance. For RAC database instance, multiple host names can be provided as comma
separated values." ,
        "type" : "STRING" ,
        "require" : "false" ,
        "sensitive" : "false"
    } ,

```

```

        {
            "name" : "standbydbs" ,
            "description" : "List of the standby databases. Required only if standby
database is enabled and required" ,
            "type" : "LIST" ,
            "defaultValue" :
            [
                {
                    "name" : "standbydb_name" ,
                    "description" : "Name of the standby database, specified in the standbydbs
list" ,
                    "type" : "STRING" ,
                    "require" : "true" ,
                    "sensitive" : "false"
                } ,
                {
                    "name" : "standbydb_sid" ,
                    "description" : "SID of the standby database" ,
                    "type" : "STRING" ,
                    "require" : "true" ,
                    "sensitive" : "false"
                }
            ] ,
            "require" : "false" ,
            "sensitive" : "false"
        }
    {
        "name" : "db_size_name" ,
        "description" : "DB Size name to be associated with the request" ,
        "type" : "STRING" ,
        "require" : "false" ,
        "sensitive" : "false"
    } ,
] ,
"subtype" : "db" ,
"db_type" : "rac_database" ,
"node_count" : "2" ,
"sid_option" : "ssauser" ,
"standbydbs" :
[
    {
        "standbydb_name" : "Near DR" ,
        "standbydb_type" : "rac_database"
    } ,
    {
        "standbydb_name" : "Far DR" ,
        "standbydb_type" : "oracle_database"
    }
] ,
"standby_enabled" : "true" ,
"placement_option" : "SELECT_ORACLE_HOME_FROM_REQUEST" ,
"standby_protection_mode" : "MAXIMIZE AVAILABILITY" ,
"instance_configurable_params" : {
    "username" : "" ,
    "password" : "" ,
    "database_sid" : "" ,
    "service_name" : ""
}
}
"db_sizes" :
[
    {

```

```
"name" : "Large" ,
"description" : "Large size database" ,
"attributes" :
[
  {
    "name" : "CPU" ,
    "value" : "0" ,
    "units" : "cores"
  } ,
  {
    "name" : "Memory" ,
    "value" : "8" ,
    "units" : "GB"
  } ,
  {
    "name" : "Storage" ,
    "value" : "500" ,
    "units" : "GB"
  }
]
} ,
{
  "name" : "Medium" ,
  "description" : "Medium size database" ,
  "attributes" :
  [
    {
      "name" : "CPU" ,
      "value" : "4" ,
      "units" : "cores"
    } ,
    {
      "name" : "Memory" ,
      "value" : "6" ,
      "units" : "GB"
    } ,
    {
      "name" : "Storage" ,
      "value" : "100" ,
      "units" : "GB"
    }
  ]
} ,
{
  "name" : "Small" ,
  "description" : "Small size database" ,
  "attributes" :
  [
    {
      "name" : "CPU" ,
      "value" : "2" ,
      "units" : "cores"
    } ,
    {
      "name" : "Memory" ,
      "value" : "4" ,
      "units" : "GB"
    } ,
    {
      "name" : "Storage" ,
      "value" : "50" ,
      "units" : "GB"
    }
  ]
}
```

```

    }
  ]
}
] ,
"default_db_size_name" : "Small" ,
}

```

 **Note:**

In the sample output shown above, the GET on the service template configured for a single instance database shows `hosts_for_placement` parameter instead of `clusters_for_placement`.

## Creating a Database Instance

This section describes how to create a service instance using Cloud resources. As DB is a service instance in the service family type `dbaas`, you need to identify the zone of the same family type to create the database. There are two approaches to creating a database:

1. By issuing a POST request on the DB Zone on which the database is to reside.
2. By issuing a POST request on the DB Platform Template of which the database is to be based on.

Note the attributes in the submitted body for the POST. The pattern is the same for other service instance creations. Since the intention is clear, the `zone` attribute is not required while performing POST on the DB Zone. Similarly, the `based_on` attribute is not needed when performing POST on the DB Platform Template.

The two approaches to create a database are described in the following sections:

- [Creating a Database by Passing a Request on the DB Zone](#)
- [Creating a Database by Passing a Request on the DB Platform Template](#)

### Creating a Database by Passing a Request on the DB Zone

The configuration for performing POST to the Db Zone is as follows:

**Table 34-13 POST Request Configuration for Creating a Database by Passing a Request on the DB Zone**

Feature	Description
URI	<code>https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/cloud/dbaas/zone/82CF1C28FA20A183C99D138FF8065F19</code>
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/oracle.com.cloud.common.DbPlatformInstance+json Accept: application/oracle.com.cloud.common.DbPlatformInstance+json

**Table 34-13 (Cont.) POST Request Configuration for Creating a Database by Passing a Request on the DB Zone**

Feature	Description
Body	<pre> {   "based_on": "/em/cloud/dbaas/dbplatformtemplate/4107",   "name": "SI_12C_WE8MSWIN1252_AL16UTF16_8192_LRG_001",   "description": "",   "start_date": "2013-08-02T14:20:00ZAsia/Calcutta",   "end_date": "2013-08-02T17:20:00ZAsia/Calcutta",   "standby_required" : "true",   "params":   {     "username": "maoracle",     "password": "maoracle" ,     "database_sid" : "dngdb05h" ,     "service_name" : "dngdb05h_svc",     "common_domain_name" : "yourcompany.com",     "standbydbs":     [       {         "standbydb_name":"standby",         "standbydb_sid":"dngdb06h"         "standbydb_domain_name":"yourcompany.com"       }     ]   } } </pre>
Request method	POST

 **Note:**

In the body above `start_date` indicates the time, time zone and date when the request is scheduled to create the database and `end_date` indicates when the database should be deleted. These parameters are optional.

A sample of the response received is shown below.

```

{
  "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/21" ,
  "name" : "Test_create_istance" ,
  "resource_state" : {
    "state" : "INITIATED"
    "messages" :
    [
      {
        "date" : "2014-11-25T09:52:49+0000" ,
        "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/22",
        "text" : "Delete Request ID is : 22"
      }
    ]
  } ,
  "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,

```

```

"canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/dbplatforminstance/byrequest/22" ,
"status" : "SCHEDULED"
}

```

## Creating a Database by Passing a Request on the DB Platform Template

The configuration for performing POST to the DbPlatformTemplate is as follows:

**Table 34-14 POST Request Configuration for Creating a Database by Passing a Request on the DB Platform Template**

Feature	Description
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/cloud/dbaas/dbplatformtemplate/CC3BBB665A6BC6FFE040F00AEF252456
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/oracle.com.cloud.common.DbPlatformInstance+json Accept: application/oracle.com.cloud.common.DbPlatformInstance+json
Body	<pre> {   "zone": "/em/cloud/dbaas/zone/ 82CF1C28FA20A183C99D138FF8065F19",   "name": "&lt;Request name&gt;",   "description": "&lt;Request Description&gt;",   "standby_required" : "true",   "params":   {     "username": "Master Account username for the DB",     "password": "Password for the Master Account on the DB",     "database_sid" : "Database SID" ,     "service_name" : "Name of the additional service to be created",     "database_host_name": "abc.mycompany.com,def.mycompany.com"     " db_size_name": "Medium",     "db_charset" : "AL32UTF8",     "national_charset" : "UTF8"     "standbydbs":     [       { "standbydb_name": "STBY2", "standbydb_sid": "stio62" }     ]     "database_profile_version": "RMAN_06_27_2014_14_18_PM"   } } </pre>

### Note:

Specify `db_charset` and `national_charset` only for a Service template of type DBCA structure-only profile.

Request method	POST
----------------	------

 **Note:**

- `database_host_name` parameter is mandatory if the service template is configured for custom placement.
- The value for the `database_host_name` parameter should be a host present in the same zone.
- For a SI database provide only one host name. For a RAC database the number of hosts provided should be equal to the number of nodes in the `node_count`, within the same zone that is specified, and in a single cluster.

A sample of the response received is shown below.

```
{
  "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/22" ,
  "name" : "Test_create_intance" ,
  "resource_state" : {
    "state" : "INITIATED"
  } ,
  "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatforminstance/byrequest/23" ,
  "status" : "SCHEDULED"
}
```

The response shown above is the same as the previous version. If the zone is not specified, then it is not possible for the web service to determine where the DB should be deployed.

## Viewing the Database Creation Details

After the POST is performed for the database creation, you can perform the GET operation on the resource identified by the return URI to keep track of the status.

**Table 34-15 GET Request Configuration for Viewing the Database Creation Details**

Feature	Description
URI	<code>https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/cloud/dbaas/dbplatforminstance/byrequest/7</code>
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Accept: application/ oracle.com.cloud.common.DbPlatformInstance+json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "uri": "/em/cloud/dbaas/dbplatforminstance/byrequest/22",
  "name": "Test_create_intance_CREATE_55_42",
  "description": "Create Database for test.",
  "resource_state":
  {
```



```

        "state": "CREATING"
    },
    "context_id": "22",
    "media_type": "application/oracle.com.cloud.common.DbPlatformInstance+json",
    "status": "IN_PROGRESS",
    "created": "2013-06-07 23:09:04" ,
    "canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/dbplatforminstance/byrequest/22"
}

```

Note that the `resource_state` attribute shows `CREATING` state to indicate that the database is being created. If the `GET` operation is performed after the database is created, the response displays the database resource in `READY` state, as shown below:

```

{
  "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/22" ,
  "name" : "db000000.mycompany.com" ,
  "resource_state" : {
    "state" : "READY"
    "messages" :
    [
      {
        "date" : "2014-11-25T09:52:49+0000" ,
        "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/22",
        "text" : "Delete Request ID is : 22"
      }
    ]
  } ,
  "context_id" : "22" ,
  "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/dbplatforminstance/byrequest/22" ,
  "status" : "RUNNING" ,
  "created" : "2013-08-03 02:23:04" ,
  "based_on" : "/em/cloud/dbaas/dbplatformtemplate/E300FBE134EAB347E040F10A58535F16" ,
  "connect_string" : "(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)
(HOST=cluster_name) (PORT=1521))) (CONNECT_DATA=(SERVICE_NAME=db000000.mycompany.com)))" ,
  "target_type" : "rac_database" ,
  "destination_zone" : "/em/cloud/dbaas/zone/B49F86387B81DAED9A3D672D722CF29D" ,
  "total_sessions" : "165" ,
  "last_backup" : "null" ,
  "master_username" : "InstanceUser1" ,
  "db_version" : "12.1.0.1.0" ,
  "measurable_attributes" :
  [
    {
      "name" : "up_time" ,
      "value" : "0" ,
      "units" : "Hours"
    } ,
    {
      "name" : "total_sga" ,
      "value" : "4778.555" ,
      "units" : "MB"
    } ,
    {
      "name" : "available_space" ,
      "value" : "699.813" ,
      "units" : "MB"
    }
  ] ,
  "instances" :

```

```
[
  {
    "name" : "db000000. mycompany. com_db0000001" ,
    "average_active_sessions" : ".031" ,
    "allocated_sessions" : "70" ,
    "measurable_attributes" :
    [
      {
        "name" : "cpu_utilization" ,
        "value" : "0.199" ,
        "units" : "%"
      } ,
      {
        "name" : "total_memory" ,
        "value" : "2723.867" ,
        "units" : "MB"
      } ,
      {
        "name" : "db_time" ,
        "value" : "3.103" ,
        "units" : "CentiSeconds Per Second"
      } ,
      {
        "name" : "cpu_count" ,
        "value" : "6" ,
        "units" : "Cores"
      }
    ]
  } ,
  {
    "name" : "db000000. mycompany. com_db0000002" ,
    "average_active_sessions" : ".007" ,
    "allocated_sessions" : "69" ,
    "measurable_attributes" :
    [
      {
        "name" : "cpu_utilization" ,
        "value" : "0.049" ,
        "units" : "%"
      } ,
      {
        "name" : "total_memory" ,
        "value" : "2705.378" ,
        "units" : "MB"
      } ,
      {
        "name" : "db_time" ,
        "value" : ".663" ,
        "units" : "CentiSeconds Per Second"
      } ,
      {
        "name" : "cpu_count" ,
        "value" : "6" ,
        "units" : "Cores"
      }
    ]
  } ,
  "standby_databases" :
  [
    {
      "Target Name" : "xyxy. example. com" ,
      "Target Type" : "oracle_database" ,
```

```

        "Open Mode" : "MOUNTED"
      } ,
      {
        "Target Name" : "xxxxy.example.com" ,
        "Target Type" : "rac_database" ,
        "Open Mode" : "READ ONLY"
      }
    ] ,
    "standby_database_configured" : "true"
  ]
}

```

The output in case of a single instance database (type:oracle\_database) is as below:

```

{
  "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/81" ,
  "name" : "sidb0001.host1.mycompany.com" ,
  "resource_state" : {
    "state" : "READY"
  } ,
  "context_id" : "81" ,
  "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/dbplatforminstance/byrequest/81" ,
  "status" : "RUNNING" ,
  "created" : "2013-08-05 18:06:52" ,
  "based_on" : "/em/cloud/dbaas/dbplatformtemplate/E33736E8238CE06BE040F20A54666216" ,
  "connect_string" : "(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=
host1.mycompany.com) (PORT=1521))) (CONNECT_DATA=(SID=sidb0001)))" ,
  "target_type" : "oracle_database" ,
  "destination_zone" : "/em/cloud/dbaas/zone/E33720BF45C45E24E040F20A54666214" ,
  "total_sessions" : "43" ,
  "last_backup" : "null" ,
  "master_username" : "InstanceUser1" ,
  "db_version" : "11.2.0.1.0" ,
  "average_active_sessions" : ".118" ,
  "allocated_sessions" : "42" ,
  "measurable_attributes" :
  [
    {
      "name" : "up_time" ,
      "value" : "0" ,
      "units" : "Hours"
    } ,
    {
      "name" : "total_sga" ,
      "value" : "398.203" ,
      "units" : "MB"
    } ,
    {
      "name" : "available_space" ,
      "value" : "982.063" ,
      "units" : "MB"
    } ,
    {
      "name" : "cpu_utilization" ,
      "value" : "11.206" ,
      "units" : "%"
    } ,
    {
      "name" : "total_memory" ,
      "value" : "533.485" ,

```

```

        "units" : "MB"
    } ,
    {
        "name" : "db_time" ,
        "value" : "11.822" ,
        "units" : "CentiSeconds Per Second"
    } ,
    {
        "name" : "cpu_count" ,
        "value" : "1" ,
        "units" : "Cores"
    }
],
"standby_databases" :
[
    {
        "Target Name" : "xyxy.example.com" ,
        "Target Type" : "oracle_database" ,
        "Open Mode" : "MOUNTED"
    }
] ,
"standby_database_configured" : "true"
}

```

## Updating a Database

A database which is associated to an older version of the image associated to the software pool, can be updated to the latest version (latest version of the Oracle home). To do so, execute the POST REST API shown below.



### Note:

The database can be updated only to the latest version.

**Table 34-16 POST Request Configuration for Updating a Database**

Feature	Description
URI	<code>https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/cloud/dbaas/dbplatforminstance/byrequest/21</code>
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/oracle.com.cloud.common.DbPlatformInstance+jsonAccept: application/oracle.com.cloud.common.DbPlatformInstance+json
Body	{ "operation" : "UPDATE_DATABASE", }
Request method	POST

A sample of the response received is shown below.

```

{
  "uri": "/em/cloud/dbaas/dbplatforminstance/byrequest/341",
  "name": "rac1.example.com",

```

```

"resource_state": {
  "state": "INITIATED",
  "messages": [
    {
      "uri": "/em/cloud/dbaas/dbplatforminstance/byrequest/381",
      "text": "Successfully submitted ADD_STANDBY operation on service instance.
Request id - 381.",
      "date": "2015-04-23T09:51:59+0000"
    }
  ]
},
"context_id": "341",
"media_type": "application/oracle.com.cloud.common.DbPlatformInstance+json",
"canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/dbplatforminstance/byrequest/341",
"status": "RUNNING",
"created": "2015-04-23 12:40:20.0",
"based_on": "/em/cloud/dbaas/dbplatformtemplate/144D175E0DC07A7BE0535978B10AB9F1",
"connect_string": "(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=slc00eczed-
r) (PORT=1521))) (CONNECT_DATA=(SERVICE_NAME=.us.example.com)))",
"target_type": "rac_database",
"destination_zone": "/em/cloud/dbaas/zone/715C91005BF1195AA6BFBC70654415E7",
"total_sessions": "null",
"last_backup": "null",
"master_username": "ssouser1",
"db_version": "null",
"measurable_attributes": [
  {
    "name": "up_time",
    "value": "null",
    "units": "Hours"
  },
  {
    "name": "total_sga",
    "value": "null",
    "units": "MB"
  },
  {
    "name": "available_space",
    "value": "null",
    "units": "MB"
  }
],
"instances": [
  {
    "name": "rac1.example.com_rac1nd2_1",
    "average_active_sessions": "null",
    "allocated_sessions": "null",
    "measurable_attributes": [
      {
        "name": "cpu_utilization",
        "value": "null",
        "units": "%"
      },
      {
        "name": "total_memory",
        "value": "null",
        "units": "MB"
      },
      {
        "name": "db_time",
        "value": "null",

```

```

        "units": "CentiSeconds Per Second"
    },
    {
        "name": "cpu_count",
        "value": "null",
        "units": "Cores"
    }
]
}
],
"standby_databases": [],
"standby_database_configured": "false"
}

```

## Deleting a Database Instance

The DELETE operation on the URI of the resource can be run to delete a DB Service Instance. The configuration values for the DELETE operation are:

**Table 34-17 DELETE Request Configuration for Deleting a Database Instance**

Feature	Description
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/cloud/dbaas/dbplatforminstance/byrequest/7
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Accept: application/oracle.com.cloud.common.DbPlatformInstance+json
Body	None
Request method	DELETE

A sample of the response received is shown below.

```

{
  "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/22" ,
  "name" : "db000000.mycompany.com" ,
  "resource_state" : {
    "state" : "DESTROYING" ,
    "messages" :
    [
      {
        "text" : "Submit 'DELETE' operation on 'application/oracle.com.cloud.common.DbPlatformInstance+json' 'db000000.mycompany.com'. The process has job id '41'" ,
        "date" : "2013-06-07T23:16:20+0000"
      }
    ]
  } ,
  "context_id" : "22" ,
  "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatforminstance/byrequest/22" ,
  "type" : "rac_database"
}

```

After a few minutes, the GET operation on the database URI will result in the following interaction:

**Table 34-18 GET Request Configuration for Viewing the Database Creation Details**

Feature	Description
URI	/em/cloud/dbaas/dbplatforminstance/byrequest/7
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

The web service responds with the following details:

```
{
  "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/23" ,
  "name" : "sidb0001.host1.mycompany.com" ,
  "resource_state" : {
    "state" : "DESTROYING"
  } ,
  "context_id" : "23" ,
  "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/dbplatforminstance/byrequest/23" ,
  "status" : "RUNNING" ,
  "created" : "2013-06-09 07:56:57" ,
  "based_on" : "/em/cloud/dbaas/dbplatformtemplate/DEB2BDE2F773E356E040E50AD2E56BE9" ,
  "connect_string" : "(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)
(HOST=host1.mycompany.com)(PORT=1521))) (CONNECT_DATA=(SID=sidb0001)))" ,
  "type" : "oracle_database" ,
  "destination_zone" : "/em/cloud/dbaas/zone/DEB2E2920C20D2E1E040E50AD2E56BEF" ,
  "up_time" : "0" ,
  "load" : "0.156456056384199" ,
  "total_sessions" : "46" ,
  "total_sga" : "398.203125" ,
  "available_space" : "0.19097900390625" ,
  "last_backup" : "null" ,
  "master_username" : "InstanceUser1" ,
  "db_version" : "11.2.0.1.0" ,
  "active_sessions" : ".156" ,
  "cpu_utilization" : "5.35" ,
  "db_time" : "15.646" ,
  "cpu_count" : "1" ,
  "allocated_sessions" : "39" ,
  "total_memory" : "524.384 MB"
}
```

The database status indicates DELETED after the database is deleted.

## Lifecycle operations on a Database Instance

The POST request on the URI of the resource can be issued to perform an operation on a database.

You can perform the following operations using a POST request:

- [Shutting down a Database](#)
- [Starting up a Database](#)
- [Scheduling a Backup of the Database](#)

- [Restoring a Database from a Backup](#)
- [Adding a Standby Database](#)
- [Removing a Standby Database](#)
- [Refreshing a Database](#)
- [Performing a Switchover to a Standby Database](#)

## Shutting down a Database

The configurations for the POST on a DbPlatformInstance is as follows:

**Table 34-19 POST Request Configuration for Shutting Down a Database**

Feature	Description
URI	<code>https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/cloud/dbaas/dbplatforminstance/byrequest/7</code>
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/ oracle.com.cloud.common.DbPlatformInstance+json Accept: application/ oracle.com.cloud.common.DbPlatformInstance+json
Body	<pre>{   "operation" : "SHUTDOWN" }</pre>
Request method	POST

A sample of the response received is shown below.

```
{
  "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/101" ,
  "name" : "dbc00000.xyxy.example.com" ,
  "resource_state" : {
    "state" : "INITIATED" ,
    "messages" :
    [
      {
        "date" : "2013-08-27T07:12:30+0000" ,
        "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/127" ,
        "text" : "Successfully submitted SHUTDOWN operation on service instance.
Request id - 127."
      }
    ]
  } ,
  "context_id" : "101" ,
  "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatforminstance/byrequest/101" ,
  "status" : "RUNNING" ,
  "created" : "2013-08-26 05:09:13" ,
  "based_on" : "/em/cloud/dbaas/dbplatformtemplate/E4D9626BC260F517E040F20A605152CD" ,
  "connect_string" : "(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=host1) (PORT=1521))) (CONNECT_DATA=(SID=dbc00000)))" ,
  "target_type" : "oracle_database" ,
  "destination_zone" : "/em/cloud/dbaas/zone/675B859C36772FB7856771B1D57F79F8" ,
```



```

"total_sessions" : "62" ,
"last_backup" : "null" ,
"master_username" : "test" ,
"db_version" : "11.2.0.2.0" ,
"average_active_sessions" : ".01" ,
"allocated_sessions" : "50" ,
"measurable_attributes" :
[
  {
    "name" : "up_time" ,
    "value" : "19" ,
    "units" : "Hours"
  } ,
  {
    "name" : "total_sga" ,
    "value" : "398.203" ,
    "units" : "MB"
  } ,
  {
    "name" : "available_space" ,
    "value" : "537.172" ,
    "units" : "MB"
  } ,
  {
    "name" : "cpu_utilization" ,
    "value" : "0.506" ,
    "units" : "%"
  } ,
  {
    "name" : "total_memory" ,
    "value" : "604.652" ,
    "units" : "MB"
  } ,
  {
    "name" : "db_time" ,
    "value" : "1.041" ,
    "units" : "CentiSeconds Per Second"
  } ,
  {
    "name" : "cpu_count" ,
    "value" : "2" ,
    "units" : "Cores"
  }
]
}

```

## Starting up a Database

The configurations for the POST on a DbPlatformInstance is as follows:

**Table 34-20 POST Request Configuration for Starting a Database**

Feature	Description
URI	<a href="https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/cloud//dbaas/dbplatforminstance/byrequest/7">https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/cloud//dbaas/dbplatforminstance/byrequest/7</a>

**Table 34-20 (Cont.) POST Request Configuration for Starting a Database**

Feature	Description
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/ oracle.com.cloud.common.DbPlatformInstance+json Accept: application/ oracle.com.cloud.common.DbPlatformInstance+json
Body	{ "operation" : "STARTUP" }
Request method	POST

A sample of the response received is shown below.

```
{
  "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/101" ,
  "name" : "dbc00000.xyxy.example.com" ,
  "resource_state" : {
    "state" : "INITIATED" ,
    "messages" :
    [
      {
        "date" : "2013-08-27T07:16:52+0000" ,
        "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/128" ,
        "text" : "Successfully submitted STARTUP operation on service instance.
Request id - 128."
      }
    ]
  } ,
  "context_id" : "101" ,
  "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/dbplatforminstance/byrequest/101" ,
  "status" : "STOPPED" ,
  "created" : "2013-08-26 05:09:13" ,
  "based_on" : "/em/cloud/dbaas/dbplatformtemplate/E4D9626BC260F517E040F20A605152CD" ,
  "connect_string" : "(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=host1)
(PORT=1521))) (CONNECT_DATA=(SID=dbc00000)))" ,
  "target_type" : "oracle_database" ,
  "destination_zone" : "/em/cloud/dbaas/zone/675B859C36772FB7856771B1D57F79F8" ,
  "total_sessions" : "null" ,
  "last_backup" : "null" ,
  "master_username" : "test" ,
  "db_version" : "null" ,
  "average_active_sessions" : "null" ,
  "allocated_sessions" : "null" ,
  "measurable_attributes" :
  [
    {
      "name" : "up_time" ,
      "value" : "null" ,
      "units" : "Hours"
    } ,
    {
      "name" : "total_sga" ,
      "value" : "null" ,

```

```

        "units" : "MB"
    } ,
    {
        "name" : "available_space" ,
        "value" : "null" ,
        "units" : "MB"
    } ,
    {
        "name" : "cpu_utilization" ,
        "value" : "null" ,
        "units" : "%"
    } ,
    {
        "name" : "total_memory" ,
        "value" : "null" ,
        "units" : "MB"
    } ,
    {
        "name" : "db_time" ,
        "value" : "null" ,
        "units" : "CentiSeconds Per Second"
    } ,
    {
        "name" : "cpu_count" ,
        "value" : "null" ,
        "units" : "Cores"
    }
    ]
}

```

## Scheduling a Backup of the Database

For scheduling a backup of the database the user has to provide the time at which backups needs to scheduled. This should be in the YYYY-MM-DDTHH:MM:SSZFullTimeZonename format.

For example, to schedule in PST time you should enter 2013-08-27T12:34:45ZAmerica/Los\_Angeles. The time zone portion is optional. If you do not want to provide the time zone, then enter 2013-08-27T12:34:45Z.

If a POST request to schedule a backup has already been issued, the subsequent POST request to schedule the backup will reschedule the backup time as per the latest POST request.

The configurations for the POST on a DbPlatformInstance is as follows:

**Table 34-21 POST Request Configuration for Scheduling a Backup of the Database**

Feature	Description
URI	<code>https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/cloud/dbaas/dbplatforminstance/byrequest/7</code>
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/ oracle.com.cloud.common.DbPlatformInstance+json Accept: application/ oracle.com.cloud.common.DbPlatformInstance+json

**Table 34-21 (Cont.) POST Request Configuration for Scheduling a Backup of the Database**

Feature	Description
Body	<pre>{   "operation" : "BACKUP",   "backup_schedule" : "2013-08-27T12:34:45ZAsia/Calcutta" }</pre>
Request method	POST

A sample of the response received is shown below.

```
{
  "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/101" ,
  "name" : "dbc00000.xyxy.example.com" ,
  "resource_state" : {
    "state" : "INITIATED" ,
    "messages" :
    [
      {
        "date" : "2013-08-27T07:17:56+0000" ,
        "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/129" ,
        "text" : "Successfully submitted BACKUP operation on service instance.
Request id - 129."
      }
    ]
  } ,
  "context_id" : "101" ,
  "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/dbplatforminstance/byrequest/101" ,
  "status" : "RUNNING" ,
  "created" : "2013-08-26 05:09:13" ,
  "based_on" : "/em/cloud/dbaas/dbplatformtemplate/E4D9626BC260F517E040F20A605152CD" ,
  "connect_string" : "(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)
(HOST=xyxy.example.com)(PORT=1521)))(CONNECT_DATA=(SID=dbc00000)))" ,
  "target_type" : "oracle_database" ,
  "destination_zone" : "/em/cloud/dbaas/zone/675B859C36772FB7856771B1D57F79F8" ,
  "total_sessions" : "0" ,
  "last_backup" : "null" ,
  "master_username" : "test" ,
  "db_version" : "11.2.0.2.0" ,
  "average_active_sessions" : "null" ,
  "allocated_sessions" : "46" ,
  "measurable_attributes" :
  [
    {
      "name" : "up_time" ,
      "value" : "0" ,
      "units" : "Hours"
    } ,
    {
      "name" : "total_sga" ,
      "value" : "398.203" ,
      "units" : "MB"
    } ,
    {
      "name" : "available_space" ,
```

```

        "value" : "537.172" ,
        "units" : "MB"
    } ,
    {
        "name" : "cpu_utilization" ,
        "value" : "null" ,
        "units" : "%"
    } ,
    {
        "name" : "total_memory" ,
        "value" : "575.043" ,
        "units" : "MB"
    } ,
    {
        "name" : "db_time" ,
        "value" : "null" ,
        "units" : "CentiSeconds Per Second"
    } ,
    {
        "name" : "cpu_count" ,
        "value" : "2" ,
        "units" : "Cores"
    }
}
]
}

```

After the backup is completed, the GET operation yields the response shown below.

```

{
  "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/101" ,
  "name" : "dbc00000.xyxy.example.com" ,
  "resource_state" : {
    "state" : "READY"
  } ,
  "context_id" : "101" ,
  "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/dbplatforminstance/byrequest/101" ,
  "status" : "RUNNING" ,
  "created" : "2013-08-26 05:09:13" ,
  "based_on" : "/em/cloud/dbaas/dbplatformtemplate/E4D9626BC260F517E040F20A605152CD" ,
  "connect_string" : "(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)
(HOST=slc01lxj.us.example.com) (PORT=1521))) (CONNECT_DATA=(SID=dbc00000)))" ,
  "target_type" : "oracle_database" ,
  "destination_zone" : "/em/cloud/dbaas/zone/675B859C36772FB7856771B1D57F79F8" ,
  "total_sessions" : "64" ,
  "last_backup" : "2013-08-27 07:24:04.0" ,
  "master_username" : "test" ,
  "db_version" : "11.2.0.2.0" ,
  "average_active_sessions" : ".027" ,
  "allocated_sessions" : "50" ,
  "measurable_attributes" :
  [
    {
      "name" : "up_time" ,
      "value" : "0" ,
      "units" : "Hours"
    } ,
    {
      "name" : "total_sga" ,
      "value" : "398.203" ,
      "units" : "MB"
    }
  ]
}

```

```

    } ,
    {
      "name" : "available_space" ,
      "value" : "537.172" ,
      "units" : "MB"
    } ,
    {
      "name" : "cpu_utilization" ,
      "value" : "0.496" ,
      "units" : "%"
    } ,
    {
      "name" : "total_memory" ,
      "value" : "578.12" ,
      "units" : "MB"
    } ,
    {
      "name" : "db_time" ,
      "value" : "2.736" ,
      "units" : "CentiSeconds Per Second"
    } ,
    {
      "name" : "cpu_count" ,
      "value" : "2" ,
      "units" : "Cores"
    }
  ] ,
  "RMAN_backup_list" :
  [
    {
      "Key" : "1" ,
      "Tag" : "ORA$OEM_LEVEL_0" ,
      "Completed Time" : "Aug 27, 2013 12:24:02 AM" ,
      "Contents" : "SPFILE,CONTROLFILE" ,
      "Status" : "AVAILABLE"
    }
  ]
}

```

## Restoring a Database from a Backup

To restore a database from a backup, the user has to provide the point-in-time when the database is to be restored. The time mentioned should be in the `YYYY-MM-DDTHH:MM:SSZFullTimeZonename` format.

For example, to schedule in PST time you should enter `2013-08-27T12:34:45ZAmerica/Los_Angeles`. Time zone is optional. If you do not want to provide the time zone, enter `2013-08-27T12:34:45Z`.

The restore time is based on the backups available. Refer to `RMAN_backup_list` section in the output of the GET request.

The configurations for the POST on a `DbPlatformInstance` is as follows:

**Table 34-22 POST Request Configuration for Restoring Database from a Backup**

Feature	Description
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/cloud/dbaas/dbplatforminstance/byrequest/7
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/ oracle.com.cloud.common.DbPlatformInstance+json Accept: application/ oracle.com.cloud.common.DbPlatformInstance+json
Body	{ "operation" : "RESTORE", "restore_date" : "2013-08-27T12:34:45Z" }
Request method	POST

A sample of the response received is shown below.

```
{
  "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/101" ,
  "name" : "dbc00000.xyxy.example.com" ,
  "resource_state" : {
    "state" : "INITIATED" ,
    "messages" :
    [
      {
        "date" : "2013-08-27T07:17:56+0000" ,
        "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/129" ,
        "text" : "Successfully submitted RESTORE operation on service instance.
Request id - 130."
      }
    ]
  } ,
  "context_id" : "101" ,
  "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/dbplatforminstance/byrequest/101" ,
  "status" : "RUNNING" ,
  "created" : "2013-08-26 05:09:13" ,
  "based_on" : "/em/cloud/dbaas/dbplatformtemplate/E4D9626BC260F517E040F20A605152CD" ,
  "connect_string" : "(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=host1)
(PORT=1521))) (CONNECT_DATA=(SID=dbc00000)))" ,
  "target_type" : "oracle_database" ,
  "destination_zone" : "/em/cloud/dbaas/zone/675B859C36772FB7856771B1D57F79F8" ,
  "total_sessions" : "0" ,
  "last_backup" : "null" ,
  "master_username" : "test" ,
  "db_version" : "11.2.0.2.0" ,
  "average_active_sessions" : "null" ,
  "allocated_sessions" : "46" ,
  "measurable_attributes" :
  [
    {
      "name" : "up_time" ,
      "value" : "0" ,
      "units" : "Hours"
```

```

    } ,
    {
      "name" : "total_sga" ,
      "value" : "398.203" ,
      "units" : "MB"
    } ,
    {
      "name" : "available_space" ,
      "value" : "537.172" ,
      "units" : "MB"
    } ,
    {
      "name" : "cpu_utilization" ,
      "value" : "null" ,
      "units" : "%"
    } ,
    {
      "name" : "total_memory" ,
      "value" : "575.043" ,
      "units" : "MB"
    } ,
    {
      "name" : "db_time" ,
      "value" : "null" ,
      "units" : "CentiSeconds Per Second"
    } ,
    {
      "name" : "cpu_count" ,
      "value" : "2" ,
      "units" : "Cores"
    }
  ]
}

```

## Adding a Standby Database

To add standby databases, input the standby databases which are configured in the service template. If the SID option in the service template is set as “Specified by user at request time”, then provide the SID value.

The configurations for the POST on a DbPlatformInstance is as follows:

**Table 34-23 POST Request Configuration for Adding a Standby Database**

Feature	Description
URI	<code>https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/cloud/dbaas/dbplatforminstance/byrequest/7</code>
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/ oracle.com.cloud.common.DbPlatformInstance+json Accept: application/ oracle.com.cloud.common.DbPlatformInstance+json



**Table 34-23 (Cont.) POST Request Configuration for Adding a Standby Database**

Feature	Description
Body	<pre>{   "operation" : "ADD_STANDBY",   "standbydbs":     [       {         "standbydb_name":"STBY1",         "standbydb_sid":"stiq41"       }     ] }</pre>
Request method	POST

A sample of the response received is shown below.

```
{
  "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/101" ,
  "name" : "dbc00000.abc.mycompany.com" ,
  "resource_state" : {
    "state" : "INITIATED" ,
    "messages" :
      [
        {
          "date" : "2013-08-27T07:17:56+0000" ,
          "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/129" ,
          "text" : "Successfully submitted ADD_STANDBY operation on service instance.
Request id - 130."
        }
      ]
  } ,
  "context_id" : "101" ,
  "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/dbplatforminstance/byrequest/101" ,
  "status" : "RUNNING" ,
  "created" : "2013-08-26 05:09:13" ,
  "based_on" : "/em/cloud/dbaas/dbplatformtemplate/E4D9626BC260F517E040F20A605152CD" ,
  "connect_string" : "(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=host1)
(PORT=1521))) (CONNECT_DATA=(SID=dbc00000)))" ,
  "target_type" : "oracle_database" ,
  "destination_zone" : "/em/cloud/dbaas/zone/675B859C36772FB7856771B1D57F79F8" ,
  "total_sessions" : "0" ,
  "last_backup" : "null" ,
  "master_username" : "test" ,
  "db_version" : "11.2.0.2.0" ,
  "average_active_sessions" : "null" ,
  "allocated_sessions" : "46" ,
  "measurable_attributes" :
  [
    {
      "name" : "up_time" ,
      "value" : "0" ,
      "units" : "Hours"
    } ,
    {
      "name" : "total_sga" ,
```

```

        "value" : "398.203" ,
        "units" : "MB"
    } ,
    {
        "name" : "available_space" ,
        "value" : "537.172" ,
        "units" : "MB"
    } ,
    {
        "name" : "cpu_utilization" ,
        "value" : "null" ,
        "units" : "%"
    } ,
    {
        "name" : "total_memory" ,
        "value" : "575.043" ,
        "units" : "MB"
    } ,
    {
        "name" : "db_time" ,
        "value" : "null" ,
        "units" : "CentiSeconds Per Second"
    } ,
    {
        "name" : "cpu_count" ,
        "value" : "2" ,
        "units" : "Cores"
    }
}
]
}

```

## Removing a Standby Database

To delete standby databases, input the standby databases which are created.

The configurations for the POST on a DbPlatformInstance is as follows:

**Table 34-24 POST Request Configuration for Adding a Standby Database**

Feature	Description
URI	<a href="https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/cloud/dbaas/dbplatforminstance/byrequest/7">https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/cloud/dbaas/dbplatforminstance/byrequest/7</a>
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/oracle.com.cloud.common.DbPlatformInstance+json Accept: application/oracle.com.cloud.common.DbPlatformInstance+json

**Table 34-24 (Cont.) POST Request Configuration for Adding a Standby Database**

Feature	Description
Body	<pre>{   "operation" : "DELETE_STANDBY",   "standbydbs":   [     {       "standbydb_name":"xyxy.example.com",       "standbydb_type":"oracle_database"     }   ] }</pre>
Request method	POST

A sample of the response received is shown below.

```
{
  "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/101" ,
  "name" : "dbc00000.abc.mycompany.com" ,
  "resource_state" : {
    "state" : "INITIATED" ,
    "messages" :
    [
      {
        "date" : "2013-08-27T07:17:56+0000" ,
        "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/129" ,
        "text" : "Successfully submitted DELETE_STANDBY operation on service
instance. Request id - 130."
      }
    ]
  } ,
  "context_id" : "101" ,
  "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/dbplatforminstance/byrequest/101" ,
  "status" : "RUNNING" ,
  "created" : "2013-08-26 05:09:13" ,
  "based_on" : "/em/cloud/dbaas/dbplatformtemplate/E4D9626BC260F517E040F20A605152CD" ,
  "connect_string" : "(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=host1)
(PORT=1521))) (CONNECT_DATA=(SID=dbc00000)))" ,
  "target_type" : "oracle_database" ,
  "destination_zone" : "/em/cloud/dbaas/zone/675B859C36772FB7856771B1D57F79F8" ,
  "total_sessions" : "0" ,
  "last_backup" : "null" ,
  "master_username" : "test" ,
  "db_version" : "11.2.0.2.0" ,
  "average_active_sessions" : "null" ,
  "allocated_sessions" : "46" ,
  "measurable_attributes" :
  [
    {
      "name" : "up_time" ,
      "value" : "0" ,
      "units" : "Hours"
    } ,
    {
      "name" : "total_sga" ,
```

```

        "value" : "398.203" ,
        "units" : "MB"
    } ,
    {
        "name" : "available_space" ,
        "value" : "537.172" ,
        "units" : "MB"
    } ,
    {
        "name" : "cpu_utilization" ,
        "value" : "null" ,
        "units" : "%"
    } ,
    {
        "name" : "total_memory" ,
        "value" : "575.043" ,
        "units" : "MB"
    } ,
    {
        "name" : "db_time" ,
        "value" : "null" ,
        "units" : "CentiSeconds Per Second"
    } ,
    {
        "name" : "cpu_count" ,
        "value" : "2" ,
        "units" : "Cores"
    }
}
]
}

```

## Refreshing a Database

The database can be refreshed to a new version of the profile by providing the name of the profile version.

The configurations for the POST on a DbPlatformInstance is as follows:

**Table 34-25 POST Request Configuration for Adding a Standby Database**

Feature	Description
URI	<code>https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/cloud/dbaas/dbplatforminstance/byrequest/7</code>
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/ oracle.com.cloud.common.DbPlatformInstance+json Accept: application/ oracle.com.cloud.common.DbPlatformInstance+json
Body	<pre> {   "operation" : "REFRESH_DATABASE",   "database_profile_version": "RMAN_06_27_2014_13_18_PM" } </pre>
Request method	POST

A sample of the response received is shown below.

```

{
  "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/101" ,
  "name" : "dbc00000.abc.mycompany.com" ,
  "resource_state" : {
    "state" : "INITIATED" ,
    "messages" :
    [
      {
        "date" : "2013-08-27T07:17:56+0000" ,
        "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/129" ,
        "text" : "Successfully submitted REFRESH_DATABASE operation on service
instance. Request id - 130."
      }
    ]
  } ,
  "context_id" : "101" ,
  "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/dbplatforminstance/byrequest/101" ,
  "status" : "RUNNING" ,
  "created" : "2013-08-26 05:09:13" ,
  "based_on" : "/em/cloud/dbaas/dbplatformtemplate/E4D9626BC260F517E040F20A605152CD" ,
  "connect_string" : "(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=host1)
(PORT=1521))) (CONNECT_DATA=(SID=dbc00000)))" ,
  "target_type" : "oracle_database" ,
  "destination_zone" : "/em/cloud/dbaas/zone/675B859C36772FB7856771B1D57F79F8" ,
  "total_sessions" : "0" ,
  "last_backup" : "null" ,
  "master_username" : "test" ,
  "db_version" : "11.2.0.2.0" ,
  "average_active_sessions" : "null" ,
  "allocated_sessions" : "46" ,
  "measurable_attributes" :
  [
    {
      "name" : "up_time" ,
      "value" : "0" ,
      "units" : "Hours"
    } ,
    {
      "name" : "total_sga" ,
      "value" : "398.203" ,
      "units" : "MB"
    } ,
    {
      "name" : "available_space" ,
      "value" : "537.172" ,
      "units" : "MB"
    } ,
    {
      "name" : "cpu_utilization" ,
      "value" : "null" ,
      "units" : "%"
    } ,
    {
      "name" : "total_memory" ,
      "value" : "575.043" ,
      "units" : "MB"
    } ,
    {
      "name" : "db_time" ,
      "value" : "null" ,

```

```

        "units" : "CentiSeconds Per Second"
    } ,
    {
        "name" : "cpu_count" ,
        "value" : "2" ,
        "units" : "Cores"
    }
}
]
}

```

## Performing a Switchover to a Standby Database

The configurations for the POST on a DbPlatformInstance is as follows:

**Table 34-26 POST Request Configuration to Perform a Switchover to a Standby Database**

Feature	Description
URI	/em/cloud/dbaas/dbplatforminstance/byrequest/7
Request headers	Authorization: basic basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/ oracle.com.cloud.common.DbPlatformInstance+json Accept:application/oracle.com.cloud.common.DbPlatformInstance+json
Body	{ "operation" : "SWITCHOVER", "standbydb_name" : "xyxy.example.com", <optional> "standbydb_type" : "oracle_database", <optional> }
Request method	POST

## Lifecycle operations on a Snap clone Database Instance

The POST request on the URI of the resource can be run to perform an operation on a database. The following operations can be performed by using POST.

- [Creating a Snapshot](#)
- [Restoring from a Snapshot List](#)
- [Deleting a Snapshot](#)

### Creating a Snapshot

The configurations for the POST on a DbPlatformInstance is as follows:

**Table 34-27 POST Request Configuration for Creating a Snapshot**

Feature	Description
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/cloud/dbaas/ dbplatforminstance/byrequest/7

**Table 34-27 (Cont.) POST Request Configuration for Creating a Snapshot**

Feature	Description
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/oracle.com.cloud.common.DbPlatformInstance+json Accept: application/oracle.com.cloud.common.DbPlatformInstance+json
Body	<pre>{   "operation" : "CREATE_PROFILE",   "snapshot_name" : "test_API_export",   "snapshot_desc" : "testing export option from APIs" }</pre>
Request method	POST

A sample of the response received is shown below.

```
{
  "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/101" ,
  "name" : "dbc00000.xyxy.example.com" ,
  "resource_state" : {
    "state" : "INITIATED" ,
    "messages" :
    [
      {
        "date" : "2013-08-27T07:17:56+0000" ,
        "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/129" ,
        "text" : "Successfully submitted CREATE_PROFILE operation on service
instance. Request id - 130."
      }
    ]
  } ,
  "context_id" : "101" ,
  "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/dbplatforminstance/byrequest/101" ,
  "status" : "RUNNING" ,
  "created" : "2013-08-26 05:09:13" ,
  "based_on" : "/em/cloud/dbaas/dbplatformtemplate/E4D9626BC260F517E040F20A605152CD" ,
  "connect_string" : "(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=host1)
(PORT=1521))) (CONNECT_DATA=(SID=dbc00000)))" ,
  "target_type" : "oracle_database" ,
  "destination_zone" : "/em/cloud/dbaas/zone/675B859C36772FB7856771B1D57F79F8" ,
  "total_sessions" : "0" ,
  "last_backup" : "null" ,
  "master_username" : "test" ,
  "db_version" : "11.2.0.2.0" ,
  "average_active_sessions" : "null" ,
  "allocated_sessions" : "46" ,
  "measurable_attributes" :
  [
    {
      "name" : "up_time" ,
      "value" : "0" ,
      "units" : "Hours"
    } ,
    {
      "name" : "total_sga" ,
      "value" : "398.203" ,

```

```

        "units" : "MB"
    } ,
    {
        "name" : "available_space" ,
        "value" : "537.172" ,
        "units" : "MB"
    } ,
    {
        "name" : "cpu_utilization" ,
        "value" : "null" ,
        "units" : "%"
    } ,
    {
        "name" : "total_memory" ,
        "value" : "575.043" ,
        "units" : "MB"
    } ,
    {
        "name" : "db_time" ,
        "value" : "null" ,
        "units" : "CentiSeconds Per Second"
    } ,
    {
        "name" : "cpu_count" ,
        "value" : "2" ,
        "units" : "Cores"
    }
}
]
}

```

After the snapshot is created, the response of a GET operations yields the result shown below.

```

{
  "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/101" ,
  "name" : "dbc00000.xyxy.example.com" ,
  "resource_state" : {
    "state" : "INITIATED" ,
    "messages" :
    [
      {
        "date" : "2013-08-27T07:17:56+0000" ,
        "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/143" ,
        "text" : "Successfully submitted CREATE_PROFILE operation on service
instance. Request id - 143."
      }
    ]
  } ,
  "context_id" : "101" ,
  "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/dbplatforminstance/byrequest/101" ,
  "status" : "RUNNING" ,
  "created" : "2013-08-26 05:09:13" ,
  "based_on" : "/em/cloud/dbaas/dbplatformtemplate/E4D9626BC260F517E040F20A605152CD" ,
  "connect_string" : "(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=host1)
(PORT=1521))) (CONNECT_DATA=(SID=dbc00000)))" ,
  "target_type" : "oracle_database" ,
  "destination_zone" : "/em/cloud/dbaas/zone/675B859C36772FB7856771B1D57F79F8" ,
  "total_sessions" : "0" ,
  "last_backup" : "null" ,
  "master_username" : "test" ,
  "db_version" : "11.2.0.2.0" ,

```



```

"average_active_sessions" : "null" ,
"allocated_sessions" : "46" ,
"measurable_attributes" :
[
  {
    "name" : "up_time" ,
    "value" : "0" ,
    "units" : "Hours"
  } ,
  {
    "name" : "total_sga" ,
    "value" : "398.203" ,
    "units" : "MB"
  } ,
  {
    "name" : "available_space" ,
    "value" : "537.172" ,
    "units" : "MB"
  } ,
  {
    "name" : "cpu_utilization" ,
    "value" : "null" ,
    "units" : "%"
  } ,
  {
    "name" : "total_memory" ,
    "value" : "575.043" ,
    "units" : "MB"
  } ,
  {
    "name" : "db_time" ,
    "value" : "null" ,
    "units" : "CentiSeconds Per Second"
  } ,
  {
    "name" : "cpu_count" ,
    "value" : "2" ,
    "units" : "Cores"
  }
]
"snapclone_profile_list" :
[
  {
    "Name" : "test_API_export" ,
    "Description" : "testing export option from APIs" ,
    "URN" :
"oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:E4E9E7EE230BF96
5E040F20A60517256:0.1" ,
    "Submission Guid" : "DD269BBA774E0159E040F20A60513010" ,
    "Creation Date" : "Mon Aug 20 05:54:03 PDT 2013" ,
    "Status" : "Ready"
  }
]
}

```

## Restoring from a Snapshot List

The configurations for the POST on a DbPlatformInstance is as follows:

**Table 34-28 POST Request Configuration for Restoring from a Snapshot List**

Feature	Description
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/cloud/dbaas/dbplatforminstance/byrequest/7
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/oracle.com.cloud.common.DbPlatformInstance+json Accept: application/oracle.com.cloud.common.DbPlatformInstance+json
Body	<pre>{   "operation" : "RESTORE_PROFILE",   "snapshot_urn" :   "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:DECAD7B3145E6808E040F20A605130A2:0.1" }</pre>
Request method	POST

A sample of the response received is shown below.

```
{
  "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/101" ,
  "name" : "dbc00000.xyxy.example.com" ,
  "resource_state" : {
    "state" : "INITIATED" ,
    "messages" :
    [
      {
        "date" : "2013-08-27T07:17:56+0000" ,
        "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/144" ,
        "text" : "Successfully submitted RESTORE_PROFILE operation on service
instance. Request id - 144."
      }
    ]
  } ,
  "context_id" : "101" ,
  "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/dbplatforminstance/byrequest/101" ,
  "status" : "RUNNING" ,
  "created" : "2013-08-26 05:09:13" ,
  "based_on" : "/em/cloud/dbaas/dbplatformtemplate/E4D9626BC260F517E040F20A605152CD" ,
  "connect_string" : "(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=host1)
(PORT=1521))) (CONNECT_DATA=(SID=dbc00000)))" ,
  "target_type" : "oracle_database" ,
  "destination_zone" : "/em/cloud/dbaas/zone/675B859C36772FB7856771B1D57F79F8" ,
  "total_sessions" : "0" ,
  "last_backup" : "null" ,
  "master_username" : "test" ,
  "db_version" : "11.2.0.2.0" ,
  "average_active_sessions" : "null" ,
  "allocated_sessions" : "46" ,
  "measurable_attributes" :
  [
    {
      "name" : "up_time" ,
      "value" : "0" ,
      "units" : "Hours"
    }
  ]
}
```

```

    } ,
    {
      "name" : "total_sga" ,
      "value" : "398.203" ,
      "units" : "MB"
    } ,
    {
      "name" : "available_space" ,
      "value" : "537.172" ,
      "units" : "MB"
    } ,
    {
      "name" : "cpu_utilization" ,
      "value" : "null" ,
      "units" : "%"
    } ,
    {
      "name" : "total_memory" ,
      "value" : "575.043" ,
      "units" : "MB"
    } ,
    {
      "name" : "db_time" ,
      "value" : "null" ,
      "units" : "CentiSeconds Per Second"
    } ,
    {
      "name" : "cpu_count" ,
      "value" : "2" ,
      "units" : "Cores"
    }
  ]
}

```

## Deleting a Snapshot

The configurations for the POST on a DbPlatformInstance is as follows:

**Table 34-29 POST Request Configuration for Restoring from a Snapshot List**

Feature	Description
URI	<code>https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/cloud/dbaas/dbplatforminstance/byrequest/7</code>
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/oracle.com.cloud.common.DbPlatformInstance+json Accept: application/oracle.com.cloud.common.DbPlatformInstance+json
Body	<pre> {   "operation" : " DELETE_PROFILE",   "snapshot_urn" :   "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:DECAD7B3145E6808E040F20A605130A2:0.1" } </pre>
Request method	POST

A sample of the response received is shown below.

```

{
  "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/101" ,

```

```

"name" : "dbc00000.xyxy.example.com" ,
"resource_state" : {
  "state" : "INITIATED" ,
  "messages" :
  [
    {
      "date" : "2013-08-27T07:17:56+0000" ,
      "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/148" ,
      "text" : "Successfully submitted DELETE_PROFILE operation on service
instance. Request id - 148."
    }
  ]
} ,
"context_id" : "101" ,
"media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
"canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/dbplatforminstance/byrequest/101" ,
"status" : "RUNNING" ,
"created" : "2013-08-26 05:09:13" ,
"based_on" : "/em/cloud/dbaas/dbplatformtemplate/E4D9626BC260F517E040F20A605152CD" ,
"connect_string" : "(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=host1)
(PORT=1521))) (CONNECT_DATA=(SID=dbc00000)))" ,
"target_type" : "oracle_database" ,
"destination_zone" : "/em/cloud/dbaas/zone/675B859C36772FB7856771B1D57F79F8" ,
"total_sessions" : "0" ,
"last_backup" : "null" ,
"master_username" : "test" ,
"db_version" : "11.2.0.2.0" ,
"average_active_sessions" : "null" ,
"allocated_sessions" : "46" ,
"measurable_attributes" :
[
  {
    "name" : "up_time" ,
    "value" : "0" ,
    "units" : "Hours"
  } ,
  {
    "name" : "total_sga" ,
    "value" : "398.203" ,
    "units" : "MB"
  } ,
  {
    "name" : "available_space" ,
    "value" : "537.172" ,
    "units" : "MB"
  } ,
  {
    "name" : "cpu_utilization" ,
    "value" : "null" ,
    "units" : "%"
  } ,
  {
    "name" : "total_memory" ,
    "value" : "575.043" ,
    "units" : "MB"
  } ,
  {
    "name" : "db_time" ,
    "value" : "null" ,
    "units" : "CentiSeconds Per Second"
  } ,

```

```
{
  "name" : "cpu_count" ,
  "value" : "2" ,
  "units" : "Cores"
}
]
```

## Schema as a Service

This section describes the resource model for Schema as a Service (SchaaS) REST API and the REST request/response interactions.

### Note:

SchaaS REST APIs are only supported by the Oracle Cloud Application plug-in version 12.1.0.6.0 and higher

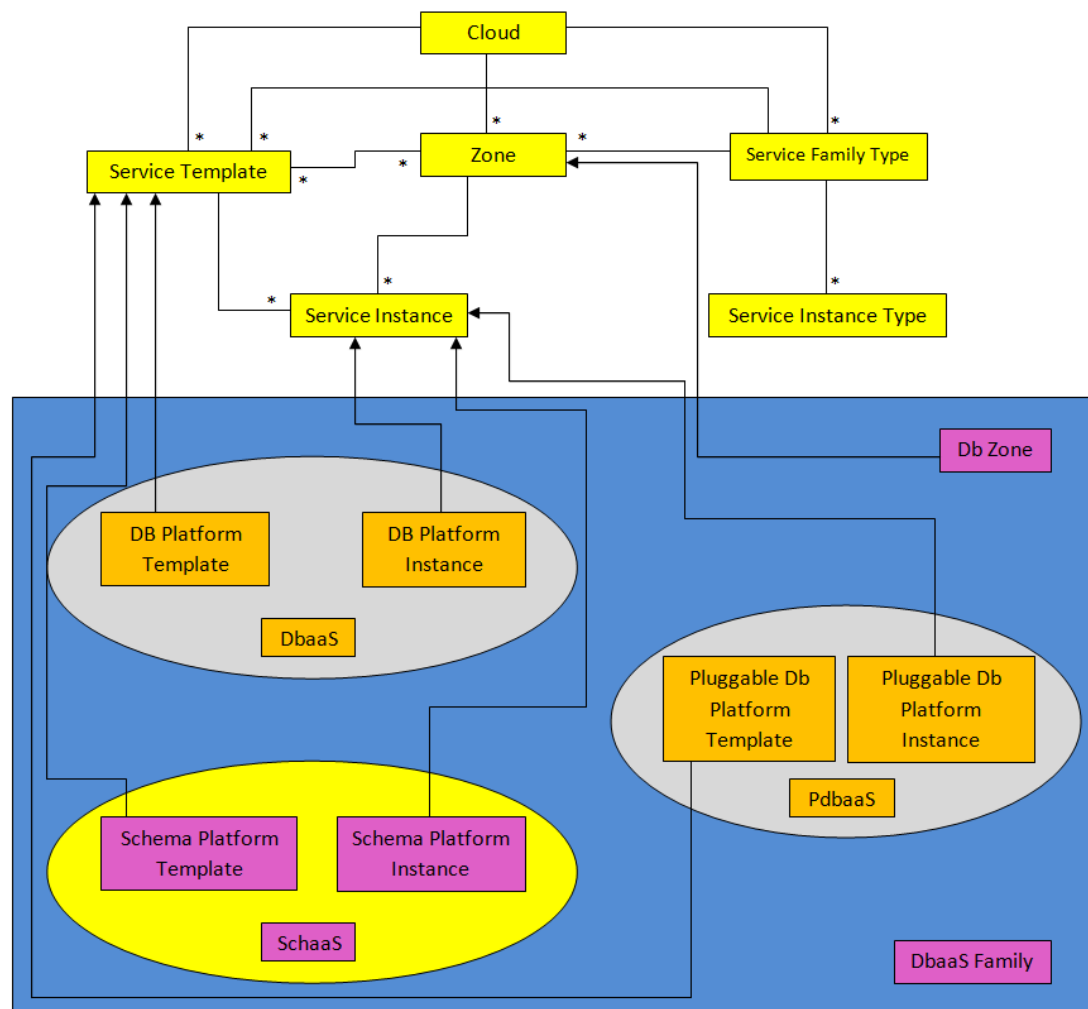
This section contains the following topics:

- [Schema as a Service Resource Model](#)
- [Supported Operations for Schema as a Service Resources](#)
- [Schema as a Service REST API Examples](#)

## Schema as a Service Resource Model

Cloud resources are organized by common service entities, and specific services (for example, Schema as a Service) provide resources by extending these common service entities. The figure below shows the SchaaS resource model.

Figure 34-2 Schema as a Service Resource Model



The following sections describe the resources that are supported by the Schema as a Service REST APIs and provide examples of supported operations. Schema as a Service uses the same Cloud, Service Family, and DB Zone resources as described in [Database as a Service Resource Model](#).

. The following resource models are described:

- [Schema Platform Template](#)
- [Schema Platform Instance](#)

## Schema Platform Template

The Schema Platform Template extends the Service Template resource. It represents the service template created for Schema Service creation. It can be a template for creating a schema service using profile based schemas (schema with data) or for creating a schemas service containing empty schemas.

It is permissible to accept the Service Template media type on an instance of Schema Platform Template. It is a preconfigured deployable service that realizes a Schema Platform Instance

resource. Schema Platform Template has the media type `application/oracle.com.cloud.common.SchemaPlatformTemplate` and URI format `/em/cloud/dbaas/schemaplatformtemplate/<template id>`.

The following table describes the Schema Platform Template Data Model.

**Table 34-30 Schema Platform Template Data Model**

Field	Type	Description	Occurs
uri	URI	A GET against this URI refreshes the client representation of the resources accessible to this user.	1
name	String	A human readable name given to the template.	1
description	String	A brief description given to the template.	0..1
created	Timestamp	Date and time, in ISO 8601 format, when the template was created/last modified.	1
resource_state	ResourceState	The validity of the fields on a GET should be guaranteed only when the resource state is <b>READY</b> . Otherwise, the client should not assume the validity of the fields.	1
zones	Collection <DbZone>	List of all zones configured for this template.	0..1
service_instances	Collection <SchemaPlatformInstance>	All service instances created based on this SchemaPlatformTemplate.	0..1
media_type	String	The media type of the service template that this type represents.	1
params	Object	List of parameters required to provision a Schema Platform Instance from this template.	1
deployment_params	List<Object>	Description of the parameters which are required while creating a service instance.	1
type	String	The type of the service template which is "dbaas" by default.	1
subtype	String	The sub type of the instance created based on this template. It has a value "schema" in this case.	1
template_type	String	Type of this template based on how the template got created. It can have any of two values : "EMPTY_SCHEMAS" or "SCHEMAS_FROM_PROFILE".	1
max_number_of_schemas	Integer	Maximum number of schemas that can be created in a single instance request. This field exists only if template_type is "EMPTY_SCHEMAS".	0..1
workloads	List<Object>	List all the workloads defined for this template and list the attributes for each one of them.	0..1
canonicalLink	URI	Can be used to perform cloud interactions like GET and POST.	1
tablespace_list	List<Object>	List of tablespaces in schema.	1

## Schema Platform Instance

The Schema Platform Instance extends the Service Instance resource. It is linked to Oracle Database Service target in Enterprise Manager Cloud Control. Schema Platform Instance has the media type `application/oracle.com.cloud.common.SchemaPlatformInstance` and URI `/em/cloud/dbaas/schemaplatforminstance/byrequest/<request id>`.

The following table describes the Schema Platform Instance data model:

**Table 34-31 Schema Platform Instance Data Model**

Field	Type	Description	Occurs
uri	URI	A GET against this URI refreshes the client representation of the resources accessible to this user.	1
name	String	A human readable name given to the database service[POST]	1
destination_zone	Zone	The Zone to which the database service is deployed [POST]	1
created	Timestamp	Date and time, in ISO 8601 format, when the template was created/last modified.	1
resource_state	ResourceState	The validity of the fields on a GET should be guaranteed only when the resource state is READY. Otherwise, the client should not assume the validity of the fields.	1
based_on	SchemaPlatformTemplate	The schema platform template on which this database service is published.	1
media_type	String	Indicates the additional media type that clients can use to perform a GET.	1
canonicalLink	URI	Can be used to perform cloud interactions like GET and POST.	1
type	String	Type of the database service. It has the default value "oracle_dbsvc".	1
connect_string	String	Connect String required to establish a connection to this database service.	0..1
status	String	Status of the database service.	1
db_version	String	Version of the database on which this service is running.	0..1
context_id	String	The request id of this database service.	1

## Supported Operations for Schema as a Service Resources

The following table lists all the operations that are supported on the various Schema as a Service resources.

**Table 34-32 Supported Operations**

Resource	Operations (GET, POST, PUT, and DELETE)	POST	PUT	DELETE
Cloud	Yes	No	No	No
Service Family Type	Yes	No	No	No



**Table 34-32 (Cont.) Supported Operations**

Resource	Operations (GET, POST, PUT, and DELETE)	POST	PUT	DELETE
DB Zone	Yes	Yes	No	No
Schema Platform Template [Service Template]	Yes	Yes	No	No
Schema Platform Instance [Service Instance]	Yes	Yes	No	Yes

## Schema as a Service REST API Examples

The following sections provide examples of interaction with Enterprise Manager Cloud Control with Cloud Application plug-in 12.1.0.6 and higher. The examples for GET on cloud, GET on dbaas family type and GET on Db Zone are covered in the DbaaS REST APIs section. The following examples are covered:

- [Viewing Details of the Schema Platform Template Resource](#)
- [Creating a Schema Service](#)
  - [Creating a Schema by Passing a Request on the DB Zone](#)
  - [Creating a Schema by Passing a Request on the Schema Platform Template](#)
- [Viewing Details of the Schema Service Creation](#)
- [Deleting a Schema Service](#)
- [Life Cycle Operations of a Schema Service](#)
  - [Exporting a Schema](#)
  - [Restoring a Schema from Exported Schema Dumps](#)
  - [Deleting the Exported Schema Dumps](#)
  - [Changing Schema Passwords](#)

### Viewing Details of the Schema Platform Template Resource

A GET request on the Schema Platform Template resource provides the details of the resource.

**Table 34-33 GET Request Configuration for Viewing Details of the Schema Platform Template Resource**

Feature	Description
URI	<code>https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/cloud/dbaas/schemaplatformtemplate/DE3F8D882F132F45E040F00AAA2330C5</code>
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "max_number_of_schemas" : "" ,
  "media_type" : "application/oracle.com.cloud.common.SchemaPlatformTemplate+json" ,
  "resource_state" : {
    "state" : "READY"
  } ,
  "tablespace_list" :
  [
    "DUMPTBSP1" ,
    "DUMPTBSP2"
  ] ,
  "params" : {
    "schema" :
    [
      {
        "username" : "" ,
        "password" : "" ,
        "original_name" : "SCHEMA_USER_1"
      } ,
      {
        "username" : "" ,
        "password" : "" ,
        "original_name" : "SCHEMA_USER_2"
      }
    ] ,
    "service_name_prefix" : "" ,
    "workload_name" : "" ,
    "tablespaces" :
    [
      {
        "old_tablespace_name" : "DUMPTBSP1" ,
        "new_tablespace_name" : ""
      } ,
      {
        "old_tablespace_name" : "DUMPTBSP2" ,
        "new_tablespace_name" : ""
      }
    ]
  } ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/schemaplatformtemplate/FADFFB8A434244F1E043797EF00A63AE" ,
  "template_type" : "SCHEMAS_FROM_PROFILE" ,
  "type" : "dbaas" ,
  "zones" : {
    "total" : "1" ,
    "media_type" : "application/oracle.com.cloud.common.DbZone+json" ,
    "elements" :
    [
      {
        "media_type" : "application/oracle.com.cloud.common.DbZone+json" ,
        "context_id" : "2348838861AFF7BC02912C402605D49F" ,
        "description" : "SSA Zone with SI Nodes" ,
        "service_family_type" : "dbaas" ,
        "name" : "SI SSAZONE" ,
        "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/zone/2348838861AFF7BC02912C402605D49F" ,
        "type" : "self_service_zone" ,
        "uri" : "/em/cloud/dbaas/zone/2348838861AFF7BC02912C402605D49F"
      }
    ]
  }
}
```

```
    },
    "uri" : "/em/cloud/dbaas/schemaplatformtemplate/FADFFB8A434244F1E043797EF00A63AE" ,
    "service_instances" : {
        "total" : "1" ,
        "media_type" : "application/oracle.com.cloud.common.SchemaPlatformInstance+json" ,
        "elements" :
        [
            {
                "media_type" : "application/
oracle.com.cloud.common.SchemaPlatformInstance+json" ,
                "name" : "SIFSDifftbpc" ,
                "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/
cloud/dbaas/schemaplatforminstance/byrequest/1" ,
                "target_type" : "oracle_dbsvc" ,
                "uri" : "/em/cloud/dbaas/schemaplatforminstance/byrequest/1"
            }
        ]
    } ,
    "created" : "2014-06-02T19:38:04+0000" ,
    "description" : "11204 SIDB FileSystem Schema Service Template - Import Schema -
Different TableSpace for Each Schema" ,
    "name" : "11204_SIFS_SCHEMATEMPLATE_IMPORTSCHEMA_DIFFTBPC" ,
    "subtype" : "schema" ,
    "workloads" :
    [
        {
            "description" : "LARGE" ,
            "name" : "LARGE" ,
            "attributes" :
            [
                {
                    "name" : "CPU" ,
                    "value" : "1" ,
                    "units" : "cores"
                } ,
                {
                    "name" : "Memory" ,
                    "value" : "1" ,
                    "units" : "GB"
                } ,
                {
                    "name" : "Storage" ,
                    "value" : "10" ,
                    "units" : "GB"
                }
            ]
        } ,
        {
            "description" : "MEDIUM" ,
            "name" : "MEDIUM" ,
            "attributes" :
            [
                {
                    "name" : "CPU" ,
                    "value" : "0.5" ,
                    "units" : "cores"
                } ,
                {
                    "name" : "Memory" ,
                    "value" : "0.5" ,
                    "units" : "GB"
                }
            ]
        }
    ]
}
```

```
        {
          "name" : "Storage" ,
          "value" : "5" ,
          "units" : "GB"
        }
      ]
    } ,
    {
      "description" : "SMALL" ,
      "name" : "SMALL" ,
      "attributes" :
      [
        {
          "name" : "CPU" ,
          "value" : "0.3" ,
          "units" : "cores"
        } ,
        {
          "name" : "Memory" ,
          "value" : "0.3" ,
          "units" : "GB"
        } ,
        {
          "name" : "Storage" ,
          "value" : "3" ,
          "units" : "GB"
        }
      ]
    }
  ] ,
  "schema_list" :
  [
    "SCHEMA_USER_1" ,
    "SCHEMA_USER_2"
  ] ,
  "deployment_params" :
  [
    {
      "description" : "Master account schema. Not Required for the
SCHEMAS_FROM_PROFILE Schema templates" ,
      "name" : "masterAccount" ,
      "require" : "false" ,
      "type" : "STRING" ,
      "sensitive" : "false"
    } ,
    {
      "description" : "Prefix for the service name instances" ,
      "name" : "service_name_prefix" ,
      "require" : "true" ,
      "type" : "STRING" ,
      "sensitive" : "false"
    } ,
    {
      "description" : "WorkLoad name to be associated with the request" ,
      "name" : "workload_name" ,
      "require" : "true" ,
      "type" : "STRING" ,
      "sensitive" : "false"
    } ,
    {
      "description" : "Common password for all schema users." ,
      "name" : "common_password" ,
```

```
        "require" : "false" ,
        "type" : "STRING" ,
        "sensitive" : "true"
    } ,
    {
        "description" : "List of schema to be created" ,
        "name" : "schema" ,
        "require" : "true" ,
        "defaultValue" :
        [
            {
                "description" : "New schema name" ,
                "name" : "username" ,
                "require" : "true" ,
                "type" : "STRING" ,
                "sensitive" : "false"
            } ,
            {
                "description" : "Original schema name. Required only for the
SCHEMAS_FROM_PROFILE Schema templates" ,
                "name" : "original_name" ,
                "require" : "false" ,
                "type" : "STRING" ,
                "sensitive" : "false"
            } ,
            {
                "description" : "Password for the schema. Required only if common_password
is not specified." ,
                "name" : "password" ,
                "require" : "false" ,
                "type" : "STRING" ,
                "sensitive" : "true"
            }
        ] ,
        "type" : "LIST" ,
        "sensitive" : "false"
    } ,
    {
        "description" : "List of tablespaces remap. Required only for the
SCHEMAS_FROM_PROFILE Schema templates." ,
        "name" : "tablespaces" ,
        "require" : "false" ,
        "defaultValue" :
        [
            {
                "description" : "New tablespace name." ,
                "name" : "new_tablespace_name" ,
                "require" : "true" ,
                "type" : "STRING" ,
                "sensitive" : "false"
            } ,
            {
                "description" : "Original tablespace name." ,
                "name" : "old_tablespace_name" ,
                "require" : "true" ,
                "type" : "STRING" ,
                "sensitive" : "false"
            }
        ] ,
        "type" : "LIST" ,
        "sensitive" : "false"
    }
}
```

```
]
}
```

## Creating a Schema Service

This section describes how to create a database service using the Cloud resources. As Database service is also a service instance in the service family type `dbaas`, you need to identify the zone of the same family type in which to create the database service. There are two approaches to creating a database service:

- By passing a POST request on the DB Zone on which DB service is to be created
- By passing a POST request on the Schema Platform Template resource of which the database service is to be based on

Note the attributes in the submitted body for the POST. The pattern is the same for other service instance creations. Since the intention is clear, the `zone` attribute is not required while performing the POST operation to the Db Zone. Similarly, the `based_on` attribute is not needed when performing the POST operation to the SchemaPlatformTemplate.

The following operations are described in this section:

- [Creating a Schema by Passing a Request on the DB Zone](#)
- [Creating a Schema by Passing a Request on the Schema Platform Template](#)

### Creating a Schema by Passing a Request on the DB Zone

The configuration for performing POST to DB Zone is as follows:

**Table 34-34 POST Request Configuration for Creating a Schema by Passing a Request on the DB Zone**

Feature	Description
URI	<code>https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/cloud/dbaas/zone/82CF1C28FA20A183C99D138FF8065F19</code>
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/oracle.com.cloud.common.SchemaPlatformInstance+json Accept: application/oracle.com.cloud.common.SchemaPlatformInstance+json

**Table 34-34 (Cont.) POST Request Configuration for Creating a Schema by Passing a Request on the DB Zone**

Feature	Description
Body for a profile based schema template for multiple schemas	<pre> {   "name" : "TestService0" ,   "start_date": "2013-08-02T14:20:00ZAsia/Calcutta",   "end_date": "2013-08-02T17:20:00ZAsia/Calcutta",   "params" : {     "schema" :       [         {           "username" : "Schema_User11_01" ,           "password" : "Schema_User1" ,           "tablespace_name" : "tbsp01"         } ,         {           "username" : "Schema_User11_02" ,           "password" : "Schema_User1" ,           "tablespace_name" : "tbsp02"         } ,         {           "username" : "Schema_User11_03" ,           "password" : "Schema_User1" ,           "tablespace_name" : "tbsp03"         } ,         {           "username" : "Schema_User11_04" ,           "password" : "Schema_User1" ,           "tablespace_name" : "tbsp04"         }       ] ,     "workload_name" : "default_workload" ,     "service_name" : "TestService0" ,     "masterAccount" : "Schema_User11_01"   } ,   "based_on" : "/em/cloud/dbaas/schemaplatformtemplate/ DE3F8D882F132F45E040F00AAA2330C5" } </pre>

**Table 34-34 (Cont.) POST Request Configuration for Creating a Schema by Passing a Request on the DB Zone**

Feature	Description
Body for a profile based schema template for a single schema	<pre>{   "name" : "TestService0" ,   "start_date": "2013-08-02T14:20:00ZAsia/Calcutta",   "end_date": "2013-08-02T17:20:00ZAsia/Calcutta",   "params" : {     "schema" :       [         {           "username" : "Schema_User11_01" ,           "password" : "Schema_User1" ,           "tablespace_name" : "tbsp01"         } ,         "workload_name" : "default_workload" ,         "service_name" : "TestService0" ,         "masterAccount" : "Schema_User11_01"       ] ,     "based_on" : "/em/cloud/dbaas/schemaplatformtemplate/ DE3F8D882F132F45E040F00AAA2330C5"   } }</pre>
Request method	POST

A sample of the response received is shown below.

```
{
  "uri" : "/em/cloud/dbaas/schemaplatforminstance/byrequest/22" ,
  "name" : "TestRequest" ,
  "resource_state" : {
    "state" : "INITIATED"
    "messages" :
      [
        {
          "date" : "2014-11-25T09:52:49+0000" ,
          "uri" : "/em/cloud/dbaas/schemaplatforminstance/byrequest/22",
          "text" : "Delete Request ID is : 22"
        }
      ]
  } ,
  "media_type" : "application/oracle.com.cloud.common.SchemaPlatformInstance+json" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/schemaplatforminstance/byrequest/22" ,
  "status" : "SCHEDULED"
}
```

## Creating a Schema by Passing a Request on the Schema Platform Template

The configurations for performing POST to the Schema Platform Template is as follows:



**Table 34-35 POST Request Configuration for Creating a Schema by Passing a Request on the Schema Platform Template**

Feature	Description
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/cloud/dbaas/schemaplatformtemplate/CC3BBB665A6BC6FFE040F00AEF252456
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/oracle.com.cloud.common.SchemaPlatformInstance+json Accept: application/oracle.com.cloud.common.SchemaPlatformInstance+json
Body	<pre>{   "based_on" : "/em/cloud/dbaas/schemaplatformtemplate/ FADFFB8A434244F1E043797EF00A63AE" ,   "name" : "Test Service" ,   "params" : {     "schema" :       [         {           "username" : "Schaas_API_User_1" ,           "original_name" : "SCHEMA_USER_1" ,           "password" : "sunset1"         } ,         {           "username" : "Schaas_API_User_2" ,           "original_name" : "SCHEMA_USER_2" ,           "password" : "sunset1"         }       ] ,     "workload_name" : "SMALL" ,     "service_name" : "TestService" ,     "masterAccount" : "Schema_User11_01",     "tablespaces" :       [         {           "old_tablespace_name" : "DUMPTBSP2" ,           "new_tablespace_name" : "tablespace2"         } ,         {           "old_tablespace_name" : "DUMPTBSP1" ,           "new_tablespace_name" : "tablespace1"         }       ]   } } "zone": "/em/cloud/dbaas/zone/9A71CBEABCA367D0D425697DC39B3AF9 }</pre>
Request method	POST

A sample of the response received is shown below.

```
{
  "uri" : "/em/cloud/dbaas/schemaplatforminstance/byrequest/23" ,
  "name" : "TestRequest" ,
  "resource_state" : {
    "state" : "INITIATED"
  } ,
  "media_type" : "application/oracle.com.cloud.common.SchemaPlatformInstance+json" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
```

```

dbaas/schemaplatforminstance/byrequest/23" ,
  "status" : "SCHEDULED"
}

```

The response shown above is the same as the previous version. If the zone is not specified, then it is not possible for the web service to determine where the database service should be deployed.

## Viewing Details of the Schema Service Creation

After the database service creation has been performed by performing the POST operation, you can perform the GET operation to get the resource identified by the return URI to keep track of the status.

**Table 34-36 GET Request Configuration for Viewing Details of the Schema Service Creation**

Feature	Description
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/cloud/dbaas/schemaplatforminstance/byrequest/22
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Accept: application/ oracle.com.cloud.common.SchemaPlatformInstance+json
Body	None
Request method	GET

A sample of the response received is shown below.

```

{
  "uri": "/em/cloud/dbaas/schemaplatforminstance/byrequest/22",
  "name": "TestRequest_CREATE_55_42",
  "description": "Create Service for test.",
  "resource_state":
  {
    "state": "CREATING"
  },
  "context_id": "22",
  "media_type": "application/oracle.com.cloud.common.SchemaPlatformInstance+json",
  "status": "IN_PROGRESS",
  "created": "2013-06-07 23:09:04" ,
  "canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/schemaplatforminstance/byrequest/22"
}

```

Note that the `resource_state` attribute shows `CREATING` to indicate that the database service is being created. After the database service is created, the GET operation returns the database service resource with `READY` state, as shown below:

```

{
  "uri": "/em/cloud/dbaas/schemaplatforminstance/byrequest/22",
  "name": "Service_1_35E576F22E97E",
  "resource_state": {
    "state": "READY"
    "messages" :
    [
      {

```

```

        "date" : "2014-11-25T09:52:49+0000" ,
        "uri" : "/em/cloud/dbaas/schemaplatforminstance/byrequest/22",
        "text" : "Delete Request ID is : 22"
    }
}
},
"context_id": "22",
"media_type": "application/oracle.com.cloud.common.SchemaPlatformInstance+json",
"canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/schemaplatforminstance/byrequest/22",
"status": "RUNNING",
"created": "2013-06-10 02:45:32",
"based_on": "/em/cloud/dbaas/schemaplatforminstance/DECA1100F797EF10E040F00AFBB123E7",
"target_type": "oracle_dbsvc",
"connect_string": "(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)
(HOST=abc.mycompany.com) (PORT=1521)))
(CONNECT_DATA=(SERVICE_NAME=Service_1_35E576F22E97E.mycompany.com)))",
"destination_zone": "/em/cloud/dbaas/zone/34C1FC23A7503E1CC9C490C9670635F9",
"db_version": "11.2.0.3.0"
}
}

```

## Deleting a Schema Service

The DELETE request can be issued on the URI of the resource to delete a database service. The configuration for the DELETE request is as follows:

**Table 34-37 DELETE Request Configuration for Deleting a Schema Service**

Feature	Description
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/cloud/dbaas/schemaplatforminstance/byrequest/22
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Accept: application/oracle.com.cloud.common.SchemaPlatformInstance+json
Body	None
Request method	DELETE

A sample of the response received is shown below.

```

{
  "uri" : "/em/cloud/dbaas/schemaplatforminstance/byrequest/22" ,
  "name" : "Service_1_35E576F22E97E" ,
  "resource_state" : {
    "state" : "DESTROYING" ,
    "messages" :
    [
      {
        "text" : "Submit 'DELETE' operation on 'application/
oracle.com.cloud.common.SchemaPlatformInstance+json' 'Service_1_35E576F22E97E'. The
process has job id '41'" ,
        "date" : "2013-06-07T23:16:20+0000"
      }
    ]
  }
} ,
"context_id" : "22" ,
"media_type" : "application/oracle.com.cloud.common.SchemaPlatformInstance +json" ,
"canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/

```

```
dbaas/schemaplatforminstance/byrequest/22" ,
  "type" : "oracle_dbsvc"
}
```

After some time, a GET request on the database service URI results in the following interaction:

**Table 34-38 GET Request Configuration for Viewing the Status of the Schema Service**

Feature	Description
URI	/em/cloud/dbaas/schemaplatforminstance/byrequest/22
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "uri": "/em/cloud/dbaas/schemaplatforminstance/byrequest/22",
  "name": "Service_1_35E576F22E97E",
  "resource_state": {
    "state": "DESTROYING"
  },
  "context_id": "2",
  "media_type": "application/oracle.com.cloud.common.SchemaPlatformInstance+json",
  "canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/schemaplatforminstance/byrequest/2",
  "status": "RUNNING",
  "created": "2013-06-10 02:45:32",
  "based_on": "/em/cloud/dbaas/schemaplatforminstance/DECA1100F797EF10E040F00AFBB123E7",
  "type": "oracle_dbsvc",
  "connect_string": "(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)
(HOST=host1.mycompany.com) (PORT=1521)))
(CONNECT_DATA=(SERVICE_NAME=Service_1_35E576F22E97E.mycompany.com)))",
  "destination_zone": "/em/cloud/dbaas/zone/34C1FC23A7503E1CC9C490C9670635F9",
  "db_version": "11.2.0.3.0"
}
```

The status of the database service shows `DELETED` after the schema service is deleted.

## Life Cycle Operations of a Schema Service

The POST request can be issued on the URI of the resource to perform an operation on a schema service.

The following life cycle operations can be performed using the POST request:

- [Exporting a Schema](#)
- [Restoring a Schema from Exported Schema Dumps](#)
- [Deleting the Exported Schema Dumps](#)
- [Changing Schema Passwords](#)

### Exporting a Schema

For exporting schema, the user can optionally provide the date at which the export should be taken. The date and time should be in the YYYY-MM-DDTHH:MM:SSZFullTimeZonename format.

For example to schedule in PST time user should enter 2013-08-27T12:34:45ZAmerica/Los\_Angeles.

However, the time zone is optional. If you do not want to provide the time zone, then enter: 2013-08-27T12:34:45Z.

The configurations for the POST on a SchemaPlatformInstance is described below:

**Table 34-39 POST Request Configuration for Exporting a Schema**

Feature	Description
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/cloud/dbaas/schemaplatforminstance/byrequest/7
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/ oracle.com.cloud.common.SchemaPlatformInstance +json Accept: application/ oracle.com.cloud.common.SchemaPlatformInstance+json
Body	<pre>{   "operation" : "EXPORT",   "profile_name" : "test_API_export",   "profile_desc" : "testing export option from APIs",   "export_schedule" : "2013-07-31T02:10:45ZAsia/   Calcutta      " }</pre>
Request method	POST

A sample of the response received is shown below.

```
{
  "uri" : "/em/cloud/dbaas/schemaplatforminstance/byrequest/123" ,
  "name" : "Service_8E958EC718B11" ,
  "resource_state" : {
    "state" : "INITIATED" ,
    "messages" :
      [
        {
          "date" : "2013-08-27T07:34:43+0000" ,
          "text" : "Successfully submitted EXPORT operation on schema instance.
Request id - 130." ,
          "uri" : "/em/cloud/dbaas/schemaplatforminstance/byrequest/130"
        }
      ]
  } ,
  "context_id" : "123" ,
  "media_type" : "application/oracle.com.cloud.common.SchemaPlatformInstance+json" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/schemaplatforminstance/byrequest/123" ,
  "target_type" : "oracle_dbsvc"
}
```

After the export operation is completed, a GET operation on schema service yields below output

```

{
  "uri" : "/em/cloud/dbaas/schemaplatforminstance/byrequest/123" ,
  "name" : "Service_8E958EC718B11" ,
  "resource_state" : {
    "state" : "READY"
  } ,
  "context_id" : "123" ,
  "media_type" : "application/oracle.com.cloud.common.SchemaPlatformInstance+json" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/schemaplatforminstance/byrequest/123" ,
  "status" : "RUNNING" ,
  "created" : "2013-08-26 23:49:30" ,
  "based_on" : "/em/cloud/dbaas/schemaplatformtemplate/
E4D9626BC252F517E040F20A605152CD" ,
  "target_type" : "oracle_dbsvc" ,
  "connect_string" : "(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=host1)
(PORT=1521))) (CONNECT_DATA=(SERVICE_NAME=Service_8E958EC718B11.us.example.com)))" ,
  "destination_zone" : "/em/cloud/dbaas/zone/675B859C36772FB7856771B1D57F79F8" ,
  "schema_list" :
  [
    {
      "service_name_prefix" : "" ,
      "workload_name" : "" ,
      "schema" :
      [
        {
          "username" : "" ,
          "original_name" : "schema200" ,
          "password" : ""
        }
      ]
    }
  ] ,
  "db_version" : "11.2.0.2.0" ,
  "export_dump_list" :
  [
    {
      "name" : "test_API_export" ,
      "description" : "testing export option from APIs" ,
      "URN" :
      "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:E4E9E7EE230BF96
5E040F20A60517256:0.1" ,
      "status" : "Ready"
    }
  ]
}

```

## Restoring a Schema from Exported Schema Dumps

The restore schema from dump activity is based on the available export dumps. Refer to `export_dump_list` section in the output of the GET request to view the URN of the dump.

The configurations for the POST on a SchemaPlatformInstance are described below:

**Table 34-40 POST Request Configuration for Restoring a Schema from the Exported Schema Dumps**

Feature	Description
URI	<code>https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/cloud/dbaas/schemaplatforminstance/byrequest/7</code>

**Table 34-40 (Cont.) POST Request Configuration for Restoring a Schema from the Exported Schema Dumps**

Feature	Description
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/oracle.com.cloud.common.SchemaPlatformInstance+json Accept: application/oracle.com.cloud.common.SchemaPlatformInstance+json
Body	<pre>{   "operation" : "IMPORT",   "profile_urn" :   "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:DECB2AAA09CCD711E040F20A60514F92:0.1" }</pre>
Request method	POST

A sample of the response from the above interaction is shown below.

```
{
  "uri" : "/em/cloud/dbaas/schemaplatforminstance/byrequest/123" ,
  "name" : "Service_8E958EC718B11" ,
  "resource_state" : {
    "state" : "INITIATED" ,
    "messages" :
    [
      {
        "date" : "2013-08-27T07:34:43+0000" ,
        "text" : "Successfully submitted IMPORT operation on schema instance.
Request id - 132." ,
        "uri" : "/em/cloud/dbaas/schemaplatforminstance/byrequest/132"
      }
    ]
  } ,
  "context_id" : "123" ,
  "media_type" : "application/oracle.com.cloud.common.SchemaPlatformInstance+json" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/schemaplatforminstance/byrequest/123" ,
  "target_type" : "oracle_dbsvc"
}
```

## Deleting the Exported Schema Dumps

Deleting the export dump depends on the available export dumps. Refer to `export_dump_list` section in the output of the GET request to view the URN of the dump.

The configuration for the POST on a SchemaPlatformInstance is as follows:

**Table 34-41 POST Request Configuration for Deleting the Exported Schema Dumps**

Feature	Description
URI	<code>https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/cloud/dbaas/schemaplatforminstance/byrequest/7</code>

**Table 34-41 (Cont.) POST Request Configuration for Deleting the Exported Schema Dumps**

Feature	Description
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/ oracle.com.cloud.common.SchemaPlatformInstance+json Accept: application/ oracle.com.cloud.common.SchemaPlatformInstance+json
Body	{ "operation" : "DELETE_EXPORT", "profile_urn" : "oracle:defaultService:em:provisioning:1:cmp:COMP_Component: SUB_DbProfile:DECB2AAA09CCD711E040F20A60514F92:0.1" }
Request method	POST

A sample of the response received is shown below.

```
{
  "uri" : "/em/cloud/dbaas/schemaplatforminstance/byrequest/123" ,
  "name" : "Service_8E958EC718B11" ,
  "resource_state" : {
    "state" : "INITIATED" ,
    "messages" :
      [
        {
          "date" : "2013-08-27T07:34:43+0000" ,
          "text" : "Successfully submitted DELETE_EXPORT operation on schema instance.
Request id - 135." ,
          "uri" : "/em/cloud/dbaas/schemaplatforminstance/byrequest/135"
        }
      ]
  } ,
  "context_id" : "123" ,
  "media_type" : "application/oracle.com.cloud.common.SchemaPlatformInstance+json" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/schemaplatforminstance/byrequest/123" ,
  "target_type" : "oracle_dbsvc"
}
```

## Changing Schema Passwords

The configuration for the POST on a SchemaPlatformInstance is as follows:

**Table 34-42 POST Request Configuration for Changing the Schema Passwords**

Feature	Description
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/cloud/dbaas/ schemaplatforminstance/byrequest/7



**Table 34-42 (Cont.) POST Request Configuration for Changing the Schema Passwords**

Feature	Description
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/oracle.com.cloud.common.SchemaPlatformInstance +json Accept: application/oracle.com.cloud.common.SchemaPlatformInstance+json
Body	<pre>{   "operation" : "CHANGE_PWD",   "schema_name" : "schemal",   "new_password" : "welcome" }</pre>
Request method	POST

A sample of the response from the above interaction is shown below.

```
{
  "uri" : "/em/cloud/dbaas/schemaplatforminstance/byrequest/123" ,
  "name" : "Service_8E958EC718B11" ,
  "resource_state" : {
    "state" : "INITIATED" ,
    "messages" :
    [
      {
        "date" : "2013-08-27T07:34:43+0000" ,
        "text" : "Successfully submitted CHANGE_PWD operation on schema instance.
Request id - 136." ,
        "uri" : "/em/cloud/dbaas/schemaplatforminstance/byrequest/136"
      }
    ]
  } ,
  "context_id" : "123" ,
  "media_type" : "application/oracle.com.cloud.common.SchemaPlatformInstance+json" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/schemaplatforminstance/byrequest/123" ,
  "target_type" : "oracle_dbsvc"
}
```

## Pluggable Database as a Service

This section describes the resource model for Pluggable Database as a Service (PdbaaS) REST API and the REST request/response interactions.



**Note:**

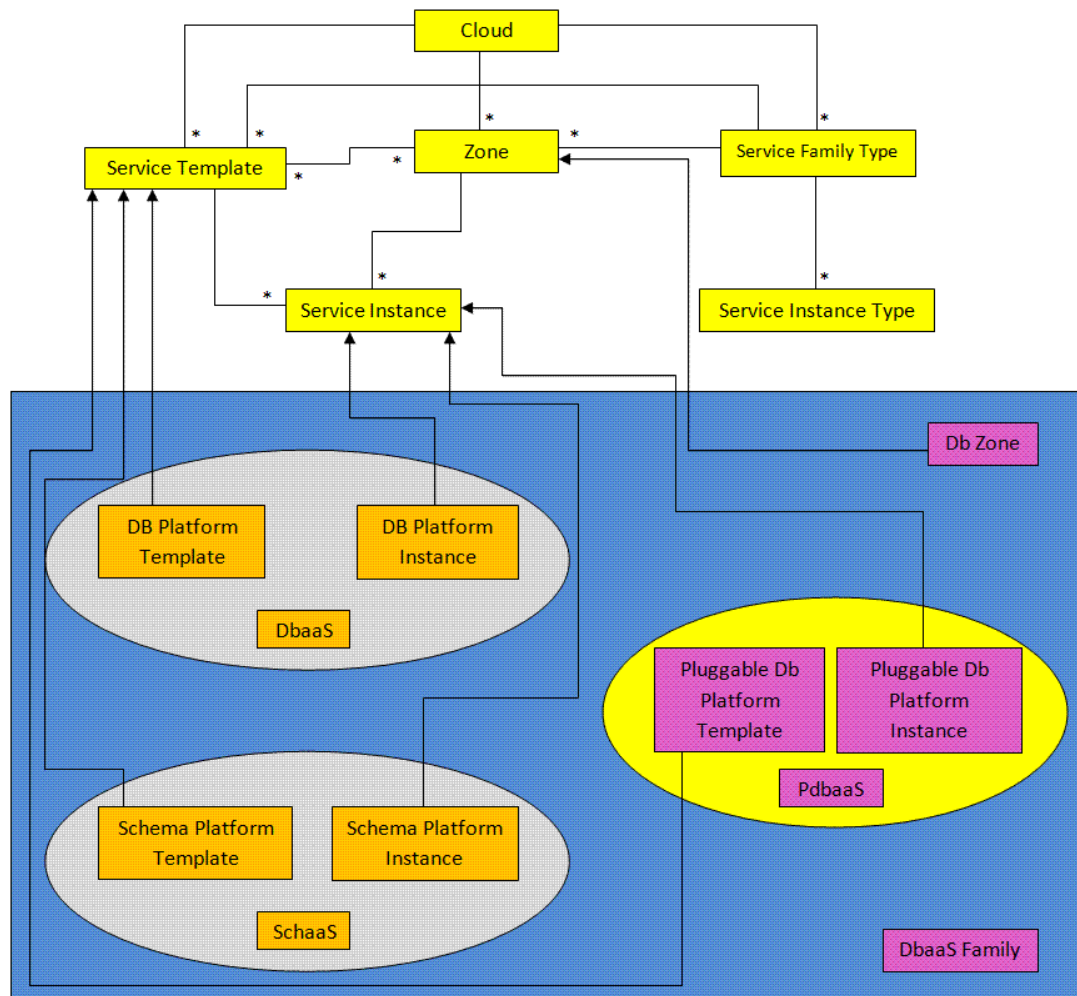
PdbaaS REST APIs are only supported by the Oracle Cloud Application plug-in version 12.1.0.7.0 and above.

- [Pluggable Database as a Service Resource Model](#)
- [Supported Operations for Pluggable Database Resources](#)
- [Pluggable Database as a Service REST API Examples](#)

## Pluggable Database as a Service Resource Model

Cloud resources are organized by common service entities, and specific services (for example, Pluggable Database as a Service) provide resources by extending these common service entities. The figure below shows the PdbaaS resource model.

**Figure 34-3 Pluggable Database as a Service Resource Model**



The following sections describe the resources that are supported by the Pluggable Database as a Service REST APIs and provide examples of supported operations. Pluggable Database as a Service uses the same Cloud, Service Family, and DB Zone resources as described in [Database as a Service Resource Model](#).

The following resource models are described in this section:

- [Pluggable DB Platform Template](#)
- [Pluggable DB Platform Instance](#)

## Pluggable DB Platform Template

The Pluggable Db Platform Template extends the Service Template resource. It represents the service template created for Pluggable Database creation. It can be a template for creating a pluggable database using profile based pluggable database (pdb with data) or for creating an empty pluggable database. It is permissible to accept the ServiceTemplate media type on an instance of Pluggable Db Platform Template. It is a preconfigured deployable service that realizes a Pluggable Db Platform Instance resource. Pluggable Db Platform Template has the media type `application/oracle.com.cloud.common.PluggableDbPlatformTemplate+json` and URI format `/em/cloud/dbaas/pluggabledbplatformtemplate/<template id>`.

The following table describes the Schema Platform Template Data Model.

**Table 34-43 Pluggable DB Platform Template Data Model**

Field	Type	Description	Occurs
uri	URI	A GET against this URI refreshes the client representation of the resources accessible to this user.	1
name	String	A human readable name given to the template.	1
description	String	A brief description given to the template.	0..1
created	Timestamp	Date and time, in ISO 8601 format, when the template was created/last modified.	1
zones	Collection <DbZone>	List of all zones configured for this template.	0..1
resource_state	ResourceState	The validity of the fields on a GET should be guaranteed only when the resource state is READY. Otherwise, the client should not assume the validity of the fields.	1
service_instances	Collection <SchemaPlatformInstance>	All service instances created based on this SchemaPlatformTemplate.	0..1
media_type	String	The media type of the service template that this type represents.	1
params	Object	List of parameters required to provision a Schema Platform Instance from this template.	1
deployment_params	List<Object>	Description of the parameters which are required while creating a service instance.	1
type	String	The type of the service template which is "dbaas" by default.	1
subtype	String	The sub type of the instance created based on this template. It has a value "schema" in this case.	1
template_type	String	Type of this template based on how the template got created. It can have any of two values : "EMPTY_SCHEMAS" or "SCHEMAS_FROM_PROFILE".	1
workloads	List<Object>	List all the workloads defined for this template and list the attributes for each one of them.	0..1

**Table 34-43 (Cont.) Pluggable DB Platform Template Data Model**

Field	Type	Description	Occurs
canonicalLink	URI	Can be used to perform cloud interactions like GET and POST.	1
number_of_table_spaces	String	Number of tablespaces.	1

## Pluggable DB Platform Instance

The Pluggable Db Platform Instance extends the Service Instance resource. It is linked to Pluggable Database target in Enterprise Manager Cloud Control. Pluggable Db Platform Instance has the media type `application/oracle.com.cloud.common.PluggableDbPlatformInstance+json` and URI format `/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/<request id>`.

The following table describes the Schema Platform Instance Data Model:

**Table 34-44 Pluggable DB Platform Instance Data Model**

Field	Type	Description	Occurs
uri	URI	A GET against this URI refreshes the client representation of the resources accessible to this user.	1
name	String	A human readable name given given to the pluggable database	1
destination_zone	Zone	The Zone to which the pluggable database is deployed	1
media_type	String	Indicates the additional media type that clients can use to perform a GET.	1
resource_state	ResourceState	The validity of the fields on a GET should be guaranteed only when the resource state is READY. Otherwise, the client should not assume the validity of the fields.	1
based_on	PluggableDbPlatformTemplate	The pluggable db platform template on which this database service is published.	1
connect_string	String	Connect String required to establish a connection to this database service.	0..1
created	Timestamp	Date and time, in ISO 8601 format, when the template was created/last modified.	1
target_type	String	Target type of this service instance. It has the default value <code>oracle_pdb</code>	1
status	String	Status of the pluggable database.	1
db_version	String	Version of the database on which pluggable db is running.	0..1
context_id	String	The request id of this pluggable database.	1
canonicalLink	URI	Can be used to perform cloud interactions like GET and DELETE.	1

## Supported Operations for Pluggable Database Resources

The following table lists all the operations that are supported on the various Pluggable Database as Service resources.

**Table 34-45 Supported Operations**

Resource	GET	POST	PUT	DELETE
Cloud	Yes	No	No	No
Service Family Type	Yes	No	No	No
DB Zone	Yes	Yes	No	No
PluggableDb Platform Template [Service Template]	Yes	Yes	No	No
PluggableDb Platform Instance [Service Instance]	Yes	Yes	No	Yes

## Pluggable Database as a Service REST API Examples

The following sections provide examples of interaction with Enterprise Manager Cloud Control with Cloud Application plug-in 12.1.0.7 and higher. The examples for GET on cloud, GET on dbaas family type and GET on Db Zone are covered in the DbaaS REST APIs section. The following examples are covered:

- [Viewing Details of the Pluggable Db Platform Template Resource](#)
- [Creating a Pluggable Database](#)
  - [Creating a Pluggable Database by Passing a Request on the DB Zone](#)
  - [Creating a Pluggable Database by Passing a Request on the Pluggable DB Platform Template](#)
- [Viewing Details of the Pluggable Database Creation](#)
- [Resizing a Pluggable Database Service Instance](#)
- [Deleting a Pluggable Database Instance](#)
- [Lifecycle operations on a Pluggable Database Instance](#)
  - [Shutting Down a Pluggable Database](#)
  - [Starting up a Pluggable Database](#)
  - [Scheduling a Backup for a Pluggable Database](#)
  - [Restoring a Pluggable Database from a Backup](#)

### Viewing Details of the Pluggable Db Platform Template Resource

A GET request on a Pluggable Db Platform Template provides the details about a Pluggable DB service template.

**Table 34-46 GET Request Configuration for Viewing Details of the Pluggable DB Platform Template Resource**

Feature	Description
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/cloud/dbaas/pluggabledbplatformtemplate/E32F474628FCCE5AE040E50ACA84603A
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "uri": "/em/cloud/dbaas/pluggabledbplatformtemplate/E32F474628FCCE5AE040E50ACA84603A",
  "name": "Sample PDB template",
  "description": "Sample PDB template",
  "resource_state": {
    "state": "READY"
  },
  "media_type": "application/oracle.com.cloud.common.PluggableDbPlatformTemplate+json",
  "canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/pluggabledbplatformtemplate/E32F474628FCCE5AE040E50ACA84603A",
  "type": "dbaas",
  "created": "2013-08-05T07:34:10+0000",
  "zones": {
    "media_type": "application/oracle.com.cloud.common.DbZone+json",
    "total": "1",
    "elements": [
      {
        "uri": "/em/cloud/dbaas/zone/76663B316DCB26E6836822224C7881E3",
        "name": "Ssa_zone1",
        "description": "Ssa_zone1",
        "context_id": "76663B316DCB26E6836822224C7881E3",
        "media_type": "application/oracle.com.cloud.common.DbZone+json",
        "service_family_type": "dbaas",
        "canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/zone/76663B316DCB26E6836822224C7881E3",
        "type": "self_service_zone"
        "target_nodes_for_placement":
          [
            "xyz.mycompany.com"
          ]
      }
    ]
  },
  "service_instances": {
    "media_type": "application/oracle.com.cloud.common.PluggableDbPlatformInstance+json",
    "total": "1",
    "elements": [
      {
        "media_type": "application/oracle.com.cloud.common.PluggableDbPlatformInstance+json",
        "name": "database_MYPDB_000",
        "canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/7",
        "target_type": "oracle_pdb",
        "uri": "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/7"
      }
    ]
  }
}
```

```

    },
    "number_of_tablespaces" : "1" ,
    "deployment_params": [
      {
        "description" : "Name of the additional service created as part of the pdb
service request" ,
        "name" : "service_name" ,
        "require" : "true" ,
        "type" : "STRING" ,
        "sensitive" : "false"
      } ,
      {
        "name": "workload_name",
        "description": "WorkLoad name to be associated with the request",
        "type": "STRING",
        "require": "true",
        "sensitive": "false"
      } ,
      {
        "name": "username",
        "description": "Pluggable database admin username",
        "type": "STRING",
        "require": "true",
        "sensitive": "false"
      } ,
      {
        "name": "password",
        "description": "Pluggable database admin user password",
        "type": "STRING",
        "require": "true",
        "sensitive": "true"
      } ,
      {
        "name" : "target_nodes_for_placement" ,
        "description" : "List of available Container Database(s) to be chosen for
creating the Pluggable database instance." ,
        "type" : "STRING" ,
        "require" : "false" ,
        "sensitive" : "false"
      } ,
      {
        "description" : "Name of Pluggable database" ,
        "name" : "pdb_name" ,
        "require" : "true" ,
        "type" : "STRING" ,
        "sensitive" : "false"
      } ,
      {
        "description" : "List of tablespace names. Required only for EMPTY_PDB
templates" ,
        "name" : "tablespaces" ,
        "require" : "false" ,
        "type" : "LIST" ,
        "sensitive" : "false"
      } ,
      {
        "name": "target_name",
        "description": "Target cdb name to be chosen for installing the pdb",
        "type": "STRING",
        "require": "false",
        "sensitive": "true"
      } ,
    ]
  }
}

```

```

],
"subtype": "pdb",
"template_type": "PDB_FROM_PROFILE",
"workloads": [
  {
    "name": "w11",
    "description": "null",
    "attributes": [
      {
        "name": "CPU",
        "value": "1",
        "units": "cores"
      },
      {
        "name": "Memory",
        "value": "1",
        "units": "GB"
      },
      {
        "name": "Storage",
        "value": "1",
        "units": "GB"
      }
    ]
  }
],
"params": {
  "workload_name": "",
  "placement_option" : "SELECT_TARGET_FROM_REQUEST" ,
  "username": "",
  "password": "",
  "pdb_name" : "" ,
  "service_name" : "" ,
  "tablespaces" :
    [
    ]
}
}

```

## Creating a Pluggable Database

This section describes how to create a pluggable database using the Cloud resources.

As Pluggable Database is also a service instance in the service family type "dbaas", you need to identify the zone of the same family type in which to create the pluggable database. There are two approaches to create a pluggable database:

- [Creating a Pluggable Database by Passing a Request on the DB Zone](#)
- [Creating a Pluggable Database by Passing a Request on the Pluggable DB Platform Template](#)

Note the attributes in the submitted body for the POST. The pattern is the same for other service instance creations. Because the intention is clear, the "zone" attribute is not required while POSTing to the Db Zone. Similarly, the "based\_on" attribute is not needed when POSTing to the PluggableDbPlatformTemplate.

### Creating a Pluggable Database by Passing a Request on the DB Zone

The following shows the configuration for POSTing to Db Zone:



**Table 34-47 POST Request Configuration for Creating a Pluggable Database by Passing a Request on the DB Zone**

Feature	Description
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/cloud/dbaas/zone/82CF1C28FA20A183C99D138FF8065F19
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/ oracle.com.cloud.common.PluggableDbPlatformInstance+json Accept: application/oracle.com.cloud.common.PluggableDbPlatformInstance+json
Body	<pre>{   "based_on" : "/em/cloud/dbaas/pluggabledbplatformtemplate/ FADF7229EB960330E043E176F00ADE61" ,   "name" : "Test Service" ,   "start_date": "2013-08-02T14:20:00ZAsia/Calcutta",   "end_date": "2013-08-02T17:20:00ZAsia/Calcutta",   "params" : {     "username" : "Pdbaas_API_User" ,     "pdb_name" : "pdb_lrgemg880" ,     "workload_name" : "Small" ,     "service_name" : "TestService" ,     "password" : "welcomepw" ,     "tablespaces" :       [         "tbsp1"       ]     "target_name " : "test_cdb"   } }</pre>
Request method	POST

A sample of the response received is shown below.

```
{
  "uri": "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/31",
  "name": "Test Service",
  "resource_state": {
    "state": "INITIATED"
    "messages" :
      [
        {
          "date" : "2014-11-25T09:52:49+0000" ,
          "uri" : "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/22",
          "text" : "Delete Request ID is : 22"
        }
      ]
  },
  "media_type": "application/oracle.com.cloud.common.PluggableDbPlatformInstance+json",
  "canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/pluggabledbplatforminstance/byrequest/31",
  "status": "SCHEDULED"
}
```

## Creating a Pluggable Database by Passing a Request on the Pluggable DB Platform Template

The following describes the configurations for POSTing to the PluggableDbPlatformTemplate:

**Table 34-48 POST Request Configuration for Creating a Pluggable Database by Passing a Request on the Pluggable DB Platform Template**

Feature	Description
URI	<code>https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/cloud/dbaas/dbaas/pluggabledbplatformtemplate/CC3BBB665A6BC6FFE040F00AEF252456</code>
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/ oracle.com.cloud.common.PluggableDbPlatformInstance+json Accept: application/oracle.com.cloud.common.PluggableDbPlatformInstance+json
Body	<pre>{   "zone": "/em/cloud/dbaas/zone/E125CDA8B810BB2F8ECE9867AFC25903",   "name": "Request for an Empty PDB BA",   "end_date": "2015-11-20T17:20:00ZAsia/Calcutta",   "params": {     "username": "TestUser",     "password": "welcomepw",     "workload_name": "SmallPdb",     "pdb_name": "BoAPDB",     "service_name": "BoAPDB_Service",     "tablespaces": [ "pdb_tbs1", "pdb_tbs2" ] },   "instance_target_properties": [     { "name": "Department", "value": "Development" },     { "name": "Comment", "value": "BofA testing" }   ] }</pre>
Request method	POST

 **Note:**

The `target_name` property is a mandatory property if the custom placement option (`SELECT_TARGET_OPTION`) is set to `"SELECT_TARGET_FROM_REQUEST"` in the PDB service template. Also, the CDB name provided should be available in the chosen zone.

A sample of the response received is shown below.

```
{
  "uri": "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/122" ,
  "name": "Request for an Empty PDB BofA" ,
  "resource_state": {
    "state": "INITIATED" ,
    "messages":
    [
      {
        "uri": "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/123" ,
        "text": "Delete Request ID is : 123" ,
        "date": "2015-11-19T10:41:38+0000"
      }
    ]
  }
} ,
```

```

    "media_type" : "application/oracle.com.cloud.common.PluggableDbPlatformInstance+json" ,
    "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/pluggabledbplatforminstance/byrequest/122" ,
    "status" : "SCHEDULED"
}

```

## Viewing Details of the Pluggable Database Creation

A GET request on a Pluggable DB Platform Instance provides the status and other information about the resource.

**Table 34-49 GET Request Configuration for Viewing Details of the Pluggable Database Creation**

Feature	Description
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/31
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Accept: application/ oracle.com.cloud.common.PluggableDbPlatformInstance+json
Body	None
Request method	GET

A sample of the response received is shown below.

```

{
  "uri": "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/31",
  "name": "Test Service_CREATE_11_53",
  "description": "Create Database for \"Test Service\".",
  "resource_state":
  {
    "state": "CREATING"
  },
  "context_id": "31",
  "media_type": "application/oracle.com.cloud.common.PluggableDbPlatformInstance+json",
  "status": "IN_PROGRESS",
  "created": "2013-06-07 23:09:04" ,
  "canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/pluggabledbplatforminstance/byrequest/31"
}

```

Note that the `resource_state` attribute shows `CREATING` state which indicates that the pluggable database is being created. After the pluggable database is created, the GET operation returns the pluggable database resource with `READY` state, as shown below:

```

{
  "destination_zone" : "/em/cloud/dbaas/zone/9A71CBEABCA367D0D425697DC39B3AF9" ,
  "media_type" : "application/oracle.com.cloud.common.PluggableDbPlatformInstance+json" ,
  "db_version" : "12.1.0.1.0" ,
  "resource_state" :
  {
    "state" : "READY"
    "messages" :
    [
      {
        "date" : "2014-11-25T09:52:49+0000" ,
        "uri" : "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/22",
        "text" : "Delete Request ID is : 22"
      }
    ]
  }
}

```

```

    }
  ]
},
"status" : "RUNNING" ,
"based_on" : "/em/cloud/dbaas/pluggabledbplatformtemplate/
E33799E249513428E040F50A994210F5" ,
"canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/pluggabledbplatforminstance/byrequest/31" ,
"connect_string" : "(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=host1)
(PORT=1521))) (CONNECT_DATA=(SERVICE_NAME=MYPDB_000) (INSTANCE_NAME=t105kfv) (UR=A)
(SERVER=DEDICATED)))" ,
"uri" : "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/31" ,
"context_id" : "31" ,
"created" : "2013-08-05 17:30:30" ,
"name" : "database_MYPDB_000" ,
"target_type" : "oracle_pdb"
}

```

## Resizing a Pluggable Database Service Instance

The following table describes the configurations for the POST on a PluggableDbPlatformInstance.

**Table 34-50 POST Request Configuration for Resizing a Pluggable Database**

Feature	Description
URI	https://<hostName>:<port>/em/cloud/dbaas/ pluggabledbplatforminstance/byrequest/<request_id> request_id -> Request ID of PDB that needs to be resized
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/ oracle.com.cloud.common.PluggableDbPlatformInstance+json Accept: application/ oracle.com.cloud.common.PluggableDbPlatformInstance+json
Body	{ "operation": "RESIZE_PDB", "WORKLOAD_NAME": "Name of the workload to be used for resizing", }
Request method	POST

## Deleting a Pluggable Database Instance

The DELETE request on the URI of the resource can be issued to delete a pluggable database. For example, the following DELETE request is issued:

**Table 34-51 DELETE Request Configuration for Deleting a Pluggable Database Instance**

Feature	Description
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/cloud/dbaas/ pluggabledbplatforminstance/byrequest/7

**Table 34-51 (Cont.) DELETE Request Configuration for Deleting a Pluggable Database Instance**

Feature	Description
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Accept: application/ oracle.com.cloud.common.PluggableDbPlatformInstance+json
Body	None
Request method	DELETE

A sample of the response received is shown below.

```
{
  "media_type" : "application/oracle.com.cloud.common.PluggableDbPlatformInstance+json" ,
  "context_id" : "7" ,
  "resource_state" : {
    "state" : "DESTROYING" ,
    "messages" :
    [
      {
        "text" : "Submit 'DELETE' operation on 'application/
oracle.com.cloud.common.PluggableDbPlatformInstance+json' 'database_MYPDB_000'. The
process has job id '24'" ,
        "date" : "2013-08-05T17:35:56+0000"
      }
    ]
  } ,
  "name" : "database_MYPDB_000" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/pluggabledbplatforminstance/byrequest/7" ,
  "target_type" : "oracle_pdb" ,
  "uri" : "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/7"
}
```

After some time, the GET request on the database service URI will result in the following interaction:

**Table 34-52 GET Request Configuration for Viewing Status of the DELETE Request**

Feature	Description
URI	/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/22
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "destination_zone" : "/em/cloud/dbaas/zone/9A71CBEABCA367D0D425697DC39B3AF9" ,
  "media_type" : "application/oracle.com.cloud.common.PluggableDbPlatformInstance+json" ,
  "db_version" : "12.1.0.1.0" ,
  "resource_state" : {
    "state" : "READY"
  } ,
  "status" : "DESTROYING" ,
}
```

```

    "based_on" : "/em/cloud/dbaas/pluggabledbplatformtemplate/
E33799E249513428E040F50A994210F5" ,
    "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/pluggabledbplatforminstance/byrequest/7" ,
    "connect_string" : "(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=host1)
(PORT=1521))) (CONNECT_DATA=(SERVICE_NAME=MYPDB_000) (INSTANCE_NAME=t105kfv) (UR=A)
(SERVER=DEDICATED)))" ,
    "uri" : "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/7" ,
    "context_id" : "7" ,
    "created" : "2013-08-05 17:30:30" ,
    "name" : "database_MYPDB_000" ,
    "target_type" : "oracle_pdb"
}

```

Note that the status of the pluggable database will be "DELETED" once the pluggable database instance is deleted.

## Lifecycle operations on a Pluggable Database Instance

The POST request on the URI of the resource can be issued to perform an operation on a pluggable database.

You can perform the following tasks using POST request:

- [Shutting Down a Pluggable Database](#)
- [Starting up a Pluggable Database](#)
- [Scheduling a Backup for a Pluggable Database](#)
- [Restoring a Pluggable Database from a Backup](#)

### Shutting Down a Pluggable Database

The following describes the configurations for the POST on a PluggableDbPlatformInstance:

**Table 34-53 POST Request Configuration for Shutting Down a Pluggable Database**

Feature	Description
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/7
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/ oracle.com.cloud.common.PluggableDbPlatformInstance+json Accept: application/ oracle.com.cloud.common.PluggableDbPlatformInstance+json
Body	{ "operation" : "SHUTDOWN" }
Request method	POST

A sample of the response received is from the above interaction is shown below.

```

{
  "uri" : "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/81" ,

```

```

"name" : "database_PDBSERVICE_000" ,
"resource_state" : {
  "state" : "INITIATED" ,
  "messages" :
  [
    {
      "date" : "2013-08-27T06:56:25+0000" ,
      "uri" : "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/124" ,
      "text" : "Successfully submitted SHUTDOWN operation on service instance.
Request id - 124."
    }
  ]
} ,
"context_id" : "81" ,
"media_type" : "application/oracle.com.cloud.common.PluggableDbPlatformInstance+json" ,
"canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/pluggabledbplatforminstance/byrequest/81" ,
"status" : "RUNNING" ,
"created" : "2013-08-26 04:19:14" ,
"based_on" : "/em/cloud/dbaas/pluggabledbplatformtemplate/
E49AA1BAC2DBA0ECE040F20A60517942" ,
"target_type" : "oracle_pdb" ,
"connect_string" : "(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP) (HOST= host1)
(PORT=1521))) (CONNECT_DATA=(SERVICE_NAME=PDB_000) (INSTANCE_NAME=tbugt) (UR=A)
(SERVER=DEDICATED)))" ,
"destination_zone" : "/em/cloud/dbaas/zone/0129A72DB32D4199B59ABFA64085EAB3" ,
"db_version" : "12.1.0.1.0"
}

```

## Starting up a Pluggable Database

**Table 34-54 POST Request Configuration for Shutting Down a Pluggable Database**

Feature	Description
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/7
Request headers	Authorization: basic ZGVVtb3VzZXI6ZGVVtb3VzZXI= Content-Type: application/oracle.com.cloud.common.PluggableDbPlatformInstance+json Accept: application/oracle.com.cloud.common.PluggableDbPlatformInstance+json
Body	{ "operation" : "STARTUP" }
Request method	POST

A sample of the response received is shown below.

```

{
  "uri" : "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/81" ,
  "name" : "database_PDBSERVICE_000" ,
  "resource_state" : {
    "state" : "INITIATED" ,
    "messages" :
    [

```

```

    {
      "date" : "2013-08-27T06:58:58+0000" ,
      "uri" : "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/125" ,
      "text" : "Successfully submitted STARTUP operation on service instance.
Request id - 125."
    }
  ]
} ,
"context_id" : "81" ,
"media_type" : "application/oracle.com.cloud.common.PluggableDbPlatformInstance+json" ,
"canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/pluggabledbplatforminstance/byrequest/81" ,
"status" : "STOPPED" ,
"created" : "2013-08-26 04:19:14" ,
"based_on" : "/em/cloud/dbaas/pluggabledbplatformtemplate/
E49AA1BAC2DBA0ECE040F20A60517942" ,
"target_type" : "oracle_pdb" ,
"connect_string" : "(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP) (HOST= host1)
(PORT=1521))) (CONNECT_DATA=(SERVICE_NAME=PDB_000) (INSTANCE_NAME=tbugt) (UR=A)
(SERVER=DEDICATED)))" ,
"destination_zone" : "/em/cloud/dbaas/zone/0129A72DB32D4199B59ABFA64085EAB3" ,
"db_version" : "12.1.0.1.0"
}

```

## Scheduling a Backup for a Pluggable Database

The following describes the configurations for the POST on a PluggableDbPlatformInstance:

For scheduling backup user has to provide the time at which backups needs to scheduled. This should in format of YYYY-MM-DDTHH:MM:SSZFullTimeZonename.

For example to schedule in PST time user should give 2013-08-27T12:34:45ZAmerica/Los\_Angeles

However timezone part is optional. If you do not want to provide it, you can do as follows:  
2013-08-27T12:34:45Z

**Table 34-55 POST Request Configuration for Scheduling a Backup for a Pluggable Database**

Feature	Description
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/7
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/ oracle.com.cloud.common.PluggableDbPlatformInstance+json Accept: application/ oracle.com.cloud.common.PluggableDbPlatformInstance+json
Body	{ "operation" : "BACKUP", "backup_schedule" : "2013-08-27T12:34:45ZAsia/Calcutta" }
Request method	POST

A sample of the response received is shown below.



```

{
  "uri" : "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/81" ,
  "name" : "database_PDBSERVICE_000" ,
  "resource_state" : {
    "state" : "INITIATED" ,
    "messages" :
    [
      {
        "date" : "2013-08-27T07:01:15+0000" ,
        "uri" : "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/126" ,
        "text" : "Successfully submitted BACKUP operation on service instance.
Request id - 126."
      }
    ]
  } ,
  "context_id" : "81" ,
  "media_type" : "application/oracle.com.cloud.common.PluggableDbPlatformInstance+json" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/pluggabledbplatforminstance/byrequest/81" ,
  "status" : "RUNNING" ,
  "created" : "2013-08-26 04:19:14" ,
  "based_on" : "/em/cloud/dbaas/pluggabledbplatformtemplate/
E49AA1BAC2DBA0ECE040F20A60517942" ,
  "target_type" : "oracle_pdb" ,
  "connect_string" : "(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=host1)
(PORT=1521))) (CONNECT_DATA=(SERVICE_NAME=PDB_000) (INSTANCE_NAME=tbugt) (UR=A)
(SERVER=DEDICATED)))" ,
  "destination_zone" : "/em/cloud/dbaas/zone/0129A72DB32D4199B59ABFA64085EAB3" ,
  "db_version" : "12.1.0.1.0"
  "RMAN_backup_list" :
  [
    {
      "Key" : "1" ,
      "Tag" : "ORA$OEM_LEVEL_0" ,
      "Completed Time" : "Aug 27, 2013 12:24:02 AM" ,
      "Contents" : "SPFILE,CONTROLFILE" ,
      "Status" : "AVAILABLE"
    }
  ]
}

```

## Restoring a Pluggable Database from a Backup

The following describes the configurations for the POST on a PluggableDbPlatformInstance:

For restoring from backup ,the user has to provide the point-in-time to which database is to be restored. This should in format of YYYY-MM-DDTHH:MM:SSZFullTimeZonename.

For example to schedule in PST time user should give 2013-08-27T12:34:45ZAmerica/  
Los\_Angeles

However timezone part is optional. If you do not want to provide it, you can do as follows:  
2013-08-27T12:34:45Z

The restore time is based on backups available, please refer to RMAN\_backup\_list section in the output of GET request

**Table 34-56 POST Request Configuration for Restoring a Pluggable Database from a Backup**

Feature	Description
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/7
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/ oracle.com.cloud.common.PluggableDbPlatformInstance+json Accept: application/ oracle.com.cloud.common.PluggableDbPlatformInstance+json
Body	{ "operation" : "RESTORE", "restore_date" : "2013-08-27T12:34:45Z" }
Request method	POST

A sample of the response received is shown below.

```
{
  "uri" : "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/81" ,
  "name" : "database_PDBSERVICE_000" ,
  "resource_state" : {
    "state" : "INITIATED" ,
    "messages" :
    [
      {
        "date" : "2013-08-27T07:01:15+0000" ,
        "uri" : "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/146" ,
        "text" : "Successfully submitted RESTORE operation on service instance.
Request id - 146."
      }
    ]
  } ,
  "context_id" : "81" ,
  "media_type" : "application/oracle.com.cloud.common.PluggableDbPlatformInstance+json" ,
  "canonicalLink" : "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/
dbaas/pluggabledbplatforminstance/byrequest/81" ,
  "status" : "RUNNING" ,
  "created" : "2013-08-26 04:20:14" ,
  "based_on" : "/em/cloud/dbaas/pluggabledbplatformtemplate/
E49AA1BAC2DBA0ECE040F20A60517942" ,
  "target_type" : "oracle_pdb" ,
  "connect_string" : "(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=host1)
(PORT=1521))) (CONNECT_DATA=(SERVICE_NAME=PDB_000) (INSTANCE_NAME=tbugt) (UR=A)
(SERVER=DEDICATED)))" ,
  "destination_zone" : "/em/cloud/dbaas/zone/0129A72DB32D4199B59ABFA64085EAB3" ,
  "db_version" : "12.1.0.1.0"
}
```

# DBaaS REST APIs and EM CLI Verbs Based Use Cases

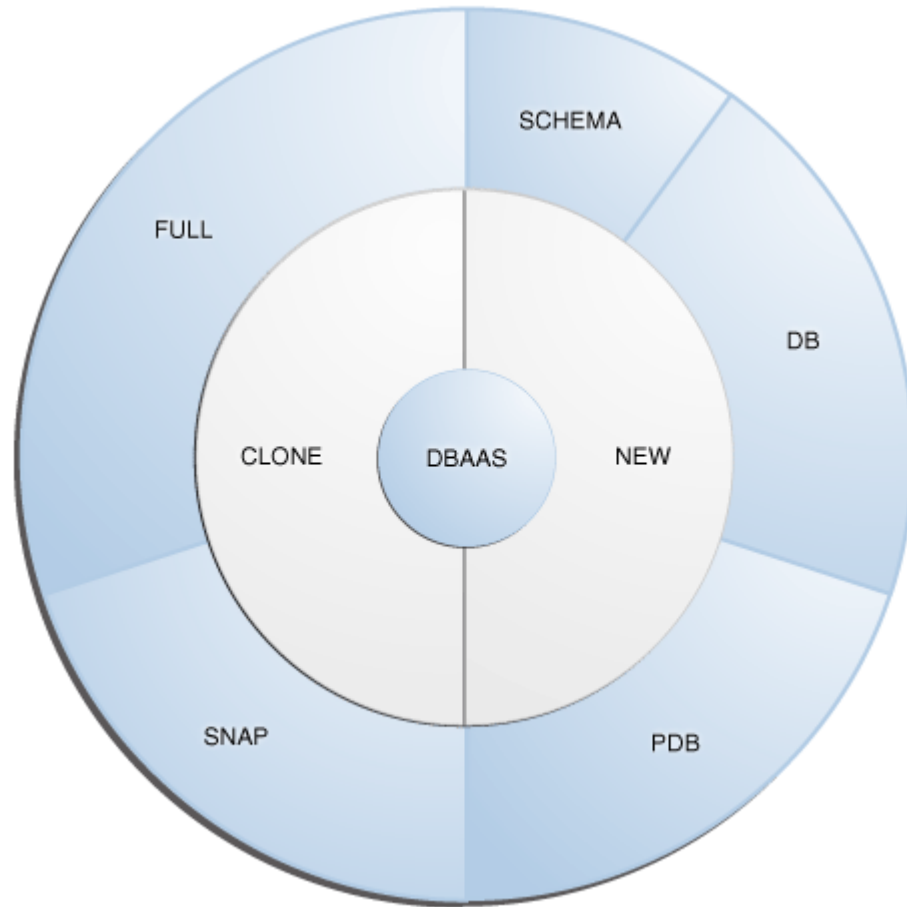
This chapter describes the procedure for different DBaaS use cases supported in this release. It contains the following sections:

- [Getting Started with DBaaS With REST APIs and EM CLI Verbs](#)
- [Creating Databases Using Database Template With REST APIs and EM CLI Verbs](#)
- [Creating Empty Schemas and Schemas Based on Profile With REST APIs and EM CLI Verbs](#)
- [Creating Empty PDBs and PDBs Based on Profile With REST APIs and EM CLI Verbs](#)
- [Migrating/Transferring Data from One Database to Another](#)
- [Creating Databases Using Snap Clone With REST APIs and EM CLI Verbs](#)
- [Creating Full Database Clones Using RMAN With REST APIs and EM CLI Verbs](#)
- [Configuring Custom Database Placement Option Using REST APIs](#)
- [Service Catalog of Database as a Service](#)

## Getting Started with DBaaS With REST APIs and EM CLI Verbs

The following figure provides an overview of the different flavors of Enterprise Manager DBaaS.

**Figure 35-1 DBaaS Use Cases**



This table lists the DBaaS use cases that are supported in this release and lists the different methods (EMCLI, and REST API) that can be used to run these use cases.

**Table 35-1 DBaaS Use Cases**

Service Type	Service Offering	See
New	Creating databases using a database template.	<a href="#">Creating Databases Using Database Template With REST APIs and EM CLI Verbs</a>
New	Schema: <ul style="list-style-type: none"> <li>• Creating an empty schema</li> <li>• Creating a schema based on profile</li> </ul>	<a href="#">Creating Empty Schemas and Schemas Based on Profile With REST APIs and EM CLI Verbs</a>
New	Pluggable Database: <ul style="list-style-type: none"> <li>• Creating an empty pluggable database</li> <li>• Creating a pluggable database based on profile</li> </ul>	<a href="#">Creating Empty PDBs and PDBs Based on Profile With REST APIs and EM CLI Verbs</a>
	Migrating or transferring data from one database to another.	<a href="#">Migrating/Transferring Data from One Database to Another</a>

**Table 35-1 (Cont.) DBaaS Use Cases**

Service Type	Service Offering	See
Snap Clone	<ul style="list-style-type: none"> <li>• Software Solution:                             <ul style="list-style-type: none"> <li>– Sun ZFS</li> <li>– Clone DB</li> </ul> </li> <li>• Hardware Solution:                             <ul style="list-style-type: none"> <li>– ZFS file system</li> <li>– NetApp</li> <li>– EMC</li> </ul> </li> </ul>	<a href="#">Creating Databases Using Snap Clone With REST APIs and EM CLI Verbs</a>
Clone	Full Clone: <ul style="list-style-type: none"> <li>• Cloning databases using RMAN backup</li> <li>• Cloning databases using RMAN duplicate</li> </ul>	<a href="#">Creating Full Database Clones Using RMAN With REST APIs and EM CLI Verbs</a>
New DBaaS setup	Multi-Datcenter DBaaS setup	<a href="#">Multi-Datcenter DBaaS Setup</a>

## Creating Databases Using Database Template With REST APIs and EM CLI Verbs

The DBCA template supports both structure plus data and structure only types. This database provisioning profile is created from the production or source database registered with Enterprise Manager. It supports both structure plus data and structure only types. This option is recommended if the database size being created is less than 50 GB.

The table below shows the list of tasks that are involved in creating a database using the database template based profile.

You can create single instance and cluster databases using database template based profiles.



**Note:**

In the table below, wherever REST APIs are not available for any steps EM CLI verbs are provided, and vice-versa.

**Table 35-2 Creating Databases Using Database Template with REST APIs and EM CLI Verbs**

Step	Task	REST APIs	EM CLI Verbs
1	Follow the steps in the Getting Started section to enable DBaaS.	See <a href="#">Getting Started</a>	See <a href="#">Getting Started</a>
2	Create resource providers. <ul style="list-style-type: none"> <li>• Create one or more PaaS Infrastructure Zones.</li> <li>• Create one or more database pools.</li> </ul>	See: <ul style="list-style-type: none"> <li>• <a href="#">Creating a PaaS Zone</a></li> <li>• <a href="#">Creating a Database Pool</a></li> </ul>	See: <ul style="list-style-type: none"> <li>• <a href="#">PaaS Zone EM CLI Verbs</a></li> <li>• <a href="#">Software Pool EM CLI Verbs</a></li> </ul>

**Table 35-2 (Cont.) Creating Databases Using Database Template with REST APIs and EM CLI Verbs**

Step	Task	REST APIs	EM CLI Verbs
6	Create a DBCA template based database provisioning profile.	See <a href="#">Creating Provisioning Profiles using EM CLI</a>	See <a href="#">Creating Provisioning Profiles using EM CLI</a>
4	Create the request settings.	See <a href="#">Creating Database Request Settings</a>	See <a href="#">Database Request Settings EM CLI Verbs</a>
5	Define quotas for each self service user.	See <a href="#">Creating DBaaS Quota for a Role</a>	See <a href="#">Database Quota EM CLI Verbs</a>
7	Create a service template based on the profile you have created.	See <a href="#">Service Templates and Service Template REST API Examples</a>	See <a href="#">Service Template EM CLI Verbs</a>
8	Configure the Chargeback Service.	See <a href="#">Performing UI Equivalent Chargeback Operations</a>	See <a href="#">Performing UI Equivalent Chargeback Operations</a>
9	While deploying a database, select the service template (associated with the database template based profile) you have created.	See <a href="#">Creating a Database Instance</a>	See <a href="#">Creating a Database Instance</a>

## Creating Standby Databases With REST APIs and EM CLI Verbs

A data guard configuration consists of one primary database and one or more standby databases. The databases in a Data Guard configuration are connected by Oracle Net and may be dispersed geographically. There are no restrictions on where the databases are located, provided they can communicate with each other.

Oracle Data Guard ensures high availability, data protection, and disaster recovery for enterprise data. It provides a comprehensive set of services that create, maintain, manage, and monitor one or more standby databases to enable production Oracle databases to survive disasters and data corruptions. Oracle Data Guard maintains these standby databases as copies of the production database. If the production database becomes unavailable due to a planned or an unplanned outage, the Oracle Data Guard can switch any standby database to the production role, minimizing the downtime associated with the outage.

The production database, also referred to as the primary database can be either a single-instance Oracle database or an Oracle Real Application Clusters (RAC) database. A standby database is a transaction-wise consistent copy of the primary database. Using a backup copy of the primary database, you can create one or more standby databases and incorporate them in a Data Guard configuration. Using Enterprise Manager Database as a Service, users with the `EM_SSA_ADMINISTRATOR` role can setup the DBaaS Cloud with single instance of RAC standby databases.

### Note:

In the table below, wherever REST APIs are not available for any steps EM CLI verbs are provided, and vice-versa.

**Table 35-3 Creating Standby Databases with REST APIs and EM CLI Verbs**

Step	Task	REST APIs	EM CLI Verbs
1	Follow the steps in the Getting Started section to enable DBaaS.	See <a href="#">Getting Started</a>	See <a href="#">Getting Started</a>
2	Set up one or more PaaS Infrastructure Zones.	See <a href="#">Creating a PaaS Zone</a>	See <a href="#">PaaS Zone EM CLI Verbs</a>
3	Define a database pool for provisioning standby databases.	See <a href="#">Creating a Database Pool</a>	See <a href="#">Software Pool EM CLI Verbs</a>
4	Configure the request settings.	See <a href="#">Creating Database Request Settings</a>	See <a href="#">Database Request Settings EM CLI Verbs</a>
5	Define quotas for each self service user.	See <a href="#">Creating DBaaS Quota for a Role</a>	See <a href="#">Database Quota EM CLI Verbs</a>
6	Create either of the following types of profiles: <ul style="list-style-type: none"> <li>• DBCA template based database provisioning profile.</li> <li>• RMAN Backup based database provisioning profile.</li> </ul>	See <a href="#">Creating Provisioning Profiles using EM CLI</a>	See <a href="#">Creating Provisioning Profiles using EM CLI</a>
7	Create a service template based on the profile you have created.	See <a href="#">Service Templates and Service Template REST API Examples</a>	See <a href="#">Service Template EM CLI Verbs</a>
8	Configure the Chargeback Service.	See <a href="#">Performing UI Equivalent Chargeback Operations</a>	See <a href="#">Performing UI Equivalent Chargeback Operations</a>
9	While deploying a database, select the service template (associated with the DBCA template based profile) you have created. Additionally, you can also specify the standby database information while requesting the database.	See <a href="#">Creating a Database Instance</a>	See <a href="#">Creating a Database Instance</a>

### Placement of Standby Databases

You can take advantage of the custom placement option when a Service template is configured with a Standby database. The following example shows the *Body* for the request submission to support the custom placement for a Standby database.

```
{
  "zone": "/em/cloud/dbaas/zone/F5D6E03052068EE378DEFFD720DA6EEA",
  "name": "Request a SI Database1",
  "description": "Request a Single Instance Database",
  "standby_required": "true",
  "params": {
    "username": "ssouser1",
    "password": "welcome",
    "database_sid": "prmdb",
    "database_host_name": "mydbhost.mysite.com",
    "service_name": "service_1",
    "standbydbs":
    [
  {
```

```

"standbydb_name" : "stdby" ,
"standbydb_domain_name":"mysite.com",
    "standbydb_type" : "oracle_database",
    "standbydb_host_name":"mydbhost.mysite.com"
}
]
}
}

```

## Creating Empty Schemas and Schemas Based on Profile With REST APIs and EM CLI Verbs

The data content of a database provisioning profile is compiled from an export dump. You can choose to export Schema objects (structure only) or the Schema with data (structure and data).

The table below shows the list of tasks that are involved in creating an empty schema or a schema based on profile.



### Note:

In the table below, wherever REST APIs are not available for any steps EM CLI verbs are provided, and vice-versa.

**Table 35-4 Creating Schemas with REST APIs and EM CLI Verbs**

Step	Task	REST APIs	EM CLI Verbs
1	Follow the steps in the Getting Started section to enable DBaaS.	See <a href="#">Getting Started</a>	See <a href="#">Getting Started</a>
2	Set up one or more PaaS Infrastructure Zones.	See <a href="#">Creating a PaaS Zone</a>	See <a href="#">PaaS Zone EM CLI Verbs</a>
3	Define a database pool for schema as a service.	See <a href="#">Creating a Schema Pool</a>	See <a href="#">Software Pool EM CLI Verbs</a>
4	Configure the request settings.	See <a href="#">Creating Database Request Settings</a>	See <a href="#">Database Request Settings EM CLI Verbs</a>
5	Define quotas for each self service user.	See <a href="#">Creating DBaaS Quota for a Role</a>	See <a href="#">Database Quota EM CLI Verbs</a>
6	Create a database provisioning profile. This step is optional and is required if you are importing schemas from a profile.	See <a href="#">Creating Provisioning Profiles using EM CLI</a>	See <a href="#">Creating Provisioning Profiles using EM CLI</a>



**Table 35-4 (Cont.) Creating Schemas with REST APIs and EM CLI Verbs**

Step	Task	REST APIs	EM CLI Verbs
7	Create a service template based on: <ul style="list-style-type: none"> <li>User Defined Schema: In this case, the service template is created with an empty schema.</li> <li>Schema from a Profile: In this case, you can import schemas from a database provisioning profile. You can select this option for applications with data such as eBusiness applications.</li> </ul>	See <a href="#">Creating a Service Template for a Schema</a>	See <a href="#">Service Template EM CLI Verbs</a>
8	Configure the Chargeback Service.	See <a href="#">Performing UI Equivalent Chargeback Operations</a>	See <a href="#">Performing UI Equivalent Chargeback Operations</a>
9	Create the schema based on the service template.	See <a href="#">Creating a Schema Service</a>	See <a href="#">Creating a Schema Service</a>

## Creating Empty PDBs and PDBs Based on Profile With REST APIs and EM CLI Verbs

An Oracle Database can contain a portable collection of schemas, schema objects, and non-schema objects, that appear to an Oracle Net client as a separate database. This self-contained collection is called a pluggable database (PDB). A multi-tenant container database (CDB) is a database that includes one or more PDBs. Oracle Database 12c Release 1 (12.1) and later versions allow you to create many PDBs within a single CDB.

### Note:

In the table below, wherever REST APIs are not available for any steps EM CLI verbs are provided, and vice-versa.

**Table 35-5 Creating Pluggable Databases with REST APIs and EM CLI Verbs**

Step	Task	REST APIs	EM CLI Verbs
1	Follow the steps in the Getting Started section to enable DBaaS.	See <a href="#">Getting Started</a>	See <a href="#">Getting Started</a>
2	Set up one or more PaaS Infrastructure Zones.	See <a href="#">Creating a PaaS Zone</a>	See <a href="#">PaaS Zone EM CLI Verbs</a>
3	Create a database pool for PDB as a service.	See <a href="#">Creating a Pluggable Database Pool</a>	See <a href="#">Software Pool EM CLI Verbs</a>
4	Configure the request settings.	See <a href="#">Creating Database Request Settings</a>	See <a href="#">Database Request Settings EM CLI Verbs</a>
5	Define quotas for each self service user.	See <a href="#">Creating DBaaS Quota for a Role</a>	See <a href="#">Database Quota EM CLI Verbs</a>

**Table 35-5 (Cont.) Creating Pluggable Databases with REST APIs and EM CLI Verbs**

Step	Task	REST APIs	EM CLI Verbs
6	Create a database provisioning profile. This step is optional and is not required if you are creating an empty pluggable database.	See <a href="#">Creating Provisioning Profiles using EM CLI</a>	See <a href="#">Creating Provisioning Profiles using EM CLI</a>
7	Create a service template. A service template can contain: <ul style="list-style-type: none"> <li>Empty Pluggable Database: In this case, the service template is created with an empty schema.</li> <li>Pluggable Database from a Profile: In this case, you can import schemas from a database provisioning profile. You can select this option for applications with data such as eBusiness applications.</li> </ul>	See <a href="#">Creating a Service Template for a Pluggable Database</a>	See <a href="#">Service Template EM CLI Verbs</a>
8	Configure the Chargeback Service.	See <a href="#">Performing UI Equivalent Chargeback Operations</a>	See <a href="#">Performing UI Equivalent Chargeback Operations</a>
9	While deploying a database, select the service template that you have created.	See <a href="#">Creating a Pluggable Database</a>	See <a href="#">Creating a Pluggable Database</a>

## Migrating/Transferring Data from One Database to Another

To migrate data from one database to another using EM CLI verbs, follow the steps below:

1. Enter the EM CLI verb `emcli describe_dbprofile_input -data_mode=EXPORT`. The output provides all profile creation input variables.

 **Note:**

Export is supported only for database whereas import is supported for both database and PDBs. This indicates that the source should always be a database and the destination can be either a database or a PDB.

2. Use the input variables to create a properties file with values for all the variables.
3. Export data from the source database by creating a database profile. To do so, enter the verb `emcli create_dbprofile - input_file=data:<properties file name along with path>`.

 **Note:**

Use the properties file created in the previous step for this verb.

For the verb details see [Creating Provisioning Profiles using EM CLI](#).

4. Enter the verb to transfer data: `emcli data_transfer -input_file=data:/u01/files/data_trans.props.`

For the verb and properties file details see [Transferring Data Between Databases](#).

5. Enter the verb to import data in to the destination database: `emcli dbimport -input_file=data:/u01/files/dbimport.props.`

For the verb and properties file details see [Importing Data from Export Dumps to a Database](#).

## Creating Databases Using Snap Clone With REST APIs and EM CLI Verbs

Snap Clone is a Self-Service-Application (SSA) way of creating fast and space-saver clones of huge databases. Clones of the production database are often required for test and development purposes, and it is difficult and time consuming to create these clones, especially if the databases are huge.

Enterprise Manager offers Snap Clone as a way to address this issue, so that thin clones can be created from production databases by using the copy on write technology available in some storage systems. This means that these clones take up little space initially (about 2 GB of writable space required for a thin clone of a multi-terabyte database), and will grow as inserts, updates and deletes are performed. Enterprise Manager offers two solutions with snap clone:

- **Hardware Solution:** Vendor specific hardware solution which supports NetApps, Oracle Sun ZFS storage appliance, EMC VMAX, and VNX.
- **Software Solution:** Storage agnostic software solution that supports all NAS and SAN storage devices. This is supported through use of the ZFS file system, and the CloneDB feature.

The main features of snap clone are:

- **Self Service Driven Approach:** Empowers the self service user to clone databases as required on an ad-hoc basis.
- **Rapid Cloning:** Databases can be cloned in minutes and not in days or weeks.
- **Space Efficient:** This features allows users to significantly reduce the storage footprint.

This section contains the following sub-sections:

- [Creating a Snap Clone Using a Profile With REST APIs and EM CLI Verbs](#)
- [Creating a Snap Clone Using Live Database With REST APIs and EM CLI Verbs](#)
- [Continuous Sync](#)

### Creating a Snap Clone Using a Profile With REST APIs and EM CLI Verbs

This table below lists the steps involved in creating a snap clone using a snapshot or an RMAN Image profile.

**Note:**

In the table below, wherever REST APIs are not available for any steps EM CLI verbs are provided, and vice-versa.

**Table 35-6 Creating a Snap Clone Database Using a Profile with REST APIs and EM CLI Verbs**

Step	Task	REST APIs	EM CLI Verbs
1	Follow the steps in the Getting Started section to enable Snap Clone.	See <a href="#">Getting Started</a>	See <a href="#">Getting Started</a>
2	Register storage servers. <ul style="list-style-type: none"> <li>Sun ZFS Storage Server</li> <li>Solaris File System (ZFS)</li> </ul>	<ul style="list-style-type: none"> <li><a href="#">Registering a Sun ZFS Storage Server</a></li> <li><a href="#">Registering a Solaris File System (ZFS) Storage Server</a></li> </ul>	<ul style="list-style-type: none"> <li><a href="#">Registering a Sun ZFS Storage Server</a></li> <li><a href="#">Registering a Solaris File System (ZFS) Storage Server</a></li> </ul>
3	Set up one or more PaaS Infrastructure Zones.	See <a href="#">Creating a PaaS Zone</a>	See <a href="#">PaaS Zone EM CLI Verbs</a>
4	Create a database pool.	See <a href="#">Creating a Database Pool</a>	See <a href="#">Software Pool EM CLI Verbs</a>
5	Configure the request settings.	See <a href="#">Creating Database Request Settings</a>	See <a href="#">Database Request Settings EM CLI Verbs</a>
6	Define quotas for each self service user.	See <a href="#">Creating DBaaS Quota for a Role</a>	See <a href="#">Database Quota EM CLI Verbs</a>
7	Set up the Test Master Database and enable snap clone.	See <a href="#">Enabling the Test Master for Snap Clone</a>	See <a href="#">Enabling the Test Master for Snap Clone</a>
8	Depending on the snap clone solution you are using, do either of the following: <ul style="list-style-type: none"> <li>Hardware Solution: Create a snap clone based profile.</li> <li>Software Solution: Create an RMAN Image profile.</li> </ul> Create a database provisioning profile using a snap clone.	<ul style="list-style-type: none"> <li>Hardware Solution: See <a href="#">Creating a Database Provisioning Profile Using Snapshots</a></li> <li>Software Solution: See <a href="#">Creating Provisioning Profiles using EM CLI</a></li> </ul>	<ul style="list-style-type: none"> <li>Hardware Solution: See <a href="#">Creating a Database Provisioning Profile Using Snapshots</a></li> <li>Software Solution: See <a href="#">Creating Provisioning Profiles using EM CLI</a></li> </ul>
9	Create a service template based on the profile you have created.	<ul style="list-style-type: none"> <li>Hardware Solution: See <a href="#">Creating Service Template Using Snap Clone Profile</a></li> <li>Software Solution: See <a href="#">Service Templates and Service Template REST API Examples</a></li> </ul>	<ul style="list-style-type: none"> <li>Hardware Solution: See <a href="#">Creating Service Template Using Snap Clone Profile</a></li> <li>Software Solution: See <a href="#">Service Template EM CLI Verbs</a></li> </ul>
10	Configure the Chargeback Service. (this step is optional)	See <a href="#">Performing UI Equivalent Chargeback Operations</a>	See <a href="#">Performing UI Equivalent Chargeback Operations</a>
11	While deploying a database, select the service template you have created.	See <a href="#">Creating a Database Instance</a>	See <a href="#">Creating a Database Instance</a>

## Creating a Snap Clone Using Live Database With REST APIs and EM CLI Verbs

This table below lists the steps involved in creating a snap clone using a live standby database.



**Note:**

In the table below, wherever REST APIs are not available for any steps EM CLI verbs are provided, and vice-versa.

**Table 35-7 Creating Snap Clone Using Live Database With REST APIs and EM CLI Verbs**

Step	Task	REST APIs	EM CLI Verbs
1	Follow the steps in the Getting Started section to enable Snap Clone.	See <a href="#">Getting Started</a> .	See <a href="#">Getting Started</a> .
2	Register storage servers. <ul style="list-style-type: none"> <li>• NetApp and Sun ZFS Storage Server</li> <li>• Solaris File System (ZFS)</li> </ul>	See: <ul style="list-style-type: none"> <li>• <a href="#">Registering a Sun ZFS Storage Server</a></li> <li>• <a href="#">Registering a Solaris File System (ZFS) Storage Server</a></li> </ul>	See: <ul style="list-style-type: none"> <li>• <a href="#">Registering a Sun ZFS Storage Server</a></li> <li>• <a href="#">Registering a Solaris File System (ZFS) Storage Server</a></li> </ul>
3	Set up one or more PaaS Infrastructure Zones.	See <a href="#">Creating a PaaS Zone</a>	See <a href="#">PaaS Zone EM CLI Verbs</a>
4	Create a database pool.	See <a href="#">Creating a Database Pool</a>	See <a href="#">Software Pool EM CLI Verbs</a>
5	Configure the request settings.	See <a href="#">Creating Database Request Settings</a>	See <a href="#">Database Request Settings EM CLI Verbs</a>
6	Define quotas for each self service user.	See <a href="#">Creating DBaaS Quota for a Role</a>	See <a href="#">Database Quota EM CLI Verbs</a>
7	Set up the Test Master Database using a live standby database.	See <a href="#">Using a Physical Standby Database as a Test Master</a>	See <a href="#">Using a Physical Standby Database as a Test Master</a>
9	Create a service template.	See <a href="#">Service Templates and Service Template REST API Examples</a>	See <a href="#">Service Template EM CLI Verbs</a>
10	Configure the Chargeback Service. (this step is optional)	See <a href="#">Performing UI Equivalent Chargeback Operations</a>	See <a href="#">Performing UI Equivalent Chargeback Operations</a>
11	While deploying a database, select the service template you have created.	See <a href="#">Creating a Database Instance</a>	See <a href="#">Creating a Database Instance</a>

## Continuous Sync

A continuous sync setup has a production database and a Test master database which is on a filer (NAS storage). The Test master is an RMAN image backup of the data files and is

scheduled to run a backup of the production database at regular intervals. Thereby the Test master database gets continuous/live data from the production database.

To set up a continuous sync database setup, follow the steps below:

**Table 35-8 Creating a Continuous Sync Setup Using EM CLI Verbs**

Step	Task	EM CLI Verb
1	Add an existing standby database. Currently, this task can be accomplished only via the UI screen.	Not available
2	Create a new Test master from a standby database.	<a href="#">Creating a Database Profile Using EM CLI Verbs</a>
3	Create a clone.	<a href="#">Creating a Database Clone Using EM CLI Verbs</a>
4	Promote the clone as the Test master. Currently, this task can be accomplished only via the UI screen.	Not available

## Creating Full Database Clones Using RMAN With REST APIs and EM CLI Verbs

There are two ways of cloning full databases using RMAN. They are:

- [Creating a Full Database Clone Using RMAN Backup](#)
- [Creating a Full Database Clone Using RMAN Duplication \(Live Cloning\)](#)
- [Discrete Sync](#)

### Creating a Full Database Clone Using RMAN Backup

Database backups created by RMAN (Recovery Manager) are stored as image copies or backup sets. You can create profiles using these backups and use these profiles to create full database clones.



**Note:**

In the table below, wherever REST APIs are not available for any steps EM CLI verbs are provided, and vice-versa.

**Table 35-9 Cloning Databases Using RMAN Backup Profile with REST APIs and EM CLI Verbs**

Step	Task	REST APIs	EM CLI Verbs
1	Follow the steps in the Getting Started section to enable DBaaS.	See <a href="#">Getting Started</a>	See <a href="#">Getting Started</a>
2	Set up one or more PaaS Infrastructure Zones.	See <a href="#">Creating a PaaS Zone</a>	See <a href="#">PaaS Zone EM CLI Verbs</a>

**Table 35-9 (Cont.) Cloning Databases Using RMAN Backup Profile with REST APIs and EM CLI Verbs**

Step	Task	REST APIs	EM CLI Verbs
3	Create a database pool.	See <a href="#">Creating a Database Pool</a>	See <a href="#">Software Pool EM CLI Verbs</a>
4	Configure the request settings.	See <a href="#">Creating Database Request Settings</a>	See <a href="#">Database Request Settings EM CLI Verbs</a>
5	Define quotas for each self service user.	See <a href="#">Creating DBaaS Quota for a Role</a>	See <a href="#">Database Quota EM CLI Verbs</a>
6	Create one of the following database provisioning profiles: <ul style="list-style-type: none"> <li>• RMAN Backup</li> <li>• Existing RMAN Backup</li> </ul>	See <a href="#">Creating Provisioning Profiles using EM CLI</a>	See <a href="#">Creating Provisioning Profiles using EM CLI</a>
7	Set up the Test Master database.	See <a href="#">Enabling the Test Master for Snap Clone</a>	See <a href="#">Enabling the Test Master for Snap Clone</a>
8	Create a service template based on the profile you have created.	See <a href="#">Service Templates and Service Template REST API Examples</a>	See <a href="#">Service Template EM CLI Verbs</a>
9	Configure the Chargeback Service.	See <a href="#">Performing UI Equivalent Chargeback Operations</a>	See <a href="#">Performing UI Equivalent Chargeback Operations</a>
10	While deploying a database, select the service template you have created.	See <a href="#">Creating a Database Instance</a>	See <a href="#">Creating a Database Instance</a>

## Creating a Full Database Clone Using RMAN Duplication (Live Cloning)

Database backups created by RMAN (Recovery Manager) are stored as image copies or backup sets. You can create profiles using these backups and use these profiles to create full database clones.



### Note:

In the table below, wherever REST APIs are not available for any steps EM CLI verbs are provided, and vice-versa.

**Table 35-10 Creating a Full Database Clone Using RMAN Backup With REST APIs and EM CLI Verbs**

Step	Task	REST APIs	EM CLI Verbs
1	Follow the steps in the Getting Started section to enable DBaaS.	See <a href="#">Getting Started</a>	See <a href="#">Getting Started</a>
2	Set up one or more PaaS Infrastructure Zones.	See <a href="#">Creating a PaaS Zone</a>	See <a href="#">PaaS Zone EM CLI Verbs</a>
3	Create a database pool.	See <a href="#">Creating a Database Pool</a>	See <a href="#">Software Pool EM CLI Verbs</a>

**Table 35-10 (Cont.) Creating a Full Database Clone Using RMAN Backup With REST APIs and EM CLI Verbs**

Step	Task	REST APIs	EM CLI Verbs
4	Create the test master by using a live standby database.	See <a href="#">Using a Physical Standby Database as a Test Master</a>	See <a href="#">Using a Physical Standby Database as a Test Master</a>
5	Configure the request settings.	See <a href="#">Creating Database Request Settings</a>	See <a href="#">Database Request Settings EM CLI Verbs</a>
6	Define quotas for each self service user.	See <a href="#">Creating DBaaS Quota for a Role</a>	See <a href="#">Database Quota EM CLI Verbs</a>
7	Create a service template based on the test master.	See <a href="#">Service Templates and Service Template REST API Examples</a>	See <a href="#">Service Template EM CLI Verbs</a>
8	Configure the Chargeback Service.	See <a href="#">Performing UI Equivalent Chargeback Operations</a>	See <a href="#">Performing UI Equivalent Chargeback Operations</a>
9	While deploying a database, select the service template you have created.	See <a href="#">Creating a Database Instance</a>	See <a href="#">Creating a Database Instance</a>

## Discrete Sync

A discrete sync setup has a production database which is not available for direct cloning operations and thereby with no standby database. The administrator schedules periodic backups on the production database and uses the backups to create the Test master database.

To set up a discrete sync database setup, follow the steps below:

**Table 35-11 Creating a Discrete Sync Setup Using EM CLI Verbs**

Step	Task	EM CLI Verb
1	Create a Test master database.	<a href="#">Creating a Database Clone Using EM CLI Verbs</a>
2	Create a full backup.	<a href="#">Creating a Database Profile Using EM CLI Verbs</a>
3	Create a thin backup.	<a href="#">Creating a Database Profile Using EM CLI Verbs</a>
4	Create a clone.	<a href="#">Creating a Database Clone Using EM CLI Verbs</a>
5	Refresh Test master or clones.	<a href="#">Refreshing a Database Using EM CLI Verbs</a>

## Configuring Custom Database Placement Option Using REST APIs

This section describes the custom database placement feature using REST APIs. See the following sections for further details:



- [Custom Database Placement Option for Databases Using REST APIs](#)
- [Custom Database Placement Option for Pluggable Databases Using REST APIs](#)

## Custom Database Placement Option for Databases Using REST APIs

With the custom database placement option, an SSA user has the option of choosing the host on which the database instance is created. This option has to be enabled in the service template by the SSA Administrator while creating the service template. The `SELECT_ORACLE_HOME_OPTION` parameter in the JSON body of the service template defines if the SSA User has the option to select the host while requesting for a database instance. If `SELECT_ORACLE_HOME_OPTION` is set with the value `"SELECT_ORACLE_HOME_FROM_REQUEST"` the SSA User has the option to choose the database host while requesting the database. If the parameter is not defined, or if the value for the parameter is not set, or if the value is set to `"SELECT_ORACLE_HOME_AT_RUNTIME"`, then the SSA User will not have the option of choosing the database host and the database instance will be created on the host selected by the placement algorithm during the execution of the request.

After the option is set in the service template, the SSA User can perform a GET operation on the service template URI to view the available hosts. The `"hosts_for_placement"` parameter (in the case of a SI database), and `"clusters_for_placement"` and `"hostsInCluster"` parameters (in case of a RAC database) provide the details of the available hosts to the SSA User. The SSA User is then required to define the host name for placing the database in the `"database_host_name"` parameter in the POST operation for requesting a database instance.

The `"database_host_name"` parameter is a mandatory parameter if the custom placement option is set in the service template. Note that multiple values for `database_host_name` request parameter can be provided as comma separated values. For a RAC database request, the number of hosts specified in this parameter should match with the number of nodes configured in the service template, and all of the hosts provided should belong to the same cluster and should be present in the selected zone.

## Custom Database Placement Option for Pluggable Databases Using REST APIs

With the custom database placement option, an SSA user has the option of choosing the Container Database (CDB) on which the Pluggable Database (PDB) instance is created. This option has to be enabled in the service template by the SSA Administrator while creating the service template.

The `SELECT_TARGET_OPTION` parameter in the JSON body of the PDB service template defines if the SSA User has the option to select the host while requesting for a database instance. If `SELECT_ORACLE_HOME_OPTION` is set with the value `"SELECT_TARGET_FROM_REQUEST"` the SSA User has the option to choose the CDB while requesting the database. If the parameter is not defined, or if the value for the parameter is not set, or if the value is set to `"SELECT_TARGET_AT_RUNTIME"`, then the SSA User will not have the option of choosing the CDB and the PDB instance will be created on the CDB selected by the placement algorithm during the execution of the request.

After the option is set in the PDB service template, the SSA User can perform a GET operation on the service template URI to view the available CDBs. The `"target_nodes_for_placement"` parameter provides the details of the available CDBs to the SSA User. The SSA User is then required to define the CDB target name for placing the PDB in the `"target_name"` parameter in the POST operation for requesting a PDB instance.

The "target\_name" parameter is a mandatory parameter if the custom placement option is set in the service template. The CDB target name specified in this parameter should be present in the selected zone.

## Service Catalog of Database as a Service

Service catalog is a collection of pre-approved database configurations available to selected consumers for on demand, self service provisioning. It enforces consistency and automation, and helps reduce the database management overhead.

Service catalog offers:

- Self-service provisioning which provides IT agility
- Enterprise-wide service catalog which provides standardization and compliance
- Database cloning using snap clone which saves time and storage space
- Metering, chargeback and quota which ensures service governance
- Performance and lifecycle management which guarantees service levels
- Patching, upgrading and configuration automation which lowers operational costs

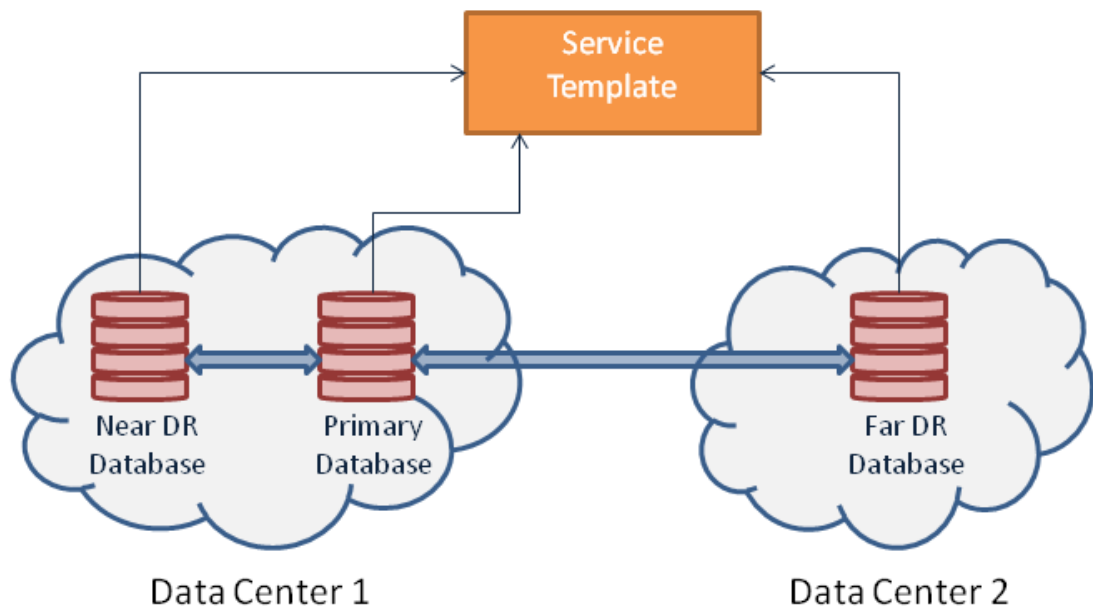
For more information on service catalog watch the video at - [https://apex.oracle.com/pls/apex/f?p=44785:24:0:::P24\\_CONTENT\\_ID,P24\\_PREV\\_PAGE:9590,1](https://apex.oracle.com/pls/apex/f?p=44785:24:0:::P24_CONTENT_ID,P24_PREV_PAGE:9590,1).

The following section explains the REST APIs required for setting up a sample multi-datacenter DBaaS.

## Multi-Datacenter DBaaS Setup

Multi-datacenter DBaaS setup is the best possible structure of DBaaS configuration in an enterprise with multiple data centers where all aspects related to data safety, recovery and backup are considered at the highest levels.

**Figure 35-2 Multi-Datacenter DBaaS Setup**



Multi-datacenter DBaaS setup requires creating a Primary RAC software pool and two Standby software pools. Of the two standby software pools, the near disaster recovery (DR) pool is a RAC software pool and the other, which is the far DR is a single instance software pool. After the software pools are created, the service template is created to establish the relation between the software pools. This setup is offered as a Multi-datacenter DBaaS setup to the SSA user.

The topics covered under this section are:

- [Administrator Steps for Creating the Multi-Datacenter DBaaS Setup](#)
- [SSA User REST API Request for Using the Multi-Datacenter DBaaS Setup](#)

## Administrator Steps for Creating the Multi-Datacenter DBaaS Setup

This section explains the steps to setup the Multi-datacenter DBaaS using REST APIs. For the EM CLI verb equivalent of the REST APIs run the `emcli invoke_ws` command for each of the REST APIs in the steps below. For details on `emcli invoke_ws` command, refer to [EM CLI Verbs for Database as a Service Administrator](#).

Follow the steps below to setup the Multi-datacenter DBaaS:

1. Create a PaaS zone for the data center with the single instance software pool (Far DR).  
To create a PaaS zone, issue the REST API request given below.

**Table 35-12 Request Configuration to Create a PaaS Zone**

Feature	Description
URI	<code>https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/</code>
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	<pre>{   "name": "DATACENTER_2",   "description": "This is a TestZone",   "credential": "NCAIME",   "memberType": "host",   "members": [     "www.example.com"   ],   "constraint": [     {       "name": "MAX_CPU_UTILIZATION",       "value": "85"     },     {       "name": "MAX_MEMORY_ALLOCATION",       "value": "95"     }   ],   "roles": [     "SSACOREROLE1",     "SSACOREROLE2"   ], }</pre>

**Table 35-12 (Cont.) Request Configuration to Create a PaaS Zone**

Feature	Description
Request method	POST

2. Create a standby single instance software pool in `DATACENTER_2`.

To create a standby single instance software pool, issue the REST API request given below.

**Table 35-13 Configuration to Create a Standby Single Instance Software Pool**

Feature	Description
URI	<code>https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools</code>
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	<pre>{   "name": "DB_POOL2",   "poolTargetType": "oracle_cloud_zone",   "description": "Database Pool of Oracle Homes",   "paasZone": "DATACENTER_2",   "members": ["OraDb11g_home1_2_example.com"],   "serviceFamily": "DBAAS",   "serviceType": "DBAAS",   "constraints": {"items": [{"name": "MAX_INSTANCES", "value": "10"}]},   "filters":     {"items": [       {"name": "CONFIGURATION", "value": "oracle_database"},       {"name": "VERSION", "value": "11.2.0.4.0"},       {"name": "PLATFORM", "value": "226"}     ]   },   "properties":     {"items": [       {"name": "host_credential_guid", "value": "FF7A82CE961672E6E0437850B10ABF4E"}     ]   } }</pre>
Request method	POST

3. Create a PaaS zone for the data center with the primary database and the standby RAC database (Near DR).

To create a PaaS zone, issue the REST API request given below.

**Table 35-14 Request Configuration to Create a PaaS Zone**

Feature	Description
URI	<code>https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/</code>

**Table 35-14 (Cont.) Request Configuration to Create a PaaS Zone**

Feature	Description
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	<pre>{   "name": "DATACENTER_1",   "description": "This is a TestZone",   "credential": "NCAIME",   "memberType": "host",   "members": [     "www.example.com"   ],   "constraint": [     {       "name": "MAX_CPU_UTILIZATION",       "value": "85"     },     {       "name": "MAX_MEMORY_ALLOCATION",       "value": "95"     }   ],   "roles": [     "SSACOREROLE1",     "SSACOREROLE2"   ], }</pre>
Request method	POST

4. Create a standby RAC software pool in `DATACENTER_1`.

To create a standby RAC software pool, issue the REST API request shown below.

**Table 35-15 Configuration to Create a Standby RAC Software Pool**

Feature	Description
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/ restful/extws/cloudservices/admin/cfw/v1/s oftwarepools
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json

**Table 35-15 (Cont.) Configuration to Create a Standby RAC Software Pool**

Feature	Description
Body	<pre>{   "name": "DB_POOL3",   "poolTargetType": "oracle_cloud_zone",   "description": "Database Pool of Oracle Homes",   "paasZone": "DATACENTER_1",   "members":   ["OraDb11g_home2_11_www.example.com","OraDb11g_home2_11_www.example.com"],   "serviceFamily": "DBAAS",   "serviceType": "DBAAS",   "constraints": {"items": [{"name": "MAX_INSTANCES", "value": "10"}]},   "filters":   {"items": [     {"name": "CONFIGURATION", "value": "rac_database"},     {"name": "VERSION", "value": "11.2.0.4.0"},     {"name": "PLATFORM", "value": "226"}   ]   },   "properties":   {"items": [     {"name": "host_credential_guid", "value": "FF7A82CE961672E6E0437850B10ABF4E"}   ]   } }</pre>
Request method	POST

5. Create a primary RAC software pool in DATACENTER\_1.

To create a primary RAC software pool, issue the REST API request shown below.

**Table 35-16 Configuration to Create a Primary RAC Software Pool**

Feature	Description
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json

**Table 35-16 (Cont.) Configuration to Create a Primary RAC Software Pool**

Feature	Description
Body	<pre>{   "name": "DB_POOL1",   "poolTargetType": "oracle_cloud_zone",   "description": "Database Pool of Oracle Homes",   "paasZone": "DATACENTER_1",   "members": ["OraDb11g_home1_2_www.example.com","OraDb11g_home1_2_www .example.com"],   "serviceFamily":"DBAAS",   "serviceType":"DBAAS",   "constraints": {"items": [{"name": "MAX_INSTANCES", "value": "10"}]},   "filters":     {"items": [       {"name": "CONFIGURATION","value": "rac_database"},       {"name": "VERSION","value": "11.2.0.4.0"},       {"name": "PLATFORM","value": "226"}     ]   },   "properties":     {"items": [       {"name": "host_credential_guid", "value": "FF7A82CE961672E6E0437850B10ABF4E"},       {"name": "standby_pools", "value": "DB_POOL2  DB_POOL3"}     ]   } }</pre>
Request method	POST

**6. Create DBaaS Request Settings for a user role.**

To create DBaaS request settings, issue the REST API request shown below.

**Table 35-17 Configuration to Create DBaaS Request Settings**

Feature	Description
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/cloud/dbaas/requestsettings
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json Accept: application/ oracle.com.cloud.common.DbaasRequestSettings+json
Body	<pre>{   "future_reservation_length" : "2 Months",   "maximum_archive_duration" : "10 Weeks",   "default_retirement_period" : "No Reservation" }</pre>
Request method	POST

7. Create Quota for a user role.

To create quota, issue the REST API request shown below.

**Table 35-18 Configuration to Create a Quota**

Feature	Description
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/cloud/dbaas/quota
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json Accept: application/ oracle.com.cloud.common.DbaasRequestSettings+json
Body	{ "role_name" : "DBAAS_ROLE", "databases" : "10", "schema_services" : "21", "pluggable_databases" : "22", "storage" : "99", "memory" : "99" }
Request method	POST

8. Create a Profile to capture the source database information for provisioning. Refer to [EM CLI Verbs for Database as a Service Administrator](#) .

9. Create a database service template.

To create a database service template, issue the REST API request shown below.

**Table 35-19 Configuration to Create a Database Service Template**

Feature	Description
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json



**Table 35-19 (Cont.) Configuration to Create a Database Service Template**

Feature	Description
Body	<pre> {   "name": "TestDbTemplate1",   "serviceType": "DB",   "serviceFamily": "DBAAS",   "description": "This is a test database standby service template 1",   "poolIds": [ "00829096124B0CC3E0537850B10A9E88" ],   "serviceExecutableMeta": {     "type": "CDP",     "configurations": [       { "name": "PROFILE_COMPONENT_URN", "value": "oracle:defaultService:em:provisioning:1:cmp:COMP _Component:SUB_DbProfile:0008FDF6A8BD706BE0537850B10A5E7A :0.1" },  { "name": "DATABASE_TYPE", "value": "rac_database" },   { "name": "COMMON_DB_SYSTEM_PASSWORD", "value": "welcome" },   { "name": "COMMON_DB_DBSNMP_PASSWORD", "value": "welcome" },  { "name": "COMMON_DB_SYS_PASSWORD", "value": "welcome" },   { "name": "DB_ADMIN_PASSWORD_SAME", "value": "true" },   { "name": "INSTANCE_COUNT", "value": "2" },   { "name": "SID_OPTION", "value": "ssauser" },   { "name": "COMMON_DB_SID", "value": "mydb1" },   { "name": "COMMON_DOMAIN_NAME", "value": "www.example.com" },   { "name": "LISTENER_PORT", "value": "1521" },   { "name": "STAGE_LOCATION", "value": "/scratch" },   { "name": "REF_ZONE", "value": "DATACENTER_1" },   { "name": "REF_POOL", "value": "DB_POOL1" },   { "name": "REF_HOST", "value": "www.example.com" },   { "name": "REF_TGT", "value": "www.example.com" },   { "name": "DBCA_TEMPLATE:DB_STORAGE_TYPE", "value": "ASM" },  { "name": "DBCA_TEMPLATE:DATA_FILE_LOCATION", "value": "DATA " },  { "name": "DBCA_TEMPLATE:REC_STORAGE_TYPE_SAME_AS_DB_FILES ", "value": "Y" },   { "name": "DBCA_TEMPLATE:ARCHIVE_LOG_MODE", "value": "Y" },  { "name": "DBCA_TEMPLATE:FLASH_RECOVERY_AREA_SIZE", "value": "5000" },  { "name": "DBCA_TEMPLATE:RECOVERY_FILE_LOCATION", "value": " RECO" },   { "name": "DBCA_TEMPLATE:REDO_FILE_LOCATION", "value": "RECO" },   {     "name": "INIT_PARAMS", </pre>

**Table 35-19 (Cont.) Configuration to Create a Database Service Template**

Feature	Description
	<pre>                 "subconfigurations":[                     { "name":"INIT_PARAMS:1", "value":"sga_target=1073741824" },                     { "name":"INIT_PARAMS:2", "value":"pga_aggregate_target=1073741824" }                 ]             },             { "name":"STANDBY_REQUIRED","value":"true" },              { "name":"STANDBY_REQUIRED_LOCK","value":"false" },             { "name":"STANDBY_WORK_DIR","value":"/tmp" },              { "name":"PRIMARY_PROTECTION_MODE","value":"MAXIMIZE AVAILABILITY" },              { "name":"DBAAS_SSA_STANDBY_CUSTOM_PRE_SCRIPTS_URN","valu e":"" },              { "name":"DBAAS_SSA_STANDBY_CUSTOM_POST_SCRIPTS_URN","val ue":"" },              { "name":"STANDBY_DB_DETAILS","value":"","values":[                  "pool=DB_POOL3;databaseSIDPrefix=;databaseType=rac_databa se;standbyConfigName=Near DR;redoMode=SYNC;realtimeQuery=true;databaseRACInstanceCo unt=2;databaseDelay=30;databaseUniqueName=;standbyStorage Type=FS;standbyStorageLocation=;standbyFRAType=FS;standby FRALocation=;standbyFRASize=;standbyLsnrPort=;domainName= us.example.com",                  "pool=DB_POOL2;databaseSIDPrefix=;databaseType=oracle_dat abase;standbyConfigName=Far DR;redoMode=ASYN;realtimeQuery=false;databaseRACInstance Count=2;databaseDelay=60;databaseUniqueName=;standbyStora geType=FS;standbyStorageLocation=;standbyFRAType=FS;stand byFRALocation=;standbyFRASize=;standbyLsnrPort=;domainNam e=us.example.com"]}]              ]         }     } </pre>
Request method	POST

The platinum DBaaS setup is ready to be administered.

## SSA User REST API Request for Using the Multi-Datacenter DBaaS Setup

To request a multi-datacenter DBaaS setup with a near DR and a far DR, issue the REST API request shown below.

**Table 35-20 Configuration to Create a Database with Two Standby Databases**

Feature	Description
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/cloud/dbaas/zone/82CF1C28FA20A183C99D138FF8065F19
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/oracle.com.cloud.common.DbPlatformInstance+json Accept: application/oracle.com.cloud.common.DbPlatformInstance+json
Body	<pre>{   "based_on": "/em/cloud/dbaas/dbplatformtemplate/CC3BBB665A6BC6FFE040F00AEF252456",   "name": "Platinum1",   "description": "Create Database with 1 Standby RAC database &amp; 1 Standby SI database",   "start_date": "2014-08-13T14:20:00ZAsia/Calcutta",   "end_date": "2014-08-13T17:20:00ZAsia/Calcutta",   "params": {     "username": "Master Account username for the DB",     "password": "Master Account Password for the DB",     "database_sid" : "platinum1" ,     "service_name" : "Name of the additional service to be created",     "standbydbs": [       {         "standbydb_name": "Near DR",         "standbydb_sid": "NR1"       },       {         "standbydb_name": "Far DR",         "standbydb_sid": "FR1"       }     ]   } }</pre>
Request method	POST

# SSA Administration REST APIs

This chapter provides details of the Cloud REST APIs and Service Template REST APIs for SSA Administration functions.

REST APIs for PaaSZone management, and SoftwarePool management, along with other REST APIs used to fetch the REST API catalog, REST API output, and metadata and expansion of a resource are described in this chapter.

This chapter also provides details on the Enterprise Manager Command Line Interface (EMCLI) verbs for PaaS Infrastructure Zone, Software Pool, and Service Template operations for Enterprise Manager Self Service Applications Admin users. The EMCLI enables you to access Enterprise Manager Cloud Control functionality from text-based consoles (shells and command windows) for a variety of operating systems.

REST APIs for the Self Service Portal application are generally used by the SSA users. These REST APIs are generally in the `.../ssa/...` format. For example, `/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/`. REST APIs for administrative functions (i.e., `.../admin/...` format) are REST APIs that configure the SSA Portal setup, such as creating zones, templates, etc., which are generally performed by Cloud or SSA Administrators. The Admin REST APIs are covered in this chapter.

This chapter covers the following sections:

- [Summary of SSA Administration REST APIs for V2](#)
- [Summary of SSA Administration REST APIs for V1](#)
- [Catalog APIs for V1 and V2](#)
- [Resource Provider for V2](#)
  - [Resource Providers - Collection Resource for V2](#)
  - [Resource Provider - Singular Resource for V2](#)
- [Service Templates - Collection Resource for V2](#)
- [Service Types for V2](#)
- [Service Requests for V2](#)
- [Service Instances for V2](#)
- [Request Settings for V2](#)
- [VM Adapters for V2](#)
- [SSA Admin Resources for V1](#)
- [PaasZones for V1](#)
- [PaasZone for V1](#)
- [SoftwarePools for V1](#)
- [SoftwarePool for V1](#)
- [Composite Resource Attributes for V1](#)
  - [ValueDescriptor for V1](#)

- ValueEntity for V1
- EntityValueHolder for V1
- PoolEntityCapacity for V1
- ResourceTypeCapacity for V1
- Service Template Management for V1
  - Service Templates for V1
  - Service Template for V1
  - ServiceTemplateUpdate for V1
  - ServiceExecutableMetaEntity for V1
  - Template Configuration Parameters for V1
  - PayloadDescriptor for V1
  - ServiceTemplate Metadata for V1
  - PayloadMeta Data for V1
  - ServiceTemplate MetaData for V1
- EM CLI Verbs for Self Service Applications
  - EM CLI Verbs for SSA Operations for V2
  - EM CLI Verbs for SSA Operations for V1

## Summary of SSA Administration REST APIs for V2

The table below shows a summary of all the User preference and Request scheduling REST APIs covered in this chapter for the v2 framework.

**Table 36-1 Summary of SSA Administration REST APIs for V2**

Resource	Data Model	GET	POST	PUT	DELETE
Catalog API	Table 36-3	<ul style="list-style-type: none"> <li>• Viewing the High Level Catalog APIs for V1 and V2</li> <li>• Viewing the V2 Catalog APIs</li> <li>• Viewing the V2 Catalog User APIs</li> <li>• Viewing the V2 Catalog Admin APIs</li> </ul>	Not supported	Not supported	Not supported

**Table 36-1 (Cont.) Summary of SSA Administration REST APIs for V2**

Resource	Data Model	GET	POST	PUT	DELETE
Resource Provider	Table 36-10	<ul style="list-style-type: none"> <li>Viewing all the Resource Providers</li> <li>Viewing all the Types of Resource Providers</li> <li>Viewing the Resource Provider Type Metadata</li> <li>Viewing the Metadata for Creating a PaaS Infrastructure Zone</li> <li>Viewing the Metadata for Creating a Schema Pool</li> <li>Viewing Details of the Resource Provider</li> <li>Viewing Configuration of a Resource Provider</li> <li>Viewing Metric of a Resource Provider</li> </ul>	<ul style="list-style-type: none"> <li>Creating a Resource Provider</li> <li>Creating a PaaS Infrastructure Zone Resource Provider</li> <li>Creating a Database Schema Pool</li> <li>Creating an Adapter Instance</li> <li>Filtering Resource Provider Targets</li> <li>Provisioning a Resource via a Sample Adapter</li> <li>Viewing the Metadata Required to Provision a Resource Provider</li> </ul>	Updating a Resource Provider	<ul style="list-style-type: none"> <li>Deleting a Resource Provider</li> <li>De-provisioning a Resource</li> </ul>

**Table 36-1 (Cont.) Summary of SSA Administration REST APIs for V2**

Resource	Data Model	GET	POST	PUT	DELETE
Service Templates	Table 36-36	<ul style="list-style-type: none"> <li>Viewing all the Service Templates</li> <li>Viewing all the Service Template Types</li> <li>Viewing the Metadata Required for Creating a Service Template</li> <li>Viewing the Resource Provider Characteristics Required for Creating a Service Template</li> <li>Viewing Configurations Required for Creating a Service Template</li> <li>Viewing Details of a Specific Service Template</li> <li>Viewing Configuration Details of a Specific Service Template</li> </ul>	Creating a Service Template	Updating a Service Template	Deleting a Service Template
Service Types	Table 36-57	Viewing Details of the Service Types	Not available	Not available	Not available

**Table 36-1 (Cont.) Summary of SSA Administration REST APIs for V2**

Resource	Data Model	GET	POST	PUT	DELETE
Service Requests	<a href="#">Table 36-59</a>	<ul style="list-style-type: none"> <li>Viewing Details of all the Service Requests</li> <li>Viewing Details of a Service Request</li> </ul>	Not supported	Rescheduling a Service Request	<ul style="list-style-type: none"> <li>Cancelling a Service Request</li> <li>Deleting a List of Service Requests</li> </ul>
Service Instances	<a href="#">Table 36-67</a>	<ul style="list-style-type: none"> <li>Viewing Details of all the Service Instances</li> <li>Viewing Details of a Service Instance</li> </ul>	Not supported	<ul style="list-style-type: none"> <li>Starting a Service Instance</li> <li>Stopping a Service Instance</li> <li>Deleting a Service Instance</li> <li>Starting a list of Service Instances</li> <li>Stopping a list of Service Instances</li> <li>Deleting a list of Service Instances</li> </ul>	Not supported



**Table 36-1 (Cont.) Summary of SSA Administration REST APIs for V2**

Resource	Data Model	GET	POST	PUT	DELETE
Request Settings	Table 36-77	<ul style="list-style-type: none"> <li>Viewing Details of the Global Request Settings</li> <li>Viewing Details of the Global Request Settings for a Collection of Roles</li> <li>Viewing Details of Global Request Settings for a Specific Role</li> <li>Viewing Details of the Request Settings for a Service Family</li> <li>Viewing Details of the Service Family Settings by Roles</li> <li>Viewing Details of the Service Family Request Settings for a Specific Role</li> <li>Viewing Details of the Request Settings for a Service Type</li> <li>Viewing Details of the Service Type</li> </ul>	<ul style="list-style-type: none"> <li>Creating Global Request Settings for a Role</li> <li>Creating Service Family Settings for a Role</li> <li>Creating Service Type Settings for Roles</li> </ul>	<ul style="list-style-type: none"> <li>Updating the Global Request Settings</li> <li>Updating Global Request Settings for a Specific Role</li> <li>Updating the Request Settings for a Service Family</li> <li>Updating the Service Family Request Settings for a Specific Role</li> <li>Updating the Request Settings for a Service Type</li> <li>Updating the Service Type Request Settings for a Specific Role</li> </ul>	<ul style="list-style-type: none"> <li>Deleting Global Request Settings for a Specific Role</li> <li>Deleting Service Family Request Settings for a Specific Role</li> <li>Deleting Service Type Request Settings for a Specific Role</li> </ul>

**Table 36-1 (Cont.) Summary of SSA Administration REST APIs for V2**

Resource	Data Model	GET	POST	PUT	DELETE
		<ul style="list-style-type: none"> <li>Settings by Roles</li> <li>Viewing Details of the Service Type Request Settings for a Specific Role</li> </ul>			
VM Adapters	Table 36-100	<ul style="list-style-type: none"> <li>Viewing Details of All the Registered VM Adapters</li> <li>Viewing Details of a Specific Registered VM Adapter</li> <li>Viewing Details of the Staging Servers</li> </ul>	Creating a Staging Server	Not supported	Not supported



**Note:**

In the table above, "supported" indicates that the operation is supported on the resource. However, there is no example in the chapter for this operation.

## Summary of SSA Administration REST APIs for V1

The table below shows a summary of all the User preference and Request scheduling REST APIs covered in this chapter for the v2 framework.

**Table 36-2 Summary of SSA Administration REST APIs for V1**

Resource	Data Model	GET	POST	PUT	DELETE
Catalog API	<a href="#">Table 36-3</a>	<ul style="list-style-type: none"> <li>Viewing the V1 Catalog APIs</li> <li>Viewing the V1 Catalog APIs for SSA Portal</li> </ul>	Not supported	Not supported	Not supported
API Entry Point Resource	<a href="#">Table 36-106</a>	Viewing Details of the REST API Entry Point Resources	Not supported	Not supported	Not supported
PaaS Zones	<a href="#">Table 36-108</a>	<ul style="list-style-type: none"> <li>Viewing PaaS Zones Metadata</li> <li>Listing PaaS Zones</li> </ul>	Not supported	Not supported	Not supported
PaaS Zone	<a href="#">Table 36-112</a>	<ul style="list-style-type: none"> <li>Viewing Details of the PaasZone</li> <li>Viewing the Expanded form of a PaasZone</li> </ul>	Creating a PaaS Zone	Updating a PaaS Zone	Deleting a PaaS Zone
Software Pools	<a href="#">Table 36-119</a>	<ul style="list-style-type: none"> <li>Viewing Details of the Software Pools</li> <li>Filtering Output based on Search Query Parameters</li> </ul>	Not supported	Not supported	Not supported
Software Pool	<a href="#">Table 36-123</a>	<ul style="list-style-type: none"> <li>Viewing Details of the Software Pool</li> <li>Expands Query Parameter</li> </ul>	Creating a Software Pool	Updating a Software Pool	Deleting a Software Pool
Software Pool Metadata	<a href="#">Table 36-129</a>	Retrieving Software Pool Metadata REST API Example	Not supported	Not supported	Not supported

**Table 36-2 (Cont.) Summary of SSA Administration REST APIs for V1**

Resource	Data Model	GET	POST	PUT	DELETE
Software Pool Filtered Targets	<a href="#">Table 36-131</a>	<a href="#">Retrieving Available Filtered Targets - REST API Example</a>	Not supported	Not supported	Not supported
Software Pool Capacity	<a href="#">Table 36-133</a>	<a href="#">Retrieving Software Pool Capacity</a>	Not supported	Not supported	Not supported
Composite Resource Attributes	<a href="#">Composite Resource Attributes for V1</a>	Not supported	Not supported	Not supported	Not supported
Service Templates	<a href="#">Table 36-140</a>	<a href="#">Viewing Metadata of a Service Template</a>	<a href="#">Creating Configuration Values for Service Templates</a>	Not supported	Not supported
Service Template	<a href="#">Table 36-143</a>	<a href="#">Viewing Details of a Service Template</a>	<a href="#">Creating Service Templates</a>	<a href="#">Updating a Service Template</a>	<a href="#">Deleting a Service Template</a>



**Note:**

In the table above, "supported" indicates that the operation is supported on the resource. However, there is no example in the chapter for this operation.

## Catalog APIs for V1 and V2

Catalog APIs provide an overview of all the REST APIs existing in the cfw plugin. All of these are GET REST APIs which contain description and information about each REST API.

The REST APIs have been broadly categorized into v1 and v2 REST APIs. The v1 REST APIs refer to the existing v1 catalog REST API. The v2 REST API provides a summarized overview on both SSA user and Administrator REST APIs.

**Table 36-3 Cfw API Catalog Collection Data Model**

Field	Type	Description	Occurs
name	String	Display name of this collection resource.	1
type	String	Type of collection resource.	1
hasMore	Boolean	Indicates whether there are more elements in the collection.	1
count	Integer	Number of elements returned.	1
items	Collection <CfwRestAPICatalog>	List of Cfw API catalog resources. In case no instance exist, the <code>items</code> field will be empty.	1

**Table 36-3 (Cont.) Cfw API Catalog Collection Data Model**

Field	Type	Description	Occurs
totalResults	Integer	Total number of Cfw API catalog resources.	1
canonicalLink	URI	A GET request against this URI refreshes the client representation of this resource.	1

## CFW API Catalog REST API Examples

This sections describes the REST APIs for the Cfw API catalog resource. The following operations are described in this section:

- [Viewing the High Level Catalog APIs for V1 and V2](#)
- [Viewing the V1 Catalog APIs](#)
- [Viewing the V2 Catalog APIs](#)
- [Viewing the V1 Catalog APIs for SSA Portal](#)
- [Viewing the V2 Catalog User APIs](#)
- [Viewing the V2 Catalog Admin APIs](#)

### Viewing the High Level Catalog APIs for V1 and V2

The GET request configuration to view the high level catalog APIs is shown below.

**Table 36-4 GET Request Configuration for Viewing High Level Catalog APIs**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/cfw/API
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
Status 200 OK
{
  "items": [
    {
      "href": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/cfw/API/v1",
      "description": "API Summary for version V1"
    },
    {
      "href": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/cfw/API/v2",
      "description": "API Summary for version V2"
    }
  ],
  "totalResults": 2
}
```

## Viewing the V1 Catalog APIs

The GET request configuration to view the v1 catalog APIs is shown below.

**Table 36-5 GET Request Configuration for Viewing V1 Catalog APIs**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/cfw/API/v1
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
Status 200 OK
{
  "items": [
    {
      "href": "cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/API",
      "description": "APIs for Self Service Application for version V1",
      "type": "SSA"
    },
    {
      "href": "cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/API",
      "description": "APIs for Administrative functions for version V1",
      "type": "Admin"
    }
  ],
  "goBack": "cloudcompany.com/em/websvcs/restful/extws/cloudservices/cfw/API",
  "totalResults": 2
}
```

## Viewing the V2 Catalog APIs

The GET request configuration to view the v2 catalog APIs is shown below.

**Table 36-6 GET Request Configuration for Viewing V2 Catalog APIs**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/API/v2
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
Status 200 OK
{
  "items": [

```

```

    "href":"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/API",
    "description":"APIs for Self Service Application for version V2",
    "type":"SSA"
  },
  {
    "href":"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
API",
    "description":"APIs for administrative functions for version V2",
    "type":"Admin"
  } ],
  "goBack":"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/cfw/API",
  "totalResults":2
}

```

## Viewing the V1 Catalog APIs for SSA Portal

The GET request configuration to view the v1 catalog APIs for SSA portal is shown below.

**Table 36-7 GET Request Configuration for Viewing V1 Catalog APIs for SSA Portal**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/API/
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```

Status 200 OK
{
  "v1":{
    "canonicalLink":"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/
v1",
    "serviceRequests":"https://cloudcompany.com/em/websvcs/restful/extws/
cloudservices/ssa/cfw/v1
/serviceRequests",
    "userPreferences":"https://cloudcompany.com/em/websvcs/restful/extws/
cloudservices/ssa/cfw/v1
/mypreferences"
  }
}

```

## Viewing the V2 Catalog User APIs

The v2 endpoint provides further refined overview of v2 side user REST APIs grouped according to entities. For example, all the Service instance related REST APIs are listed together for `entity=serviceinstances`.

REST APIs with variable inputs, are marked with attribute "templated" and curly brackets.

The GET request configuration to view the v2 catalog user APIs is shown below.

**Table 36-8 GET Request Configuration for Viewing V2 Catalog User APIs**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/user/ssa/v2/API
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "items": [
    {
      "totalResults": 5,
      "resource": "services",
      "APIs": [
        {
          "href":
            "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
            services",
          "method": "GET",
          "description": "Get all the service offerings"
        },
        {
          "href":
            "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
            services",
          "method": "POST",
          "description": "Create a service"
        },
        {
          "href":
            "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
            services/{
            id}",
          "method": "GET",
          "templated": true,
          "description": "Get details of a service"
        },
        {
          "href":
            "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
            services/{
            id}/metadata",
          "method": "GET",
          "templated": true,
          "description": "Get the metadata for a service"
        },
        {
          "href":
            "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
            services/{
            id}/metrics",
          "method": "PUT",
          "templated": true,
          "description": "Get the metrics for a service"
        }
      ]
    }
  ]
}
```



```
}
]
},
{
  "totalResults": 11,
  "resource": "userpreferences",
  "APIs": [
    {
      "href":
      "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
      userprefer
      ences",
      "method": "GET"
    },
    {
      "href":
      "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
      userprefer
      ences/general",
      "method": "GET",
      "description": "Get the general user preferences"
    },
    {
      "href":
      "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
      userprefer
      ences/general/metadata",
      "method": "GET",
      "description": "Get the metadata for general user preferences"
    },
    {
      "href":
      "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
      userprefer
      ences/services",
      "method": "GET",
      "description": "Get the service user preferences"
    },
    {
      "href":
      "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
      userprefer
      ences/services/{service-family}",
      "method": "GET",
      "templated": true,
      "description": "Get the user preferences for a service family"
    },
    {
      "href":
      "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
      userprefer
      ences/services/{service-family}/metadata",
      "method": "GET",
      "templated": true,
      "description": "Get the metadata for user preference at family level"
    },
    {
      "href":
      "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
      userprefer
      ences/services/{service-family}/{service-type}",
      "method": "GET",
```

```
"templated": true,
"description": "Get the user preferences for a service type"
},
{
  "href":
  "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
  userprefer
  ences/services/{service-family}/{service-type}/metadata",
  "method": "GET",
  "templated": true,
  "description": "Get the metadata for user preference at service type level"
},
{
  "href":
  "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
  userprefer
  ences/general",
  "method": "PUT",
  "description": "Update general user preference"
},
{
  "href":
  "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
  userpreferences/services/{service-family}",
  "method": "PUT",
  "templated": true,
  "description": "Update family level user preferences"
},
{
  "href":
  "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
  userprefer
  ences/services/{service-family}/{service-type}",
  "method": "PUT",
  "templated": true,
  "description": "Update service type level user preferences"
}
]
},
{
  "totalResults": 4,
  "resource": "servicerequests",
  "APIs": [
    {
      "href":
      "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
      servicereq
      uests",
      "method": "GET",
      "description": "Get service requests"
    },
    {
      "href":
      "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
      servicereq
      uests/{id}",
      "method": "PUT",
      "templated": true,
      "description": "Reschedule the request"
    },
    {
      "href":
```

```
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
servicereq
uests/{id}",
"method": "GET",
"templated": true,
"description": "Get the details of request"
},
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
servicereq
uests/{id}",
"method": "DELETE",
"templated": true,
"description": "Delete the request"
}
],
{
"totalResults": 5,
"resource": "serviceinstances",
"APIs": [
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
serviceins
tances",
"method": "GET",
"description": "Get the service instances"
},
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
serviceins
tances/{id}",
"method": "GET",
"templated": true,
"description": "Get details of a service instance"
},
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
serviceins
tances/{id}/actions",
"method": "GET",
"templated": true,
"description": "Get actions for a service instance"
},
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
serviceins
tances/{id}/actions/{action-id}",
"method": "GET",
"templated": true,
"description": "Get metadata details of action"
},
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
serviceins
tances/{id}/actions/{action-id}",
```

```

"method": "PUT",
"templated": true,
"description": "Perform the action on the service instance"
}
]
},
"goBack": "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/API",
"totalResults": 4
}

```

## Viewing the V2 Catalog Admin APIs

The v2 endpoint provides further refined overview of v2 side admin REST APIs grouped according to entities. For example, all the Service instance related REST APIs are listed together for `entity=serviceinstances`.

REST APIs with variable inputs, are marked with attribute “templated” and curly brackets.

The GET request configuration to view the v2 catalog admin APIs is shown below.

**Table 36-9 GET Request Configuration for Viewing V2 Catalog Admin APIs**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/API
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```

{
"items": [
{
"totalResults": 6,
"resource": "resourceproviders",
"APIs": [
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
resource
providers",
"method": "GET",
"description": "Get all the resource providers"
},
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
resource
providers",
"method": "POST",
"description": "Create/Add a resource provider"
},
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/

```

```
resource
providers/{id}",
"method": "GET",
"templated": true,
"description": "Get details of a resource provider"
},
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
resource
providers/{id}",
"method": "DELETE",
"templated": true,
"description": "Delete/Remove a resource provider"
},
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
resource
providers/{id}",
"method": "PUT",
"templated": true,
"description": "Edit a resource provider"
},
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
resource
providers/{id}/metrics",
"method": "GET",
"templated": true,
"description": "Get metrics for a resource provider"
}
]
},
{
"totalResults": 3,
"resource": "servicetemplates",
"APIs": [
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
servicet
emplates",
"method": "GET",
"description": "Get all service templates"
},
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
servicet
emplates",
"method": "POST",
"description": "Create a service template"
},
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
servicet
emplates/{id}",
"method": "PUT",
"templated": true,
```

```
"description": "Edit a service template"
}
]
},
{
  "totalResults": 4,
  "resource": "settings",
  "APIs": [
    {
      "href":
      "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
      settings
      /general",
      "method": "GET",
      "description": "Get all general settings"
    },
    {
      "href":
      "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
      settings
      /general",
      "method": "PUT",
      "description": "Update general settings"
    },
    {
      "href":
      "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
      settings
      /service/{service-type}",
      "method": "GET",
      "templated": true,
      "description": "Get all settings for a service type"
    },
    {
      "href":
      "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
      settings
      /service/{service-type}",
      "method": "PUT",
      "templated": true,
      "description": "Update settings for a service type"
    }
  ]
},
{
  "totalResults": 5,
  "resource": "instancesizes",
  "APIs": [
    {
      "href":
      "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
      instance
      sizes",
      "method": "GET",
      "description": "Get all instance sizes"
    },
    {
      "href":
      "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
      instance
      sizes/service/{service-type}",
      "method": "GET",
```

```
"templated": true,
"description": "Get all instance sizes for a service type"
},
{
  "href":
  "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/instance
  sizes/service/{service-type}/metadata",
  "method": "GET",
  "templated": true,
  "description": "Get metada for instance sizes for a service type"
},
{
  "href":
  "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/instance
  sizes/service/{service-type}/{instance-name}",
  "method": "GET",
  "templated": true,
  "description": "Get details of an instance size"
},
{
  "href":
  "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/instance
  sizes/service/{service-type}/{instance-name}",
  "method": "PUT",
  "templated": true
}
]
},
{
  "totalResults": 5,
  "resource": "servicerequests",
  "APIs": [
    {
      "href":
      "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
      servicerequests",
      "method": "GET",
      "description": "Get all requests"
    },
    {
      "href":
      "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
      servicerequests/{id}",
      "method": "PUT",
      "templated": true,
      "description": "Reschedule a request"
    },
    {
      "href":
      "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
      servicerequests/{id}",
      "method": "GET",
      "templated": true,
      "description": "Get details of a request"
    },
    {
```

```
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
servicer
equests/{id}",
"method": "DELETE",
"templated": true,
"description": "Delete a request"
},
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
servicer
equests",
"method": "DELETE",
"description": "Delete bulk requests"
}
],
{
"totalResults": 12,
"resource": "serviceinstances",
"APIs": [
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
servicei
nstances",
"method": "GET",
"description": "Get all service instances"
},
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
servicei
nstances/{id}",
"method": "GET",
"templated": true,
"description": "Get details of a service instance"
},
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
servicei
nstances/{id}/actions",
"method": "GET",
"templated": true,
"description": "Get all the actions on a service instance"
},
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
servicei
nstances/{id}/actions/{action-id}",
"method": "GET",
"templated": true,
"description": "Get the details of action"
},
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
servicei
nstances/{id}/actions/{action-id}",
```



```
"method": "PUT",
"templated": true,
"description": "Perform the action on the service instance"
},
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
servicei
nstances/{id}/start",
"method": "PUT",
"templated": true,
"description": "Start the service instance"
},
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
servicei
nstances/{id}/stop",
"method": "PUT",
"templated": true,
"description": "Stop the service instance"
},
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
servicei
nstances/{id}/delete",
"method": "PUT",
"templated": true,
"description": "Delete the service instance"
},
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
servicei
nstances",
"method": "DELETE",
"description": "Delete service instances"
},
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
servicei
nstances/start",
"method": "PUT",
"description": "Start multiple service instances"
},
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
servicei
nstances/stop",
"method": "PUT",
"description": "Stop multiple service instances"
},
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
servicei
nstances/delete",
"method": "PUT",
"description": "Delete multiple service instances"
```

```

}
]
}
],
"goBack": "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/API",
"totalResults": 6
}

```

## Resource Provider for V2

A Resource Provider provides the grouping of resources for easier administration and management.

A resource provider is a composite target that represents the type of resources required to provision a service instance of a service type. For example, a Database service type needs oracle\_home targets in its resource provider and a schema service type needs oracle\_database, and oracle\_rac targets in its resource provider.

## Resource Providers - Collection Resource for V2

Resource Providers is a collection resource representing a Cloud Administrator's view of all the accessible Resource Provider resources. The following table describes the Resource Providers data model.

**Table 36-10 Resource Providers Data Model**

Field	Type	Description	Occurs
name	String	Display name of this collection resource.	1
type	String	Type of collection resource.	1
hasMore	Boolean	Indicates whether there are more elements in the collection.	1
count	Integer	Number of elements returned.	1
items	Collection <ResourceProvider>	List of Resource Provider resources. In case no instance exist, the items field will be empty.	1
totalCount	Integer	Total number of Resource Provider resources.	1
canonicalLink	URI	A GET request against this URI refreshes the client representation of this resource.	1
selfLink	URI	Refers to the resource equivalent to the containing elements.	1

## Resource Provider - Singular Resource for V2

A Resource Provider cloud resource represents an instance of a Resource provider. The following table describes the Resource Provider data model.

**Table 36-11 Resource Provider Data Model**

Field	Type	Description	Occurs
name	String	A human readable name given to the Resource Provider. This field is non-editable.	1
displayName	String	Display name for the Resource Provider.	0..1
guid	String	Unique GUID of the Resource Provider that identifies the resource.	1
description	String	A brief description of the resource.	0..1
targetType	String	Target type of the Resource Provider to be created. Example: "cfw_samplexaas_rsrc_provider" for sample xaas Resource Provider.	1
Members		Members of Resource Provider. These must be added as EM targets in advance.	1
credentials	Collection<ResourceProviderCredential>	Credentials associated with the Resource Provider.	1
placementConstraints	Collection<EntityValueHolder>	Placement constraints for a Resource Provider that allows the cloud administrator to set a maximum ceilings for resource utilization.	0..1
characteristics	Collection<EntityValueHolder>	Characteristics associated with the Resource Provider.	1
canonicalLink	URI	A GET against this URI refreshes the client representation of this resource.	1

## Supported Methods for Resource Provider Resource

The table below lists the supported methods for the Resource Provider singular resource.

**Table 36-12 Supported Methods for Resource Provider**

Request Method	Canonical Link	Description
GET	/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders	Returns list of Resource Providers.
GET	/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/types	Returns Resource Provider types.
POST	em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders	Creates an instance of Resource Provider.
POST	em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/filteredtargets	Returns filtered targets. See, <a href="#">Table 36-13</a> and <a href="#">Table 36-14</a> .

**Table 36-12 (Cont.) Supported Methods for Resource Provider**

Request Method	Canonical Link	Description
GET	em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/types/{resourceprovidertype}	Returns the Resource Provider type metadata. See, <a href="#">Table 36-15</a>
GET	em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/{resourceproviderid}	Returns details of the specified Resource Provider. See, <a href="#">Table 36-16</a> and <a href="#">Table 36-17</a> .
PUT	em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/{resourceproviderid}	Updates the specified Resource Provider.
DELETE	em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/{resourceproviderid}	Deletes the specified Resource Provider.
GET	/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/{resourceproviderid}/configuration	Returns the Resource Provider's saved configuration.
GET	em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/{resourceproviderid}/metrics	Returns the metric of the specified Resource Provider.
POST	em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/{resourceproviderid}/members	Provisions resources.
DELETE	em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/{resourceproviderid}/members	De-provisions resources.
POST	/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/{resourceproviderid}/members/metadata	Returns the provisioning metadata required to provision resources.

The table below shows the filtered targets request data model supported for the POST request on the URI - /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/filteredtargets in the v2 framework.

**Table 36-13 Filtered Targets Request Data Model**

Field	Type	Description	Occur
type	String	Type of resource provider.	1
membertargetType	String	Target type of the member.	0..1

**Table 36-13 (Cont.) Filtered Targets Request Data Model**

Field	Type	Description	Occur
parentResourceProviderId	String	Type of parent resource provider.	0..1

The table below shows the filtered targets response data model supported for the POST request on the URI - /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/filteredtargets in the v2 framework.

**Table 36-14 Filtered Targets Response Data Model**

Field	Type	Description
membertargetType	String	Target type of the member.
List<String>	String	List of targets.

The table below shows the resource provider metadata data model supported for the GET request on the URI - /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/types/{resourceprovidertype} in the v2 framework.

**Table 36-15 Resource Provider Metadata Data Model**

Field	Type	Description
type	String	Type of Resource provider.
memberTargetTypes	List<String>	List of member target types.
parentResourceProviderType	String	Parent resource provider type.
isInfrastructureProvider	Boolean	If infrastructure provider exists.
placementPolicyName	String	Indicates the placement policy.
credentials	List<Credential>	Indicates the credentials.
placementConstraints	List<CfwSimpleValueEntity>	Indicates the placement constraints.
characteristics	List<CfwSimpleValueEntity>	Indicates the characteristics.

The table below shows the credentials data model supported for the GET request on the URI - /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/{resourceproviderid} in the v2 framework.

**Table 36-16 Credential Data Model**

Field	Type	Description
name	String	Name of credential.
value	String	Type of credential.

The table below shows the CFW simple value entity data model supported for the GET request on the URI - /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/{resourceproviderid} in the v2 framework.

**Table 36-17 CFW Simple Value Entity Data Model**

Field	Type	Description
name	String	Name.
value	List<String>	List of strings.

## Resource Provider REST API Examples

This section describes the operations on the Resource Provider. The following operations are covered in this section:

- [Viewing all the Resource Providers](#)
- [Viewing all the Types of Resource Providers](#)
- [Creating a Resource Provider](#)
- [Creating a PaaS Infrastructure Zone Resource Provider](#)
- [Creating a Database Schema Pool](#)
- [Creating an Adapter Instance](#)
- [Filtering Resource Provider Targets](#)
- [Viewing the Resource Provider Type Metadata](#)
- [Viewing the Metadata for Creating a PaaS Infrastructure Zone](#)
- [Viewing the Metadata for Creating a Schema Pool](#)
- [Viewing Details of the Resource Provider](#)
- [Updating a Resource Provider](#)
- [Deleting a Resource Provider](#)
- [Viewing Configuration of a Resource Provider](#)
- [Viewing Metric of a Resource Provider](#)
- [Provisioning a Resource via a Sample Adapter](#)
- [De-provisioning a Resource](#)
- [Viewing the Metadata Required to Provision a Resource Provider](#)

### Viewing all the Resource Providers

A GET operation is issued to view all the Resource Providers.

**Table 36-18 GET Request Configuration for Viewing all the Resource Providers**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None

**Table 36-18 (Cont.) GET Request Configuration for Viewing all the Resource Providers**

Feature	Specification
Request method	GET

A sample of the response received is shown below.

```
{
  "name": "Resource Providers",
  "type": "Resource Provider",
  "canonicalLink": {
    "href":
    "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
    resourceproviders/"
  },
  "cfwItems": [
    {
      "id": "1",
      "name": "MyPaasZone",
      "type": "self_service_zone",
      "guid": "AC3D1D12E0A0AB1B28C377ED691E9E98",
      "canonicalLink": {
        "href":
        "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
        resourceproviders/1"
      }
    },
    {
      "id": "2",
      "name": "MyXaaSProvider",
      "type": "cfw_samplexaas_rsrc_provider",
      "guid": "20CC7F446482F477BED8336489852A4B",
      "canonicalLink": {
        "href":
        "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
        resourceproviders/2"
      }
    },
    {
      "id": "3",
      "name": "MyXaaSPool",
      "type": "cfw_samplexaas_rsrc_pool",
      "guid": "FEF39B5F2A0C518283F7A5E781EE8C8B",
      "canonicalLink": {
        "href":
        "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
        resourceproviders/3"
      }
    },
    {
      "id": "4",
      "name": "MyWebLogicProvider",
      "type": "mwaas_zone",
      "guid": "425AA08582AD7AE95D52C24662867315",
      "canonicalLink": {
        "href":
        "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
        resourceproviders/4"
      }
    }
  ],
}
```

```

{
  "id": "21",
  "name": "MySchemaPool",
  "type": "schaas_pool",
  "guid": "446AD900E64F525149A3B1D79E0037AC",
  "canonicalLink": {
    "href":
      "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
      resourceproviders/21"
  }
},
"totalResults": 5
}

```

## Viewing all the Types of Resource Providers

A GET operation is issued to view all the Types of Resource Providers.

**Table 36-19 GET Request Configuration for Viewing all the Types of Resource Providers**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/types
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```

{
  "name" : "Resource Provider Types",
  "canonicalLink" : {
    "href" :
      "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
      resourceproviders/types"
  },
  "cfwItems" : [ {
    "type" : "cfw_samplexaas_rsrc_pool",
    "displayName" : "CFW XaaS Test Rsrc Pool",
    "canonicalLink" : {
      "href" :
        "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
        resourceproviders/types/cfw_samplexaas_rsrc_pool"
    }
  }, {
    "type" : "cfw_samplexaas_rsrc_provider",
    "displayName" : "CFW XaaS Test Rsrc Provider",
    "canonicalLink" : {
      "href" :
        "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
        resourceproviders/types/cfw_samplexaas_rsrc_provider"
    }
  }
}

```



```
}, {
  "type" : "cfw_samplexaas_rsrcprov_no_member",
  "displayName" : "CFW XaaS Test Rsrc With No Member",
  "canonicalLink" : {
    "href" :
    "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
resourceproviders/type
s/cfw_samplexaas_rsrcprov_no_member"
  }
}, {
  "type" : "mwaas_zone",
  "displayName" : "Middleware Pool",
  "canonicalLink" : {
    "href" :
    "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
resourceproviders/type
s/mwaas_zone"
  }
}, {
  "type" : "oracle_cloud_zone",
  "displayName" : "Database Pool",
  "canonicalLink" : {
    "href" :
    "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
resourceproviders/type
s/oracle_cloud_zone"
  }
}, {
  "type" : "oracle_nimbula_site",
  "displayName" : "Oracle Nimbula Site",
  "canonicalLink" : {
    "href" :
    "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
resourceproviders/type
5.6 67
s/oracle_nimbula_site"
  }
}, {
  "type" : "pdbaas_pool",
  "displayName" : "Pluggable Database Pool",
  "canonicalLink" : {
    "href" :
    "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
resourceproviders/type
s/pdbaas_pool"
  }
}, {
  "type" : "schaas_pool",
  "displayName" : "Schema Pool",
  "canonicalLink" : {
    "href" :
    "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
resourceproviders/type
s/schaas_pool"
  }
}, {
  "type" : "self_service_zone",
  "displayName" : "PaaS Infrastructure Zone",
  "canonicalLink" : {
    "href" :
    "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
resourceproviders/type
```

```
s/self_service_zone"
}
} ],
"totalResults" : 0
}
```

## Creating a Resource Provider

The table below shows the POST configuration to create a Resource Provider.

**Table 36-20 POST Request Configuration for Creating a Resource Provider**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	<pre>{   "name": "My Xaas Provider_200",   "characteristics": [     {       "name": "example.sysman.cfw.samplexaas.storagetype",       "value": [         "file",         "db"       ]     }   ],   "memberTargetType": "cfw_samplexaas_rsrc",   "members": [     "Sample7"   ],   "placementConstraints": [     {       "name": "NUMBER_OF_SERVICE_INSTANCES",       "value": "20"     }   ],   "type": "cfw_samplexaas_rsrc_provider",   "useExistingTarget": false,   "memberConstraints": [     {       "name": "ORACLE.SYSMAN.CFW.LOCATION",       "values": [         "us-east"       ]     },     {       "name": "ORACLE.SYSMAN.SAMPLEXAAS.STORAGETYPE",       "values": [         "file"       ]     }   ] }</pre>
Request method	POST

A sample of the response received is shown below.

```
{
  "message": "Resource Provider with name \"My Xaas Provider_200\" and type
  \"cfw_samplexaas_rsrc_provider\" created successfully.",
  "canonicalLink": {
    "href":
    "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
    resourceproviders/24"
  }
}
```

## Creating a PaaS Infrastructure Zone Resource Provider

The table below shows the POST configuration to create a PaaS Infrastructure zone Resource Provider.

**Table 36-21 POST Request Configuration for Creating a PaaS Infrastructure Zone Resource Provider**

Feature	Specification
URI	/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	{ "useExistingTarget" :false, "name" : "MyPaasZone02", "type" : "self_service_zone", "memberTargetType" : "host", "members": [ "yourhost1.yourcompany.com" ], "credentials": [ { "name": "normal_credential_guid", "value": "VGSINGH" } ], "placementConstraints": [ { "name": "MAX_CPU_UTILIZATION", "value": [ "80" ] }, { "name": "MAX_MEMORY_ALLOCATION", "value": [ "80" ] } ], "memberConstraints": [ ] }
Request method	POST

A sample of the response received is shown below.

```
{ "message" : "ResourceProvider with name \"MyPaasZone02\" and type
  \"self_service_zone\" created successfully.",
  "canonicalLink" : { "href" : "https://cloudcompany.com/em/websvcs/restful/extws/
  cloudservices/admin/cfw/v2/resourceproviders/41" } }
```

## Creating a Database Schema Pool

The table below shows the POST configuration to create a Database Schema Pool.

**Table 36-22 POST Request Configuration for Creating a Database Schema Pool**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders

**Table 36-22 (Cont.) POST Request Configuration for Creating a Database Schema Pool**

Feature	Specification
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	<pre>{ "name" : "MyDBSchemaPool",   "useExistingTarget" : false,   "type" : "schaas_pool",   "description" : "MyDatabaseSchemaPool",   "memberTargetType" : "oracle_database",   "members" : [ "Oemrep_Database" ],   "parentResourceProviderId" : "1",   "credentials" : [ { "name" : "host_credential_guid",                     "value" : "VGSINGH" } ],   "placementConstraints" :   [ { "name" : "MAX_SERVICES", "value" : [ "100" ] },     { "name" : "MAX_CPU_USAGE", "value" : [ "0" ] },     { "name" : "MAX_MEMORY_USAGE", "value" : [ "0" ] },     { "name" : "USE_WORKLOAD", "value" : [ "false" ] },     { "name" : "ENFORCE_CPU", "value" : [ "false" ] } ],   "memberConstraints" : [ { "name" :     "ORACLE.SYSMAN.SSA.CONFIGURATION", "value" :     [ "oracle_database" ] },     { "name" : "ORACLE.SYSMAN.CFW.PLATFORM", "value" :     [ "226" ] },     { "name" : "ORACLE.SYSMAN.CFW.VERSION", "value" :     [ "11.2.0.3.0" ] } ],   "characteristics" : [ { "name" :     "ORACLE.SYSMAN.CFW.ORCL_GTP_CONTACT", "value" :     [ "admin@cloudcompany.com" ] },     { "name" : "ORACLE.SYSMAN.CFW.ORCL_GTP_COST_CENTER",     "value" : [ "GTB" ] },     { "name" : "ORACLE.SYSMAN.CFW.ORCL_GTP_DEPARTMENT",     "value" : [ "ST" ] },     { "name" : "ORACLE.SYSMAN.CFW.ORCL_GTP_LIFECYCLE_STATUS",     "value" : [ "Development" ] },     { "name" : "ORACLE.SYSMAN.CFW.ORCL_GTP_LINE_OF_BUS",     "value" : [ "LOB" ] },     { "name" : "ORACLE.SYSMAN.CFW.ORCL_GTP_LOCATION", "value" :     [ "EAST" ] },     { "name" : "ORACLE.SYSMAN.CFW.ORCL_GTP_SITE", "value" :     [ "LOCAL" ] } ] }</pre>
Request method	POST

A sample of the response received is shown below.

```
{ "message" : "ResourceProvider with name \"MyDBSchemaPool\" and type \"schaas_pool\"
created successfully.",
  "canonicalLink" : { "href" : "https://cloudcompany.com/em/websvcs/restful/extws/
cloudservices/admin/cfw/v2/resourceproviders/61" } }
```

## Creating an Adapter Instance

The table below shows the POST configuration to create a sample Adapter Instance.

**Table 36-23 POST Request Configuration for Creating an Adapter Instance**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	<pre>{ "name" : "MySmplVMAdapter_0409123048",   "type" : "iaas_adapter",   "placementConstraints" : [ { "name" : "MAX_VM_INSTANCES",     "value" : "10" } ],   "vmadapter" : { "name" : "SAMPLEADAPTER", "paaszone" :     "MyPaasZone", "connection" : { "endpoints" :     [ { "purpose" : "login_url", "url" : "/login_url/example",       "username" : "ssa_user", "password" : "ssa_passwd",       "domain" : "domain", "custom" : [ { "name" : "CloudType",         "value" : "CloudTypeVal" }, { "name" : "custom_param1",         "value" : "custom_param1Val" } ] } ] },     "virtualizationContainers" : [ { "name" : "Zone" } ] },   "useproxies" : [ "testnm" ], "stagingservers" :   { "location" : "script/location", "credentialGuid" :     "25D30ADD427484310DBC8CF6211A383B" } }</pre>
Request method	POST

A sample of the response received is shown below.

```
{ "message" : "ResourceProvider with name \"MySmplVMAdapter_0409123047\" and type
  \"iaas_adapter\" created successfully.",
  "canonicalLink" : { "href" : "https://cloudcompany.com/em/websvcs/restful/extws/
  cloudservices/admin/cfw/v2/resourceproviders/63" } }
```

## Filtering Resource Provider Targets

A POST operation is issued on Resource Providers collection resource to filter Resource Provider targets in the system.

**Table 36-24 POST Request Configuration for Filtering Resource Provider Targets**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/filteredtargets
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	<pre>{   "type": "self_service_zone",   "memberTargetType": "cfw_samplexaas_rsrc" }</pre>
Request method	POST

A sample of the response received is shown below.

```

{
  "canonicalLink": {
    "href":
    "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
resourceproviders/filt
eredtargets"
  },
  "targets": [
    "Sample10",
    "Sample1",
    "Sample3",
    "Sample2",
    "Sample5",
    "Sample4",
    "Sample7",
    "Sample6",
    "Sample9",
    "Sample8"
  ],
  "memberTargetType": "cfw_samplexaas_rsrc"
}

```

## Viewing the Resource Provider Type Metadata

A GET operation is issued to view the Resource Provider type metadata.

**Table 36-25 GET Request Configuration for Viewing the Resource Provider Type Metadata**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/types/{resourceprovidertype}
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```

{
  "type" : "mwaas_zone",
  "memberTargetTypes" : [ "host" ],
  "parentResourceProviderType" : "self_service_zone",
  "placementPolicyName" : "First_Pick",
  "placementConstraints" : [ {
    "name" : "MAX_INSTANCES",
    "displayName" : "Maximum Number of WebLogic Servers (per host)",
    "description" : "Maximum Number of WebLogic Servers (per host)",
    "valueType" : "INTEGER",
    "operator" : "eq"
  } ],
  "characteristics" : [ {
    "name" : "EXAMPLE.SYSMAN.EMAS.MWC.WLAAS.BASEINSTALLDIR",
    "displayName" : "Middleware Home Base Directory",
    "description" : "All Oracle Homes would be created from this Base Install Directory.",
    "isComposite" : false,
    "possibleValues" : [ ],

```

```
"isMandatory" : false,
"isUnique" : false
}, {
  "name" : "EXAMPLE.SYSMAN.CFW.ORCL_GTP_CONTACT",
  "displayName" : "Contact",
  "description" : null,
  "isComposite" : false,
  "possibleValues" : [ ],
  "isMandatory" : false,
  "isUnique" : true
}, {
  "name" : "EXAMPLE.SYSMAN.CFW.ORCL_GTP_COST_CENTER",
  "displayName" : "Cost Center",
  "description" : null,
  "isComposite" : false,
  "possibleValues" : [ ],
  "isMandatory" : false,
  "isUnique" : true
}, {
  "name" : "EXAMPLE.SYSMAN.CFW.ORCL_GTP_DEPARTMENT",
  "displayName" : "Department",
  "description" : null,
  "isComposite" : false,
  "possibleValues" : [ ],
  "isMandatory" : false,
  "isUnique" : true
}, {
  "name" : "EXAMPLE.SYSMAN.CFW.ORCL_GTP_LIFECYCLE_STATUS",
  "displayName" : "Lifecycle Status",
  "description" : null,
  "isComposite" : false,
  "possibleValues" : [ "Development", "MissionCritical", "Production", "Stage", "Test" ],
  "isMandatory" : false,
  "isUnique" : true
}, {
  "name" : "EXAMPLE.SYSMAN.CFW.ORCL_GTP_LINE_OF_BUS",
  "displayName" : "Line of Business",
  "description" : null,
  "isComposite" : false,
  "possibleValues" : [ ],
  "isMandatory" : false,
  "isUnique" : true
}, {
  "name" : "EXAMPLE.SYSMAN.CFW.ORCL_GTP_LOCATION",
  "displayName" : "Location",
  "description" : null,
  "isComposite" : false,
  "possibleValues" : [ ],
  "isMandatory" : false,
  "isUnique" : true
}, {
  "name" : "EXAMPLE.SYSMAN.EMAS.MWC.WLAAS.ASHAREDHOME",
  "displayName" : "Shared Oracle Home",
  "description" : "When set to Yes, all Hosts in this MW Pool would use this Shared Home
even if
other Oracle Homes present on these Hosts. Otherwise, Oracle Home on each Host will be
used.",
  "isComposite" : false,
  "possibleValues" : [ "0", "1" ],
  "isMandatory" : false,
  "isUnique" : false
}
```

```

}, {
  "name" : "EXAMPLE.SYSMAN.EMAS.MWAAS_ZONE",
  "displayName" : "oracle.sysman.emas.mwaas_zone",
  "description" : null,
  "isComposite" : false,
  "possibleValues" : [ ],
  "isMandatory" : true,
  "isUnique" : true
} ],
"memberConstraints" : [ {
  "name" : "EXAMPLE.SYSMAN.EMAS.MWC.WLAAS.PLATFORM",
  "displayName" : "Operating System and Platform",
  "description" : null,
  "isComposite" : false,
  "possibleValues" : [ "197", "59", "212", "209", "46", "226", "912", "208", "233", "23",
"267" ]
} ]
} ]
}

```

## Viewing the Metadata for Creating a PaaS Infrastructure Zone

A GET operation is issued to view the metadata for creating a PaaS Infrastructure Zone.

**Table 36-26 GET Request Configuration for Viewing the Metadata for Creating a PaaS Infrastructure Zone**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/self_service_zone
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```

{ "type": "self_service_zone",
  "memberTargetTypes": [ "host" ],
  "placementConstraints": [
    { "name": "MAX_MEMORY_ALLOCATION",
      "displayName": "MaximumMemoryAllocation(%)",
      "description": "MaximumMemoryAllocation constraint per host in a paas infrastructure zone",
      "valueType": "INTEGER",
      "operator": "eq" },
    { "name": "MAX_CPU_UTILIZATION",
      "displayName": "MaximumCPUUtilization(%)",
      "description": "MaximumCPU utilization(%) constraint for a physical resource provider",
      "valueType": "INTEGER",
      "operator": "eq" } ],
  "characteristics": [ { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_CONTACT",
    "displayName": "Contact",
    "description": null,
    "isComposite": false,
    "possibleValues": [],
    "isUnique": true,
    "isMandatory": false },

```



```

{ "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_COST_CENTER",
  "displayName": "CostCenter",
  "description": null,
  "isComposite": false,
  "possibleValues": [],
  "isUnique": true,
  "isMandatory": false },
  { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_DEPARTMENT",
    "displayName": "Department",
    "description": null,
    "isComposite": false,
    "possibleValues": [],
    "isUnique": true,
    "isMandatory": false },
  { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LIFECYCLE_STATUS",
    "displayName": "LifecycleStatus",
    "description": null,
    "isComposite": false,
    "possibleValues": [ "Development", "MissionCritical",
      "Production", "Stage", "Test" ],
    "isUnique": true,
    "isMandatory": false },
  { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LINE_OF_BUS",
    "displayName": "Line ofBusiness",
    "description": null,
    "isComposite": false,
    "possibleValues": [],
    "isUnique": true,
    "isMandatory": false },
  { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LOCATION",
    "displayName": "Location",
    "description": null,
    "isComposite": false,
    "possibleValues": [],
    "isUnique": true,
    "isMandatory": false },
  { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_SITE",
    "displayName": "Site",
    "description": null,
    "isComposite": false,
    "possibleValues": [],
    "isUnique": true,
    "isMandatory": false },
  { "name": "ORACLE.SYSMAN.CFW.SELF_SERVICE_ZONE",
    "displayName": "oracle.sysman.cfw.self_service_zone",
    "description": null,
    "isComposite": false,
    "possibleValues": [],
    "isUnique": true,
    "isMandatory": true } ],
  "credentials": [ { "name": "normal_credential_guid",
    "displayName": "Host credentials",
    "description": "HostCredentials to be used for provisioning in
thisPaaSInfrastructureZone.The credentials provided should be of global credential type
(valid across the members in the zone) and owned by the current user",
    "authenticatingTargetType":
    "host", "isMandatory": true } ],
  "memberConstraints": []}

```

## Viewing the Metadata for Creating a Schema Pool

A GET operation is issued to view the metadata for creating a Schema Pool.

**Table 36-27 GET Request Configuration for Viewing the Metadata for Creating a Schema Pool**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/schaas_pool
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{ "type": "schaas_pool",
  "memberTargetTypes": [ "oracle_database", "rac_database" ],
  "parentResourceProviderType": "self_service_zone",
  "placementPolicyName": "First_Pick",
  "placementConstraints": [ { "name": "ENFORCE_CPU", "displayName":
"EnableResourceManager forCPU", "description": "Whether to enable resource manager which
can be used to createConsumerGroups.", "valueType": "BOOLEAN", "operator": "eq" },
  { "name": "MAX_CPU_USAGE", "displayName": "MaximumCPU allocation (%)", "description":
"Defines the maximum limit of theCPU permissible for each database, beyond which a
service request can not be placed.", "valueType": "INTEGER", "operator": "eq" },
  { "name": "USE_WORKLOAD", "displayName": "Associate workload with the request",
"description": "Whether to associate workload with the request which represents the
expectedCPU, memory and storage requirements for each service.", "valueType": "BOOLEAN",
"operator": "eq" },
  { "name": "MAX_SERVICES", "displayName": "MaximumNumber of database services",
"description": "Maximum number of services per database.", "valueType": "INTEGER",
"operator": "eq" },
  { "name": "MAX_MEMORY_USAGE", "displayName": "Maximum memory allocation (%)",
"description": "Memory represents the summation ofSystemGlobalArea (SGA) allocated for
each database.", "valueType": "INTEGER", "operator": "eq" } ],
  "characteristics": [ { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_CONTACT", "displayName":
"Contact", "description": null, "isComposite": false, "possibleValues": [], "isUnique":
true, "isMandatory": false },
  { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_COST_CENTER", "displayName": "CostCenter",
"description": null, "isComposite": false, "possibleValues": [], "isUnique": true,
"isMandatory": false },
  { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_DEPARTMENT", "displayName": "Department",
"description": null, "isComposite": false, "possibleValues": [], "isUnique": true,
"isMandatory": false },
  { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LIFECYCLE_STATUS", "displayName":
"LifecycleStatus", "description": null, "isComposite": false, "possibleValues":
[ "Development", "MissionCritical", "Production", "Stage", "Test" ], "isUnique": true,
"isMandatory": false },
  { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LINE_OF_BUS", "displayName": "Line ofBusiness",
"description": null, "isComposite": false, "possibleValues": [], "isUnique": true,
"isMandatory": false },
  { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LOCATION", "displayName": "Location",
"description": null, "isComposite": false, "possibleValues": [], "isUnique": true,
"isMandatory": false },
  { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_SITE", "displayName": "Site", "description":
null, "isComposite": false, "possibleValues": [], "isUnique": true, "isMandatory":
false },
  { "name": "ORACLE.SYSMAN.SSA.SCHAAS_POOL", "displayName":
"oracle.sysman.ssa.schaas_pool", "description": null, "isComposite": false,
"possibleValues": [], "isUnique": true, "isMandatory": true } ],
```

```

"credentials": [ { "name": "gi_credential_guid", "displayName":
"GridInfrastructureCredentials", "description": "GridInfrastructure credentials are
optional.", "authenticatingTargetType": "host", "isMandatory": false },
  { "name": "database_credential_guid", "displayName": "DatabaseCredentials",
"description": "The database credentials that will be used for performing database
operations like schema creation.The database credentials requireSYSDBA privileges.",
"authenticatingTargetType": "oracle_database", "isMandatory": false },
  { "name": "host_credential_guid", "displayName": "HostCredentials", "description":
"Host credentials to be specified that will be used to perform instance creation
operations.", "authenticatingTargetType": "host", "isMandatory": true } ],
"memberConstraints": [ { "name": "ORACLE.SYSMAN.SSA.CONFIGURATION", "displayName":
"DatabaseConfiguration", "description": "DatabaseConfiguration of the resource provider
member.", "isComposite": false, "possibleValues": [ "rac_database",
"oracle_database" ] },
  { "name": "ORACLE.SYSMAN.CFW.PLATFORM", "displayName": "Platform", "description":
"Platform", "isComposite": false, "possibleValues": [ "197", "59", "212", "209", "46",
"226", "912", "208", "233", "23", "267" ] },
  { "name": "ORACLE.SYSMAN.CFW.VERSION", "displayName": "Version", "description":
"Version", "isComposite": false, "possibleValues": [ "10.2.0.1.0", "10.2.0.2.0",
"10.2.0.3.0", "10.2.0.4.0", "10.2.0.5.0", "11.1.0.6.0", "11.1.0.7.0", "11.2.0.1.0",
"11.2.0.2.0", "11.2.0.3.0", "11.2.0.4.0", "12.1.0.1.0", "12.1.0.2.0" ] } ] }

```

## Viewing Details of the Resource Provider

A GET operation is issued to view details of the Resource Provider.

**Table 36-28 GET Request Configuration for Viewing Details of the Resource Provider**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/{resourceproviderid}
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```

{
"name": "My XaaS Provider_001",
"type": "cfw_samplexaaS_rsrc_provider",
"memberTargetType": "cfw_samplexaaS_rsrc",
"members": [
"Sample2"
],
"credentials": [],
"placementConstraints": [
{
"name": "NUMBER_OF_SERVICE_INSTANCES",
"value": [
"20"
]
},
{
"name": "TEST_CONSTRAINT_WITH_STRING_VALUE",
"value": [
"\string_value\"

```

```

]
}
],
"memberConstraints": [],
"characteristics": [
{
"name": "ORACLE.SYSMAN.SXAAS.CFW_SAMPLEXAAS_RSRC_PROVIDER",
"value": [
"C277DA7F0CB329507172B4C44E0A6DF9"
]
}
],
"canonicalLink": {
"href":
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
resourceproviders/22"
}
}
}

```

## Updating a Resource Provider

A PUT operation is issued on a Resource Provider resource to update an existing instance of Resource Provider in the system.

**Table 36-29** PUT Request Configuration for Updating a Resource Provider

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/{resourceproviderid}
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	{ "placementConstraints": [{"name": " NUMBER_OF_SERVICE_INSTANCES ", "value": "70"}], }
Request method	PUT

A sample of the response received is shown below.

```

Status 200 OK
{
message: "Resource Provider with ID "121" updated successfully."
}

```

## Deleting a Resource Provider

The DELETE request configuration is shown in the table below.

**Table 36-30 DELETE Request Configuration for Deleting a Resource Provider**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/{resourceproviderid}
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	DELETE

A sample of the response received is shown below.

```
Status 200 OK
{
  "message": "Resource Provider with ID \"21\" deleted successfully."
}
```

## Viewing Configuration of a Resource Provider

The GET request configuration to view the configuration of a resource provider is shown below.

**Table 36-31 GET Request Configuration for Viewing Configuration of a Resource Provider**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/4/configurations
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "hosts" : {
    "configurations" : [ {
      "name" : "vm_networks",
      "type" : "VECTOR",
      "description" : "Network.",
      "displayName" : "vm_networks",
      "values" : [ ],
      "required" : false,
      "secret" : false
    }, {
      "name" : "platform",
      "type" : "STRING",
      "value" : "",
      "displayName" : "platform",
      "required" : false,
      "secret" : false
    }, {
```

```
"name" : "hostPrefix",
"type" : "STRING",
"description" : "Host Name Prefix.",
"value" : "rest_",
"displayName" : "Host Name Prefix",
"required" : false,
"secret" : false
}, {
  "name" : "postInstallScript",
  "type" : "STRING",
  "value" : "",
  "displayName" : "postInstallScript",
  "required" : false,
  "secret" : false
}, {
  "name" : "cluster_storages",
  "type" : "VECTOR",
  "description" : "Cluster Storage.",
  "displayName" : "cluster_storages",
  "values" : [ ],
  "required" : false,
  "secret" : false
}, {
  "name" : "agent_base",
  "type" : "STRING",
  "description" : "Agent Install Base Directory Location",
  "value" : "bsl",
  "displayName" : "Installation Base Directory",
  "required" : false,
  "secret" : false
}, {
  "name" : "cluster_networks",
  "type" : "VECTOR",
  "description" : "Cluster Network",
  "displayName" : "cluster_networks",
  "values" : [ ],
  "required" : false,
  "secret" : false
}, {
  "name" : "resourceProviderId",
  "type" : "STRING",
  "value" : "1",
  "displayName" : "resourceProviderId",
  "required" : false,
  "secret" : false
}, {
  "name" : "postInstallScriptOnOMS",
  "type" : "STRING",
  "value" : "",
  "displayName" : "postInstallScriptOnOMS",
  "required" : false,
  "secret" : false
}, {
  "name" : "agent_install_creds",
  "type" : "STRING",
  "description" : "Agent Port",
  "value" : "15513B9C0C6E4EB9E053CE74B10A171B",
  "displayName" : "Named Credential",
  "required" : false,
  "secret" : false
}, {
  "name" : "priv_delegation_setting",
```

```
"type" : "STRING",
"value" : "/usr/bin/sudo -u %RUNAS% %COMMAND%",
"displayName" : "priv_delegation_setting",
"required" : false,
"secret" : false
}, {
  "name" : "vm_instance_sizes",
  "type" : "VECTOR",
  "description" : "Instance Size.",
  "displayName" : "vm_instance_sizes",
  "values" : [ "EXTRA_LARGE" ],
  "required" : false,
  "secret" : false
}, {
  "name" : "agent_port",
  "type" : "STRING",
  "description" : "Agent Port",
  "value" : "3872",
  "displayName" : "Port",
  "required" : false,
  "secret" : false
}, {
  "name" : "preInstallScript",
  "type" : "STRING",
  "value" : "",
  "displayName" : "preInstallScript",
  "required" : false,
  "secret" : false
}, {
  "name" : "custom_params",
  "type" : "VECTOR",
  "description" : "Custom parameters for VM configuration.",
  "displayName" : "custom_params",
  "values" : [ ],
  "required" : false,
  "secret" : false
}, {
  "name" : "vm_server_templates",
  "type" : "VECTOR",
  "description" : "Server Template.",
  "displayName" : "vm_server_templates",
  "values" : [ "paas-templ" ],
  "required" : false,
  "secret" : false
}, {
  "name" : "preInstallScriptOnOMS",
  "type" : "STRING",
  "value" : "",
  "displayName" : "preInstallScriptOnOMS",
  "required" : false,
  "secret" : false
}, {
  "name" : "numberOfHost",
  "type" : "STRING",
  "description" : "Number Of Host",
  "value" : "3",
  "displayName" : "Number Of Host",
  "required" : false,
  "secret" : false
}, {
  "name" : "vm_storages",
  "type" : "VECTOR",
```

```

        "description" : "Storage.",
        "displayName" : "vm_storages",
        "values" : [ ],
        "required" : false,
        "secret" : false
    }, {
        "name" : "runPreInstallScriptAsRoot",
        "type" : "STRING",
        "value" : "",
        "displayName" : "runPreInstallScriptAsRoot",
        "required" : false,
        "secret" : false
    }, {
        "name" : "runPostInstallScriptAsRoot",
        "type" : "STRING",
        "value" : "",
        "displayName" : "runPostInstallScriptAsRoot",
        "required" : false,
        "secret" : false
    } ]
    },
    "swprovisioning" : {
        "configurations" : [ {
            "name" : "resourceProviderId",
            "type" : "STRING",
            "value" : "1",
            "displayName" : "resourceProviderId",
            "required" : false,
            "secret" : false
        } ]
    }
}
}

```

## Viewing Metric of a Resource Provider

The GET request configuration to view the metric of a resource provider is shown below.

**Table 36-32 GET Request Configuration for Viewing Metric of a Resource Provider**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/21/metrics
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```

Status 200 OK
{
count: "0"
hasMore: "false"
limit: "0"
offset: "0"
totalResults: "0"
metricColumns: [6]
0: {

```



```
name: "services"
}-
1: {
name: "sample"
}-
2: {
name: "memory"
}-
3: {
name: "storageStatus"
}-
4: {
name: "cpu"
}-
5: {
name: "storage"
}-
}
```

## Provisioning a Resource via a Sample Adapter

The table below shows the POST configuration to provision a resource.

**Table 36-33 POST Request Configuration for Provisioning a Resource via a Sample Adapter**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/{resourceproviderid}/members
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json

**Table 36-33 (Cont.) POST Request Configuration for Provisioning a Resource via a Sample Adapter**

Feature	Specification
Body	<pre>{ "saveOnly" : false,   "setDefault" : true,   "hosts" : { "templateGuid" : "13462942A66F0B2DE053CE74B10AFCC2",   "configurations" : [ { "name" : "hostPrefix", "value" : "rest_ " },   { "name" : "numberOfHost", "value" : "5" },   { "name" : "agent_install_creds", "value" : "131EFD3114423E7AE053CE74B10A5A76" },   { "name" : "agent_base", "value" : "bsl" },   { "name" : "priv_delegation_setting", "value" : "/usr/bin/ sudo -u %RUNAS% %COMMAND%" },   { "name" : "agent_port", "value" : "3872" },   { "name" : "priv_delegation_setting_template_name", "value" : "" },   { "name" : "network_purpose_vm", "subvalues" : [ { "name" : "Public", "value" : "192.168.1.0/24" } ] },   { "name" : "storage_purpose_cluster", "subvalues" : [ { "name" : "Shared", "value" : "smisko_0" } ] },   { "name" : "storage_purpose_vm", "subvalues" : [ { "name" : "Dedicated", "value" : "smisko_0" } ] },   { "name" : "network_purpose_cluster", "subvalues" : [ { "name" : "ClusterPrivate", "value" : "192.168.1.0/24" },   { "name" : "ClusterPublic", "value" : "192.168.1.0/24" } ] },   { "name" : "vm_instance_sizes", "values" : [ "EXTRA_LARGE" ] },   { "name" : "vm_server_templates", "values" : [ "paas- tmpl" ] } ] },   "swprovisioning" : { "configurations" : [ { "name" : "param01", "value" : "param_01_val" }, { "name" : "param01", "value" : "param_02_val" } ] } }</pre>
Request method	POST

A sample of the response received is shown below.

```
{ "status" : "SCHEDULED", "details" : "134821EBDA7472BFE053CE74B10A11B8" }
```

## De-provisioning a Resource

The DELETE request configuration for de-provisioning a resource is shown in the table below.

**Table 36-34 DELETE Request Configuration for De-provisioning a Resource**

Feature	Specification
URI	<pre>https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/websvcs/restful/ extws/cloudservices/admin/cfw/v2/resourceproviders/ {resourceproviderid}</pre>
Request headers	<pre>Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json</pre>

**Table 36-34 (Cont.) DELETE Request Configuration for De-provisioning a Resource**

Feature	Specification
Body	<code>{"members":["rest_bf51c965-fff0-400c-a982-2c71b2afb150","rest_-13ce4c70-e1b4-4bd9-8b43-6952d619e674"]}</code>
Request method	DELETE

A sample of the response received is shown below.

```
{ "details": "133C8EC6EAC86122E053CE74B10A4DEF", "status": "SCHEDULED" }
```

## Viewing the Metadata Required to Provision a Resource Provider

The POST request configuration to view the metadata required to provision a resource provider is shown below.

**Table 36-35 POST Request Configuration for Viewing the Metadata Required to Provision a Resource Provider**

Feature	Specification
URI	<code>https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/4/members/metadata</code>
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	<code>{ "hosts" : { "templateGuid" : "1552104D74F47F29E053CE74B10A08D9" } }</code>
Request method	POST

A sample of the response received is shown below.

```
{
  "hosts" : {
    "templateGuid" : "1552104D74F47F29E053CE74B10A08D9",
    "configurations" : [ {
      "name" : "platform",
      "type" : "STRING",
      "value" : "",
      "displayName" : "platform",
      "required" : false,
      "secret" : false
    }, {
      "name" : "hostPrefix",
      "type" : "STRING",
      "description" : "Host Name Prefix.",
      "value" : "MySmplAdptr0505013358",
      "displayName" : "Host Name Prefix",
      "required" : false,
      "secret" : false
    }, {
      "name" : "network_purpose_vm",
      "type" : "VECTOR",
```

```
"description" : "Purpose Network Instance",
"displayName" : "network_purpose_vm",
"required" : false,
"secret" : false,
"possibleValues" : [ {
  "value" : "192.168.1.0/25",
  "displayName" : "192.168.1.0/25"
}, {
  "value" : "192.168.1.0/24",
  "displayName" : "192.168.1.0/24"
}, {
  "value" : "192.168.1.0/26",
  "displayName" : "192.168.1.0/26"
}, {
  "value" : "192.168.1.0/27",
  "displayName" : "192.168.1.0/27"
} ],
"subvalues" : [ {
  "name" : "Public",
  "type" : "STRING",
  "displayName" : "Public",
  "required" : true,
  "secret" : false
} ]
}, {
  "name" : "postInstallScript",
  "type" : "STRING",
  "value" : "",
  "displayName" : "postInstallScript",
  "required" : false,
  "secret" : false
}, {
  "name" : "storage_purpose_cluster",
  "type" : "VECTOR",
  "description" : "Purpose Storage Cluster",
  "displayName" : "storage_purpose_cluster",
  "required" : false,
  "secret" : false,
  "possibleValues" : [ {
    "value" : "smisko_3",
    "displayName" : "smisko_3"
  }, {
    "value" : "smisko_2",
    "displayName" : "smisko_2"
  }, {
    "value" : "smisko_1",
    "displayName" : "smisko_1"
  }, {
    "value" : "smisko_0",
    "displayName" : "smisko_0"
  } ],
  "subvalues" : [ ]
}, {
  "name" : "network_purpose_cluster",
  "type" : "VECTOR",
  "description" : "Purpose Network Cluster",
  "displayName" : "network_purpose_cluster",
  "required" : false,
  "secret" : false,
  "possibleValues" : [ {
    "value" : "192.168.1.0/25",
    "displayName" : "192.168.1.0/25"
```

```

    }, {
      "value" : "192.168.1.0/24",
      "displayName" : "192.168.1.0/24"
    }, {
      "value" : "192.168.1.0/26",
      "displayName" : "192.168.1.0/26"
    }, {
      "value" : "192.168.1.0/27",
      "displayName" : "192.168.1.0/27"
    } ],
    "subvalues" : [ ]
  }, {
    "name" : "agent_base",
    "type" : "STRING",
    "description" : "Agent Install Base Directory Location",
    "value" : "/scratch/oracle/",
    "displayName" : "Installation Base Directory",
    "required" : false,
    "secret" : false
  }, {
    "name" : "resourceProviderId",
    "type" : "STRING",
    "value" : "1",
    "displayName" : "resourceProviderId",
    "required" : false,
    "secret" : false
  }, {
    "name" : "postInstallScriptOnOMS",
    "type" : "STRING",
    "value" : "",
    "displayName" : "postInstallScriptOnOMS",
    "required" : false,
    "secret" : false
  }, {
    "name" : "agent_install_creds",
    "type" : "STRING",
    "description" : "Agent Port",
    "value" : "15513B9C0C6E4EB9E053CE74B10A171B",
    "displayName" : "Named Credential",
    "required" : false,
    "secret" : false
  }, {
    "name" : "storage_purpose_vm",
    "type" : "VECTOR",
    "description" : "Purpose Storage Instance",
    "displayName" : "storage_purpose_vm",
    "required" : false,
    "secret" : false,
    "possibleValues" : [ {
      "value" : "smisko_3",
      "displayName" : "smisko_3"
    }, {
      "value" : "smisko_2",
      "displayName" : "smisko_2"
    }, {
      "value" : "smisko_1",
      "displayName" : "smisko_1"
    }, {
      "value" : "smisko_0",
      "displayName" : "smisko_0"
    } ],
    "subvalues" : [ {

```

```

        "name" : "Dedicated",
        "type" : "STRING",
        "displayName" : "Dedicated",
        "required" : true,
        "secret" : false
    } ]
}, {
    "name" : "priv_delegation_setting",
    "type" : "STRING",
    "value" : "/usr/bin/sudo -u %RUNAS% %COMMAND%",
    "displayName" : "priv_delegation_setting",
    "required" : false,
    "secret" : false
}, {
    "name" : "vm_instance_sizes",
    "type" : "VECTOR",
    "description" : "Instance Size.",
    "displayName" : "vm_instance_sizes",
    "values" : [ "EXTRA_LARGE", "TINY", "SMALL" ],
    "required" : false,
    "secret" : false,
    "possibleValues" : [ {
        "value" : "TINY",
        "displayName" : "TINY"
    }, {
        "value" : "EXTRA_LARGE",
        "displayName" : "EXTRA_LARGE"
    }, {
        "value" : "SMALL",
        "displayName" : "SMALL"
    } ]
}, {
    "name" : "agent_port",
    "type" : "STRING",
    "description" : "Agent Port",
    "value" : "3872",
    "displayName" : "Port",
    "required" : false,
    "secret" : false
}, {
    "name" : "preInstallScript",
    "type" : "STRING",
    "value" : "",
    "displayName" : "preInstallScript",
    "required" : false,
    "secret" : false
}, {
    "name" : "vm_server_templates",
    "type" : "VECTOR",
    "description" : "Server Template.",
    "displayName" : "vm_server_templates",
    "values" : [ "paas-tmpl", "paas-tmpl2" ],
    "required" : false,
    "secret" : false,
    "possibleValues" : [ {
        "value" : "paas-tmpl",
        "displayName" : "paas-tmpl"
    }, {
        "value" : "paas-tmpl2",
        "displayName" : "paas-tmpl2"
    } ]
}, {

```

```

        "name" : "preInstallScriptOnOMS",
        "type" : "STRING",
        "value" : "",
        "displayName" : "preInstallScriptOnOMS",
        "required" : false,
        "secret" : false
    }, {
        "name" : "numberOfHost",
        "type" : "STRING",
        "description" : "Number Of Host",
        "value" : "",
        "displayName" : "Number Of Host",
        "required" : false,
        "secret" : false
    }, {
        "name" : "runPreInstallScriptAsRoot",
        "type" : "STRING",
        "value" : "",
        "displayName" : "runPreInstallScriptAsRoot",
        "required" : false,
        "secret" : false
    }, {
        "name" : "runPostInstallScriptAsRoot",
        "type" : "STRING",
        "value" : "",
        "displayName" : "runPostInstallScriptAsRoot",
        "required" : false,
        "secret" : false
    } ]
    },
    "swprovisioning" : {
        "configurations" : [ ]
    }
}

```

## Service Templates - Collection Resource for V2

Service Templates is a collection resource representing an SSA administrator's view of all the accessible Service Template resources. The following table describes the Service Template data model.

**Table 36-36 Service Templates Collection Resource Data Model**

Field	Type	Description	Occurs
name	String	Display name of the collection resource.	1
type	String	Indicates the type of the collection resource.	0..1
hasMore	Boolean	Indicates whether there are more elements in the collection.	1
count	Integer	Number of elements returned.	1
items	Collection <ServiceTemplate>	List of Service Template resources In case no instances exist, <code>items</code> field is empty.	1
totalCount	Integer	Total number of Service Template resources.	1
canonicalLink	URI	A GET against this URI refreshes the client representation of this resource.	1

**Table 36-36 (Cont.) Service Templates Collection Resource Data Model**

Field	Type	Description	Occurs
selfLink	URI	Refers to the resource equivalent of the containing elements.	1

## Supported Operations

The table below shows the supported operations for Service Templates.

**Table 36-37 Supported Methods for Service Templates**

Request Method	Canonical Link	Description
GET	https:// <OMS_HOST>:<OMS_CONSOLE _PORT>/em/websvcs/restful/ extws/cloudservices/admin/cfw/v2/ servicetemplates	Returns list of Service Templates.
GET	https:// <OMS_HOST>:<OMS_CONSOLE _PORT>/em/websvcs/restful/ extws/cloudservices/admin/cfw/v2/ servicetemplates/templatetypes	Returns Service Template types. See <a href="#">Table 36-38</a> .
POST	https:// <OMS_HOST>:<OMS_CONSOLE _PORT>/em/websvcs/restful/ extws/cloudservices/admin/cfw/v2/ servicetemplates/metadata	Returns metadata required for creation of a Service Template. See: <ul style="list-style-type: none"> <li>• <a href="#">Table 36-39</a></li> <li>• <a href="#">Table 36-40</a></li> <li>• <a href="#">Table 36-41</a></li> <li>• <a href="#">Table 36-42</a></li> <li>• <a href="#">Table 36-43</a></li> </ul>
POST	https:// <OMS_HOST>:<OMS_CONSOLE _PORT>/em/websvcs/restful/ extws/cloudservices/admin/cfw/v2/ servicetemplates/ resourceproviders	Returns Resource Provider characteristics required for creation of a Service Template. See <a href="#">Table 36-44</a> and <a href="#">Table 36-45</a> .
POST	https:// <OMS_HOST>:<OMS_CONSOLE _PORT>/em/websvcs/restful/ extws/cloudservices/admin/cfw/v2/ servicetemplates/configurations	Returns configurations required for creation of a Service Template. See <a href="#">Table 36-46</a> .
POST	https:// <OMS_HOST>:<OMS_CONSOLE _PORT>/em/websvcs/restful/ extws/cloudservices/admin/cfw/v2/ servicetemplates	Creates a Service Template.



**Table 36-37 (Cont.) Supported Methods for Service Templates**

Request Method	Canonical Link	Description
PUT	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/{servicetemplateid}	Updates the Service Template.
GET	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/{servicetemplateid}	Returns details of specified Service Template.
GET	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/{servicetemplateid}/configurations	Returns configuration details of the specified Service Template.
DELETE	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/{servicetemplateid}	Deletes the specified Service Template.

The table below shows the SRVC template type data model supported for the GET request on the URI - /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes in the v2 framework.

**Table 36-38 SRVC Template Type Data Model**

Field	Type	Description
serviceTemplateTypeId	String	Id of service template type.
serviceType	String	Name of service type.
name	String	Name of service template type.
displayName	String	Display name of service template type

The table below shows the SRVC template metadata request data model supported for the POST request on the URI - /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/metadata in the v2 framework.

**Table 36-39 SRVC Template Metadata Request Data Model**

Field	Type	Description	Occurs
serviceTemplateTypeId	String	Id of service template type.	1
serviceType	String	Name of service type.	1

The table below shows the SRVC template metadata response data model supported for the POST request on the URI - /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/metadata in the v2 framework.

**Table 36-40 SRVC Template Metadata Response Data Model**

Field	Type	Description
serviceTemplateTypeId	String	Id of service template type.
rscProvAssocOption	List<String>	Resource provider association.
payloads	List<Payload>	Payloads of service template.
selectedExecutableName	CfwValueDescriptor	Service template type details.
characteristics	List<Characteristic>	List of characteristics of service template.

The table below shows the payload data model supported for the POST request on the URI - https://<OMS\_HOST>:<OMS\_CONSOLE\_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/metadata in the v2 framework.

**Table 36-41 Payload Data Model**

Field	Type	Description
name	String	Name of payload.
value	List<String>	List of values.
required	Boolean	Is required or not.

The table below shows the characteristic data model supported for the POST request on the URI - https://<OMS\_HOST>:<OMS\_CONSOLE\_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/metadata in the v2 framework.

**Table 36-42 Characteristic Data Model**

Field	Type	Description
name	String	Name of characteristic.
displayName	String	Display name of characteristic.
values	List<String>	List of values.
required	Boolean	Is required or not.
editable	Boolean	Is editable or not.
visible	Boolean	Is visible or not.
targetType	TargetType	If characteristic is Target Characteristic, this field contains target type details.

The table below shows the target type data model supported for the POST request on the URI - /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/metadata in the v2 framework.

**Table 36-43 Target Type Data Model**

Field	Type	Description
targetType	String	Target Type.
targetTypeName	String	Name of target type.
parentTargetType	String	Parent target type.
parentTargetTypeName	String	Name of parent target type.

The table below shows the `SvcTemplateRscPrvdrRequest` data model supported for the POST request on the URI - `https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/resourceproviders` in the v2 framework.

**Table 36-44 SvcTemplateRscPrvdrRequest Data Model**

Field	Type	Description	Occurs
serviceTemplateTypeId	String	Id of Service template type.	1
serviceType	String	Name of service type.	1
rscProvAssocOption	List<String>	Resource provider association.	1
payloads	List<Payload>>	Payloads of service template.	0..1
characteristics	List<Characteristic>>	Characteristics of service template.	0..1

The table below shows the `SvcTemplateRscPrvdr` response data model supported for the POST request on the URI - `https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/resourceproviders` in the v2 framework.

**Table 36-45 SvcTemplateRscPrvdr Response Data Model**

Field	Type	Description
lookupCharacteristics	List<SvcTemplatePurpose>	List of purpose characteritics.

The table below shows the `SvcTemplateConfigRequest` data model supported for the POST request on the URI - `https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/configurations` in the v2 framework.

**Table 36-46 SvcTemplateConfigRequest Data Model**

Field	Type	Description	Occurs
serviceTemplateTypeId	String	Id of Service template type.	1
serviceType	String	Name of service type.	1
rscProvAssocOption	List<String>	Resource provider association.	1
payloads	List<Payload>>	Payloads of service template.	0..1

**Table 36-46 (Cont.) SrvcTemplateConfigRequest Data Model**

Field	Type	Description	Occurs
characteristics	List<Characteristic>>	Characteristics of service template.	0..1
resourceProvider	SrvcTemplateRscprvdr	Resource provider.	1

## Service Templates REST API Examples for V2

This section describes the REST API operations supported on the Service Templates resource. The following operations are explained:

- [Viewing all the Service Templates](#)
- [Viewing all the Service Template Types](#)
- [Viewing the Metadata Required for Creating a Service Template](#)
- [Viewing the Resource Provider Characteristics Required for Creating a Service Template](#)
- [Viewing Configurations Required for Creating a Service Template](#)
- [Creating a Service Template](#)
- [Updating a Service Template](#)
- [Viewing Details of a Specific Service Template](#)
- [Viewing Configuration Details of a Specific Service Template](#)
- [Deleting a Service Template](#)

### Viewing all the Service Templates

A GET operation is issued to view all the Service Templates.

**Table 36-47 GET Request Configuration for Viewing all the Service Templates**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "name": "Service Templates",
  "type": "Service Template",
  "totalResults": 3,
  "cfwItems": [
    {
      "id": "1",
```

```

"name": "Orchestration",
"guid": "06F28ABA2E0178CBE053CE74B10AAC2D",
"canonicalLink": {
  "href":
  "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
  servicetemplates/1"
},
"description": "Create a set of Oracle VM instances with customized configuration for
multitier
applications"
},
{
  "id": "2",
  "name": "Simple Orchestration",
  "guid": "06F28ABA2E0478CBE053CE74B10AAC2D",
  "canonicalLink": {
    "href":
    "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
    servicetemplates/2"
  },
  "description": "Create one or more Oracle VM instances with default configuration and
minimum
inputs"
},
{
  "id": "3",
  "name": "VM Instance",
  "guid": "06F28ABA2E0778CBE053CE74B10AAC2D",
  "canonicalLink": {
    "href":
    "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
    servicetemplates/3"
  },
  "description": "Create an Oracle VM Instance"
}
],
"canonicalLink": {
  "href":
  "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
  servicetemplates/"
},
"selfLink": {
  "href":
  "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
  servicetemplates/"
}
}

```

## Viewing all the Service Template Types

A GET operation is issued to view all the Service Template types.

**Table 36-48 GET Request Configuration for Viewing all the Service Template Types**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json

**Table 36-48 (Cont.) GET Request Configuration for Viewing all the Service Template Types**

Feature	Specification
Body	None
Request method	GET

A sample of the response received is shown below.

```
[
{
  "name": "SCHEMA",
  "displayName": "Schaas Create Executable",
  "serviceType": "SCHEMA",
  "serviceTemplateTypeId": "61"
},
{
  "name": "MW_SOAAAS_CREATE_INSTANCE",
  "displayName": "SOAaaS Orchestration",
  "serviceType": "SOA_SERVICE",
  "serviceTemplateTypeId": "24"
},
{
  "name": "MW_WLAAS_EXECUTABLE_CREATE",
  "displayName": "WebLogic Service - Physical",
  "serviceType": "WLAAS",
  "serviceTemplateTypeId": "28"
},
{
  "name": "MW_OSBAAS_CREATE_INSTANCE",
  "displayName": "OSBaaS Orchestration",
  "serviceType": "OSB_SERVICE",
  "serviceTemplateTypeId": "21"
},
{
  "name": "DB",
  "displayName": "DbaaS Create Executable",
  "serviceType": "DB",
  "serviceTemplateTypeId": "41"
},
{
  "name": "PDB",
  "displayName": "PdbaaS Create Executable",
  "serviceType": "PDB",
  "serviceTemplateTypeId": "54"
},
{
  "name": "ORACLE_NIMBULA_CREATE_SIMPLE_ORCHESTRATION_EXECUTABLE",
  "displayName": "Simple Orchestration Custom Service Template",
  "serviceType": "ORACLE_NIMBULA_ORCHESTRATION_SERVICE",
  "serviceTemplateTypeId": "3"
},
{
  "name": "ORACLE_NIMBULA_CREATE_ORCHESTRATION_EXECUTABLE",
  "displayName": "Orchestration Custom Service Template",
  "serviceType": "ORACLE_NIMBULA_ORCHESTRATION_SERVICE",
  "serviceTemplateTypeId": "1"
},
{
```

```

"name": "ORACLE_NIMBULA_CREATE_VIRTUAL_MACHINE_EXECUTABLE",
"displayName": "ORACLE_NIMBULA_CREATE_VIRTUAL_MACHINE_EXECUTABLE",
"serviceType": "ORACLE_NIMBULA_VIRTUAL_MACHINE_SERVICE",
"serviceTemplateTypeId": "11"
}
]

```

## Viewing the Metadata Required for Creating a Service Template

A POST operation is issued to view the metadata required for creating a Service Template.

**Table 36-49 POST Request Configuration for Viewing the Metadata Required for Creating a Service Template**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/metadata
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	{ "serviceType": "WLAAS", "serviceTemplateTypeId": "28" }
Request method	POST

A sample of the response received is shown below.

```

{
  "serviceType": "WLAAS",
  "serviceTemplateTypeId": "28",
  "rscProvAssocOption": [
    "byRscLookupChars"
  ],
  "selectedExecutableName": {
    "name": "MW_WLAAS_EXECUTABLE_CREATE",
    "type": "STRING",
    "value": "MwaaS_Setup_Domain_Deploy_App",
    "defaultValue": "MwaaS_Setup_Domain_Deploy_App",
    "required": true,
    "secret": false
  },
  "payloads": [
    {
      "name": "DEFAULT_PAYLOAD",
      "value": "<user_input>",
      "required": true
    }
  ],
  "characteristics": [
    {
      "name": "EXAMPLE.SYSMAN.EMAS.MWC.WLAAS.ENABLEHA",
      "displayName": "Distribute WebLogic Servers on Available Hosts?",
      "values": [
        "No",
        "Yes"
      ],
      "required": false,

```

```

"visible": true,
"editable": true
},
{
"name": "EXAMPLE.SYSMAN.EMAS.MWC.WLAAS.ENABLELBR",
"displayName": "Enable Load Balancer?",
"values": [
"No",
"Yes"
],
"required": false,
"visible": true,
"editable": true
},
{
"name": "EXAMPLE.SYSMAN.EMAS.MWC.WLAAS.EXPOSEADMINURLS",
"displayName": "Expose WebLogic Admin Console and Fusion Middleware Control to SSA
User?",
"values": [
"No",
"Yes"
],
"required": false,
"visible": true,
"editable": true
}
]
}

```

## Viewing the Resource Provider Characteristics Required for Creating a Service Template

A POST operation is issued to view the Resource Provider characteristics required for creating a Service Template.

**Table 36-50 POST Request Configuration for Viewing the Resource Provider Characteristics Required for Creating a Service Template**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/resourceproviders
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json



**Table 36-50 (Cont.) POST Request Configuration for Viewing the Resource Provider Characteristics Required for Creating a Service Template**

Feature	Specification
Body	<pre> {   "serviceType": "WLAAS",   "serviceTemplateTypeId": "28",   "rscProvAssocOption": [     "byRscLookupChars"   ],   "payloads": [     {       "name": "DEFAULT_PAYLOAD",       "value": "test"     }   ],   "characteristics": [     {       "name": "EXAMPLE.SYSMAN.EMAS.MWC.WLAAS.ENABLEHA",       "value": "Yes"     },     {       "name": "EXAMPLE.SYSMAN.EMAS.MWC.WLAAS.ENABLELBR",       "value": "Yes"     },     {       "name": "EXAMPLE.SYSMAN.EMAS.MWC.WLAAS.EXPOSEADMINURLS",       "value": "Yes"     }   ] } </pre>
Request method	POST

A sample of the response received is shown below.

```

{
  "lookupCharacteristics": [
    {
      "characteristics": [
        {
          "name": "EXAMPLE.SYSMAN.EMAS.MWAAS_ZONE",
          "displayName": "example.sysman.emas.mwaas_zone",
          "targetType": {
            "targetType": "mwaas_zone",
            "parentTargetType": "self_service_zone",
            "targetTypeName": "Middleware Pool",
            "parentTargetTypeName": "PaaS Infrastructure Zone"
          }
        }
      ]
    },
    {
      "purposeId": 1
    }
  ]
}

```

## Viewing Configurations Required for Creating a Service Template

A POST operation is issued to view the configurations required for creating a Service Template.

**Table 36-51 POST Request Configuration for Viewing Configurations Required for Creating a Service Template**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/configurations
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	<pre>{   "serviceType": "WLAAS",   "serviceTemplateTypeId": "28",   "rscProvAssocOption": [     "byRscLookupChars"   ],   "payloads": [     {       "name": "DEFAULT_PAYLOAD",       "value": "test"     }   ],   "characteristics": [     {       "name": "ORACLE.SYSMAN.EMAS.MWC.WLAAS.ENABLEHA",       "value": "Yes"     },     {       "name": "ORACLE.SYSMAN.EMAS.MWC.WLAAS.ENABLELBR",       "value": "Yes"     },     {       "name": "ORACLE.SYSMAN.EMAS.MWC.WLAAS.EXPOSEADMINURLS",       "value": "Yes"     }   ],   "resourceprovider": {     "lookupCharacteristics": [       {         "characteristics": [           {             "name": "ORACLE.SYSMAN.EMAS.MWAAS_ZONE",             "value": "425AA08582AD7AE95D52C24662867315"           }         ]       }     ]   },   "purposeId": 1 }</pre>
Request method	POST

A sample of the response received is shown below.

```
[
  {
    "name": "agentInstallUserPwd",
    "type": "STRING",
    "description": "Agent Install User Password to override",
    "required": false,
    "secret": true
  },
  {
    "name": "hostForResourceProvisioningScript",
    "type": "STRING",
    "description": "Resource management script will be executed on this host.",
    "required": false,
    "secret": false
  },
  {
    "name": "portRangeStart",
    "type": "STRING",
    "description": "Lower Bound for choosing Free Ports",
    "required": false,
    "secret": false
  },
  {
    "name": "wlsUserPassword",
    "type": "STRING",
    "description": "Password for the WebLogic Server",
    "required": false,
    "secret": true
  },
  {
    "name": "rootPwd",
    "type": "STRING",
    "description": "Root Password to override",
    "required": false,
    "secret": true
  },
  {
    "name": "wlsUserName",
    "type": "STRING",
    "description": "Username for the WebLogic Server",
    "required": false,
    "secret": false
  },
  {
    "name": "wlsUserPassword2",
    "type": "STRING",
    "description": "Re-enter Password for the WebLogic Server",
    "required": false,
    "secret": true
  },
  {
    "name": "namedHostCredForVirtualFlow",
    "type": "STRING",
    "description": "Enter name of the host credential to use for provisioning operations",
    "required": false,
    "secret": false
  },
  {
    "name": "startupArguments",
    "type": "STRING",
```

```
"description": "Enter memory and java arguments to start the server. Example: -Xms1280m -Xmx1280m -XX:PermSize=128m -XX:MaxPermSize=256m -Dweblogic.security.SSL.ignoreHostnameVerification=true",
"required": false,
"secret": false
},
{
  "name": "namedCredforHostList",
  "type": "STRING",
  "description": "This will be used for the above hosts",
  "required": false,
  "secret": false
},
{
  "name": "serviceName",
  "type": "STRING",
  "description": "Service Instance Name",
  "required": true,
  "secret": true
},
{
  "name": "cpuUsagePerInstance",
  "type": "STRING",
  "description": "CPU required by each additional instance in percentage",
  "required": false,
  "secret": false
},
{
  "name": "portRangeEnd",
  "type": "STRING",
  "description": "Upper Bound for choosing Free Ports",
  "required": false,
  "secret": false
},
{
  "name": "memoryUsagePerInstance",
  "type": "STRING",
  "description": "Memory required by each additional instance in GB",
  "required": false,
  "secret": false
},
{
  "name": "hostListForScripts",
  "type": "STRING",
  "description": "Use ',' to separate multiple target hosts",
  "required": false,
  "secret": false
},
{
  "name": "topology",
  "type": "STRING",
  "description": "For physical provisioning it is auto populated based on the profile selected. For virtual provisioning it is defaulted to 'Single Cluster'. Please change based on the actual topology of the assembly. ",
  "required": false,
  "secret": false
},
{
  "name": "namedCredforRsrcProvHost",
  "type": "STRING",
  "description": "Enter the EM Named Credentials to be used for the above host in the
```

```

\"Host
for Executing Resource Management Script\" field.\",
\"required\": false,
\"secret\": false
},
{
\"name\": \"isScriptExecuteOnAdminServer\",
\"type\": \"STRING\",
\"description\": \"Choose 'Yes' to execute scripts on Admin Server host besides the hosts
entered above\",
\"required\": false,
\"secret\": false
}
]

```

## Creating a Service Template

A POST operation is issued to create a Service template.

**Table 36-52 POST Request Configuration for Creating a Service Template**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json

**Table 36-52 (Cont.) POST Request Configuration for Creating a Service Template**

Feature	Specification
Body	<pre> {   "name": "SampleXaas Template",   "description": "Xaas template",   "serviceType": "CFW_SAMPLEXAAS_SERVICE",   "serviceTemplateTypeId": "82",   "rscProvAssocOption": [     "byRscLookupChars"   ],   "roles": [     "SSA01",     "SSA02",     "SSA03",     "SSA04",     "SSA05"   ],   "characteristics": [     {       "name": "ORACLE.SYSMAN.SAMPLEXAAS.SAMPLEINSTANCETYPE",       "values": [         "Cfw_Xaas_DB_Service"       ]     },     {       "name": "ORACLE.SYSMAN.SAMPLEXAAS.STORAGE_OP_BW",       "values": [         "10"       ]     }   ],   "resourceproviders": {     "lookupCharacteristics": [       {         "characteristics": [           {             "name": "ORACLE.SYSMAN.SAMPLEXAAS.STORAGETYPE",             "displayName": "storage_type",             "value": "db"           }         ]       }     ],     "purposeId": 1   } }, "configurations": [   {     "name": "service_instance_name",     "value": "xaas_inst_name"   },   {     "name": "service_type",     "value": "CFW_SAMPLEXAAS_SERVICE"   },   {     4.22 48     "name": "service_param2", </pre>

**Table 36-52 (Cont.) POST Request Configuration for Creating a Service Template**

Feature	Specification
	<pre>"value": "p2" }, { "name": "service_param1", "value": "p1" }, { "name": "storage_type", "value": "file" } ] }</pre>
Request method	POST

A sample of the response received is shown below.

```
Status 200 OK
{"message": "Service template with id \"0780653DF4C64F83E053CE74B10ABD91\" created
successfully."
}
```

## Updating a Service Template

A PUT operation is issued to update a Service template.

**Table 36-53 PUT Request Configuration for Updating a Service Template**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/{servicetemplateid}
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json

**Table 36-53 (Cont.) PUT Request Configuration for Updating a Service Template**

Feature	Specification
Body	<pre> {   "displayName": "updatedDisplayName",   "description": "updated via API",   "rolesToAdd": [     "SSA04",     "SSA05",     "SSA06",   ],   "rolesToRemove": [     "SSA01",     "SSA02",     "SSA03",   ],   "configurations": [     {       "name": "service_instance_name",       "value": "inst_name_\${tstamp}"     },     {       "name": "service_type",       "value": "CFW_SAMPLEXAAS_SERVICE"     },     {       "name": "service_param2",       "value": "sp2_up"     },     {       "name": "service_param1",       "value": "sp1_up"     },     {       "name": "storage_type",       "value": "file_up"     }   ] } </pre>
Request method	PUT

A sample of the response received is shown below.

```

Status 200 OK
{
  "message": " Service template with id "1" updated successfully."
}

```

## Viewing Details of a Specific Service Template

A GET operation is issued to view details of a specific Service Template.



**Table 36-54 GET Request Configuration for Viewing Details of a Specific Service Template**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/{servicetemplateid}
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "id": "63",
  "guid": "0780653DF4C94F83E053CE74B10ABD91",
  "name": "SampleXaas Template",
  "displayName": "SampleXaas Template",
  "description": "Xaas template",
  "serviceType": "CFW_SAMPLEXAAS_SERVICE",
  "serviceTemplateTypeId": "82",
  "createdOn": "2014-11-10T16:52:18Z",
  "createdBy": "SYSMAN",
  "modifiedOn": "2014-11-10T16:52:18Z",
  "owner": "SYSMAN",
  "lastModified": "2014-11-10T16:52:18Z",
  "characteristics": [
    {
      "name": "EXAMPLE.SYSMAN.CFW.ORCL_GTP_CONTACT",
      "displayName": "Contact",
      "values": [],
      "required": false,
      "visible": false,
      "editable": true
    },
    {
      "name": "EXAMPLE.SYSMAN.CFW.ORCL_GTP_COST_CENTER",
      "displayName": "Cost Center",
      "values": [],
      "required": false,
      "visible": false,
      "editable": true
    },
    {
      "name": "EXAMPLE.SYSMAN.CFW.ORCL_GTP_DEPARTMENT",
      "displayName": "Department",
      "values": [],
      "required": false,
      "visible": false,
      "editable": true
    },
    {
      "name": "EXAMPLE.SYSMAN.SAMPLEXAAS.SAMPLEINSTANCETYPE",
      "displayName": "Instance Type",
      "values": [
        "Cfw_Xaas_DB_Service"
      ],
      "required": true,

```

```
"visible": true,
"editable": false
},
{
  "name": "EXAMPLE.SYSMAN.CFW.ORCL_GTP_LIFECYCLE_STATUS",
  "displayName": "Lifecycle Status",
  "values": [
    "Development",
    "MissionCritical",
    "Production",
    "Stage",
    "Test"
  ],
  "required": false,
  "visible": false,
  "editable": true
},
{
  "name": "EXAMPLE.SYSMAN.CFW.ORCL_GTP_LINE_OF_BUS",
  "displayName": "Line of Business",
  "values": [],
  "required": false,
  "visible": false,
  "editable": true
},
{
  "name": "EXAMPLE.SYSMAN.CFW.ORCL_GTP_LOCATION",
  "displayName": "Location",
  "values": [],
  "required": false,
  "visible": false,
  "editable": true
},
{
  "name": "EXAMPLE.SYSMAN.SAMPLEXAAS.STORAGE_OP_BW",
  "displayName": "Operation Bandwidth",
  "values": [
    "10"
  ],
  "required": false,
  "visible": true,
  "editable": true
}
],
"resourceProvider": {
  "lookupCharacteristics": [
    {
      "characteristics": [
        {
          "name": "EXAMPLE.SYSMAN.SAMPLEXAAS.STORAGETYPE",
          "displayName": "storage_type",
          "values": [
            "db"
          ]
        }
      ]
    }
  ],
  "purposeId": 1
}
],
"configurations": [
  {
```

```
"name": "service_instance_name",
"type": "STRING",
"description": "Specify Instance Name",
"value": "xaas_inst_name",
"required": true,
"secret": false
},
{
"name": "service_type",
"type": "STRING",
"description": "Specify Service type",
"value": "CFW_SAMPLEXAAS_SERVICE",
"required": true,
"secret": false
},
{
"name": "service_param2",
"type": "STRING",
"description": "Service param 2",
"value": "p2",
"required": false,
"secret": false
},
{
"name": "service_param1",
"type": "STRING",
"description": "Service param 1",
"value": "p1",
"required": false,
"secret": false
},
{
"name": "storage_type",
"type": "STRING",
"description": "Specify Storage type",
"value": "file",
"required": true,
"secret": false
}
],
"canonicalLink": {
"href":
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
servicetemplates/63"
},
"selfLink": {
"href":
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
servicetemplates/63"
}
}
```

## Viewing Configuration Details of a Specific Service Template

A GET operation is issued to view the configuration details of a specific Service Template.

**Table 36-55 GET Request Configuration for Viewing Configuration Details of a Specific Service Template**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/{servicetemplateid}/configurations
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
[
  {
    "name": "service_instance_name",
    "type": "STRING",
    "description": "Specify Instance Name",
    "value": "xaas_inst_name",
    "required": true,
    "secret": false
  },
  {
    "name": "service_type",
    "type": "STRING",
    "description": "Specify Service type",
    "value": "CFW_SAMPLEXAAS_SERVICE",
    "required": true,
    "secret": false
  },
  {
    "name": "service_param2",
    "type": "STRING",
    "description": "Service param 2",
    "value": "p2",
    "required": false,
    "secret": false
  },
  {
    "name": "service_param1",
    "type": "STRING",
    "description": "Service param 1",
    "value": "p1",
    "required": false,
    "secret": false
  },
  {
    "name": "WorkLoads",
    "type": "VECTOR",
    "description": "WorkLoad Values",
    "required": false,
    "secret": false,
    "subvalues": [
      {
        "name": "Small",
        "type": "VECTOR",
        "description": "Configuration Values for Small WorkLoad",
```

```
"required": false,
"secret": false,
"subvalues": [
  {
    "name": "DEPL_SIZE_IS_DEFAULT_KEY",
    "type": "STRING",
    "value": "Y",
    "required": false,
    "secret": false
  },
  {
    "name": "CPU",
    "type": "STRING",
    "value": "60",
    "required": false,
    "secret": false
  },
  {
    "name": "MEMORY",
    "type": "STRING",
    "value": "4048",
    "required": false,
    "secret": false
  },
  {
    "name": "STORAGE",
    "type": "STRING",
    "value": "500",
    "required": false,
    "secret": false
  },
  {
    "name": "XAAS_TEST",
    "type": "STRING",
    "value": "NONE",
    "required": false,
    "secret": false
  }
]
},
{
  "name": "Medium",
  "type": "VECTOR",
  "description": "Configuration Values for Medium WorkLoad",
  "required": false,
  "secret": false,
  "subvalues": [
    {
      "name": "DEPL_SIZE_IS_DEFAULT_KEY",
      "type": "STRING",
      "value": "N",
      "required": false,
      "secret": false
    },
    {
      "name": "CPU",
      "type": "STRING",
      "value": "80",
      "required": false,
      "secret": false
    }
  ]
}
```

```
"name": "MEMORY",
"type": "STRING",
"value": "8088",
"required": false,
"secret": false
},
{
"name": "STORAGE",
"type": "STRING",
"value": "750",
"required": false,
"secret": false
}
],
},
{
"name": "Large",
"type": "VECTOR",
"description": "Configuration Values for Large WorkLoad",
"required": false,
"secret": false,
"subvalues": [
{
"name": "DEPL_SIZE_IS_DEFAULT_KEY",
"type": "STRING",
"value": "Y",
"required": false,
"secret": false
},
{
"name": "CPU",
"type": "STRING",
"value": "60",
"required": false,
"secret": false
},
{
"name": "MEMORY",
"type": "STRING",
"value": "40448",
"required": false,
"secret": false
},
{
"name": "STORAGE",
"type": "STRING",
"value": "500",
"required": false,
"secret": false
}
]
},
{
"name": "storage_type",
"type": "STRING",
"description": "Specify Storage type",
"value": "file",
"required": true,
"secret": false
}
```

```
}  
]
```

## Deleting a Service Template

The DELETE request configuration is shown in the table below.

**Table 36-56 DELETE Request Configuration for Deleting a Service Template**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/{servicetemplateid}
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	DELETE

A sample of the response received is shown below.

```
{  
  "message": "Service template with id \"62\" deleted successfully."  
}
```

## Creating a Service Template in V2

This section provides the procedure to create a Service Template using REST APIs.

Follow the steps below to create a Service Template:

**1. Identify the Service Template type.**

Perform a GET operation on the URI - [https://<OMS\\_HOST>:<OMS\\_CONSOLE\\_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes/](https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes/). See, [Viewing all the Service Template Types](#).

The GET operation returns the list of Service Template types available to the Administrator. Note down the `serviceType` and `serviceTemplateTypeId` fields of the required Service Template.

**2. Obtain the metadata for the selected Service Template type.**

Perform a POST operation on the URI - [https://<OMS\\_HOST>:<OMS\\_CONSOLE\\_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/metadata/](https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/metadata/), using the `serviceType` and `serviceTemplateTypeId` fields from the previous step. See, [Viewing the Metadata Required for Creating a Service Template](#).

The POST operation returns a response containing information regarding service template characteristics and payloads. Note these fields as they are required to be set with values in the next step.

**3. Obtain the resource provider characteristics for the selected Service Template type.**

Perform a POST operation on the URI - [https://<OMS\\_HOST>:<OMS\\_CONSOLE\\_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/resourceproviders/](https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/resourceproviders/), by providing values for the metadata fields. See, [Viewing the Resource Provider Characteristics Required for Creating a Service Template](#).

The POST operation returns a response with `resourceProvider` look up characteristics. Note the details.

4. Obtain configuration details for the selected Service Template type.

Perform a POST operation on the URI - `https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/configurations`, by providing a payload with values for all the fields collected so far. See, [Viewing Configurations Required for Creating a Service Template](#).

The POST operation returns a response with a list of configurations for the Service Template. Note the details.

5. Create the Service Template.

Perform a POST operation on the URI - `https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates`, by providing a payload with values for all the fields collected so far. See, [Creating a Service Template](#).

The POST operation creates a Service Template with the configured values.

## Service Types for V2

This section describes the Service Types for the v2 framework.

**Table 36-57 Service Types Resource Data Model**

Field	Type	Description	Occurs
name	String	Display name of the collection resource.	1
type	String	Type of the collection resource.	1
totalResults	Integer	Total count of items.	1
cfwItems	List<ServiceType>	List of Service type.	
canonicalLink	URI	A GET against this URI refreshes the client representation of this resource.	1
selfLink	URI	Refers to the resource equivalent of the containing elements.	1

## Service Types REST API Examples for V2

This sections describes the REST APIs for the Service Types resource.

### Viewing Details of the Service Types

The GET request configuration to view details of the Service Types resource.

**Table 36-58 GET Request Configuration for Viewing Details of the Service Types**

Feature	Specification
URI	<code>https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetypes</code>
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json



**Table 36-58 (Cont.) GET Request Configuration for Viewing Details of the Service Types**

Feature	Specification
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "name": "Service Types",
  "type": "Service Types Collection",
  "totalResults": 3,
  "cfwItems": [
    {
      "name": "CFW_SAMPLEXAAS_REMOTESERVER_SERVICE",
      "displayName": "Cfw Sample RemoteServer XaaS",
      "serviceFamily": "CFW_SAMPLEXAAS_SERVICEFAMILY",
      "targetTypes": [
        "Cfw_XaaS_DB_Service"
      ]
    },
    {
      "name": "CFW_SAMPLEXAAS_SERVICE",
      "displayName": "Cfw Sample XaaS",
      "serviceFamily": "CFW_SAMPLEXAAS_SERVICEFAMILY",
      "targetTypes": [
        "Cfw_XaaS_DB_Service",
        "cfw_xaas_storage_service"
      ]
    },
    {
      "name": "CFW_SAMPLEXAAS_SERVICE_FOR_NOMEM",
      "displayName": "Cfw Sample XaaS - Other Service",
      "serviceFamily": "CFW_SAMPLEXAAS_SERVICEFAMILY",
      "targetTypes": [
        "Cfw_XaaS_DB_Service_for_nomem"
      ]
    }
  ],
  "canonicalLink": {
    "href":
      "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
      servicetypes"
  },
  "selfLink": {
    "href":
      "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
      servicetypes"
  }
}
```

## Service Requests for V2

This section describes the Service requests for the v2 framework.

**Table 36-59 Requests Collection Resource Data Model**

Field	Type	Description	Occurs
name	String	Display name of the collection resource.	1
type	String	Type of the collection resource.	1
hasMore	Boolean	Indicates whether there are more elements in the collection.	1
count	Integer	Number of elements returned.	1
cfwItems	Collection <Request>	List of Request resources. In case no requests exist, then items are empty.	1
totalResults	Integer	Total number of Requests.	1
canonicalLink	URI	A GET against this URI refreshes the client representation of this resource.	1
selfLink	URI	Refers to the resource equivalent of the containing elements.	1

## Supported Operations

The table below provides the operations supported on the Service request resource.

**Table 36-60 Supported Methods for Service Request**

Request Method	Canonical Link	Description
GET	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicerequests	Returns list of all Service Requests.
GET	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicerequests/{servicerequestis}	Returns details of a specified Service Request.
PUT	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicerequests/{servicerequestid}	Reschedules the specified Service Request.
PUT	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicerequests	Cleans a collection of requests.
DELETE	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicerequests/{servicerequestid}	Cancels the specified Service Request.

**Table 36-60 (Cont.) Supported Methods for Service Request**

Request Method	Canonical Link	Description
DELETE	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicerequests	Deletes a list of Service Requests.

## Service Requests REST API Examples for V2

This section describes the REST APIs for the Service requests resource. The following operations are explained:

- [Viewing Details of all the Service Requests](#)
- [Viewing Details of a Service Request](#)
- [Rescheduling a Service Request](#)
- [Clearing a Collection of Service Requests](#)
- [Cancelling a Service Request](#)
- [Deleting a List of Service Requests](#)

### Viewing Details of all the Service Requests

A GET operation is issued to view details of all the Service requests.

**Table 36-61 GET Request Configuration for Viewing Details of All the Service Requests**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicerequests
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
Status 200 OK
{
  name: "Service Requests"
  type: "Service Request"
  hasMore: false
  count: 1
  cfwItems: [
    {
      name: "Request1_21-Dec-13 17:37:34"
      id: 27
      startDate: "2013-12-22T01:37:34'Z'PDT"
      status: "SCHEDULED"
      canonicalLink:
```

```

"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
servicereques
ts/27"
} ]
totalCount: 1
canonicalLink: {
href:
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
servicereques
ts"
}
selfLink: {
ref:
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
servicereques
ts"
}}

```

## Viewing Details of a Service Request

A GET operation is issued to view details of a Service request.

**Table 36-62 GET Request Configuration for Viewing Details of a Service Request**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicerequests/27
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```

Status 200 OK
{
id: "27"
name: "Request1_21-Dec-13 17:37:34"
startDate: "2013-12-22T01:37:34'Z'PDT"
status: "SUCCESS"
serviceFamily:"CFW_SAMPLEXAAS_SERVICEFAMILY"
canonicalLink:
{
href:
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
servicereques
ts/27"
}
}

```

## Rescheduling a Service Request

A PUT operation is issued to reschedule a Service request.

**Table 36-63 PUT Request Configuration for Rescheduling a Service Request**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicerequests/27
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	{ "startDate": "2014-01-19T08:06:39ZPDT" }
Request method	PUT

A sample of the response received is shown below.

```
Status 200 OK
{
  "message": "Request 27 rescheduled successfully"
}
```

## Clearing a Collection of Service Requests

A PUT operation is issued to clear a collection of Service requests.

**Table 36-64 PUT Request Configuration for Clearing a Collection of Service Requests**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicerequests/
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	{ "action": "cleanup", "ids": [ "22,23" ] }
Request method	PUT

## Cancelling a Service Request

A DELETE operation is issued to cancel a Service request.

**Table 36-65 DELETE Request Configuration for Cancelling a Service Request**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicerequests/27

**Table 36-65 (Cont.) DELETE Request Configuration for Cancelling a Service Request**

Feature	Specification
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	DELETE

A sample of the response received is shown below.

```
Status 200 OK
{
  "message": "Request 27 cancelled successfully"
}
```

## Deleting a List of Service Requests

A DELETE operation is issued to clear a list of Service requests.

**Table 36-66 DELETE Request Configuration for Clearing Service Requests**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/ extws/cloudservices/admin/cfw/v2/servicerequests
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	{ "ids": [ "2", "4" ] }
Request method	DELETE

A sample of the response received is shown below.

```
{
  "message": "[\"Request 32 deleted successfully\", \"Request 31 deleted
  successfully\", \"Request
  30 deleted successfully\"]"
}
```

## Service Instances for V2

Service instance is a collection resource representing a user's view of all the accessible service instances.

The table below depicts the Service instance data model.

**Table 36-67 Service Instances Data Model**

Field	Type	Description	Occurs
name	String	Display name of the collection resource.	1
type	String	Type of the collection resource.	1
hasMore	Boolean	Indicates whether there are more elements in the collection.	1
count	Integer	Number of elements returned.	1
cfwItems	Collection <ServiceInstances>	List of Service instance resources. In case no Service instances exists, then the items are empty.	1
totalResults	Integer	Total number of Service instances.	1
canonicalLink	URI	A GET against this URI refreshes the client representation of this resource.	1
selfLink	URI	Refers to the resource equivalent of the containing elements.	1

## Supported Operations

The table below provides the operations supported on the Service Instance resource.

**Table 36-68 Supported Methods for Service Instance**

Request Method	Canonical Link	Description
GET	https:// <OMS_HOST>:<OMS_CONSOLE _PORT>/em/websvcs/restful/ extws/cloudservices/admin/cfw/v2/ serviceinstances	Returns all the Service Instances.
GET	https:// <OMS_HOST>:<OMS_CONSOLE _PORT>/em/websvcs/restful/ extws/cloudservices/admin/cfw/v2/ serviceinstances/ {serviceinstanceid}	Returns details of the specified Service Instance.
PUT	https:// <OMS_HOST>:<OMS_CONSOLE _PORT>/em/websvcs/restful/ extws/cloudservices/admin/cfw/v2/ serviceinstances/{instanceguid}/ start	Starts the specified Service Instance.
PUT	/em/websvcs/restful/extws/ cloudservices/admin/cfw/v2/ serviceinstances/{instanceguid}/ stop	Stops the specified Service Instance.
PUT	/em/websvcs/restful/extws/ cloudservices/admin/cfw/v2/ serviceinstances/{instanceguid}/ delete	Deletes the specified Service Instance.

**Table 36-68 (Cont.) Supported Methods for Service Instance**

Request Method	Canonical Link	Description
PUT	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances/start	Starts the list of Service Instances.
PUT	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances/stop	Stops the list of Service Instances.
PUT	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances/delete	Deletes the list of Service Instances.

## Service Instance REST API Examples for V2

This section describes the REST APIs for the Service instance resource. The following operations are explained:

- [Viewing Details of all the Service Instances](#)
- [Viewing Details of a Service Instance](#)
- [Starting a Service Instance](#)
- [Stopping a Service Instance](#)
- [Deleting a Service Instance](#)
- [Starting a list of Service Instances](#)
- [Stopping a list of Service Instances](#)
- [Deleting a list of Service Instances](#)

### Viewing Details of all the Service Instances

A GET operation is issued to view details of all the Service instances.

**Table 36-69 GET Request Configuration for Viewing Details of All the Service Instances**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET



A sample of the response received is shown below.

```
{
  selfLink:
  {
    href: "em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances"
  }
  CfwItems: [1]
  0: {
    guid: "92EB43C3F773F3DF3973C1005C54DC43"
    status: "SUCCESS"
    serviceType: "CFW_SAMPLEXAAS_SERVICE"
    serviceFamily: "CFW_SAMPLEXAAS_SERVICEFAMILY"
    name: "dfgdfddd"
    canonicalLink: {
      href:
      "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances/92EB43C3F773F3DF3973C1005C54DC43"
      rel: "Canonical"
    }
    templated: false
  }
  hasMore: false
  totalResults: 9
}
```

## Viewing Details of a Service Instance

A GET operation is issued to view details of a Service instance.

**Table 36-70 GET Request Configuration for Viewing Details of a Service Instance**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances/92EB43C3F773F3DF3973C1005C54DC43
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
Status 200 OK
{
  guid: "92EB43C3F773F3DF3973C1005C54DC43"
  serviceType: "CFW_SAMPLEXAAS_SERVICE"
  serviceFamily: "CFW_SAMPLEXAAS_SERVICEFAMILY"
  name: "dfgdfddd"
  canonicalLink: {
    href:
    "em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances/92EB43C3F773F3DF3973C1005C54DC43"
  }
}
```

## Starting a Service Instance

A PUT operation is issued to start a Service instance.

**Table 36-71 PUT Request Configuration for Starting a Service Instance**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances/{instanceguid}/start
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	PUT

A sample of the response received is shown below.

```
[
  "Request submitted with Request ID : 43"
]
```

## Stopping a Service Instance

A PUT operation is issued to stop a Service instance.

**Table 36-72 PUT Request Configuration for Stopping a Service Instance**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances/{instanceguid}/stop
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	PUT

A sample of the response received is shown below.

```
[
  "Request submitted with Request ID : 44"
]
```

## Deleting a Service Instance

A PUT operation is issued to delete a Service instance.

**Table 36-73 PUT Request Configuration for Deleting a Service Instance**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances/{instanceguid}/delete

**Table 36-73 (Cont.) PUT Request Configuration for Deleting a Service Instance**

Feature	Specification
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	PUT

A sample of the response received is shown below.

```
[
"Request submitted with Request ID : 45"
]
```

## Starting a list of Service Instances

A PUT operation is issued to start a list of Service instances.

**Table 36-74 PUT Request Configuration for Starting a list of Service Instances**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/ extws/cloudservices/admin/cfw/v2/serviceinstances/start
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	{ "ids": [ "20E46B615DC70027F76A86FEDAC06D17", "8EAF6A882337F154A1B6D890AF00999B", "637B0CE930E36BE5EFFF306BE3E57EFA" ] }
Request method	PUT

A sample of the response received is shown below.

```
[
"Request submitted with Request ID : 34",
"Request submitted with Request ID : 35",
"Request submitted with Request ID : 36"
]
```

## Stopping a list of Service Instances

A PUT operation is issued to stop a list of Service instances.

**Table 36-75 PUT Request Configuration for Stopping a list of Service Instances**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances/stop
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	{ "ids": [ "20E46B615DC70027F76A86FEDAC06D17", "8EAF6A882337F154A1B6D890AF00999B", "637B0CE930E36BE5EFFF306BE3E57EFA" ] }
Request method	PUT

A sample of the response received is shown below.

```
[
  "Request submitted with Request ID : 37",
  "Request submitted with Request ID : 38",
  "Request submitted with Request ID : 39"
]
```

## Deleting a list of Service Instances

A PUT operation is issued to delete a list of Service instances.

**Table 36-76 PUT Request Configuration for Deleting a Service Instance**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances/delete
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	{ "ids": [ "20E46B615DC70027F76A86FEDAC06D17", "8EAF6A882337F154A1B6D890AF00999B", "637B0CE930E36BE5EFFF306BE3E57EFA" ] }
Request method	PUT

A sample of the response received is shown below.

```
[
  "Request submitted with Request ID : 40",
  "Request submitted with Request ID : 41",
  "Request submitted with Request ID : 42"
]
```

## Request Settings for V2

Settings are to be applied by an SSA administrator, and can be used for request processing. Settings are categorized as follows:

- Global settings - These are the general settings that are applicable across all service types.
- Service family settings - These settings are specific to a service family.
- Service type settings - These settings are specific to a service type.

## Request Settings Data Model

The table below shows the Request Settings data model.

**Table 36-77 Request Settings Data Model**

Field	Type	Description	Occurs
requestSettings	RequestSettings	Request settings applicable across all service types.	1
swLibDefaultLocation	String	Default location for the software library.	1
canonicalLink	URI	A GET against this URI refreshes the client representation of this resource.	1
selfLink	URI	Refers to the resource equivalent of the containing elements.	1

## Request Settings Composite Attribute Data Model

The table below shows the Request settings composite attribute data model.

**Table 36-78 Request Settings Composite Attribute Data Model**

Field	Type	Description	Occurs
futureReservationPolicy	RequestPolicy	The number of days, when a Self Service user can schedule a request in advance.	1
requestDurationPolicy	RequestPolicy	The maximum duration of time (in days) during which a Self Service user can retain a service instance.	1
RequestArchivePolicy	RequestPolicy	The duration of time (in days) after which the "Completed", Self Service create requests will be purged from the repository.	1

## Request Settings REST API Examples for V2

This sections describes the REST APIs for the Request settings resource. The following operations are explained:

- [Viewing Details of the Global Request Settings](#)
- [Updating the Global Request Settings](#)

- Viewing Details of the Global Request Settings for a Collection of Roles
- Creating Global Request Settings for a Role
- Viewing Details of Global Request Settings for a Specific Role
- Updating Global Request Settings for a Specific Role
- Deleting Global Request Settings for a Specific Role
- Viewing Details of the Request Settings for a Service Family
- Updating the Request Settings for a Service Family
- Viewing Details of the Service Family Settings by Roles
- Creating Service Family Settings for a Role
- Viewing Details of the Service Family Request Settings for a Specific Role
- Updating the Service Family Request Settings for a Specific Role
- Deleting Service Family Request Settings for a Specific Role
- Viewing Details of the Request Settings for a Service Type
- Updating the Request Settings for a Service Type
- Viewing Details of the Service Type Settings by Roles
- Creating Service Type Settings for Roles
- Viewing Details of the Service Type Request Settings for a Specific Role
- Updating the Service Type Request Settings for a Specific Role
- Deleting Service Type Request Settings for a Specific Role

## Viewing Details of the Global Request Settings

A GET operation is issued to view details of the Global request settings resource.

**Table 36-79 GET Request Configuration for Viewing Details of the Global Request Settings Resource**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/global
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "requestSettings": [
    {
      "description": "This setting controls how far a user can make a request",
      "displayName": "Future Reservation Length",
      "name": "FUTURE_RESERVATION_LENGTH",
      "restrictionPolicy": "No Restriction"
    },
  ],
}
```

```

"description": "This setting controls the maximum duration for which a user can make a
request",
"displayName": "Request duration Length",
"name": "REQUEST_DURATION_LENGTH",
"restrictionPolicy": "No Restriction"
},
{
"description": "This setting controls the maximum duration after which archived requests
will be automatically deleted by the system",
"displayName": "Request Archive Retention Length",
"name": "REQUEST_ARCHIVE_RETENTION_LENGTH",
"restrictionPolicy": "No Restriction"
},
{
"description": "Sharing enabled/disabled",
"name": "SERVICE_INSTANCE_USER_SHARE_ALLOWED",
"value": "false"
},
{
"description": "Sharing enabled/disabled",
"name": "SERVICE_INSTANCE_ROLE_SHARE_ALLOWED",
"value": "false"
}
]
}

```

## Updating the Global Request Settings

A PUT operation is issued to update the Global request settings resource.

**Table 36-80 PUT Request Configuration for Updating the Global Request Settings Resource**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/global
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	{ "name": "FUTURE_RESERVATION_LENGTH", "restrictionPolicy": "Restricted", "unitOfMeasurement": "Weeks", "value": "4" }
Request method	PUT

A sample of the response received is shown below.

```

{
"message": "\"Global\" settings updated successfully."
}

```

## Viewing Details of the Global Request Settings for a Collection of Roles

A GET operation is issued to view details of the Global request settings for a collection of roles.

**Table 36-81 GET Request Configuration for Viewing Details of the Global Request Settings for a Collection of Roles**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/global/roles
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "items": [
    {
      "href":
      "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/
      requestsettings/
      global/roles/SSA01",
      "name": "SSA01"
    },
    {
      "href":
      "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/
      requestsettings/
      global/roles/SSA05",
      "name": "SSA05"
    }
  ],
  "totalResults": 2
}
```

## Creating Global Request Settings for a Role

A POST operation is issued to create Global request settings for a role.

**Table 36-82 POST Request Configuration for Creating Global Request Settings for a Role**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/global/roles
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json



**Table 36-82 (Cont.) POST Request Configuration for Creating Global Request Settings for a Role**

Feature	Specification
Body	<pre>{   "SERVICE_INSTANCE_USER_SHARE_ALLOWED": {     "value": "true"   },   "requestSettings": [     {       "name": "REQUEST_DURATION_LENGTH",       "restrictionPolicy": "Restricted",       "unitOfMeasurement": "Weeks",       "value": "4"     },     {       "name": "REQUEST_ARCHIVE_RETENTION_LENGTH",       "restrictionPolicy": "Restricted",       "unitOfMeasurement": "Hours",       "value": "23"     },     {       "name": "FUTURE_RESERVATION_LENGTH",       "restrictionPolicy": "Restricted",       "unitOfMeasurement": "Days",       "value": "21"     }   ],   "role": "TVMCFW_R1" }</pre>
Request method	POST

A sample of the response received is shown below.

```
{
  "message": "\"Global role \" settings created successfully."
}
```

## Viewing Details of Global Request Settings for a Specific Role

A GET operation is issued to view details of Global request settings for a specific role.

**Table 36-83 GET Request Configuration for Viewing Details of Global Request Settings for a Specific Role**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/global/roles/{role}
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "requestSettings": [
    {
      "description": "This setting controls how far a user can make a request",
      "displayName": "Future Reservation Length",
      "name": "FUTURE_RESERVATION_LENGTH",
      "restrictionPolicy": "Restricted",
      "role": "TVMCFW_R1",
      "unitOfMeasurement": "Days",
      "value": "21"
    },
    {
      "description": "This setting controls the maximum duration for which a user can make a request",
      "displayName": "Request duration Length",
      "name": "REQUEST_DURATION_LENGTH",
      "restrictionPolicy": "Restricted",
      "role": "TVMCFW_R1",
      "unitOfMeasurement": "Weeks",
      "value": "4"
    },
    {
      "description": "This setting controls the maximum duration after which archived requests will be automatically deleted by the system",
      "displayName": "Request Archive Retention Length",
      "name": "REQUEST_ARCHIVE_RETENTION_LENGTH",
      "restrictionPolicy": "Restricted",
      "role": "TVMCFW_R1",
      "unitOfMeasurement": "Hours",
      "value": "23"
    },
    {
      "description": "Sharing enabled/disabled",
      "name": "SERVICE_INSTANCE_USER_SHARE_ALLOWED",
      "value": "true"
    },
    {
      "description": "Sharing enabled/disabled",
      "name": "SERVICE_INSTANCE_ROLE_SHARE_ALLOWED",
      "value": "true"
    }
  ]
}
```

## Updating Global Request Settings for a Specific Role

A PUT operation is issued to update the Global request settings for a specific role.

**Table 36-84 PUT Request Configuration for Updating Global Request Settings for a Specific Role**

Feature	Specification
URI	<a href="https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/global/roles/{role}">https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/global/roles/{role}</a>
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json

**Table 36-84 (Cont.) PUT Request Configuration for Updating Global Request Settings for a Specific Role**

Feature	Specification
Body	<pre>{   "name": "FUTURE_RESERVATION_LENGTH",   "restrictionPolicy": "Restricted",   "unitOfMeasurement": "Years",   "value": "75" }</pre>
Request method	PUT

A sample of the response received is shown below.

```
{
  "message": "\"Global role \" settings updated successfully."
}
```

## Deleting Global Request Settings for a Specific Role

A DELETE operation is issued to delete Global request settings for a specific role.

**Table 36-85 DELETE Request Configuration for Deleting Global Request Settings for a Specific Role**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/global/roles/{role}
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	DELETE

A sample of the response received is shown below.

```
{
  "message": "\"Global role \" settings deleted successfully."
}
```

## Viewing Details of the Request Settings for a Service Family

A GET operation is issued to view details of the Request Settings for a service family.

**Table 36-86 GET Request Configuration for Viewing Details of the Request Settings for a Service Family**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/servicefamily/{servicefamily}

**Table 36-86 (Cont.) GET Request Configuration for Viewing Details of the Request Settings for a Service Family**

Feature	Specification
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "requestSettings": [
    {
      "description": "This setting controls how far a user can make a request",
      "displayName": "Future Reservation Length",
      "family": "cfw_samplexaas_servicefamily",
      "name": "FUTURE_RESERVATION_LENGTH",
      "restrictionPolicy": "Restricted",
      "unitOfMeasurement": "Days",
      "value": "25"
    },
    {
      "description": "This setting controls if there is a restriction on the maximum duration
      for which requests can be made",
      "displayName": "Request Duration Restricted",
      "family": "cfw_samplexaas_servicefamily",
      "name": "REQUEST_DURATION_LENGTH",
      "restrictionPolicy": "No Restriction"
    },
    {
      "description": "This setting controls if there is a restriction on the maximum duration
      after which archived requests will be automatically deleted by the system",
      "displayName": "Request Archive Retention Restricted",
      "family": "cfw_samplexaas_servicefamily",
      "name": "REQUEST_ARCHIVE_RETENTION_LENGTH",
      "restrictionPolicy": "No Restriction"
    },
    {
      "displayName": "Service Instance Sharing With Users Restricted",
      "family": "cfw_samplexaas_servicefamily",
      "name": "SERVICE_INSTANCE_USER_SHARE_ALLOWED",
      "value": "false"
    },
    {
      "displayName": "Service Instance Sharing With Roles Restricted",
      "family": "cfw_samplexaas_servicefamily",
      "name": "SERVICE_INSTANCE_ROLE_SHARE_ALLOWED",
      "value": "false"
    }
  ]
}
```

## Updating the Request Settings for a Service Family

A PUT operation is issued to update the Request Settings for a Service family.

**Table 36-87 PUT Request Configuration for Updating the Request Settings for a Service Family**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/servicefamily/{servicefamily}
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	{ "name": "FUTURE_RESERVATION_LENGTH", "restrictionPolicy": "Restricted", "unitOfMeasurement": "Weeks", "value": "4" }
Request method	PUT

A sample of the response received is shown below.

```
{
  "message": "\"Family \" settings updated successfully."
}
```

## Viewing Details of the Service Family Settings by Roles

A GET operation is issued to view details of the Service family settings by roles.

**Table 36-88 GET Request Configuration for Viewing Details of the Service Family Settings by Roles**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/servicefamily/{servicefamily}/roles
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "items": [
    {
      "href":
        "https://xx.idc.example.com:34518/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
        setup/r
        equestsettings/servicefamily/cfw_samplexaas_servicefamily/roles/TVMCFW_R2",
      "name": "TVMCFW_R2"
    }
  ],
}
```

```
"totalResults": 1
}
```

## Creating Service Family Settings for a Role

A POST operation is issued to create Service family settings for a role.

**Table 36-89 POST Request Configuration for Creating Service Family Settings for a Role**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/servicefamily/{servicefamily}/roles
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	<pre>{   "SERVICE_INSTANCE_USER_SHARE_ALLOWED": {     "value": "true"   },   "requestSettings": [     {       "name": "REQUEST_DURATION_LENGTH",       "restrictionPolicy": "Restricted",       "unitOfMeasurement": "Weeks",       "value": "14"     },     {       "name": "REQUEST_ARCHIVE_RETENTION_LENGTH",       "restrictionPolicy": "Restricted",       "unitOfMeasurement": "Hours",       "value": "123"     },     {       "name": "FUTURE_RESERVATION_LENGTH",       "restrictionPolicy": "Restricted",       "unitOfMeasurement": "Days",       "value": "121"     }   ],   "role": "TVMCFW_R2" }</pre>
Request method	POST

A sample of the response received is shown below.

```
{
  "message": "\"Family role \" settings created successfully."
}
```

## Viewing Details of the Service Family Request Settings for a Specific Role

A GET operation is issued to view details of the Service family request settings for a specific role.

**Table 36-90 GET Request Configuration for Viewing Details of the Service Family Request Settings for a Specific Role**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/servicefamily/{servicefamily}/roles/{role}
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "requestSettings": [
    {
      "description": "This setting controls how far a user can make a request",
      "displayName": "Future Reservation Length",
      "family": "cfw_samplexaas_servicefamily",
      "name": "FUTURE_RESERVATION_LENGTH",
      "restrictionPolicy": "Restricted",
      "role": "TVMCFW_R2",
      "unitOfMeasurement": "Days",
      "value": "121"
    },
    {
      "description": "This setting controls the maximum duration for which a user can make a request",
      "displayName": "Request duration Length",
      "family": "cfw_samplexaas_servicefamily",
      "name": "REQUEST_DURATION_LENGTH",
      "restrictionPolicy": "Restricted",
      "role": "TVMCFW_R2",
      "unitOfMeasurement": "Weeks",
      "value": "14"
    },
    {
      "description": "This setting controls the maximum duration after which archived requests will be automatically deleted by the system",
      "displayName": "Request Archive Retention Length",
      "family": "cfw_samplexaas_servicefamily",
      "name": "REQUEST_ARCHIVE_RETENTION_LENGTH",
      "restrictionPolicy": "Restricted",
      "role": "TVMCFW_R2",
      "unitOfMeasurement": "Hours",
      "value": "123"
    },
    {
      "description": "Sharing enabled/disabled",
      "name": "SERVICE_INSTANCE_USER_SHARE_ALLOWED",
      "value": "false"
    },
    {
      "description": "Sharing enabled/disabled",
      "name": "SERVICE_INSTANCE_ROLE_SHARE_ALLOWED",
      "value": "false"
    }
  ]
}
```

```

]
}

```

## Updating the Service Family Request Settings for a Specific Role

A PUT operation is issued to update the Service family request settings for a specific role.

**Table 36-91 PUT Request Configuration for Updating the Service Family Request Settings for a Specific Role**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/servicefamily/{servicefamily}/roles/{role}
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	{ "name": "FUTURE_RESERVATION_LENGTH", "restrictionPolicy": "Restricted", "unitOfMeasurement": "Years", "value": "75" }
Request method	PUT

A sample of the response received is shown below.

```

{
  "message": "\"Family role\" settings updated successfully."
}

```

## Deleting Service Family Request Settings for a Specific Role

A DELETE operation is issued to delete Service family request settings for a specific role.

**Table 36-92 DELETE Request Configuration for Deleting Service Family Request Settings for a Specific Role**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/servicefamily/{servicefamily}/roles/{role}
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	DELETE

A sample of the response received is shown below.

```

{
  "message": "\"Family role \" settings deleted successfully."
}

```



## Viewing Details of the Request Settings for a Service Type

A GET operation is issued to view details of the Request settings for a service type.

**Table 36-93 GET Request Configuration for Viewing Details of the Request Settings for a Service Type**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/servicetype/{servicetype}
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "requestSettings": [
    {
      "description": "This setting controls if there is a restriction on how far a user can
make a request",
      "displayName": "Future Reservation Restricted",
      "name": "FUTURE_RESERVATION_LENGTH",
      "restrictionPolicy": "No Restriction",
      "serviceType": "cfw_samplexaas_service"
    },
    {
      "description": "This setting controls if there is a restriction on the maximum duration
for which requests can be made",
      "displayName": "Request Duration Restricted",
      "name": "REQUEST_DURATION_LENGTH",
      "restrictionPolicy": "No Restriction",
      "serviceType": "cfw_samplexaas_service"
    },
    {
      "description": "This setting controls if there is a restriction on the maximum duration
after which archived requests will be automatically deleted by the system",
      "displayName": "Request Archive Retention Restricted",
      "name": "REQUEST_ARCHIVE_RETENTION_LENGTH",
      "restrictionPolicy": "No Restriction",
      "serviceType": "cfw_samplexaas_service"
    },
    {
      "displayName": "Service Instance Sharing With Users Restricted",
      "name": "SERVICE_INSTANCE_USER_SHARE_ALLOWED",
      "serviceType": "cfw_samplexaas_service",
      "value": "false"
    },
    {
      "displayName": "Service Instance Sharing With Roles Restricted",
      "name": "SERVICE_INSTANCE_ROLE_SHARE_ALLOWED",
      "serviceType": "cfw_samplexaas_service",
      "value": "false"
    }
  ]
}
```

```

]
}

```

## Updating the Request Settings for a Service Type

A PUT operation is issued to update the Request settings for a service type.

**Table 36-94 PUT Request Configuration for Updating the Request Settings for a Service Type**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/servicetype/{servicetype}
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	<pre> {   "name": "FUTURE_RESERVATION_LENGTH",   "restrictionPolicy": "Restricted",   "unitOfMeasurement": "Weeks",   "value": "4" } </pre>
Request method	PUT

A sample of the response received is shown below.

```

{
  "message": "\"Servicetype \" settings updated successfully."
}

```

## Viewing Details of the Service Type Settings by Roles

A GET operation is issued to view details of the Service type settings by roles.

**Table 36-95 GET Request Configuration for Viewing Details of the Service Type Settings by Roles**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/servicetype/{servicetype}/roles
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```

{
  "items": [
    {
      "href":

```

```
"https://xx.idc.example.com:34518/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
setup/r
equestsettings/servicetype/cfw_samplexaas_service/roles/TVMCFW_R3",
"name": "TVMCFW_R3"
}
],
"totalResults": 1
}
```

## Creating Service Type Settings for Roles

A POST operation is issued to create a Service type settings for roles.

**Table 36-96 POST Request Configuration for Creating Service Type Settings for Roles**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/servicetype/{servicetype}/roles
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	<pre>{ "SERVICE_INSTANCE_USER_SHARE_ALLOWED": { "value": "true" }, "requestSettings": [ { "name": "REQUEST_DURATION_LENGTH", "restrictionPolicy": "Restricted", "unitOfMeasurement": "Weeks", "value": "14" }, { "name": "REQUEST_ARCHIVE_RETENTION_LENGTH", "restrictionPolicy": "Restricted", "unitOfMeasurement": "Hours", "value": "123" }, { "name": "FUTURE_RESERVATION_LENGTH", "restrictionPolicy": "Restricted", "unitOfMeasurement": "Days", "value": "121" } ], "role": "TVMCFW_R3" }</pre>
Request method	POST

A sample of the response received is shown below.

```
{
"message": "\"Servicetype role \" settings created successfully."
}
```

## Viewing Details of the Service Type Request Settings for a Specific Role

A GET operation is issued to view details of the Service type request settings for a specific role.

**Table 36-97 GET Request Configuration for Viewing Details of the Service Type Request Settings for a Specific Role**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/servicetype/{servicetype}/roles/{role}
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "requestSettings": [
    {
      "description": "This setting controls how far a user can make a request",
      "displayName": "Future Reservation Length",
      "name": "FUTURE_RESERVATION_LENGTH",
      "restrictionPolicy": "Restricted",
      "role": "TVMCFW_R3",
      "serviceType": "cfw_samplexaas_service",
      "unitOfMeasurement": "Days",
      "value": "121"
    },
    {
      "description": "This setting controls the maximum duration for which a user can make a request",
      "displayName": "Request duration Length",
      "name": "REQUEST_DURATION_LENGTH",
      "restrictionPolicy": "Restricted",
      "role": "TVMCFW_R3",
      "serviceType": "cfw_samplexaas_service",
      "unitOfMeasurement": "Weeks",
      "value": "14"
    },
    {
      "description": "This setting controls the maximum duration after which archived requests will be automatically deleted by the system",
      "displayName": "Request Archive Retention Length",
      "name": "REQUEST_ARCHIVE_RETENTION_LENGTH",
      "restrictionPolicy": "Restricted",
      "role": "TVMCFW_R3",
      "serviceType": "cfw_samplexaas_service",
      "unitOfMeasurement": "Hours",
      "value": "123"
    },
    {
      "description": "Sharing enabled/disabled",
      "name": "SERVICE_INSTANCE_USER_SHARE_ALLOWED",
      "value": "false"
    }
  ]
}
```

```

},
{
  "description": "Sharing enabled/disabled",
  "name": "SERVICE_INSTANCE_ROLE_SHARE_ALLOWED",
  "value": "false"
}
]
}

```

## Updating the Service Type Request Settings for a Specific Role

A PUT operation is issued to update the Service type request settings for a specific role.

**Table 36-98 PUT Request Configuration for Updating the Service Type Request Settings for a Specific Role**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/servicetype/{servicetype}/roles/{role}
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	<pre> {   "name": "FUTURE_RESERVATION_LENGTH",   "restrictionPolicy": "Restricted",   "unitOfMeasurement": "Years",   "value": "75" } </pre>
Request method	PUT

A sample of the response received is shown below.

```

{
  "message": "\"Servicetype role \" settings updated successfully."
}

```

## Deleting Service Type Request Settings for a Specific Role

A DELETE operation is issued to delete Service type request settings for a specific role.

**Table 36-99 DELETE Request Configuration for Deleting Service Type Request Settings for a Specific Role**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/servicetype/{servicetype}/roles/{role}
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	DELETE

A sample of the response received is shown below.

```
{
  "message": "\"Servicetype role \" settings deleted successfully."
}
```

## VM Adapters for V2

This section explains the VM Adapters REST APIs.

### VM Adapters Data Model

The table below shows the VM Adapters data model.

**Table 36-100 VM Adapters Data Model**

Field	Type	Description
name	String	Name of the resource.
type	String	Type of the resource.
totalResults	int	The total results.
items	List<VMAdapter>	The list of VM Adapters
canonicalLink	CfwLink	A GET request against this URI refreshes the client representation of this resource.
selfLink	CfwLink	Refers to the resource equivalent to the containing elements.

### Supported Operations

The table below provides the operations supported on the VM Adapters resource.

**Table 36-101 Supported Methods for VM Adapters**

Request Method	Canonical Link	Description
GET	/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/vmapters	Returns all the registered VM Adapters.
GET	/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/vmapters/{name}	Returns the registered VM Adapter's details.
GET	/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/vmapters/stagingservers	Returns the staging servers.
POST	/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/vmapters/stagingservers	Creates a staging server.

## VM Adapters REST API Examples for V2

This sections describes the REST APIs for the VM Adapter resource. The following operations are explained:

- [Viewing Details of All the Registered VM Adapters](#)
- [Viewing Details of a Specific Registered VM Adapter](#)
- [Viewing Details of the Staging Servers](#)
- [Creating a Staging Server](#)

### Viewing Details of All the Registered VM Adapters

A GET operation is issued to view details of all the registered VM Adapters.

**Table 36-102 GET Request Configuration for Viewing Details of All the Registered VM Adapters**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/vmadapters
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{ "name": "VMAdapters",
  "type": "VMAdaptersCollection",
  "totalResults": 1,
  "items": [ { "id": "1",
    "name": "SAMPLEADAPTER",
    "displayName": "SampleAdapter",
    "description": "SampleStand alone adapter",
    "instances": { "count": 0, "href": "https://cloudcompany.com/em/websvcs/restful//extws/cloudservices/admin/cfw/v2/resourceproviders?propertyname=adaptype&propertyvalue=SAMPLEADAPTER" },
    "canonicalLink": { "href": "https://cloudcompany.com/em/websvcs/restful//extws/cloudservices/admin/cfw/v2/vmadapters/SAMPLEADAPTER" } } ],
  "canonicalLink": { "href": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/vmadapters/" } }
```

### Viewing Details of a Specific Registered VM Adapter

A GET operation is issued to view details of a registered VM Adapter.

**Table 36-103 GET Request Configuration for Viewing Details of a Specific Registered VM Adapter**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/vmadapters/{name}
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{ "name": "SAMPLEADAPTER",
  "connection": { "endpoints": [ { "purpose": "login_url", "custom": [ { "name":
  "CloudType", "type": "STRING", "description": "CoudType, e.g. openstack, ec2, etc",
  "displayName": "CoudType", "required": false, "secret": false },
  { "name": "custom_param1", "type": "STRING", "description": "Custom parameter",
  "displayName": "Custom parameter", "required": false, "secret": false } ] } ],
  "virtualizationContainers": [ { "name": "Zone" } ] }, "proxies": [ { } ] }
```

## Viewing Details of the Staging Servers

A GET operation is issued to view details of the staging servers.

**Table 36-104 GET Request Configuration for Viewing Details of the Staging Servers**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/vmadapters/stagingservers
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{ "name" : "StagingServers", "totalResults" : 1, "items" : [ { "location" : "script/
location", "targetName" : "blr2223141.yourcompany.com",
"targetGuid" : "5BC2376B484BC065B6661458DAF1F56D", "credentialGuid" :
"25D30ADD427484310DBC8CF6211A383B" } ],
"canonicalLink" : { "href" : "https://cloudcompany.com/em/websvcs/restful/extws/
cloudservices/admin/cfw/v2/vmadapters/stagingservers" } }
```

## Creating a Staging Server

A POST operation is issued to create a staging server.



**Table 36-105 POST Request Configuration for Creating a Staging Server**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/vmadapters/stagingservers
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	{ "targetName" : "blr2223141.yourcompany.com", "location" : "script/location", "credentialGuid" : "25D30ADD427484310DBC8CF6211A383B" }
Request method	POST

A sample of the response received is shown below.

```
{ "message" : "StagingServer created successfully." }
```

## SSA Admin Resources for V1

The Cloud REST APIs can be categorized as follows:

- Collection Resources
  - [PaasZones for V1](#)
  - [SoftwarePools for V1](#)
  - [Service Template Management for V1](#)
- Singular Resources
  - [PaasZone for V1](#)
  - [SoftwarePool for V1](#)
  - [Service Template Management for V1](#)

Every singular resource has its own attributes and methods supported on it, but in general all singular resources have some common attributes, as described in the following table.

**Table 36-106 Common Resource Attributes for Singular Resources**

Field	Type	Supported Method	Description	Occurs
name	String	Any	Name of Resource	1
type	String	Any	Resource Type	1
description	String	Any	Description	0..1
id	String	GET	Resource Identifier	0..1
createdOn	TimeStamp	GET	Date and time, in W3C format when the resource was created.	0..1
createdBy	String	GET	User who created resource	0..1
modifiedOn	TimeStamp	GET	Date and time, in W3C format when the resource was last modified	0..1

**Table 36-106 (Cont.) Common Resource Attributes for Singular Resources**

Field	Type	Supported Method	Description	Occurs
ModifiedBy	Date	GET	User who last modified resource	0..1
owner	String	GET	User who owns resource	0..1
etag	String	GET	HTTP Entity tag value	0..1
lastModified	String	GET	HTTP Last-Modified value	0..1
canonicalLink	URI	GET	Preferred Version of Resource	1
selfLink	URI	GET	Refers to resource equivalent to the containing element	1

Where:

- Supported Method: Indicates in which method type this attribute will be available
- Supported Method type 'Any': Indicates that it might be available with GET, PUT, or POST methods, but not for DELETE.
- Occurs: An occurrence of 0..1 indicates it is an optional parameter. An occurrence of 1 means the parameter is mandatory.

## Viewing Details of the REST API Entry Point Resources

The table below shows the GET configuration for viewing details of the REST API resources.

**Table 36-107 GET Request Configuration for Viewing Details of the REST API Resources**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/API
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  v1:
  {
    canonicalLink:
    "https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1"
    paasZones: "https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/
    paaszones"
    softwarePools: "https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/
    softwarepools"
  }
}
```

## PaasZones for V1

PaasZones is a collection resource representing a Cloud Administrator's view of all the accessible PaasZone resources. The following table describes the PaaSZones [application/oracle.com.cloud.common.PaaSZones+json] data model.

**Table 36-108 PaasZones Data Model**

Field	Type	Description	Occurs
name	String	Display name of this collection resource	1
type	String	Type of this collection resource	1
hasMore	Boolean	Indicates whether there are more elements in the collection	1
count	Integer	Number of elements returned	1
items	Collection <PaasZone>	List of Paas Zone resources. In case no instance are there items will be present but empty	1
totalCount	Integer	Total number of Paas Zone resources	1
canonicalLink	URI	A GET against this URI refreshes the client representation of this resource.	1
selfLink	URI	Refers to the resource equivalent to the containing elements.	1

The following table describes the Supported Methods for PaaSZones:

**Table 36-109 Supported Methods for PaasZones**

Method	Query Parameters	Request Payload	URI	Description
GET	NA	NA	<i>em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/</i>	Returns PaasZones collection resource details
GET/metadata	NA	NA	<i>em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/metadata</i>	Returns PaasZone Metadata
PUT	NA	PaasZone (Json Payload)	<i>em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/</i>	Updates PaasZone resource
POST	NA	PaasZone (Json Payload)	<i>em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/</i>	Creates PaasZone resource

## PaasZones REST API Examples

The following sections provide example PaasZones REST API operations. Note that you can also use EMCLI commands to perform a range of different operations (including, create, update, and delete operations) and these commands are described in [EM CLI Verbs for SSA Operations for V2](#).

The following operations are covered in this section.

- [Viewing PaaS Zones Metadata](#)
- [Listing PaaS Zones](#)

### Viewing PaaS Zones Metadata

The table below shows the GET configuration for viewing the metadata.

**Table 36-110 GET Request Configuration for Viewing the Metadata**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/passzones/metadata
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
Status 200 OK
Content-Type: application/json
{
  "constraints" : [ {
    "name" : "MAX_CPU_UTILIZATION",
    "description" : "Maximum CPU Utilization (%)",
    "value" : "80"
  }, {
    "name" : "MAX_MEMORY_ALLOCATION",
    "description" : "Maximum Memory Allocation (%)",
    "value" : "80"
  } ],
  "memberTargetTypes" : [ "oracle_vm_zone", "host" ],
  "message" : "When creating Paas Infrastructure zone: (1) member_type should be set to one of the values shown in member target types. All Zone members have to be of the same type. (2) Please change the value of the constraints as required."
}
```

### Listing PaaS Zones

The table below shows the GET configuration for listing the PaaS zones.

**Table 36-111 GET Request Configuration for Viewing the PaaS Zones**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/passzones/
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
Status 200 OK
Content-Type: application/json
{
  "name" : "Paas Zones",
  "type" : "Paas Infrastructure Zone",
  "hasMore" : false,
  "count" : 4,
  "items" : [ {
    "name" : "pzone1",
    "id" : "A3CF2D49CFF3F3E664D073303EA51F8E",
    "type" : "self_service_zone",
    "canonicalLink" :
"https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/A3CF2D49CFF3F3E664D073303EA51F8E"
  }, {
    "name" : "Test Zone 2",
    "id" : "EF3830C71CC54B50B963376F9217AB95",
    "type" : "self_service_zone",
    "description" : "with MAX_CPU_UTILIZATION ",
    "canonicalLink" : "https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/EF3830C71CC54B50B963376F9217AB95"
  }, {
    "name" : "test paas zone",
    "id" : "5D7548C1B879A51CFD894CEA8D5FB19B",
    "type" : "self_service_zone",
    "canonicalLink" : "https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/5D7548C1B879A51CFD894CEA8D5FB19B"
  }, {
    "name" : "Test Zone",
    "id" : "CACBB07A674F280DF84FC4CBFA76DFA7",
    "type" : "self_service_zone",
    "description" : "with MAX_CPU_UTILIZATION ",
    "canonicalLink" : "https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/CACBB07A674F280DF84FC4CBFA76DFA7"
  } ],
  "totalCount" : 4,
  "canonicalLink" : "https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones",
  "selfLink" : "https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones"
}
```

## PaasZone for V1

This resource represents a PaaS Infrastructure Zone. The following table describes the PaaSZone [application/oracle.com.cloud.common.PaaSZone+json] data model.

**Table 36-112 PaaSZone Data Model**

Field	Type	Supported Methods	Description	Occurs
name	String	Any	A human readable name given to the PaaS Zone. It is non editable.	1
id	String	GET	Zone ID. GET method will have value for this element.	1
description	String	Any	A brief description given to the zone.	0..1
credential	String	Any	Global Named Credentials to be used for provisioning in this PaaS Infrastructure Zone	1
members	Collection<String>	GET POST	Members of PaaS Zone. They can be either Host members or Oracle VM Zone members.	1
memberType	String	GET POST	Target type of the members of PaaS Zone. It can be either "host" for Host members or "oracle_vm_zone" for Oracle VM Zone members.	1
constraints	Collection<EntityValue Holder>	Any	Placement Policy Constraints allow the cloud administrator to set maximum thresholds for any host. Refer to zone metadata REST API for more information.	0..1
roles	Collection<String>	GET POST	SSA roles that can access this PaaS Infrastructure Zone.	0..1
pools	Collection<SoftwarePool>	GET	Software Pools associated with this PaaS Zone	0..1
membersToAdd	Collection<String>	PUT	Host or Oracle VM Zone targets to be added to an existing PaaS Zone while editing it.	0..1
membersToRemove	Collection<String>	PUT	Host or Oracle VM Zone targets to be removed from an existing PaaS Zone while editing it.	0..1
rolesToAdd	Collection<String>	PUT	SSA roles to be added while editing a PaaS Zone	0..1
rolesToRemove	Collection<String>	PUT	SSA roles to be removed while editing a PaaS Zone.	0..1

Where:

- Supported Methods: Value 'Any' indicates GET/POST/PUT  
Depending on the Supported Methods column value, the respective attributes need to be specified in the Request Payload or are available in the Response Payload after the operation is complete.

For example, while executing a PUT operation, the name, description, credential, membersToAdd, membersToRemove, constraints, rolesToAdd, and rolesToRemove attributes can be specified in the Request payload.

- The constraints attribute is not defined for a PaaSZone when its memberType is oracle\_vm\_zone.
- The MAX\_CPU\_UTILIZATION and MAX\_MEMORY\_ALLOCATION are the two placement constraints supported for a PaaS Zone when the memberType is "host". If they are not provided, then their default value is taken to be 80 percent.

The following table describes the supported methods on the PaaSZone resource:

**Table 36-113 Supported Methods on PaaSZone Resources**

Method	Query Parameters	Request Payload	Response Payload	URI	Description
GET	Possible values for this optional query parameter: <ul style="list-style-type: none"> <li>• constraints</li> <li>• pools</li> <li>• members</li> <li>• roles</li> </ul>	NA	PaaSZone (Json Payload)	<i>em/websvcs/restful//extws/cloudservices/admin/cfw/v1/paaszones/{zoneId}</i>	Retrieve PaaS Infrastructure Zone details
DELETE	NA	NA	Status Message (json payload)	<i>em/websvcs/restful//extws/cloudservices/admin/cfw/v1/paaszones/{zoneId}</i>	Deletes a PaaS Infrastructure Zone

## PaaS Zone REST API Examples

The following sections provide example PaaS Zone REST API operations. Note that you can also use EMCLI commands to perform a range of different operations on a PaaS Zone (including, create, update, and delete) and these commands are described in [EM CLI Verbs for SSA Operations for V2](#).

The following operations are covered in this section.

- [Creating a PaaS Zone](#)
- [Updating a PaaS Zone](#)
- [Deleting a PaaS Zone](#)
- [Viewing Details of the PaaSZone](#)
- [Viewing the Expanded form of a PaaSZone](#)

### Creating a PaaS Zone

The table below shows the POST configuration for creating a PaaS zone.

**Table 36-114 POST Request Configuration for Creating a PaaS Zone**

Feature	Specification
URI	<i>https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/</i>

**Table 36-114 (Cont.) POST Request Configuration for Creating a PaaS Zone**

Feature	Specification
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	<pre>{   "name": "My Test Zone",   "description": "This is a TestZone",   "credential": "NCAIME",   "memberType": "host",   "members": [     "slc05gvt.us.example.com"   ],   "constraints": [     {       "name": "MAX_CPU_UTILIZATION",       "value": "85"     },     {       "name": "MAX_MEMORY_ALLOCATION",       "value": "95"     }   ],   "roles": [     "SSACOREROLE1",     "SSACOREROLE2"   ], }</pre>
Request method	POST

A sample of the response received is shown below.

```
Status 201 Created
Content-Type: application/json
{
  "name" : "My Test Zone",
  "description" : "This is a TestZone",
  "type" : "PaaS Infrastructure Zone",
  "id" : "DDBFEFDAD2AE6490E040F00AA37D4C67",
  "credential" : "NCAIME",
  "members" : {
    "canonicalLink" :
      "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/
      DDBFEFDAD2AE6490E040F00AA37D4C67/members",
    "memberType" : "host",
    "numberOfHostMembers" : "1"
  },
  "constraints" : {
    "canonicalLink" :
      "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/
      DDBFEFDAD2AE6490E040F00AA37D4C67/constraints",
    "numberOfConstraints" : "2"
  },
  "roles" : {
    "canonicalLink" :
      "https://cloudcompany.com.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/
```



```

paaszones/DDBFEFDAD2AE6490E040F00AA37D4C67/roles",
  "numberOfUserRoles" : "2"
},
"pools" : {
  "canonicalLink" :
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/
DDBFEFDAD2AE6490E040F00AA37D4C67/pools",
  "numberOfSoftwarePools" : "0"
},
"createdOn" : "2013-05-27 20:57:18",
"createdBy" : null,
"modifiedOn" : null,
"modifiedBy" : null,
"owner" : "SYSMAN",
"etag" : null,
"lastModified" : null,
"canonicalLink" :
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/
DDBFEFDAD2AE6490E040F00AA37D4C67",
  "selfLink" :
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/
DDBFEFDAD2AE6490E040F00AA37D4C67"
}

```

## Updating a PaaS Zone

The table below shows the PUT configuration for updating a PaaS zone.

**Table 36-115 PUT Request Configuration for Updating a PaaS Zone**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/passzones/
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json

**Table 36-115 (Cont.) PUT Request Configuration for Updating a PaaS Zone**

Feature	Specification
Body	<pre> {   "name": "My Test Zone",   "credential": "NCAIME2",   "description": "Description_01",   "membersToAdd": [     "somehost.com",     "someotherhost.com"   ],   "membersToRemove": [     "removehost.com",     "removeotherhost2.com"   ] },   "rolesToAdd": [     "ROLE_1",     "ROLE_2"   ],   "rolesToRemove": [     "ROLE_1_1",     "ROLE_2_1"   ],   "constraints": [     {       "name": "MAX_MEMORY_ALLOCATION",       "value": "80"     },     {       "name": "MAX_CPU_UTILIZATION",       "value": "80"     }   ] } </pre>
Request method	PUT

A sample of the response received is shown below.

```

Status 200 OK
Content-Type: application/json
{
  "message" : "PaaS Infrastructure Zone "My Test Zone" updated successfully."
}

```

## Deleting a PaaS Zone

The table below shows the DELETE configuration for deleting a PaaS zone.

**Table 36-116 DELETE Request Configuration for Deleting a PaaS Zone**

Feature	Specification
URI	<a href="https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/passzones/DDBFEFDAD2AE6490E040F00AA37D4C67">https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/passzones/DDBFEFDAD2AE6490E040F00AA37D4C67</a>

**Table 36-116 (Cont.) DELETE Request Configuration for Deleting a PaaS Zone**

Feature	Specification
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	DELETE

A sample of the response received is shown below.

```
Status 200 OK
Content-Type: application/json
{
  "message" : "PaaS Infrastructure Zone "DDBFEFDAD2AE6490E040F00AA37D4C67" deleted
successfully."
}
```

 **Note:**

A PaaS Infrastructure Zone cannot be deleted if there are Software Pools associated with it.

## Viewing Details of the PaasZone

The table below shows the GET configuration for viewing details of a PaaS zone.

**Table 36-117 GET Request Configuration for Viewing Details of a PaaS Zone**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/ extws/cloudservices/admin/cfw/v1/passzones/ A3CF2D49CFF3F3E664D073303EA51F8E
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

A sample of the response received is shown below.

```
Status 200 OK
Content-Type: application/json
{
  "name" : "pzone1",
  "description" : "This zone contains Host members",
  "type" : "PaaS Infrastructure Zone",
  "id" : "A3CF2D49CFF3F3E664D073303EA51F8E",
  "credential" : "SXAASJUNITHOSTCRED",
  "members" : {
    "canonicalLink" : "https://example.com/em/websvcs/restful/extws/cloudservices/  
admin/cfw/v1/paaszones/A3CF2D49CFF3F3E664D073303EA51F8E/members",
    "memberType" : "host",
    "numberOfHostMembers" : "2"
  }
}
```

```

    },
    "constraints" : {
      "canonicalLink" : "https://example.com/em/websvcs/restful/extws/cloudservices/
admin/cfw/v1/paaszones/A3CF2D49CFF3F3E664D073303EA51F8E/constraints",
      "numberOfConstraints" : "2"
    },
    },
    "roles" : {
      "canonicalLink" : "https://example.com/em/websvcs/restful/extws/cloudservices/
admin/cfw/v1/paaszones/A3CF2D49CFF3F3E664D073303EA51F8E/roles",
      "numberOfUserRoles" : "1"
    },
    },
    "pools" : {
      "canonicalLink" : "https://example.com/em/websvcs/restful/extws/cloudservices/
admin/cfw/v1/paaszones/A3CF2D49CFF3F3E664D073303EA51F8E/pools",
      "numberOfSoftwarePools" : "0"
    },
    },
    "createdOn" : "2013-05-22 01:50:30",
    "createdBy" : null,
    "modifiedOn" : null,
    "modifiedBy" : null,
    "owner" : "SYSMAN",
    "etag" : null,
    "lastModified" : null,
    "canonicalLink" : "https://example.com/em/websvcs/restful/extws/cloudservices/
admin/cfw/v1/paaszones/A3CF2D49CFF3F3E664D073303EA51F8E",
    "selfLink" : "https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/
paaszones/A3CF2D49CFF3F3E664D073303EA51F8E"
  }
}

```

## Viewing the Expanded form of a PaasZone

The get request supports expands query parameter. Based on this query parameter the relevant attribute for a PaasZone is expanded.

The following query parameters are supported:

- members
- role
- constraints
- pools

The table below shows the GET configuration for expanded view of a PaaS zone.

**Table 36-118 GET Request Configuration for an Expanded View of a PaaS Zone**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/passzones/{zone_id}/?expands=<param_name>
Request headers	Authorization: basic ZGVtb3VZXXI6ZGVtb3VZXXI=
Body	None
Request method	GET

A sample of the response received is shown below.

```

{
  "name" : "My Test Zone",
  "description" : "Description_02",
  "type" : "PaaS Infrastructure Zone",
  "id" : "DDBFEFDAD2AE6490E040F00AA37D4C67",
  "credential" : "C",
  "members" : {
    "canonicalLink" : "https://example.com/em/websvcs/restful/extws/cloudservices/
admin/cfw/v1/paaszones/DDBFEFDAD2AE6490E040F00AA37D4C67/members",
    "memberType" : "host",
    "numberOfHostMembers" : "1"
  },
  "constraints" : {
    "canonicalLink" : "https://example.com/em/websvcs/restful/extws/cloudservices/
admin/cfw/v1/paaszones/DDBFEFDAD2AE6490E040F00AA37D4C67/constraints",
    "items" : [ {
      "name" : "MAX_MEMORY_ALLOCATION",
      "value" : "25"
    }, {
      "name" : "MAX_CPU_UTILIZATION",
      "value" : "25"
    } ]
  },
  "roles" : {
    "canonicalLink" : "https://example.com/em/websvcs/restful/extws/cloudservices/
admin/cfw/v1/paaszones/DDBFEFDAD2AE6490E040F00AA37D4C67/roles",
    "numberOfUserRoles" : "0"
  },
  "pools" : {
    "canonicalLink" : "https://example.com/em/websvcs/restful/extws/cloudservices/
admin/cfw/v1/paaszones/DDBFEFDAD2AE6490E040F00AA37D4C67/pools",
    "numberOfSoftwarePools" : "0"
  },
  "createdOn" : "2013-05-27 20:57:18",
  "createdBy" : null,
  "modifiedOn" : null,
  "modifiedBy" : null,
  "owner" : "SYSMAN",
  "etag" : null,
  "lastModified" : null,
  "canonicalLink" : "https://example.com/em/websvcs/restful/extws/cloudservices/
admin/cfw/v1/paaszones/DDBFEFDAD2AE6490E040F00AA37D4C67",
  "selfLink" : "https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/
paaszones/DDBFEFDAD2AE6490E040F00AA37D4C67"
}

```

## SoftwarePools for V1

SoftwarePools is a collection resource representing an SSA Administrator's view of all the accessible SoftwarePool resources. The following table describes the SoftwarePools [application/oracle.com.cloud.common.SoftwarePools+json] data model.

**Table 36-119 SoftwarePools Data Model**

Field	Type	Description	Occurs
name	String	Display name of this collection resource	1
type	String	Type of this collection resource	1

**Table 36-119 (Cont.) SoftwarePools Data Model**

Field	Type	Description	Occurs
hasMore	Boolean	Indicates whether there are more elements in the collection	1
count	Integer	Number of elements returned	1
items	Collection <SoftwarePools>	The elements of this collection	1
totalCount	Integer	Total number of elements in the collection	1
canonicalLink	URI	A GET against this URI refreshes the client representation of this resource.	1
selfLink	URI	Refers to the resource equivalent to the containing elements.	1

The following table describes the supported methods on the SoftwarePools resource:

**Table 36-120 Supported Methods on SoftwarePools Resources**

Method	Query Parameters	Request Payload	URI	Description
GET	zonename pooltype	NA	<i>em/websvcs/restful/ extws/cloudservices/ admin/cfw/v1/ softwarepools/</i>	Returns the collection of existing Software Pools
PUT	NA	SoftwarePool(Json Payload)	<i>em/websvcs/restful/ extws/cloudservices/ admin/cfw/v1/ softwarepools/</i>	Updates an existing Software Pool resource.
POST	NA	SoftwarePool(Json Payload)	<i>em/websvcs/restful// extws/cloudservices/ admin/cfw/v1/ softwarepools/</i>	Creates a Software Pool

## Software Pools REST API Example

The following provides an example of a SoftwarePools REST API operation. Note that you can also use EMCLI commands to perform a range of different operations on Software Pools (including, create, update, and delete) and these commands are described in [EM CLI Verbs for SSA Operations for V2](#)

The following operations are covered in this section.

- [Viewing Details of the Software Pools](#)
- [Filtering Output based on Search Query Parameters](#)

### Viewing Details of the Software Pools

The table below shows the GET configuration for viewing details of the Software pools.

**Table 36-121 GET Request Configuration for Viewing Details of the Software Pools**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

A sample of the response received is shown below.

```
Status 200 OK
Content-Type: application/json
{
  name: "Software Pools"
  type: "Software Pool"
  hasMore: false
  count: 2
  items: [2]
  0: {
    name: "IT_MW_Pool_2"
    type: "mwaas_zone"
    id: "E284FAAA7FBA6A06F7090115A3E07299"
    zoneName: "IT_MW_Zone1"
    canonicalLink:
    "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/
    softwarepools/E284FAAA7FBA6A06F7090115A3E07299"
    description: "Middleware Pool of Oracle Homes of Version 10.3.5.0"
  }-
  1: {
    name: "IT_MW_Pool1"
    type: "mwaas_zone"
    id: "DD73A46E9E3C9866E040F00AE5235A7F"
    zoneName: "IT_MW_Zone1"
    canonicalLink:
    "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/
    softwarepools/DD73A46E9E3C9866E040F00AE5235A7F"
    description: "Middleware Pool of Oracle Homes"
  }-
  -
  totalCount: 2
  canonicalLink:
  "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/
  softwarepools/"
  selfLink:
  "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/
  softwarepools/"
}
```

## Filtering Output based on Search Query Parameters

Search on the Software Pools is supported on the following by the following query parameters:

- zonename
- pooltype

Single or multiple search parameters may be specified at once. Wildcard search is supported using '%' character.

The table below shows the GET configuration for filtering the Software pools.

**Table 36-122 GET Request Configuration for Filtering the Software Pools**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools?zonename=IT_MW%&pooltype=mwaas_zone
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

A sample of the response received is shown below.

```
Status 200 OK
Content-Type: application/json
{
  name: "Software Pools"
  type: "Software Pool"
  hasMore: false
  count: 1
  items: [1]
  0: {
    name: "IT_MW_Pool1"
    type: "mwaas_zone"
    id: "DD73A46E9E3C9866E040F00AE5235A7F"
    zoneName: "IT_MW_Zone1"
    canonicalLink:
      "https://cloudcompany/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/DD73A46E9E3C9866E040F00AE5235A7F"
    description: "Middleware Pool of Oracle Homes"
  }

  totalCount:1
  canonicalLink:
    "https:// cloudcompany/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/"
  selfLink:
    "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/"
}
```

## SoftwarePool for V1

A SoftwarePool resource represents a collection of homogeneous servers or clusters that are used to service requests within a PaaS Infrastructure Zone. All members within a SoftwarePool must be of the same type and must belong to the same PaaS Infrastructure Zone.

In addition, to maintain homogeneity, the members must satisfy a set of filter criteria that restrict the addition of members to a SoftwarePool. The following table describes the SoftwarePool [application/oracle.com.cloud.common.SoftwarePool+json] data model.



**Table 36-123 SoftwarePool Data Model**

Field	Type	Supported Methods	Description	Occurs
name	String	Any	A human readable name given to the Software Pool. It is non editable.	1
id	String	GET	Pool GUID that uniquely identifies the resource.	1
description	String	Any	A brief description given to the Software Pool.	0..1
poolTargetType	String	Any	Target type of the Software Pool to be created.Example : "mwaas_zone" for Middleware Pool, "oracle_cloud_zone" for Database Pool, "schaas_pool" for Schema Pool.	1
paasZone	String	GET POST	Name of the PaaS Zone associated with this Software Pool.	1
members	Collection<String>	GET POST	Members of PaaS Zone. They can be either Host members or Oracle VM Zone members.	1
constraints	Collection<EntityValue Holder>	Any	Placement constraints for a Software Pool that allow the self service administrator to set maximum ceilings for resource utilization.	0..1
filters	Collection < EntityValue Holder >	GET POST	Filters on a Software Pool restrict the addition of member targets to it with a set criteria.	1
properties	Collection<EntityValue Holder >	Any	Additional properties that need to be specified for a specific pool target type.	1
membersToAdd	Collection<String>	PUT	Targets to be added to an existing Software Pool while editing it.	0..1
membersToRemove	Collection<String>	PUT	Targets to be removed from an existing Software Pool while editing it.	0..1
canonicalLink	URI	GET	A GET against this URI refreshes the client representation of this resource.	1

**Note:**

Supported methods value 'Any' indicates GET/POST/PUT .

The following table describes the Supported Methods for Software Pool resources:

**Table 36-124 Supported Methods on Software Pool Resources**

Method	Query Parameters	Request Payload	Response Payload	URI	Description
GET	param-name : expandsparam- value : members/ filters/ constraints/all Expands a particular attribute to show its data. "all" expands all the attributes.	NA	SoftwarePool (Json Payload)	<code>https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepool/{poolId}</code>	Retrieves the Software Pool details
DELETE	NA	NA	Status Message (json payload)	<code>https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepool/{poolId}</code>	Deletes a Software Pool

## SoftwarePool REST API Examples

The following sections provide example SoftwarePool REST API operations. Note that you can also use EMCLI commands to perform a range of different operations on a Software Pool (including, create, update, and delete operations) and these commands are described in [EM CLI Verbs for SSA Operations for V2](#).

The following operations are covered in this section.

- [Creating a Software Pool](#)
- [Updating a Software Pool](#)
- [Deleting a Software Pool](#)
- [Viewing Details of the Software Pool](#)
- [Expands Query Parameter](#)

## Creating a Software Pool

A POST operation is issued on Software Pools Collection resource to create a Software Pool.

The table below shows the POST configuration for creating a Software pool.

**Table 36-125 POST Request Configuration for Creating a Software Pool**

Feature	Specification
URI	<code>https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools</code>

**Table 36-125 (Cont.) POST Request Configuration for Creating a Software Pool**

Feature	Specification
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	<pre>{   "name": "IT_MW_Pool1",   "poolTargetType": "mwaas_zone",   "description": "Middleware Pool of Oracle Homes",   "paasZone": "IT_MW_Zone1",   "members":     ["WebLogicServer10_3_6_0_slc0lafx_6775", "WebLogicServer10_3_     6_0_adc2201439_4731"],   "constraints":     {"items": [{"name": "MAX_INSTANCES", "value":     "10"}]},   "filters":     {"items": [{"name": "VERSION", "value":     "10.3.6.0"}]} }</pre>
Request method	POST

A sample of the response received is shown below.

```
Status 201 Created
Content-Type: application/json
{
  name: "IT_MW_Pool1"
  description: "Middleware Pool of Oracle Homes"
  type: "Middleware Pool"
  id: "687FE169ED3556CED38D11DC9BDD5CCD"
  zoneName: "IT_MW_Zone1"
  members: {
    canonicalLink:
      "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/
      softwarepools/687FE169ED3556CED38D11DC9BDD5CCD/members"
    numberOfPoolMembers: "2"
  }-
  constraints: {
    canonicalLink:
      "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/
      softwarepools/687FE169ED3556CED38D11DC9BDD5CCD/constraints"
    numberOfConstraints: "1"
  }-
  filters: {
    canonicalLink:
      "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/
      softwarepools/687FE169ED3556CED38D11DC9BDD5CCD/filters"
    numberOfFilters: "1"
  }-
  properties: {
    canonicalLink:
      "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/
      softwarepools/687FE169ED3556CED38D11DC9BDD5CCD/properties"
    numberOfPropertiess: "0"
  }-
  createdOn: "2013-05-24 00:26:42"
```

```

createdBy: null
modifiedOn: null
modifiedBy: null
owner: "CLOUD_ADMIN1"
etag: null
lastModified: null
canonicalLink:
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/
softwarepools/687FE169ED3556CED38D11DC9BDD5CCD"
selfLink:
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/
softwarepools/687FE169ED3556CED38D11DC9BDD5CCD"
}

```

## Updating a Software Pool

The table below shows the PUT configuration for updating a Software pool.

**Table 36-126 PUT Request Configuration for Updating a Software Pool**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	<pre> {   "name": "IT_MW_Pool1",   "poolTargetType": "mwaas_zone",   "description": "Middleware Pool of Oracle Homes Updated",   "membersToAdd":   ["WebLogicServer10_3_6_0_slc01afx_6776","WebLogicServer10_3_   6_0_adc2201439_4732"],   "constraints":     {"items": [{"name": "MAX_INSTANCES", "value":     "10"}]}, } </pre>
Request method	PUT

A sample of the response received is shown below.

```

Status 200 OK
Content-Type: application/json
{
  message: "Software Pool  " IT_MW_Pool1" updated successfully."
}

```

## Deleting a Software Pool

The table below shows the DELETE configuration for deleting a Software pool.

**Table 36-127 DELETE Request Configuration for Deleting a Software Pool**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/687FE169ED3556CED38D11DC9BDD5CCD
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	DELETE

A sample of the response received is shown below.

```
Status 200 OK
Content-Type: application/json
{
message: "Software Pool "687FE169ED3556CED38D11DC9BDD5CCD" deleted successfully."
}
```

**Note:**

Software Pool cannot be deleted if there are Service Templates associated with the Pool

## Viewing Details of the Software Pool

The table below shows the GET configuration for viewing details of a Software pool.

**Table 36-128 GET Request Configuration for Viewing Details of a Software Pool**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/687FE169ED3556CED38D11DC9BDD5CCD
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
Status 200 OK
Content-Type: application/json
{
name: "IT_MW_Pool1"
description: "Middleware Pool of Oracle Homes"
type: "Middleware Pool"
id: "687FE169ED3556CED38D11DC9BDD5CCD"
zoneName: "IT_MW_Zone1"
members: {
```

```

canonicalLink:
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/
softwarepools/687FE169ED3556CED38D11DC9BDD5CCD/members"
numberOfPoolMembers: "2"
}-
constraints: {
canonicalLink:
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/
softwarepools/687FE169ED3556CED38D11DC9BDD5CCD/constraints"
numberOfConstraints: "1"
}-
filters: {
canonicalLink:
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/
softwarepools/687FE169ED3556CED38D11DC9BDD5CCD/filters"
numberOfFilters: "1"
}-
properties: {
canonicalLink: https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/
admin/cfw/v1/softwarepools/687FE169ED3556CED38D11DC9BDD5CCD/properties"
numberOfPropertiess: "0"
}-
createdOn: "2013-05-24 00:26:42"
createdBy: null
modifiedOn: null
modifiedBy: null
owner: "CLOUD_ADMIN1"
etag: null
lastModified: null
canonicalLink:
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/
softwarepools/687FE169ED3556CED38D11DC9BDD5CCD"
selfLink:
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/
softwarepools/687FE169ED3556CED38D11DC9BDD5CCD"
}

```

## Expands Query Parameter

GET operation on SoftwarePool resource supports the expands query parameter to expand the following link resource attributes:

- **members:** Expands the members attribute to show all the members of this Software Pool.
- **filters:** Expands the filters attribute to show the filter criteria of the members of this Software Pool.
- **constraints:** Expands the constraints attribute to show the placement constraints associated with this Software Pool.
- **all :** Expands all the attributes of the Software Pool when returning the Software Pool details.

The URI has the following format:

```

https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/
admin/cfw/v1/softwarepools/{poolid}/?expands=<paramname>

```

**Example:**

```

https://hostname/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/
687FE169ED3556CED38D11DC9BDD5CCD?expands=members

```

If no query parameter is specified then software pool details data is returned to the user without any attributes expanded.

## SoftwarePoolMetadata for V1

This provides the metadata information for all the software pool target types that is needed while creating a Software Pool. The following table describes the SoftwarePoolMetadata [application/oracle.com.cloud.common.SoftwarePools+json] data model.

**Table 36-129 SoftwarePoolMetadata Data Model**

Field	Type	Description	Occurs
canonicalLink	URI	A GET against this URI refreshes the client representation of this resource.	1
poolType	String	Target type of the Software Pool	1
poolTypeDisplayName	String	Display name of this Software Pool target type.	0..1
poolTypeDescription	String	Description of the Software Pool target type.	0..1
serviceFamily	String	Represents the service family to which this pool type belongs.	1
serviceType	String	Represents the service type to which this pool type belongs.	1
constraints	Collection<ValueDescriptor>	Represents the metadata information about the possible placement constraints for this pool type.	0..1
filters	Collection<ValueDescriptor >	Represents the metadata information about the possible filters (member constraints) for a pool type.	0..1

The GET method for the SupportedPoolMetadata resource has the following characteristics:

- Response Payload:  
SoftwarePoolMetadata (Json Payload)
- URI:  
`em/websvcs/restful//extws/cloudservices/admin/cfw/v1/softwarepools/metadata`
- Descriptions:  
Retrieves the metadata information for all the software pool types like service type, service family, available constraints, and available filters.

## Retrieving Software Pool Metadata REST API Example

A GET request is issued to obtain the SoftwarePoolMetadata URI, which is then used to retrieve the metadata information of all the software pool types. Note that you can also use EMCLI commands to retrieve Software Pool information and these commands are described in [EM CLI Verbs for SSA Operations for V2](#)

The table below shows the GET configuration for viewing metadata of the Software pools.

**Table 36-130 GET Request Configuration for Viewing Metadata of the Software Pools**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/metadata
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

A sample of the response received is shown below.

```
Status 200 OK
Content-Type: application/json

{
  softwarePoolsMetadata:
  {
    items: [1]
    0:
    {
      poolType: "mwaas_zone"
      poolTypeDisplayName: "Middleware Pool"
      poolTypeDescription: "Middleware Pool is a set of homogeneous Middleware Oracle Homes."
      serviceFamily: "MWAAS"
      serviceType: "PhysicalWLS"
      constraints:
      {
        items: [1]
        0:
        {
          name: "MAX_INSTANCES"
          description: "Maximum Number of Java Servers (per host)"
          defaultValue: "1"
          isRequiredValue: true
        }
      }
      filters:
      {
        items: [1]
        0:
        {
          name: "VERSION"
          description: "Version"
          defaultValue: "10.3.5.0"
          isRequiredValue: true
          possibleValues: [7]
          0:
          {value: "12.1.1.0"
          description: "12.1.1.0"}
          1:
          {
            value: "10.3.6.0"
            description: "10.3.6.0"
          }
          2:
          {
            value: "10.3.5.0"
            description: "10.3.5.0"
          }
        }
      }
    }
  }
}
```



```

}
3:
{
value: "10.3.4.0"
description: "10.3.4.0"
}
4:
{
value: "10.3.3.0"
description: "10.3.3.0"
}
5:
{
value: "10.3.2.0"
description: "10.3.2.0"
}
6:
{
value: "10.3.1.0"
description: "10.3.1.0"
}
}
}
}
}
canonicalLink: "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/
admin/cfw/v1/softwarepools/metadata"
}

```

## SoftwarePoolFilteredTargets for V1

This gives the available targets in a given PaaS Infrastructure Zone based on the filter criteria given, that can be used in POST operation on SoftwarePool resource. The following table describes the SoftwarePoolFilteredTargets [application/oracle.com.cloud.common.SoftwarePoolFilteredTargets+json] data model.

**Table 36-131 SoftwarePoolFilteredTargets Data Model**

Field	Type	Description	Occurs
canonicalLink	URI	A GET against this URI refreshes the client representation of this resource.	1
targetType	String	Target type of the Software Pool . Example : "mwaas_zone" for Middleware Pool, "oracle_cloud_zone" for Database Pool, "schaas_pool" for Schema Pool.Refer SoftwarePoolsMetadata resource to get the available filters for a pool target type.[POST]	1
paasZone	String	Name of the PaaS Zone representing a filter criteria. [POST]	1
targets	Map<String, List<String>>	Filtered targets after applying the filter criteria.	1
filters	Collection<Filters>	Filter criteria that needs to be applied to get the filtered targets. Refer SoftwarePoolsMetadata resource to get the available filters for a pool target type.[POST]	1

Note that filtered targets satisfy the following:

- Are part of the given PaaS Infrastructure zone.
- Satisfy the filter criteria passed.
- Are not part of any other Software Pool.

The POST method for the SupportedPoolFilteredTargets resource has the following characteristics:

- Request Payload:  
SoftwarePoolFilteredTargets (Json Payload)
- Response Payload  
SoftwarePoolFilteredTargets (Json Payload)
- URI:  
*em/websvcs/restful//extws/cloudservices/admin/cfw/v1/softwarepools/filteredtargets*
- Descriptions:  
Retrieves the metadata information for all the software pool types, such as service type, service family, available constraints, and available filters.

## Retrieving Available Filtered Targets - REST API Example

A POST operation on SoftwarePoolFilteredTargets resource is issued to fetch the filtered targets based on the paas zone and filters given. Note that you can also use EMCLI commands to retrieve Filtered Targets information and these commands are described in [EM CLI Verbs for SSA Operations for V2](#)

The table below shows the POST configuration for viewing the filtered targets of the Software pools.

**Table 36-132 POST Request Configuration for Viewing Metadata of the Software Pools**

Feature	Specification
URI	<code>https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools</code>
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: applicaiton/json
Body	<pre>{   "targetType": "mwaas_zone",   "paasZone": "IT_MW_Zone1",   "filters": {"items": [{"name": "VERSION", "value":     "10.3.6.0"}]} }</pre>
Request method	POST

A sample of the response received is shown below.

```
Status 201 Created
Content-Type: application/json
```

```
{
```

```

targets: {
oracle_home: [2]
0: "WebLogicServer10_3_6_0_slc01afx_6775"
1: "WebLogicServer10_3_6_0_adc2201439_4731"
}
canonicalLink:
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/
softwarepools/filteredtargets"
}

```

## SoftwarePoolCapacity for V1

This resource retrieves the software pool capacity details like CPU utilization, memory allocation, and number of instances for the pool entities. The following table describes the SoftwarePoolCapacity [application/oracle.com.cloud.common.SoftwarePoolCapacity+json] data model.

**Table 36-133 SoftwarePoolCapacity Data Model**

Field	Type	Description	Occurs
canonicalLink	URI	A GET against this URI refreshes the client representation of this resource.	1
name	String	Name of the Software Pool. [POST]	1
type	String	Target type of the Software Pool.Example : "mwaas_zone" for Middleware Pool, "oracle_cloud_zone" for Database Pool, "schaas_pool" for Schema Pool.	1
capacity	Collection<Filters>	Filter criteria that needs to be applied to get the filtered targets. Refer SoftwarePoolsMetadata resource to get the available filters for a pool target type.[POST]	1

The GET method for the SupportedPoolCapacity resource has the following characteristics:

- Response Payload  
SoftwarePoolCapacity (Json Payload)
- URI:  
*https://<OMS\_HOST>:<OMS\_CONSOLE\_PORT>/em/websvcs/restful//extws/cloudservices/admin/cfw/v1/softwarepools/{poolId}/capacity*
- Descriptions:  
Retrieves the software pool capacity details.

## Retrieving Software Pool Capacity

A GET on SoftwarePoolCapacity resource is issued to get the Software Pool capacity details. Note that you can also use EMCLI commands to retrieve Software Pool Capacity information and these commands are described in [EM CLI Verbs for SSA Operations for V2](#)

The table below shows the GET configuration for viewing the Software pool capacity.

**Table 36-134 GET Request Configuration for Viewing the Software Pool Capacity**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/687FE169ED3556CED38D11DC9BDD5CCD/capacity
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

A sample of the response received is shown below.

```
Status 200 OK
Content-Type: application/json
{
  name: "mySchemaPool"
  type: "schaas_pool"
  capacity: {
    items: [1]
    0: {
      entityName: "Oemrep_Database"
      entityType: "oracle_database"
      entityCapacity: {
        items: [4]
        0: {
          resourceType: "Storage Utilization"
          resourceUsed: "64.74"
          resourceThreshold: "100.0"
          resourceUnit: "%"
        }-
        1: {
          resourceType: "CPU Utilization"
          resourceUsed: "0.0"
          resourceThreshold: "0.0"
          resourceUnit: "%"
        }-
        2: {
          resourceType: "Memory Utilization"
          resourceUsed: "0.0"
          resourceThreshold: "0.0"
          resourceUnit: "%"
        }-
        3: {
          resourceType: "Instances"
          resourceUsed: "0"
          resourceThreshold: "100"
        }-
        -
      }-
    }-
    canonicalLink:
    "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/2E7C9C632B18C3FEB4FEA5A614E51BE7/capacity"
  }
}
```

## Composite Resource Attributes for V1

Some of the resource entities in this specification contain the following composite resource attributes:

- [ValueDescriptor for V1](#)
- [ValueEntity for V1](#)
- [EntityValueHolder for V1](#)
- [PoolEntityCapacity for V1](#)
- [ResourceTypeCapacity for V1](#)

### ValueDescriptor for V1

This describes the metadata regarding the type of value that can be set upon an associated object. The following table describes the data model:

**Table 36-135 ValueDescriptor Data Model**

Field	Type	Description	Occurs
name	String	Name of the datum being described.	1
description	String	Description of the datum being described.	1
defaultValue	String	Default value of the datum being described.	1
isRequiredValue	Boolean	True if the value is required.	1
possibleValues	Collection<ValueEntity >	Optional list of valid values of the datum being described.	0..1

### ValueEntity for V1

This represents a value (string representation) and their description (caption). The following table describes the data model:

**Table 36-136 ValueEntity Data Model**

Field	Type	Description	Occurs
value	String	String representation of the actual value of the entity.	1
description	String	Caption of the entity that describes it.	0..1

### EntityValueHolder for V1

This represents a simple entity having a name, value and description. The following table describes the data model:

**Table 36-137 EntityValueHolder Data Model**

Field	Type	Description	Occurs
name	String	Name of the entity	1
value	String	String representation of the actual value of the entity.	1
description	String	Caption of the entity that describes it.	0..1

## PoolEntityCapacity for V1

This represents the capacity details of individual entities of the Software Pool. The following table describes the data model:

**Table 36-138 PoolEntityCapacity Data Model**

Field	Type	Description	Occurs
entityName	String	Name of the entity	1
entityType	String	Target type of the entity.	1
entityCapacity	Collection<ResourceTypeCapacity>	Collection of capacity details of a particular resource type like Storage Utilization, CPU Utilization.	1

## ResourceTypeCapacity for V1

This represents the capacity details of a particular resource type, such as Storage Utilization and CPU Utilization. The following table describes the data model:

**Table 36-139 ResourceTypeCapacity Data Model**

Field	Type	Description	Occurs
resourceType	String	Type of the resource like Storage Utilization.	1
resourceUsed	String	String representation of the used resource.	1
resourceThreshold	String	String representation of the resource threshold.	0..1
resourceUnit	String	String representation of the unit in which the utilization of the resource is measured.	0..1

## Service Template Management for V1

This section describes the resources and REST APIs that can be used to manage service templates.

### Service Templates for V1

Service templates is a collection resource representing a Cloud Administrator's view of all the accessible service template resources. The following table describes the Service Templates data model.

**Table 36-140 Service Templates Data Model**

Field	Type	Description	Occurs
name	String	Display name of this collection resource.	1
type	String	Type of collection resource.	1
hasMore	Boolean	Indicates whether there are more elements in this collection resource.	1
count	Integer	The number of elements in the collection resource.	1
items	Collection <integer>	List of service template resources. If there are no service templates present, this field will be blank.	1
totalCount	Integer	Total number of service template resources.	1
canonicalLink	URI	A GET against this URI refreshes the client representation of this resource.	1
selfLink	URI	Refers to the resource equivalent to the containing elements.	1

## Supported Methods on ServiceTemplates Resources

The following table describes the supported methods on the ServiceTemplates resources.

**Table 36-141 Supported Methods on ServiceTemplates Resources**

Method	Query Parameters	Request Payload	URI	Description
GET	NA	NA	https:// <OMS_HOST>:<OMS_C ONSOLE_PORT>/em/ websvcs/restful/extws/ cloudservices/ admin/cfw/v1/ servicetemplates/	Returns service template collection resource details for all service types.
POST	NA	Service Template (Json Payload)	https:// <OMS_HOST>:<OMS_C ONSOLE_PORT>/em/ websvcs/restful/extws/ cloudservices/ admin/cfw/v1/ servicetemplates/	Creates an instance of service template.

## ServiceTemplates REST API Example

An example of ServiceTemplates REST API operation is given below.

### Listing Service Templates

A GET request on ServiceTemplates resource is issued to list all the Service Templates.

The table below shows the GET configuration for viewing the Software pool capacity.

**Table 36-142 GET Request Configuration for Viewing All the Service Templates**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

A sample of the response received is shown below.

```
Status 200 OK
Content-Type: application/json
{
  "name": "Service Templates",
  "type": "Service Template",
  "hasMore": false,
  "items": [
    {
      "id": "E821074692058B5DE040F00AA37D75AB",
      "name": "ST_DB_SCH_01",
      "serviceFamily": "DBAAS",
      "description": "Database Schema Service Template",
      "canonicalLink": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates/E821074692058B5DE040F00AA37D75AB"
    }
  ],
  "totalCount": 1,
  "canonicalLink": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates"
}
```

## Service Template for V1

A service template is a standardized service definition that can be used by self service users to provision a service instance. The following table describes the Service Template.

**Table 36-143 ServiceTemplate Data Model**

Field	Type	Supported Methods	Description	Occurs
name	String	Any	A human readable name given to the service template. This field cannot be edited.	1
serviceFamily	String	Any	Service Family.	1
serviceType	String	Any	Service type	1
id	String	GET	Service template ID. The GET method contains the value for this element.	1
description	String	Any	A brief description given to the service template.	0..1



**Table 36-143 (Cont.) ServiceTemplate Data Model**

Field	Type	Supported Methods	Description	Occurs
roles	Collection<Role>	GET POST	SSA roles that can access the template.	0..1
poolIds	Collection <String>	POST	Software Pool IDs associated with this template.	1
serviceExecutableMeta	ServiceExecutableMetadataEntity	Any	Service executable to be used for the service template.	0..1
createdOn	String (Date / Time)	GET	Date and time on which the resource was created.	0..1
createdBy	String	GET	User who created the resource.	1
modifiedOn	String (Date / Time)	GET	Date and time on which the resource was modified.	0..1
modifiedBy	String	GET	User who modified the resource.	1
owner	String	GET	User who owns the resource.	1
etag	String	GET	HTTP entity value tag.	0..1
lastModified	String	GET	HTTP last modified value	0..1
canonicalLink	URI	GET	Preferred version of resource.	1

where:

- Supported Method:
  - Indicates the method type where this attribute will be available.
  - The method type **Any** indicates that this resource is available for GET, PUT, or POST methods.
- Occurs: An occurrence is 0..1 indicates that this is an optional parameter. An occurrence of 1 indicates that this parameter is mandatory.

## Supported Methods on ServiceTemplate Resources

The following table describes the supported methods for servicetemplates resources.

**Table 36-144 Supported Methods on ServiceTemplate Resources**

Method	Query Parameters	Request Payload	Response Payload	URI	Description
GET		NA	Service Template (Json Payload)	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates/{serviceFamily}/{template id}	Retrieve service template details.

**Table 36-144 (Cont.) Supported Methods on ServiceTemplate Resources**

Method	Query Parameters	Request Payload	Response Payload	URI	Description
DELETE	NA	NA	Status Message (Json payload)	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates/<serviceFamily>/{template id}	Delete a service template
PUT	NA	Service Template (Json payload)		https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates/<serviceFamily>/{template id}	Updates service template resource

## ServiceTemplateUpdate for V1

This table describes the ServiceTemplateUpdate data model.

**Table 36-145 ServiceTemplateUpdate Data Model**

Field	Type	Supported Methods	Description	Occurs
description	String	PUT	A brief description given to the service template.	0..1
rolesAdded	Collection<Role>	PUT	SSA roles to be added that can access this service template.	0..1
rolesRemoved	Collection<Role>	PUT	SSA roles to be removed that have access to this service template.	0..1
poolIdsAdded	Collection<String>	PUT	Software pool IDs to be added to an existing template while it is being edited.	0..1
poolIdsRemoved	Collection<String>	PUT	Software pool IDs to be removed from an existing template while it is being edited.	0..1
executableEntity	ServiceExecutableMetadataEntity	PUT	Service executable to be used for the service template.	0..1

## ServiceExecutableMetadataEntity for V1

This table describes the ServiceExecutableMetadataEntity data model.

**Table 36-146 ServiceExecutableMetaDataEntity**

Field	Type	Description
name	String	Name of the executable that is used to save the actual executable in Enterprise Manager. This can be the name of a job, configured deployment procedure, deployment procedure, or a profile. This field cannot be edited.
type	String	This can be: <ul style="list-style-type: none"> <li>• Job</li> <li>• DP</li> <li>• CDP</li> <li>• Profile</li> </ul>
serviceFamily	String	Service Family.
serviceType	String	Service Type
configurations	Collection<TemplateConfigParam>	Executable Parameters
payloads	Collection<PayloadDescriptor>	Collection of payload descriptor.

## Template Configuration Parameters for V1

The following table lists the TemplateConfigParam data model.

**Table 36-147 Configuration Parameters**

Field	Type	Description
id	String	ID of the configuration parameter.
name	String	Name of the configuration parameter
value	String	Value of the configuration parameter.
values	Collection<String>	List of configuration parameter values.
description	String	Description of the configuration parameter.
required	boolean	Boolean if parameter is required.
secret	boolean	Boolean if parameter is secret.
subconfigurations	Collection<TemplateConfigParam>	Set of possible values.

## PayloadDescriptor for V1

The following table describes the PayloadDescriptor data model

**Table 36-148 PayloadDescriptor data model**

Field	Type	Description
name	String	Name of the payload entity.
id	String	Id of the payload entity.

## ServiceTemplate Metadata for V1

The ServiceTemplate Metadata is used to generate JSON Payloads that are required to create the service template instance. The following table describes ServiceTemplate Metadata Data Model.

**Table 36-149 ServiceTemplate Metadata Data Model**

Field	Type	Description
serviceFamily	String	Name of the service family.
serviceType	String	Name of service type.
type	String	Can be one of: JOB DP CDP PROFILE
description	String	Description
payload	Boolean	Is true if payload is expected.
payloads	Collection<PayloadMetaData >	Boolean if parameter is required.

## PayloadMetaData for V1

The following table describes the PayloadMetadata.

**Table 36-150 PayloadMetaData**

Field	Type	Description
id	String	Payload Id.
name	String	Name of payload
defaultValue	String	Default value

## ServiceTemplate MetaData for V1

The following table describes the supported methods on the ServiceTemplateMetaData.

**Table 36-151 Supported Methods on ServiceTemplateMetaData**

Method	Query Parameters	Request Payload	Response Payload	URI	Description
GET		NA	Collection<ServiceTemplateMetaData> (Json Payload)	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates/{serviceFamily}/executable/metadata	Retrieve metadata for given service family and service type for CDP, DP, and so on.
POST		Service Template MetaData (Json Payload)	ServiceExecutableMetaEntity (Json Payload)	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates/metadata	Retrieve configurations for posted service family and service type.

## ServiceTemplates REST API Example

This section covers examples of ServiceTemplates REST API operations.

- [Creating Service Templates](#)
- [Updating a Service Template](#)
- [Deleting a Service Template](#)
- [Viewing Details of a Service Template](#)
- [Viewing Metadata of a Service Template](#)
- [Creating Configuration Values for Service Templates](#)

## Creating Service Templates

The table below shows the POST configuration for creating a Service template.

**Table 36-152 POST Request Configuration for Creating a Service Template**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=

**Table 36-152 (Cont.) POST Request Configuration for Creating a Service Template**

Feature	Specification
Body	<pre> {   "name": "TestSchaasTemplate3",   "serviceType": "SCHEMA",   "serviceFamily": "DBAAS",   "description": "This is a test schaaas service template 1",   "poolIds": [     "FC129EEFFD67CD948B3147D2BAE0BA89"   ],   "roles": [     {       "name": "SSA01"     }   ],   "serviceExecutableMeta": {     "type": "CDP",     "configurations": [       {         "name": "ROLE_NAME", "value": "SampleRole"       },       {         "name": "MAX_NUMBER_OF_SCHEMAS", "value": "2"       },       {         "name": "ENFORCE_STORAGE_CONSTRAINT", "value": "NO_LIMIT"       },       {         "name": "AUTO_EXTEND_BLOCK_SIZE", "value": "1024"       },       {         "name": "REF_ZONE", "value": "blr zone"       },       {         "name": "REF_POOL", "value": "schpool"       },       {         "name": "REF_HOST", "value": "mycompanyhost.com"       },       {         "name": "REF_DB", "value": "Database"       },       {         "name": "CREATE_SCHEMA_OPTION", "value": "EMPTY_SCHEMAS"       },       {         "name": "WORKLOADS",         "subconfigurations": [           {             "name": "WORK_LOADS:1", </pre>

**Table 36-152 (Cont.) POST Request Configuration for Creating a Service Template**

Feature	Specification
	<pre> "subconfigurations": [   {     "name": "name",     "value": "Small"   },   {     "name": "description",     "value": "small workload"   },   {     "name": "default",     "value": "Y"   },   {     "name": "CPU",     "value": "2"   },   {     "name": "Memory",     "value": "2048"   },   {     "name": "Storage",     "value": "1024"   } ] }, {   "name": "WORK_LOADS:2",   "subconfigurations": [     {       "name": "name",       "value": "large "     },     {       "name": "description",       "value": "large workload"     },     {       "name": "default",       "value": "Y"     },     {       "name": "CPU",       "value": "6"     },     {       "name": "Memory",       "value": "4048"     },     {       "name": "Storage",       "value": "2024"     }   ] } </pre>

**Table 36-152 (Cont.) POST Request Configuration for Creating a Service Template**

Feature	Specification
	<pre> } ] } ] } ] } } </pre>
Request method	POST

## Updating a Service Template

The table below shows the PUT configuration for updating a Service template.

**Table 36-153 PUT Request Configuration for Updating a Service Template**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	<pre> {   "description": "Service Template",   "rolesAdded": [     {       "name": "SSA02"     }   ],   "rolesRemoved": [     {       "name": "SSA01"     }   ],   "serviceExecutableMeta": {     "type": "CDP",     "configurations": [       {         "name": "REF_ZONE",         "value": "blr zone"       },       {         "name": "REF_POOL",         "value": "schpool"       },       {         "name": "REF_HOST",         "value": "mycompanyhost.com"       }     ]   } } </pre>
Request method	PUT



## Deleting a Service Template

The table below shows the DELETE configuration for deleting a Service template.

**Table 36-154 DELETE Request Configuration for Deleting a Service Template**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates/687FE169ED3556CED38D11DC9BDD5CCD
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	DELETE

## Viewing Details of a Service Template

The table below shows the GET configuration for viewing details of a Service template.

**Table 36-155 DEELTE Request Configuration for Deleting a Service Template**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates/687FE169ED3556CED38D11DC9BDD5CCD
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

Status 200 OK

Content-Type: application/json

```
{
  "name" : "ST_DB_SCH_01",
  "serviceFamily" : "DBAAS",
  "serviceType" : "SCHEMA",
  "type" : "Service Template",
  "description" : "Database Schema Service Template",
  "id" : "E821074692058B5DE040F00AA37D75AB",
  "pools" : [ {
    "name" : "SP_DB_SCH_01",
    "id" : "EBECE6B8F0144BEFAB2F1991B4AFCC65",
    "type" : "schaas_pool",
    "zone" : {
      "id" : "E82022FF954B98CFE040F00AA37D447B",
      "name" : "PZ01"
    }
  } ],
  "serviceExecutableMeta" : {
    "type" : "CDP",
    "configurations" : [ {
```

```

        "id" : "targets",
        "name" : "targets",
        "value" : ""
    }, {
        "id" : "ssaRequestId",
        "name" : "ssaRequestId",
        "value" : ""
    }, {
        "id" : "ssaUser",
        "name" : "ssaUser",
        "value" : ""
    }, {
        "id" : "ssaTargetName",
        "name" : "ssaTargetName",
        "value" : ""
    }, {
        "id" : "ssaTargetType",
        "name" : "ssaTargetType",
        "value" : ""
    }, {
        "id" : "zoneTargetName",
        "name" : "zoneTargetName",
        "value" : ""
    }, {
        "id" : "zoneTargetType",
        "name" : "zoneTargetType",
        "value" : ""
    }, {
        "id" : "REQUEST_NAME",
        "name" : "REQUEST_NAME",
        "value" : ""
    }, {
        "id" : "SERV_TEMPLATE_GUID",
        "name" : "SERV_TEMPLATE_GUID",
        "value" : ""
    }, {
        "id" : "CREATE_SCHEMA_OPTION",
        "name" : "Option for creating user schemas",
        "value" : "EMPTY_SCHEMAS"
    }, {
        "id" : "MAX_NUMBER_OF_SCHEMAS",
        "name" : "Maximum number of schemas permissible",
        "value" : "4"
    }, {
        "id" : "DB_PROFILE_URN",
        "name" : "Database Profile Component's URN",
        "value" : ""
    }, {
        "id" : "REMAP_SCHEMA_LIST",
        "name" : "Schema list.",
        "value" : "",
        "values" : [ ]
    }, {
        "id" : "MASTER_ACCOUNT",
        "name" : "Master Account",
        "value" : ""
    }, {
        "id" : "ROLE_NAME",
        "name" : "Database Role Name",
        "value" : "ST_DB_SCH_01_Oct_06_2013_22"
    }, {
        "id" : "SCHEMA_PRIVILEGES",

```

```

        "name" : "Schema Privileges",
        "value" : "",
        "values" : [ "CREATE TABLE", "CREATE SEQUENCE", "CREATE OPERATOR", "CREATE
DIMENSION", "CREATE VIEW", "CREATE INDEXTYPE", "CREATE TYPE", "CREATE TRIGGER", "CREATE
SESSION", "CREATE SYNONYM", "CREATE PROCEDURE" ]
    }, {
        "id" : "ENFORCE_STORAGE_CONSTRAINT",
        "name" : "Enforces Storage Constraint",
        "value" : "false"
    }, {
        "id" : "INITIAL_BLOCK_SIZE",
        "name" : "Initial Storage Size",
        "value" : ""
    }, {
        "id" : "AUTO_EXTEND_BLOCK_SIZE",
        "name" : "Auto extend block size",
        "value" : ""
    }, {
        "id" : "TABLESPACE_ENCRYPTION_ALGORITHM",
        "name" : "Tablespace Encryption",
        "value" : ""
    }, {
        "id" : "SHARED_STAGE_LOCATION",
        "name" : "Staging Location",
        "value" : ""
    }, {
        "id" : "WORKING_DIRECTORY",
        "name" : "Working Directory",
        "value" : ""
    }, {
        "id" : "SCHAAS_CUSTOM_PRE_SCRIPTS_URN",
        "name" : "Pre-script",
        "value" : ""
    }, {
        "id" : "SCHAAS_CUSTOM_POST_SCRIPTS_URN",
        "name" : "Post-script",
        "value" : ""
    }, {
        "id" : "SCHEMA_PASSWORD_LIST",
        "name" : "Schema password list",
        "value" : "",
        "values" : [ ]
    }, {
        "id" : "CUSTOM_USER_SELECTED_SCRIPT_URN",
        "name" : "Custom Script URN",
        "value" : "",
        "values" : [ ]
    }, {
        "id" : "DBSERVICE_NAME",
        "name" : "Database Service Name",
        "value" : ""
    }
    ]
},
"createdOn" : null,
"createdBy" : null,
"modifiedOn" : null,
"modifiedBy" : null,
"owner" : "SYSMAN",
"etag" : null,
"lastModified" : null,
"canonicalLink" : "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/
admin/cfw/v1/servicetemplates/E821074692058B5DE040F00AA37D75AB",

```

```
"selfLink" : "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/
admin/cfw/v1/servicetemplates/E821074692058B5DE040F00AA37D75AB"
}
```

## Viewing Metadata of a Service Template

The table below shows the GET configuration for viewing metadata of a Service template.

**Table 36-156 GET Request Configuration for Viewing Metadata a Service Template**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates/metadata/DBAAS/DB
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
Status 200 OK
Content-Type: application/json
"metadata" : {
  "serviceFamily:DBAAS" : {
    "serviceType:DB" : {
      "options" : [ {
        "serviceFamily" : "DBAAS",
        "serviceType" : "DB",
        "type" : "CDP",
        "description" : "Create a Service Template based on Configured Deployment
Procedure.",
        "name" : "<user_input>",
        "payload" : false
      }, {
        "serviceFamily" : "DBAAS",
        "serviceType" : "DB",
        "type" : "CDP",
        "description" : "Create a Service Template based on Configured Deployment
Procedure and its Payload.",
        "name" : "<user_input>",
        "payload" : true,
        "payloads" : [ {
          "id" : "DBDELETE_PRESCRIPT",
          "defaultValue" : "DBDELETE_PRESCRIPT",
          "name" : "<user_input>"
        } ]
      }, {
        "serviceFamily" : "DBAAS",
        "serviceType" : "DB",
        "type" : "DP",
        "description" : "Create a Service Template based on Deployment Procedure.",
        "name" : "<user_input>",
        "payload" : false
      }, {
        "serviceFamily" : "DBAAS",
        "serviceType" : "DB",
```

```

        "type" : "DP",
        "description" : "Create a Service Template based on Deployment Procedure and
its Payload.",
        "name" : "<user_input>",
        "payload" : true,
        "payloads" : [ {
            "id" : "DBDELETE_PRESCRIPT",
            "defaultValue" : "DBDELETE_PRESCRIPT",
            "name" : "<user_input>"
        } ]
    } ]
}
,
"message" : "This gives the metadata information of the different types of service
templates that can be created, the executable options supported and the allowed
configuration parameters.",
"canonicalLink" : "/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/
servicetemplates/metadata/DBAAS/DB"
}
}
}

```

## Creating Configuration Values for Service Templates

To get configuration values that are required for creation of service template, perform a POST operation on the metadata.

**Table 36-157 POST Request Configuration for Creating Configuration Values for a Service Template**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates/metadata/
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	<pre> {   "type": "CDP",   "serviceFamily": "MWAAS",   "serviceType": "PhysicalWLS",   "name": "Provision Middleware_SYSMAN_Jul-18-2013 00-52AM" } </pre>
Request method	POST

 **Note:**

- This payload is the one that we get via GET call of metadata.
- User fills <user\_input> appropriately to get ServiceExecutableMetaDataSet as response.
- User uses this ServiceExecutableMetaDataSet in his/her create Payload with values set accordingly to create Service Template MetaData.

A sample of the response received is shown below.

```
{
  "configurations" : [ {
    "description" : "Username for the WebLogic Server",
    "id" : "wlsUserName",
    "name" : "WebLogic Username *",
    "required" : "false",
    "secret" : "false"
  }, {
    "description" : "Password for the WebLogic Server",
    "id" : "wlsUserPassword",
    "name" : "WebLogic Password *",
    "required" : "false",
    "secret" : "true"
  }, {
    "description" : "Re-enter Password for the WebLogic Server",
    "id" : "wlsUserPassword2",
    "name" : "Re-enter WebLogic Password *",
    "required" : "false",
    "secret" : "true"
  }, {
    "description" : "Enter 1 for single cluster, 0 for no cluster. For physical
provisioning it is auto populated based on the profile selected. For virtual
provisioning it is defaulted to 1. Please change based on the actual topology of the
assembly. ",
    "id" : "topology",
    "name" : "Topology *",
    "required" : "false",
    "secret" : "false"
  }, {
    "description" : "Enter 1 for 'Yes', 0 for 'No'",
    "id" : "exposeAdminURLs",
    "name" : "Expose WebLogic and FMW Console URLs to SSA User",
    "required" : "false",
    "secret" : "false"
  }, {
    "description" : "Enter 1 to enable, 0 to disable Load Balancer",
    "id" : "enableLoadBalancer",
    "name" : "Enable Load Balancer",
    "required" : "false",
    "secret" : "false"
  }, {
    "description" : "Use ',' to separate multiple target hosts",
    "id" : "hostListForScripts",
    "name" : "Hosts for Executing Scripts",
    "required" : "false",
    "secret" : "false"
  }, {
    "description" : "This will be used for the above hosts",
    "id" : "namedCredforHostList",
    "name" : "Named Credential for execution of scripts",
    "required" : "false",
    "secret" : "false"
  }, {
    "description" : "To execute scripts on Admin Server besides the hosts entered above,
enter 1 for 'Yes', 0 for 'No'",
    "id" : "isScriptExecuteOnAdminServer",
    "name" : "Execution of Scripts on Admin Server Host",
    "required" : "false",
    "secret" : "false"
  }, {

```

```

    "description" : "Lower Bound for choosing Free Ports",
    "id" : "portRangeStart",
    "name" : "Port Range Start",
    "required" : "false",
    "secret" : "false"
  }, {
    "description" : "Upper Bound for choosing Free Ports",
    "id" : "portRangeEnd",
    "name" : "Port Range End",
    "required" : "false",
    "secret" : "false"
  }, {
    "description" : "Memory required by each additional instance in GB",
    "id" : "memoryUsagePerInstance",
    "name" : "Expected Memory Consumption (For Use By Placement Logic)",
    "required" : "false",
    "secret" : "false"
  }, {
    "description" : "CPU required by each additional instance in percentage",
    "id" : "cpuUsagePerInstance",
    "name" : "Expected CPU Utilization (For Use By Placement Logic)",
    "required" : "false",
    "secret" : "false"
  }, {
    "description" : "Enter memory and java arguments to start the server. Example: -
Xms1280m -Xmx1280m -XX:PermSize=128m -XX:MaxPermSize=256m -
Dweblogic.security.SSL.ignoreHostnameVerification=true (Physical Only)",
    "id" : "startupArguments",
    "name" : "Managed Server Startup Arguments",
    "required" : "false",
    "secret" : "false"
  }, {
    "description" : "Enter 1 for distributing Java Servers uniformly on available hosts
for high availability or 0 for placing maximum number of Java Servers possible on a host
first before provisioning on other available host (Physical Only)",
    "id" : "requireHighAvailability",
    "name" : "Distribute Java Servers on Available Hosts",
    "required" : "false",
    "secret" : "false"
  }, {
    "description" : "Root Password to override (Virtual Only)",
    "id" : "rootPwd",
    "name" : "Root Password",
    "required" : "false",
    "secret" : "true"
  }, {
    "description" : "Agent Install User Password to override (Virtual Only)",
    "id" : "agentInstallUserPwd",
    "name" : "Agent Install User Password",
    "required" : "false",
    "secret" : "true"
  }, {
    "description" : "Enter name of the host credential to use for provisioning
operations (Virtual Only)",
    "id" : "namedHostCredForVirtualFlow",
    "name" : "Host credential name for virtual flow",
    "required" : "false",
    "secret" : "false"
  } ],
  "name" : "Provision Middleware_SYSMAN_Oct-02-2013 10-31AM",
  "serviceFamily" : "MWAAS",

```

```
"serviceType" : "PhysicalWLS",  
"type" : "CDF"
```

## EM CLI Verbs for Self Service Applications

The Enterprise Manager Command Line Interface (EM CLI) enables you to access Enterprise Manager Cloud Control functionality from text-based consoles (shells and command windows) for a variety of operating systems. You can call Enterprise Manager functionality using custom scripts, such as SQL\*Plus, OS shell, Perl, or Tcl, thus easily integrating Enterprise Manager functionality with a company's business process.

This section provides details on the EM CLI verbs for Enterprise Manager Self Service Applications (SSA) Admin users.

### Introduction

A new framework is introduced for the release 12.1.0.9, along with which new EM CLI verbs are introduced. The EM CLI verbs associated with the previous version of the framework are deprecated and users are suggested to move to the supported EM CLI verbs. The EM CLI verbs for the deprecated version are listed as v1 and the supported EM CLI verbs are listed as v2:

- [EM CLI Verbs for SSA Operations for V2](#)
- [EM CLI Verbs for SSA Operations for V1](#)

All PaaS Infrastructure Zone EM CLI operations are available only to users with a EM\_CLOUD\_ADMINISTRATOR role and Software Pool operations can be performed only by users with a EM\_SSA\_ADMINISTRATOR role. EM CLI verbs will obtain user information from the security context and verify only those users authorized to perform these operations.

### EM CLI Verbs for SSA Operations for V2

The following table provides details of the supported verbs (v2). Note that these verbs are available to SSA Administrator users only and cannot be used with an EM\_SSA\_USER role.



**Table 36-158 EM CLI Verbs Supported for V2**

Verb	Description	Format
emcli invoke_ws	<p>Invokes the Enterprise Manager Web service.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>-wsname - Indicates the URI of the resource.</li> <li>-method - Type of the REST method.</li> <li>-payload - Indicates the json/xml input payload.</li> <li>-accept - Payload type. These are standard jersey values.</li> <li>-type - Standard jersey response types.</li> <li>-param - Use this option to pass in form/query parameter value. For example, -param="name:value". More than one parameter can be specified. For example, -param="name:value" -param="zip:12345".</li> </ul> <p>The parameter can be provided through a file. To read from file, specify as shown in the example: -param="name:tag" -input_file="tag:file.txt". In this example, the name parameter will be read from file file.txt.</p> <ul style="list-style-type: none"> <li>-input_file - Use this option to pass in payload or param value from file.</li> </ul> <p>Examples:</p> <ul style="list-style-type: none"> <li>emcli invoke_ws -wsname=/em/websvcs/restful/emws/core/v0/list/dataservice -method=get -param="name:Administrators"</li> </ul> <p>Invokes list resource and sources all administrators</p> <ul style="list-style-type: none"> <li>emcli invoke_ws -wsname=/em/websvcs/restful/emws/core/v0/list/dataservice -method=get -param="name:tag" -input_file="tag:file.txt"</li> </ul> <p>Invokes list resource and sources all administrators. The name parameter is read from file.txt.</p>	<p>emcli invoke_ws</p> <p>-wsname=&lt;WebService Name&gt;</p> <p>-method=&lt;method name&gt;</p> <p>[-payload=&lt;Payload&gt;]</p> <p>[-accept=&lt;accept type&gt;]</p> <p>[-type=response type]</p> <p>[-param=Query Parameters]</p> <p>[-input_file=&lt;Input File for payload data&gt;]</p>

**Table 36-158 (Cont.) EM CLI Verbs Supported for V2**

Verb	Description	Format
emcli invoke_ws - method="post" - wsname="/em/ websvcs/ restful/ extws/ cloudservice s/ admin/cfw/v 2/ resourcepro viders/" - type="applic ation/json" - accept="applic ation/json" -payload= 'xxxxxx'	Creates a new PaaS Infrastructure zone with the provided payload.  Example:  emcli invoke_ws -method="post" -wsname="/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/" -type="application/json" -accept="application/json" -payload='{"useExistingTarget":false, "name":"CLI_ZONE", "type":"self_service_zone", "credentials": [{"name":"normal_credential_guid", "value":"AKM"} ], "memberTargetType": "host", "members": ["myhost2.idc.example.com"], "placementConstraints": [{"name":"MAX_CPU_UTILIZATION", "value":["75"]}, {"name":"MAX_MEMORY_ALLOCATION", "value":["75"]}], "characteristics": [{"name":"EXAMPLE.SYSMAN.CFW.ORCL_GTP_CONTACT", "value":["123456789"]}, {"name":"EXAMPLE.SYSMAN.CFW.ORCL_GTP_COST_CENTER", "value":["IDC.NOIDA"]}, {"name":"EXAMPLE.SYSMAN.CFW.ORCL_GTP_DEPARTMENT", "value":["CFW"]}, {"name":"EXAMPLE.SYSMAN.CFW.ORCL_GTP_LIFECYCLE_STATUS", "value":["Test"]}, {"name":"EXAMPLE.SYSMAN.CFW.ORCL_GTP_LINE_OF_BUS", "value":["ST"]}, {"name":"EXAMPLE.SYSMAN.CFW.ORCL_GTP_LOCATION", "value":["IDC"]} ], "roles": ["SSA_USER"]}'	Same as above.

**Table 36-158 (Cont.) EM CLI Verbs Supported for V2**

Verb	Description	Format
emcli get_targets	<p>Obtain status and alert information for targets.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>-targets=name:type - Name or type can be either a full value or a pattern match using "%". Also, name is optional, so the type alone may be specified.</li> <li>-limit_rows="Maximum number of targets to be retrieved" - Defaults to 2000 rows, if not specified.</li> <li>-config_search="Configuration Search UI Name" - Search UI name should be the display name of the configuration search.</li> <li>-alerts - Displays the count of critical and warning alerts for each target.</li> <li>-noheader - Displays tabular output without column headers.</li> <li>-unmanaged - Displays unmanaged targets (no status or alert information).</li> <li>-properties - Displays unmanaged targets with properties.</li> <li>-separator_properties="separator_properties" - Displays unmanaged target properties with separator_properties.</li> <li>-subseparator_properties="subseparator_properties" - Displays unmanaged target properties with subseparator_properties.</li> <li>-script - This option is equivalent to -format="name:script".</li> <li>-format - Format specification (default is -format="name:pretty"). <ul style="list-style-type: none"> <li>-format="name:pretty" prints the output table in a readable format but is not intended to be parsed by scripts.</li> <li>-format="name:script" sets the default column separator to a tab and the default row separator to a new line. The column and row separator strings may be specified to change these defaults.</li> <li>-format="name:csv" sets the column separator to a comma and the row separator to a newline.</li> </ul> </li> </ul> <p>Examples:</p> <ul style="list-style-type: none"> <li>emcli get_targets Displays a maximum of 2000 targets. Critical and Warning columns are not shown.</li> <li>emcli get_targets -limit_rows=20 Displays a maximum of 20 targets. Critical and Warning columns are not shown.</li> <li>emcli get_targets -alerts Displays a maximum of 2000 targets. Critical and Warning columns are shown.</li> <li>emcli get_targets -targets="oracle_database" Displays all "oracle_database" targets.</li> <li>emcli get_targets -targets="%oracle%" Displays all targets whose type contains the string "oracle".</li> <li>emcli get_targets -targets="database%:%oracle%"</li> </ul>	<pre>emcli get_targets [-targets="[name1:]type1; [name2:]type2;..."] [-alerts] [-noheader] [-script   -format= [name:&lt;pretty script  csv&gt;]; [column_separator:"colu mn_sep_string"]; [row_separator:"row_sep _string"]; ] [-limit_rows="Maximum number of targets to be retrieved"] [- config_search="Configur ation Search UI Name"] [-unmanaged] [-properties] [- separator_properties="pr operties_sep_string"] [- subseparator_properties ="properties_subsep_stri ng"]</pre>

**Table 36-158 (Cont.) EM CLI Verbs Supported for V2**

Verb	Description	Format
	<p>Displays all targets whose name starts with "database" and type contains "oracle".</p> <ul style="list-style-type: none"> <li>emcli get_targets - targets="database3:oracle_database" -alerts</li> </ul> <p>Displays status and alert information on the Oracle database named "database3".</p> <ul style="list-style-type: none"> <li>emcli get_targets -config_search="Search File Systems on Hosts" -targets="oracle%:host" -alerts</li> </ul> <p>Displays status and alert information of the resulting targets from configuration search named "Search File Systems on Hosts" and targets whose name starts with "oracle" and of type "host".</p> <ul style="list-style-type: none"> <li>emcli get_targets -targets="host" -unmanaged</li> </ul> <p>Displays name and type information for unmanaged host targets.</p> <ul style="list-style-type: none"> <li>emcli get_targets -unmanaged -properties -separator_properties=, -subseparator_properties==</li> </ul> <p>Displays name, type, and properties for unmanaged host targets with the specified separators. By default the separator_properties is ";" and the subseparator_properties is ":".</p>	
cancel_cloud_service_requests	<p>Cancels cloud service requests. Either user or names option should be provided. Both cannot be used simultaneously.</p> <ul style="list-style-type: none"> <li>user: The user name to be used to filter delete requests.</li> <li>family: The Service Family Name to be used to filter cloud requests.</li> <li>ids: List of request ids to be used to filter cloud requests separated by a semicolon(";"). Only scheduled requests can be canceled.</li> </ul> <p><b>Example</b></p> <pre>emcli cancel_cloud_service_requests - user="user1"</pre> <p>Cancels all Scheduled cloud requests whose owner is specified user.</p> <pre>emcli cancel_cloud_service_requests - user="user1" -family="family1"</pre> <p>Cancels all Scheduled cloud requests owned by "user1" and service family="family1".</p> <pre>emcli cancel_cloud_service_requests - user="user1" -ids="1;2"</pre> <p>Cancels all Scheduled cloud requests owned by "user1" and with ids 1 and "2".</p>	<pre>emcli cancel_cloud_service_re quests - user="username" [- family="family"] [- ids="id1;id2..."]</pre>

**Table 36-158 (Cont.) EM CLI Verbs Supported for V2**

Verb	Description	Format
delete_cloud_service_instances	<p>Deletes the cloud service instances based on a specified filter. This option cleans up all objects owned by a self service user when the instance is deleted.</p> <ul style="list-style-type: none"> <li>• user: The user name to be used to filter service instances to be deleted.</li> <li>• family: The service family name to be used to filter service instances to be deleted.</li> <li>• type: The service type to be used to filter service instances to be deleted.</li> </ul> <p>Examples:</p> <pre>emcli delete_cloud_service_instances - user="user1"</pre> <p>Deletes all cloud instances whose owner is the specified user.</p> <pre>emcli delete_cloud_service_instances - user="user1" -family="family1"</pre> <p>Deletes all cloud instances owned by "user1" that belong to service family="family1".</p> <pre>emcli delete_cloud_service_instances - user="user1" -type="type1"</pre> <p>Deletes all cloud instances owned by "user1" that belong to service type="type".</p> <pre>emcli delete_cloud_service_instances - user="user1" -family="family1" -type="type1"</pre> <p>Deletes all cloud instances owned by "user1", that belong to service family="family1" and service type="type1".</p>	<pre>emcli delete_cloud_service_in stances - user="username" [- family="family"] [- type="type"]</pre>

**Table 36-158 (Cont.) EM CLI Verbs Supported for V2**

Verb	Description	Format
delete_cloud_user_objects	<p>Deletes cloud user objects including cloud service instances and requests.</p> <ul style="list-style-type: none"> <li>• user: The user name to be used to filter user objects.</li> <li>• purge: Purges the completed requests. Default is false</li> <li>• force: Tries to cancel In Progress requests. Depending on the Job Status, some resources may require manual cleanup. This option should be used with caution as you cannot stop or undo the operation once it has been started.</li> </ul> <p><b>Note:</b> If you use the purge option when some service instances are running, you must wait till the request is fully completed before you use the purge option again.</p> <p>Examples:</p> <pre>emcli delete_cloud_user_objects -user="user1"</pre> <p>Deletes all cloud objects whose owner is "user1". All scheduled requests will be canceled.</p> <pre>emcli delete_cloud_user_objects -user="user1" -purge</pre> <p>Deletes all cloud objects whose owner is "user1". All scheduled requests will be canceled. All Complete Requests will be purged.</p> <pre>emcli delete_cloud_user_objects -user="user1" -force</pre> <p>Deletes all cloud objects whose owner is "user1". All scheduled requests will be canceled. All In Progress Requests will be aborted.</p>	<pre>emcli delete_cloud_user_objects -user="username" [-purge] [-force]</pre>
get_cloud_service_instances	<p>Retrieves the list of cloud service instances. All instances will be printed if no option is specified.</p> <ul style="list-style-type: none"> <li>• user: The user name to be used to filter service instances.</li> <li>• family: The service family name to be used to filter service instances.</li> <li>• type: The service family type to be used to filter service instances.</li> </ul> <p>Examples:</p> <pre>emcli get_cloud_service_instances</pre> <p>Displays all the cloud instances.</p> <pre>emcli get_cloud_service_instances -user="user1"</pre> <p>Displays all cloud instances whose owner is "user1"</p> <pre>emcli get_cloud_service_instances -family="family1"</pre> <p>Displays all cloud instances that belong to service family "family1"</p> <pre>emcli get_cloud_service_instances -type="type1"</pre> <p>Displays all cloud instances that belong to service type "type1"</p>	<pre>emcli get_cloud_service_instances [-user="username"] [-family="family"] [-type="type"]</pre>

**Table 36-158 (Cont.) EM CLI Verbs Supported for V2**

Verb	Description	Format
get_cloud_service_requests	<p>Retrieves the list of cloud requests. All requests will be printed if no filter is applied. Both options cannot be used simultaneously.</p> <ul style="list-style-type: none"> <li>• user: The user name to be used to filter cloud requests.</li> <li>• family: The service family name to be used to filter cloud requests.</li> <li>• ids: The list of request ids to be used to filter cloud requests separated by a semicolon.</li> </ul> <p>Examples:</p> <pre>emcli get_cloud_service_requests</pre> <p>Displays all cloud requests.</p> <pre>emcli get_cloud_service_requests -user="user1"</pre> <p>Displays all cloud requests created by "user1"</p> <pre>emcli get_cloud_service_requests -family="family1"</pre> <p>Displays all cloud requests that belong to service family "family1"</p> <pre>emcli get_cloud_service_requests -ids="1;2"</pre> <p>Displays all cloud with RequestIds "1" and "2"</p>	<pre>emcli get_cloud_service_requests [-user="username"] [-family="family"] [-ids="id1;id2..."]</pre>
get_cloud_user_objects	<p>Retrieves the list of cloud user objects including cloud service instances and requests. All objects will be printed if the user option is not used.</p> <p>- user: The user name to be used to filter user objects.</p> <p>Examples:</p> <pre>emcli get_cloud_user_objects</pre> <p>Displays all cloud objects, cloud instances, requests, and other objects.</p> <pre>emcli get_cloud_user_objects -user="user1"</pre> <p>Displays cloud objects whose owner is "user1", cloud instances, requests, and other objects.</p>	<pre>emcli get_cloud_user_objects [-user="username"]</pre>

## EM CLI Verbs for SSA Operations for V1

The following table provides details of the deprecated verbs (v1). Users are suggested to avoid using these verbs. These verbs are available to SSA Administrator users only and cannot be used with an EM\_SSA\_USER role.

**Table 36-159 EM CLI Verbs for V1**

Verb	Description	Format
create_paas_zone	<p>Creates a PaaS Infrastructure Zone.</p> <ul style="list-style-type: none"> <li>name - Name of the PaaS Infrastructure Zone to be created</li> <li>credential - Global Named Credentials to be used for provisioning in this PaaS Infrastructure Zone.</li> <li>hosts - Comma separated list of the Host targets to be added as members of this Paas Infrastructure Zone. PaaS Infrastructure Zone can contain either hosts or Oracle VM Zones as members.</li> <li>ovm_zones - Comma separated list of the Oracle VM Zone targets to be added as members of this Paas Infrastructure Zone.</li> <li>roles - Comma separated list of SSA roles that can access this PaaS Infrastructure Zone.</li> <li>description - Description of the PaaS Infrastructure Zone.</li> <li>cpu_utilization - Placement Policy Constraints allow the cloud administrator to set maximum thresholds for any host. Value entered must be between 1 and 100. If not provided, default value is taken to be 80 percent. Parameter is not needed if Oracle VM Zone targets are added as members.</li> <li>memory_utilization - Another Placement Policy Constraint for PaaS Infrastructure Zone. Value entered must be between 1 and 100. If not provided, default value is taken to be 80 percent. Parameter is not needed if Oracle VM Zone targets are added as members.</li> </ul> <p>Example:</p> <pre>emcli create_paas_zone -name=MyPaaSZone -credential=ABCDEF -hosts=slc03qtn.us.example.com -roles="SSA_USER_ROLE1,SSA_USER_ROLE2" -description="Test PaaS zone" -cpu_utilization=40 -memory_utilization=70</pre>	<pre>emcli create_paas_zone- name=&lt;Name of PaaS Zone&gt; -credential=&lt;Global Named Credential&gt; [- hosts=&lt;Host1,Host2,Hos t3...&gt;] [- ovm_zones=&lt;OVMZone 1,OVMZone2,OVMZone3 ...&gt;] [- roles=&lt;SsaRole1,SsaRol e2,...&gt;] [- description=&lt;Description of PaaS Zone&gt;] [-cpu_utilization=&lt;Value between 1 and 100&gt;] [- memory_utilization=&lt;Val ue between 1 and 100&gt;]</pre> <p>Sample Output:</p> <pre>PaaS Infrastructure Zone "MyPaaSZone" created successfully.</pre>



**Table 36-159 (Cont.) EM CLI Verbs for V1**

Verb	Description	Format
update_paaS_zone	<p>Updates a PaaS Infrastructure Zone.</p> <ul style="list-style-type: none"> <li>name - Name of the existing PaaS Infrastructure Zone.</li> <li>credential - Global Named Credentials to be updated.</li> <li>add_hosts - Comma separated list of the Host targets to be added as members of this Paas Infrastructure Zone. The hosts to be added must not be already added to other existing PaaS Zones.</li> <li>remove_hosts - Comma separated list of the Host targets to be removed as members from this Paas Infrastructure Zone.</li> <li>add_ovm_zones - Comma separated list of the Oracle VM Zone targets to be added as members of this Paas Infrastructure Zone. The Oracle VM Zones to be added must not be already added to other existing PaaS Zones.</li> <li>remove_ovm_zones - Comma separated list of the Oracle VM Zone targets to be removed as members from this Paas Infrastructure Zone.</li> <li>add_roles - Comma separated list of SSA roles to be added that can access this PaaS Infrastructure Zone.</li> <li>remove_roles - Comma separated list of SSA roles to be removed from this PaaS Infrastructure Zone.</li> <li>description - Updated description of the PaaS Infrastructure Zone.</li> <li>cpu_utilization - Placement Policy Constraints allow the cloud administrator to set maximum thresholds for any host. Value entered must be between 1 and 100.</li> <li>memory_utilization - Another Placement Policy Constraint for PaaS Infrastructure Zone. Value entered must be between 1 and 100.</li> </ul>	<p>emcli update_paaS_zone - name=&lt;Name of PaaS Zone&gt; [- description=&lt;Description of PaaS Zone&gt;] [-credential=&lt;Global Named Credential&gt;] [- add_hosts=&lt;Host1,Host 2,Host3...&gt;] [- remove_hosts=&lt;Host4,H ost5...&gt;] [- add_ovm_zones=&lt;OVM Zone1,OVMZone2,OVM Zone3...&gt;] [- remove_ovm_zones=&lt;O VMZone4,OVMZone5...&gt; ] [- add_roles=&lt;SsaRole1,S saRole2,..&gt;] [- remove_roles=&lt;SsaRole 3,SsaRole4,..&gt;] [-cpu_utilization=&lt;Value between 1 and 100&gt;] [- memory_utilization=&lt;Val ue between 1 and 100&gt;]</p>
delete_paaS_zone	<p>Deletes a PaaS Infrastructure Zone. PaaS Infrastructure Zone cannot be deleted if there is an existing Software Pool associated with it.</p> <p>name - Name of the existing PaaS Infrastructure Zone to be deleted.</p>	<p>emcli delete_paaS_zone -name=&lt;Name of PaaS Zone&gt;</p>
get_paaS_zone_detail	<p>Retrieves the PaaS Infrastructure Zone details.</p> <p>name - Details of the existing PaaS Infrastructure Zone, such as Name, Description, Named Credentials, Number of Hosts, Roles, Maximum Memory Allocation (%), and Maximum CPU Utilization (%).</p>	<p>emcli get_paaS_zone_detail - name=&lt;Name of PaaS Zone&gt;</p>

**Table 36-159 (Cont.) EM CLI Verbs for V1**

Verb	Description	Format
create_pool	<p>Creates a Software Pool.</p> <ul style="list-style-type: none"> <li>name - Name of the Software Pool to be created</li> <li>target_type - Target type of the Software Pool to be created.</li> <li>paas_zone - Name of PaaS Infrastructure Zone in which the Software Pool is to be created.</li> <li>members - Comma separated list of targets to be added as members of the Software Pool.</li> <li>description - Description of the Software Pool.</li> <li>placement_constraints - Comma separated key value pairs of the placement constraints that allow the self service administrator to set maximum ceilings for resource utilization. This provides protection for the members of the Software Pool in terms of resource consumption. Refer to the get_pool_allowed_placement_constraints verb to get the available placement constraints for a pool target type.</li> <li>member_constraints - Comma separated key value pairs that restricts the addition of member targets to a Software Pool with a set criteria. Refer to the get_pool_allowed_member_constraints verb to get the available member constraints and their possible values for a pool target type.</li> <li>properties - Comma separated key value pairs for additional properties that need to be specified based on the Software Pool target type.</li> </ul> <p>Example:</p> <pre>emcli create_pool   -name=MyDbPool   -target_type=oracle_cloud_zone   -paas_zone=MyPaaSZone   -members=OraDb11g_home1_1_slc03qtn   -description="Test Database Pool"   -   member_constraints="CONFIGURATION=oracle_database,VERSION=11.2.0.3.0,PLATFORM=226"   -placement_constraints="MAX_INSTANCES=7"   -   properties="host_credential_guid=DBA449B8967AAF77E040F00A73B11F55,   root_credential_guid=DBA449B8967AAF77E040F00A73B11F55   "</pre>	<pre>emcli create_pool - name=&lt;Name of Software Pool&gt; -target_type=&lt;Target type of Software Pool&gt; -paas_zone=&lt;Paas Infrastructure Zone of Software Pool&gt; -members=&lt;Member1, Member2...&gt; [- description=&lt;Description of Software Pool&gt;] [- placement_constraints=&lt; constraint1=value1, constraint2=value2...&gt;] [- member_constraints=&lt;c onstraint1=value1, constraint2=value2&gt;] [- properties=&lt;property1=v alue1, property2=value2&gt;]</pre>
	<p>Sample Output:</p> <pre>Software Pool "MyDbPool" created successfully.</pre>	
	<p>Note:</p> <ul style="list-style-type: none"> <li>This verb is for DB Pool. The target_type for Schema Pool is schaaS_pool.</li> <li>Though the properties are not mandated by the verb (because SSA framework owns it), they are needed and without them the pools will not work.</li> </ul>	

**Table 36-159 (Cont.) EM CLI Verbs for V1**

Verb	Description	Format
	<ul style="list-style-type: none"> <li>Valid property names for Schema Pool are host_credential_guid, database_credential_guid, and gi_credential_guid.</li> </ul>	
update_pool	<p>Updates a Software Pool.</p> <ul style="list-style-type: none"> <li>name - Name of the existing Software Pool.</li> <li>target_type - Target type of the existing Software Pool. For example: "mwaas_zone" for Middleware Pool, "oracle_cloud_zone" for Database Pool, and "schaas_pool" for Schema Pool.</li> <li>description - Description of the Software Pool.</li> <li>add_members - Comma separated list of targets to be added as members of the Software Pool. The targets to be added must satisfy the member constraints of the Software Pool.</li> <li>remove_members - Member targets to be removed from the Software Pool.</li> <li>placement_constraints - Comma separated key value pairs of the placement constraints that allow the self service administrator to set maximum ceilings for resource utilization. This provides protection for the members of the Software Pool in terms of resource consumption.</li> <li>properties - Comma separated key value pairs for properties that need to be updated based on the Software Pool target type.</li> </ul>	<p>emcli update_pool - name=&lt;Name of Software Pool&gt;</p> <p>-target_type=&lt;Target type of Software Pool&gt;</p> <p>[- description=&lt;Description of Software Pool&gt;]</p> <p>[- add_members=&lt;Member 1, Member2...&gt;]</p> <p>[- remove_members=&lt;Member4, Member5...&gt;]</p> <p>[- placement_constraints=&lt;constraint1=value1,constraint2=value2...&gt;]</p> <p>[- properties=&lt;property1=value1, property2=value2&gt;]</p>
delete_pool	<p>Deletes a Software Pool. Software Pool cannot be deleted if there is an existing Service Template associated with it.</p> <ul style="list-style-type: none"> <li>name - Name of an existing Software Pool.</li> <li>target - Target type of the Software Pool.</li> </ul>	<p>emcli delete_pool - name=&lt;Name of Software Pool&gt;</p> <p>-target_type=&lt;Target type of Software Pool&gt;</p>
get_pool_detail	<p>Retrieves the Software Pool details, such as name, target type, description, PaaS Infrastructure Zone, number of members, placement constraints, and member constraints.</p> <ul style="list-style-type: none"> <li>name - Name of the Software Pool.</li> <li>target - Target type of the Software Pool</li> </ul>	<p>emcli get_pool_detail - name=&lt;Name of Software Pool&gt;</p> <p>- target_type=mwaas_zone</p>

**Table 36-159 (Cont.) EM CLI Verbs for V1**

Verb	Description	Format
get_pool_capacity	<p>Retrieves the software pool capacity details like CPU utilization, memory allocation, and number of instances per host for the pool entities.</p> <ul style="list-style-type: none"> <li>name - Name of Software Pool</li> <li>target_type - Target type of Software Pool</li> </ul> <p>Example:</p> <pre>emcli get_pool_capacity       -name=MyDbPool       -target_type=oracle_cloud_zone</pre> <p>Sample Output:</p> <pre>Details of Software Pool "MyDbPool" : Capacity information for Software Pool "MyDbPool" : Capacity information for Entity "slc03qtn.us.example.com" of type "host" :   Storage Utilization : 29.0 : 100.0   CPU Utilization : 2.96 : 40.0   Memory Utilization : 27.68 : 70.0   Instances : 2 : 7</pre>	<pre>emcli get_pool_capacity       -name=&lt;Name of Software Pool&gt; - target_type=&lt;Target type of Software Pool&gt;</pre>
get_pool_allowed_placement_constraints	<p>Retrieves the list of placement constraints for a given pool target type.</p> <p>target_type - Target type of the Software Pool</p> <p>Example:</p> <pre>emcli get_pool_allowed_placement_constraints       -target_type=oracle_cloud_zone</pre> <p>Sample Output:</p> <pre>Name Description MAX_INSTANCES    Maximum Number of Instances</pre>	<pre>emcli get_pool_allowed_place ment_constraints - target_type=&lt;mwaas_zo ne&gt;</pre>

**Table 36-159 (Cont.) EM CLI Verbs for V1**

Verb	Description	Format
get_pool_filtered_targets	<p>Retrieves the filtered targets available for Software Pool creation based on the criteria passed.</p> <ul style="list-style-type: none"> <li>target_type - Target type of the Software Pool</li> <li>paas_zone - Name of PaaS Infrastructure Zone within which the filtered targets are to be retrieved</li> <li>member_constraints - Comma separated key value pairs that restricts the addition of member targets to a Software Pool with a set criteria</li> </ul> <p>Example:</p> <pre>emcli get_pool_filtered_targets       -target_type=oracle_cloud_zone       -paas_zone=MyPaaSZone       -       member_constraints="CONFIGURATION=oracle_database,VERSION=11.2.0.3.0,PLATFORM=226"</pre> <p>Sample Output:</p> <pre>Target Type      Target Name oracle_home OraDb11g_home1</pre>	<pre>emcli get_pool_filtered_targets -target_type=&lt;Target type of Software Pool&gt; - paas_zone=&lt;Paas Infrastructure Zone of Software Pool&gt; - member_constraints=&lt;c onstraint1=value1, constraint2=value2&gt;</pre>
get_pool_allowed_member_constraints	<p>Retrieves the list of allowed Software Pool member constraint values for creation of Software Pool.</p> <p>target_type - Target type of the Software Pool.</p> <p>Example:</p> <pre>emcli get_pool_allowed_member_constraints       -target_type=oracle_cloud_zone</pre>	<pre>emcli get_pool_allowed_member_constraints - target_type=&lt;Target type of Software Pool&gt;</pre>

**Table 36-159 (Cont.) EM CLI Verbs for V1**

Verb	Description	Format
get_named_credential	<p>Retrieves credential information used to create DBaaS and SchaaS Pools.</p> <ul style="list-style-type: none"><li>cred_name - The credential name</li><li>cred_owner - Owner of the credential</li></ul> <p>Example:</p> <pre>emcli get_named_credential       -cred_name=ABCDEF       -cred_owner=ORACLE</pre> <p>Sample Output:</p> <p>Output:</p> <pre>Credential Name:test12 Credential Owner:ORACLE Credential Type:HostCreds Credential Target Type:host Credential Username:test123 Credential Scope:global Credential Guid:DBA449B8967AAF77E040F00A73B11F55 Credential Stripe:TARGETS Credential Columns:       HostPassword=*****       HostUserName=test12</pre>	

# SSA Portal Management REST APIs

This chapter covers the REST APIs for request scheduling and user preference management. REST APIs for the Self Service Portal application are generally used by the SSA users. These REST APIs are generally in the `.../ssa/...` format. For example, `/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/`. REST APIs for administrative functions (i.e., `.../admin/...` format) are REST APIs that configure the SSA Portal setup, such as creating zones, templates, etc., which are generally performed by Cloud or SSA Administrators. The SSA user REST APIs are covered in this chapter.

This chapter contains the sections listed below. The first two sections provide summaries of all the v2 and v1 REST APIs covered in this chapter, whereas the following sections provide the user preference and request scheduling resource details and their REST APIs.

- [Summary of SSA User REST APIs for V2](#)
- [Summary of User REST APIs for V1](#)
  - [Common REST Entities for V2](#)
    - [Cfw Resource for V2](#)
    - [Cfw Link for V2](#)
    - [Cfw Value Descriptor for V2](#)
- [Catalog APIs](#)
- [Service Types for V2](#)
- [Services for V2](#)
  - [Service Collection for V2](#)
  - [Service Offering for V2](#)
  - [Request Metadata for V2](#)
- [Service Requests REST APIs for V1 and V2](#)
  - [Service Requests Resource for V2](#)
  - [Service Request Collection - Collection Resource for V1](#)
  - [Service Request REST API Examples for V1 and V2](#)
- [Service Instances for V2](#)
- [Quota Usage for V2](#)
- [User Preferences for V2](#)
- [User Preferences for V1](#)
  - [My Preferences for V1](#)
  - [Canonical Link for V1](#)
  - [General Preferences for V1](#)
- [Composite Resource Attributes for V1](#)
  - [RequestEntity Data Model for V1](#)

- InstanceExpiryEntity Data Model for V1
- QuotaEntity Data Model for V1
- Supported Methods for General Preferences (for V1)
- Service Specific User Preferences for V1
  - Service Preferences for V1
  - Supported Methods for My Preferences (for V1)
  - ServicePreferenceMetadata Data Model for V1
  - Composite Resource Attributes for V1
  - Service Preferences REST API Examples for V1
  - My Database Preferences REST API Examples for V1

## Summary of SSA User REST APIs for V2

The table below shows a summary of all the User preference and Request scheduling REST APIs covered in this chapter for the v2 framework.

**Table 37-1 Summary of User Preference and Request Scheduling REST APIs for V2**

Resource	Data Model	GET	POST	PUT	DELETE
Common REST Entities	<a href="#">Common REST Entities for V2</a>	Not applicable	Not supported	Not supported	Not supported
Catalog	Not applicable	<ul style="list-style-type: none"> <li>• <a href="#">Viewing Details of the Available REST API Catalogs</a></li> <li>• <a href="#">Viewing Details of the API Catalog by User Type</a></li> <li>• <a href="#">Viewing Details of the User API Catalog</a></li> </ul>	Not supported	Not supported	Not supported
Service Types	Not applicable	<a href="#">Viewing Details of Service Types</a>	Not supported	Not supported	Not supported
Service Collection	<a href="#">Table 37-11</a>	<a href="#">Viewing Details of the Services Resource</a>	<a href="#">Creating a Service Instance</a>	Not supported	Not supported
Service Offering	<a href="#">Table 37-12</a>	<a href="#">Viewing Details of the Service Offering Resource</a>	Not supported	Not supported	Not supported
Request Metadata	<a href="#">Table 37-13</a>	<a href="#">Viewing Details of the Request Metadata</a>	Not supported	Not supported	Not supported



**Table 37-1 (Cont.) Summary of User Preference and Request Scheduling REST APIs for V2**

Resource	Data Model	GET	POST	PUT	DELETE
Service Requests	Table 37-19	<ul style="list-style-type: none"> <li>Retrieving Top Level View of Service Requests in V1 and V2</li> <li>Querying the Service Requests Resource for Status=SUCCESS in V2</li> <li>Querying the Service Requests Resource for Expanded=true and Expanded=false in V2</li> <li>Querying the Service Requests Resource for status=SUCCESS&amp;expanded=false and status=SUCCESS&amp;expanded=true in V2</li> </ul>	Not supported	Not supported	Not supported
Service Request	Not applicable	<ul style="list-style-type: none"> <li>Viewing Details of a Service Request in V2</li> <li>Viewing the Logs of a Service Request in V2</li> <li>Querying the Logs of a Service Request in V2</li> </ul>	Not supported	Rescheduling a Service Request that is in a Scheduled State in V1 and V2	Deleting a Service Request in V2

**Table 37-1 (Cont.) Summary of User Preference and Request Scheduling REST APIs for V2**

Resource	Data Model	GET	POST	PUT	DELETE
Service Instances	Table 37-38	<ul style="list-style-type: none"> <li>Viewing Details of the Service Instance Resource in V2</li> <li>Querying the Service Instance Resource in V2</li> <li>Viewing Details of a Service Instance in V2</li> <li>Viewing Details of the Available Actions on a Service Instance in V2</li> <li>Viewing Details of the Attributes of a Service Instance in V2</li> <li>Viewing Details of the Action Inputs Required To Execute an Action on a Service Instance in V2</li> </ul>	Not supported	Executing an Action on a Service Instance in V2	Not supported
Quota Usage	Not applicable	<ul style="list-style-type: none"> <li>Viewing Details of Quota Usage</li> <li>Viewing Details of Quota Usage by Service Family</li> </ul>	Not supported	Not supported	Not supported

**Table 37-1 (Cont.) Summary of User Preference and Request Scheduling REST APIs for V2**

Resource	Data Model	GET	POST	PUT	DELETE
User Preferences	Not applicable	<a href="#">Viewing Details of the User Preferences Resource for V2</a>	Not supported	Not supported	Not supported
General User Preferences	Not applicable	<ul style="list-style-type: none"> <li>• <a href="#">Viewing Details of the General User Preferences Resource for V2</a></li> <li>• <a href="#">Viewing Metadata of the General User Preferences Resource for V2</a></li> </ul>	Not supported	<a href="#">Updating the General User Preferences for V2</a>	Not supported
Services User Preferences	Not applicable	<a href="#">Viewing Details of the Services User Preferences Resource for V2</a>	Not supported	Not supported	Not supported
Service Family User Preferences	Not applicable	<ul style="list-style-type: none"> <li>• <a href="#">Viewing Details of the Service Family User Preferences Resource for V2</a></li> <li>• <a href="#">Viewing Metadata of the Service Family User Preferences for V2</a></li> </ul>	Not supported	<a href="#">Updating the Service Family User Preferences for V2</a>	Not supported

**Table 37-1 (Cont.) Summary of User Preference and Request Scheduling REST APIs for V2**

Resource	Data Model	GET	POST	PUT	DELETE
Service Type User Preferences	Not applicable	<ul style="list-style-type: none"> <li>Viewing Details of the Service Type User Preferences Resource for V2</li> <li>Viewing Metadata of the Service Type User Preferences for V2</li> </ul>	Not supported	Updating the Service Type User Preferences for V2	Not supported

 **Note:**

In the table above, "supported" indicates that the operation is supported on the resource. However, there is no example in the chapter for this operation.

## Summary of User REST APIs for V1

The table below shows a summary of all the User preference and Request scheduling REST APIs covered in this chapter for the v1 framework.

**Table 37-2 Summary of User Preference and Request Scheduling REST APIs for V1**

Resource	Data Model	GET	POST	PUT	DELETE
General Preferences	Table 37-66	Viewing Details of the General Preferences for an SSA User	Not supported	Updating the General Preferences for an SSA User	Not supported
Service Preferences	Table 37-73	Viewing Details of the Service Preferences Resource	Not supported	Supported	Not supported
Database Preferences	Not applicable	<ul style="list-style-type: none"> <li>Viewing Details of the DBaaS User Preferences Metadata</li> <li>Viewing the DBaaS User Preferences</li> </ul>	Not supported	<ul style="list-style-type: none"> <li>Updating DBaaS User Preferences</li> <li>Setting a Blank DBaaS User Preference Setting</li> </ul>	Not supported

**Table 37-2 (Cont.) Summary of User Preference and Request Scheduling REST APIs for V1**

Resource	Data Model	GET	POST	PUT	DELETE
Service Request Collection	Table 37-20	Retrieving Top Level View of Service Requests in V1 and V2	Not supported	Not supported	Not supported
Service Request Entity	Table 37-21	<ul style="list-style-type: none"> <li>Retrieving Top Level View of Service Requests for a Specific Service Family in V1</li> <li>Retrieving Top Level View of Service Requests for a Specific Status in V1</li> </ul>	Not supported	<ul style="list-style-type: none"> <li>Rescheduling a Service Request that is in a Scheduled State in V1 and V2</li> <li>Rescheduling a Service Request that is in a Cancelled State (or in a state other than Scheduled) in V1</li> </ul>	Deleting a Service Request that is in a Scheduled State in V1

 **Note:**

In the table above, "supported" indicates that the operation is supported on the resource. However, there is no example in the chapter for this operation.

## Common REST Entities for V2

This section describes the common REST entities to the cloud framework resources. These entities are specific to the new Cloud Framework (CFW) v2.

### Cfw Resource for V2

Cfw resource is the base class for cloud framework resources. This resource fields that are common to all singular resources.

**Table 37-3 Cfw Resource Data Model**

Field	Type	Description
description	String	Description of the resource.
createdOn	String	Date of creation.
createdBy	String	Details of the creator.
modifiedOn	String	Date of last modification.

**Table 37-3 (Cont.) Cfw Resource Data Model**

Field	Type	Description
modifiedBy	String	Details of the modifier.
owner	String	Indicates the owner of the resource.
e-Tag	String	Indicates the Etag.
lastModified	String	Details of the last modification.
canonicalLink	Cfw Link	Indicates the canonical link of the resource.

## Cfw Link for V2

Cfw link is the base class for the link to a resource.

**Table 37-4 Cfw Link Data Model**

Field	Type	Description
href	String	Indicates the URI or URI template. If the value is a URI template, then the templated property should be true.
templated	Boolean	Is <code>True</code> if <code>href</code> is a URI template, else <code>false</code> . The default value is <code>false</code> .
rel	String	Indicates the name of the link relation that the consumer may lookup as a secondary key (in addition to the type property) to retrieve actual link details, e.g. <code>href</code> or <code>profile</code> .
profile	String	Indicates the Json-schema describing the resource expected when deferring the target resource.
method	String	The method for requesting the target of the link.
mediaType	String	Description of the link target.

## Cfw Value Descriptor for V2

Cfw value descriptor defines the dynamic data.

**Table 37-5 Cfw Value Descriptor Data Model**

Field	Type	Description
id	String	Indicates the ID.
name	String	Indicates the name.
value	String	Indicates the value.
defaultValue	String	Indicates the default value.
description	String	Provides a description.
displayName	String	Provides the display name.
required	Boolean	Signifies if required or not.
secret	Boolean	Signifies if it is a secret or not.
type	String	Indicates the type.

**Table 37-5 (Cont.) Cfw Value Descriptor Data Model**

Field	Type	Description
unitOfmeasurement	String	Indicates the unit of measurement.
values	List	Provides the list of values.
subvalues	List<CfwValueDescriptor>	Provides the list of sub-values.
subtype	String	Provides the type of elements in the values.

## Catalog APIs

This section covers the Catalog APIs for SSA user.

### Supported Operations

The table below lists the supported operations for the Catalog APIs.

**Table 37-6 Supported operations for Catalog APIs**

Method	URI	Description
GET	/em/websvcs/restful/extws/cloudservices/cfw/API	Returns links to available REST API catalogs.
GET	/em/websvcs/restful/extws/cloudservices/cfw/API/v2	Returns links to REST API catalog by user type.
GET	/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/API	Returns user REST API catalog.

### REST API Catalog Examples for V2

This section contains examples of the Catalog APIs. The following REST API examples are covered:

- [Viewing Details of the Available REST API Catalogs](#)
- [Viewing Details of the API Catalog by User Type](#)
- [Viewing Details of the User API Catalog](#)

### Viewing Details of the Available REST API Catalogs

The table below shows the GET configuration for viewing details of the available REST API catalogs.

**Table 37-7 GET Request Configuration for Viewing Details of the Available REST API Catalogs**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/cfw/API
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "items": [
    {
      "href":
      "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/cfw/API/v1",
      "description": "API Summary for version V1"
    },
    {
      "href":
      "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/cfw/API/v2",
      "description": "API Summary for version V2"
    }
  ],
  "totalResults": 2
}
```

## Viewing Details of the API Catalog by User Type

The table below shows the GET configuration for viewing details of the REST API catalog by user type.

**Table 37-8 GET Request Configuration for Viewing Details of the REST API Catalog by User Type**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/cfw/API/v2
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "items": [
    {
      "href":
      "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/API",
      "description": "APIs for Self Service Application for version V2",

```



```

"type": "SSA"
},
{
  "href":
  "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
  API",
  "description": "APIs for administrative functions for version V2",
  "type": "Admin"
}
],
"goBack":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/cfw/API",
"totalResults": 2
}

```

## Viewing Details of the User API Catalog

The table below shows the GET configuration for viewing details of the user API catalog.

**Table 37-9 GET Request Configuration for Viewing Details of the User API Catalog**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/API
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```

{
  "items": [
    {
      "totalResults": 5,
      "resource": "services",
      "APIs": [
        {
          "href":
          "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
          services",
          "method": "GET",
          "description": "Get all the service offerings"
        },
        {
          "href":
          "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
          services",
          "method": "POST",
          "description": "Create a service"
        },
        {
          "href":
          "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
          services/{
          id}",
          "method": "GET",
          "templated": true,

```

```
"description": "Get details of a service"
},
{
  "href":
  "https://bxx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
  services/{
  id}/metadata",
  "method": "GET",
  "templated": true,
  "description": "Get the metadata for a service"
},
{
  "href":
  "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
  services/{
  id}/metrics",
  "method": "PUT",
  "templated": true,
  "description": "Get the metrics for a service"
}
],
{
  "totalResults": 11,
  "resource": "userpreferences",
  "APIs": [
  {
    "href":
    "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
    userprefer
    ences",
    "method": "GET"
  },
  {
    "href":
    "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
    userprefer
    ences/general",
    "method": "GET",
    "description": "Get the general user preferences"
  },
  {
    "href":
    "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
    userprefer
    ences/general/metadata",
    "method": "GET",
    "description": "Get the metadata for general user preferences"
  },
  {
    "href":
    "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
    userprefer
    ences/services",
    "method": "GET",
    "description": "Get the service user preferences"
  },
  {
    "href":
    "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
    userprefer
    ences/services/{service-family}",
```

```
"method": "GET",
"templated": true,
"description": "Get the user preferences for a service family"
},
{
  "href":
  "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
  userprefer
  ences/services/{service-family}/metadata",
  "method": "GET",
  "templated": true,
  "description": "Get the metadata for user preference at family level"
},
{
  "href":
  "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
  userprefer
  ences/services/{service-family}/{service-type}",
  "method": "GET",
  "templated": true,
  "description": "Get the user preferences for a service type"
},
{
  "href":
  "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
  userprefer
  ences/services/{service-family}/{service-type}/metadata",
  "method": "GET",
  "templated": true,
  "description": "Get the metadata for user preference at service type level"
},
{
  "href":
  "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
  userprefer
  ences/general",
  "method": "PUT",
  "description": "Update general user preference"
},
{
  "href":
  "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
  userprefer
  ences/services/{service-family}",
  "method": "PUT",
  "templated": true,
  "description": "Update family level user preferences"
},
{
  "href":
  "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
  userprefer
  ences/services/{service-family}/{service-type}",
  "method": "PUT",
  "templated": true,
  "description": "Update service type level user preferences"
}
]
},
{
  "totalResults": 4,
  "resource": "servicerequests",
```

```
"APIs": [
  {
    "href":
    "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
    servicereq
    uests",
    "method": "GET",
    "description": "Get service requests"
  },
  {
    "href":
    "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
    servicereq
    uests/{id}",
    "method": "PUT",
    "templated": true,
    "description": "Reschedule the request"
  },
  {
    "href":
    "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
    servicereq
    uests/{id}",
    "method": "GET",
    "templated": true,
    "description": "Get the details of request"
  },
  {
    "href":
    "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
    servicereq
    uests/{id}",
    "method": "DELETE",
    "templated": true,
    "description": "Delete the request"
  }
],
{
  "totalResults": 5,
  "resource": "serviceinstances",
  "APIs": [
    {
      "href":
      "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
      serviceins
      tances",
      "method": "GET",
      "description": "Get the service instances"
    },
    {
      "href":
      "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
      serviceins
      tances/{id}",
      "method": "GET",
      "templated": true,
      "description": "Get details of a service instance"
    },
    {
      "href":
      "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
```

```

serviceinstances/{id}/actions",
"method": "GET",
"templated": true,
"description": "Get actions for a service instance"
},
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
serviceinstances/{id}/actions/{action-id}",
"method": "GET",
"templated": true,
"description": "Get metadata details of action"
},
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
serviceinstances/{id}/actions/{action-id}",
"method": "PUT",
"templated": true,
"description": "Perform the action on the service instance"
}
]
},
"goBack": "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/API",
"totalResults": 4
}

```

## Service Types for V2

This section covers the Service type REST APIs.

### Service Types REST API Example for V2

The Service types REST API for SSA user is as follows.

The query parameter `servicefamily` can be optionally used in the GET request to filter the output for the given service family type.

### Viewing Details of Service Types

The table below shows the GET configuration for viewing details of Service types.

**Table 37-10 GET Request Configuration for Viewing Details of Service Types**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicetypes
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "name": "Service Types",
  "type": "Service Types Collection",
  "totalResults": 3,
  "cfwItems": [
    {
      "name": "CFW_SAMPLEXAAS_REMOTESERVER_SERVICE",
      "displayName": "Cfw Sample RemoteServer XaaS",
      "serviceFamily": "CFW_SAMPLEXAAS_SERVICEFAMILY",
      "targetTypes": [
        "Cfw_XaaS_DB_Service"
      ]
    },
    {
      "name": "CFW_SAMPLEXAAS_SERVICE",
      "displayName": "Cfw Sample XaaS",
      "serviceFamily": "CFW_SAMPLEXAAS_SERVICEFAMILY",
      "targetTypes": [
        "Cfw_XaaS_DB_Service",
        "cfw_xaaS_storage_service"
      ]
    },
    {
      "name": "CFW_SAMPLEXAAS_SERVICE_FOR_NOMEM",
      "displayName": "Cfw Sample XaaS - Other Service",
      "serviceFamily": "CFW_SAMPLEXAAS_SERVICEFAMILY",
      "targetTypes": [
        "Cfw_XaaS_DB_Service_for_nomem"
      ]
    }
  ],
  "canonicalLink": {
    "href":
      "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicetypes"
  },
  "selfLink": {
    "href":
      "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicetypes"
  }
}
```

## Services for V2

The Services resource is defined by the Service collection resource, Service offering resource and the Request metadata resource. These resource are explained below.

The following topics are covered in this section:

- [Service Collection for V2](#)
- [Service Offering for V2](#)
- [Request Metadata for V2](#)
- [Supported Operations for Services for V2](#)
- [Services REST API Examples for V2](#)
- [Creating a Service Instance using V2](#)

## Service Collection for V2

Service collection resource is an extension of the `oracle.sysman.cfw.cloudAPI.common.CfwCollection` resource.

**Table 37-11 Service Collection Data Model**

Field	Type	Description
name	String	Name of the collection. The value is "Services".
type	String	Type of the collection. The value is "Services".
totalResults	Integer	The total count of items.
cfwItems	List<ServiceOffering>	Provides the list of <code>ServiceOffering</code> .
canonicalLink	Cfw link	Indicates the canonical link.
selfLink	Cfw link	Indicates the self link.

## Service Offering for V2

Service offering resource is an extension of the `oracle.sysman.cfw.cloudAPI.common.CfwResource` resource. Service offering resource encapsulates the service offering that is available to the user using which the user can provision a service instance.

**Table 37-12 Service Offering Data Model**

Field	Type	Description
id	String	Indicates the ID of the service offering.
name	String	Name of the service offering.
displayName	String	Display name of the service offering.
guid	String	GUID of the service offering.
serviceType	String	Indicates the service type.
serviceFamily	String	Indicates the service family.
description	String	Description of the service offering.
modifiedOn	String	Indicates the date of the modification.
lastModified	String	Indicates the date of the last modification.
meta	String	Meta details of the service offering.
canonicalLink	Cfw link	Indicates the canonical link.
selfLink	Cfw link	Indicates the self link.

## Request Metadata for V2

Request metadata resource is an extension of the `oracle.sysman.cfw.cloudAPI.common.CfwResource`. Request metadata encapsulates the data required to create a service instance. This response returned is filled by user with appropriate values and is used as in "POST" payload required for creation of service instance.

**Table 37-13 Request Metadata Data Model**

Field	Type	Description
instanceName	String	Name of the service instance.
schedule	Schedule entity	Schedule of the request.
configurations	List<CfwValueDe scriptor>	Provides the list of configurations.
characteristics	List<Characterist ic>	Provides the list of characteristics.

## Supported Operations for Services for V2

The table below lists the supported operations for the Services resource.

**Table 37-14 Supported operations for Services Resource**

Method	URI	Description
GET	/em/websvcs/restful/extws/ cloudservices/ssa/cfw/v2/ services	Returns list of service offerings.
GET	/em/websvcs/restful/extws/ cloudservices/ssa/cfw/v2/ services/{serviceguid}	Returns service offering details.
GET	/em/websvcs/restful/extws/ cloudservices/ssa/cfw/v2/ services/{serviceguid}/ metadata	Returns service offering metadata details.
POST	/em/websvcs/restful/extws/ cloudservices/ssa/cfw/v2/ services	Submits request for creation of Service instance.

## Services REST API Examples for V2

This section contains the REST APIs which are a part of the Services resource. The following REST API tasks are covered.

- [Viewing Details of the Services Resource](#)
- [Viewing Details of the Service Offering Resource](#)
- [Viewing Details of the Request Metadata](#)
- [Creating a Service Instance](#)

### Viewing Details of the Services Resource

The table below shows the GET configuration for viewing details of the Services resource.



**Table 37-15 GET Request Configuration for Viewing Details of the Services Resource**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "name": "Services",
  "type": "Service",
  "totalResults": 4,
  "cfwItems": [
    {
      "id": "1",
      "name": "ORACLE_NIMBULA_ORCHESTRATION_TEMPLATE",
      "displayName": "Orchestration",
      "guid": "04FA3C08D3F3398AE053CE74B10A52F3",
      "serviceType": "ORACLE_NIMBULA_ORCHESTRATION_SERVICE",
      "serviceFamily": "NIMBULA_INFRASTRUCTURE",
      "description": "Create a set of Oracle VM instances with customized configuration for multi-tier applications",
      "meta": {
        "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/04FA3C08D3F3398AE053CE74B10A52F3/metadata",
        "canonicalLink": {
          "href": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/04FA3C08D3F3398AE053CE74B10A52F3"
        }
      }
    },
    {
      "id": "2",
      "name": "ORACLE_NIMBULA_SIMPLE_ORCHESTRATION_TEMPLATE",
      "displayName": "Simple Orchestration",
      "guid": "04FA3C08D3F6398AE053CE74B10A52F3",
      "serviceType": "ORACLE_NIMBULA_ORCHESTRATION_SERVICE",
      "serviceFamily": "NIMBULA_INFRASTRUCTURE",
      "description": "Create one or more Oracle VM instances with default configuration and minimum inputs",
      "meta": {
        "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/04FA3C08D3F6398AE053CE74B10A52F3/metadata",
        "canonicalLink": {
          "href": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/04FA3C08D3F6398AE053CE74B10A52F3"
        }
      }
    },
    {
      "id": "44",
      "name": "MY DB Schema",
      "displayName": "MY DB Schema",
      "guid": "04FBAB67376E77D1E053CE74B10A9AA8",
    }
  ]
}
```

```

"serviceType": "SCHEMA",
"serviceFamily": "DBAAS",
"description": "My DB Schema",
"meta":
  "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/
  04FBAB67376E77D1E053CE74B10A9AA8/metadata",
"canonicalLink": {
  2.3 9
  "href":
  "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/
  04FBAB67376E77D1E053CE74B10A9AA8"
  },
  {
  "id": "41",
  "name": "My WebLogic Template",
  "displayName": "My WebLogic Template",
  "guid": "04FB7EEED9A03798E053CE74B10A753D",
  "serviceType": "WLAAS",
  "serviceFamily": "MIDDLEWARE_CFW",
  "description": "My Web Logic Template",
  "meta":
  "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/
  04FB7EEED9A03798E053CE74B10A753D/metadata",
  "canonicalLink": {
  "href":
  "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/
  04FB7EEED9A03798E053CE74B10A753D"
  }
  },
  "canonicalLink": {
  "href":
  "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/"
  },
  "selfLink": {
  "href":
  "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/"
  }
  }
}

```

## Viewing Details of the Service Offering Resource

The table below shows the GET configuration for viewing details of the Service offering resource.

**Table 37-16 GET Request Configuration for Viewing Details of the Service Offering Resource**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/{serviceguid}
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```

{
  "id": "42",
  "name": "My XaaS Remote Server",
  "displayName": "My XaaS Remote Server",
  "guid": "04FBAB67376677D1E053CE74B10A9AA8",
  "serviceType": "CFW_SAMPLEXAAS_REMOTESERVER_SERVICE",
  "serviceFamily": "CFW_SAMPLEXAAS_SERVICEFAMILY",
  "description": "My XaaS Remote Server",
  "createdOn": "2014-10-09T10:13:34Z",
  "modifiedOn": "2014-10-09T10:13:34Z",
  "lastModified": "2014-10-09T10:13:34Z",
  "meta":
  "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/
04FBAB67376677D
1E053CE74B10A9AA8/metadata",
  "canonicalLink": {
    "href":
    "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/
04FBAB67376677D
1E053CE74B10A9AA8"
  }
}

```

## Viewing Details of the Request Metadata

The table below shows the GET configuration for viewing details of the Request metadata.

**Table 37-17 GET Request Configuration for Viewing Details of the Request Metadata**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/{serviceguid}/metadata
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```

{
  "characteristics": [
    {
      "displayName": "Self Service Zone",
      "name": "ORACLE.SYSMAN.SXAAS.CFW_SAMPLEXAAS_RSRC_POOL",
      "possibleValues": [
        {
          "name": "my_paaszone",
          "value": "1C3A932A9089BBEC27A63EF389C7DF24"
        }
      ]
    }
  ],
  "configurations": [
    {
      "name": "temp_param2",
      "type": "STRING",
      "value": "",
      "required": false,

```

```

"secret": false
},
{
"name": "USER_NAME",
"type": "STRING",
"description": "User Name (cannot be any of Oracle default accounts) used to login to
the requested database",
"value": "",
"required": false,
"secret": false
},
{
"name": "temp_param1",
"type": "STRING",
"value": "",
"required": false,
"secret": false
},
{
"name": "USER_PASSWORD",
"type": "STRING",
"description": "User Password to login to the given User Name database account",
"required": false,
"secret": true
}
],
"canonicalLink": {
"href":
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/
04FBAB67376677D1E053CE74B10A9AA8/metadata"
},
"selfLink": {
"href":
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/
04FBAB67376677D1E053CE74B10A9AA8/metadata"
},
"instanceName": "<user-input>"
}

```

## Creating a Service Instance

The table below shows the POST configuration for creating a Service instance.

**Table 37-18 POST Request Configuration for Creating a Service Instance**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json

**Table 37-18 (Cont.) POST Request Configuration for Creating a Service Instance**

Feature	Specification
Body	<pre> {   "name": "Xaas RemoteServer Request",   "offeringId": "04FBAB67376677D1E053CE74B10A9AA8",   "instanceName": "Xaas RemoteServer",   "schedule": {     "scheduleStartTime": "2015-01-12T16:48:10ZAmerica/     Los_Angeles",     "scheduleEndTime": "2015-31-12T16:48:10ZAmerica/Los_Angeles"   },   "characteristics": [     {       "name": "ORACLE.SYSMAN.SXAAS.CFW_SAMPLEXAAS_RSRC_POOL",       "value": "1C3A932A9089BBEC27A63EF389C7DF24"     }   ],   "configurations": [     {       "name": "temp_param2",       "value": "val2"     },     {       "name": "USER_NAME",       "value": "user"     },     {       "name": "temp_param1",       "value": "val1"     },     {       "name": "USER_PASSWORD",       "value": "passwords"     }   ] } </pre>
Request method	POST

A sample of the response received is shown below.

```

{
  "requests": [
    {
      "id": "16",
      "actionName": "CREATE",
      "canonicalLink": {
        "href": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
        servicerequests/1
        6"
      }
    },
    {
      "id": "17",
      "actionName": "DELETE",
      "canonicalLink": {
        "href": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
        servicerequests/1

```

```

7"
}
}
]
}

```

## Creating a Service Instance using V2

This section provides the procedure to create a Service instance using REST APIs.

Follow the steps below to create a Service instance:

1. Perform a GET operation on the URI - `em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/`. See, [Viewing Details of the Services Resource](#).

The GET operation returns all the service offerings. Note the required service offering.

2. Perform a GET operation on the URI - `em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/{serviceofferingid}/metadata`, using the service offering ID from the previous step. See, [Viewing Details of the Request Metadata](#).

The GET operation returns the metadata of the service offering. Note the metadata fields.

3. Perform a POST operation on the URI - `em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/`, by providing values for the metadata fields. See, [Creating a Service Instance](#).

The POST generates a request for the creation of a Service instance. The request payload is expected to have the following fields with values set.

- `offeringId` - A unique ID for identifying the Service instance.
- `name` - A name for the Service instance.
- `schedule` - This is an optional field and has two sub-fields, `scheduleStartTime` and `scheduleEndTime`. To schedule an instance for future use provide `scheduleStartTime` value. Additionally, to set expiry or end time for the service instance set the `scheduleEndTime`.
- `instanceName` - This field is dependent on the chosen service offering and may or may not be required.
- `configurations` - This field is dependent on the chosen service offering and may or may not be required.
- `characteristics` - This field is dependent on the chosen service offering and may or may not be required.

## Service Requests REST APIs for V1 and V2

A user with the `EM_SSA_USER` role can reschedule and cancel requests that are in the **scheduled** state.

All the REST APIs will be available from the top level URI `/extws/cloudservices/ssa/cfw/v1/`.

## Service Requests Resource for V2

The Service requests resource is an extension of `oracle.sysman.cfw.cloudAPI.pojo.request.RequestSummary`. A request enables a SSA user to initiate a task for immediate or future execution.

**Table 37-19 Service Requests Data Model for V2**

Field	Type	Description
requestType	String	Type of request.
serviceFamily	String	Name of service family.
serviceType	String	Name of service type.
startDate	String	Start date of request.
endDate	String	End date of request.
lastModifiedDate	String	Date of last modification of request.
timeZone	String	Time zone of the request.
displayName	String	Display name of the request.
actionName	String	Name of the request action.
description	String	Description of the request.
submissionDate	String	Date of submission of the request.
submittedBy	String	Name of the user who submitted the request.
executionLogs	String	Execution logs.
status	Request status	Status of the request.

## Service Request Collection - Collection Resource for V1

Service Request Collection is a collection resource representing a Cloud Administrator's view of all the accessible Service Request resources. The following table describes the Service Request Collection data model for v1.

**Table 37-20 Service Request Collection Data Model for V1**

Field	Type	Description	Occurs
name	String	Display name of this collection resource.	1
type	String	Type of this collection resource.	1
hasMore	Boolean	Indicates whether there are more elements in the collection	1
count	Integer	Number of elements returned.	1
items	Collection <ServiceRequestEntity>	List of ServiceRequestEntity resources. In case no requests exist, items will be present but empty.	1
canonicalLink	URI	A GET against this URI refreshes the client representation of this resource.	1
selfLink	URI	Refers to the resource equivalent to the containing elements.	1

**Table 37-21 Service Request Entity Data Model for V1**

Field	Type	Description	Occurs
id	String	The RequestId of the ServiceRequest.	1

**Table 37-21 (Cont.) Service Request Entity Data Model for V1**

Field	Type	Description	Occurs
beginDate	String	The String representation of timestamp to which the new schedule has to be updated, in specified format. e.g 2013-10-02T16:14:41ZPST	1
status	String	The status of service request	1
name	String	Name of service request.	1
serviceFamily	String	The service family of the request type.	1
lastUpdatedTime	String	The string value of last modified timestamp, in specified format.	1
lifeCycle	String	The life cycle of request.	1
selfLink	String	A GET against this URI represents the client representation of this resource.	1
canonicalLink	String	A GET against this URI represents the client representation of this resource	1

## Supported Operations for Service Requests

The table below lists the operations that are supported in the Service requests resource.

**Table 37-22 Supported Methods for Service Requests**

Request Method	V2 Canonical Link	V1 Canonical Link	Description
GET	em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/	em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequests/	Provides the list of all service requests. There are two query parameter types and status for v1. For v2, see <a href="#">Table 37-23</a> , for query parameters.
GET	/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/{requestid}	em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequests/<request-id>	Provides the details of the service request ID.
PUT	/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/{requestid}	em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequests/<request-id>	Re-schedule the specified request to another schedule. The beginDate for the schedule is specified in the payload.
DELETE	/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/{requestid}	em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequests/<service-request-id>	Cancels specified Service Request.
GET	/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/{requestid}/logs	Not applicable	Provides the service request logs.



**Table 37-22 (Cont.) Supported Methods for Service Requests**

Request Method	V2 Canonical Link	V1 Canonical Link	Description
GET	/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/{requestid}/logs?stepid={stepid}	Not applicable	Returns request execution step log.

The table below shows the query parameters supported for the GET request on the Service Requests resource in the v2 framework.

**Table 37-23 Query Parameters for Service Requests in V2**

Parameter	Input	Description	Required
servicetype	Name of service type	Returns service type specific information.	Optional
status	Status of service request	Returns status specific information. The possible values are: <ul style="list-style-type: none"> <li>CANCELLED</li> <li>CLEANUP_ERROR</li> <li>CLEANUP_FAILED</li> <li>CLEANUP_SCHEDULED</li> <li>CLEANED</li> <li>CLEANING_UP</li> <li>EXECUTION_ERROR</li> <li>INCOMPLETE</li> <li>IN_PROGRESS</li> <li>NO_QUOTA_ERROR</li> <li>NO_RESOURCE_ERROR</li> <li>PARTIAL_SUCCEEDED</li> <li>ENDED</li> <li>ERROR_ENDING</li> <li>ENDING</li> <li>EXECUTING</li> <li>SAVED</li> <li>SCHEDULED</li> <li>SCHEDULING</li> <li>ERROR_SCHEDULING</li> <li>SUCCESS</li> </ul>	Optional
expanded	Boolean; true or false	If true, RequestCollection returns a list of requests cfwItems, else status wise summary of requests is returned. Possible values are true, and false. Any value apart from true or false is ignored and treated as false.	Optional
servicefamily	Name of service family	Returns service family specific information.	Optional

## Service Request REST API Examples for V1 and V2

This section lists all a few REST API example scenarios. The following operations are covered in this section:

### V2:

- [Retrieving Top Level View of Service Requests in V1 and V2](#)
- [Querying the Service Requests Resource for Status=SUCCESS in V2](#)
- [Querying the Service Requests Resource for Expanded=true and Expanded=false in V2](#)
- [Querying the Service Requests Resource for status=SUCCESS&expanded=false and status=SUCCESS&expanded=true in V2](#)
- [Viewing Details of a Service Request in V2](#)
- [Deleting a Service Request in V2](#)
- [Rescheduling a Service Request that is in a Scheduled State in V1 and V2](#)
- [Viewing the Logs of a Service Request in V2](#)
- [Querying the Logs of a Service Request in V2](#)

### V1:

- [Retrieving Top Level View of Service Requests for a Specific Service Family in V1](#)
- [Retrieving Top Level View of Service Requests for a Specific Status in V1](#)
- [Rescheduling a Service Request that is in a Cancelled State \(or in a state other than Scheduled\) in V1](#)
- [Deleting a Service Request that is in a Scheduled State in V1](#)
- [Deleting a Service Request that is in a Canceled State \(or in a state other than scheduled\) in V1](#)

## Retrieving Top Level View of Service Requests in V1 and V2

**Table 37-24 GET Request Configuration for Viewing Details of Service Requests Resource in V1 and V2**

Feature	Specification for V1	Specification for V2
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequests	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None	None
Request method	GET	GET

A sample of the response received for v2 is shown below.

```
{
  "name": "Request summary grouped by status",
  "totalResults": 17,
  "requestSummary": [
    {
      "status": "NO_QUOTA_ERROR",
      "count": 1,
      "href":
        "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
        servicerequests?status=NO_QUOTA_ERROR&expanded=true"
    },
    {
      "status": "EXECUTION_ERROR",
      "count": 1,
      "href":
        "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
        servicerequests?status=EXECUTION_ERROR&expanded=true"
    },
    {
      "status": "SUCCESS",
      "count": 5,
      "href":
        "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
        servicerequests?status=SUCCESS&expanded=true"
    },
    {
      "status": "CLEANUP_FAILED",
      "count": 1,
      "href":
        "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
        servicerequests?status=CLEANUP_FAILED&expanded=true"
    },
    {
      "status": "SCHEDULED",
      "count": 9,
      "href":
        "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
        servicerequests?status=SCHEDULED&expanded=true"
    }
  ],
  "canonicalLink": {
    "href":
      "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
      servicerequests"
  },
  "selfLink": {
    "href":
      "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
      servicerequests"
  }
}
```

A sample of the response received for v1 is shown below.

```
{
  "name": "Service Requests",
  "type": "Service Request", "count": 2,
  "items": [
    {
      "id": "2",
      "name": "future_Create Sample XaaS Service#2",
      "beginDate": "2015-02-14T08:37:18Z India Standard Time",

```

```

        "status": "SCHEDULED",
        "selfLink": "https://cloudcompnay.com/em/websvcs/restful/extws/
cloudservices/ssa/cfw/v1/servicerequests/2",
        "canonicalLink": "https://cloudcompnay.com/em/websvcs/restful/extws/
cloudservices/ssa/cfw/v1/servicerequests/2",
        "serviceFamily": "CFW_SAMPLEXAAS_SERVICEFAMILY"
    },
    {
        "id": "1",
        "name": "eadeweqqw_Create Sample XaaS Service#1",
        "beginDate": "2015-02-10T07:49:24Z India Standard Time",
        "status": "EXECUTION_ERROR",
        "selfLink": "https://cloudcompnay.com/em/websvcs/restful/extws/
cloudservices/ssa/cfw/v1/servicerequests/1",
        "canonicalLink": "https://cloudcompnay.com/em/websvcs/restful/extws/
cloudservices/ssa/cfw/v1/servicerequests/1",
        "serviceFamily": "CFW_SAMPLEXAAS_SERVICEFAMILY"
    }
],
    "selfLink": "https://cloudcompnay.com/em/websvcs/restful/extws/
cloudservices/ssa/cfw/v1/servicerequest?status=ALL",
    "canonicalLink": "https://cloudcompnay.com/em/websvcs/restful/extws/
cloudservices/ssa/cfw/v1/servicerequests/"
}

```

## Querying the Service Requests Resource for Status=SUCCESS in V2

The table below shows the GET configuration for querying the Service requests resource.

**Table 37-25 GET Request Configuration for Querying a Service Request for Status=SUCCESS in V2**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests?status=SUCCESS
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```

{
  "name" : "Request summary grouped by status",
  "totalResults" : 5,
  "requestSummary" : [ {
    "status" : "SUCCESS",
    "count" : 3,
    "href" :
    "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
servicere
quests?status=SUCCESS&expanded=true"
  }, {
    "status" : "SCHEDULED",
    "count" : 2,
    "href" :
    "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
servicere

```

```

quests?status=SCHEDULED&expanded=true"
} ],
"canonicalLink" : {
"href" :
3.4 22
-
-
"https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
servicere
quests"
},
"selfLink" : {
"href" :
"https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
servicere
quests?status=SUCCESS"
}
}
}

```

## Querying the Service Requests Resource for Expanded=true and Expanded=false in V2

The table below shows the GET configuration for querying the Service requests resource for `expanded=true`. A similar approach is followed for `expanded=false`, where the query change is made in the URI.

**Table 37-26 GET Request Configuration for Querying a Service Request for Expanded=true in V2**

Feature	Specification
URI	<code>https://&lt;OMS_HOST&gt;:&lt;OMS_CONSOLE_PORT&gt;/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests?expanded=true</code>
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received for `expanded=true` is shown below.

```

{
"name" : "Service Requests",
"type" : "Service Request",
"totalResults" : 5,
"cfwItems" : [ {
"id" : "5",
"name" : "Rst_rpc_14-09-11 09.52.58_11-Sep-14 21:53:06.663",
"startDate" : "2014-09-11T16:23:06Z",
"status" : "SUCCESS",
"canonicalLink" : {
"href" :
"https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
servicerequests/5"
},
"displayName" : "Rst_rpc_14-09-11 09.52.58_11-Sep-14 21:53:06.663"
}, {
"id" : "4",
"name" : "Remove Sample XaaS Service_XaaS_Storage__11-Sep-14 21:52:58.553",

```

```

"startDate" : "2017-07-12T23:48:10Z",
"status" : "SCHEDULED",
"canonicalLink" : {
  "href" :
  "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
  servicerequests/4"
},
"displayName" : "Remove Sample XaaS Service_XaaS_Storage__11-Sep-14 21:52:58.553"
}, {
  "id" : "3",
  "name" : "Rst_en_14-09-11 09.52.58_11-Sep-14 21:52:58.363",
  "startDate" : "2014-09-11T16:22:58Z",
  "status" : "SUCCESS",
  "canonicalLink" : {
    "href" :
    "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
    servicerequests/3"
  },
  "displayName" : "Rst_en_14-09-11 09.52.58_11-Sep-14 21:52:58.363"
}, {
  "id" : "2",
  "name" : "Rst_st_en_14-09-11 09.52.58_11-Sep-14 21:52:54.187",
  "startDate" : "2015-01-13T00:48:10Z",
  "status" : "SCHEDULED",
  "canonicalLink" : {
    "href" :
    3.5 23
  -
  -
  "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
  servicerequests/2"
  },
  "displayName" : "Rst_st_en_14-09-11 09.52.58_11-Sep-14 21:52:54.187"
}, {
  "id" : "1",
  "name" : "Rst_14-09-11 09.52.58_11-Sep-14 21:52:49.360",
  "startDate" : "2014-09-11T16:22:49Z",
  "status" : "SUCCESS",
  "canonicalLink" : {
    "href" :
    "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
    servicerequests/1"
  },
  "displayName" : "Rst_14-09-11 09.52.58_11-Sep-14 21:52:49.360"
} ],
"canonicalLink" : {
  "href" :
  "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
  servicerequests"
},
"selfLink" : {
  "href" :
  "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
  servicerequests?expanded=true"
}
}

```

A sample of the response received for `expanded=false` is shown below.

```

{
  "name" : "Request summary grouped by status",
  "totalResults" : 5,

```

```

"requestSummary" : [ {
"status" : "SUCCESS",
"count" : 3,
"href" :
"https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
servicere
quests?status=SUCCESS&expanded=true"
}, {
"status" : "SCHEDULED",
"count" : 2,
"href" :
"https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
servicerequests?status=SCHEDULED&expanded=true"
} ],
"canonicalLink" : {
"href" :
"https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
servicerequests"
},
"selfLink" : {
"href" :
"https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
servicere
quests?expanded=false"

```

## Querying the Service Requests Resource for status=SUCCESS&expanded=false and status=SUCCESS&expanded=true in V2

The table below shows the GET configuration for querying the Service requests resource for status=SUCCESS&expanded=false. A similar approach is followed for status=SUCCESS&expanded=true, where the query change is made in the URI.

**Table 37-27 GET Request Configuration for Querying a Service Request for status=SUCCESS&expanded=false in V2**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests?status=SUCCESS&expanded=false
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received for status=SUCCESS&expanded=false is shown below.

```

{
"name" : "Request summary grouped by status",
"totalResults" : 5,
"requestSummary" : [ {
"status" : "SUCCESS",
"count" : 3,
"href" :
"https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
servicere
quests?status=SUCCESS&expanded=true"
}, {

```

```

"status" : "SCHEDULED",
"count" : 2,
"href" :
"https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
servicere
quests?status=SCHEDULED&expanded=true"
} ],
"canonicalLink" : {
"href" :
"https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
servicere
quests"
},
"selfLink" : {
"href" :
"https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
servicere
quests?status=SUCCESS&expanded=false"
}
}

```

A sample of the response received for `status=SUCCESS&expanded=true` is shown below.

```

{
"name" : "Service Requests",
"type" : "Service Request",
"totalResults" : 3,
"cfwItems" : [ {
"id" : "5",
"name" : "Rst_rpc_14-09-11 09.52.58_11-Sep-14 21:53:06.663",
"startDate" : "2014-09-11T16:23:06Z",
"status" : "SUCCESS",
"canonicalLink" : {
"href" :
3.7 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
servicere 25
quests/5"
},
"displayName" : "Rst_rpc_14-09-11 09.52.58_11-Sep-14 21:53:06.663"
}, {
"id" : "3",
"name" : "Rst_en_14-09-11 09.52.58_11-Sep-14 21:52:58.363",
"startDate" : "2014-09-11T16:22:58Z",
"status" : "SUCCESS",
"canonicalLink" : {
"href" :
"https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
servicere
quests/3"
},
"displayName" : "Rst_en_14-09-11 09.52.58_11-Sep-14 21:52:58.363"
}, {
"id" : "1",
"name" : "Rst_14-09-11 09.52.58_11-Sep-14 21:52:49.360",
"startDate" : "2014-09-11T16:22:49Z",
"status" : "SUCCESS",
"canonicalLink" : {
"href" :
"https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
servicere
quests/1"
},

```



```

"displayName" : "Rst_14-09-11 09.52.58_11-Sep-14 21:52:49.360"
} ],
"canonicalLink" : {
  "href" :
  "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
  servicerequests"
},
"selfLink" : {
  "href" :
  "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
  servicerequests?status=SUCCESS&expanded=true"
}
}

```

## Viewing Details of a Service Request in V2

The GET request configuration for viewing details of a Service request is shown below.

**Table 37-28 GET Request Configuration for Viewing Details of a Service Request in V2**

Feature	Specification
URI	/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/{requestid}
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```

{
  "id": "44",
  "name": "dp_2b022961-c#44",
  "status": "SUCCESS",
  "serviceType": "CFW_SAMPLEXAAS_SERVICE",
  "serviceFamily": "Sample Services",
  "actionName": "Create Sample XaaS Service",
  "startDate": "2014-10-15T09:29:23Z",
  "createdOn": "2014-10-15T09:29:23Z",
  "createdBy": "SYSMAN",
  "owner": "SYSMAN",
  "canonicalLink": {
    "href":
    "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
    servicerequests/44"
  },
  "executionLogs":
  "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
  servicerequests/44/logs"
}

```

## Deleting a Service Request in V2

The DELETE request configuration for deleting a Service request is shown below.

**Table 37-29 DELETE Request Configuration for Deleting a Service Request in V2**

Feature	Specification
URI	/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/{requestid}
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	DELETE

A sample of the response received is shown below.

```
{
  "message" : "[\"Request 31 deleted successfully\"]"
}
```

## Rescheduling a Service Request that is in a Scheduled State in V1 and V2

The table below shows the PUT request configuration.

**Table 37-30 PUT Request Configuration for Rescheduling a Service Request in a Scheduled State in V1 and V2**

Feature	Specification for V1	Specification for V2
URI	/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequests/2	/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/{requestid}
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	{           "beginDate":           "2013-10-02T16:14:41ZPST"         }	{"startDate":"2015-08-12T16:48:10ZAmerica/Los_Angeles"}
Request method	PUT	PUT

A sample of the response received for v2 is shown below.

```
{
  "message" : "Request 2 rescheduled successfully."
}
```

A sample of the response received for v1 is shown below.

```
Status 200 OK
{
  message: "Service request 2 rescheduled successfully."
}
```

## Viewing the Logs of a Service Request in V2

The table below shows the GET request configuration for viewing the Service request logs.

**Table 37-31 GET Request Configuration for Viewing the Logs of a Service Request in V2**

Feature	Specification
URI	/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/{requestid}/logs
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "submittedOn" : "2014-09-12T07:20:38Z",
  "steps" : [ {
    "stepName" : "CfwRequestInitCommand",
    "stepId" : "CfwRequestInitCommand",
    "href" :
    "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
    servicere
    quests/21/logs?stepid=CfwRequestInitCommand"
  }, {
    "stepName" : "CfwRequestPreProcessCommand",
    "stepId" : "CfwRequestPreProcessCommand",
    "href" :
    "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
    servicere
    quests/21/logs?stepid=CfwRequestPreProcessCommand"
  }, {
    "stepName" : "CfwRequestJobInvokerCommand",
    "stepId" : "CfwRequestJobInvokerCommand",
    "href" :
    "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
    servicere
    quests/21/logs?stepid=CfwRequestJobInvokerCommand"
  }, {
    "stepId" : "",
    "href" :
    "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
    servicere
    quests/21/logs?stepid="
  }, {
    "stepName" : "CfwRequestPostProcessCommand",
    "stepId" : "CfwRequestPostProcessCommand",
    "href" :
    "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
    servicere
    quests/21/logs?stepid=CfwRequestPostProcessCommand"
  } ],
  "id" : "21"
}
```

## Querying the Logs of a Service Request in V2

The table below shows the GET request configuration for querying the Service request logs.

**Table 37-32 GET Request Configuration for Querying the Logs of a Service Request in V2**

Feature	Specification
URI	/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/{requestid}/logs?stepid=CfwRequestPreProcessCommand
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "id" : "21",
  "stepName" : "CfwRequestPreProcessCommand",
  "stepId" : "CfwRequestPreProcessCommand",
  "data" : "INFO:Request Pre-processing in progress.\nINFO:Preparing the inputs for
Request Action:
Create Sample XaaS Service\nINFO:Performing placment checks to identify the appropriate
Service-
Provider.\nINFO:Placement checks executed successfully.\nINFO:Request pre-processing
successfully
executed.",
  "canonicalLink" : {
    "href" :
"https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
servicere
quests/21/logs?stepid=CfwRequestPreProcessCommand"
  }
}
```

## Retrieving Top Level View of Service Requests for a Specific Service Family in V1

The table below shows the GET request configuration.

**Table 37-33 GET Request Configuration for Viewing Details of a Service Request for a Specific Service Family in V1**

Feature	Specification
URI	/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequests? type=mwaas
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

A sample of the response received is shown below.

```
Status 200 OK
{
  name: "Service Requests"
  type: "Service Request"
  count: 2
  items: [2]
```

```

0:
{
id: "2"
name: "request2_14153ee61c5_Create_20130925_123353"
beginDate: "2013-09-25T12:48:50ZAsia/Calcutta"
status: "Scheduled"
lifeCycle: "Create Service Instance"
selfLink: "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/
servicerequests/2"
canonicalLink: "https://cloudcompany.com/em/websvcs/restful/extws/
cloudservices/ssa/cfw/v1/servicerequests/2"
serviceFamily: "MWAAS"
}

1:
{
id: "1"
name: "request1_14153ea0bb6_Create_20130925_122909"
beginDate: "2013-09-25T12:44:03ZAsia/Calcutta"
status: "Cancelled"
lifeCycle: "Create Service Instance"
selfLink: "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/
servicerequests/1"
canonicalLink: "https://cloudcompany.com/em/websvcs/restful/extws/
cloudservices/ssa/cfw/v1/servicerequests/1"
serviceFamily: "MWAAS"
}

selfLink: "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/
servicerequests?status=ALL"
canonicalLink: "https://cloudcompany.com/em/websvcs/restful/extws/
cloudservices/ssa/cfw/v1/servicerequests"
}

```

## Retrieving Top Level View of Service Requests for a Specific Status in V1

The table below shows the GET request configuration.

**Table 37-34 GET Request Configuration for Viewing Details of a Service Request for with a Specific Status in V1**

Feature	Specification
URI	/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequests/?status=SCHEDULED
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

A sample of the response received is shown below.

```

{
"name": "Service Requests",
"type": "Service Request",
"count": 1,
"items": [
{
"id": "2",
"name": "future_Create Sample XaaS Service#2",

```

```

    "beginDate": "2015-02-14T08:37:18Z India Standard Time",
    "status": "SCHEDULED",
    "selfLink": "https://cloudcompnay.com/em/websvcs/restful/extws/
cloudservices/ssa/cfw/v1/servicerequests/2",
    "canonicalLink": "https://cloudcompnay.com/em/websvcs/restful/extws/
cloudservices/ssa/cfw/v1/servicerequests/2",
    "serviceFamily": "CFW_SAMPLEXAAS_SERVICEFAMILY"
  }
],
"selfLink": "https://cloudcompnay.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/
servicerequest?status=SCHEDULED",
"canonicalLink": "https://cloudcompnay.com/em/websvcs/restful/extws/
cloudservices/ssa/cfw/v1/servicerequests/"
}

```

## Rescheduling a Service Request that is in a Cancelled State (or in a state other than Scheduled) in V1

The table below shows the PUT request configuration.

**Table 37-35 PUT Request Configuration for Rescheduling a Service Request that is in Cancelled State in v1**

Feature	Specification
URI	/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequests/1
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	{ "beginDate": "2013-10-02T16:14:41ZPST" }
Request method	PUT

A sample of the response received is shown below.

```
Status : 400 Bad request {errorMessages: "Error ocured while rescheduling. Verify that
schedule is not in past and status is scheduled."}
```

## Deleting a Service Request that is in a Scheduled State in V1

The table below shows the DELETE request configuration.

**Table 37-36 DELETE Request Configuration for Cancelling a Scheduled Service Request in V1**

Feature	Specification
URI	/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequests/1
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	DELETE

A sample of the response received is shown below.

```
Status 200 OK
{
  message: "Service request 1 cancelled successfully."
}
```

## Deleting a Service Request that is in a Canceled State (or in a state other than scheduled) in V1

The table below shows the DELETE request configuration.

**Table 37-37 DELETE Request Configuration for Deleting a Service Request in Canceled State in V1**

Feature	Specification
URI	/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequests/1
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	DELETE

A sample of the response received is shown below.

```
Status : 400 Bad request{errorMessages: "Error occured while cancelling. Only request with status SCHEDULED is cancellable."}
```

## Service Instances for V2

Service instances resources comprises of Service instance and Action entities. The data models of the Service instances resource and its associated entities is given below.

**Table 37-38 Service Instance Data Model for V2**

Field	Type	Description
guid	String	Guid of the service instance.
serviceFamily	String	Name of the service family.
serviceType	String	Name of the service type.
status	String	Status of the service instance.
displayname	String	Display name of the service instance.
targetType	String	Target type of the service instance.

**Table 37-39 Action Data Model for V2**

Field	Type	Description	Occurs
offeringsId	String	Guid of the service.	1
name	String	Name of the request.	1
instanceName	String	Name of the service instance.	0..1
schedule	ScheduleEntity	Schedule of the request.	0..1

**Table 37-39 (Cont.) Action Data Model for V2**

Field	Type	Description	Occurs
configurations	List<CfwValueDescriptor>	Configurations.	0..1
characteristics	List<Characteristic>	List of characteristics.	0..1

The supported request parameters and their descriptions are provided in the table below.

## Supported Methods for Service Instance in V2

The table below provides information on the supported methods for Service instance resource.

**Table 37-40 Supported methods for Service Instance Resource**

Request Method	URI	Description
GET	/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/	Returns the service instances collection details. See <a href="#">Table 37-41</a> , for query parameters.
GET	/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/{instanceid}	Returns the details of specified service instance.
GET	/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/{instanceid}/actions	Returns actions available on the specified service instance.
GET	/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/{instanceid}/attributes	Returns attributes for the specified service instance.
GET	/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/{instanceid}/actions/{actionid}	Returns the action details and the action inputs required to execute the action on the specified service instance.
PUT	/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/{instanceid}/	Executes the action on a given service instance.

The table below shows the query parameters supported for the GET request on the Service instance resource in the v2 framework.

**Table 37-41 Query Parameters for Service Instance in V2**

Parameter	Input	Description	Required
servicetype	Name of service type.	Returns service type specific information.	Optional



Table 37-41 (Cont.) Query Parameters for Service Instance in V2

Parameter	Input	Description	Required
status	Status of service instance.	Returns status specific information. The possible values are: <ul style="list-style-type: none"> <li>PENDING_CREATION: Indicates that a request to create the service instance is scheduled to run on a later date and the relevant service instance is scheduled to be created.</li> <li>PROCESSING_CREATION: Indicates that a request to create the service instance is running and is in the process of creation.</li> <li>ERROR_CREATION: Indicates that a request to create the service instance failed due to error.</li> <li>STATUS_DOWN: Indicates that the service instance is currently down.</li> <li>STATUS_UP: Indicates that the service instance is up and running fine.</li> <li>STATUS_METRIC_ERROR: Indicates that the system (EM/OMS) monitoring the service instance has encountered issues while collecting certain data on the service instance.</li> <li>STATUS_AGENT_DOWN: Indicates that the agent monitoring the service instance is down. Hence, the monitoring data of the service instance cannot be uploaded.</li> <li>STATUS_UNREACHABLE: Indicates that the system is not able to get the service instance availability status.</li> <li>STATUS_BLACKOUT: Indicates that the Administrator has black-out the service instance for upgrades/patches. The upgrades will be applied generally to the machines hosting the service.</li> <li>STATUS_PENDING: Indicates that the system is in the process of collecting the availability status of the service instance.</li> </ul>	Optional
expanded	Boolean; true or false.	ServiceInstanceCollection contains <code>cfwItems</code> if true and <code>serviceInstanceSummary</code> if false.	Optional

## Service Instances REST API Examples for V2

This section provides the REST API examples of the Service instances resource. The following operations are covered in this section:

- [Viewing Details of the Service Instance Resource in V2](#)
- [Querying the Service Instance Resource in V2](#)
- [Viewing Details of a Service Instance in V2](#)
- [Viewing Details of the Attributes of a Service Instance in V2](#)
- [Viewing Details of the Available Actions on a Service Instance in V2](#)

- [Viewing Details of the Action Inputs Required To Execute an Action on a Service Instance in V2](#)
- [Executing an Action on a Service Instance in V2](#)

## Viewing Details of the Service Instance Resource in V2

The table below shows the GET request configuration.

**Table 37-42 GET Request Configuration for Viewing Details of Service Instance Resource in V2**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "name" : "Service Instances Summary",
  "totalResults" : 7,
  "serviceInstanceSummary" : [ {
    "status" : "STATUS_UP",
    "href" :
    "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
    serviceinstances?status=STATUS_UP&expanded=true",
    "count" : 3
  }, {
    "status" : "PENDING_CREATION",
    "href" :
    "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
    serviceinstances?status=PENDING_CREATION&expanded=true",
    "count" : 4
  } ],
  "canonicalLink" : {
    "href" :
    "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
    serviceinstances"
  }
}
```

## Querying the Service Instance Resource in V2

The table below shows the GET request configuration for querying the Service instance resource based on the following parameters:

- expanded=true
- expanded=false
- status=STATUS\_UP
- servicetype=CFW\_SAMPLEXAAS\_SERVICE
- expanded=true,status=STATUS\_UP

- expanded=false,status=STATUS\_UP,servicetype=CFW\_SAMPLEXAAS\_SERVICE

**Table 37-43 GET Request Configuration for Querying Service Instance Resource in V2**

Feature	Specification
URI for expanded=true	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances?expanded=true
URI for expanded=false	/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances?expanded=false
URI for status=STATUS_UP	/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances?status=STATUS_UP
URI for servicetype=CFW_SAMPLEXAAS_SERVICE	/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances?servicetype=CFW_SAMPLEXAAS_SERVICE
URI for expanded=true&status=STATUS_UP	/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances?expanded=true&status=STATUS_UP
URI for expanded=false,status=STATUS_UP,servicetype=CFW_SAMPLEXAAS_SERVICE	/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances?expanded=false&status=STATUS_UP&servicetype=CFW_SAMPLEXAAS_SERVICE
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received for expanded=false is shown below.

```
{
  "name" : "Service Instances Summary",
  "totalResults" : 7,
  "serviceInstanceSummary" : [ {
    "status" : "STATUS_UP",
    "href" :
    "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
    serviceinstances?status=STATUS_UP&expanded=true",
    "count" : 3
  }, {
    "status" : "PENDING_CREATION",
    "href" :
    "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
    serviceinstances?status=PENDING_CREATION&expanded=true",
    "count" : 4
  } ],
  "canonicalLink" : {
    "href" :
    "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
    serviceinstances"
  },
  "selfLink" : {
    "href" :
    "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
    serviceinstances"
  }
}
```

```
stances?expanded=false"
}
}
```

## Viewing Details of a Service Instance in V2

The table below shows the GET request configuration.

**Table 37-44 GET Request Configuration for Viewing Details of a Service Instance in V2**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/{instanceid}
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "name" : "test",
  "targetName" : "test",
  "guid" : "CCA88E9507D4A9E2214935F956D83150",
  "serviceType" : "CFW_SAMPLEXAAS_SERVICE",
  "serviceFamily" : "CFW_SAMPLEXAAS_SERVICEFAMILY",
  "status" : "STATUS_UP",
  "targetType" : "Cfw_Xaas_DB_Service",
  "createdOn" : "2014-11-15T00:00:00ZAsia/Calcutta",
  "createdBy" : "SYSMAN",
  "owner" : "SYSMAN",
  "attributes" : {
    "href" :
    "https://xx.idc.example.com:14488/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
    servicein
    stances/CCA88E9507D4A9E2214935F956D83150/attributes"
  },
  "canonicalLink" : {
    "href" :
    "https://xx.idc.example.com:14488/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
    servicein
    stances/CCA88E9507D4A9E2214935F956D83150"
  },
  "selfLink" : {
    "href" :
    "https://xx.idc.example.com:14488/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
    servicein
    stances/CCA88E9507D4A9E2214935F956D83150"
  }
}
```

## Viewing Details of the Attributes of a Service Instance in V2

The table below shows the GET request configuration.

**Table 37-45 GET Request Configuration for Viewing Details of the Attributes of a Service Instance in V2**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/{instanceid}/attributes
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "serviceInstanceGuid" : "CCA88E9507D4A9E2214935F956D83150",
  "attributes" : [ {
    "name" : "xaasServiceName",
    "type" : "STRING",
    "value" : "test"
  } ],
  "canonicalLink" : {
    "href" :
    "https://xx.idc.example.com:14488/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
    serviceinstances/CCA88E9507D4A9E2214935F956D83150/attributes"
  },
  "selfLink" : {
    "href" :
    "https://xx.idc.example.com:14488/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
    serviceinstances/CCA88E9507D4A9E2214935F956D83150/attributes"
  }
}
```

## Viewing Details of the Available Actions on a Service Instance in V2

The table below shows the GET request configuration.

**Table 37-46 GET Request Configuration for Viewing Details of the Available Actions on a Service Instance in V2**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/{instanceid}/actions
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "totalResults" : 6,
  "selfLink" : {
    "href" :
```

```

"/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/
2A2BD0D7C40F7C2814FA6788704E313
A/actions"
},
"cfwItems" : [ {
"name" : "DELETE",
"id" : "82",
"displayname" : "Remove Sample XaaS Service",
"description" : "Removing my Sample XaaS service"
}, {
"name" : "START",
"id" : "84",
"displayname" : "Start Service",
"description" : "Starts this service"
}, {
"name" : "STOP",
"id" : "85",
"displayname" : "Stop Service",
"description" : "Stops this service"
}, {
"name" : "CLEANUP",
"id" : "86",
"displayname" : "Cleanup Sample XaaS Failed Request",
"description" : "Cleanup Sample XaaS Failed Request"
}, {
"name" : "SYNCSTARTSERVICE",
"id" : "87",
"displayname" : "Sync Start Service",
"description" : "Synchronous Action to Start Sample Service"
}, {
"name" : "SYNCSTOPSERVICE",
"id" : "88",
"displayname" : "Sync Stop Service",
"description" : "Synchronous Action to Stop Sample Service"
} ],
"name" : "Actions",
"type" : "Action",
"canonicalLink" : {
"href" :
"/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/
2A2BD0D7C40F7C2814FA6788704E313
A/actions"
}
}
}

```

## Viewing Details of the Action Inputs Required To Execute an Action on a Service Instance in V2

The table below shows the GET request configuration.

**Table 37-47 GET Request Configuration for Viewing Details of the Action Inputs Required To Execute an Action on a Service Instance in V2**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/{instanceid}/actions/{actionid}

**Table 37-47 (Cont.) GET Request Configuration for Viewing Details of the Action Inputs Required To Execute an Action on a Service Instance in V2**

Feature	Specification
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "name" : "START",
  "id" : "94",
  "displayName" : "START",
  "actionInputs" : [ {
    "name" : "WorkLoads",
    "type" : "VECTOR",
    "description" : "WorkLoad Values",
    "required" : false,
    "secret" : false,
    "subvalues" : [ {
      "name" : "Small",
      "type" : "VECTOR",
      "description" : "Configuration Values for Small WorkLoad",
      "required" : false,
      "secret" : false,
      "subvalues" : [ {
        "name" : "DEPL_SIZE_IS_DEFAULT_KEY",
        "value" : "Y",
        "type" : "STRING",
        "required" : false,
        "secret" : false
      }, {
        "name" : "CPU",
        "value" : "60",
        "type" : "STRING",
        "required" : false,
        "secret" : false
      }, {
        "name" : "MEMORY",
        "value" : "4048",
        "type" : "STRING",
        "required" : false,
        "secret" : false
      }, {
        "name" : "STORAGE",
        "value" : "500",
        "type" : "STRING",
        "required" : false,
        "secret" : false
      }, {
        "name" : "XAAS_TEST",
        "value" : "NONE",
        "type" : "STRING",
        "required" : false,
        "secret" : false
      }
    ]
  }
]
}
```

```
}, {
  "name" : "Medium",
  "type" : "VECTOR",
  "description" : "Configuration Values for Medium WorkLoad",
  "required" : false,
  "secret" : false,
  "subvalues" : [ {
    "name" : "DEPL_SIZE_IS_DEFAULT_KEY",
    "value" : "N",
    "type" : "STRING",
    "required" : false,
    "secret" : false
  }, {
    "name" : "CPU",
    "value" : "80",
    "type" : "STRING",
    "required" : false,
    "secret" : false
  }, {
    "name" : "MEMORY",
    "value" : "8088",
    "type" : "STRING",
    "required" : false,
    "secret" : false
  }, {
    "name" : "STORAGE",
    "value" : "750",
    "type" : "STRING",
    "required" : false,
    "secret" : false
  } ]
}, {
  "name" : "Large",
  "type" : "VECTOR",
  "description" : "Configuration Values for Large WorkLoad",
  "required" : false,
  "secret" : false,
  "subvalues" : [ {
    "name" : "DEPL_SIZE_IS_DEFAULT_KEY",
    "value" : "Y",
    "type" : "STRING",
    "required" : false,
    "secret" : false
  }, {
    "name" : "CPU",
    "value" : "60",
    "type" : "STRING",
    "required" : false,
    "secret" : false
  }, {
    "name" : "MEMORY",
    "value" : "40448",
    "type" : "STRING",
    "required" : false,
    "secret" : false
  }, {
    "name" : "STORAGE",
    "value" : "500",
    "type" : "STRING",
    "required" : false,
    "secret" : false
  } ]
}
```



```

} ]
} ],
"description" : "Starts this service"
}

```

## Executing an Action on a Service Instance in V2

The table below shows the PUT request configuration.

**Table 37-48 PUT Request Configuration for Executing an Action on a Service Instance in V2**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/{instanceid}
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	<pre> {   "actionId":94,   "configurations":[     {       "name":"domainName",       "type":"STRING",       "description":"Domain Name",       "required":true,       "value":"/mwaas_rest_9_SSA_USER1/rest_9_SSA_USER1"     },     {       "name":"applicationName",       "type":"STRING",       "description":"Application Name",       "required":true,       "value":"test1"     }   ] } </pre>
Request method	PUT

A sample of the response received is shown below.

```

{
  "requests": [
    {
      "id": "4",
      "actionName": "STOP",
      "canonicalLink": {
        "href":
        "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
        servicerequests/4"
      }
    }
  ]
}

```

## Executing Actions on a Service Instance in V2

This section provides the procedure to execute an action on a Service instance using REST APIs.

Follow the steps below to execute an action on a Service instance:

1. Perform a GET operation on the URI - `em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/{instanceid}/actions`. See, [Viewing Details of the Available Actions on a Service Instance in V2](#).

The GET operation returns all the supported actions that an user can execute on the specified Service instance. The Action name, Action ID, Display name and Description are provided for each action. Note the required Action ID.

2. Perform a GET operation on the URI - `/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/{instanceid}/actions/{actionid}`, using the Action ID from the previous step. See, [Viewing Details of the Action Inputs Required To Execute an Action on a Service Instance in V2](#).

The GET operation returns all the action details and the action inputs. Some actions require action inputs to complete an action. Action inputs capture the data or input which is to be provided by the user while executing an action on an instance. Note the action inputs.

3. Perform a PUT operation on the URI - `/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/{instanceid}`, using the action inputs from the previous step. See, [Executing an Action on a Service Instance in V2](#).

The PUT operation executes the action on the Service instance. To execute the action, provide appropriate action input values as `configurations` in the payload.

## Quota Usage for V2

This section describes the quota usage REST APIs for SSA user.

### Supported Operations for Quota Usage for V2

The table below lists the supported operations for quota usage.

**Table 37-49 Supported Methods for Quota Usage**

Request Method	URI	Description
GET	<code>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/quotausage</code>	Returns links to quota usage.
GET	<code>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/quotausage/{servicefamily}</code>	Returns quota usage by service family.

### Quota Usage REST API Examples for V2

This section provides the REST API examples for Quota usage. The following examples are covered:

- [Viewing Details of Quota Usage](#)
- [Viewing Details of Quota Usage by Service Family](#)

## Viewing Details of Quota Usage

The table below shows the GET request configuration.

**Table 37-50 GET Request Configuration for Viewing Details of Quota Usage**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/quotausage
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "canonicalLink": {
    "href":
    "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/quotausage/"
  },
  "usages": [
    {
      "serviceFamily": "CFW_SAMPLEXAAS_SERVICEFAMILY",
      "canonicalLink": {
        "href":
        "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/quotausage/CFW_SAMPLEXAAS_SERVICEFAMILY"
      }
    },
    {
      "serviceFamily": "NIMBULA_INFRASTRUCTURE",
      "canonicalLink": {
        "href":
        "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/quotausage/NIMBULA_INFRASTRUCTURE"
      }
    },
    {
      "serviceFamily": "DBAAS",
      "canonicalLink": {
        "href":
        "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/quotausage/DBAAS"
      }
    },
    {
      "serviceFamily": "MIDDLEWARE_CFW",
      "canonicalLink": {
        "href":
        "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/quotausage/MIDDLEWARE_CFW"
      }
    }
  ]
}
```

```

    ],
    "selfLink": {
      "href":
        "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/quotausage/"
    }
  }
}

```

## Viewing Details of Quota Usage by Service Family

The table below shows the GET request configuration.

**Table 37-51 GET Request Configuration for Viewing Details of Quota Usage by Service Family**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/quotausage/{servicefamily}
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```

{
  "name": "Usages",
  "type": "Usages Collection",
  "totalResults": 4,
  "cfwItems": [
    {
      "id": "sampleActionOpen",
      "name": "Storage",
      "type": "Others",
      "allowed": "10.0",
      "used": "3.0",
      "unit": "GB"
    },
    {
      "name": "Cfw Sample XaaS - Other Service",
      "type": "Service Instances",
      "serviceType": "CFW_SAMPLEXAAS_SERVICE_FOR_NOMEM",
      "used": "0"
    },
    {
      "name": "Cfw Sample XaaS",
      "type": "Service Instances",
      "serviceType": "CFW_SAMPLEXAAS_SERVICE",
      "used": "0"
    },
    {
      "name": "Cfw Sample RemoteServer XaaS",
      "type": "Service Instances",
      "serviceType": "CFW_SAMPLEXAAS_REMOTESERVER_SERVICE",
      "used": "0"
    }
  ],
  "canonicalLink": {
    "href":

```

```

"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/quotausage/
CFW_SAMPLEXAAS_SERVICEFAMILY"
},
"selfLink": {
"href":
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/quotausage/
CFW_SAMPLEXAAS_SERVICEFAMILY"
}
}
}

```

## User Preferences for V2

This section describes the User preference resource in the v2 framework.

### Supported Request Methods for User Preference Resource in V2

The table below shows the supported request methods on the User preference resource.

**Table 37-52 Supported Request Methods for the User Preferences Resource in V2**

Request Method	URI	Description
GET	https:// <OMS_HOST>:<OMS_CONSOLE_POR T>/em/websvcs/restful/extws/ cloudservices/ssa/cfw/v2/ userpreferences/	Returns top level view of general and service specific preferences.
GET	https:// <OMS_HOST>:<OMS_CONSOLE_POR T>/em/websvcs/restful/extws/ cloudservices/ssa/cfw/v2/ userpreferences/general	Returns general user preferences.
GET	https:// <OMS_HOST>:<OMS_CONSOLE_POR T>/em/websvcs/restful/extws/ cloudservices/ssa/cfw/v2/ userpreferences/general/metadata	Returns metadata for general user preferences.
PUT	https:// <OMS_HOST>:<OMS_CONSOLE_POR T>/em/websvcs/restful/extws/ cloudservices/ssa/cfw/v2/ userpreferences/general	Updates general preferences of the user.
GET	https:// <OMS_HOST>:<OMS_CONSOLE_POR T>/em/websvcs/restful/extws/ cloudservices/ssa/cfw/v2/ userpreferences/services	Returns the top level view of the service preferences.
GET	https:// <OMS_HOST>:<OMS_CONSOLE_POR T>/em/websvcs/restful/extws/ cloudservices/ssa/cfw/v2/ userpreferences/services/{servicefamily}	Returns service family user preferences.

**Table 37-52 (Cont.) Supported Request Methods for the User Preferences Resource in V2**

Request Method	URI	Description
GET	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/services/{servicefamily}/metadata	Returns metadata for the specified service family preferences.
PUT	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/services/{servicefamily}	Updates service family user preferences.
GET	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/services/{servicefamily}/{servicetype}	Returns service type user preferences.
GET	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/services/{servicefamily}/{servicetype}/metadata	Returns metadata for the specified service type preferences.
PUT	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/services/{servicefamily}/{servicetype}	Updates service family preferences of the user.

## User Preferences for V2 REST API Examples

The following REST APIs are covered in this section. The following operations are covered in this section:

- [Viewing Details of the User Preferences Resource for V2](#)
- [Viewing Details of the General User Preferences Resource for V2](#)
- [Viewing Metadata of the General User Preferences Resource for V2](#)
- [Updating the General User Preferences for V2](#)
- [Viewing Details of the Services User Preferences Resource for V2](#)
- [Viewing Details of the Service Family User Preferences Resource for V2](#)
- [Viewing Metadata of the Service Family User Preferences for V2](#)
- [Updating the Service Family User Preferences for V2](#)
- [Viewing Details of the Service Type User Preferences Resource for V2](#)
- [Viewing Metadata of the Service Type User Preferences for V2](#)

- [Updating the Service Type User Preferences for V2](#)

## Viewing Details of the User Preferences Resource for V2

The table below shows the configuration for the GET request.

**Table 37-53 GET Request Configuration for Viewing Details of the User Preferences Resource in V2**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "generalPreferences" :
  "https://blr2223141.idc.example.com:24503/em/websvcs/restful/extws/
cloudservices/ssa/cfw/v2/userpreferences/general",
  "servicePreferences" :
  "https://blr2223141.idc.example.com:24503/em/websvcs/restful/extws/
cloudservices/ssa/cfw/v2/userpreferences/services",
  "canonicalLink" : {
    "href" :
    "https://blr2223141.idc.example.com:24503/em/websvcs/restful/extws/
cloudservices/ssa/cfw/v2/userpreferences"
  }
}
```

## Viewing Details of the General User Preferences Resource for V2

The table below shows the configuration for the GET request.

**Table 37-54 GET Request Configuration for Viewing Details of the General User Preferences Resource in V2**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/general
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "name" : "General Preference",
  "type" : "General User Preferences",
}
```

```
"preferences" : [ {
  "name" : "USER_LOCALE",
  "value" : "en",
  "type" : "STRING",
  "defaultValue" : "en",
  "displayName" : "English",
  "description" : "This is the default Locale for receiving cloud notifications.",
  "required" : false,
  "secret" : false
}, {
  "name" : "REQUEST_STATUS",
  "type" : "VECTOR",
  "description" : "Request Status For Which Notifications Are Enabled",
  "required" : false,
  "secret" : false
}, {
  "name" : "REQUEST_NOTIFICATION",
  "value" : "false",
  "type" : "BOOLEAN",
  "defaultValue" : "false",
  "description" : "This allows the user to receive notifications for different statuses of
the request.",
  "required" : false,
  "secret" : false
}, {
  "name" : "NOTIFICATION_DAYS_1",
  "value" : "0",
  "type" : "INTEGER",
  "defaultValue" : "0",
  "description" : "Number of days before the first notification is sent to the user before
the expiry date of the service instance.",
  "required" : false,
  "secret" : false
}, {
  "name" : "NOTIFICATION_DAYS_2",
  "value" : "0",
  "type" : "INTEGER",
  "defaultValue" : "0",
  "description" : "Number of days before the second notification is sent to the user
before the expiry date of the service instance.",
  "required" : false,
  "secret" : false
}, {
  "name" : "DEFAULT_SERVICE",
  "value" : "MWAAS",
  "type" : "STRING",
  "defaultValue" : "DBAAS",
  "description" : "This will be used as your default service after successful login to
Self Service Portal.",
  "required" : false,
  "secret" : false
}, {
  "name" : "EMAIL",
  "type" : "VECTOR",
  "description" : "This is the default Email address for receiving cloud notifications.",
  "required" : false,
  "secret" : false
}, {
  "name" : "QUOTA_THRESHOLD",
  "value" : "0.0",
  "type" : "FLOAT",
  "defaultValue" : "0.0",
```



```

"description" : "Notifications will be sent to users when resources exceed the defined
quota percentage.",
"required" : false,
"secret" : false
}, {
"name" : "QUOTA_NOTIFICATION",
"value" : "false",
"type" : "BOOLEAN",
"defaultValue" : "false",
"description" : "Receive quota related notification when the quota reaches the specified
threshold.",
"required" : false,
"secret" : false
}, {
"name" : "INSTANCE_EXPIRY_NOTIFICATION",
"value" : "false",
"type" : "BOOLEAN",
"defaultValue" : "false",
"description" : "Enables user to receive notifications for Service Instances that are
due to expire based on the notification period.",
"required" : false,
"secret" : false
} ],
"meta" :
"https://blr2223141.idc.example.com:24503/em/websvcs/restful/extws/
cloudservices/ssa/cfw/v2/userpreferences/general/metadata",
"canonicalLink" : {
"href" :
"https://blr2223141.idc.example.com:24503/em/websvcs/restful/extws/
cloudservices/ssa/cfw/v2/userpreferences/general"
}
}
}

```

## Viewing Metadata of the General User Preferences Resource for V2

The table below shows the configuration for the GET request.

**Table 37-55 GET Request Configuration for Viewing Metadata of the General User Preferences Resource in V2**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/general/metadata
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```

{
"name" : "General Preference",
"type" : "General User Preferences",
"preferences" : [ {
"name" : "USER_LOCALE",
"value" : "en",
"type" : "STRING",
"defaultValue" : "en",

```

```
"displayName" : "English",
"description" : "This is the default Locale for receiving cloud notifications.",
"required" : false,
"secret" : false,
"possibleValues" : [ {
  "name" : "USER_LOCALE",
  "value" : "es_ES",
  "type" : "STRING",
  "defaultValue" : "en",
  "displayName" : "Spanish",
  "description" : "This is the default Locale for receiving cloud notifications.",
  "required" : false,
  "secret" : false
}, {
  "name" : "USER_LOCALE",
  "value" : "ja",
  "type" : "STRING",
  "defaultValue" : "en",
  "displayName" : "Japanese",
  "description" : "This is the default Locale for receiving cloud notifications.",
  "required" : false,
  "secret" : false
}, {
  "name" : "USER_LOCALE",
  "value" : "fr",
  "type" : "STRING",
  "defaultValue" : "en",
  "displayName" : "French",
  "description" : "This is the default Locale for receiving cloud notifications.",
  "required" : false,
  "secret" : false
}, {
  "name" : "USER_LOCALE",
  "value" : "ko",
  "type" : "STRING",
  "defaultValue" : "en",
  "displayName" : "Korean",
  "description" : "This is the default Locale for receiving cloud notifications.",
  "required" : false,
  "secret" : false
}, {
  "name" : "USER_LOCALE",
  "value" : "de",
  "type" : "STRING",
  "defaultValue" : "en",
  "displayName" : "German",
  "description" : "This is the default Locale for receiving cloud notifications.",
  "required" : false,
  "secret" : false
}, {
  "name" : "USER_LOCALE",
  "value" : "zh_TW",
  "type" : "STRING",
  "defaultValue" : "en",
  "displayName" : "Traditional Chinese",
  "description" : "This is the default Locale for receiving cloud notifications.",
  "required" : false,
  "secret" : false
}, {
  "name" : "USER_LOCALE",
  "value" : "zh_CN",
  "type" : "STRING",
```

```
"defaultValue" : "en",
"displayName" : "Simplified Chinese",
"description" : "This is the default Locale for receiving cloud notifications.",
"required" : false,
"secret" : false
}, {
"name" : "USER_LOCALE",
"value" : "en",
"type" : "STRING",
"defaultValue" : "en",
"displayName" : "English",
"description" : "This is the default Locale for receiving cloud notifications.",
"required" : false,
"secret" : false
}, {
"name" : "USER_LOCALE",
"value" : "pt_BR",
"type" : "STRING",
"defaultValue" : "en",
"displayName" : "Brazilian Portuguese",
"description" : "This is the default Locale for receiving cloud notifications.",
"required" : false,
"secret" : false
} ]
}, {
"name" : "REQUEST_STATUS",
"type" : "VECTOR",
"description" : "Request Status For Which Notifications Are Enabled",
"required" : false,
"secret" : false,
"possibleValues" : [ {
"name" : "REQUEST_STATUS",
"value" : "PARTIAL_SUCCEEDED",
"type" : "VECTOR",
"displayName" : "Partially Succeeded",
"description" : "Request Status For Which Notifications Are Enabled",
"required" : false,
"secret" : false
}, {
"name" : "REQUEST_STATUS",
"value" : "ERROR",
"type" : "VECTOR",
"displayName" : "Error",
"description" : "Request Status For Which Notifications Are Enabled",
"required" : false,
"secret" : false
}, {
"name" : "REQUEST_STATUS",
"value" : "CANCELLED",
"type" : "VECTOR",
"displayName" : "Cancelled",
"description" : "Request Status For Which Notifications Are Enabled",
"required" : false,
"secret" : false
}, {
"name" : "REQUEST_STATUS",
"value" : "EXECUTING",
"type" : "VECTOR",
"displayName" : "Running",
"description" : "Request Status For Which Notifications Are Enabled",
"required" : false,
"secret" : false
}
```

```
}, {
  "name" : "REQUEST_STATUS",
  "value" : "SUCCESS",
  "type" : "VECTOR",
  "displayName" : "Success",
  "description" : "Request Status For Which Notifications Are Enabled",
  "required" : false,
  "secret" : false
}, {
  "name" : "REQUEST_STATUS",
  "value" : "SCHEDULED",
  "type" : "VECTOR",
  "displayName" : "Scheduled",
  "description" : "Request Status For Which Notifications Are Enabled",
  "required" : false,
  "secret" : false
} ]
}, {
  "name" : "REQUEST_NOTIFICATION",
  "value" : "false",
  "type" : "BOOLEAN",
  "defaultValue" : "false",
  "description" : "This allows the user to receive notifications for different statuses of
the request.",
  "required" : false,
  "secret" : false
}, {
  "name" : "NOTIFICATION_DAYS_1",
  "value" : "0",
  "type" : "INTEGER",
  "defaultValue" : "0",
  "description" : "Number of days before the first notification is sent to the user before
the expiry date of the service instance.",
  "required" : false,
  "secret" : false
}, {
  "name" : "NOTIFICATION_DAYS_2",
  "value" : "0",
  "type" : "INTEGER",
  "defaultValue" : "0",
  "description" : "Number of days before the second notification is sent to the user
before the expiry date of the service instance.",
  "required" : false,
  "secret" : false
}, {
  "name" : "DEFAULT_SERVICE",
  "value" : "MWAAS",
  "type" : "STRING",
  "defaultValue" : "DBAAS",
  "description" : "This will be used as your default service after successful login to
Self Service Portal.",
  "required" : false,
  "secret" : false
}, {
  "name" : "EMAIL",
  "type" : "VECTOR",
  "description" : "This is the default Email address for receiving cloud notifications.",
  "required" : false,
  "secret" : false
}, {
  "name" : "QUOTA_THRESHOLD",
  "value" : "0.0",
```

```

"type" : "FLOAT",
"defaultValue" : "0.0",
"description" : "Notifications will be sent to users when resources exceed the defined
quota percentage.",
"required" : false,
"secret" : false
}, {
"name" : "QUOTA_NOTIFICATION",
"value" : "false",
"type" : "BOOLEAN",
"defaultValue" : "false",
"description" : "Receive quota related notification when the quota reaches the specified
threshold.",
"required" : false,
"secret" : false
}, {
"name" : "INSTANCE_EXPIRY_NOTIFICATION",
"value" : "false",
"type" : "BOOLEAN",
"defaultValue" : "false",
"description" : "Enables user to receive notifications for Service Instances that are
due to expire based on the notification period.",
"required" : false,
"secret" : false
} ],
"canonicalLink" : {
"href" :
"https://xxx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
userpreferences/general/metadata"
}
}
}

```

## Updating the General User Preferences for V2

The table below shows the configuration for the PUT request.

**Table 37-56 PUT Request Configuration for Updating the General User Preferences in V2**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/general
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	<pre> {   "preferences": [     {       "value": "MWAAS",       "name": "DEFAULT_SERVICE"     },     {       "value": "false",       "name": "REQUEST_NOTIFICATION"     }   ] } </pre>
Request method	PUT

A sample of the response received is shown below.

```
{
  "message" : "General preferences updated successfully."
}
```

## Viewing Details of the Services User Preferences Resource for V2

The table below shows the configuration for the GET request.

**Table 37-57 GET Request Configuration for Viewing Details of the Services User Preferences Resource in V2**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/services
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "preferences" : [ {
    "name" : "MIDDLEWARE_CFW",
    "type" : "Service Family User Preferences",
    "required" : false,
    "secret" : false,
    "meta" :
    "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/services/MIDDLEWARE_CFW/metadata",
    "canonicalLink" : {
      "href" :
      "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/services/MIDDLEWARE_CFW"
    }
  }, {
    "name" : "NIMBULA_INFRASTRUCTURE",
    "type" : "Service Family User Preferences",
    "required" : false,
    "secret" : false,
    "meta" :
    "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/services/NIMBULA_INFRASTRUCTURE/metadata",
    "canonicalLink" : {
      "href" :
      "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/services/NIMBULA_INFRASTRUCTURE"
    }
  }, {
    "name" : "DBAAS",
    "type" : "Service Family User Preferences",
    "required" : false,
    "secret" : false,
    "meta" :
    "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/services/DBAAS/metadata",
  }
]
```

```

"canonicalLink" : {
  "href" :
  "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
  userpreferences/services/DBAAS"
}
}, {
  "name" : "CFW_SAMPLEXAAS_SERVICEFAMILY",
  "type" : "Service Family User Preferences",
  "required" : false,
  "secret" : false,
  "meta" :
  "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
  userpreferences/services/CFW_SAMPLEXAAS_SERVICEFAMILY/metadata",
  "canonicalLink" : {
    "href" :
    "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
    userpreferences/services/CFW_SAMPLEXAAS_SERVICEFAMILY"
  }
} ],
"canonicalLink" : {
  "href" :
  "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
  userpreferences/services"
}
}
}

```

## Viewing Details of the Service Family User Preferences Resource for V2

The table below shows the configuration for the GET request.

**Table 37-58 GET Request Configuration for Viewing Details of the Service Family User Preferences Resource in V2**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/services/{servicefamily}
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

## Viewing Metadata of the Service Family User Preferences for V2

The table below shows the configuration for the GET request.

**Table 37-59 GET Request Configuration for Viewing Metadata of the Service Family User Preferences in V2**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/services/{servicefamily}/metadata

**Table 37-59 (Cont.) GET Request Configuration for Viewing Metadata of the Service Family User Preferences in V2**

Feature	Specification
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "name" : "CFW_SAMPLEXAAS_SERVICEFAMILY",
  "type" : "Service Type User Preferences",
  "preferences" : [ {
    "name" : "SAMPLE_PREFERENCE_1",
    "value" : "test",
    "type" : "STRING",
    "defaultValue" : "Sample Value 1",
    "description" : "Type of the Supported Files",
    "required" : false,
    "secret" : false
  } ],
  "subPreferences" : [ {
    "name" : "CFW_SAMPLEXAAS_SERVICE_FOR_NOMEM",
    "type" : "Service Type User Preferences",
    "canonicalLink" : {
      "href" :
      "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
      userpreferences/services/CFW_SAMPLEXAAS_SERVICEFAMILY/metadata/
      CFW_SAMPLEXAAS_SERVICE_FOR_NOMEM"
    }
  }, {
    "name" : "CFW_SAMPLEXAAS_SERVICE",
    "type" : "Service Type User Preferences",
    "canonicalLink" : {
      "href" :
      "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
      userpreferences/services/CFW_SAMPLEXAAS_SERVICEFAMILY/metadata/CFW_SAMPLEXAAS_SERVICE"
    }
  }, {
    "name" : "CFW_SAMPLEXAAS_REMOTESERVER_SERVICE",
    "type" : "Service Type User Preferences",
    "canonicalLink" : {
      "href" :
      "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
      userpreferences/services/CFW_SAMPLEXAAS_SERVICEFAMILY/metadata/
      CFW_SAMPLEXAAS_REMOTESERVER_SERVICE"
    }
  } ],
  "canonicalLink" : {
    "href" :
    "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
    userpreferences/services/CFW_SAMPLEXAAS_SERVICEFAMILY/metadata"
  }
}
```



## Updating the Service Family User Preferences for V2

The table below shows the configuration for the PUT request.

**Table 37-60 PUT Request Configuration for Updating the Service Family User Preferences in V2**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/services/{servicefamily}
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	<pre>{   "preferences": [     {       "value": "test",       "name": "SAMPLE_PREFERENCE_1"     }   ] }</pre>
Request method	PUT

A sample of the response received is shown below.

```
{
  "message" : "User service preferences updated successfully."
}
```

## Viewing Details of the Service Type User Preferences Resource for V2

The table below shows the configuration for the GET request.

**Table 37-61 GET Request Configuration for Viewing Details of the Service Type User Preferences Resource in V2**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/services/{servicefamily}/{servicetype}
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "name" : "CFW_SAMPLEXAAS_SERVICE",
  "type" : "Service Type User Preferences",
  "preferences" : [ {
```

```

"name" : "SAMPLE_PREFERENCE_1",
"value" : "UPD_ST_Rest_14-09-06 11.59.34",
"type" : "STRING",
"defaultValue" : "Sample Value 1",
"description" : "Type of the Supported Files",
"required" : false,
"secret" : false
} ],
"canonicalLink" : {
"href" :
"https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
userpreferences/services/CFW_SAMPLEXAAS_SERVICEFAMILY/CFW_SAMPLEXAAS_SERVICE"
}
}

```

## Viewing Metadata of the Service Type User Preferences for V2

The table below shows the configuration for the GET request.

**Table 37-62 GET Request Configuration for Viewing Metadata of the Service Type User Preferences in V2**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/services/{servicefamily}/{servicetype}/metadata
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```

{
"name" : "CFW_SAMPLEXAAS_SERVICE",
"type" : "Service Type User Preferences",
"preferences" : [ {
"name" : "SAMPLE_PREFERENCE_1",
"value" : "test",
"type" : "STRING",
"defaultValue" : "Sample Value 1",
"description" : "Type of the Supported Files",
"required" : false,
"secret" : false
} ],
"canonicalLink" : {
"href" :
"https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
userpreferences/services/CFW_SAMPLEXAAS_SERVICEFAMILY/CFW_SAMPLEXAAS_SERVICE/metadata"
}
}

```

## Updating the Service Type User Preferences for V2

The table below shows the configuration for the PUT request.

**Table 37-63 PUT Request Configuration for Updating the Service Type User Preferences in V2**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/services/{servicefamily}/{servicetype}
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	<pre>{   "preferences": [     {       "value": "UPD_ST_Rest_14-09-07 12.03.39",       "name": "SAMPLE_PREFERENCE_1"     }   ] }</pre>
Request method	PUT

A sample of the response received is shown below.

```
{
  "message" : "User service preferences updated successfully."
}
```

## User Preferences for V1

An SSA user (with the `EM_SSA_USER` role) can set user preferences (both general and service specific) using Cloud REST APIs.

### My Preferences for V1

This is the top level resource and is used to get the following preferences:

- General Preferences
- Service Preferences: This includes My Database Preferences, My Middleware Preferences, and My Tests Preferences

### Canonical Link for V1

The URI (`canonicalLink`) for user preferences is `em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/`. A GET request to this URI provided a top level view of the general and service specific preferences. The table below shows the GET request configuration on this URI.

**Table 37-64 Canonical Link**

Method	Query Parameters	Request Payload	URI	Description
GET	NA	NA	https://<OMS_HOST>:<OMS_CONS OLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/	Gives a top level view of the general and service specific preferences.

**Table 37-65 GET Request Configuration for Viewing Details of My Preferences Resource**

Feature	Specification
URI	/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
"servicePreferences": "/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/
services",
"canonicalLink": "/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/"
}
```

## General Preferences for V1

This represents the general user preferences that are applicable across all service types.

**Table 37-66 General Preferences Data Model**

Field	Type	Description	Occurs
emailAddress	String	This is the default email address for receiving cloud notifications.	0..1
locale	String	This is the default locale for receiving cloud notifications. The default locale is English. Supported values include: <ul style="list-style-type: none"> <li>en (English)</li> <li>es_ES (Spanish)</li> <li>zh_CN (Simplified Chinese)</li> <li>zh_TW (Traditional Chinese)</li> <li>ja (Japanese)</li> <li>ko (Korean)</li> <li>fr (French)</li> <li>pt_BR (Brazilian Portugese)</li> <li>de (German)</li> </ul>	0..1
request	RequestEntity	Request notification values.	0..1

**Table 37-66 (Cont.) General Preferences Data Model**

Field	Type	Description	Occurs
instanceExpiry	InstanceExpiryEntity	Instance expiry notification values.	0..1
quota	QuotaEntity	Instance expiry notification values.	0..1
quotaThreshold	Integer	Notifications will be sent to users when resources exceed the defined quota percentage.	0..1
defaultServiceType	String	This is the default service after successful login to Self Service Portal. If not specified, this is defaulted to servers. Supported service type values include: DBAAS (Databases), and MWAAS (Middleware).	0..1
canonicalLink	URI	A GET against this URI refreshes the client representation of this resource.	1

## Composite Resource Attributes for V1

The following composite resource attribute data model are described in this section.

- RequestEntity
- InstanceExpiryEntity
- QuotaEntity

## RequestEntity Data Model for V1

The following table describes the RequestEntity data model:

**Table 37-67 RequestEntity Data Model**

Field	Type	Description	Occurs
requestNotifications	boolean	This allows the user to receive notifications for different statuses of the request.	0..1
requestStatus	List<String>	The list of request statuses for which notifications are enabled. Supported request status values are: <ul style="list-style-type: none"> <li>• Incomplete</li> <li>• Scheduling</li> <li>• Scheduling Error</li> <li>• Scheduled</li> <li>• Canceled</li> <li>• Insufficient Quota</li> <li>• Insufficient Resources in Zone</li> <li>• In Progress</li> <li>• Execution Error</li> <li>• Partially Succeeded</li> <li>• Success</li> <li>• Running</li> <li>• All</li> </ul>	

## InstanceExpiryEntity Data Model for V1

The following table describes the InstanceExpiryEntity data model:

**Table 37-68 InstanceExpiryEntity Data Model**

Field	Type	Description	Occurs
instanceExpiryNotifications	boolean	Enables user to receive notifications for service instances that are scheduled to expire based on the notification period.	0..1
daysBeforeFirstNotification	Integer	The number of days before the first notification is sent to the user before the expiry date of the service instance.	0..1
daysBeforeSecondNotification	Integer	The number of days before the second notification is sent to the user before the expiry date of the service instance.	0..1

## QuotaEntity Data Model for V1

The following table describes the QuotaEntity data model:

**Table 37-69 QuotaEntity Data Model**

Field	Type	Description	Occurs
quotaNotifications	boolean	Receive quota related notification when the quota reaches the specified threshold.	0..1
quotaThreshold	Integer	Notifications will be sent to users when resources exceed the defined quota percentage.	0..1

## Supported Methods for General Preferences (for V1)

The following table shows the supported methods:

**Table 37-70 Supported Methods**

Method	Query Parameters	Request Payload	URI	Description
GET	NA	NA	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/general	Gives the general preferences for an SSA user.

**Table 37-70 (Cont.) Supported Methods**

Method	Query Parameters	Request Payload	URI	Description
PUT	NA	General Preferences	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/general	Updates the general preferences for an SSA user.

## Viewing Details of the General Preferences for an SSA User

The table below provides the configuration for a GET request to know the general preferences for an SSA user.

**Table 37-71 GET Request Configuration for Viewing Details of General Preferences for an SSA User**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/general/
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
  "emailAddress": "john.smith@cloudcompany.com",
  "locale": "English",
  "request": {
    "requestNotifications": true,
    "requestStatus": ["SUCCESS","INCOMPLETE"]
  }
  "instanceExpiry": {
    "instanceExpiryNotifications": true,
    "daysBeforeFirstNotification": 10,
    "daysBeforeSecondNotification": 5
  },
  "quota": {
    "quotaNotifications": true,
    "quotaThreshold": 80.0
  },
  "defaultServiceType": "Servers",
  "canonicalLink":
  "em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/general"
}
```

## Updating the General Preferences for an SSA User

The table below provides the configuration for a PUT request to update the general preferences for an SSA user.

**Table 37-72 PUT Request Configuration for Updating the General Preferences for an SSA User**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/general/
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body to update a single field	<pre>{   "emailAddress": "john.smith@cloudcompany.com",   "locale": "en",   "defaultServiceType": "DBAAS", }</pre>
Body to update all fields	<pre>{   "emailAddress": "john.smith@cloudcompany.com",   "locale": "en",   "request": {     "requestNotifications": true,     "requestStatus": ["SCHEDULED","INCOMPLETE"]   },   "instanceExpiry": {     "instanceExpiryNotifications": true,     "daysBeforeFirstNotification": 10,     "daysBeforeSecondNotification": 5   },   "quota": {     "quotaNotifications": true,     "quotaThreshold": 80   },   "defaultServiceType": "DBAAS" }</pre>
Body to update Notification fields	<pre>{   "request": {     "requestNotifications": true,     "requestStatus": ["SCHEDULED","INCOMPLETE"]   } }</pre>
Body to update instance expiry notification fields	<pre>{   "instanceExpiry": {     "instanceExpiryNotifications": true,     "daysBeforeFirstNotification": 10,     "daysBeforeSecondNotification": 5   } }</pre>
Body to update quota notification fields	<pre>{   "quota": {     "quotaNotifications": true,     "quotaThreshold": 80   } }</pre>
Request method	GET



A sample of the response received is shown below.

```
Status 200 OK {      message: "General Preferences updated successfully." }
```

## Service Specific User Preferences for V1

This section describes the following:

### Service Preferences for V1

The Service Preferences resource represents the user preferences of an SSA user per service family.

**Table 37-73 ServicePreferences Data Model**

Field	Type	Description	Occurs
canonicalLink	URI	A GET against this URI refreshes the client representation of this resource.	1
servicePreferences	Collection<EntityValueHolder>	User preferences of SSA user for a specific service family.	1

### Supported Methods for My Preferences (for V1)

**Table 37-74 Supported Methods (II)**

Method	Query Parameters	Request Payload	URI	Description
GET	NA	NA	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services	This gives the top level view of service preferences for all service families.
GET	NA	NA	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services/<servicefamily>	Gives user preferences of SSA user for a specific service family.
PUT	NA	ServicePreferences	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services/<servicefamily>	Updates the user preferences of SSA user for a specific service family.

## ServicePreferenceMetadata Data Model for V1

This fetches the set of user preferences metadata relevant to the respective service family. Using this, the user can identify the user preferences available for each service family and the possible values of each.

**Table 37-75 ServicePreferenceMetaData Data Model**

Field	Type	Description	Occurs
canonicalLink	URI	A GET against this URI refreshes the client representation of this resource.	1
servicePreferencesMetadata	Collection<ValueDescriptor>	The set of user preferences metadata relevant to the respective service type.	0..1

## Composite Resource Attributes for V1

Some of the resource entities in this specification contain the following composite resource attributes:

### ValueEntity Data Model for V1

This represents a value (string representation) and their description (caption). The following table describes the data model:

**Table 37-76 ValueEntity Data Model**

Field	Type	Description	Occurs
value	String	String representation of the actual value of the entity.	1
description	String	Caption of the entity that describes it.	0..1

### EntityValueHolder Data Model for V1

This represents a simple entity having a name, value and description. The following table describes the data model:

**Table 37-77 EntityValueHolder Data Model**

Field	Type	Description	Occurs
name	String	Name of the entity.	1
value	String	String representation of the actual value of the entity.	1
description	String	Caption of the entity that describes it.	0..1

### ValueDescriptor Data Model for V1

This describes the metadata regarding the type of value that can be set upon an associated object. The following table describes the data model.

**Table 37-78 ValueDescriptor Data Model**

Field	Type	Description	Occurs
name	String	Name of the datum being described.	1
displayName	String	Display name of the datum being described.	0..1
description	String	Description of the datum referred.	0..1
currentValue	String	Current value of the datum being described.	0..1
isRequiredAttribute	boolean	True if the value of the datum is required.	0..1
possibleValues	Collection<ValueEntity>	Optional list of valid values of the datum being described.	0..1
description	String	Description of the datum referred.	0..1

## Service Preferences REST API Examples for V1

This section describes the REST API examples of the Service Preferences resource.

### Viewing Details of the Service Preferences Resource

The table below shows the GET request configuration for getting top level view of service preferences for all service families.

**Table 37-79 GET Request Configuration for Viewing Details of Service Preferences Resource**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services/
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

A sample of the response received is shown below.

Status 200 OK

```
{
  DBAAS: {
    displayName: "My Database Preferences"
    description: "User preferences for Database services"
    canonicalLink:
      "/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services/dbaas"
  }
  MWAAS: {
    displayName: "My Middleware Preferences"
    description: "User preferences for Middleware services"
    canonicalLink:
      "/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services/mwaas"
  }
  canonicalLink:
    "/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services"
}
```

## My Database Preferences REST API Examples for V1

This section details the REST API examples for My Database Preferences resource which specifies the preferences for database services.

### Viewing Details of the DBaaS User Preferences Metadata

The table below shows the configuration for the GET request.

**Table 37-80 GET Request Configuration for Viewing Details of the DBaaS User Preferences Metadata**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services/dbaas/metadata
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

A sample of the response received is shown below.

Status 200 OK

```
{
  servicePreferencesMetadata: {
    items:
      {
        name: "defaultPaasZone"
        displayName: "Default PaaS Infrastructure Zone"
        description: "Default PaaS Infrastructure Zone"
        currentValue: ""
        isRequiredAttribute: false
        possibleValues:
          {
            value: "dbaas_west_coast_zone"
          }
        }
    canonicalLink:
      "/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services/dbaas/metadata"
  }
}
```

### Updating DBaaS User Preferences

The table below shows the PUT request configuration.

**Table 37-81 PUT Request Configuration for Updating the DBaaS User Preferences**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services/dbaas/

**Table 37-81 (Cont.) PUT Request Configuration for Updating the DBaaS User Preferences**

Feature	Specification
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	<pre>{   "servicePreferences":   {     "items":[       {         "name": "defaultPaasZone",         "value": "dbaas_west_coast_zone"       }     ]   } }</pre>
Request method	PUT

A sample of the response received is shown below.

Status 200 OK

```
{
  message: Service Preferences updated successfully."
}
```

## Setting a Blank DBaaS User Preference Setting

The table below shows the PUT request configuration.

**Table 37-82 PUT Request Configuration for Setting a Blank DBaaS User Preference Setting**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services/dbaas/
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	<pre>{   "servicePreferences":   {     "items":[       {         "name": "defaultPaasZone",         "value": ""       }     ]   } }</pre>
Request method	PUT

A sample of the response received is shown below.

```
Status 200 OK

{
  message: Service Preferences updated successfully."
}
```

## Viewing the DBaaS User Preferences

The table below shows the GET request configuration.

**Table 37-83 GET Request Configuration for Viewing the DBaaS User Preference Setting**

Feature	Specification
URI	https://<OMS_HOST>:<OMS_CONSOLE_PORT>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services/dbaas/
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/json
Body	None
Request method	GET

A sample of the response received is shown below.

```
Status 200 OK

{
  canonicalLink:
  "/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services/dbaas"
  servicePreferences: {
    items: {
      name: "defaultPaasZone"
      value: "dbaas_west_coast_zone"
    }
  }
}\
```

# Chargeback and Metering EMCLI Verbs

This chapter describes the EMCLI verbs used for Chargeback and Metering and provides details on verb names, descriptions, parameters and syntax. Examples of verb output and commands are also provided.

This chapter contains the following sections:

- [Performing UI Equivalent Chargeback Operations](#)
- [Using Custom Charge Items](#)
- [Examples of Custom Charge Item Verb Use](#)
- [Creating a Generic Entity Type](#)
- [Retrieving Metering Data from Enterprise Manager](#)

## Performing UI Equivalent Chargeback Operations

The section describes EMCLI verbs with which you can perform the same operations you can perform within the Chargeback user interface.

### list\_chargeback\_entity\_types

Lists all entity types that Chargeback supports. You can optionally list all entity types and their respective usage mode, or all usage modes that a particular entity type supports.

#### Syntax

```
list_chargeback_entity_types
  -[usage_mode]
  -[entity_type="eType"]
```

#### Parameters

- `usage_mode`—(optional) displays all applicable usage modes for each entity type
- `entity_type`—(optional) displays all applicable usage modes for the specified entity type

#### Examples

```
list_chargeback_entity_types
```

Entity Type	Entity Type Display Name
oracle_database	Database Instance
host	Host

```
list_chargeback_entity_types -usage_mode
```

Entity Type	Entity Type Display Name	Usage Mode
oracle_database	Database Instance	dbMetered
oracle_database	Database Instance	dbByService
oracle_database	Database Instance	cdbBypdb
host	Host	hostMetered

```
list_chargeback_entity_types -entity type="oracle database"
```

Entity Type	Entity Type Display Name	Usage Mode
oracle_database	Database Instance	dbMetered
oracle_database	Database Instance	dbByService
oracle_database	Database Instance	cdbBypdb

## list\_chargeback\_entities

Lists all entities that have been added to Chargeback; that is, all entities of any type for which charges and metering are calculated.

### Syntax

```
list_chargeback_entities
```

### Examples

Output appears in tabular format and displays the following information for each added entity:

**Table 38-1 Output Example**

Column Name	Column Value
Entity Name	acme_db
Entity Guid	xrdbyy
Entity Type	oracle_database
Creation Date	2014-01-01 00.00.00.0
Parent Entity Name	No Parent
Parent Entity Type	Not Applicable
Cost Center Name	cc1
Charge Plan Name	cp1

## add\_chargeback\_entity

Adds an entity instance of a given entity type to Chargeback with the specified usage mode.

### Syntax

```
add_chargeback_entity
    -entity_name="eName"
    -entity_type="eType"
    -usage_mode="uMode"
```

### Parameters

- `entity_name`—identifies an entity instance by name currently being monitored by Enterprise Manager that you want to add to Chargeback.
- `entity_type`—identifies the entity type of the instance being added.
- `usage_mode`—specifies the usage mode; that is, how the entity instance is to be metered. Use the `list_chargeback_entity_types` verb with the `-entity type` option to see available usage modes.



## Examples

```
add_chargeback_entity -entity_name="db1" -entity_type="oracle_database" -  
usage_mode="dbMetered"
```

Adds the entity db1 to Chargeback, metered by database instance.

## remove\_chargeback\_entity

Removes an entity instance of a given entity type from Chargeback; that is, terminates Chargeback activity on the entity. with the specified usage mode.

### Syntax

```
remove_chargeback_entity  
    -entity_name="eName"  
    -entity_type="eType"  
    -[entity_guid="entity guid"]
```

### Parameters

- `entity_name`—identifies an entity instance by name that you want to remove from Chargeback.
- `entity_type`—identifies the entity type of the instance being removed.
- `entity_guid`—(optional) specifies the globally unique identifier by which the entity is known internally. When there are multiple entities of the same type with the same name, command output lists all such entities with additional details including GUID. Execute the command again, this time using `entity_guid` instead of the other parameters to correctly identify the intended entity.

### Examples

```
remove_chargeback_entity -entity_name="db1" -entity_type="oracle_database"
```

Removes the Oracle database entity db1 from Chargeback.

## list\_charge\_plans

Lists all charge plans currently in use in Chargeback. Optionally lists charge plans scheduled for use in the future. Can also optionally list current or future plans by entity type or charge plan details.

### Syntax

```
list_charge_plans  
    [-[entity_type="entity type" -[ all]]  
    -[charge_plan="charge plan name" -[all]]  
    -[ all]]
```

### Parameters

- `entity_type`—lists all active charge plans for the specified entity type.
- `charge_plan`—lists details about a particular charge plan.
- `all`—lists all active and future charge plans in Chargeback, or for a specified entity type, or the details of all active and future versions of the specified charge plan.

## Examples

Output appears in tabular format and displays the following information, depending on parameters specified:

**Table 38-2 Output Example**

Column Name	Column Value
Charge Plan Name	cp1
Entity Type	host
Description	Host flat rate plan
Start Date	2014-01-01 00.00.00.0
End Date	2014-02-01 00.00.00.0

## assign\_charge\_plan

Assigns a specified charge plan to an entity of a particular type.

### Syntax

```
assign_charge_plan
  -entity_name="eName"
  -entity_type="eType"
  -plan_name="pName"
  -[entity_guid="entity guid"]
```

### Parameters

- `entity_name`—identifies the entity to which a plan is to be assigned.
- `entity_type`—identifies the entity type of the named entity. Charge plans are entity-type specific.
- `plan_name`—specifies the name of an existing charge plan to be assigned to the entity.
- `entity_guid`—(optional) specifies the globally unique identifier by which the entity is known internally. When there are multiple entities of the same type with the same name, command output lists all such entities with additional details including GUID. Execute the command again, this time using `entity_guid` instead of the other parameters to correctly identify the intended entity.

### Examples

```
assign_charge_plan -entity_name="db1" -entity_type="oracle_database" -plan_name="plan1"
```

Assigns charge plan plan1 to database instance db1 of entity type Oracle Database.

## unassign\_charge\_plan

Removes the charge plan assignment from the specified entity.

### Syntax

```
unassign_charge_plan
  -entity_name="eName"
```

```
-entity_type="eType"
-[entity_guid="entity guid"]
```

### Parameters

- `entity_name`—identifies the entity from which to remove the plan assignment.
- `entity_type`—identifies the entity type of the named entity.
- `entity_guid`—(optional) specifies the globally unique identifier by which the entity is known internally. When there are multiple entities of the same type with the same name, command output lists all such entities with additional details including GUID. Execute the command again, this time using `entity_guid` instead of the other parameters to correctly identify the intended entity.

### Examples

```
unassign_charge_plan -entity_name="db1" -entity_type="oracle_database" -
plan_name="plan1"
```

Removes the charge plan assignment from database instance `db1` of entity type Oracle Database.

## list\_cost\_centers

Lists all cost centers known to Chargeback or cost centers in various hierarchical displays.

### Syntax

```
list_cost_centers
  -[[cost_center_name="cName"]
  -[parent]
  -[children]
  -[top]
  -[leaf]]
```

### Parameters

- `cost_center_name`—identifies a specific cost center for which other options can be specified.
- `parent`—displays the cost center parent of the specified cost center.
- `children`—lists all children cost centers of the specified cost center.
- `top`—displays ancestor cost centers of the specified cost center.
- `leaf`—displays leaf node cost centers of the specified cost center.

### Examples

```
list_cost_centers
```

Cost Center Name	Parent Node	Number
cc1		[2,4,0,0]
cc11	cc1	[2,2,0,0]
cc12	cc1	[0,0,0,0]
cc111	cc11	[0,0,0,0]
cc112	cc11	[0,0,0,0]

The number column represents number of immediate child cost centers, total child cost centers, number of immediate users, total users, reading left to right.

With the above example as a basis, `list_cost_centers` verb options appear as follows:

```
list_cost_centers -cost_center_name="cc11" -parent
```

```
Parent Node
  cc1
```

```
list_cost_centers -cost_center_name="cc1" -children
```

```
Children Nodes
  cc11
  cc12
```

```
list_cost_centers -cost_center_name="cc111" -top
```

```
Hierarchy
[cc1]----->[cc11]----->[cc111]
```

```
list_cost_centers -cost_center_name="cc1" -leaf
```

```
Leaf Nodes
  cc111
  cc112
  cc12
```

## assign\_cost\_center

Assigns a specified cost center to an entity of a particular type.

### Syntax

```
assign_cost_center
  -entity_name="eName"
  -entity_type="eType"
  -cost_center_name="cName"
  -[entity_guid="entity guid"]
```

### Parameters

- `entity_name`—identifies the entity to which a cost center is to be assigned.
- `entity_type`—identifies the entity type of the named entity.
- `cost_center_name`—specifies the name of an existing cost center to be assigned to the entity.
- `entity_guid`—(optional) specifies the globally unique identifier by which the entity is known internally. When there are multiple entities of the same type with the same name, command output lists all such entities with additional details including GUID. Execute the command again, this time using `entity_guid` instead of the other parameters to correctly identify the intended entity.

### Examples

```
assign_cost_center_plan -entity_name="db1" -entity_type="oracle_database" -
cost_center_name="cc1"
```

Assigns cost center `cc1` to database instance `db1` of entity type Oracle Database.

## unassign\_charge\_plan

Removes the cost center assignment from the specified entity.

### Syntax

```
unassign_cost_center
  -entity_name="eName"
  -entity_type="eType"
  -[entity_guid="entity guid"]
```

### Parameters

- `entity_name`—identifies the entity from which to remove the cost center assignment.
- `entity_type`—identifies the entity type of the named entity.
- `entity_guid`—(optional) specifies the globally unique identifier by which the entity is known internally. When there are multiple entities of the same type with the same name, command output lists all such entities with additional details including GUID. Execute the command again, this time using `entity_guid` instead of the other parameters to correctly identify the intended entity.

### Examples

```
unassign_cost_center -entity_name="db1" -entity_type="oracle_database" -
plan_name="plan1"
```

Removes the cost center assignment from database instance db1 of entity type Oracle Database.

## Using Custom Charge Items

The following sections provide some sample commands along with descriptions and examples. These verbs are used in the following circumstances:

- You would like to meter/charge based on the metric extension/custom configuration that you have defined. Custom charge items can also be used for out of box metrics and target properties. Note that Chargeback only supports metric extensions without key columns.
- These custom charge items, when created in Chargeback, allow you to meter or charge for the custom item like any existing charge items that are shipped along with a plug-in, such as CPU Utilization. Note that the EM\_CBA\_ADMIN role is required to access these verbs.

## list\_charge\_item\_candidates

Lists the items that can be registered to Chargeback.

### Syntax

```
emcli list_charge_item_candidates
  -target_type=<target type>
  -source_data_type=<metric|config|property>
  -target_name=<target name>
  -config_name=<config name>
  -config_data_source=<target name>
  -all
```

### Parameters

- `target_type`—(required) name of target type. Supported target types include: `oracle_database`, `oracle_vm_guest`, `host`, `oracle_pdb`, and `weblogic_j2eeserver`.
- `source_data_type`—valid values are `metric`, `config`, and `property`.
- `target_name`—if specified, metering and charge data are retrieved only for the named target. If you do not specify a valid target name, or if the specified target has not been enabled in the given date range, then no data is generated. If this parameter is not specified, **All** targets for the specified target-type are included.
- `config_name`—required if `source_data_type=config`.
- `config_data_source`—data source of the configuration. Required if `source_data_type=config`.
- `all`—displays all items, including out of box metrics of target type. Without this option, only user-defined metric extensions, and configuration extensions are displayed.

### Examples

```
emcli list_charge_item_candidates -target_type="oracle_database" -  
source_data_type="metric"
```

```
emcli list_charge_item_candidates -target_type="oracle_database" -  
source_data_type="config" -target_name="myDatabase" -config_name="myCustomCCS" -  
config_data_source="ccsfile"
```

## create\_charge\_item

Creates a charge item for Chargeback.

### Syntax

```
emcli create_charge_item -input_file="property_file:<full path of property file>"
```

### Parameters

The option `[-input_file]` is the full path of a file that contains the item properties. The following properties can be defined in the file:

- `target_type`—(required) specifies the target type. Supported target types include: `oracle_database`, `oracle_vm_guest`, `host`, `oracle_pdb`, and `weblogic_j2eeserver`.
- `source_data_type`—(required) specifies the source data type. Valid values are `metric`, `config`, and `property`.
- `item_name`—(required) specifies the name of the item.
- `metric_group`—metric group name as listed in `list_item_candidates`. This is a required property if `source_data_type=metric`.
- `metric_column`—metric column name as listed in `list_item_candidates`. Required property if `source_data_type=metric`.
- `config_view`—config view name as listed in `list_item_candidates`. Required property if `source_data_type=config`.
- `config_key`—config key name as listed in `list_item_candidates`. Required property if `source_data_type=config`.

- `config_column`—config column name as listed in `list_item_candidates`. Required property if `source_data_type=config`.
- `config_data_source`—data source of configuration metric. Required property if `source_data_type=config`.
- `property`—property name as listed in `list_item_candidates`. Required property if `source_data_type=property`.
- `item_displayname`—(required) item display name.
- `unit`—unit display name.
- `aggregation_type`—type of aggregation to use for this item. Applicable only if `data_type=number`. Valid values are `sum` and `avg`. Default value is `avg`.
- `is_config_condition`—Is the item used conditionally in a charge plan. Valid values are `0`, `1`. Default value is `0`.
- `item_category`—category of item. Default value is `instance`. Valid values are `cpu`, `storage`, `memory`, `network`, and `instance`.
- `data_type`—data type. Default value is `number`. Valid values are `string` and `number`.

### Examples

```
emcli create_charge_item -input_file="property_file:/home/user/property_file"
```

```
Contents of /home/user/property_file:
```

```
target_type=host
source_data_type=metric
item_name=total_proc
metric_group=Load
metric_column=noOfProcs
item_displayname=Total Processes
unit=process
aggregation_type=avg
item_category=instance
data_type=number
```

```
emcli create_charge_item -input_file="property_file:/home/user/property_file"
```

```
Contents of /home/user/property_file:
```

```
target_type=oracle_database
source_data_type=config
item_name=custom_config
config_view=myCustomCCS
config_key=region
config_column=country
config_data_source=regionList.txt
item_display_name=Region of Instance
item_category=instance
data_type=string
```

## delete\_charge\_item

Deletes the custom charge item from Chargeback.

### Syntax

```
emcli delete_charge_item -target_type=<target type> -item_name=<Item name>
```

### Parameters

- `target_type`—(required) specifies the target type associated with the custom charge item. Supported target types for this release include `oracle_database`, `oracle_vm_guest`, `host`, `oracle_pdb`, and `weblogic_j2eeserver`.
- `item_name`—(required) name of the custom charge item to be deleted.

### Examples

```
emcli delete_charge_item -target_type="oracle_database" -
item_name="SampleMetricExtension"
```

```
emcli delete_charge_item -target_type="host" -item_name="SampleCustomConfig"
```

## Examples of Custom Charge Item Verb Use

The following sections provide end-to-end examples in the correct use of Custom Charge Item verbs for custom configurations.

### Metric Extension (PGA)

In this example, a metric extension "PGA" with a metric column named "PGA Memory" is created for a database instance target to collect PGA size.

**Figure 38-1** PGA Memory

**Metric Extensions**  
Metric Extensions enhance Enterprise Manager's monitoring capabilities by enabling you to create new metrics specific to your environment. New metric extensions can be defined

► Show Overview

▲ Search

Match  All  Any

Target Type  Status  Display Oracle Provided Metric Extensions

Name  Runs On

Version  Owner

Pending Operations 0 Failed Operations 0

Actions ▼ View ▼ **+** Create ▼ **↓** Import... **⌵** Deploy To Targets...

Name	Runs On	Target Type	Display Name	Version	Description
MES\$PGA	Target	Database Insta...	PGA	1	PGA Memory

1. Log in to EMCLI and use the Chargeback EMCLI verb `list_charge_item_candidates` to list the items that can be registered to Chargeback.





Figure 38-5 Create Plan: Custom Plan

**Chargeback**  
Charge Plans > Create Plan  
**Create Plan: New Plan**

Charge Plan

Effective Date Nov 1, 2015 - Onward

Peak Time Window

---

**Entity Types**

View ▾ + Add... ✕ Remove

[Database Instance](#)

**Database Instance**

+ Add Item... ✎ Edit Item... ✕ Remove Item ⚙ Set Up Configurations...

Item	Default Configuration
	Charge
<ul style="list-style-type: none"> <li>▾ Universal Rate Adjustments</li> <li>▸ CPU Rate Factor <a href="#">?</a></li> <li>▸ Memory Rate Factor <a href="#">?</a></li> <li>▸ Storage Rate Factor <a href="#">?</a></li> </ul>	<ul style="list-style-type: none"> <li></li> <li>1x</li> <li>1x</li> <li>1x</li> </ul>
<ul style="list-style-type: none"> <li>▾ Recovery Cost</li> <li>Recovery Rate</li> <li>Recovery Period</li> <li>Estimated Instances</li> <li>Total</li> </ul>	<ul style="list-style-type: none"> <li></li> <li></li> <li></li> <li></li> <li></li> </ul>

As the aggregation\_type is set to "avg", the charge rate is related to a time period (for example, per GB per time period).

## Metric Extension (Application A Orders)

A metric extension named "Application A Orders" with a metric column called "Orders Processed" is created for a database instance target. This metric collects the number of orders processed by Application A.

**Figure 38-6 Metric Extensions**

Name	Runs On	Target Type	Display Name	Version	Description
MESOrder	Target	Database Insta...	Application A Or...	1	Orders processed for Application A
MESPGA	Target	Database Insta...	PGA	1	PGA Memory

1. Log in to EMCLI and use the Chargeback EMCLI verb `list_charge_item_candidates` to list the items that can be registered to Chargeback.

**Figure 38-7 list\_charge\_item\_candidates**

```

xterm
$emcli list_charge_item_candidates --source_data_type=metric --target_type=oracle_database
Metric Group Metric Group Display Name Metric Column Metric Column Display Name
ME$Order Application A Orders OrdersProcessed Orders Processed
$

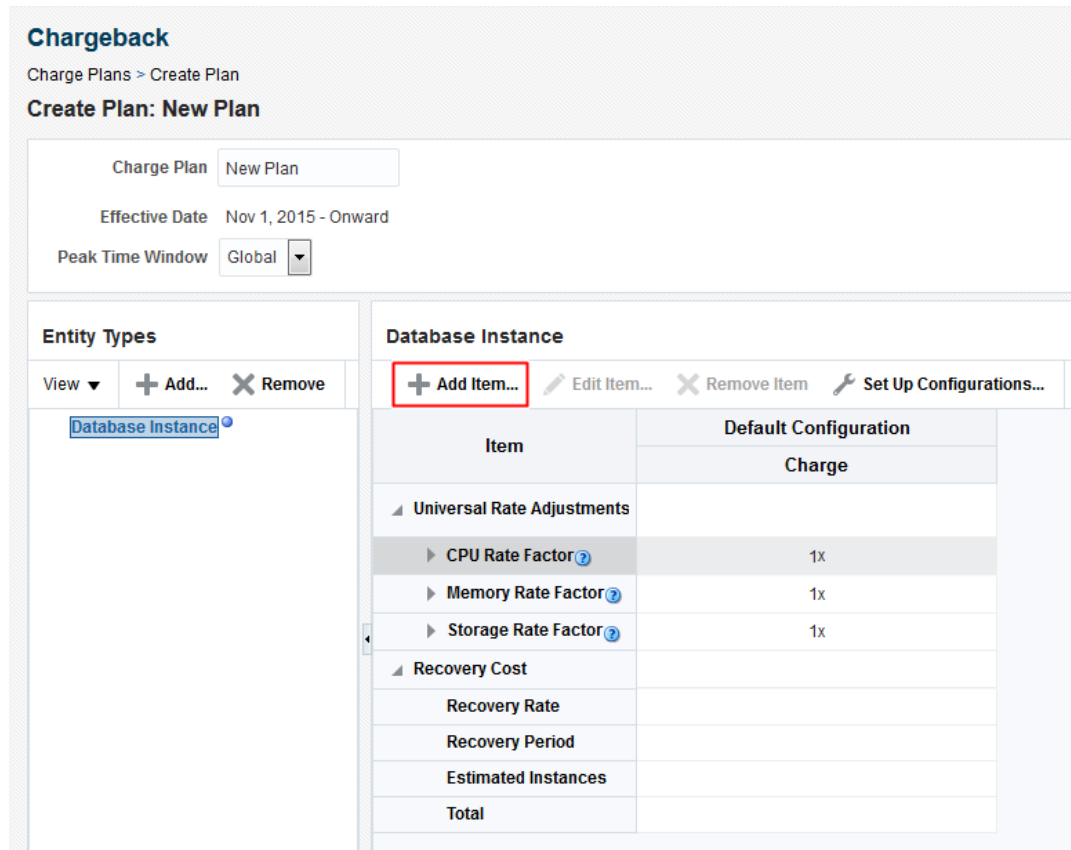
```

2. Create a property file `prop_file2` to generate a custom charge item for the "Orders Processed" metric column.

For this metric, the charge rate will be based on total number of orders processed, with `aggregation_type` set to "sum".



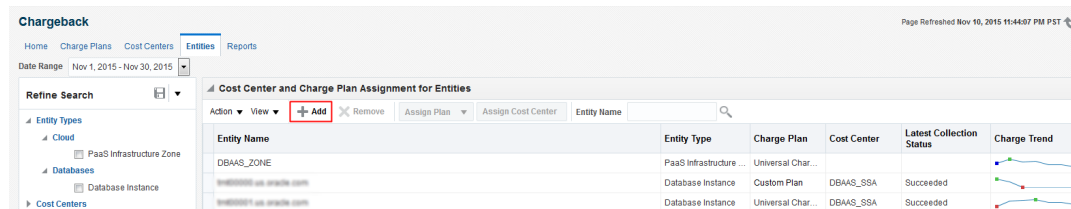
Figure 38-10 Set Rates: Custom Plan



As the aggregation\_type is set to "sum", the charge rate does not depend upon time periods but rather on the total value of "Orders Processed".

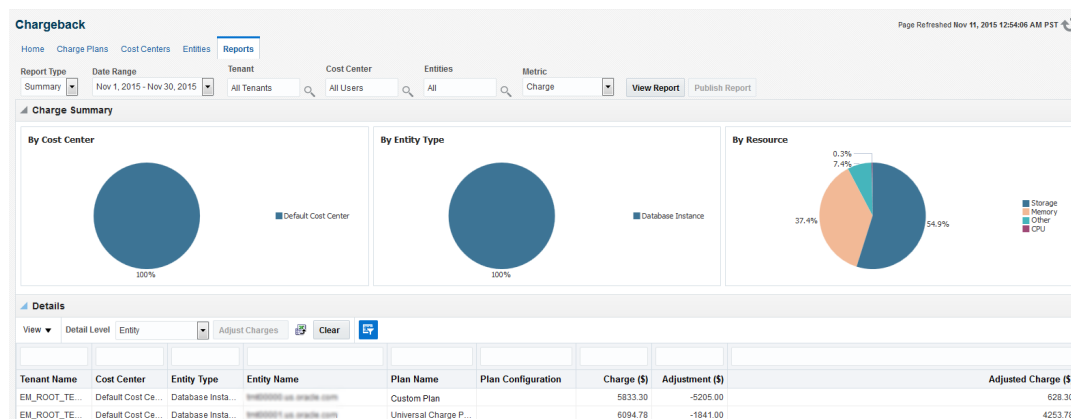
8. Add the database target to Chargeback and assign the "Custom Plan".

Figure 38-11 Cost Center and Charge Plan Assignment



9. Following the daily ETL run, the charge/usage is calculated against new custom items. The charge/usage of custom items can be viewed from the Chargeback report page.

Figure 38-12 Details



## Configuration Extensions

A configuration extension named "Config Extensions" is created for the database instance target. This collects the number of high available tablespaces and the name of each high available tablespace as shown below. In this example, the high available tablespaces value is used as the basis of the new custom charge item.

Figure 38-13 Configuration Extensions

Name	Description	Target Type	Version	Deployments	Facet Synchronization
Config Extensions	Configuration Extension for Database	Database Insta...	1	✓	No synchronizat...
IDM Config Tool		Oracle Access ...	1	⚙️	No synchronizat...

1. Log in to EMCLI and use the Chargeback EMCLI verb `list_charge_item_candidates` to list the configuration items that can be registered to Chargeback. Note that `config_name` is the name of the configuration extension shown on the UI ("Config Extensions" in this case). Similarly, `config_data_source` is the name of the config column shown on the UI (in this case "tmp/dbconfig.xml").

Figure 38-14 list\_charge\_item\_candidates

```

xterm
$emcli list_charge_item_candidates -source_data_type=config -target_type=oracle_database -config_name="Config Extensions" -config_data_source="tmp/dbconfig.xml" -target_name="Oemrep_Database"
Custom Config Name Custom Config Key Custom Config Column
Config Extensions tablespaces/numberHATablespace count
Config Extensions tablespaces/haTablespace name
Config Extensions tablespaces/haTablespace{2} name
$

```

2. Create a property file `prop_file1` to generate a custom charge item for the "Number of High Available Tablespaces" metric column.

Note that the `config_key` value comes from the output of the "Custom Config Key" column in the output of the `list_charge_item_candidates` verb described previously. Similarly, the value of the `config_view` should be the value of "Custom Config Name" above.

**Figure 38-15** Number of High Available Tablespaces



```
xterm
target_type=oracle_database
item_displayname=Number of High Available Tablespaces
source_data_type=config
config_datasource=tmp/dbconfig.xml
config_view=Config Extensions
config_key=tablespaces/numberHATablespace
config_column=count
target_name=Oemrep_Database
data_type=number
unit=tablespace
item_name=config_ext_ha_tblspcs
~
~
```

3. Create a custom item in Chargeback using the `create_charge_item` EMCLI verb.

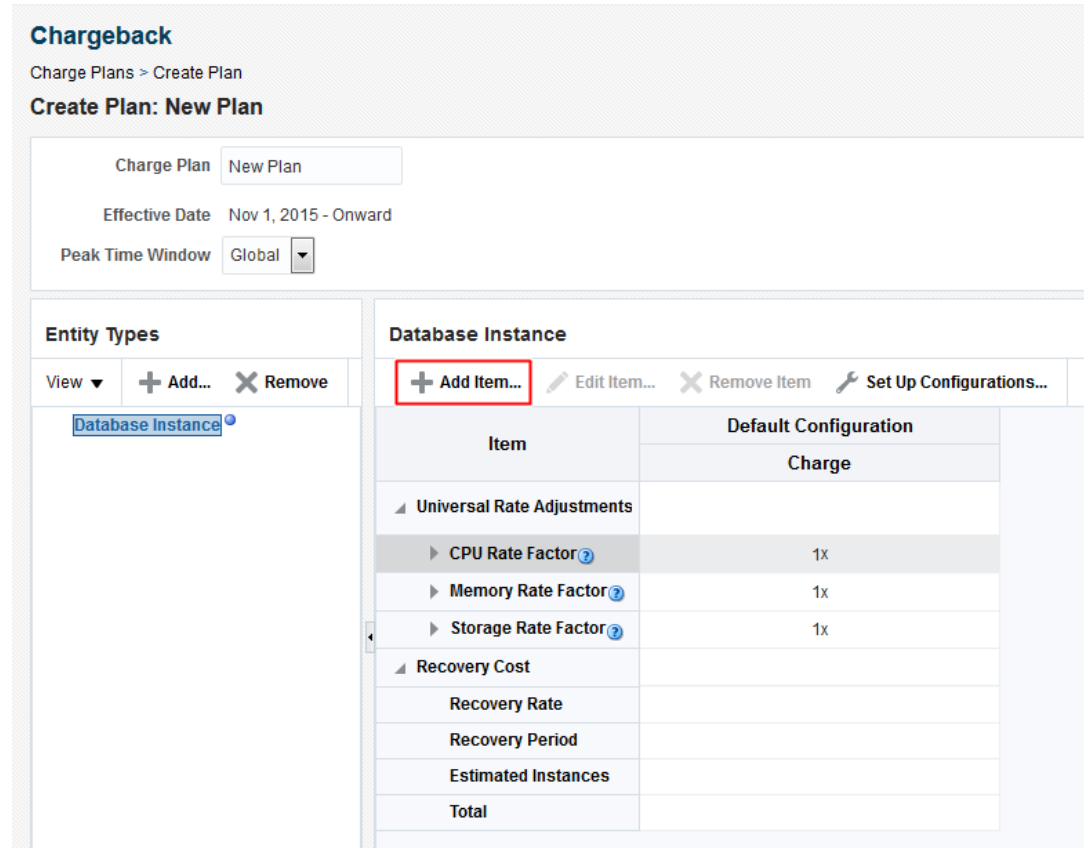
**Figure 38-16** `create_charge_item`



```
xterm
$vi prop_file1
$emcli create_charge_item -input_file="property_file:/tmp/prop_file1"
Custom item "Number of High Available Tablespaces" is successfully created in Chargeback.
$
```

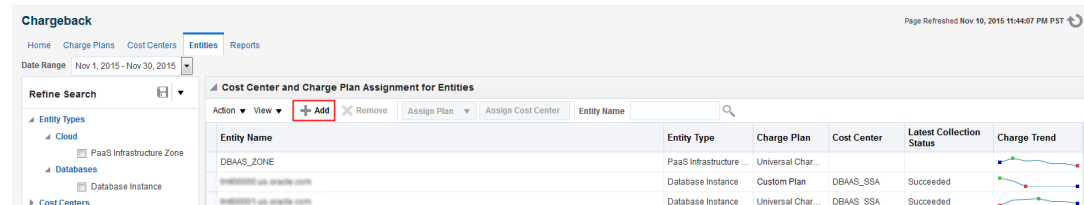
4. After the custom charge item is created, open the Enterprise Manager Cloud Control user interface.
5. Navigate to the Charge Plans page. Click **Create** and select **Plan**.
6. Click **Add** under Entity Types and select the entity type for the chargeback.
7. Click **Add Item** and select the new custom item from the **Item Name** drop-down box. Rates can be set against custom items similar to those set for out-of-box charge items.

Figure 38-17 Set Rates: New Plan



8. Add the database target to Chargeback and assign the “Custom Plan”.

Figure 38-18 New Custom Plan



9. After the daily ETL run, the charge/usage is calculated against new custom items. The charge/usage of custom items can be viewed from the Chargeback report page.

## Creating a Generic Entity Type

Enterprise Manager supports an almost limitless number of target types. Only a relatively small number have out-of-box Chargeback support. You can, however, create a custom entity type for an Enterprise Manager target type for which there is no current Chargeback support. There is a one-to-one correspondence of custom entity type to Enterprise Manager target type.

Use the EM CLI verb `emcli add_custom_cb_entity_type` to identify the custom entity type in terms of an existing target type.



## Syntax

```
add_custom_cb_entity_type -target_type=target_type
```

Where *target\_type* is a known Enterprise Manager target type for which there is no current Chargeback support; for example, Oracle Apache.

After creating the custom entity type, customize charge items appropriate to the new entity type, following the process described in [Using Custom Charge Items](#).

## Charge Item Properties

For example, you might create a custom charge item based on an input property file named `properties_oracle_apache` where the properties are as follows:

```
target_type=oracle_apache
source_data_type=metric
item_name=active_sessions
metric_group=ohs_server
metric_column=sessions.active
item_displayname=Active Sessions
unit=sessions
aggregation_type=avg
item_category=instance
data_type=number
```

The custom charge item is based on the average number of active sessions.

## Implementation

Now proceed as follows:

1. Create a charge plan for the Oracle Apache entity type that includes the active sessions customized charge item.
2. Add the Oracle Apache entity type to Chargeback using the Add wizard in the application, as you would for any entity type. The Oracle Apache entity type is available in Target Selector dialog.
3. Assign the charge plan you created in Step 1 to the Oracle Apache entity type.
4. Optional. Assign a cost center to the Oracle Apache entity type.
5. Using the reporting feature to view metering and charge data related to the Oracle Apache entity type.

# Retrieving Metering Data from Enterprise Manager

The Chargeback REST APIs can be used to integrate Enterprise Manager with Billing and Revenue Management systems (including Oracle BRM). They also provide flexible Chargeback mechanisms. Some examples include:

- Integration with a billing system with different rate plans for small, medium, and large configurations.
- To calculate Chargeback for a flexible time period. For example, months starting from 15th and ending on the 15th.
- To rationalize Chargeback based on other attributes that are not captured by Enterprise Manager.

- To adjust or round up Chargeback based on usage. For example charge is calculated for the full-day even if the usage is for the partial day.

## get\_metering\_data

Retrieves Chargeback metering data in the form of comma-separated output with each row or line containing usage (and optionally charge) information for the specified parameters.

### Syntax

```
emcli get_metering_data
[-start_date=<start date in mmddyyyy> [-end_date=<end_date in mmddyyyy>]]
[ -target_type=<target type> [-target_name= <target name> ] ]
[ -cost_center=<cost center name> ]
[ -charge]
```

### Parameters

All parameters of this verb are optional.

- **start\_date**—specifies the start date in `mmddyyyy` format by which to filter data retrieval, commencing at midnight. Default is the start date of the current report cycle.
- **end\_date**—specifies the end date in `mmddyyyy` format by which to filter data retrieval, terminating at midnight. Default is the end date of the current report cycle.
- **target\_type**—specifies the target types by which to filter data retrieval, provided targets of the specified types have been configured for Chargeback within the specified date range. Default is to retrieve data for all targets of all target types that have been configured for Chargeback within the specified date range.
- **target\_name**—retrieves metering and charge data only for the named target of the specified target type. If the target name is invalid or has not been configured for the specified date range, no data retrieval occurs. The default retrieves data for all targets of the specified target type.
- **cost\_center**—specifies a cost center name as it appears on the Cost Center tab in Chargeback. Retrieves appropriate metering and charge data provided the cost center name is valid as of the specified date range. Default value is the logged-in user. To retrieve metering and charge data for all cost centers, specify "All Users" (in quotes). Each user is also a consumer (cost center) in Chargeback. The logged-in user's privileges determine metering and charge data retrieved across different targets.
- **charge\_**—retrieves both metering and charge data. Default retrieves only metering data.

#### Note:

The privileges required to view target information in Chargeback are:

- **VIEW\_CAT\_TARGET**: Allows you to view information for a specific target (active or inactive).
- **VIEW\_ANY\_CAT\_TARGET**: Allows you to view information for any Chargeback target (active or inactive).

## Data Retrieval Output

This `get_metering_data` verb generates the following output:

- **CONSUMER\_NAME**: Name of the cost-center.
- **TARGET\_TYPE**: Type of target.
- **TARGET\_NAME**: Name of the target.
- **ITEM\_TYPE**: Type of the item or metric. Possible values are: **config**, **fixed**, **metric**, **property**, and **usage**.
- **CATEGORY\_NAME**: Possible values are: **cpu**, **memory**, **storage**, **activity**, **instance**, **network**, **service**, and **software**.
- **ENTITY\_NAME**: Name of the shared entity (valid when the target is enabled in Chargeback in shared mode).
- **ITEM\_DISPLAY\_NAME**: Display name of the item or metric (in English language). **Note**: Translation support is currently not available.
- **VALUE\_AVERAGE**: Average value for the metric on the given date (valid for numeric metrics).
- **STRING\_VALUE**: Value for the metric data (valid for string-based metrics).
- **DATA\_TYPE**: Data type of the metric. This can be **string** or **number**.
- **UNIT**: Unit of the metric data (for example, req and GB).
- **COLLECTION\_DATE**: Date on which the data is collected from the Enterprise Manager metric or configuration tables.
- **PLAN\_NAME**: Name of the Charge Plan associated with the particular target.
- **CHARGE**: Charge value for the specific metric of the target on the particular date.
- **DEFINED\_RATE**: Charge rate defined in the charge plan associated with the target.
- **RATE\_TYPE**: Type of the rate. Possible values are: **No value (blank)**, **Flat**, **config**, and **usage**.
- **RATE\_FACTOR**: Adjustment rate for universal metrics, as defined in the associated extended Chargeplan.
- **CHARGE\_RATE\_UNIT**: Unit, corresponding to the metric or item, as defined in the Charge Plan for the specific rate. For example, for an item or metric named **CPU Utilization (%)** or **CPU Utilization (%) per service**, the value will be "CPU". For a metric or item named **Base Charge**, the value will be "instance", a metric named 'User Requests', the value will be "req"). If the rate defined in Chargeplan is \$1 per MB per day, the value for this column will be "MB" .
- **CHARGE\_TIME\_UNIT**: Time unit as defined in the Charge Plan for the specific rate. (such as, hourly, daily, weekly, monthly, yearly). For example, if the rate defined in Charge Plan is \$1 per MB per Day, value for this column will be *daily*.

### Example: Sample Output

```
"CONSUMER_NAME","TARGET_TYPE","TARGET_NAME","ITEM_TYPE","CATEGORY_NAME","ENTITY_NAME","ITEM_DISPLAY_NAME","STRING_VALUE","PLAN_NAME","COLLECTION_DATE","CHARGE","VALUE_AVERAGE","DEFINED_RATE","RATE_TYPE","RATE_FACTOR","CHARGE_RATE_UNIT","CHARGE_TIME_UNIT","NORMALIZE_RATE","ADJUST_RATE","DATA_TYPE","UNIT"
```

```
"linbo","oracle_vm_guest","mySite/myWls/AdminServer:agent_push","fixed","instance",""
```

```
"Base Charge","","zone_plan",15-OCT-11
00:00:00,72,1,"3","flat",1,"instance","hourly",1,1,"number",""
"linbo","oracle_vm_guest","mySite/myWls/AdminServer:agent_push","fixed","instance","
","Base Charge","","zone_plan",16-OCT-11
00:00:00,72,1,"3","flat",1,"instance","hourly",1,1,"number",""
"linbo","oracle_vm_guest","mySite/myWls/AdminServer:agent_push","fixed","instance","
","Base Charge","","zone_plan",17-OCT-11
00:00:00,72,1,"3","flat",1,"instance","hourly",1,1,"number",""
"linbo","oracle_vm_guest","mySite/myWls/AdminServer:agent_push","fixed","instance","
","Base Charge","","zone_plan",18-OCT-11
00:00:00,72,1,"3","flat",1,"instance","hourly",1,1,"number",""
"linbo","oracle_vm_guest","mySite/myWls/Cluster-0_vm0:assembly1","fixed","instance","
","Base Charge","","zone_plan",15-OCT-11
00:00:00,72,1,"3","flat",1,"instance","hourly",1,1,"number",""
```

## get\_metering\_data Examples

Following are examples of verb usage:

- `emcli get_metering_data`: Returns metering information for all targets (active or enabled in Chargeback) for the current report cycle for the logged in user.
- `emcli get_metering_data -charge`: Returns metering and charge information for all targets (active or enabled in Chargeback) for the current report cycle for the logged in user.
- `emcli get_metering_data -start_date=01202011-cost_center=ORG1`: Returns metering information for all targets (active or enabled in Chargeback) starting from 20th January 2011 until the end of the month for the **ORG1** cost-center.
- `emcli get_metering_data -start_date=01152011 -end_date=02152011 -target_type=oracle_database`: Returns metering information for all Oracle DB targets (active or enabled in Chargeback) that are owned by the logged in user, starting from 15th January 2011 until the 15th February 2011.
- `emcli get_metering_data -target_type=host target_name=my_host -cost_center=organization1`: Returns metering and charge information for "my\_host" target (of type *host*) for the current report cycle for "organization1" cost-center.
- `emcli get_metering_data -cost_center="All Users"`: Returns metering and charge information for all targets (active or enabled in Chargeback) in the current report cycle for all cost centers.
- Log in as `cba_admin_user` (who is the Chargeback Administrator) and enter the following commands:
  - `emcli get_metering_data`: Returns metering information for all targets (active or enabled in Chargeback) for the current report cycle for the `cba_admin_user`.
  - `emcli get_metering_data -cost_center=ssa_user1`: Returns metering information for all targets (active or enabled in Chargeback) that are owned by the `ssa_user1` in the cost center in the current report cycle.
- If the value specified for the cost center, target type, and / or target name is incorrect, no data is generated. For example, the following commands will not generate data:
  - `emcli get_metering_data -target_type=unknown`
  - `emcli get_metering_data -target_type=oracle_database -target_name=unknown_target`

**Note:** There is no target with the name **unknown\_target** configured in Enterprise Manager.

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