Oracle® Enterprise Manager

Upgrade Guide

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Preface

Oracle Enterprise Manager Upgrade Guide describes how you can upgrade to Enterprise Manager 24ai Release 1.

Audience

Oracle Enterprise Manager Upgrade Guide is intended for systems administrators who want to upgrade to Enterprise Manager 24ai Release 1.

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

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Related Resources

For information on new features in Enterprise Manager 24ai Release 1, see New Features In Oracle Enterprise Manager 24ai in the *Enterprise Manager Introduction* guide.

For more information, see the following books in the Enterprise Manager documentation library:

- Oracle Enterprise Manager Basic Installation Guide
- Oracle Enterprise Manager Advanced Installation and Configuration Guide

For the latest releases of these and other Oracle documentation, check the Oracle Help Center at the following URL:

http://docs.oracle.com/en/enterprise-manager/

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

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	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, text that appears on the screen, or text that you enter.

Part I

Introduction to Upgrading an Enterprise Manager System to 24ai Release 1

This part provides an overview of the new features in Enterprise Manager 24ai Release 1, familiarizes you with the upgrade process for upgrading to 24ai Release 1, and describes some key facts that you must know before you start the upgrade process.

In particular, this part covers Overview of Upgrading to Enterprise Manager 24ai Release 1.

1

Overview of Upgrading to Enterprise Manager 24ai Release 1

Enterprise Manager 24ai Release 1 the latest release of Enterprise Manager from Oracle. This new release offers a variety of new features, enhancements, performance improvements, and bug fixes compared to its previous releases. If you have Enterprise Manager 13*c* Release 5 then Oracle recommends that you upgrade it to Enterprise Manager 24ai Release 1 to benefit from all the new features.

Before you start upgrading to Enterprise Manager 24ai Release 1, you must understand the upgrade process, the upgrade utilities, and other key aspects related to upgrade, such as the supported environments, the supported upgrade paths, how ports are reused, what features from the previous release are automatically carried forward, what customization you must redo after the upgrade, so on. This will help you understand the requirements and the implications of the upgrade, and will help you prepare for a smooth transition from the previous release.

This chapter introduces you to the upgrade process, and describes the important aspects that you must know before you start the upgrade process. In particular, this chapter covers the following:

- Supported OMS Environments for Upgrading to Enterprise Manager 24ai Release 1
- Supported Upgrade Paths and Supported Upgrade Approaches for Upgrading to Enterprise Manager 24ai Release 1
- Supported Platforms for Upgrading to Enterprise Manager 24ai Release 1
- Upgrade Scope Offered for Upgrading to Enterprise Manager 24ai Release 1
- Components Upgraded or Installed As Part of the Upgrade to Enterprise Manager 24ai Release 1
- Ports Used by an Upgraded Enterprise Manager 24ai Release 1
- Upgrading Oracle BI Publisher While Upgrading to Enterprise Manager 24ai Release 1
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- Status of Connectors After Upgrading to Enterprise Manager 24ai Release 1
- Custom Certificates Status When Upgrading to Enterprise Manager 24ai Release 1
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- XML DB Feature in the Database After Upgrading to Enterprise Manager 24ai Release 1
- Manually Restarting the OMS and the Management Agent After Upgrading to Enterprise Manager 24ai Release 1
- Enabling Force Logging When Oracle Data Guard Is Configured with the Standby Database (Management Repository) Before Upgrading to Enterprise Manager 24ai Release 1
- Wizards or Consoles Used for Upgrading to Enterprise Manager 24ai Release 1

- Changes to the OPSS Schema After Upgrading to Enterprise Manager 24ai Release 1
- Manually Shutdown OMC Data Collector and Cloud Agent Before Upgrading to Enterprise Manager 24ai Release 1

Supported OMS Environments for Upgrading to Enterprise Manager 24ai Release 1

You can upgrade any of the following Oracle Management Service (OMS) environments:

- Single-OMS Environments: A single-OMS environment is an environment with one OMS that orchestrates with multiple Management Agents. Typically, small deployments.
- Multi-OMS Environments: A multi-OMS environment is an environment with two or more OMS instances moderated with a Server Load Balancer (SLB) that orchestrates with multiple Management Agents. Typically, large deployments.

Supported Upgrade Paths and Supported Upgrade Approaches for Upgrading to Enterprise Manager 24ai Release 1

Table 1-1 lists the supported upgrade paths for each upgrade path.

Supported Upgrade Paths

Table 1-1 Supported Upgrade Paths for Upgrading an Enterprise Manager System

Upgrade From	Upgrade To	Supported Upgrade Approach
13*c* Release 5	24ai Release 1	1-System Upgrade

> **Note:**
>
> Enterprise Manager 13c Release 5 Update 22 (13.5.0.22) is the minimum release update required for upgrading to Enteprise Manager 24ai Release 1.

Supported Upgrade Approaches

Table 1-2 Supported Upgrade Approaches for Upgrading an Enterprise Manager System

Upgrade From	Upgrade To	Supported Upgrade Approach
13*c* Release 4	13*c* Release 5	1-System Upgrade
13*c* Release 3	13*c* Release 5	1-System Upgrade
13*c* Release 2	If you have 13*c* Release 2, then you cannot directly upgrade to 13*c* Release 5. You must first upgrade to 13*c* Release 3 or 13*c* Release 4, and then upgrade to 13*c* Release 5.	1-System Upgrade

Supported Platforms for Upgrading to Enterprise Manager 24ai Release 1

To view a list of supported platforms, access the Enterprise Manager certification matrix available on My Oracle Support. For instructions, see Accessing the Enterprise Manager Certification Matrix in Oracle Enterprise Manager Basic Installation Guide.

Upgrade Scope Offered for Upgrading to Enterprise Manager 24ai Release 1

The following are some facts about upgrading to Enterprise Manager 24ai Release 1:

- You can upgrade only from Enterprise Manager 13*c* Release 5 Update 22 (13.5.0.22) or higher.
- You can upgrade only if the existing database is a database certified for Enterprise Manager 24ai Release 1. If the existing database is not of the release that is supported for 24ai Release 1, then upgrade it to the supported release before you start upgrading the OMS and the Management Repository. You can see a list of certified databases in the Enterprise Manager certification matrix available on My Oracle Support. To access the Enterprise Manager certification matrix, see Accessing the Enterprise Manager Certification Matrix in Oracle Enterprise Manager Basic Installation Guide or My Oracle Support (Certifications section).

  For example, if you are planning to upgrade from 13*c* Release 5 (13.5.0.0.0) then you might have an earlier release of the database that is not supported for Enterprise Manager 24ai Release 1. In this case, ensure that you first upgrade your database to the minimum database version supported for 24ai Release 1, and then upgrade the Enterprise Manager system to 24ai Release 1.
- The upgrade operation is always an out-of-place upgrade where you see a new Oracle home for the OMS and the Management Agent. As a best practice, back up your old and new homes regularly.
- The upgrade approaches do NOT upgrade your existing database where the Management Repository is configured.

  To upgrade the Management Repository database, use the database upgrade tool. For more information, on the upgrade tool, see the *Oracle Database Upgrade Guide* available in the Oracle Database documentation library at:

  `http://docs.oracle.com/en/database/`
- Table 1-3 describes compatibility between the OMS and the Management Agents across 24ai and 13*c* Enterprise Manager releases. The OMS can communicate only with the Management Agent releases that are listed in this table.

Table 1-3 Compatibility Between the OMS and the Management Agents Across 24ai and 13c Releases

NA	Oracle Management Agent 13c Release 3	Oracle Management Agent 13c Release 4	Oracle Management Agent 13c Release 5	Oracle Management Agent 24ai Release 1
Oracle Management Service 24ai Release 1	No	No	Yes	Yes

If you have any earlier releases of Management Agent, then before upgrading the OMS to 24ai Release 1, make sure you upgrade the Management Agents of other earlier releases to 13*c* Release 5 using the *Agent Upgrade Console* that is present within the Enterprise Manager Console.

- You can upgrade any Management Agent on any platform as long as the OMS 24ai Release 1 software for that platform is available.
- Before starting the upgrade to Enterprise Manager 24ai Release 1, ensure to apply the latest Release Update (bundle patch) on the Enterprise Manager 13*c* Release 5.
- The Enterprise Manager Installation Wizard installs Java Development Kit (JDK) java version 1.8.0_431 and Oracle WebLogic Server 12*c* Release 2 (12.2.1.4.0) by default. A preinstalled JDK or Oracle WebLogic Server is not supported from 13*c* Release 1 onwards.
- You must ensure that the Oracle WebLogic Server 12*c* Release 2 (12.2.1.4.0) installed by the Enterprise Manager Installation Wizard is dedicated for Enterprise Manager. You must not have any other Oracle Fusion Middleware product installed in that Middleware home.

  Enterprise Manager cannot coexist with any Oracle Fusion Middleware product in the same Middleware home because the `ORACLE_COMMON` property is used by both the products.
- You must ensure that SQL ALG is disabled in firewall. If not, the Enterprise Manager Upgrade process may terminate/hang in same operation for a long time.
- If you have events setup for maximum memory usage limit, then you must disable them before upgrade.

  For example, `alter system set event='10261 trace name context forever, level 3145728','10262 trace name context forever, level 3145728' scope=spfile;`
- You must make sure that there is no foreign custom objects. For example, views or MVs, which are dependent on EM repository objects.
- Currently, Always-On Monitoring (AOM) upgrade is not supported. You must make sure that the previous version of Always-On Monitoring is uninstalled before installing the new version. For more information on instructions and files to backup before uninstalling, see Uninstalling Always-On Monitoring in the *Enterprise Manager Administrator's Guide*.
- **JVM Diagnostics as a Service**: Starting with Enterprise Manager Cloud Control Release 13c Release 4, JVMD as a service is no longer supported.

  If you are doing a fresh Enterprise Manager installation, JVMD as a service is not supported.

  If you are upgrading to Enterprise Manager 24ai Release 1 from an earlier release, you will need to re-install the JVMD Agents with the latest agent version (24.1 or greater).
- The following components are obsolete in Enterprise Manager 24ai Release 1:

  - EM 24ai Metrics: *total connect time* and *total response time* in the DNS-based Service Test
  - Plug-ins: Fusion Apps (FA)
  - Target types: Exalogic, JBoss/WAS target types in the FMW plug-in
  - Resource Usage metric groups that use OPMN as a data source in certain FMW target types
  - Real User Experience Insights (RUEI) and RUEI-related EM features
  - Discovery of Oracle Directory Server Enterprise Edition (ODSEE)
  - Provisioning for Oracle Business Intelligence

Components Upgraded or Installed As Part of the Upgrade to Enterprise Manager 24ai Release 1

The upgrade to Enterprise Manager 24ai Release 1 is an out-of-place upgrade, and therefore, when you invoke the Enterprise Manager Installation Wizard, the wizard does the following:

- Installs Oracle WebLogic Server 12c Release 2 (12.2.1.4.0).
- Installs Oracle JRF 12c Release 2 (12.2.1.4.0).
- Installs Java Development Kit (JDK) 1.8 (Java version 1.8.0_431).
- Installs Oracle Management Service 24ai Release 1 which includes the following:
  - WebLogic container.
  - Zero downtime WebLogic container.
  - API Gateway.
- Upgrades plug-ins, carries over the already deployed plug-ins, or deploys plug-ins:
  - Upgrades the deployed plug-ins if newer versions are available in the Enterprise Manager 24ai Release 1 software.

    Starting with 13*c* Release 1, as part of the Oracle Fusion Middleware Plug-in deployment or upgrade, one Java Virtual Machine Diagnostics (JVMD) Engine is installed by default on the OMS. For every additional OMS you deploy, you receive one JVMD Engine by default with that OMS.

    JVMD enables administrators to diagnose performance problems in Java applications in the production environment. By eliminating the need to reproduce problems, it reduces the time required to resolve these problems, thus improving application availability and performance.

    While JVMD Engine is installed by default on the OMS host, you will still need JVMD Agents to be manually deployed on the targeted JVMs. For instructions, see *Installing JVM Diagnostic Agents* in the *Oracle Enterprise Manager Basic Installation Guide*.

    If the previous release of Enterprise Manager had any JVMD Engines, then they are all automatically decommissioned. However, after upgrade, the targets monitored by the previous JVMD Agents can no longer be monitored because the old JVMD Engines have been decommissioned. To continue monitoring those targets, you must redeploy those JVMD Agents on the targeted JVMs so that they communicate with the newly installed JVMD Engines.
  - Migrates or carries over the deployed plug-ins without upgrading them in the following cases:

    - If newer versions are not available in the Enterprise Manager 24ai Release 1 software.
    - If the deployed plug-ins are already of the higher or same version as the ones in the Enterprise Manager 24ai Release 1 software.
  - Deploys new plug-ins when the plug-ins being upgraded have new dependencies, or when there are any new default plug-ins introduced with a release.
  - Deploys any additional plug-in you select.
- Creates an Oracle WebLogic domain called `GCDomain` in the WebLogic container. For this WebLogic domain, a default user account `weblogic` is used as the administrative user. This domain is one across all OMSs.
- Creates an Oracle WebLogic domain called `EMExtDomain1` in the zero downtime (ZDT) WebLogic container. It's also called extended domain. This domain is one per OMS instance.
- Creates a Node Manager user account called `nodemanager`.
- Configures an Oracle Management Service Instance Base directory `(gc_inst)` for storing all configuration details related to Oracle Management Service 24ai Release 1 including the two WebLogic domains: `GCDomain` and `EMExtDomain1`.
- Upgrades Oracle Management Repository in the existing certified Oracle Database.

> **Note:**
>
> Starting with Enterprise Manager 24ai Release 1, the Central Agent (the Management Agent installed with the OMS) is upgraded by default.

Ports Used by an Upgraded Enterprise Manager 24ai Release 1

When you upgrade the OMS or the Management Agents, the ports used by the earlier release of the Management Agents are carried over to the upgraded Management Agents. Therefore, your firewall settings are not affected in any way.

When you upgrade your OMS, then the ports used by all the core components of the earlier release are carried over.

> **Note:**
>
> For information about the core components, the range within which a port is selected, and the free port that is assigned, see the chapter *Understanding the Basics* in the *Oracle Enterprise Manager Advanced Installation and Configuration Guide*.
>
> For information about what URLs should be made available through a firewall, when a firewall is configured for the OMS, see *Configuring Enterprise Manager for Firewalls* in the *Oracle Enterprise Manager Advanced Installation and Configuration Guide*.

Upgrading Oracle BI Publisher While Upgrading to Enterprise Manager 24ai Release 1

Beginning with Enterprise Manager Cloud Control 13c Release 5 (13.5.0.0.0), Oracle BI Publisher is no longer installed, configured or upgraded as part of the Enterprise Manager upgrade process. Oracle Analytics Publisher (formerly BI Publisher) must be accessed from a standalone Oracle Analytics Server which requires to be installed separately.

For information about Oracle Analytics Server, see Standalone Oracle Analytics Server and Installing and Configuring Oracle Analytics Server with Oracle Enterprise Manager Cloud Control.

Upgrading Plug-Ins While Upgrading to Enterprise Manager 24ai Release 1

This section describes the following:

- Upgrading Plug-Ins While Upgrading Oracle Management Agents to 24ai Release 1
- Upgrading Plug-Ins While Upgrading Oracle Management Service to 24ai Release 1

Upgrading Plug-Ins While Upgrading Oracle Management Agents to 24ai Release 1

While upgrading Oracle Management Agents to 24ai Release 1 using the Agent Upgrade Console, all plug-ins of the earlier release are upgraded by default. No manual effort is required.

Upgrading Plug-Ins While Upgrading Oracle Management Service to 24ai Release 1

While upgrading Oracle Management Service to 24ai Release 1 using the Enterprise Manager Installation Wizard, plug-ins are automatically upgraded, migrated, or deployed under the following circumstances:

- Plug-ins are upgraded when newer versions exist.
- Plug-ins are migrated when newer versions do not exist.
- Plug-ins are deployed when the plug-ins being upgraded have new dependencies, or when there are any new default plug-ins introduced with a release.
- Any additional plug-in you select on the Select Plug-ins screen of the Enterprise Manager Installation Wizard.

If you want to install plug-ins that are not listed on the Select Plug-ins screen, then follow these steps:

1. Manually download the required plug-ins.
    - Oracle Plug-ins are available in the Enterprise Manager download page under **Add-on Plug-ins Download**.

- Plug-ins produced by Oracle partners are available on the Enterprise Manager Extensibility Exchange.

2. Invoke the installer with the following option and pass the location where the additional plug-ins have been downloaded:

   On UNIX platforms:

   ```
   ./em24100_<platform>.bin
   PLUGIN_LOCATION=<absolute_path_to_plugin_software_location>
   ```

   On Microsoft Windows platforms:

   ```
   setup_em24100_win64.exe
   PLUGIN_LOCATION=<absolute_path_to_plugin_software_location>
   ```

   This displays a list of plug-ins available in the software kit (DVD, downloaded software) as well as the plug-ins available in this custom location. You can choose the ones you want to install.

Applying Release Update While Upgrading to Enterprise Manager 24ai Release 1

While upgrading to 24ai Release 1, you can apply a release update (bundle patch) as part of the upgrade process.

Follow the instructions for Upgrade Software Only with Plug-ins and Configure Later which includes a step for applying a release update using the OMS bit only mode in Applying Release Update in Bit Only Mode.

> **Note:**
>
> Applying a release update while upgrading to Enterprise Manager 24ai Release 1 reduces the downtime compared to applying it after the upgrade process is completed.

Enabling Force Logging When Oracle Data Guard Is Configured with the Standby Database (Management Repository) Before Upgrading to Enterprise Manager 24ai Release 1

If you have Oracle Data Guard configured with your standby database, which houses the Oracle Management Repository, then enable force logging on the database using the following command:

```
ALTER DATABASE force logging;
```

If you do not enable force logging on the database, then use of `NOLOGGING` commands while upgrading the Enterprise Manager system might corrupt your standby database.

Status of Oracle Software Library After Upgrading to Enterprise Manager 24ai Release 1

Oracle Software Library is functional the moment the Enterprise Manager is upgraded. No manual effort is required to make it functional.

Status of Connectors After Upgrading to Enterprise Manager 24ai Release 1

After upgrading the entire Enterprise Manager system, the connectors that were configured with your old Enterprise Manager system will continue to work in Enterprise Manager. However, the ones that were not configured will not work.

Custom Certificates Status When Upgrading to Enterprise Manager 24ai Release 1

When you upgrade to 24ai Release 1, all custom certificates will be carried over during Enterprise Manager 24ai Release 1 upgrade process. There's no need to remove the custom certificates from WebLogic Server before the upgrade to re-configure them after the OMS upgrade.

Status of Webgate When Upgrading to Enterprise Manager 24ai Release 1

If you have Webgate configured in your Oracle Enterprise Manager 13c Release 5 then upgrading to Oracle Enterprise Manager 24ai Release 1 will not configure Webgate automatically. For instructions about reconfiguring after completing the upgrade process, see Reconfiguring Oracle HTTP Server Webgate.

XML DB Feature in the Database After Upgrading to Enterprise Manager 24ai Release 1

Enterprise Manager is not affected when you enable or disable features such as XML DB on the Oracle Database in which you plan to configure the Management Repository. Therefore, you can enable or disable any feature in the database because Enterprise Manager does not rely on them.

Manually Restarting the OMS and the Management Agent After Upgrading to Enterprise Manager 24ai Release 1

If you install the OMS and the Oracle Database, which houses the Management Repository, on the same host, then when you reboot the host, the OMS and the Management Agent installed with it will not automatically start up. You will have to manually start them.

To manually start the OMS, run the following command from the Oracle home of the OMS host:

> **Note:**
>
> Before starting OMS, make sure the DB and Listener are up on the host.

```
$<ORACLE_HOME>/bin/emctl start oms
```

For example,

```
/u01/software/em24/oms_home/bin/emctl start oms
```

To manually start the Management Agent, run the following command from the Agent home:

```
$<AGENT_HOME>/bin/emctl start agent
```

For example,

```
/u01/software/em24/agentbasedir/agent_24.1.0.0.0/bin/emctl start agent
```

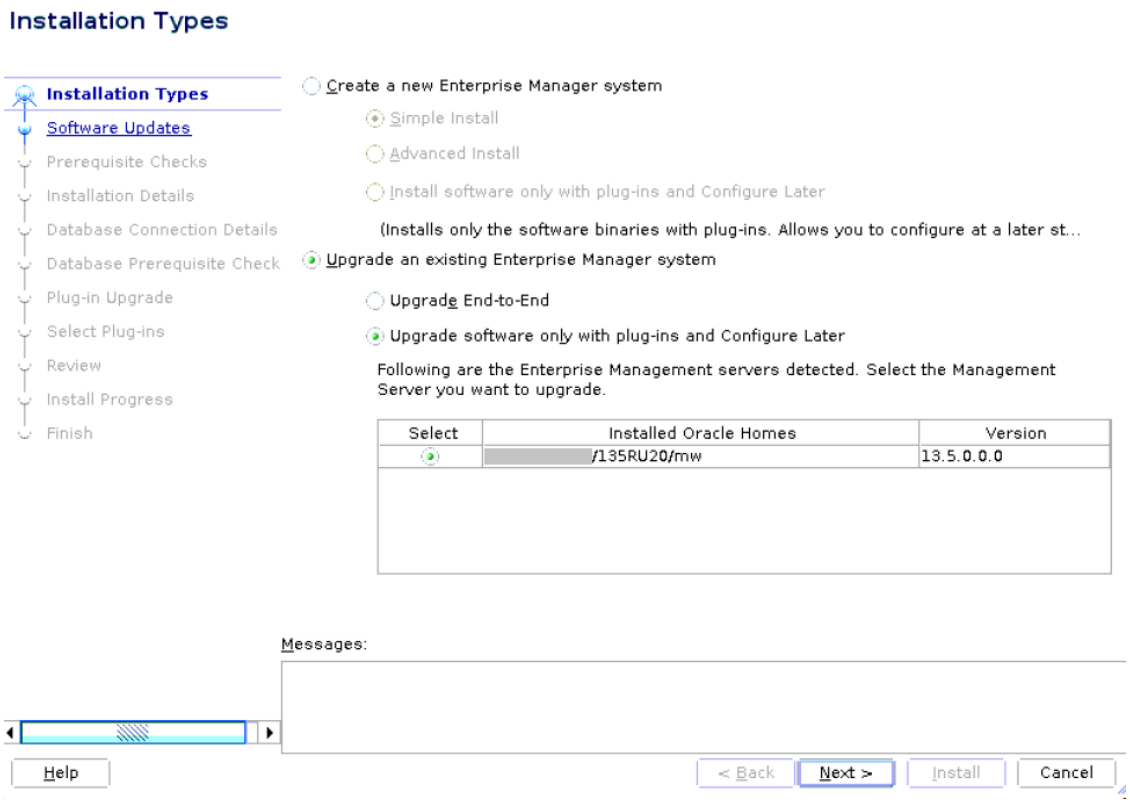
Wizards or Consoles Used for Upgrading to Enterprise Manager 24ai Release 1

This section introduces you to the wizards or consoles to be used for upgrading to Enterprise Manager 24ai Release 1. In particular, it covers the following:

- Overview of the Enterprise Manager 24ai Release 1 Installation Wizard
- Overview of the Agent Upgrade Console in Enterprise Manager 24ai Release 1
- Overview of the Gold Agent Images Console in Enterprise Manager 24ai Release 1

Overview of the Enterprise Manager 24ai Release 1 Installation Wizard

The Enterprise Manager 24ai Release 1 Installation Wizard is the primary user interface that enables you to upgrade your OMS and Management Repository. Since the upgrade happens on the same host where the earlier release of OMS exists, there is a reasonable downtime involved.



> **Note:**
>
> Starting with Enterprise Manager 24ai Release 1, the installer upgrades your existing Oracle Management Agents (Central Management Agent).

Overview of the Agent Upgrade Console in Enterprise Manager 24ai Release 1

The Agent Upgrade Console is a graphical user interface that is built into the Enterprise Manager Console. The console acts as a single-window solution to mass-upgrade your agents.

Central agents are Management Agents installed by default with every Oracle Management Service.

> **Note:**
>
> - Starting with Enterprise Manager 24ai Release 1, the central agent is upgraded automatically along with the old Oracle Management Service (OMS). Standalone Management Agents are not upgraded while you upgrade your OMS to 24ai Release 1. Ensure that you upgrade them immediately after upgrading the old OMS to 24ai Release 1.
> - You can use the Agent Upgrade Console to upgrade the standalone Management Agents, but Oracle recommends that you use Agent Gold Images instead to upgrade the standalone Management Agents. You can create and manage gold images, and update the existing standalone Management Agents using the Gold Agent Images Console. See Overview of the Agent Upgrade Console in Enterprise Manager 24ai Release 1.

To access the Agent Upgrade Console, from the **Setup** menu, click **Manage Enterprise Manager**, then select **Upgrade Agents.**

> **Note:**
>
> Before you can use the Agent Upgrade Console to upgrade your Management Agents, all OMS instances must be upgraded in a multi-OMS environment.

Agent Upgrade Console consists of the Agent Upgrade Tasks tab, and the Post Agent Upgrade Tasks tab.

- You can use the Post Agent Upgrade Tasks tab to clean up the old directories of the upgraded central agents, and view a summary of the central agent clean up jobs. To access the Agent Upgrade Console, from the **Setup** menu, select **Manage Enterprise Manager**, then select **Upgrade Agents.**

Overview of the Gold Agent Images Console in Enterprise Manager 24ai Release 1

The Gold Agent Images Console is a graphical user interface that is built into the Enterprise Manager Console. The console acts as a single-window solution to mass-upgrade your existing standalone Management Agents. Standalone Management Agents are Management Agents installed on unmanaged hosts to convert them to managed hosts and monitor the targets running on them.

To access the Gold Agent Images Console, from the **Setup** menu, select **Manage Enterprise Manager**, then select **Gold Agent Images.**

Using the Gold Agent Images Console, you can perform the following tasks:

- Provision new Management Agents.
- Update any existing Management Agents.
  - Upgrade your Management Agents (that is, upgrading the Management Agent software).
  - Deploy new plug-ins on your Management Agents.

  - Upgrade the existing plug-ins that are deployed on your Management Agents.
  - Deploy patches on your Management Agents.
  - Deploy patches on the plug-ins that are deployed on your Management Agents.
- Check the Agent Gold Image compliance level to identify what percentage of Management Agents in your environment are already associated with an Agent Gold Image, and what percentage are not.
- Track the Agent Gold Image activities, such as the gold image jobs submitted, their status, the start and end time of the activity, and so on.

Changes to the OPSS Schema After Upgrading to Enterprise Manager 24ai Release 1

After the Enterprise Manager system is upgraded, SYSMAN122140_OPSS is used instead of SYSMANUPGR_OPSS for the Oracle Platform Security Service (OPSS) schema.

Manually Shutdown OMC Data Collector and Cloud Agent Before Upgrading to Enterprise Manager 24ai Release 1

If you are using Oracle Management Cloud (OMC) agents, you need to shutdown the Data Collector and Cloud Agent connecting to the repository database before starting the upgrade process to Enterprise Manager 24ai Release 1.

Since OMC Data Collector is an integration product that pulls data from Oracle Enterprise Manager schema, customers who are using OMC need to shutdown the Data Collector and Cloud Agent configured in the repository database prior to upgrading to Enterprise Manager 24ai Release 1 or it can cause problems with locking during the upgrade to Enterprise Manager 24ai Release 1.

Part II

Upgrading to Enterprise Manager 24ai Release 1

This part describes how you can upgrade to Enterprise Manager 24ai Release 1.

In particular, this part covers the following:

- Getting Started with Upgrading to Enterprise Manager 24ai Release 1
- Prerequisites for Upgrading to Enterprise Manager 24ai Release 1
- Upgrading Oracle Management Service and Oracle Management Repository to 24ai Release 1
- Upgrading Oracle Management Agents
- Upgrading or Redeploying JVMD Agents
- Postupgrade Tasks After Upgrading to Enterprise Manager 24ai Release 1

2

Getting Started with Upgrading to Enterprise Manager 24ai Release 1

This chapter describes the high-level process for upgrading to Enterprise Manager 24ai Release 1.

In particular, this chapter covers the following:

- Upgrading to 24ai Release 1 in a Single-OMS or Multi-OMS Non-HA Environment
- Upgrading to 24ai Release 1 in an HA Environment (Primary and Standby OMS Instances Where the Standby OMS Is Created Using Storage Replication)

> **Important:**
>
> - The Oracle Management Service (OMS) release that is supported for Enterprise Manager 24ai Release 1 is 13*c* Release 5. Therefore, if you have any earlier releases of the OMS, first you need to upgrade it to 13*c* Release 5 and then you can upgrade to 24ai Release 1.
> - The Oracle Management Agent (Management Agent) release that is supported for Enterprise Manager 24ai Release 1 is 13*c* Release 5. Therefore, if you have any earlier releases of Management Agent, before upgrading the OMS to 24ai Release 1, make sure you upgrade your Management Agent to 13*c* Release 5 using *Agent Upgrade Console* from the Enterprise Manager Console.

Upgrading to 24ai Release 1 in a Single-OMS or Multi-OMS Non-HA Environment

Follow the steps below to upgrade to Enterprise Manager 24ai Release 1 in a single-OMS or multi-OMS non-HA (non-high availability) environment:

[Optional] Prepare Yourself for the Upgrade Familiarize yourself with the upgrade process, understand the implications, and review the important facts related to upgrade.

Upgrade Facts	Upgrade Facts	Upgrade Facts
• Supported OMS Environments for Upgrading to Enterprise Manager 24ai Release 1 • Supported Upgrade Paths and Supported Upgrade Approaches for Upgrading to Enterprise Manager 24ai Release 1 • Supported Platforms for Upgrading to Enterprise Manager 24ai Release 1 • Upgrade Scope Offered for Upgrading to Enterprise Manager 24ai Release 1 • Components Upgraded or Installed As Part of the Upgrade to Enterprise Manager 24ai Release 1 • Ports Used by an Upgraded Enterprise Manager 24ai Release 1	• Upgrading Oracle BI Publisher While Upgrading to Enterprise Manager 24ai Release 1 Upgrading Plug-Ins While Upgrading to Enterprise Manager 24ai Release 1 • Status of Oracle Software Library After Upgrading to Enterprise Manager 24ai Release 1 • Status of Connectors After Upgrading to Enterprise Manager 24ai Release 1 • Custom Certificates Status When Upgrading to Enterprise Manager 24ai Release 1 • XML DB Feature in the Database After Upgrading to Enterprise Manager 24ai Release 1	• Manually Restarting the OMS and the Management Agent After Upgrading to Enterprise Manager 24ai Release 1 • Enabling Force Logging When Oracle Data Guard Is Configured with the Standby Database (Management Repository) Before Upgrading to Enterprise Manager 24ai Release 1 • Wizards or Consoles Used for Upgrading to Enterprise Manager 24ai Release 1

Upgrade Your OMS, Repository, Central Agent, and Plug-ins

Upgrade of your Enterprise Manager system is a three-step process: First you have to meet the prerequisites; then run the installer to upgrade the OMS, the repository, the central agent, and the plug-ins; and then perform the postupgrade tasks.

The installer guides you through the upgrade process, and upgrades not only the OMS, but also the repository, the central agent, and the existing plug-ins. In addition to upgrading your existing plug-ins, you can also deploy additional new plug-ins of your choice.

Step 1: Meet the Prerequisites

Before starting the upgrade, meet the upgrade prerequisites so that your environment is ready for the upgrade.

Prerequisites	Prerequisites	Prerequisites
• Hardware, Software, and Platform Requirements • Supported Database Release Requirements • Database Patch Requirements • Database Initialization Parameter • Port Requirements • Customization Removal Requirements	• Database Service Instance Creation Request Verification Requirements • Repository Table Snapshot Verification Requirements • Logon and Logoff Trigger Setting Verification Requirements • Delete Target Operation Auditing Requirements • Selectively Skipping Some Job Type Updates for Reduced Downtime of Your Enterprise Manager System • EMKEY Copy Requirements • Certificate Key Strength Requirements	• Out-of-Box Memory Settings Backup Requirements • Prerequisite Check and Environment Validation Requirements • OMS Backup Requirements • OMS Shutdown Requirements • Management Agent Shutdown Requirements • Management Agent Proxy Removal Requirements • Additional Preparation and Steps Required for Performing an Upgrade and Transition to DR Readiness • Undeploy Obsolete Plug-ins • Undeploy CSA Obsolete Plug-in • Server Load Balancer (SLB) Requirements • Oracle Access Manager Requirement

Step 2: Upgrade Your OMS, Repository, and Plug-ins

Run the installer and select the upgrade option to upgrade your Enterprise Manager system.

There are various ways in which you can upgrade the OMS and the Management Repository, either in graphical mode using the installer, in silent mode using a response file, or upgrade software-only using the installer or a response file.

The recommended method is to upgrade software-only in graphical mode using the installer. For details, see Upgrade Software Only with Plug-ins and Configure Later.

This section lists only the steps to upgrade in graphical mode using the Upgrade End-to-End method.

Upgrading Steps	Upgrading Steps	Upgrading Steps
Step 1: Invoking the Enterprise Manager Installer in Graphical Mode **Step 2:** Selecting the Installation Type **Step 3:** Applying the Latest Software Updates **Step 4:** Running the Prerequisite Checks and Validating the Environment **Step 5:** Configuring a Middleware Home and Validating the Host Name	**Step 6:** Providing Database Connection Details **Step 7:**Providing Database User Details **Step 8:** Checking Database Prerequisites **Step 9:** Checking Actualization Details **Step 10:** Upgrading or Migrating Plug-ins, or Deploying Dependent Plug-ins	**Step 11:** Deploying Additional Plug-ins **Step 12:** Extending the Existing WebLogic Server Domain **Step 13:** Reviewing the Upgrade Details **Step 14:** Monitoring the Upgrade Progress **Step 15:** Ending the Upgrade **Step 16:** Upgrading the Additional OMS Instances **Step 17:** Upgrading the Management Agents

Step 3: Upgrade Your Central Agent

> **Note:**
>
> Starting with Enterprise Manager 24ai Release 1, the central agent is upgraded during the OMS upgrade process.

Step 4: Perform Postupgrade Tasks

Perform the postupgrade tasks to verify that the upgrade was successful.

Post Upgrade Task	Post Upgrade Task	Post Upgrade Task
• Redoing the Custom Configurations • Management Agent Status After Upgrading an Additional OMS • Tracking the Status of Deferred Data Migration Jobs	• Upgrading Oracle Exalogic System Targets • (Optional) Deleting the Old OMS Home • Migrating the SYSMAN Schema to a Database Configured with CDB and PDB	• Managing JVM Targets That Continue to Be Associated with the Old OMS • Enabling Upgrade of Job Types That Were Skipped Before the Upgrade of the Enterprise Manager System

Upgrade Your Standalone Agents

Your upgrade is complete only after you upgrade all your standalone agents. Upgrade of your standalone agents is a three-step process - you have to first upgrade one of the standalone agents using the Agent Upgrade Console, then create a gold image out of that, and then upgrade the rest of them using that gold image.

Step 1: Upgrade a Standalone Agent

As a prerequisite, first upgrade one of your standalone agents.

- Prerequisites for Upgrading Standalone Management Agents to 24ai Release 1 Using the Agent Upgrade Console or EM CLI
- Upgrading Standalone Management Agents to 24ai Release 1 using the Agent Upgrade Console
- After Upgrading Standalone Management Agents to 24ai Release 1 using the Agent Upgrade Console or EM CLI

Step 2: Create an Agent Gold Image

Create an agent gold image and an image version. Set it to the current version, and subscribe the standalone agents to this version.

1. Creating an Agent Gold Image Using Gold Agent Images Home Page
2. Creating an Agent Gold Image Version Using the Gold Agent Images Home Page
3. Setting a Particular Agent Gold Image Version as the Current Version Using Gold Agent Images Home Page
4. Subscribing Management Agents to an Agent Gold Image Using Gold Agent Images Home Page

Step 3: Update the Standalone Agents

Using the agent gold image, update all other standalone agents.

Updating Standalone Management Agents Using Agent Gold Image Version Using Gold Agent Images Home Page

Upgrading to 24ai Release 1 in an HA Environment (Primary and Standby OMS Instances Where the Standby OMS Is Created Using Storage Replication)

Follow the steps below to upgrade your primary and standby OMS instances where the standby OMS is created using Storage Replication:

1. Upgrade the primary Enterprise Manager site, both OMS and Management Agents. There will be some downtime as the primary OMS will go down during upgrade process. For instructions, see Upgrading to 24ai Release 1 in a Single-OMS or Multi-OMS Non-HA Environment.
2. Verify the new middleware home on the standby storage server. Contact your system administrator to make sure that the new middleware home is also replicated to the standby storage server.

> **Note:**
>
> You do not have to remove the standby OMS as part of this procedure.

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Prerequisites for Upgrading to Enterprise Manager 24ai Release 1

Before upgrading to Enterprise Manager 24ai Release 1, ensure to meet the following prerequisites:

- Hardware, Software, and Platform Requirements
- Supported Database Release Requirements
- Database Patch Requirements
- Database Initialization Parameter
- Port Requirements
- Customization Removal Requirements
- Database Service Instance Creation Request Verification Requirements
- Repository Table Snapshot Verification Requirements
- Logon and Logoff Trigger Setting Verification Requirements
- Delete Target Operation Auditing Requirements
- Selectively Skipping Some Job Type Updates for Reduced Downtime of Your Enterprise Manager System
- EMKEY Copy Requirements
- Certificate Key Strength Requirements
- Out-of-Box Memory Settings Backup Requirements
- Prerequisite Check and Environment Validation Requirements
- OMS Backup Requirements
- OMS Shutdown Requirements
- Management Agent Shutdown Requirements
- Management Agent Proxy Removal Requirements
- Additional Preparation and Steps Required for Performing an Upgrade and Transition to DR Readiness
- Undeploy Obsolete Plug-ins
- Undeploy CSA Obsolete Plug-in
- Server Load Balancer (SLB) Requirements
- Oracle Access Manager Requirement

Hardware, Software, and Platform Requirements

Ensure that you meet all the prerequisites, including the hardware requirements, listed in the chapter on installing Enterprise Manager in the *Oracle Enterprise Manager Basic Installation Guide*.

Also ensure that you upgrade only on the supported platforms as listed in Supported Platforms for Upgrading to Enterprise Manager 24ai Release 1.

Supported Database Release Requirements

Ensure that the existing database version is a database version certified for 24ai Release 1. The minimum database version required is 19.22 for Enterprise Manager 24ai Release 1. You can see a list of certified databases in the Enterprise Manager certification matrix available on My Oracle Support. For instructions, see Accessing the Enterprise Manager Certification Matrix in *Oracle Enterprise Manager Basic Installation Guide*.

If the existing Management Repository database version is not a database version supported by Enterprise Manager 24ai Release 1, then upgrade the database to the supported database version before you start upgrading the Management Service (OMS) and the Management Repository. For example, if you are upgrading from 13*c* Release 5, then you might have an earlier version of the database that is not supported for Enterprise Manager 24ai Release 1. In this case, ensure that you first upgrade your Management Repository database to the minimum database version supported for Enterprise Manager 24ai Release 1, and then start the upgrade to Enterprise Manager system to 24ai Release 1.

Before upgrading the database, ensure that you stop the OMS instances of the earlier release that are connected to the database.

> **Note:**
>
> When upgrading to Enterprise Manager 24ai Release 1 from 13*c* Release 5, you need to upgrade the Management Repository database from 12c to 19c version.
>
> To perform the Management Repository database upgrade to 19c version, you need to stop the OMS.
>
> If the OMS is down, there is going to be a monitoring impact to the critical targets. Therefore to maintain the continuity in monitoring for the critical targets, you need to use the Always-on-Monitoring (AOM) feature. During the Management Repository database upgrade, AOM can take care of sending the notifications and alerts to their end users. For more information about AOM, see Always-on-Monitoring.

While upgrading the repository database, if you change the listener port, then follow these steps:

1. Complete the database upgrade with the changed listener port.
2. Start the administration server of the first OMS of the earlier release, which is connected to the database, by running the following command:

   ```
   emctl start oms -admin_only
   ```

3. Update the first OMS (admin OMS) and also the additional OMS instances with the changed listener port by running the following command on all the OMS instances:

   ```
   emctl config oms -store_repos_details -repos_conndesc <connect descriptor>
   -repos_user sysman
   ```

When the above command is run on each OMS, you will be prompted to stop the OMS and start it again to reflect the changes. Do so on each OMS as instructed. You will have to stop them all in any case before starting the upgrade to 24ai Release 1.

4. Proceed with the upgrade of the entire Enterprise Manager system to 24ai Release 1.

> **Note:**
>
> Ensure that OMS starts successfully and is able to access console after the connect descriptor change is completed. It is suggested to proceed with OMS upgrade only after starting OMS successfully.

Database Patch Requirements

Ensure that you apply the latest PSU (patch set updates) on the supported Management Repository database.

It is mandatory to apply the latest Database PSU on the supported database before upgrading to Enterprise Manager 24.1.0.0.0.

For the latest database patch information, see My Oracle Support.

Database Initialization Parameter

Ensure that the database initialization parameter is (`_allow_insert_with_update_check=TRUE)` set to true in for Oracle Database version 18.0.0.0.0 or higher that houses the Management Repository by following these steps:

1. Enable the database initialization parameter by setting the `_allow_insert_with_update_check` parameter to `TRUE`. To do so, run the following SQL command:

   ```
   alter system set _allow_insert_with_update_check=true scope=both
   ```

2. Restart the database.
3. Verify that the changes have taken effect. To do so, run the following SQL command:

   ```
   show parameter _allow_insert_with_update_check;
   ```

   You should see the following output:

   ```
   NAME                           TYPE         VALUE
   ------------------------------------------------------------------------
   _allow_insert_with_update_check   boolean      TRUE
   ```

Port Requirements

Ensure that the ports used by Oracle Management Service (OMS) are not set to a value lower than or equal to 1024. If they are, then the upgrade will fail. Ports up to 1024 are typically reserved for root users (super users). Therefore, make sure the ports are greater than 1024.

Customization Removal Requirements

Ensure that you remove the following types of customization done to the OMS. Once the upgrade is complete, you can redo the customization.

- Additional data source parameters configured in the Weblogic Server.
- Smart card authentication for Enterprise Manager login.

Database Service Instance Creation Request Verification Requirements

Ensure that you check for outstanding database service instance creation requests. If there are any requests in progress, then allow them to complete. For requests that are scheduled, suspend them.

To do so, follow these steps.

1. In Enterprise Manager, from the **Enterprise** menu, select **Cloud,** then select **Self Service Portal.**
2. On the Infrastructure Cloud Self Service Portal page, right under the page title, select **My Databases** to view only database requests.
3. In the Requests table, for requests that are in progress, allow them to complete. For requests that are scheduled, suspend them.

   To suspend the scheduled requests, click the request name. Click the **Deployment** tab. Click the deployment procedure listed there, and suspend it.

Repository Table Snapshot Verification Requirements

Ensure that the tables in the Management Repository do not have any snapshots created.

To verify this, log in to the Management Repository and run the following SQL query as SYSMAN user:

```
select master , log_table from all_mview_logs where log_owner='<EM_REPOS_USER>';
```

For example,

```
select master , log_table from all_mview_logs where log_owner='SYSMAN';
```

If there are snapshots created in a table, then the query displays the master table and the snapshot details. For example,

```
SQL> master log_table

em-violations em$violation_log
```

If there are snapshots, then drop them by running the following command as SYSMAN user:

```
SQL> Drop snapshot log on <master>;
```

For example,

```
SQL> Drop snapshot log on em-violations;
```

Logon and Logoff Trigger Setting Verification Requirements

Ensure that you do not have any logon or logoff triggers set in the Oracle Database that houses the Oracle Management Repository.

To verify this, log on to the database and run the following query. If the query results in anything other than zero or no rows selected, then manually disable the triggers. After completing the upgrade, you can enable them again.

- Verify if any logon triggers are set:

  ```
  SQL> SELECT COUNT (trigger_name) FROM sys.dba_triggers WHERE TRIGGERING_EVENT
  LIKE 'LOGON%' AND status='ENABLED';

  SQL> SELECT trigger_name FROM sys.dba_triggers WHERE TRIGGERING_EVENT LIKE
  'LOGON%' AND status='ENABLED';
  ```

- Verify if any logoff triggers are set:

  ```
  SQL> SELECT COUNT (trigger_name) FROM sys.dba_triggers WHERE TRIGGERING_EVENT
  LIKE 'LOGOFF%' AND status='ENABLED';

  SQL> SELECT trigger_name FROM sys.dba_triggers WHERE TRIGGERING_EVENT LIKE
  'LOGOFF%' AND status='ENABLED';
  ```

To disable the triggers, run the following query:

```
SQL> alter trigger <trigger_name> disable;
```

For example,

```
SQL> alter trigger EXPFIL_ALTEREXPTAB_MAINT disable;
```

Delete Target Operation Auditing Requirements

Ensure that you enable auditing of the *Delete Target* operation.

- To view a list of operations, run the following command:

  ```
  emcli show_operations_list
  ```

  Some of the Delete operations include *Delete Target, Delete Named Credential, Delete Role, Delete Rule, Delete Monitoring Template, Delete User.*

- To verify the Delete operations that are currently enabled, run the following command:

  ```
  emcli show_audit_settings
  ```

- If the *Delete Target* operation is not already enabled, then run the following command to enable it.

  ```
  emcli update_audit_settings

  -
  operations_to_enable="name_of_the_operations_to_enable._For_all_operations_use
  _ALL"

  -audit_switch="ENABLE”

  -directory="db_directory_name”
  ```
  (Should_be_configured_with_an_OS_directory_where_the_export_service_archives_the_audit_data_files)

`-file_prefix="file_prefix"` *(To be used by the export service to create the file name where audit data has to be written. The default value is em_audit. You can change per your standards for all sites)*

`-file_size="file_size (Bytes)"` *(Maximum value of each file size. The default value for this is 5000000 bytes)*

`-data_retention_period="data_retention_period (Days)"` *(Maximum period the Enterprise Manager repository stores audit data. The default value is 365 days)*

The aforementioned parameters help you to set up or configure an archive location for archiving the audit data from the Management Repository to a file system after the retention period.

Selectively Skipping Some Job Type Updates for Reduced Downtime of Your Enterprise Manager System

While upgrading the Enterprise Manager system, job types are registered. As part of the job type registration process, all active executions corresponding to a job type are automatically upgraded to the newly registered version of the job type. This job type upgrade process is skipped for all queued and waiting executions, thereby reducing the overall downtime of the Enterprise Manager system. However, in some cases, the Enterprise Manager system might experience a considerable backlog, and if such a backlog is not cleared before initiating the upgrade, then the downtime of the Enterprise Manager system can be much longer. To circumvent this issue, you can selectively skip or postpone the upgrade of certain job types so that they are upgraded only after the downtime.

To skip or postpone some job types from being upgraded, follow these steps:

1. Identify the job types that you want to exclude from being upgraded during the downtime.

   To do so, as a SYSMAN user, log in to the database that houses the Oracle Management Repository, and run the following query. Particularly look for the job types that have a large number of active executions.

   ```
   SELECT job_type, COUNT(1) as n_execs

   FROM MGMT_JOB_EXEC_SUMMARY

   JOIN MGMT_JOB_TYPE_INFO USING (job_type_id)

   WHERE status NOT IN (3,4,5,8,18,19,23)

   GROUP BY job_type

   HAVING COUNT(1) > 5000

   ORDER BY COUNT(1) DESC;
   ```

2. Exclude the other job types you identified.

   To do so, run the following query to exclude a job type from the MGMT_PARAMETERS table. For each job type you want to exclude, you must run one INSERT statement. For example, if you have three job types to exclude, then run the INSERT statement three times, each with a job type you want to exclude.

   ```
   INSERT INTO MGMT_PARAMETERS(parameter_name, parameter_value) VALUES
   ('mgmt_job_skip_job_type_upg.1', '<job type>');

   COMMIT;
   ```

EMKEY Copy Requirements

[IN CASE OF MULTI-OMS UPGRADE, PERFORM THIS STEP ONLY FOR THE FIRST OMS UPGRADE]

Ensure that you copy the emkey from the existing OMS to the existing Management Repository. To do so, run the following command on the OMS you are about to upgrade. Here, `<ORACLE_HOME>` refers to the Oracle home of the OMS.

```
$<ORACLE_HOME>/bin/emctl config emkey -copy_to_repos [-sysman_pwd <sysman_pwd>]
```

For example:

```
/u01/software/em24/mw/oms/bin/emctl config emkey -copy_to_repos [-sysman_pwd
<sysman_pwd>]
```

To verify whether the emkey is copied, run the following command on the OMS you are about to upgrade. Here, `<ORACLE_HOME>` refers to the Oracle home of the OMS:

```
$<ORACLE_HOME>/bin/emctl status emkey
```

For example,

```
/u01/software/em24/mw/oms/bin/emctl status emkey
```

If the emkey is copied, then you will see the following message:

```
The EMKey  is configured properly, but is not secure.
Secure the EMKey by running "emctl config emkey -remove_from_repos".
```

Certificate Key Strength Requirements

Ensure that the certificate key strength is at least 1024 bits.

For instructions to set the certificate key strength to at least 1024 bits, see My Oracle Support note 1611578.1.

Starting with 13*c* Release 4, the minimum certificate supported is SHA 512/1024. MD5 certificates are no longer supported. If you have any MD5 certificate, you will see the following message stopping the upgrade process:

```
The upgrade process has detected MD5 certificate usage for some agent-OMS
communication. These hosts and related targets will continue to be managed post-
upgrade. However, it is strongly recommended to reconfigure them to use SHA-based
certificates, since future versions of Enterprise Manager may not support MD5
certificates. Review the file /tmp/OraInstall<time_stamp>/md5Target.txt to find
the agents that use MD5-based certificates. Follow the instructions outlined in
My Oracle Support note 2179909.1 to reconfigure them with SHA-based certificates.
```

After you address it, you can restart the upgrade process.

Out-of-Box Memory Settings Backup Requirements

If you have changed the default out-of-the-box memory settings for an OMS instance, then you can save the default values as a backup so that they are not lost during upgrade.

You can verify the default values using the command `ORACLE_HOME/bin/emctl get property -name property_name`.

For example,

```
ORACLE_HOME/bin/emctl get property -name OMS_PERMGEN_MAX
```

Enterprise Manager has the following parameters which can be set as OMS Specific JAVA heap memory arguments:

- `OMS_HEAP_MIN` for minimum heap size
- `OMS_HEAP_MAX` for maximum heap size
- `OMS_PERMGEN_MIN` for minimum permGen size
- `OMS_PERMGEN_MAX` for maximum permGen size

To save the default values for out-of-the-box memory settings for an OMS instance, follow these steps:

1. Use the following command to set the value for any of the JAVA heap memory properties.

   ```
   ORACLE_HOME/bin/emctl set property -name <property_name> -value
   <number_followed_by_G_or_M>
   ```

   For example,

   ```
   <ORACLE_HOME>/bin/emctl set property -name OMS_PERMGEN_MAX -value 1024M
   ```

2. Run the following command to restart all the OMS instances. Here, `<ORACLE_HOME>` refers to the Oracle home of the OMS.

   ```
   $<ORACLE_HOME>/bin/emctl stop oms -all
   ```

   ```
   $<ORACLE_HOME>/bin/emctl start oms
   ```

   For example,

   ```
   /u01/software/em24/mw/oms_home/bin/emctl stop oms -all
   ```

   ```
   /u01/software/em24/mw/oms_home/bin/emctl start oms
   ```

Prerequisite Check and Environment Validation Requirements

Ensure that you run the EM Prerequisite Kit and meet all the repository-related prerequisites before starting the upgrade.

To run the EM Prerequisite Kit, follow the parameters described in *Oracle Enterprise Manager Basic Installation Guide*.

OMS Backup Requirements

Ensure that you back up the OMS (the middleware home and the inventory), Oracle Management Repository, and Oracle Software Library. The restoration requires Instance home (gc_inst) backup. In case the upgrade fails, you can always restore using the backup. For instructions to back up, refer to *Oracle Enterprise Manager Administrator's Guide*.

OMS Shutdown Requirements

Ensure that you shut down the OMS you are about to upgrade and also the other OMS instances that connect to it.

IMPORTANT: If you are upgrading a multi-OMS environment using the software-only upgrade approach, then skip this step. You can stop the OMS instances after installing

the software binaries as described in Upgrading the Enterprise Manager 24ai Release 1 Software Only with Plug-ins or Upgrading Enterprise Manager 24ai Release 1 Software Only with Plug-ins in Silent Mode.

1. Stop the JVMD and ADP engines explicitly:
   To stop them in graphical mode, access the weblogic console, and stop the JVMD and ADP weblogic managed servers manually.

   To stop them in silent mode, run the following command on the OMS you are about to upgrade. Here, `<ORACLE_HOME>` refers to the Oracle home of the OMS.

   ```
   $<ORACLE_HOME>/bin/emctl extended oms jvmd stop -all
   ```

   ```
   $<ORACLE_HOME>/bin/emctl extended oms adp stop -all
   ```

   For example,

   ```
   /u01/software/em/mw/oms/bin/emctl extended oms jvmd stop -all
   ```

   ```
   /u01/software/em/mw/oms/bin/emctl extended oms adp stop -all
   ```

2. Shut down the OMS you are about to upgrade and also the other OMS instances that connect to it by running the following command:

   ```
   $<ORACLE_HOME>/bin/emctl stop oms -all
   ```

   where `<ORACLE_HOME>` refers to the Oracle home of the OMS.
   For example: `/u01/software/em/mw/oms/bin/emctl stop oms -all`

> **Note:**
>
> When upgrading multiple OMS instances, ensure to use the `stop oms -all` option.

Management Agent Shutdown Requirements

Ensure that you shut down the Management Agent that monitors the *Management Services and Repository* target, to prevent the Management Agent from connecting to the Management Repository for metric collections. **Not shutting down this Management Agent might cause the OMS upgrade to fail.**

IMPORTANT: If you are upgrading a multi-OMS environment using the software-only upgrade approach, then skip this step. You can stop the Management Agent after copying the software binaries as described in Upgrading the Enterprise Manager 24ai Release 1 Software Only with Plug-ins or Upgrading Enterprise Manager 24ai Release 1 Software Only with Plug-ins in Silent Mode.

Management Agent Proxy Removal Requirements

Ensure that you remove any proxy that is configured for the standalone Management Agents. Otherwise, the upgrade of the standalone Management Agents will fail. Although this requirement is more for Management Agent upgrade and does not affect the OMS upgrade, Oracle recommends that you remove the Management Agent-side proxy before you begin the OMS upgrade.

Additional Preparation and Steps Required for Performing an Upgrade and Transition to DR Readiness

A new mode of the installer named Upgrade and Transition to DR Readiness has been created to assist with the process of transitioning to the Standby OMSs using Storage Replication DR architecture. In addition to the prerequisites for a standard upgrade, an Upgrade and Transition to DR Readiness upgrade requires a specific flow of preparation and post-upgrade steps that must be followed.

This new mode is:

- Enabled by passing a parameter named UPGRADE_TRANSITION
- Only supported for use on the first OMS
- Only supported via a standard GUI installation

A software only install followed by ConfigureGC.sh does not provide support for Upgrade and Transition to DR Readiness. In addition, upgrading additional OMSs using Upgrade and Transition to DR Readiness is not supported. In a multi-OMS environment, the additional OMSs must first be deinstalled, the first OMS and related post-upgrade processes associated with the transition must be completed, and then additional OMSs can be deployed. For details on performing an Upgrade and Transition to DR Readiness instead of performing a standard upgrade, see Upgrading Enterprise Manager and Transitioning to DR Readiness.

Undeploy Obsolete Plug-ins

Undeploy Obsolete Plug-ins from Oracle Management Service (OMS) and Management Agent

The support for the following plug-ins is discontinued and they are now obsolete:

- Big Data Appliance (oracle.sysman.bda)
- Oracle Fusion Application (oracle.sysman.emfa)
- Oracle OraHealth Checks (oracle.sysman.orhc)
- Microsoft .NET Framework (oracle.em.smdn)

You must make sure that the above plug-ins are undeployed from the Oracle Management Agents and Oracle Management Services before starting the Enterprise Manager upgrade process.

It is recommended to close the installer before undeploying the obsolete plug-ins. It is also recommended that these plug-ins are removed from the Self Update as well. For more information, see Undeploying Plug-ins in the *Oracle Enterprise Manager Administrator's Guide*.

Undeploy Obsolete Plug-ins from Oracle Management Agent

The support for the following plug-in is discontinued and it's now obsolete:

- Oracle Virtualization (oracle.sysman.vt)

> **Note:**
>
> Ensure that the Oracle Virtualization plug-in is only undeployed from the Oracle Management Agent before proceeding. To undeploy it from Management Agents, use the following:
>
> ```
> emcli undeploy_plugin_from_agent -plugin="oracle.sysman.vt" -
> agent_names="agent1[agent2]" [-delete_targets]
> ```
>
> The upgrade process takes care of undeploying the Oracle Virtualization plug-in from the OMS.

Undeploy CSA Obsolete Plug-in

The Client System Analyzer (CSA) plug-in is obsoleted in Enterprise Manager 24ai Release 1. Before starting the upgrade process, ensure that it gets undeployed to allow the central Management Agent to get upgraded successfully.

It is recommended to close the installer before undeploying obsoleted plug-ins.

To undeploy the CSA plug-in, do the following:

1. Connect to the host where Enterprise Manager is going to get upgraded.
2. To undeploy the CSA plug-in from the central Management Agent, run the following:

   ```
   emcli undeploy_plugin_from_agent -plugin="oracle.sysman.csa" -
   agent_names="agent1[agent2]" [-delete_targets]
   ```

3. After undeploying the plug-in, check your environment and identify if other central Management Agents also have the CSA plug-in deployed.
   Run the following on each central Management Agent:

   ```
   <agent_home>/bin/emctl listplugins agent -type all
   ```

   The above output lists all the plug-ins deployed on the specific central Management Agent. Check if the CSA plug-in is present. If so, proceed with undeploying the plug-in following the instructions from step 2.

For more information, see Undeploying Plug-ins in the *Oracle Enterprise Manager Administrator's Guide*.

Server Load Balancer (SLB) Requirements

If you are using Server Load Balancer (SLB), Oracle recommends to review the SLB settings before proceeding with the upgrade. Refer to My Oracle Support Doc ID 2671586.1 for details.

Oracle Access Manager Requirement

Before starting the upgrade process, check the Oracle Access Manager (OAM) version.

OAM SSO is not supported in Enterprise Manager 24ai Release 1.

If OAM SSO is configured in the existing Enterprise Manager 13.5, then convert the OAM SSO to SAML SSO and retry the upgrade. For details, see My Oracle Support docs 1620784.1 and 2976413.1.

4

Upgrading Oracle Management Service and Oracle Management Repository to 24ai Release 1

This chapter describes the different ways of upgrading your Oracle Management Service (OMS) and Oracle Management Repository (Management Repository) to 24ai Release 1. Select the one that best suits your requirement, and follow the instructions outlined in the respective section. The upgrade instructions apply to single-OMS as well as multi-OMS environments.

This chapter describes the following OMS and Management Repository upgrade methods:

- (Recommended) Upgrade Software Only with Plug-ins and Configure Later
- Upgrade End-to-End
- Upgrade Software Only with Plug-ins and Configure Later in Silent Mode
- Upgrade End-to-End in Silent Mode
- Upgrade the OMS and any Additional OMSs in Parallel Using Software Only with Plug-ins

Note:

- If your existing Enterprise Manager environment is configured in Secure Socket Layer (SSL) mode then you can carry over the SSL configuration as part of the upgrade process.
- If you have an Oracle Management Service version 13*c* Release 4 or earlier, you must first upgrade to 13*c* Release 5. After that, you can upgrade to 24ai Release 1.
- The Oracle Management Agent releases that are supported for Enterprise Manager 24ai Release 1 are 24ai Release 1 and 13*c* Release 5. Therefore, if you have any earlier releases of Oracle Management Agent, before upgrading the Oracle Management Service to 24ai Release 1, make sure you to upgrade your Oracle Management Agent to 13*c* Release 5 (13.5.0.0) using the *Agent Upgrade Console* present within the Enterprise Manager Console.
- If you are upgrading a multi-OMS environment, then Oracle recommends that you use the software-only upgrade approach as described in (Recommended) Upgrade Software Only with Plug-ins and Configure Later or Upgrade Software Only with Plug-ins and Configure Later in Silent Mode, as this approach minimizes the downtime of the OMS instances.
- Starting with 24ai Release 1, the Oracle Management Agent (Management Agent) that was installed with the Oracle Management Service (OMS) is upgraded by default as part of the OMS upgrade process. There's no need to upgrade this agent, also known as central agent, afterward.

(Recommended) Upgrade Software Only with Plug-ins and Configure Later

This section explains how you can upgrade your OMS and Management Repository to 24ai Release 1 using the software-only with plug-ins method and configure later in graphical mode.

> **Note:**
>
> - This is Oracle's recommended approach for upgrade.
> - This method is only applicable for upgrading an existing Enterprise Manager to 24ai Release 1. It's not applicable to an Enterprise Manager 24ai Release 1 fresh installation using the software only method.

When upgrading using the software only method, you install the software binaries of Enterprise Manager 24ai Release 1 at one point, and then upgrade the earlier release of Enterprise Manager to the newly installed 24ai Release 1 software binaries at a later point.

This upgrade approach is best suited for multi-OMS environments, as it minimizes the downtime of the OMS instances. This approach consists of three parts, mainly copying the software binaries, running the `root.sh` script, and configuring the software binaries. You can copy the software binaries on all the OMS hosts *in parallel* without shutting down the OMS instances. This not only saves time but also enables the earlier release of the OMS instances to remain up and running at this point. Once the software binaries are copied, you can shut down all the OMS instances, and configure the software binaries to upgrade the OMS instances, one after the other. Therefore, the downtime begins only when you start configuring the OMS instances, and not while copying the software binaries to the host.

SSL Support: If your existing Enterprise Manager environment is configured in Secure Socket Layer (SSL) mode then this upgrade method allows you to carry over the SSL configuration as part of the upgrade process.

This section covers the following:

- Upgrading the Enterprise Manager 24ai Release 1 Software Only with Plug-ins
- Running the allroot.sh Script
- Installing Additional Plug-ins
- Applying Release Update in Bit Only Mode
- Configuring the Enterprise Manager 24ai Release 1 Software Only With Plug-ins

Note:

If you see an error message stating that you have not copied the emkey, do the following:

- If your OMR is configured with a service name, then run the following command on the OMS you are about to upgrade. Here, <ORACLE_HOME> is the Oracle home of the OMS.

```
<ORACLE_HOME>/bin/emctl config emkey -copy_to_repos_from_file -
repos_conndesc '"(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)
(HOST=<>)(PORT=<>)))(CONNECT_DATA=(SERVICE_NAME=<>)))"' -repos_user
<> [-repos_pwd <pwd> ] [-admin_pwd <pwd>] -emkey_file <oracle_home>/
sysman/config/emkey.ora
```

- If your OMR is not configured with a service name, then run the following command on the OMS you are about to upgrade. Here, <ORACLE_HOME> is the Oracle home of the OMS.

```
<ORACLE_HOME>/bin/emctl config emkey -copy_to_repos_from_file -
repos_host <host> -repos_port <port> -repos_sid <sid> -repos_user
<username> [-repos_pwd <pwd> ] [-admin_pwd <pwd>] -emkey_file
<oracle_home>/sysman/config/emkey.ora
```

Here, the Management Repository details are details of the existing or old Management Repository. You will be prompted for the administration server password and the repository password if you do not explicitly specify them in the command line.

Note:

If you are upgrading a multi-OMS environment, always start the upgrade process with the first OMS, where the Admin Server is running, and not with any of the additional OMS instances.

To identify the OMS where the Admin Server is running, run the following command on the OMS you are about to upgrade, and verify if the output displays the Admin Server details. Here, <ORACLE_HOME> is the Oracle home of the OMS.

```
$<ORACLE_HOME>/bin/emctl status oms -details
```

You should see a similar output if you run the following on the OMS you are about to upgrade:

```
Oracle Enterprise Manager 13 Release 5
Copyright (c) 1996, 2024 Oracle Corporation. All rights reserved
Enter Enterprise Manager Root (SYSMAN) Password :
Console Server Host : myhost.example.com
[..]
WLS Domain Information
Domain Name : GCDomain
Admin Server Host: myhost.example.com
[..]
```

Upgrading the Enterprise Manager 24ai Release 1 Software Only with Plug-ins

To upgrade only the software binaries of Enterprise Manager with plug-ins in graphical mode, follow these steps:

- **Step 1:** Invoking the Enterprise Manager Installer to Upgrade Software Only with Plug-ins in Graphical Mode
- **Step 2:** Selecting the Installation Type
- **Step 3:** Applying the Latest Software Updates
- **Step 4:**Running the Prerequisite Checks and Validating the Environment
- **Step 5:** Configuring a Middleware Home and Validating the Host Name
- **Step 6:** Providing Database Connection Details
- **Step 7:** Checking Database Prerequisites
- **Step 8:** Checking Actualization Details
- **Step 9:** Upgrading or Migrating Plug-ins, or Deploying Dependent Plug-ins
- **Step 10:** Deploying Additional Plug-ins
- **Step 11:** Reviewing the Upgrade Details
- **Step 12:** Monitoring the Upgrade Progress
- **Step 13:** Running the allroot.sh Script
- **Step 14:** Ending the Upgrade

Invoking the Enterprise Manager Installer to Upgrade Software Only with Plug-ins in Graphical Mode

Oracle strongly recommends that you back up the Management Repository, the OMS, the inventory, the Software Library, and other components that are critical to the functioning of Enterprise Manager. This will enable you to revert to the original contents if the upgrade fails. This will upgrade only the software binaries of the Enterprise Manager along with the applicable plug-ins.

Invoke the Enterprise Manager Installation Wizard on the host where your existing OMS is running.

```
./em24100_<platform>.bin [-invPtrLoc <absolute_path_to_oraInst.loc>]
```

Optional Parameter:

- The `-invPtrLoc` parameter is supported only on UNIX platforms. Do not use it on Microsoft Windows platforms.

For information about additional advanced options you can pass while invoking the installer, refer to Advanced Installer Options Supported for Installing an Enterprise Manager System in Graphical Mode.

Note:

- To invoke the installation wizard on UNIX platforms, run `./em24100_<platform>.bin`

  For example:

  ```
  ./em24100_<platform>.bin [-invPtrLoc <absolute_path_to_oraInst.loc>]
  ```

  To invoke on Microsoft Windows platforms, run `setup_em24100_win64.exe`

  For example:

  ```
  setup_em24100_win64.exe [-invPtrLoc <absolute_path_to_oraInst.loc>]
  ```

- While invoking the installer, ensure that you pass the `invPtrLoc` argument if the OMS you are upgrading was installed using the `invPtrLoc` argument.
- The installer requires about 14 GB of hard disk space in the temporary directory. If your temporary directory does not have this space, then pass the `-J-Djava.io.tmpdir` parameter and provide an alternative directory where there is 14 GB of space. The installer prompts for an alternate temporary directory if the default temporary location (usually /tmp) has less then 14GB. In that case, the user can enter the new temporary location (which should pre-exist) in the prompt. For example:

  ```
  ./em24100_<platform>.bin
  ERROR: Temporary directory /tmp does not have enough free space.
  At least 12289 MB of free space are required.
  Please input another directory or [Exit]: /u01/new_tmp
  Launcher log file is /u01/new_tmp/OraInstall2024-01-22_09-47-31AM/
  launcher2024-01-22_09-47-31AM.log.
  Extracting the installer . . . . . .
  ```

  The directory specified by this parameter will also be used as the location for the Provisioning Advisor Framework (PAF) staging directory, which is used for copying the Software Library entities related to the deployment procedures. The PAF staging directory is used only for provisioning activities — entities are copied for a deployment procedure, and then, deleted once the deployment procedure ends.

  For example,

  ```
  ./em24100_linux64.bin -J-Djava.io.tmpdir=/u01/software/em24/stage/
  ```

- While upgrading on IBM AIX, if you see an error message stating that your JDK version in the middleware home is not of a supported version, then make sure you install the supported version mentioned in the message, and then invoke the installer passing the `-skipJDKValidation` argument.

  For example,

  ```
  ./em24100_<platform>.bin -skipJDKValidation
  ```

- The `INSTALL_SWONLY_WITH_PLUGINS` parameter is not supported starting with Enterprise Manager 24ai Release 1. If you execute the `em24100_<platform>.bin` or `setup_em24100_win64.exe` script using the `INSTALL_SWONLY_WITH_PLUGINS` parameter, you will receive an invalid parameter error message since the parameter is no longer supported.

Advanced Installer Options Supported for Installing an Enterprise Manager System in Graphical Mode

The following are some additional advanced options you can pass while invoking the installer in graphical mode:

- By default, a Provisioning Advisor Framework (PAF) staging directory is created for copying the Software Library entities related to the deployment procedures. By default, this location is the scratch path location (`/tmp`). The location is used only for provisioning activities—entities are copied for a deployment procedure, and then, deleted once the deployment procedure ends.

  If you want to override this location with a custom location, then invoke the installer with the `-J-Djava.io.tmpdir` option, and enter a unique custom location.

  For example,

  ```
  ./em24100_linux64.bin -J-Djava.io.tmpdir=/u01/install/em/STAGE/
  ```

  > **Note:**
  >
  > /u01/install/em/STAGE/ directory should exists while using this option, else it will re-direct the tmp location to /var/tmp.

- After the upgrade operation ends successfully, the OMS and central Management Agent start automatically.

  If you do not want OMS to start automatically, then invoke the installer with `START_OMS` options, and set them to `true` or `false` depending on what you want to control.

  For example, if you want the OMS to start automatically, then run the following command:

  ```
  ./em24100_<platform>.bin START_OMS=true
  ```

  To understand the limitations involved with this advanced option, see Limitations with the Advanced Installer Options Supported for Installing an Enterprise Manager System in Graphical Mode.

- During upgrade, if you want to install some plug-ins that are not in the software kit (DVD, downloaded software), then follow these steps:

  1. Manually download the required plug-ins from `Plug-in Update`.

     In addition, plug-ins produced by partners or customers are available for download from `Enterprise Manager Extensibility Exchange` .

  2. Invoke the installer:

     On UNIX platforms:

     ```
     ./em24100_<platform>.bin
     ```

     On Microsoft Windows platforms:

     ```
     setup_em24100_win64.exe
     ```

Limitations with the Advanced Installer Options Supported for Installing an Enterprise Manager System in Graphical Mode

When you use `START_OMS` and `START_AGENT` as advanced options to control the way the OMS and the Management Agent start up automatically, sometimes the Management Agent and the host on which it was installed do not appear as targets in the Enterprise Manager console.

Table 4-1 lists the different combinations of these advanced options, and describes the workaround to be followed for each combination:

Table 4-1 Advanced Options and Workarounds

Advanced Option	Workaround

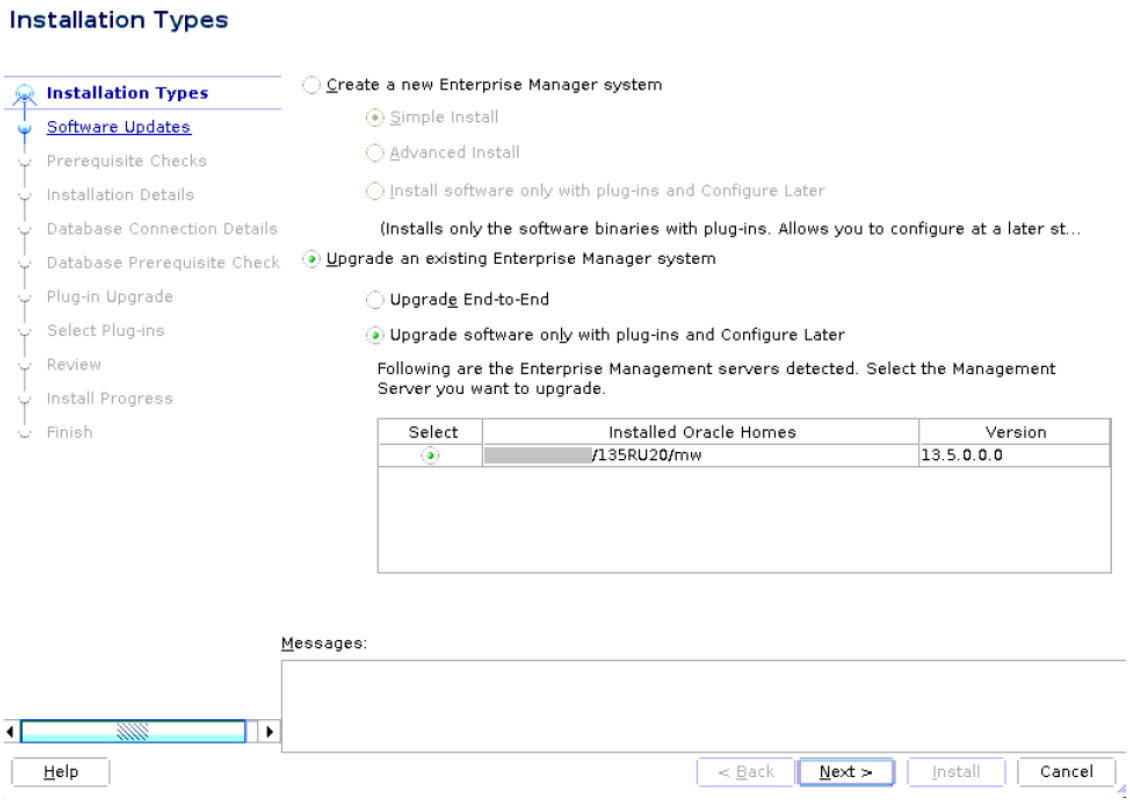
`START_OMS=false`
`START_AGENT=false`
	1. Start the OMS:
	`$<ORACLE_HOME>/bin/emctl start oms`
	2. Secure the Management Agent:
	`$<AGENT_HOME>/bin/emctl secure agent`
	3. Start the Management Agent:
	`$<AGENT_HOME>/bin/emctl start agent`
	4. Add the targets:
	`$<AGENT_HOME>/bin/emctl config agent addinternaltargets`
	5. Upload the targets:
	`$<AGENT_HOME>/bin/emctl upload agent`
	6. Manually configure the EM CLI tool in the `bin` directory of the Oracle home of the OMS. For more information, see Downloading and Deploying the EM CLI Client in the *Oracle Enterprise Manager Command Line Interface Guide*.

`START_OMS=true` `START_AGENT=false`	Start the Management Agent: `$<AGENT_HOME>/bin/emctl start agent`

`START_OMS=false`
`START_AGENT=true`
	1. Start the OMS:
	`$<ORACLE_HOME>/bin/emctl start oms`
	2. Secure the Management Agent:
	`$<AGENT_HOME>/bin/emctl secure agent`
	3. Add the targets:
	`$<AGENT_HOME>/bin/emctl config agent addinternaltargets`
	4. Upload the targets:
	`$<AGENT_HOME>/bin/emctl upload agent`
	5. Manually configure the EM CLI tool in the `bin` directory of the Oracle home of the OMS. For more information, see Downloading and Deploying the EM CLI Client in the *Oracle Enterprise Manager Command Line Interface Guide*.

Selecting the Installation Type

On the Installation Types screen, select **Upgrade software only with plug-ins and Configure Later** to upgrade an existing Enterprise Manager system. Then select the Management Server (OMS) you want to upgrade, and click **Next**.



The installer performs only the software install with plug-ins and this step is part of the process. There is no actual upgrade in progress.

Applying the Latest Software Updates

(Optional) On the Software Updates screen, select **Search for Updates**, and then select one of the following options to apply the latest software updates, including the latest PSU patches:

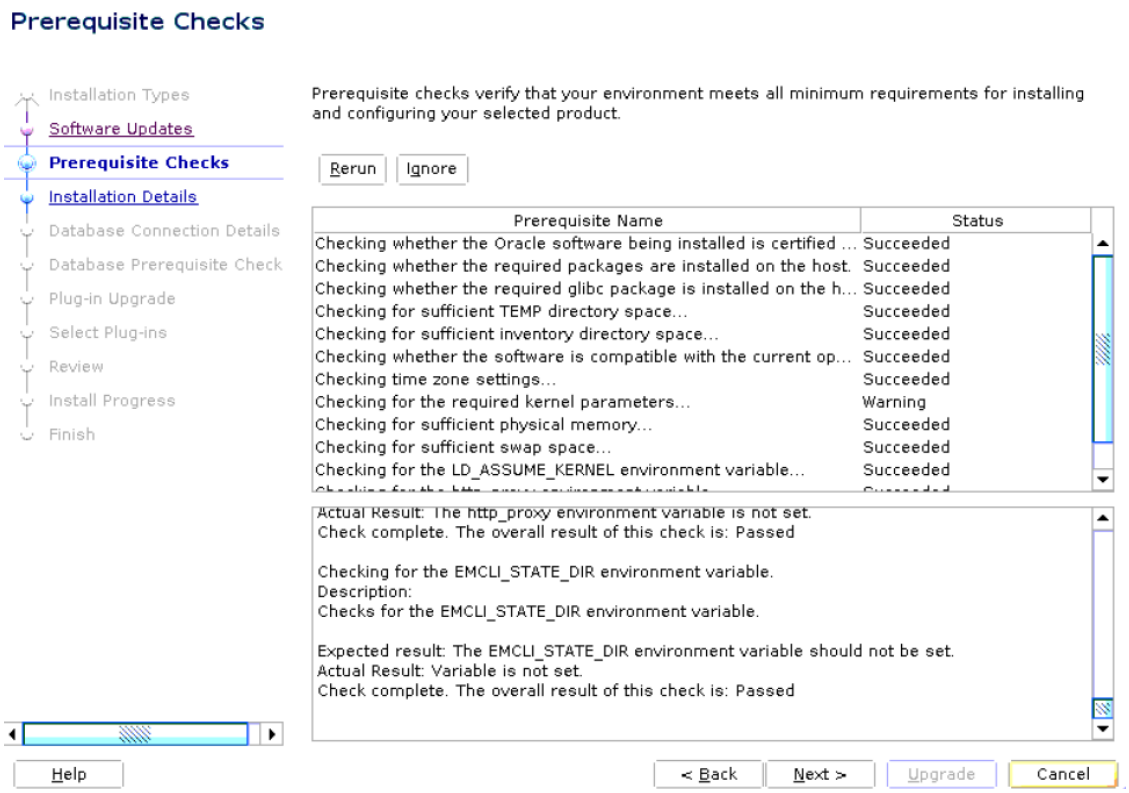
- **Local Directory**, if you do not have Internet connectivity on your host, and want to download the updates in offline mode and apply them while performing the upgrade.
- **My Oracle Support**, if you have Internet connectivity on your host, and want to connect to My Oracle Support directly via the installer to download the updates in online mode and apply them while performing the upgrade.

For instructions about downloading the software updates in offline or online mode, see *Oracle Enterprise Manager Advanced Installation and Configuration Guide*. If the host from where you are running the installation wizard does not have a connection to the Internet, you can manually collect the configuration information and upload it to *My Oracle Support* after you complete the upgrade. For instructions, see *Oracle Enterprise Manager Advanced Installation and Configuration Guide*.

If you do not want to run the software updates, select **Skip** and click **Next**.

Running the Prerequisite Checks and Validating the Environment

On the Prerequisite Checks screen, check the status of the prerequisite checks run by the installation wizard, and verify whether your environment meets all the minimum requirements for a successful upgrade. Then click **Next.**

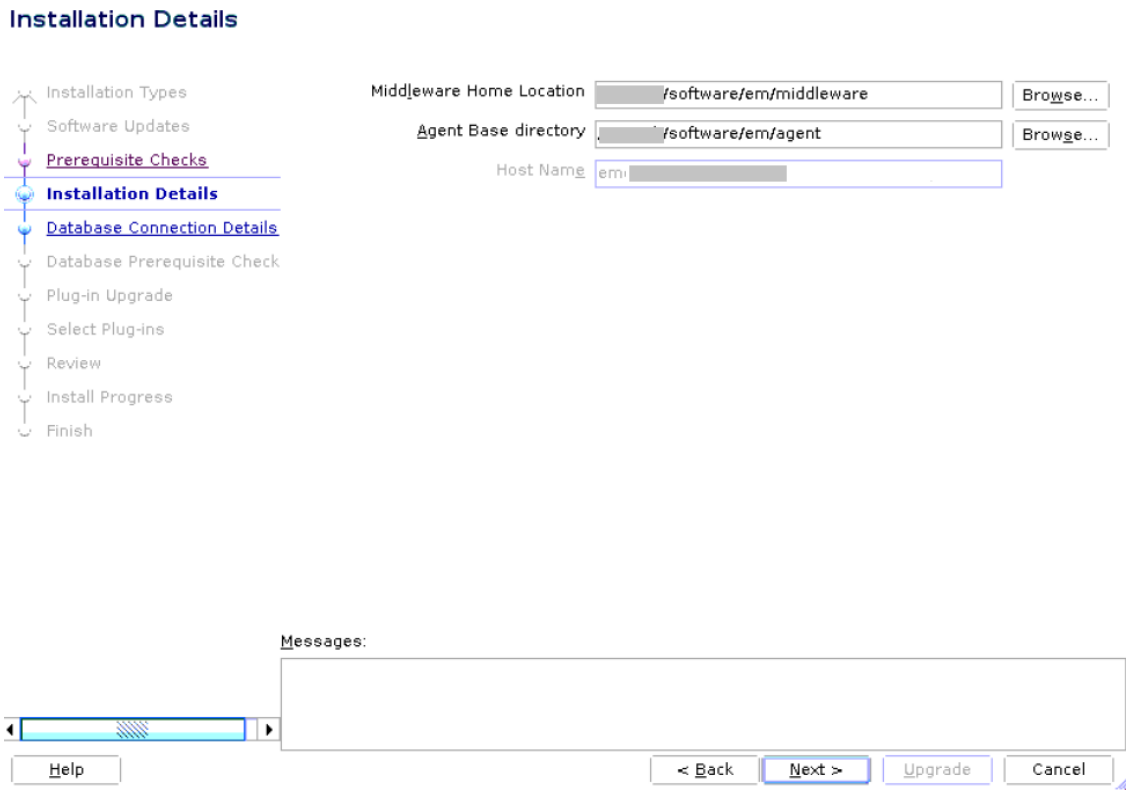


The installation wizard runs the prerequisite checks automatically when you come to this screen. The status of the prerequisite check can be either **Warning, Failed, Succeeded, Not Executed, In Progress,** or **Pending.**

If some checks result in **Warning** or **Failed** status, then investigate and correct the problems before you proceed with the upgrade. The screen provides details on why the prerequisites failed and how you can resolve them. After you correct the problems, return to this screen and click **Rerun** to check the prerequisites again.

Configuring a Middleware Home and Validating the Host Name

On the Installation Details screen, do the following, and click **Next.**



- Enter a new middleware home where the installer can automatically install Oracle WebLogic Server 12c Release 2 (12.2.1.4.0) and Java Development Kit 1.8.0_431 for you.

  Example: `/u01/software/em24/middleware`

  > **Note:**
  >
  > Ensure that the Middleware home you enter or validate here is used only for Enterprise Manager. Ensure that no other Oracle Fusion Middleware products or components are installed in the same Middleware home.

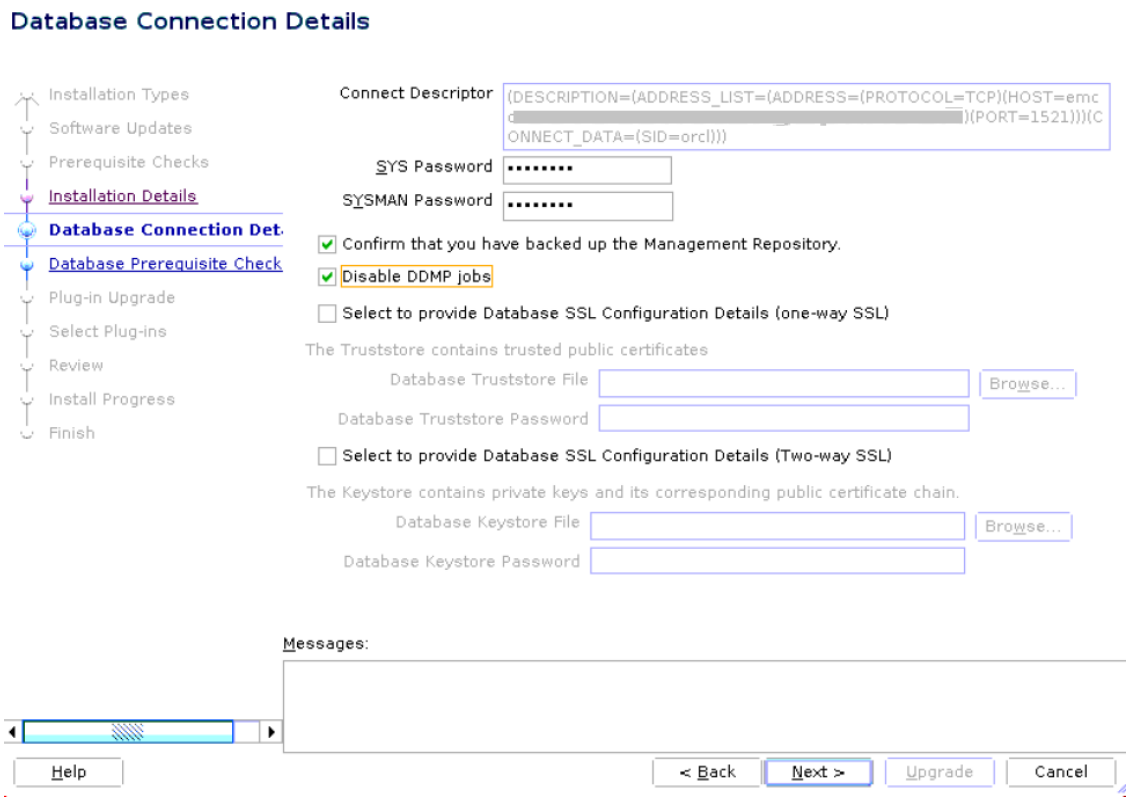
- Enter a new agent base directory, a location outside the middleware home.

  Example: `/u01/software/em24/agentbasedir`

- Validate the host name. By default, the host name is the name of the host where the existing, earlier release of Enterprise Manager was installed. This is a non-editable field.

Providing Database Connection Details

On the Database Connection Details screen, do the following, and click **Next.**



The installer performs only the software install with plug-ins and this step is part of the process. There is no actual upgrade in progress.

1. Enter the passwords for the SYS and SYSMAN user accounts of the database that houses the Management Repository for the selected OMS.

> **Note:**
>
> - The SYSMAN password must begin with a letter, contain at least 8 characters, one numeric value and may contain the following characters: $ # _
> - To change the password, run the following on one of the OMSs:
>
>   ```
>   <OMSORACLE_HOME>/bin/emctl config oms -change_repos_pwd -old_pwd
>   <old_pwd> -new_pwd <new_pwd>
>   ```
>
> - After the upgrade, you may run the same command to change the sysman password to a password of your choice.

2. Confirm that you have backed up the Management Repository *(although the installer checks only if you have backed up the Management Repository, Oracle strongly recommends that you back up the OMS, the inventory, the Software Library, and other components that are critical to the functioning of Enterprise Manager. This will enable you to revert to the original contents if the upgrade fails)*. As a prerequisite, you must back up the Management Repository before starting the upgrade process. If you have not already taken a backup, then do so immediately, and then return to the installer to continue with the upgrade.

3. If you have to stop the Enterprise Manager system for postupgrade maintenance, then select **Disable DDMP Jobs** to disable the DDMP jobs. If you do not plan to stop the Enterprise Manager system for postupgrade maintenance, and hence do not want to disable the DDMP jobs, then do not select the option.

   Deferred Data Migration (DDMP) is a post-upgrade activity to migrate the format of the data stored in an earlier release of Enterprise Manager to the format compatible with the upgraded Enterprise Manager system. The migration activity is essentially a job in Enterprise Manager that is submitted when the Oracle Management Repository gets upgraded, and is scheduled to run in the background when the upgraded Enterprise Manager system starts functioning.

   The time taken to migrate the data format depends on the volume of data available in your earlier release of Enterprise Manager. Therefore, if you have a large amount of data, then it takes longer to migrate.

   If you have to stop the Enterprise Manager system for postupgrade maintenance, then you can choose to disable the DDMP jobs now and run them later from the postupgrade console after the maintenance period ends and after the Enterprise Manager system becomes operational.

   To run the DDMP jobs later from the Post Upgrade Console, in the Enterprise Manager Console, from the **Setup** menu, select **Manage Enterprise Manager**, then select **Post Upgrade Tasks.**

4. Check the **Select to provide Database SSL Configuration Details (one-way SSL)** checkbox if the database is one-way SSL configured. The truststore details are required for one-way SSL configuration.

   Provide the database truststore file and password.

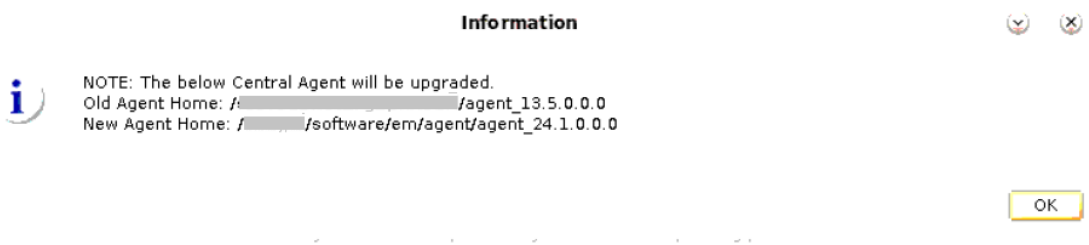
5. Check the **Select to provide Database SSL Configuration Details (two-way SSL)** checkbox if the database is two-way SSL configured. The keystore details are required for two-way SSL configuration.

   Provide the database keystore file and password.

After you complete selecting your choices, click **Next**.

The **Information** pop-up window is displayed indicating that the Central Agent is getting upgraded.

> **Note:**
>
> The Central Agent upgrade is available starting with Enterprise Manager 24ai Release 1.



Review the information provided and click **OK**.

For information about the various prerequisite checks that are run on the database at this point and how to fix them if they fail, see Prerequisites for Upgrading to Enterprise Manager 24ai Release 1 .

Note:

- If the installer finds that some plug-ins deployed in the previous release of Enterprise Manager are obsolete and are not supported in 24ai Release 1, then you are prompted to first remove those plug-ins from the previous release. You can return to the installer and proceed with the upgrade only after removing those obsolete plug-ins.

  To remove the obsolete plug-ins, follow these steps:

  1. Undeploy the obsolete plug-ins from the Management Agents. Next, undeploy them from the OMS instances. For instructions, see the chapter on Undeploying Plug-Ins in *Oracle Enterprise Manager Administrator's Guide*.
  2. Optionally, remove the binaries of these obsolete plug-ins from the Self Update Console. For instructions, see the chapter on Updating Enterprise Manager in *Oracle Enterprise Manager Administrator's Guide*.

- If you have any JVM Diagnostics Engines (JVMD Engines) or Application Dependency and Performance Engines (ADP Engines) configured in your environment, then check whether they are up and running. If they are, then check whether the Admin Server is up and stop the JVMD Engines and the ADP Engines. Once the upgrade is successful, the JVMD Engines start automatically. To check whether the Admin Server is running, run the following command from the OMS you are upgrading. Here, `<ORACLE_HOME>` is the Oracle home of the OMS.

  ```
  <ORACLE_HOME>/bin/emctl status oms -details.
  ```

  To stop the engines, on each OMS instance, run the following command from the OMS you are upgrading. Here, `<ORACLE_HOME>` is the Oracle home of the OMS.

  ```
  <ORACLE_HOME>/bin/emctl extended oms adp stop -all.
  ```

Checking Database Prerequisites

On the Database Prerequisite Checks screen, check the status of the database prerequisite checks run by the installation wizard, and verify whether your environment meets all the minimum requirements for a successful upgrade. Then click **Next**.

The installation wizard runs the database prerequisite checks automatically when you come to this screen. The status of the prerequisite check can be either **Warning, Failed** or **Succeeded**.

If some checks result in **Warning** or **Failed** status, then investigate and correct the problems before you proceed with the upgrade. The screen provides details on why the prerequisites failed and how you can resolve them. After you correct the problems, return to this screen and click **Check Again** to check the database prerequisites again.

- If the Auto Fixable column is `Yes`, you can click on **Auto Fix** and the installer will fix the issue automatically.
- If the recommendation indicates that the Correction Type is `Manual`, you need to fix the issue manually.

If the installer finds that some plug-ins deployed in the previous release of Enterprise Manager are obsolete and are not supported in Enterprise Manager 24ai Release 1, then you are prompted to `Check for Obsolete plugins`. You can return to the installer and proceed with the upgrade only after removing those obsolete plug-ins.

To remove the obsolete plug-ins, follow these steps:

1. Undeploy the obsolete plug-ins from the Management Agents. Next, undeploy them from the OMS instances. For instructions, see the chapter on Undeploying Plug-Ins in *Oracle Enterprise Manager Administrator's Guide*.
2. Optionally, remove the binaries of these obsolete plug-ins from the Self Update Console. For instructions, see the chapter on Updating Enterprise Manager in *Oracle Enterprise Manager Administrator's Guide*.

> **Note:**
>
> If you have any JVM Diagnostics Engines (JVMD Engines) or Application Dependency and Performance Engines (ADP Engines) configured in your environment, then check whether they are up and running. If they are, then check whether the Admin Server is up and stop the JVMD Engines and the ADP Engines. Once the upgrade is successful, the JVMD Engines start automatically.
>
> To check whether the Admin Server is running, run the following command from the OMS you are upgrading. Here, `<ORACLE_HOME>` is the Oracle home of the OMS.
>
> ```
> <ORACLE_HOME>/bin/emctl status oms -details.
> ```
>
> To stop the engines, on each OMS instance, run the following command from the OMS you are upgrading. Here, `<ORACLE_HOME>` is the Oracle home of the OMS.
>
> ```
> <ORACLE_HOME>/bin/emctl extended oms adp stop -all.
> ```

For information about the various prerequisite checks that are run on the database at this point and how to fix them if they fail, see Prerequisites for Upgrading to Enterprise Manager 24ai Release 1 .

After you complete reviewing and fixing the prerequisites results, click **Next**.

The **Information** pop-up window is displayed.

Review the important information provided about the upgrade process and then click **OK**.

Checking Actualization Details

This step is only applicable to Enterprise Manager systems that have multiple editions of the Management Repository database.

> **Note:**
>
> Oracle recommends running the EM prerequisite kit prior to upgrading to Enterprise Manager 24ai Release 1. The **Actualization Details** check is one of operations performed by EM prerequisite kit. For information, see *Overview of the EM Prerequisite Kit* in the *Oracle Enterprise Manager Basic Installation Guide.*

If your system is not applicable or the EM prerequisite kit was already performed, this step is skipped automatically and the installer proceeds to the next step: Upgrading or Migrating Plug-ins, or Deploying Dependent Plug-ins.

If you get the **Actualization** screen, then additional editions of the Management Repository database besides the base edition are present in your system. For example, this could happen if you applied the zero down time patches to the Oracle Management Service (OMS) 13. 5 before the upgrade to Enterprise Manager 24ai.

If the actualization process fails, review the install and repository creation utility (rcu) log files and check for failures and resolve them. The logs are located under the `oraInventory`.

Review and click **Start**.

Once completed, click **Next**.

Upgrading or Migrating Plug-ins, or Deploying Dependent Plug-ins

On the Plug-In Upgrade screen, review the plug-ins and click **Next.**

The plug-ins will experience one of the following effects:

- Upgraded when newer versions exist.
- Migrated when newer versions do not exist.
- Deployed when the plug-ins being upgraded have new dependencies, or when there are any new default plug-ins introduced with a release.

Here, newer versions refer to the newer versions of plug-ins available in the Enterprise Manager software (DVD, or downloaded software) that you are using to install.

The installer performs only the software install with plug-ins and this step is part of the process. There is no actual upgrade in progress.

Note:

- You might have a deprecated plug-in in your environment that can be upgraded to a plug-in version that is supported only in 24ai Release 1, but not in any of the future releases. If such a deprecated plug-in is selected by default in this screen for upgrade, then you are prompted to evaluate your selection and decide whether or not you want to proceed with the upgrade of such plug-ins.
- If the newer versions do not exist in the Enterprise Manager software that you are using, but exist on Oracle Software Downloads, then you can choose to manually download them from there and upgrade your existing plug-ins, instead of having them automatically migrated by default. To do so, follow these steps:

  1. Manually download the required plug-ins from `Plug-in Update`.

     In addition, plug-ins produced by partners or customers are available for download from `Enterprise Manager Extensibility Exchange`.

  2. Invoke the installer with the following option and pass the location where the additional plug-ins have been downloaded:

     On UNIX platforms:

     ```
     em24100_<platform>.bin
     PLUGIN_LOCATION=<absolute_path_to_plugin_software_location>
     ```

     On Microsoft Windows platforms:

     ```
     setup_em24100_win64.exe
     PLUGIN_LOCATION=<absolute_path_to_plugin_software_location>
     ```

     This displays a list of plug-ins available in the software kit (DVD, downloaded software) as well as the plug-ins available in this custom location. You can choose the ones you want to install.

  Once the newer versions of the plug-ins are made available, this screen lists those plug-ins as plug-ins that will automatically be upgraded.
- If you see a message stating that you have unsupported plug-ins on the OMS or on some of the Management Agents, then follow the instructions outlined in the message to upgrade the plug-ins, and then retry upgrading the OMS.
- The `INSTALL_SWONLY_WITH_PLUGINS` parameter is not supported starting with Enterprise Manager 13c Release 5. If you execute the `em24100_<platform>.bin` or `setup_em24100_win64.exe` script using the `INSTALL_SWONLY_WITH_PLUGINS` parameter, you will receive an invalid parameter error message since the parameter is no longer supported.

Deploying Additional Plug-ins

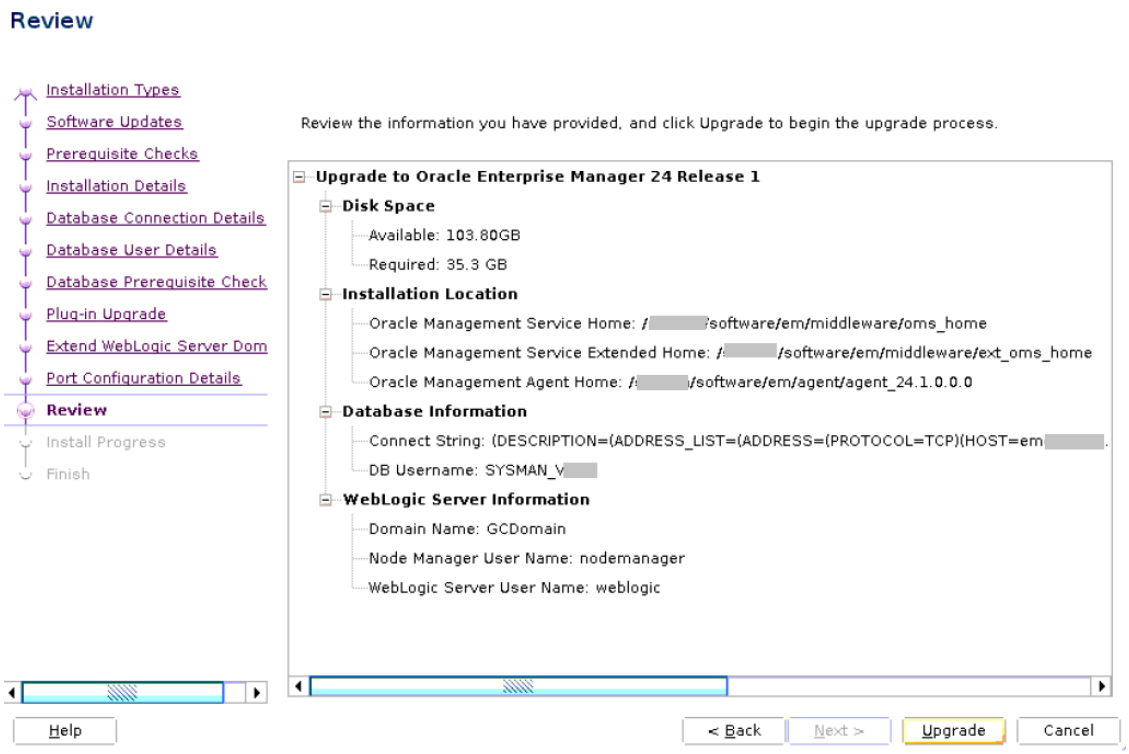
On the Select Plug-ins screen, select the additional plug-ins you want to deploy in addition to the plug-ins that will automatically be upgraded while upgrading the OMS, and click **Next**.

> **Note:**
>
> If you select a deprecated plug-in that is supported only in 24ai Release 1, but not in any of the future releases, then you are prompted to evaluate your selection and decide whether or not you want to proceed with the deployment of such plug-ins.

> **Note:**
>
> If you want to install some plug-ins that are not listed on this screen, then follow these steps:
>
> 1. Manually download the required plug-ins.
>   - Oracle Plug-ins are available for download via Plug-in Update.
>   - Plug-ins produced by Oracle partners are available on the Enterprise Manager Extensibility Exchange.
> 2. Invoke the installer with the following option and pass the location where the additional plug-ins have been downloaded:
>
>   On UNIX platforms:
>
>    ```
>    em24100_<platform>.bin
>    PLUGIN_LOCATION=<absolute_path_to_plugin_software_location>
>    ```
>
>   On Microsoft Windows platforms:
>
>    ```
>    setup_em24100_win64.exe
>    PLUGIN_LOCATION=<absolute_path_to_plugin_software_location>
>    ```
>
>   This displays a list of plug-ins available in the software kit (DVD, downloaded software) as well as the plug-ins available in this custom location. You can choose the ones you want to install.
>
>   > **Note:**
>   >
>   > The `INSTALL_SWONLY_WITH_PLUGINS` parameter is not supported starting with Enterprise Manager 13c Release 5. If you execute the `em24100_<platform>.bin` or `setup_em24100_win64.exe` script using the `INSTALL_SWONLY_WITH_PLUGINS` parameter, you will receive an invalid parameter error message since the parameter is no longer supported.

Reviewing the Upgrade Details

On the Review screen, review the details you have provided for the upgrade.



> **Note:**
>
> Starting with Enterprise Manager 24ai Release 1, there's an additional Oracle Management Service called Oracle Management Service (OMS) Extended Home. It allows performing administrative tasks without interrupting the Enterprise Manager operations. For example, no need of downtime when performing Enterprise Manager upgrades or updates.

1. If you want to change the details, click **Back** repeatedly until you reach the screen where you want to make the changes.
2. After you verify the details, if you are satisfied, click **Upgrade** to begin the upgrade.

> **Note:**
>
> When performing an Upgrade and Transition to DR Readiness, ensure the Host Name displayed is the alias host name for OMS1. If it is not, navigate back to the Installation Details screen and ensure the Host Name is properly specified.

Monitoring the Upgrade Progress

On the Install Progress Details screen, view the overall progress (in percentage) of the installation.

The installer performs the software only install with plug-ins and this step is part of the process. There is no actual upgrade in progress.

Running the allroot.sh Script

(For UNIX Only) On the Installation Progress Details screen, once the software binaries are installed and configured, the **Execute Configuration scripts** pop-up window is displayed and you are prompted to run the `allroot.sh` script.

Open another window, log in as a `root` and run the `allroot.sh` script from the Oracle home of the OMS you installed in Upgrading the Enterprise Manager 24ai Release 1 Software Only with Plug-ins .

```
$<ORACLE_HOME>/allroot.sh
```

For example,

```
/u01/software/em24/middleware/oms_home/allroot.sh
```

If you have additional OMS instances, then run this script on those additional OMS hosts as well.

If you are installing on Microsoft Windows, then you will NOT be prompted to run this script.

> **Note:**
>
> If you do not have the permission to run this script at this point, you can always run it after configuring the software binaries, but make sure you run it before you start upgrading the Management Agents.

Ending the Upgrade

On the Finish screen, you should see information pertaining to the upgrade of Enterprise Manager. Review the information and click **Close** to exit the installation wizard.

Installing Additional Plug-ins

If you need to install additional plug-ins, then you can choose to manually download them from Plug-in Update . Pass the location of the downloaded additional plug-ins to the installer with the plugin_location parameter.

Applying Release Update in Bit Only Mode

Oracle recommends applying the latest available release update (bundle patch) using the bit only mode before proceeding with the next step: Configuring the Enterprise Manager 24ai Release 1 Software Only With Plug-ins.

To apply a release update (bundle patch) during the upgrade process, follow the specific release update instructions from the README file and apply the release update to the OMS using the bit only mode.

Set the `ORACLE_HOME` environment variable to the new Enterprise Manager 24ai Release 1 OMS home and execute the `omspatcher` command with `bitonly` option . For example:

```
export ORACLE_HOME=/u01/software/em24/oms_home
cd <Release_Update_Directory>
$ORACLE_HOME/OMSPatcher/omspatcher apply -bitonly
```

> **Note:**
>
> For more information about `omspatcher`, see Patching Oracle Management Service and the Repository in *Enterprise Manager Administrator's Guide*.

Configuring the Enterprise Manager 24ai Release 1 Software Only With Plug-ins

To configure only the Enterprise Manager software binaries with plug-ins in graphical mode in upgrade mode, do the following:

- Stop all OMS instances running from the old OMS home using the `emctl` command:

  ```
  <OLD_OMS_home>/bin/emctl stop oms -all
  ```

  For example:

  ```
  /u01/software/em_old_oms/oraclehome/bin/emctl stop oms -all
  ```

- Configure the Enterprise Manager software binaries with plug-ins by following the steps below:

  1. Invoking the Enterprise Manager Installer to Configure the Software Only with Plug-ins
  2. Selecting the Installation Type
  3. Providing Database Connection Details
  4. Providing Database User Details
  5. Checking Database Prerequisites
  6. Extending the Existing WebLogic Server Domain
  7. Configuring the Ports
  8. Reviewing the Upgrade Details
  9. Monitoring the Configuration Progress
  10. Ending the Upgrade
  11. Upgrading the Additional OMS Instances
  12. Upgrading the Management Agents

Invoking the Enterprise Manager Installer to Configure the Software Only with Plug-ins

Invoke the installation wizard to configure the software only with plug-ins by running the following script from the Oracle home of the OMS you installed in Upgrading the Enterprise Manager 24ai Release 1 Software Only with Plug-ins .

```
$<ORACLE_HOME>/sysman/install/ConfigureGC.sh [-invPtrLoc
<absolute_path_to_oraInst.loc>]
```

For Microsoft Windows, run `ConfigureGC.bat` script.

```
ConfigureGC.bat
```

Optional Parameter:

- The `-invPtrLoc` parameter is supported only on UNIX platforms. Do not use it on Microsoft Windows platforms.

For information about additional advanced options you can pass while invoking the `ConfigureGC` script, see Using Advanced Script Options While Configuring the Enterprise Manager Software Using the Software Only Upgrade Method in Graphical Mode.

Note:

- While installing the software binaries as described in Upgrading the Enterprise Manager 24ai Release 1 Software Only with Plug-ins , if you had passed the argument `-invPtrLoc`, then you need to pass the same `-invPtrLoc` argument here as well.
- If the Configuration Assistant fails, the installer stops and none of the subsequent Configuration Assistants are run until the issue related to the failed Configuration Assistant is resolved. In this case, diagnose the issue, resolve it, and then, click **Retry** on the Install Progress screen to rerun the Configuration Assistants starting from the Configuration Assistant that failed.

  However, if you accidentally exit the installer before clicking **Retry**, then do NOT restart the installer to reach the same screen; instead, invoke the `runConfig.pl` script from the Oracle home of the OMS to rerun the Configuration Assistant in silent mode.

  ```
  $<ORACLE_HOME>/oui/bin/runConfig.pl
  <absolute_path_to_Middleware_home>
  ```

  - **Linux example:**

    ```
    /u01/software/em24/oms_home/oui/bin/runConfig.pl /u01/software/
    em24/oms_home
    ```

  - **Windows example:**

    ```
    $<ORACLE_HOME>/oui/bin/runConfig.pl
    <absolute_path_to_Middleware_home>
    ```

- If the `runConfig` script fails, raise a service request and contact Oracle Support.
- If the Management Repository upgrade fails with the following error in the schema manager logs, then restart the database, and then try the upgrade again.

  ```
  ORA-04020: deadlock detected while trying to lock object
  SYSMAN.MGMT_GLOBAL
  ```

Using Advanced Script Options While Configuring the Enterprise Manager Software Using the Software Only Upgrade Method in Graphical Mode

The following are some additional advanced options you can pass while invoking the `configureGC.sh` script as part of upgrading the Enterprise Manager software only and configure later method.

- By default, `GCDomain` is the default name used for creating the WebLogic Domain. Custom WebLogic Domain name is not supported.
- After the configuration ends successfully, the OMS and central Management Agent start automatically.

  If you do not want the OMS to start automatically, then invoke the installer with the `START_OMS` option, and set it to true or false depending on what you want to control.

  For example, if you want the OMS to start automatically, then run the following command:

  ```
  <ORACLE_HOME>/sysman/install/ConfigureGC.sh START_OMS=true
  ```

To understand the limitations involved with this advanced option, see Limitations with the Advanced Installer Options Supported for Installing an Enterprise Manager System in Graphical Mode.

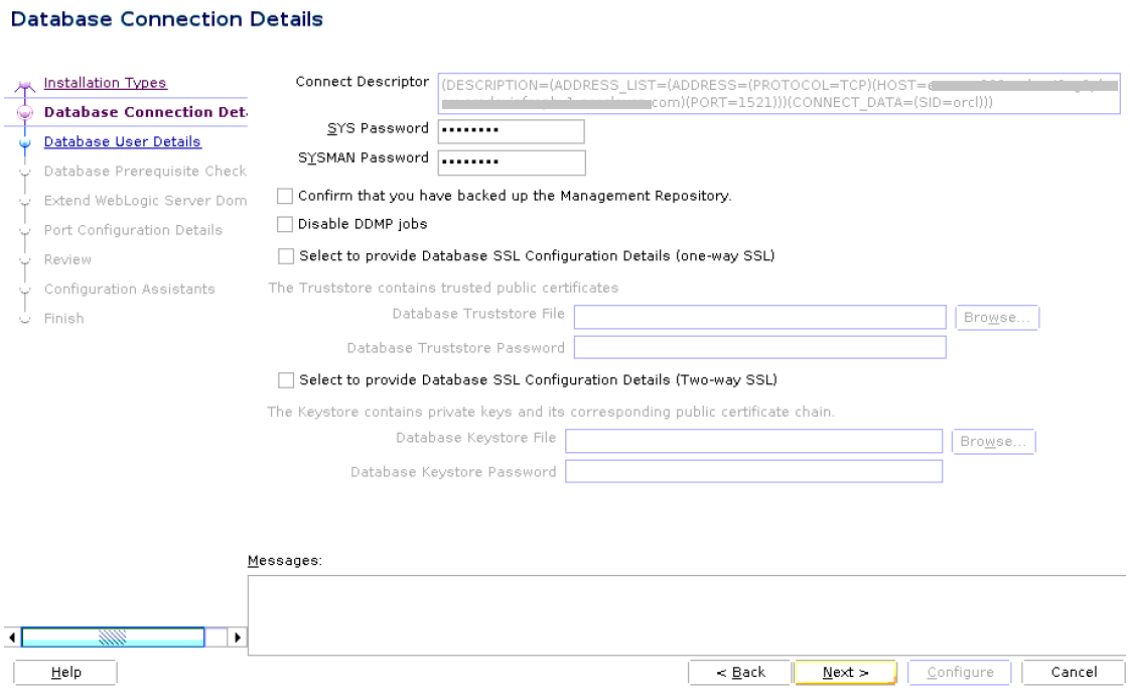
Selecting the Installation Type

On the Installation Types screen, do the following:

1. Select **Upgrade an existing Enterprise Manager system**.
2. Select the Management Server (OMS) you want to upgrade.
3. Click **Next.**

Providing Database Connection Details

On the Database Connection Details screen, do the following, and click **Next.**



1. Enter the passwords for the SYS and SYSMAN user accounts of the database that houses the Management Repository for the selected OMS.

> **Note:**
>
> - The SYSMAN password must begin with a letter, contain at least 8 characters, one numeric value and may contain the following characters: $ # _
> - To change the password, run the following on one of the OMSs:
>
>   ```
>   <OMSORACLE_HOME>/bin/emctl config oms -change_repos_pwd -old_pwd
>   <old_pwd> -new_pwd <new_pwd>
>   ```
>
> - After the upgrade, you may run the same command to change the sysman password to a password of your choice.

2. Confirm that you have backed up the Management Repository *(although the installer checks only if you have backed up the Management Repository, Oracle strongly recommends that you back up the OMS, the inventory, the Software Library, and other components that are critical to the functioning of Enterprise Manager. This will enable you to revert to the original contents if the upgrade fails)*. As a prerequisite, you must back up the Management Repository before starting the upgrade process. If you have not already taken a backup, then do so immediately, and then return to the installer to continue with the upgrade.
3. If you have to stop the Enterprise Manager system for post upgrade maintenance, then select **Disable DDMP Jobs** to disable the DDMP jobs. If you do not plan to stop the Enterprise Manager system for post upgrade maintenance, and hence do not want to disable the DDMP jobs, then do not select the option.

   Deferred Data Migration (DDMP) is a post-upgrade activity to migrate the format of the data stored in an earlier release of Enterprise Manager to the format compatible with the upgraded Enterprise Manager system. The migration activity is essentially a job in Enterprise Manager that is submitted when the Oracle Management Repository gets upgraded, and is scheduled to run in the background when the upgraded Enterprise Manager system starts functioning.

   The time taken to migrate the data format depends on the volume of data available in your earlier release of Enterprise Manager. Therefore, if you have a large amount of data, then it takes longer to migrate.

   If you have to stop the Enterprise Manager system for post upgrade maintenance, then you can choose to disable the DDMP jobs now and run them later from the post upgrade console after the maintenance period ends and after the Enterprise Manager system becomes operational.

   To run the DDMP jobs later from the Post Upgrade Console, in the Enterprise Manager Console, from the **Setup** menu, select **Manage Enterprise Manager**, then select **Post Upgrade Tasks.**
4. Check the **Select to provide Database SSL Configuration Details (one-way SSL)** checkbox if the database is one-way SSL configured. The truststore details are required for one-way SSL configuration.

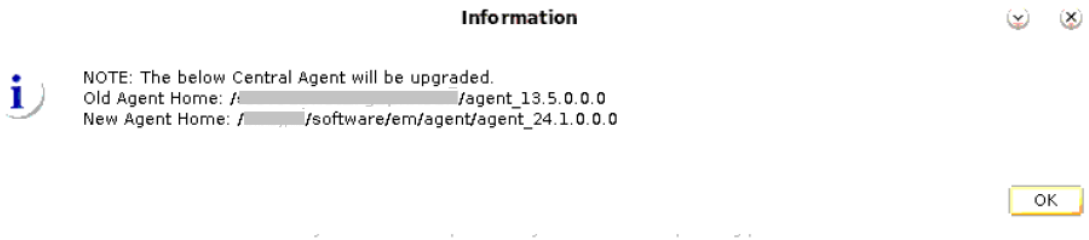
   Provide the database truststore file and password.
5. Check the **Select to provide Database SSL Configuration Details (two-way SSL)** checkbox if the database is two-way SSL configured. The keystore details are required for two-way SSL configuration.

   Provide the database keystore file and password.

After you complete selecting your choices, click **Next**.

The **Information** pop-up window is displayed indicating that the Central Agent is getting upgraded.

> **Note:**
>
> The Central Agent upgrade is available starting with Enterprise Manager 24ai Release 1.



Review the information provided and click **OK**.

For information about the various prerequisite checks that are run on the database at this point and how to fix them if they fail, see Prerequisites for Upgrading to Enterprise Manager 24ai Release 1 .

Note:

- If the installer finds that some plug-ins deployed in the previous release of Enterprise Manager are obsolete and are not supported in Enterprise Manager 24ai Release 1, then you are prompted to first remove those plug-ins from the previous release. You can return to the installer and proceed with the upgrade only after removing those obsolete plug-ins.

  To remove the obsolete plug-ins, follow these steps:

  1. Undeploy the obsolete plug-ins from the Management Agents. Next, undeploy them from the OMS instances. For instructions, see the chapter on Undeploying Plug-Ins in *Oracle Enterprise Manager Administrator's Guide*.
  2. Optionally, remove the binaries of these obsolete plug-ins from the Self Update Console. For instructions, see the chapter on Updating Enterprise Manager in *Oracle Enterprise Manager Administrator's Guide*.

- If you see an error about missing plug-ins, then do the following:

  1. Make a note of the plug-in version and plug-in update as shown in the missing plug-ins error message. The plug-ins displayed in the error message have the following format:
     `PluginID:PluginVersion:PluginUpdate`
  2. Manually download the required plug-ins from Plug-in Update.
     In addition, plug-ins produced by any partners or customers are available for download from Enterprise Manager Extensibility Exchange.
  3. Invoke the `ConfigureGC` script.
     Linux example: `<ORACLE_HOME>/sysman/install/ConfigureGC.sh`

     Proceed to the next step only after you have installed these missing plug-ins.

- If you have any JVM Diagnostics Engines (JVMD Engines) or Application Dependency and Performance Engines (ADP Engines) configured in your environment, then check whether they are up and running. If they are, then check whether the Admin Server is up and stop the JVMD Engines and the ADP Engines. Once the upgrade is successful, the JVMD Engines start automatically.

  To check whether the Admin Server is running, run the following command from the OMS you are upgrading. Here, `<ORACLE_HOME>` is the Oracle home of the OMS.

  ```
  <ORACLE_HOME>/bin/emctl status oms -details.
  ```

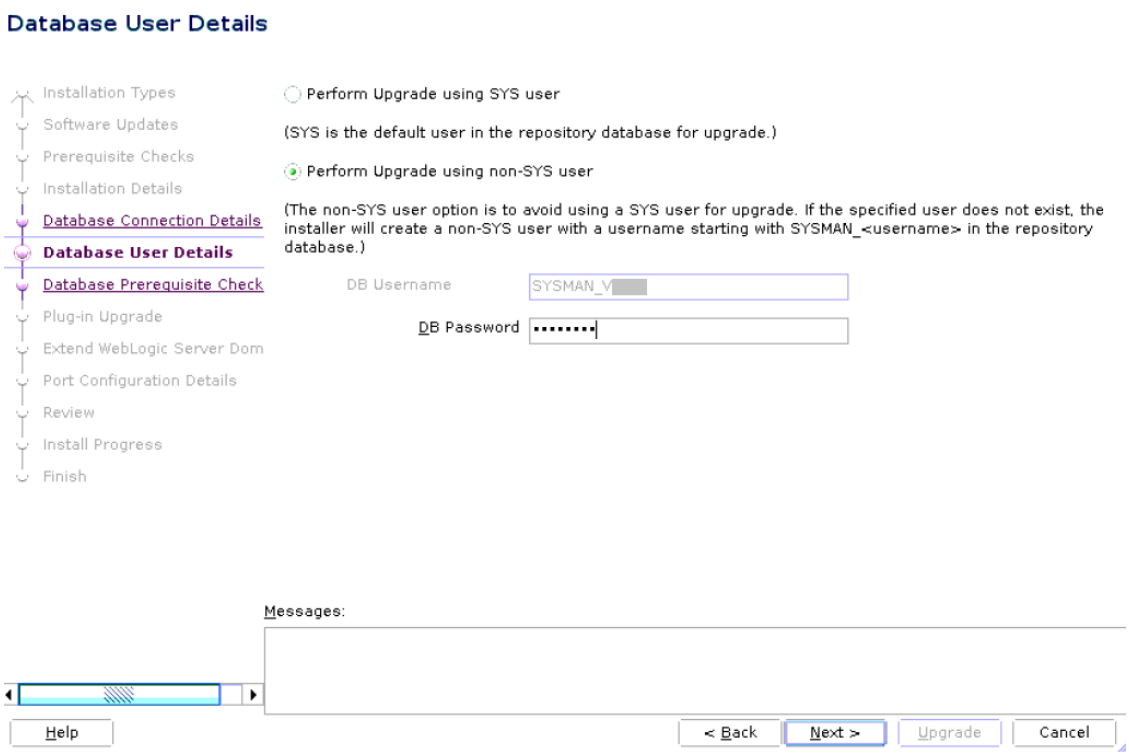
  To stop the engines, on each OMS instance, run the following command from the OMS you are upgrading. Here, `<ORACLE_HOME>` is the Oracle home of the OMS.

  ```
  <ORACLE_HOME>/bin/emctl extended oms adp stop -all.
  ```

- For information about the various prerequisite checks that are run on the database at this point and how to fix them if they fail, see Prerequisites for Upgrading to Enterprise Manager 24ai Release 1 .

Providing Database User Details

On the **Database User Details** screen, do the following and click **Next**.



Select if you want to perform the upgrade using SYS or non-SYS database user.

SYS is the default user in the Repository database.

A non-SYS user is a less privileged administrator user of the Repository database that still allows you to perform Enterprise Manager administration tasks.

If the **Perform Upgrade using non-SYS user** is selected, you need to provide the database user name and password for the non-SYS user. The non-SYS user name should have the `SYSMAN_` prefix as part of user name. For example, you can enter `SYSMAN_ADMIN` under **DB Username**. If the user doesn't exist, the Enterprise Manager upgrade process creates the new user in the Repository database and this user performs the database prerequisites checks.

Checking Database Prerequisites

On the Database Prerequisite Checks screen, check the status of the database prerequisite checks run by the installation wizard, and verify whether your environment meets all the minimum requirements for a successful upgrade. Then click **Next**.

The installation wizard runs the database prerequisite checks automatically when you come to this screen. The status of the prerequisite check can be either **Warning, Failed** or **Succeeded**.

If some checks result in **Warning** or **Failed** status, then investigate and correct the problems before you proceed with the upgrade. The screen provides details on why the prerequisites failed and how you can resolve them. After you correct the problems, return to this screen and click **Check Again** to check the database prerequisites again.

- If the Auto Fixable column is `Yes`, you can click on **Auto Fix** and the installer will fix the issue automatically.
- If the recommendation indicates that the Correction Type is `Manual`, you need to fix the issue manually.

If the installer finds that some plug-ins deployed in the previous release of Enterprise Manager are obsolete and are not supported in Enterprise Manager 24ai Release 1, then you are prompted to `Check for Obsolete plugins`. You can return to the installer and proceed with the upgrade only after removing those obsolete plug-ins.

To remove the obsolete plug-ins, follow these steps:

1. Undeploy the obsolete plug-ins from the Management Agents. Next, undeploy them from the OMS instances. For instructions, see the chapter on Undeploying Plug-Ins in *Oracle Enterprise Manager Administrator's Guide*.
2. Optionally, remove the binaries of these obsolete plug-ins from the Self Update Console. For instructions, see the chapter on Updating Enterprise Manager in *Oracle Enterprise Manager Administrator's Guide*.

> **Note:**
>
> If you have any JVM Diagnostics Engines (JVMD Engines) or Application Dependency and Performance Engines (ADP Engines) configured in your environment, then check whether they are up and running. If they are, then check whether the Admin Server is up and stop the JVMD Engines and the ADP Engines. Once the upgrade is successful, the JVMD Engines start automatically.
>
> To check whether the Admin Server is running, run the following command from the OMS you are upgrading. Here, `<ORACLE_HOME>` is the Oracle home of the OMS.
>
> ```
> <ORACLE_HOME>/bin/emctl status oms -details.
> ```
>
> To stop the engines, on each OMS instance, run the following command from the OMS you are upgrading. Here, `<ORACLE_HOME>` is the Oracle home of the OMS.
>
> ```
> <ORACLE_HOME>/bin/emctl extended oms adp stop -all.
> ```

For information about the various prerequisite checks that are run on the database at this point and how to fix them if they fail, see Prerequisites for Upgrading to Enterprise Manager 24ai Release 1 .

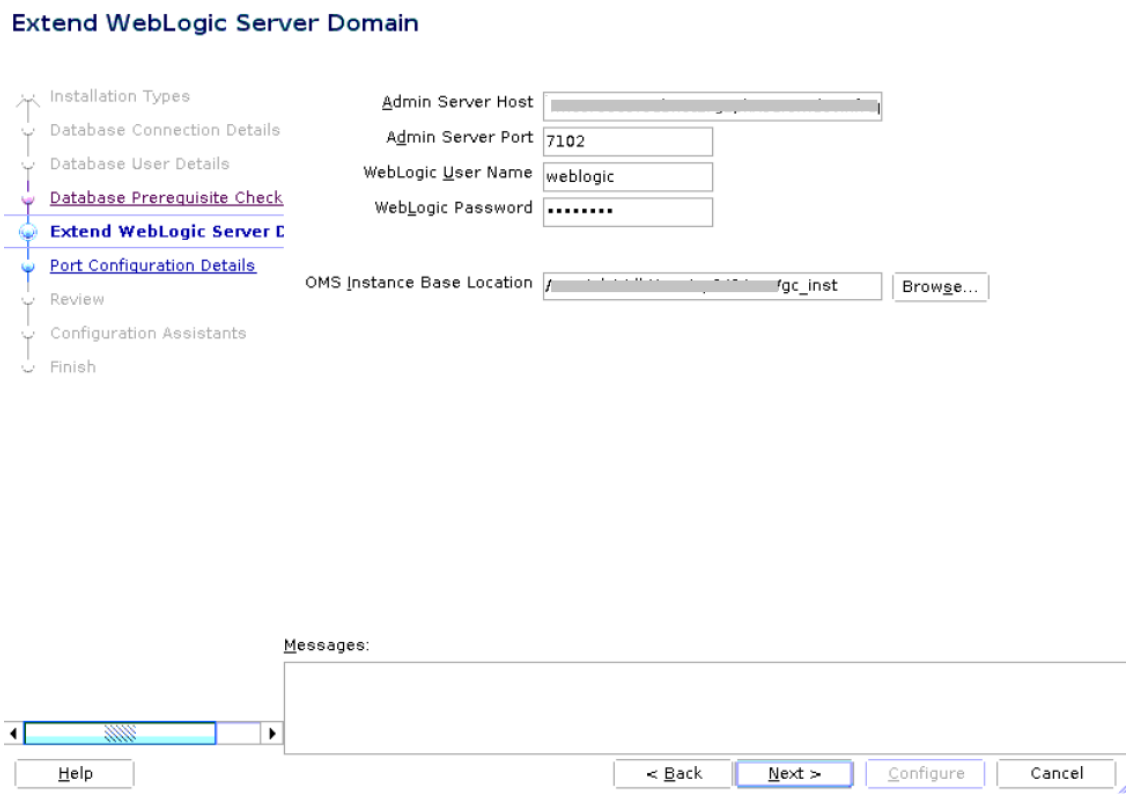
After you complete reviewing and fixing the prerequisites results, click **Next**.

The **Information** pop-up window is displayed.

Review the important information provided about the upgrade process and then click **OK**.

Extending the Existing WebLogic Server Domain

On the Extend WebLogic Server Domain screen, do the following to create a new WebLogic domain and a new OMS instance base directory for the upgraded OMS, and click **Next.**



The installer performs only the software install with plug-ins and this step is part of the process. There is no actual upgrade in progress.

- Validate the *Admin Server Host* name, the *Admin Server Port* value and the *WebLogic User Name*, and enter the WebLogic user account password under *WebLogic Password*. This is required to create a new WebLogic domain `(GCDomain)` on the same port and host name as the *Admin Server* used by the earlier release of the OMS you are upgrading.

  > **Note:**
  >
  > If you are upgrading an additional OMS, then the host name and port of the Admin Server configured for the first OMS that you have already upgraded, and also, the user name for the existing WebLogic user account will be populated automatically. You need to validate them, and then enter the password for the WebLogic user account.
  >
  > The host name is the name of the host where the first OMS is running. To identify the port, check the value set to the parameter `AS_HTTPS_PORT` in the following file:
  >
  > `<OMS_INSTANCE_HOME>/em/EMGC_OMS<n>/emgc.properties`

- Enter the absolute path to the new OMS instance base directory `(gc_inst)`, which will be created for storing the configuration information related to the upgraded OMS. This `gc_inst` directory must *not* be your old `gc_inst` directory of 13*c* Release 5, therefore you need to enter a new directory location. If you enter the old `gc_inst` directory, then the installer will display a warning that the directory is not empty.

  For example: `/u01/app/oracle/em24/gc_instr2`

Make sure the path you enter leads up to the instance base directory, and is maintained outside the middleware home.

> **Note:**
>
> If you are installing on an NFS-mounted drive and creating the OMS instance base directory (gc_inst) on that NFS-mounted drive, then after you install, move the lock files from the NFS-mounted drive to a local file system location. Modify the lock file location in the httpd.conf file to map to a location on a local file system. For instructions, refer to Moving Lock Files from an NFS-Mounted Drive to a Local File System Location.

Moving Lock Files from an NFS-Mounted Drive to a Local File System Location

- If you installed on an NFS-mounted drive and created the OMS instance base directory `(gc_inst)` on that NFS-mounted drive, then move the lock files from the NFS-mounted drive to a local file system location. To do so, modify the lock files location in the `httpd.conf` file to map to a location on a local file system.

  1. Stop the OMS:

     ```
     <ORACLE_HOME>/bin/emctl stop oms
     ```

  2. Open the following file in the staging directory:

     > **Note:**
     >
     > Oracle recommends you to take a backup of this file before editing it.

     ```
     <WEBTIER_INSTANCE_HOME>/user_projects/domains/GCDomain/config/fmwconfig/
     components/OHS/ohs<#>/httpd.conf
     ```

     For example,

     ```
     /u01/software/em24/gc_inst/user_projects/domains/GCDomain/config/
     fmwconfig/components/OHS/ohs1/httpd.conf
     ```

  3. Search for sections related to the modules `mpm_prefork_module` and `mpm_worker_module`. In both these sections, modify the value for the `Mutex sysvsem` parameter so that the path leads to a location on the local file system. If the directory does not already exist, then create it first, and then provide the path to that directory.

     ```
     <IfModule mpm_prefork_module>
     StartServers 5
     MinSpareServers 5
     MaxSpareServers 10
     MaxRequestWorkers 250
     MaxConnectionsPerChild 0
     Mutex sysvsem:/u01/em/ohs_locks/http_lock
     </IfModule>
     ....
     <IfModule mpm_worker_module>
     StartServers 3
     MinSpareThreads 75
     ```

```
MaxSpareThreads 250
ThreadsPerChild 25
MaxRequestWorkers 400
MaxConnectionsPerChild 0
Mutex sysvsem:/u01/em/ohs_locks/http_lock
</IfModule>
```

4. Save the changes.
5. Copy the `httpd.conf` file from the staging directory to the runtime directory:

   ```
   cp <WEBTIER_INSTANCE_HOME>/user_projects/domains/GCDomain/config/
   fmwconfig/components/OHS/ohs<#>/httpd.conf <WEBTIER_INSTANCE_HOME>/
   user_projects/domains/GCDomain/config/fmwconfig/components/OHS/instances/
   ohs<#>/httpd.conf
   ```

   For example,

   ```
   cp /u01/software/em24/gc_inst/user_projects/domains/GCDomain/config/
   fmwconfig/components/OHS/ohs1/httpd.conf /u01/software/em24/gc_inst/
   user_projects/domains/GCDomain/config/fmwconfig/components/OHS/instances/
   ohs1/httpd.conf
   ```

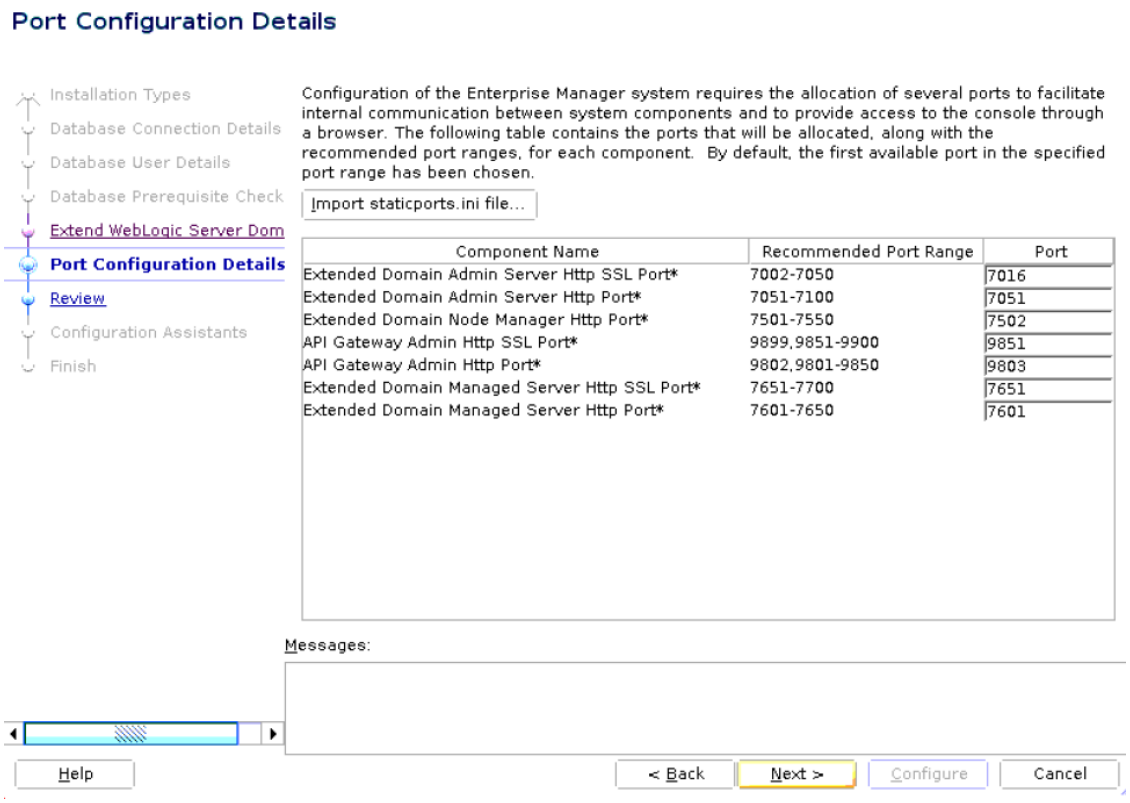
6. Start the OMS:

   ```
   <ORACLE_HOME>/bin/emctl start oms
   ```

For more information on upgrading additional Oracle Management Services, see step 4 from Performing Postinstallation Tasks After Adding an Additional Oracle Management Service in *Oracle Enterprise Manager Basic Installation Guide*.

Configuring the Ports

On the Port Configuration Details screen, customize the ports to be used for the new components being added for this release, and click **Next.**



The ports for most components are automatically carried over from the previous release, and therefore, this screen lists only the ports for the new components being added for this release.

> **Note:**
>
> If all the ports on this screen appear as -1, then it indicates that the installer is unable to bind the ports on the host. To resolve this issue, exit the installer, verify the host name and the IP configuration of this host (ensure that the IP address of the host is not being used by another host), restart the installer, and try again.

You can enter a free custom port that is either within or outside the port range recommended by Oracle.

To verify if a port is free, run the following command:

- On Unix:

  ```
  netstat -an | grep <port no>
  ```

- On Microsoft Windows:

  ```
  netstat -an|findstr <port_no>
  ```

However, the custom port must be greater than 1024 and lesser than 65535. Alternatively, if you already have the ports predefined in a `staticports.ini` file and if you want to use those ports, then click **Import staticports.ini file** and select the file.

> **Note:**
>
> If the `staticports.ini` file is passed during installation, then by default, the ports defined in the `staticports.ini` file are displayed. Otherwise, the first available port from the recommended range is displayed.
>
> The `staticports.ini` file is available in the following location:
>
> `<Software_Extracted_Location>/response`

Reviewing the Upgrade Details

On the Review screen, review the details you provided for the selected installation type.

- If you want to change the details, click **Back** repeatedly until you reach the screen where you want to make the changes.
- After you verify the details, if you are satisfied, click **Configure** to begin the installation process.

Monitoring the Configuration Progress

On the Configuration Details screen, view the overall progress (in percentage) of the configuration.

Note:

- If a Configuration Assistant fails, the installer stops and none of the subsequent Configuration Assistants are run until the issue related to the failed Configuration Assistant is resolved. In this case, diagnose the issue, resolve it, and then, click **Retry** on the Install Progress screen to rerun the Configuration Assistants starting from the Configuration Assistant that failed.

  However, if you accidentally exit the installer before clicking **Retry**, then do NOT restart the installer to reach the same screen; instead, invoke the `runConfig.pl` script from the Oracle home of the OMS to rerun the Configuration Assistant in silent mode. If the `runConfig.pl` script fails, raise a service request and contact Oracle Support.

  ```
  $<ORACLE_HOME>/oui/bin/runConfig.pl
  <absolute_path_to_Middleware_home>
  ```

  For example,

  ```
  /u01/software/em24/oms_home/oui/bin/runConfig.pl /u01/software/em24/
  oms_home
  ```

  Note:

  For Microsoft Windows platforms, invoke `runConfig.pl` script.

  If the `runConfig.pl` script fails after the above steps, fix the issue and re-run the runConfig command. Re-running the script will start from the failure point. If the issue still exists, perform a triage, check the relevant log files and try to resolve the issue. If you still see the runConfig script failure, please contact Oracle Support for further assistance.

- If the Management Repository upgrade fails with the following error in the schemamanager logs, then restart the database, and then try the upgrade again.

  ```
  ORA-04020: deadlock detected while trying to lock object
  SYSMAN.MGMT_GLOBAL
  ```

Ending the Upgrade

On the Finish screen, you should see information pertaining to the installation of Enterprise Manager. Review the information and click **Close** to exit the installation wizard.

Upgrading the Additional OMS Instances

If you have additional OMS instances, then start upgrading each of them sequentially by following steps outlined in this section (Configuring the Enterprise Manager 24ai Release 1 Software Only With Plug-ins).

Upgrading the Management Agents

After upgrading all the OMS instances, upgrade the Standalone Management Agents. For more information, refer to Upgrading Oracle Management Agents.

Note:

- Starting with Enterprise Manager 24ai Release 1, the central agent is upgraded automatically along with the old Oracle Management Service (OMS). Standalone Management Agents are not upgraded while you upgrade your OMS to 24ai Release 1 . Ensure that you upgrade them immediately after upgrading the old OMS to 24ai Release 1.
- If you find the agent base directory of the upgraded central agent in the old Oracle Middleware home, and if you want to move it outside that old Oracle Middleware home, then follow the instructions outlined in Moving the Central Agent Base Directory Outside Oracle Middleware Home.

Upgrade End-to-End

This section explains how you can upgrade your OMS and Management Repository to 24ai Release 1 in graphical mode.

Using this upgrade approach, you first install the software binaries and then upgrade to Enterprise Manager 24ai Release 1 from an earlier version all in the same process.

Follow the steps below to upgrade your OMS and Management Repository to 24ai Release 1 in graphical mode:

- **Step 1:** Invoking the Enterprise Manager Installer in Graphical Mode
- **Step 2:** Selecting the Installation Type
- **Step 3:** Applying the Latest Software Updates
- **Step 4:** Running the Prerequisite Checks and Validating the Environment
- **Step 5:** Configuring a Middleware Home and Validating the Host Name
- **Step 6:** Providing Database Connection Details
- **Step 7:** Providing Database User Details
- **Step 8:** Checking Database Prerequisites
- **Step 9:** Checking Actualization Details
- **Step 10:** Upgrading or Migrating Plug-ins, or Deploying Dependent Plug-ins
- **Step 11:** Deploying Additional Plug-ins
- **Step 12:** Extending the Existing WebLogic Server Domain
- **Step 13:** Reviewing the Upgrade Details
- **Step 14:** Monitoring the Upgrade Progress
- **Step 15:** Ending the Upgrade
- **Step 16:** Upgrading the Additional OMS Instances
- **Step 17:** Upgrading the Management Agents

Note:

If you see an error message stating that you have not copied the emkey, do the following:

- If your OMR is configured with a service name, then run the following command on the OMS you are about to upgrade. Here, <ORACLE_HOME> is the Oracle home of the OMS.

```
<ORACLE_HOME>/bin/emctl config emkey -copy_to_repos_from_file -
repos_conndesc '"(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)
(HOST=<>)(PORT=<>)))(CONNECT_DATA=(SERVICE_NAME=<>)))"' -repos_user
SYSMAN [-repos_pwd <pwd> ] [-admin_pwd <pwd>] -emkey_file
<oracle_home>/sysman/config/emkey.ora
```

- If your OMR is not configured with a service name, then run the following command on the OMS you are about to upgrade. Here, <ORACLE_HOME> is the Oracle home of the OMS.

```
<ORACLE_HOME>/bin/emctl config emkey -copy_to_repos_from_file -
repos_host <host> -repos_port <port> -repos_sid <sid> -repos_user
SYSMAN [-repos_pwd <pwd> ] [-admin_pwd <pwd>] -emkey_file
<oracle_home>/sysman/config/emkey.ora
```

Here, the Management Repository details are details of the existing or old Management Repository. You will be prompted for the administration server password and the repository password if you do not explicitly specify them in the command line.

Note:

If you are upgrading a multi-OMS environment, always start the upgrade process with the first OMS, where the Admin Server is running, and not with any of the additional OMS instances.

To identify the OMS where the Admin Server is running, run the following command on the OMS you are about to upgrade, and verify if the output displays the Admin Server details. Here, <ORACLE_HOME> is the Oracle home of the OMS.

```
$<ORACLE_HOME>/bin/emctl status oms -details
```

You should see a similar output:

```
Oracle Enterprise Manager 13 Release 5
Copyright (c) 1996, 2024 Oracle Corporation. All rights reserved
Enter Enterprise Manager Root (SYSMAN) Password :
Console Server Host : myhost.example.com
.
.
.
WLS Domain Information
Domain Name : GCDomain
Admin Server Host: myhost.example.com
.
.
.
```

Invoking the Enterprise Manager Installer in Graphical Mode

Oracle strongly recommends that you back up the Management Repository, the OMS, the inventory, the Software Library, and other components that are critical to the functioning of Enterprise Manager. This will enable you to revert to the original contents if the upgrade fails.

Invoke the Enterprise Manager Installation Wizard on the host where your existing OMS is running.

```
./em24100_<platform>.bin [-invPtrLoc <absolute_path_to_oraInst.loc>]
```

Note:

- For information about the additional, advanced options you can pass while invoking the installer, refer to Advanced Installer Options Supported for Installing an Enterprise Manager System in Graphical Mode.
- To invoke the installation wizard on UNIX platforms, run `./em24100_<platform>.bin`. To invoke on Microsoft Windows platforms, run `setup_em24100_win64.exe`.
- While invoking the installer, ensure that you pass the `invPtrLoc` argument if the OMS you are upgrading was installed using the `invPtrLoc` argument.
- The installer requires about 14 GB of hard disk space in the temporary directory. If your temporary directory does not have this space, then pass the `-J-Djava.io.tmpdir` parameter and provide an alternative directory where there is 14 GB of space. The installer prompts for an alternate temporary directory if the default temporary location (usually /tmp) has less then 14GB. In that case, the user can enter the new temporary location (which should pre-exist) in the prompt. For example:

  ```
  ./em24100_<platform>.bin
  ERROR: Temporary directory /tmp does not have enough free space.
  At least 12289 MB of free space are required.
  Please input another directory or [Exit]: /u01/new_tmp
  Launcher log file is /u01/new_tmp/OraInstall2024-01-22_09-47-31AM/
  launcher2024-01-22_09-47-31AM.log.
  Extracting the installer . . . . . .
  ```

  The directory specified by this parameter will also be used as the location for the Provisioning Advisor Framework (PAF) staging directory, which is used for copying the Software Library entities related to the deployment procedures. The PAF staging directory is used only for provisioning activities — entities are copied for a deployment procedure, and then, deleted once the deployment procedure ends.

  For example,

  ```
  ./em24100_linux64.bin -J-Djava.io.tmpdir=/u01/software/em24/stage/
  ```

- While upgrading on IBM AIX, if you see an error message stating that your JDK version in the middleware home is not of a supported version, then make sure you install the supported version mentioned in the message, and then invoke the installer passing the `-skipJDKValidation` argument.

  For example,

  ```
  ./em24100_<platform>.bin -skipJDKValidation
  ```

- `-invPtrLoc` is not supported on Microsoft Windows.

Advanced Installer Options Supported for Installing an Enterprise Manager System in Graphical Mode

The following are some additional advanced options you can pass while invoking the installer in graphical mode:

- By default, a Provisioning Advisor Framework (PAF) staging directory is created for copying the Software Library entities related to the deployment procedures. By default, this location is the scratch path location (`/tmp`). The location is used only for provisioning activities—entities are copied for a deployment procedure, and then, deleted once the deployment procedure ends.

  If you want to override this location with a custom location, then invoke the installer with the `-J-Djava.io.tmpdir` option, and enter a unique custom location.

  For example,

  ```
  ./em24100_linux64.bin -J-Djava.io.tmpdir=/u01/install/em/STAGE/
  ```

  > **Note:**
  >
  > /u01/install/em/STAGE/ directory should exists while using this option, else it will re-direct the tmp location to /var/tmp.

- After the upgrade operation ends successfully, the OMS and central Management Agent start automatically.

  If you do not want OMS to start automatically, then invoke the installer with `START_OMS` options, and set them to `true` or `false` depending on what you want to control.

  For example, if you want the OMS to start automatically, then run the following command:

  ```
  ./em24100_<platform>.bin START_OMS=true
  ```

  To understand the limitations involved with this advanced option, see Limitations with the Advanced Installer Options Supported for Installing an Enterprise Manager System in Graphical Mode.

- During upgrade, if you want to install some plug-ins that are not in the software kit (DVD, downloaded software), then follow these steps:

  1. Manually download the required plug-ins from `Plug-in Update`.

     In addition, plug-ins produced by partners or customers are available for download from `Enterprise Manager Extensibility Exchange` .

  2. Invoke the installer:

     On UNIX platforms:

     ```
     ./em24100_<platform>.bin
     ```

     On Microsoft Windows platforms:

     ```
     setup_em24100_win64.exe
     ```

Limitations with the Advanced Installer Options Supported for Installing an Enterprise Manager System in Graphical Mode

When you use `START_OMS` and `START_AGENT` as advanced options to control the way the OMS and the Management Agent start up automatically, sometimes the Management Agent and the host on which it was installed do not appear as targets in the Enterprise Manager console.

Table 4-1 lists the different combinations of these advanced options, and describes the workaround to be followed for each combination:

Table 4-2 Advanced Options and Workarounds

Advanced Option	Workaround

`START_OMS=false`
`START_AGENT=false`
	1. Start the OMS:
	`$<ORACLE_HOME>/bin/emctl start oms`
	2. Secure the Management Agent:
	`$<AGENT_HOME>/bin/emctl secure agent`
	3. Start the Management Agent:
	`$<AGENT_HOME>/bin/emctl start agent`
	4. Add the targets:
	`$<AGENT_HOME>/bin/emctl config agent addinternaltargets`
	5. Upload the targets:
	`$<AGENT_HOME>/bin/emctl upload agent`
	6. Manually configure the EM CLI tool in the `bin` directory of the Oracle home of the OMS. For more information, see Downloading and Deploying the EM CLI Client in the *Oracle Enterprise Manager Command Line Interface Guide*.

`START_OMS=true` `START_AGENT=false`	Start the Management Agent: `$<AGENT_HOME>/bin/emctl start agent`

`START_OMS=false`
`START_AGENT=true`
	1. Start the OMS:
	`$<ORACLE_HOME>/bin/emctl start oms`
	2. Secure the Management Agent:
	`$<AGENT_HOME>/bin/emctl secure agent`
	3. Add the targets:
	`$<AGENT_HOME>/bin/emctl config agent addinternaltargets`
	4. Upload the targets:
	`$<AGENT_HOME>/bin/emctl upload agent`
	5. Manually configure the EM CLI tool in the `bin` directory of the Oracle home of the OMS. For more information, see Downloading and Deploying the EM CLI Client in the *Oracle Enterprise Manager Command Line Interface Guide*.

Selecting the Installation Type

On the Installation Types screen, select **Upgrade End-to-End** to upgrade an existing Enterprise Manager system. Then select the Management Server (OMS) you want to upgrade, and click **Next**.

The installer performs only the software install with plug-ins and this step is part of the process. There is no actual upgrade in progress.

Applying the Latest Software Updates

(Optional) On the Software Updates screen, select **Search for Updates**, and then select one of the following options to apply the latest software updates, including the latest PSU patches:

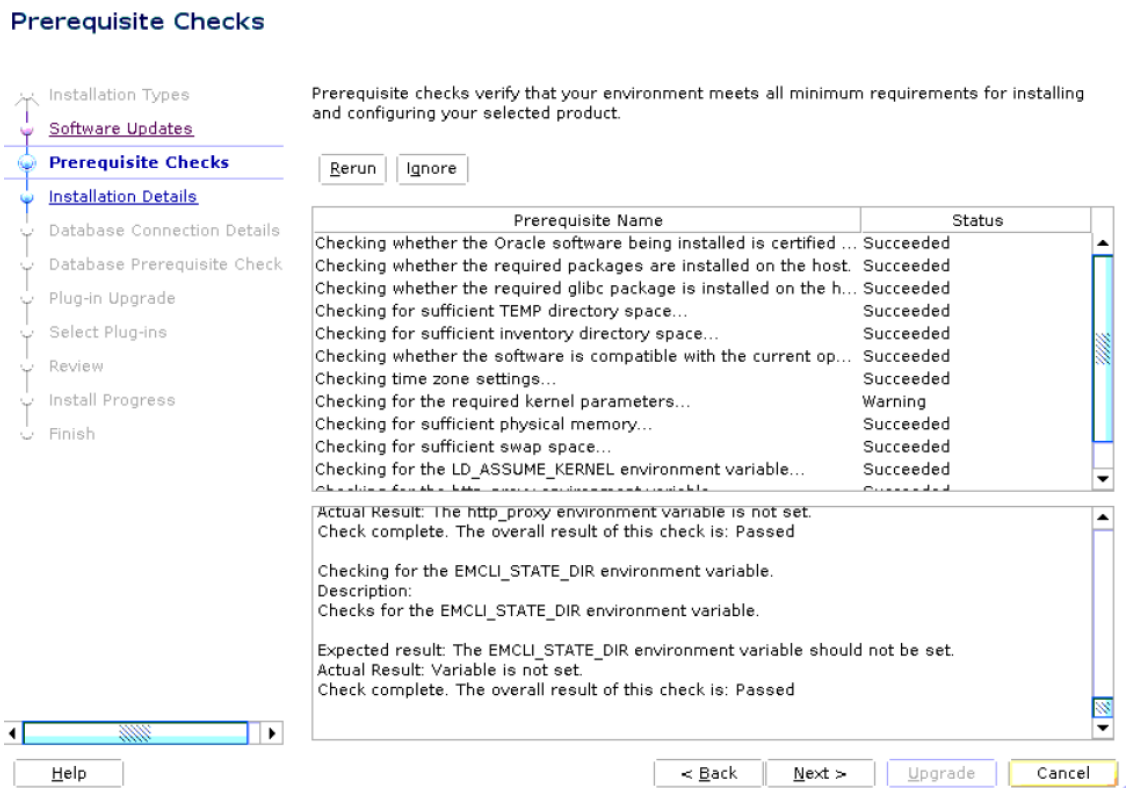
- **Local Directory**, if you do not have Internet connectivity on your host, and want to download the updates in offline mode and apply them while performing the upgrade.
- **My Oracle Support**, if you have Internet connectivity on your host, and want to connect to My Oracle Support directly via the installer to download the updates in online mode and apply them while performing the upgrade.

For instructions about downloading the software updates in offline or online mode, see *Oracle Enterprise Manager Advanced Installation and Configuration Guide*. If the host from where you are running the installation wizard does not have a connection to the Internet, you can manually collect the configuration information and upload it to *My Oracle Support* after you complete the upgrade. For instructions, see *Oracle Enterprise Manager Advanced Installation and Configuration Guide*.

If you do not want to run the software updates, select **Skip** and click **Next**.

Running the Prerequisite Checks and Validating the Environment

On the Prerequisite Checks screen, check the status of the prerequisite checks run by the installation wizard, and verify whether your environment meets all the minimum requirements for a successful upgrade. Then click **Next.**

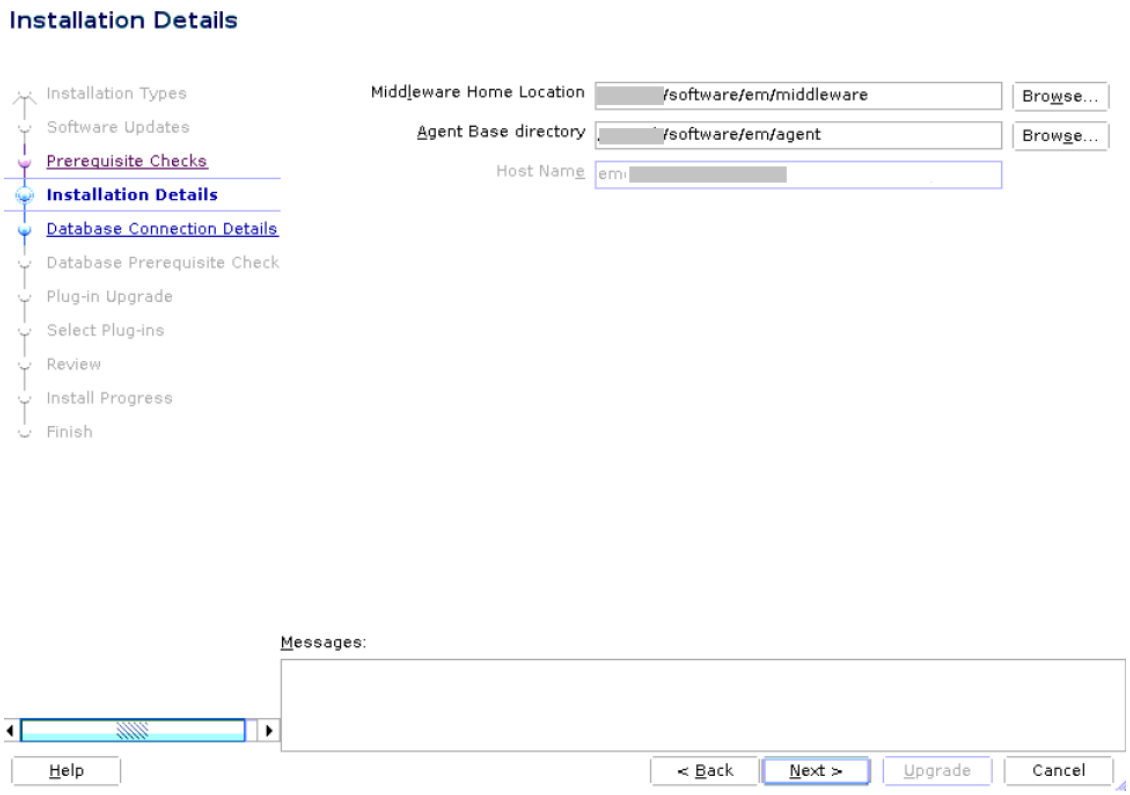


The installation wizard runs the prerequisite checks automatically when you come to this screen. The status of the prerequisite check can be either **Warning, Failed, Succeeded, Not Executed, In Progress,** or **Pending.**

If some checks result in **Warning** or **Failed** status, then investigate and correct the problems before you proceed with the upgrade. The screen provides details on why the prerequisites failed and how you can resolve them. After you correct the problems, return to this screen and click **Rerun** to check the prerequisites again.

Configuring a Middleware Home and Validating the Host Name

On the Installation Details screen, do the following, and click **Next.**



- Enter a new middleware home where the installer can automatically install Oracle WebLogic Server 12c Release 2 (12.2.1.4.0) and Java Development Kit 1.8.0_431 for you.

  Example: `/u01/software/em24/middleware`

  > **Note:**
  >
  > Ensure that the Middleware home you enter or validate here is used only for Enterprise Manager. Ensure that no other Oracle Fusion Middleware products or components are installed in the same Middleware home.

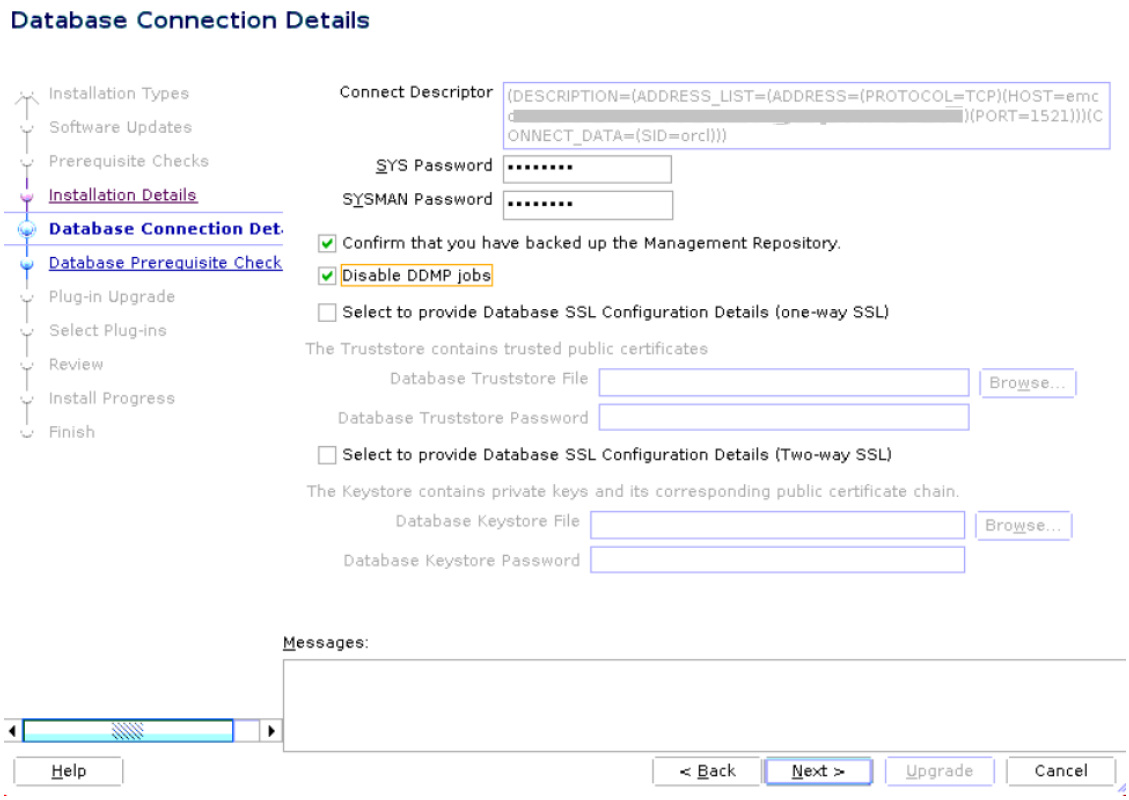
- Enter a new agent base directory, a location outside the middleware home.

  Example: `/u01/software/em24/agentbasedir`

- Validate the host name. By default, the host name is the name of the host where the existing, earlier release of Enterprise Manager was installed. This is a non-editable field.

Providing Database Connection Details

On the Database Connection Details screen, do the following, and click **Next.**



1. Enter the passwords for the SYS and SYSMAN user accounts of the database that houses the Management Repository for the selected OMS.

> **Note:**
>
> - The SYSMAN password must begin with a letter, contain at least 8 characters, one numeric value and may contain the following characters: $ # _
> - To change the password, run the following on one of the OMSs:
>
>   ```
>   <OMSORACLE_HOME>/bin/emctl config oms -change_repos_pwd -old_pwd
>   <old_pwd> -new_pwd <new_pwd>
>   ```
>
> - After the upgrade, you may run the same command to change the sysman password to a password of your choice.

2. Confirm that you have backed up the Management Repository *(although the installer checks only if you have backed up the Management Repository, Oracle strongly recommends that you back up the OMS, the inventory, the Software Library, and other components that are critical to the functioning of Enterprise Manager. This will enable you to revert to the original contents if the upgrade fails)*. As a prerequisite, you must back up the Management Repository before starting the upgrade process. If you have not already

taken a backup, then do so immediately, and then return to the installer to continue with the upgrade.

3. If you have to stop the Enterprise Manager system for postupgrade maintenance, then select **Disable DDMP Jobs** to disable the DDMP jobs. If you do not plan to stop the Enterprise Manager system for postupgrade maintenance, and hence do not want to disable the DDMP jobs, then do not select the option.

   Deferred Data Migration (DDMP) is a post-upgrade activity to migrate the format of the data stored in an earlier release of Enterprise Manager to the format compatible with the upgraded Enterprise Manager system. The migration activity is essentially a job in Enterprise Manager that is submitted when the Oracle Management Repository gets upgraded, and is scheduled to run in the background when the upgraded Enterprise Manager system starts functioning.

   The time taken to migrate the data format depends on the volume of data available in your earlier release of Enterprise Manager. Therefore, if you have a large amount of data, then it takes longer to migrate.

   If you have to stop the Enterprise Manager system for postupgrade maintenance, then you can choose to disable the DDMP jobs now and run them later from the postupgrade console after the maintenance period ends and after the Enterprise Manager system becomes operational.

   To run the DDMP jobs later from the Post Upgrade Console, in the Enterprise Manager Console, from the **Setup** menu, select **Manage Enterprise Manager**, then select **Post Upgrade Tasks.**

4. Check the **Select to provide Database SSL Configuration Details (one-way SSL)** checkbox if the database is one-way SSL configured. The truststore details are required for one-way SSL configuration.

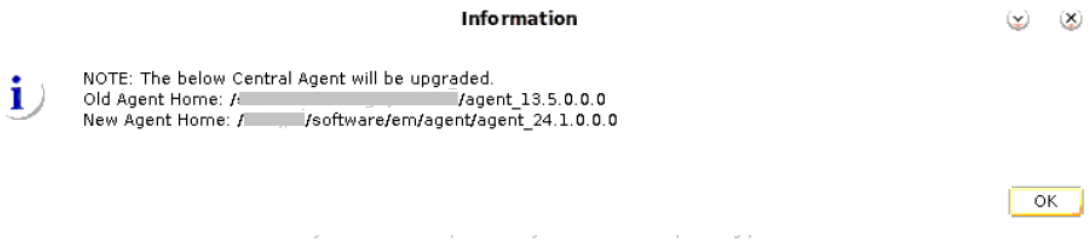
   Provide the database truststore file and password.

5. Check the **Select to provide Database SSL Configuration Details (two-way SSL)** checkbox if the database is two-way SSL configured. The keystore details are required for two-way SSL configuration.

   Provide the database keystore file and password.

After you complete selecting your choices, click **Next**.

The **Information** pop-up window is displayed indicating that the Central Agent is is getting upgraded.



> **Note:**
>
> The Central Agent upgrade is available starting with Enterprise Manager 24ai Release 1.

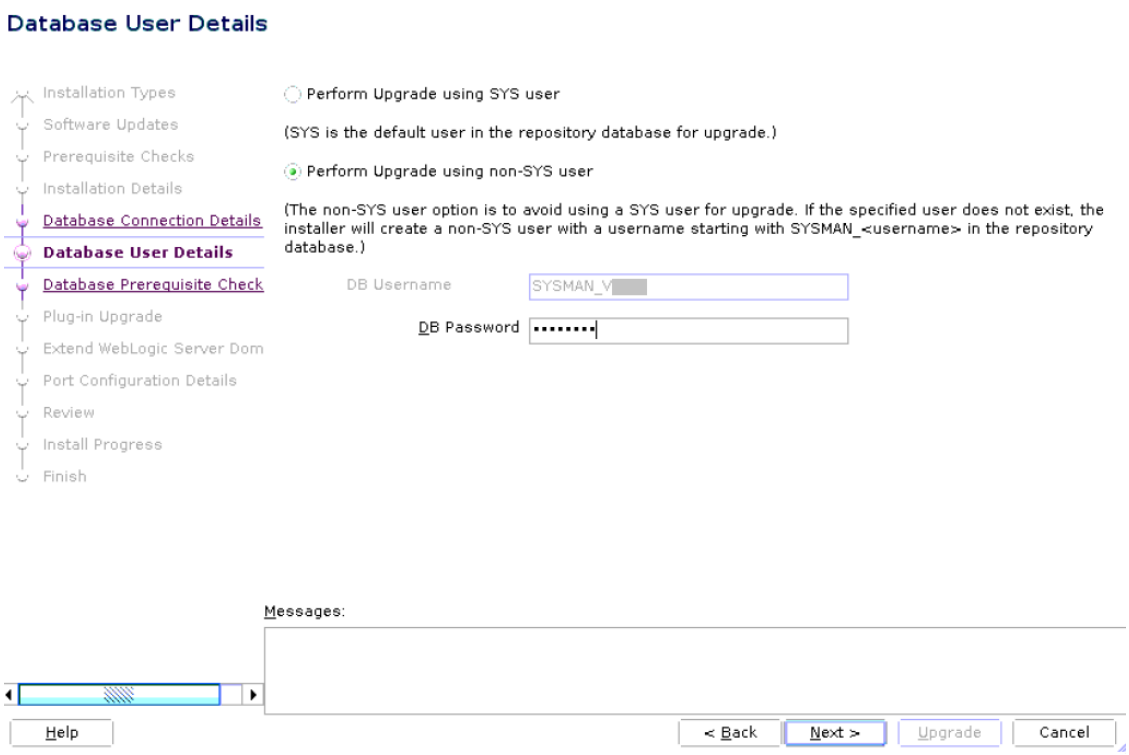
Review the information provided and click **OK**.

For information about the various prerequisite checks that are run on the database at this point and how to fix them if they fail, see Prerequisites for Upgrading to Enterprise Manager 24ai Release 1 .

> **Note:**
>
> - If the installer finds that some plug-ins deployed in the previous release of Enterprise Manager are obsolete and are not supported in Enterprise Manager 24ai Release 1, then you are prompted to first remove those plug-ins from the previous release. You can return to the installer and proceed with the upgrade only after removing those obsolete plug-ins.
>
> To remove the obsolete plug-ins, follow these steps:
>
> 1. Undeploy the obsolete plug-ins from the Management Agents. Next, undeploy them from the OMS instances. For instructions, see the chapter on Undeploying Plug-Ins in *Oracle Enterprise Manager Administrator's Guide*.
> 2. Optionally, remove the binaries of these obsolete plug-ins from the Self Update Console. For instructions, see the chapter on Updating Enterprise Manager in *Oracle Enterprise Manager Administrator's Guide*.
> - If you have any JVM Diagnostics Engines (JVMD Engines) or Application Dependency and Performance Engines (ADP Engines) configured in your environment, then check whether they are up and running. If they are, then check whether the Admin Server is up and stop the JVMD Engines and the ADP Engines. Once the upgrade is successful, the JVMD Engines start automatically.
>
> To check whether the Admin Server is running, run the following command from the OMS you are upgrading. Here, `<ORACLE_HOME>` is the Oracle home of the OMS.
>
>  ```
>  <ORACLE_HOME>/bin/emctl status oms -details.
>  ```
>
> To stop the engines, on each OMS instance, run the following command from the OMS you are upgrading. Here, `<ORACLE_HOME>` is the Oracle home of the OMS.
>
>  ```
>  <ORACLE_HOME>/bin/emctl extended oms adp stop -all.
>  ```

Providing Database User Details

On the **Database User Details** screen, do the following and click **Next**.



Select if you want to perform the upgrade using SYS or non-SYS database user.

SYS is the default user in the Repository database.

A non-SYS user is a less privileged administrator user of the Repository database that still allows you to perform Enterprise Manager administration tasks.

If the **Perform Upgrade using non-SYS user** is selected, you need to provide the database user name and password for the non-SYS user. The non-SYS user name should have the `SYSMAN_` prefix as part of user name. For example, you can enter `SYSMAN_ADMIN` under **DB Username**. If the user doesn't exist, the Enterprise Manager upgrade process creates the new user in the Repository database and this user performs the database prerequisites checks.

Checking Database Prerequisites

On the Database Prerequisite Checks screen, check the status of the database prerequisite checks run by the installation wizard, and verify whether your environment meets all the minimum requirements for a successful upgrade. Then click **Next**.

The installation wizard runs the database prerequisite checks automatically when you come to this screen. The status of the prerequisite check can be either **Warning, Failed** or **Succeeded**.

If some checks result in **Warning** or **Failed** status, then investigate and correct the problems before you proceed with the upgrade. The screen provides details on why the prerequisites failed and how you can resolve them. After you correct the problems, return to this screen and click **Check Again** to check the database prerequisites again.

- If the Auto Fixable column is `Yes`, you can click on **Auto Fix** and the installer will fix the issue automatically.
- If the recommendation indicates that the Correction Type is `Manual`, you need to fix the issue manually.

If the installer finds that some plug-ins deployed in the previous release of Enterprise Manager are obsolete and are not supported in Enterprise Manager 24ai Release 1, then you are prompted to `Check for Obsolete plugins`. You can return to the installer and proceed with the upgrade only after removing those obsolete plug-ins.

To remove the obsolete plug-ins, follow these steps:

1. Undeploy the obsolete plug-ins from the Management Agents. Next, undeploy them from the OMS instances. For instructions, see the chapter on Undeploying Plug-Ins in *Oracle Enterprise Manager Administrator's Guide*.
2. Optionally, remove the binaries of these obsolete plug-ins from the Self Update Console. For instructions, see the chapter on Updating Enterprise Manager in *Oracle Enterprise Manager Administrator's Guide*.

> **Note:**
>
> If you have any JVM Diagnostics Engines (JVMD Engines) or Application Dependency and Performance Engines (ADP Engines) configured in your environment, then check whether they are up and running. If they are, then check whether the Admin Server is up and stop the JVMD Engines and the ADP Engines. Once the upgrade is successful, the JVMD Engines start automatically.
>
> To check whether the Admin Server is running, run the following command from the OMS you are upgrading. Here, `<ORACLE_HOME>` is the Oracle home of the OMS.
>
> ```
> <ORACLE_HOME>/bin/emctl status oms -details.
> ```
>
> To stop the engines, on each OMS instance, run the following command from the OMS you are upgrading. Here, `<ORACLE_HOME>` is the Oracle home of the OMS.
>
> ```
> <ORACLE_HOME>/bin/emctl extended oms adp stop -all.
> ```

For information about the various prerequisite checks that are run on the database at this point and how to fix them if they fail, see Prerequisites for Upgrading to Enterprise Manager 24ai Release 1 .

After you complete reviewing and fixing the prerequisites results, click **Next**.

The **Information** pop-up window is displayed.

Review the important information provided about the upgrade process and then click **OK**.

Checking Actualization Details

This step is only applicable to Enterprise Manager systems that have multiple editions of the Management Repository database.

> **Note:**
>
> Oracle recommends running the EM prerequisite kit prior to upgrading to Enterprise Manager 24ai Release 1. The **Actualization Details** check is one of operations performed by EM prerequisite kit. For information, see *Overview of the EM Prerequisite Kit* in the *Oracle Enterprise Manager Basic Installation Guide.*

If your system is not applicable or the EM prerequisite kit was already performed, this step is skipped automatically and the installer proceeds to the next step: Upgrading or Migrating Plug-ins, or Deploying Dependent Plug-ins.

If you get the **Actualization** screen, then additional editions of the Management Repository database besides the base edition are present in your system. For example, this could happen if you applied the zero down time patches to the Oracle Management Service (OMS) 13. 5 before the upgrade to Enterprise Manager 24ai.

If the actualization process fails, review the install and repository creation utility (rcu) log files and check for failures and resolve them. The logs are located under the `oraInventory`.

Review and click **Start**.

Once completed, click **Next**.

Upgrading or Migrating Plug-ins, or Deploying Dependent Plug-ins

On the Plug-In Upgrade screen, review the plug-ins and click **Next.**

The plug-ins will experience one of the following effects:

- Upgraded when newer versions exist.
- Migrated when newer versions do not exist.
- Deployed when the plug-ins being upgraded have new dependencies, or when there are any new default plug-ins introduced with a release.

  Here, newer versions refer to the newer versions of plug-ins available in the Enterprise Manager software (DVD, or downloaded software) that you are using to install.

> **Note:**
>
> **Before you proceed to the next screen, run the following command to stop all the associated OMS instances. Here, <ORACLE_HOME> is the Oracle home of the OMS.**
>
> ```
> $<ORACLE_HOME>/bin/emctl stop oms -all
> ```

Note:

- You might have a deprecated plug-in in your environment that can be upgraded to a plug-in version that is supported only in Enterprise Manager 24ai Release 1, but not in any of the future releases. If such a deprecated plug-in is selected by default in this screen for upgrade, then you are prompted to evaluate your selection and decide whether or not you want to proceed with the upgrade of such plug-ins.
- If the newer versions do not exist in the Enterprise Manager software that you are using, but exist on Oracle Software Downloads, then you can choose to manually download them from Oracle Software Downloads and upgrade your existing plug-ins, instead of having them automatically migrated by default. To do so, follow these steps:
  1. Manually download the required plug-ins.
     - Oracle Plug-ins are available for download via Plug-in Update.
     - Plug-ins produced by Oracle partners are available on the Enterprise Manager Extensibility Exchange.
  2. Invoke the installer with the following option and pass the location where the additional plug-ins have been downloaded:

     On UNIX platforms:

     ```
     ./em24100_<platform>.bin
     PLUGIN_LOCATION=<absolute_path_to_plugin_software_location>
     ```

     On Microsoft Windows platforms:

     ```
     setup_em24100_win64.exe
     PLUGIN_LOCATION=<absolute_path_to_plugin_software_location>
     ```

     This displays a list of plug-ins available in the software kit (DVD, downloaded software) as well as the plug-ins available in this custom location. You can choose the ones you want to install.

  Once the newer versions of the plug-ins are made available, this screen lists those plug-ins as plug-ins that will automatically be upgraded.
- If you see a message stating that you have unsupported plug-ins on the OMS or on some of the Management Agents, then follow the instructions outlined in the message to upgrade the plug-ins, and then retry upgrading the OMS.

Deploying Additional Plug-ins

On the Select Plug-ins screen, select the additional plug-ins you want to deploy in addition to the plug-ins that will automatically be upgraded while upgrading the OMS, and click **Next**.

Note:

If you select a deprecated plug-in that is supported only in 24ai Release 1, but not in any of the future releases, then you are prompted to evaluate your selection and decide whether or not you want to proceed with the deployment of such plug-ins.

Note:

If you want to install some plug-ins that are not listed on this screen, then follow these steps:

1. Manually download the required plug-ins.
   - Oracle Plug-ins are available for download via Plug-in Update.
   - Plug-ins produced by Oracle partners are available on the Enterprise Manager Extensibility Exchange.
2. Invoke the installer with the following option and pass the location where the additional plug-ins have been downloaded:

   On UNIX platforms:

   ```
   em24100_<platform>.bin
   PLUGIN_LOCATION=<absolute_path_to_plugin_software_location>
   ```

   On Microsoft Windows platforms:

   ```
   setup_em24100_win64.exe
   PLUGIN_LOCATION=<absolute_path_to_plugin_software_location>
   ```

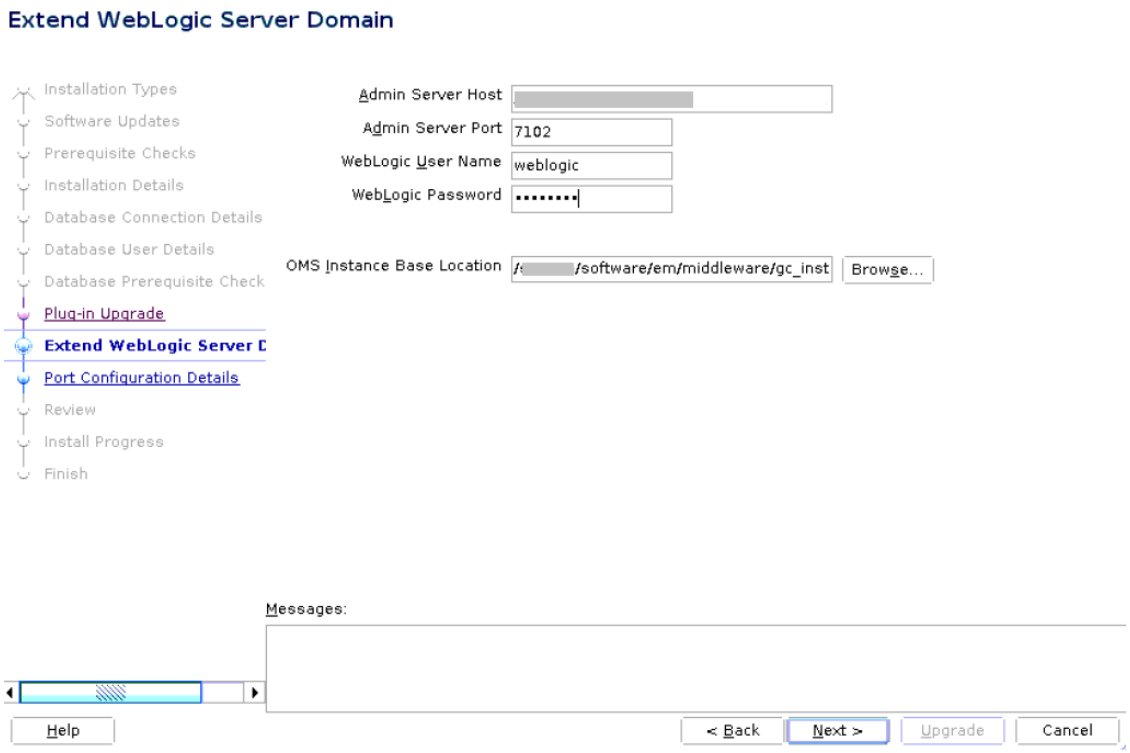
   This displays a list of plug-ins available in the software kit (DVD, downloaded software) as well as the plug-ins available in this custom location. You can choose the ones you want to install.

   Note:

   The `INSTALL_SWONLY_WITH_PLUGINS` parameter is not supported starting with Enterprise Manager 13c Release 5. If you execute the `em24100_<platform>.bin` or `setup_em24100_win64.exe` script using the `INSTALL_SWONLY_WITH_PLUGINS` parameter, you will receive an invalid parameter error message since the parameter is no longer supported.

Extending the Existing WebLogic Server Domain

On the Extend WebLogic Server Domain screen, do the following to create a new WebLogic domain and a new OMS instance base directory for the upgraded OMS, and click **Next.**



- Validate the *Admin Server Host* name, the *Admin Server Port* value and the *WebLogic User Name*, and enter the WebLogic user account password under *WebLogic Password*. This is required to create a new WebLogic domain `(GCDomain)` on the same port and host name as the *Admin Server* used by the earlier release of the OMS you are upgrading.

  > **Note:**
  >
  > If you are upgrading an additional OMS, then the host name and port of the Admin Server configured for the first OMS that you have already upgraded, and also, the user name for the existing WebLogic user account will be populated automatically. You need to validate them, and then enter the password for the WebLogic user account.
  >
  > The host name is the name of the host where the first OMS is running. To identify the port, check the value set to the parameter `AS_HTTPS_PORT` in the following file:
  >
  > `<ORACLE_HOME>/gc_inst/em/EMGC_OMS<n>/emgc.properties`

- Enter the absolute path to the new OMS instance base directory `(gc_inst)`, which will be created for storing the configuration information related to the upgraded OMS. This `gc_inst` directory must *not* be your old `gc_inst` directory of 13*c* Release 5, therefore you need to enter a new directory location. If you enter the old `gc_inst` directory, then the installer will display a warning that the directory is not empty.

  For example, `/u01/app/oracle/em24/gc_instr2`

  Make sure the path you enter leads up to the instance base directory, and is maintained outside the middleware home.

> **Note:**
>
> If you are installing on an NFS-mounted drive and creating the OMS instance base directory (`gc_inst`) on that NFS-mounted drive, then move the lock files from the NFS-mounted drive to a local file system location. Modify the lock file location in the httpd.conf file to map to a location on a local file system. For instructions, refer to Moving Lock Files from an NFS-Mounted Drive to a Local File System Location.

Moving Lock Files from an NFS-Mounted Drive to a Local File System Location

- If you installed on an NFS-mounted drive and created the OMS instance base directory `(gc_inst)` on that NFS-mounted drive, then move the lock files from the NFS-mounted drive to a local file system location. To do so, modify the lock files location in the `httpd.conf` file to map to a location on a local file system.

  1. Stop the OMS:

     ```
     <ORACLE_HOME>/bin/emctl stop oms
     ```

  2. Open the following file in the staging directory:

     > **Note:**
     >
     > Oracle recommends you to take a backup of this file before editing it.

     ```
     <WEBTIER_INSTANCE_HOME>/user_projects/domains/GCDomain/config/fmwconfig/
     components/OHS/ohs<#>/httpd.conf
     ```

     For example,

     ```
     /u01/software/em24/gc_inst/user_projects/domains/GCDomain/config/
     fmwconfig/components/OHS/ohs1/httpd.conf
     ```

  3. Search for sections related to the modules `mpm_prefork_module` and `mpm_worker_module`. In both these sections, modify the value for the `Mutex sysvsem` parameter so that the path leads to a location on the local file system. If the directory does not already exist, then create it first, and then provide the path to that directory.

     ```
     <IfModule mpm_prefork_module>
     StartServers 5
     MinSpareServers 5
     MaxSpareServers 10
     MaxRequestWorkers 250
     MaxConnectionsPerChild 0
     Mutex sysvsem:/u01/em/ohs_locks/http_lock
     </IfModule>
     ....
     <IfModule mpm_worker_module>
     StartServers 3
     MinSpareThreads 75
     MaxSpareThreads 250
     ThreadsPerChild 25
     MaxRequestWorkers 400
     ```

```
MaxConnectionsPerChild 0
Mutex sysvsem:/u01/em/ohs_locks/http_lock
</IfModule>
```

4. Save the changes.
5. Copy the `httpd.conf` file from the staging directory to the runtime directory:

   ```
   cp <WEBTIER_INSTANCE_HOME>/user_projects/domains/GCDomain/config/
   fmwconfig/components/OHS/ohs<#>/httpd.conf <WEBTIER_INSTANCE_HOME>/
   user_projects/domains/GCDomain/config/fmwconfig/components/OHS/instances/
   ohs<#>/httpd.conf
   ```

   For example,

   ```
   cp /u01/software/em24/gc_inst/user_projects/domains/GCDomain/config/
   fmwconfig/components/OHS/ohs1/httpd.conf /u01/software/em24/gc_inst/
   user_projects/domains/GCDomain/config/fmwconfig/components/OHS/instances/
   ohs1/httpd.conf
   ```

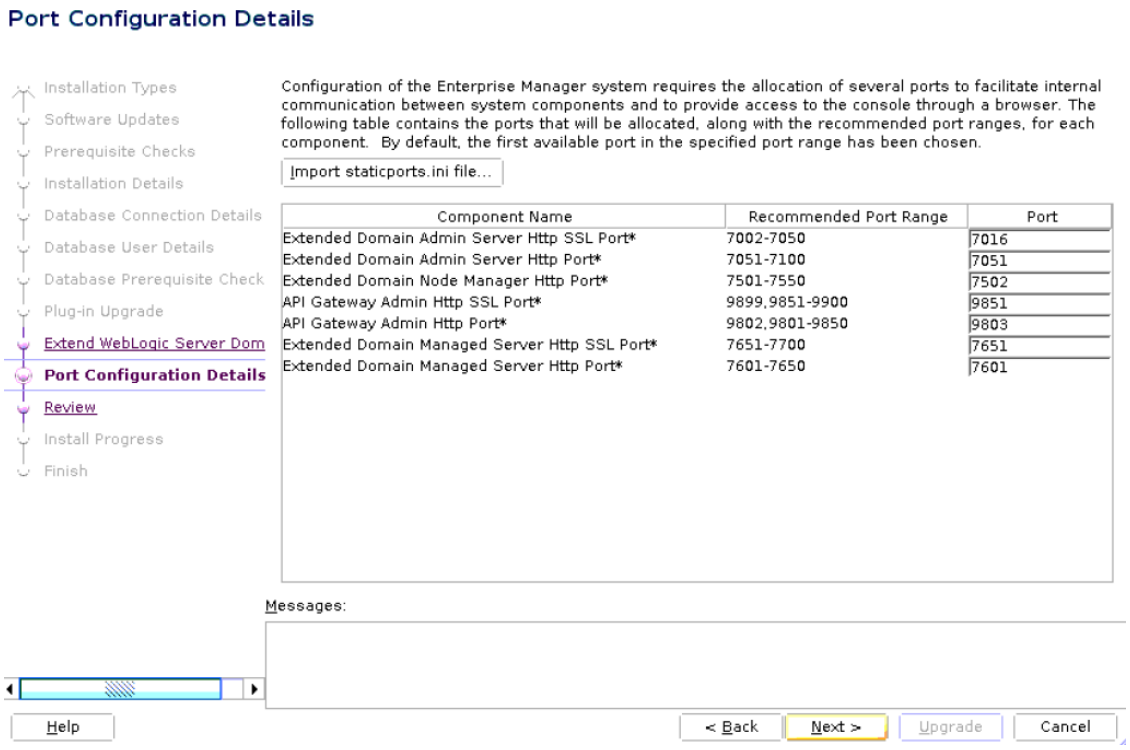
6. Start the OMS:

   ```
   <ORACLE_HOME>/bin/emctl start oms
   ```

For more information on upgrading additional Oracle Management Services, see step 4 from Performing Postinstallation Tasks After Adding an Additional Oracle Management Service in *Oracle Enterprise Manager Basic Installation Guide*.

Configuring Ports

On the Port Configuration Details screen, review the port numbers and click **Next.**



On the Port Configuration Details screen, customize the ports to be used for various components.

> **Note:**
>
> If all the ports on this screen appear as -1, then it indicates that the installer is unable to bind the ports on the host. To resolve this issue, exit the installer, verify the host name and the IP configuration of this host (ensure that the IP address of the host is not being used by another host), restart the installer, and try again.

You can enter a free custom port that is either within or outside the port range recommended by Oracle. For more information, see *What Ports Are Used for Installation?* in the *Oracle Enterprise Manager Advanced Installation and Configuration Guide*.

To verify if a port is free, run the following command:

- On Unix:

  ```
  netstat -an | grep <port no>
  ```

- On Microsoft Windows:

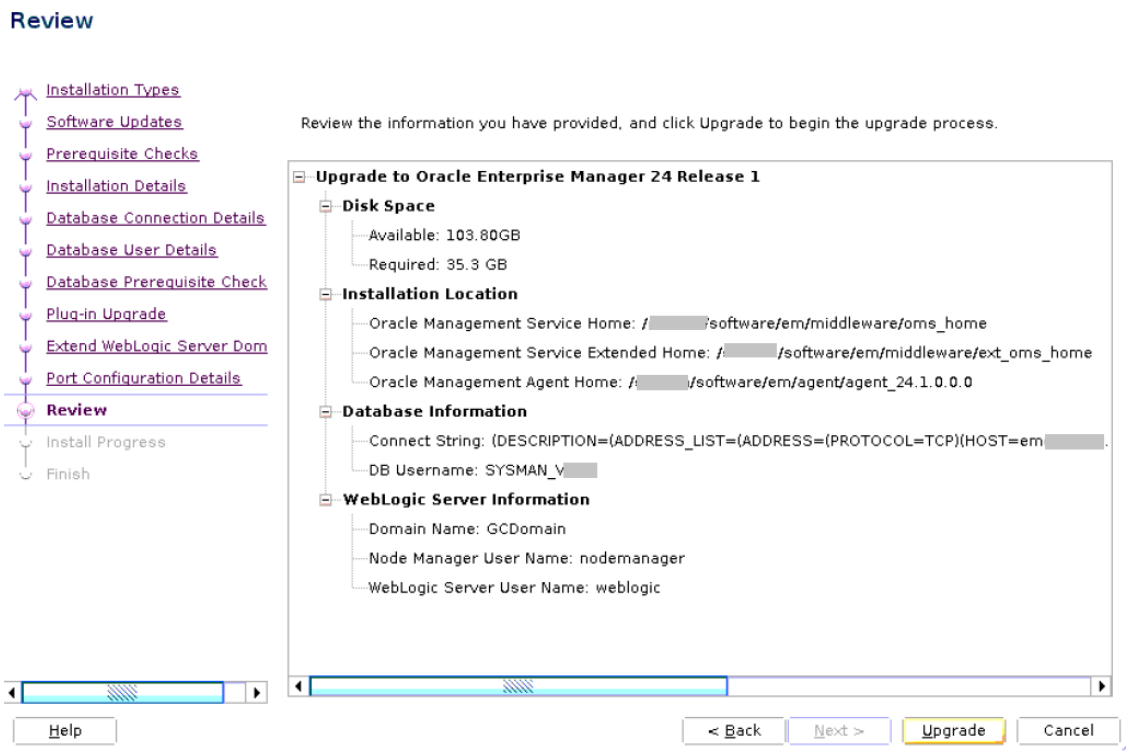
  ```
  netstat -an|findstr <port_no>
  ```

However, the custom port must be greater than 1024 and lesser than 65535. Alternatively, if you already have the ports predefined in a `staticports.ini` file and if you want to use those ports, then click **Import staticports.ini file** and select the file.

> **Note:**
>
> If the `staticports.ini` file is passed during installation, then by default, the ports defined in the `staticports.ini` file are displayed. Otherwise, the first available port from the recommended range is displayed.
>
> The `staticports.ini` file is available in the following location:
>
> `<Software_Extracted_Location>/response`

Reviewing the Upgrade Details

On the Review screen, review the details you have provided for the upgrade.



> **Note:**
>
> Starting with Enterprise Manager 24ai Release 1, there's an additional Oracle Management Service called Oracle Management Service (OMS) Extended Home. It allows performing administrative tasks without interrupting the Enterprise Manager operations. For example, no need of downtime when performing Enterprise Manager upgrades or updates.

1. If you want to change the details, click **Back** repeatedly until you reach the screen where you want to make the changes.
2. After you verify the details, if you are satisfied, click **Upgrade** to begin the upgrade.

> **Note:**
>
> When performing an Upgrade and Transition to DR Readiness, ensure the Host Name displayed is the alias host name for OMS1. If it is not, navigate back to the Installation Details screen and ensure the Host Name is properly specified.

Monitoring the Upgrade Progress

On the Install Progress screen, view the overall progress (in percentage) of the upgrade operation and the status of each of the Configuration Assistants.

Note:

- If a Configuration Assistant fails, the installer stops and none of the subsequent Configuration Assistants are run until the issue related to the failed Configuration Assistant is resolved. In this case, diagnose the issue, resolve it, and then, click **Retry** on the Install Progress screen to rerun the Configuration Assistants starting from the Configuration Assistant that failed.

  However, if you accidentally exit the installer before clicking **Retry**, then do NOT restart the installer to reach the same screen; instead, invoke the `runConfig.pl` script from the Oracle home of the OMS to rerun the Configuration Assistant in silent mode. If the `runConfig.pl` script fails, raise a service request and contact Oracle Support.

  ```
  $<ORACLE_HOME>/oui/bin/runConfig.pl
  <absolute_path_to_Middleware_home>
  ```

  For example,

  ```
  /u01/software/em24/oms_home/oui/bin/runConfig.pl /u01/software/em24/
  oms_home
  ```

  If the `runConfig.pl` script fails, raise a service request and contact Oracle Support.
- If the Management Repository upgrade fails with the following error in the schemamanager logs, then restart the database, and then try the upgrade again.

  ```
  ORA-04020: deadlock detected while trying to lock object
  SYSMAN.MGMT_GLOBAL
  ```

Running the allroot.sh Script

(For UNIX Only) On the Installation Progress Details screen, once the software binaries are installed and configured, the **Execute Configuration scripts** pop-up window is displayed and you are prompted to run the `allroot.sh` script.

Open another window, log in as a `root` and run the `allroot.sh` script from the Oracle home of the OMS you installed in Upgrade End-to-End .

```
$<ORACLE_HOME>/allroot.sh
```

For example,

```
/u01/software/em24/oms_home/allroot.sh
```

If you have additional OMS instances, then run this script on those additional OMS hosts as well.

If you are installing on Microsoft Windows, then you will NOT be prompted to run this script.

Note:

If you do not have the permission to run this script at this point, you can always run it after, but make sure you run it before you start upgrading the Management Agents.

Ending the Upgrade

On the Finish screen, you should see information pertaining to the installation of Enterprise Manager. Review the information and click **Close** to exit the installation wizard.

Upgrading the Additional OMS Instances

If you have additional OMS instances, then start upgrading each of them sequentially by following Upgrade the OMS and any Additional OMSs in Parallel Using Software Only with Plug-ins.

Upgrading the Management Agents

After upgrading all the OMS instances, upgrade the Standalone Management Agents. For more information, refer to Upgrading Oracle Management Agents.

> **Note:**
>
> - Starting with Enterprise Manager 24ai Release 1, the central agent is upgraded automatically along with the old Oracle Management Service (OMS). Standalone Management Agents are not upgraded while you upgrade your OMS to 24ai Release 1 . Ensure that you upgrade them immediately after upgrading the old OMS to 24ai Release 1.
> - If you find the agent base directory of the upgraded central agent in the old Oracle Middleware home, and if you want to move it outside that old Oracle Middleware home, then follow the instructions outlined in Moving the Central Agent Base Directory Outside Oracle Middleware Home.

Upgrade Software Only with Plug-ins and Configure Later in Silent Mode

This section explains how you can upgrade your OMS and Management Repository to version 24ai Release 1 using the software only method with plug-ins and configure later in silent mode.

Using the software-only method, you install the software binaries of Enterprise Manager 24ai Release 1 at one point, and upgrade the earlier release of Enterprise Manager to the newly installed 24ai Release 1 software binaries at a later point.

This upgrade approach is best suited for multi-OMS environments, as it minimizes the downtime of the OMS instances. This approach consists of three parts, mainly copying the software binaries, running the `root.sh` script, and configuring the software binaries. You can copy the software binaries on all the OMS hosts *in parallel* without shutting down the OMS instances. This not only saves time but also enables the earlier release of the OMS instances to remain up and running at this point. Once the software binaries are copied, you can shut down all the OMS instances, and configure the software binaries to upgrade the OMS instances, one after the other. Therefore, the downtime begins only when you start configuring the OMS instances, and not while copying the software binaries to the host.

SSL Support: Starting with Enterprise Manager 13c Release 5 Update 8 (13.5.0.8) or above, if your existing Enterprise Manager environment is configured in Secure Socket Layer (SSL) mode then this upgrade method allows you to carry over the SSL configuration as part of the upgrade process.

This section covers the following:

- Upgrading Enterprise Manager 24ai Release 1 Software Only with Plug-ins in Silent Mode
- Running the allroot.sh Script
- Configuring the Enterprise Manager 24ai Release 1 Software Only with Plug-ins in Silent Mode

Note:

If you see an error message stating that you have not copied the emkey, do the following:

- If your OMR is configured with a service name, then run the following command on the OMS you are about to upgrade. Here, `<ORACLE_HOME>` is the Oracle home of the OMS.

```
<ORACLE_HOME>/bin/emctl config emkey -copy_to_repos_from_file -
repos_conndesc '"(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)
(HOST=<>)(PORT=<>)))(CONNECT_DATA=(SERVICE_NAME=<>)))"' -repos_user
<> [-repos_pwd <pwd> ] [-admin_pwd <pwd>] -emkey_file <oracle_home>/
sysman/config/emkey.ora
```

- If your OMR is not configured with a service name, then run the following command on the OMS you are about to upgrade. Here, `<ORACLE_HOME>` is the Oracle home of the OMS.

```
<ORACLE_HOME>/bin/emctl config emkey -copy_to_repos_from_file -
repos_host <host> -repos_port <port> -repos_sid <sid> -repos_user
<username> [-repos_pwd <pwd> ] [-admin_pwd <pwd>] -emkey_file
<oracle_home>/sysman/config/emkey.ora
```

Here, the Management Repository details are details of the existing or old Management Repository. You will be prompted for the administration server password and the repository password if you do not explicitly specify them in the command line.

> **Note:**
>
> If you are upgrading a multi-OMS environment, always start the upgrade process with the first OMS, where the Admin Server is running, and not with any of the additional OMS instances.
>
> To identify the OMS where the Admin Server is running, run the following command on the OMS you are about to upgrade, and verify if the output displays the Admin Server details. Here, `<ORACLE_HOME>` is the Oracle home of the OMS.
>
> ```
> $<ORACLE_HOME>/bin/emctl status oms -details
> ```
>
> You should see a similar output:
>
> ```
> Oracle Enterprise Manager 13 Release 5
> Copyright (c) 1996, 2024 Oracle Corporation. All rights reserved
> Enter Enterprise Manager Root (SYSMAN) Password :
> Console Server Host : myhost.example.com
> […]
> WLS Domain Information
> Domain Name : GCDomain
> Admin Server Host: myhost.example.com
> […]
> ```

Upgrading Enterprise Manager 24ai Release 1 Software Only with Plug-ins in Silent Mode

To upgrade only the software binaries of Enterprise Manager 24ai Release 1 with plug-ins in silent mode, follow these steps:

- **Step 1:** Generating the Response File to Upgrade Software Only with Plug-ins in Silent Mode
- **Step 2:** Editing the `softwareOnlyWithPlugins_upgrade.rsp` Response File to Upgrade Software Only with Plug-ins in Silent Mode
- **Step 3:** Upgrading Software Only with Plug-ins in Silent Mode
- **Step 4:**Running the allroot.sh Script
- **Step 5:** Download and Copy Software Binaries to the Additional OMS Hosts in Silent Mode

Generating the Response File to Upgrade Software Only with Plug-ins in Silent Mode

Invoke the installer and generate the response file you need to use for performing an upgrade software only with plug-ins in silent mode:

```
./em24100_<platform>.bin -getResponseFileTemplates -outputLoc
<absolute_path_to_a_directory_to_store_the_generated_response_file>
```

> **Note:**
>
> The command generates multiple response files. You must use only the `softwareOnlyWithPlugins_upgrade.rsp` file for the upgrade software only with plug-ins and configure later in silent mode.

Editing the `softwareOnlyWithPlugins_upgrade.rsp` Response File to Upgrade Software Only with Plug-ins in Silent Mode

Edit the `softwareOnlyWithPlugins_upgrade.rsp` file and enter appropriate values for the parameters described in Table 4-3.

Table 4-3 Editing the `softwareOnlyWithPlugins_upgrade.rsp` Response File to Upgrade Software Only with Plug-ins and Configure Later in Silent Mode

Parameter	Data Type	Double Quotes Required for Values?	Description
UNIX_GROUP_NAME	String	Yes	*(Required only when central inventory does not exist)* Enter the name of the UNIX group you belong to. For example, `"dba"`.
INVENTORY_LOCATION	String	Yes	*(Required only when central inventory does not exist and if the OMS you are upgrading was installed using the invPtrLoc argument)* Enter the absolute path to the Central Inventory. For example, `"/u01/oracle/oraInventory"`.

Table 4-3 (Cont.) Editing the `softwareOnlyWithPlugins_upgrade.rsp` Response File to Upgrade Software Only with Plug-ins and Configure Later in Silent Mode

Parameter	Data Type	Double Quotes Required for Values?	Description
INSTALL_UPDATES_SELECTION	String	Yes	By default, this parameter is set to "skip" indicating that the software updates will not be installed during installation. • If you want to install the software updates from My Oracle Support, then set this parameter to "download". Then, enter the credentials for the following parameters in double quotes: MYORACLESUPPORT_USERNAME_FOR_SOFTWAREUPDATES MYORACLESUPPORT_PASSWORD_FOR_SOFTWAREUPDATES • If you want to install the software updates from a staged location, then set this parameter to "staged". Then, for the STAGE_LOCATION parameter, enter the absolute path, which leads to the Updates directory where the software updates are available, in double quotes. For this option, as a prerequisite, you must have already downloaded the software updates. For instructions, see *Oracle Enterprise Manager Advanced Installation and Configuration Guide*.
STAGE_LOCATION	String	Yes	Stage location for software updates. Parameter will be used only when INSTALL_UPDATES_SELECTION is set to "staged". If you want to download the updates during the installation, make sure to provide MYORACLESUPPORT_USERNAME_FOR_SOFTWAREUPDATES and MYORACLESUPPORT_PASSWORD_FOR_SOFTWAREUPDATES, and also, set INSTALL_UPDATES_SELECTION="download".
MYORACLESUPPORT_USERNAME_FOR_SOFTWAREUPDATES	String	Yes	If you want to download the updates during the installation, make sure to provide MYORACLESUPPORT_USERNAME_FOR_SOFTWAREUPDATES and MYORACLESUPPORT_PASSWORD_FOR_SOFTWAREUPDATES, and also, set INSTALL_UPDATES_SELECTION="download".

Table 4-3 (Cont.) Editing the `softwareOnlyWithPlugins_upgrade.rsp` Response File to Upgrade Software Only with Plug-ins and Configure Later in Silent Mode

Parameter	Data Type	Double Quotes Required for Values?	Description
MYORACLESUPPORT_PASSWORD_FOR_SOFTWAREUPDATES	String	Yes	If you want to download the updates during the installation, make sure to provide `MYORACLESUPPORT_USERNAME_FOR_SOFTWAREUPDATES` and `MYORACLESUPPORT_PASSWORD_FOR_SOFTWAREUPDATES`, and also, set `INSTALL_UPDATES_SELECTION="download"`.
ORACLE_MIDDLEWARE_HOME_LOCATION	String	Yes	Upgrade to 24ai Release 1 is an out-of-place upgrade, therefore enter a new middleware home where the installer can automatically install Oracle WebLogic Server 12c Release 2 (12.2.1.4.0) and JDK 1.8.0_431. Ensure that the middleware location has *write* permission to create the Oracle homes for OMS and Management Agent. For example, `/u01/software/em24/middleware` **Note:** Ensure that the Middleware home you enter here is used only for Enterprise Manager. Ensure that no other Oracle Fusion Middleware products or components are installed in the same Middleware home.
OLD_BASE_DIR	String	Yes	Enter the base directory of the OMS you want to upgrade. This is the old middleware home where the OMS home is present. This is applicable when `ONE_SYSTEM=true`.
ORACLE_HOSTNAME	String	Yes	Enter a fully qualified domain name that is registered in the DNS and is accessible from other network hosts, or enter an alias host name that is defined in the `/etc/hosts` file on all the OMS instances at this site. The host name must resolve to the local host because the host name is used for the local Oracle WebLogic Server as well as the Oracle Management Service. Do not provide a remote host or a load balancer virtual host in this field. Do not enter an IP address. Do not use underscores in the name. Short names are allowed, but you will see a warning, so Oracle recommends that you enter a fully qualified domain name instead. If you do not mention the host name, the installation wizard will proceed further, honoring the host name it automatically detects for that host.

Table 4-3 (Cont.) Editing the `softwareOnlyWithPlugins_upgrade.rsp` Response File to Upgrade Software Only with Plug-ins and Configure Later in Silent Mode

Parameter	Data Type	Double Quotes Required for Values?	Description
SYS_PASSWORD	String	Yes	DBA user password used to create the repository schema.
SYSMAN_PASSWORD	String	Yes	Password for sysman user.
REPOSITORY_BACKUP_DONE	Boolean	No	Applicable for ONE_SYSTEM upgrade scenario from 10.2.0.5/11.1/12.1.0.1.0 # / 12.1.0.2.0/12.1.0.3.0 -> 12.1.0.4.0. As a prerequisite, you must back up the Management Repository before you start upgrading your Enterprise Manager system. If you have already taken a backup, then set this parameter to `TRUE`. Otherwise, take a backup immediately, then set this parameter to `TRUE`, and then proceed with the upgrade operation. Example: `REPOSITORY_BACKUP_DONE=false`
DISABLE_DDMP_JOBS	Boolean	No	If you have to stop the Enterprise Manager system for postupgrade maintenance, then set this parameter to `TRUE` to disable the DDMP jobs. If you do not plan to stop the Enterprise Manager system for postupgrade maintenance, and hence do not want to disable the DDMP jobs, then set this parameter to `FALSE`. Example: `DISABLE_DDMP_JOBS=true`
EMPREREQ_AUTO_CORRECTION	Boolean	No	It specifies if the prerequisites can use the auto-correct option. Example: `EMPREREQ_AUTO_CORRECTION=false`
Is_oneWaySSL	String	No	Applicable for one-way SSL configuration. Set it to `true` if the repository database is configured with one-way SSL. Example: `Is_oneWaySSL=true` If `Is_oneWaySSL=true` is set, then the `TRUSTSTORE_LOCATION` and `TRUSTSTORE_PASSWORD` parameters must also be provided.
TRUSTSTORE_LOCATION	String	Yes	Applicable for one-way or two-way SSL configuration (`Is_oneWaySSL=true` or `Is_twoWaySSL=true`) It specifies the absolute location of TrustStore Wallet file.

Table 4-3 (Cont.) Editing the `softwareOnlyWithPlugins_upgrade.rsp` Response File to Upgrade Software Only with Plug-ins and Configure Later in Silent Mode

Parameter	Data Type	Double Quotes Required for Values?	Description
TRUSTSTORE_PASSWORD	String	Yes	Applicable for one-way or two-way SSL configuration (`Is_oneWaySSL=true` or `Is_twoWaySSL=true`) It specifies the TrustStore Wallet password.
Is_twoWaySSL	String	No	Applicable for two-way SSL configuration. Set it to `true` if repository database is configured with Two way SSL. Example: `Is_twoWaySSL=true` If `Is_twoWaySSL=true` is set, `KEYSTORE_LOCATION`, `KEYSTORE_PASSWORD`, `TRUSTSTORE_LOCATION` and `TRUSTSTORE_PASSWORD` parameters must also be provided.
KEYSTORE_LOCATION	String	Yes	(Required only if `Is_twoWaySSL=true`) Applicable for two-way SSL configuration. Absolute location of KeyStore wallet file.
KEYSTORE_PASSWORD	String	Yes	(Required only if `Is_twoWaySSL=true`) Applicable for two-way SSL configuration. KeyStore wallet password.
PLUGIN_SELECTION	String	Yes	List of new plug-ins to be deployed during upgrade. All plug-ins deployed to the old Enterprise Manager system will be automatically upgraded/migrated based on the availability of newer version of plug-in software. The string list contains a list of strings and each string is the `PLUGIN_ID` of the desired plug-in. (DVD)/Disk1/plug-ins has list of plug-ins that are shipped as part of DVD. If you want to install 12.1.0.4.0_oracle.sysman.empa_2000_0.opar, pass PLUGIN_SELECTION={"oracle.sysman.empa"} For example: `PLUGIN_SELECTION={'oracle.sysman.empa'}`
b_upgrade	Boolean	No	Set it to `b_upgrade=true`
EM_INSTALL_TYPE	String	No	Set it to `EM_INSTALL_TYPE=NOSEED`
CONFIGURATION_TYPE	String	No	It specifies that the upgrade type is upgrade and configure later. Set it to `CONFIGURATION_TYPE=LATER`

Upgrading Software Only with Plug-ins in Silent Mode

To upgrade the software binaries with plug-ins in silent mode, invoke the Enterprise Manager installation wizard the following way:

```
./em24100_<platform>.bin -silent -responseFile
<absolute_path_to_the_directory_where_the_generated_and_updated_response_file_is_
stored>/softwareOnlyWithPlugins_upgrade.rsp [-invPtrLoc
<absolute_path_to_oraInst.loc>]
```

Optional Parameter:

- The `-invPtrLoc` parameter is supported only on UNIX platforms, and not on Microsoft Windows platforms.

For information about additional advanced options you can pass while invoking the installer, refer to Advanced Installer Options Supported for Installing an Enterprise Manager System in Silent Mode

Note:

- To invoke the Enterprise Manager installation wizard on UNIX platforms, run `./em24100_<platform>.bin`. To invoke on Microsoft Windows platform, run `setup_em24100_win64.exe`.
- The installer requires about 14 GB of hard disk space in the temporary directory. If your temporary directory does not have this space, then pass the `-J-Djava.io.tmpdir` parameter and provide an alternative directory where there is 14 GB of space. The installer prompts for an alternate temporary directory if the default temporary location (usually /tmp) has less then 14GB. In that case, the user can enter the new temporary location (which should pre-exist) in the prompt. For example:

  ```
  ./em24100_<platform>.bin
  ERROR: Temporary directory /tmp does not have enough free space.
  At least 12289 MB of free space are required.
  Please input another directory or [Exit]: /u01/new_tmp
  Launcher log file is /u01/new_tmp/OraInstall2024-01-22_09-47-31AM/
  launcher2024-01-22_09-47-31AM.log.
  Extracting the installer . . . . . .
  ```

  The directory specified by this parameter will also be used as the location for the Provisioning Advisor Framework (PAF) staging directory, which is used for copying the Software Library entities related to the deployment procedures. The PAF staging directory is used only for provisioning activities — entities are copied for a deployment procedure, and then, deleted once the deployment procedure ends.

  For example,

  ```
  ./em24100_linux64.bin -J-Djava.io.tmpdir=/u01/software/em24/stage/
  ```

- While installing on IBM AIX, if you see an error message stating that your JDK version in the middleware home is not of a supported version, then make sure you install the supported version mentioned in the message, and then invoke the installer passing the `-skipJDKValidation` argument.

  For example,

  ```
  ./em24100_<platform>.bin -skipJDKValidation
  ```

Advanced Installer Options Supported for Installing an Enterprise Manager System in Silent Mode

The following are some additional advanced options you can pass while invoking the installer in silent mode:

- After the upgrade ends successfully, the OMS and central Management Agent start automatically.

  If you do not want the OMS to start automatically, then invoke the installer with the `START_OMS` option, and set it to true or false depending on what you want to control.

  For example, if you want the OMS to start automatically then run the following command:

  ```
  ./em24100_<platform>.bin START_OMS=true -silent -responseFile <absolute_path>/
  upgrade.rsp
  ```

To understand the limitations involved with this advanced option, see Limitations with the Advanced Installer Options Supported for Installing an Enterprise Manager System in Graphical Mode.

Running the allroot.sh Script

(For UNIX Only) After you install the software binaries, log in as a *root* user in a new terminal and run the `allroot.sh` script from the Oracle home of the OMS you installed in Upgrading Enterprise Manager 24ai Release 1 Software Only with Plug-ins in Silent Mode.

```
$<ORACLE_HOME>/allroot.sh
```

For example,

```
/u01/software/em24/oms_home/allroot.sh
```

If you have additional OMS instances, then run this script on those additional OMS hosts as well.

> **Note:**
>
> If you do not have the permission to run this script at this point, you can always run it after configuring the software binaries, but make sure you run it before you start upgrading the Management Agents.

Download and Copy Software Binaries to the Additional OMS Hosts in Silent Mode

If you have additional OMS instances, then download the software binaries from Oracle Software Downloads site and copy them into the additional OMS hosts by following steps outlined in Upgrading Enterprise Manager 24ai Release 1 Software Only with Plug-ins in Silent Mode.

Configuring the Enterprise Manager 24ai Release 1 Software Only with Plug-ins in Silent Mode

To configure only the software binaries of Enterprise Manager with plug-ins, follow these steps:

- **Step 1:** Editing the Response File to Configure the Software Only with Plug-ins in Silent Mode
- **Step 2:** Configuring the Software Only with Plug-ins in Silent Mode
- **Step 3:** Upgrading the Additional OMS Instances
- **Step 4:** Upgrading the Management Agents

> **Note:**
>
> If the Management Repository upgrade fails with the following error in the schema manager logs, then restart the database, and then try the upgrade again.
>
> ```
> ORA-04020: deadlock detected while trying to lock object
> SYSMAN.MGMT_GLOBAL
> ```

Editing the Response File to Configure the Software Only with Plug-ins in Silent Mode

Access the `upgrade.rsp` file that you generated in Generating the Response File to Upgrade Software Only with Plug-ins in Silent Mode while generating the `softwareOnlyWithPlugins_upgrade.rsp` file. Edit the `upgrade.rsp` file and enter appropriate values for the parameters described in Editing the `upgrade.rsp` Response File for Upgrading Oracle Management Service and Oracle Management Repository in Silent Mode.

> **Note:**
>
> If you have any plug-ins that are obsolete and are not supported in Enterprise Manager 24ai Release 1, then you must first remove those plug-ins from the previous release. You can proceed with the upgrade only after removing those obsolete plug-ins.
>
> To remove the obsolete plug-ins, follow these steps:
>
> 1. First, undeploy the obsolete plug-ins from the Management Agents. Next, undeploy them from the OMS instances. For instructions, see the chapter on managing plug-ins in *Oracle Enterprise Manager Administrator's Guide*.
> 2. Finally, remove the binaries of these obsolete plug-ins from the Self Update Console. For instructions, see Updating Enterprise Manager in *Oracle Enterprise Manager Administrator's Guide*.

Configuring the Software Only with Plug-ins in Silent Mode

Configure the software binaries by invoking the `ConfigureGC.sh` script from the Oracle home of the OMS you installed in Upgrading Software Only with Plug-ins in Silent Mode, and passing the response file you edited in the previous step.

```
$<ORACLE_HOME>/sysman/install/ConfigureGC.sh -silent -responseFile
<absolute_path_to_the_directory_where_the_generated_and_updated_response_file_is_
stored>/upgrade.rsp [-invPtrLoc <absolute_path_to_oraInst.loc>]
```

Optional Parameter:

- The `-invPtrLoc` parameter is supported only on UNIX platforms, and not on Microsoft Windows platforms.

For information about additional advanced options you can pass while invoking the `ConfigureGC.sh` script, refer to Using Advanced Script Options While Configuring the Enterprise Manager Software Using the Software Only Upgrade Method in Graphical Mode.

Note:

- While installing the software binaries as described in Upgrading Software Only with Plug-ins in Silent Mode, if you had passed the argument `-invPtrLoc`, then pass the same argument here as well.
- If a prerequisite check fails reporting a missing package, then make sure you install the required package, and retry the installation. The installer validates the package name as well as the version, so make sure you install the packages of the minimum versions mentioned in *Oracle Enterprise Manager Basic Installation Guide*. To understand the logic the installer uses to verify these packages, see *Oracle Enterprise Manager Basic Installation Guide*.

Note:

If you see an error about missing plug-ins, then do the following:

1. Make a note of the plug-in version and plug-in update as shown in the missing plug-ins error message. The plug-ins displayed in the error message have the following format:

   ```
   PluginID:PluginVersion:PluginUpdate
   ```

2. Manually download the required plug-ins from `Plug-in Update`.

   In addition, plug-ins produced by partners or customers are available for download from `Enterprise Manager Extensibility Exchange`.

3. Invoke the `ConfigureGC.sh` script with the following parameter, and pass the location where the additional plug-ins have been downloaded. Here, <ORACLE_HOME> is the Oracle home of the OMS you installed in Upgrading Enterprise Manager 24ai Release 1 Software Only with Plug-ins in Silent Mode:

   ```
   <ORACLE_HOME>/sysman/install/ConfigureGC.sh -silent
   PLUGIN_LOCATION=<absolute_path_to_plugin_sw>
   ```

   Proceed to the next step only after you have installed these missing plug-ins.

Upgrading the Additional OMS Instances

If you have additional OMS instances, then start upgrading each of them sequentially by following steps outlined in Editing the Response File to Configure the Software Only with Plug-ins in Silent Mode and Configuring the Software Only with Plug-ins in Silent Mode.

Upgrading the Management Agents

After upgrading all the OMS instances, upgrade the Standalone Management Agents. For more information, refer to Upgrading Oracle Management Agents.

> **Note:**
>
> - Starting with Enterprise Manager 24ai Release 1, the central agent is upgraded automatically along with the old Oracle Management Service (OMS). Standalone Management Agents are not upgraded while you upgrade your OMS to 24ai Release 1 . Ensure that you upgrade them immediately after upgrading the old OMS to 24ai Release 1.
> - If you find the agent base directory of the upgraded central agent in the old Oracle Middleware home, and if you want to move it outside that old Oracle Middleware home, then follow the instructions outlined in Moving the Central Agent Base Directory Outside Oracle Middleware Home.

Upgrade End-to-End in Silent Mode

This section explains how you can upgrade your OMS and Management Repository to 24ai Release 1 in silent mode.

Using this upgrade approach, you install the software binaries and upgrade the earlier release of Enterprise Manager to 24ai Release 1 all in the same process in silent mode.

> **Note:**
>
> The Upgrade End-to-End in Silent Mode method is supported in special cases. For more details, contact Oracle Support.

Follow the steps below to upgrade your OMS and Management Repository to 24ai Release 1 in silent mode:

- **Step 1:** Generating the Response File to Upgrade End-to-End in Silent Mode
- **Step 2:** Editing the `upgrade.rsp` Response File to Upgrade End-to-End in Silent Mode
- **Step 3:** Invoking the Enterprise Manager Installer to Upgrade End-to-End in Silent Mode
- **Step 4:** Upgrading the Additional OMS Instances
- **Step 5:** Upgrading the Management Agents

Note:

If you see an error message stating that you have not copied the emkey, do the following:

- If your OMR is configured with a service name, then run the following command on the OMS you are about to upgrade. Here, <ORACLE_HOME> is the Oracle home of the OMS.

```
<ORACLE_HOME>/bin/emctl config emkey -copy_to_repos_from_file -
repos_conndesc '"(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)
(HOST=<>)(PORT=<>)))(CONNECT_DATA=(SERVICE_NAME=<>)))"' -repos_user
<> [-repos_pwd <pwd> ] [-admin_pwd <pwd>] -emkey_file <oracle_home>/
sysman/config/emkey.ora
```

- If your OMR is not configured with a service name, then run the following command on the OMS you are about to upgrade. Here, <ORACLE_HOME> is the Oracle home of the OMS.

```
<ORACLE_HOME>/bin/emctl config emkey -copy_to_repos_from_file -
repos_host <host> -repos_port <port> -repos_sid <sid> -repos_user
<username> [-repos_pwd <pwd> ] [-admin_pwd <pwd>] -emkey_file
<oracle_home>/sysman/config/emkey.ora
```

Here, the Management Repository details are details of the existing or old Management Repository. You will be prompted for the administration server password and the repository password if you do not explicitly specify them in the command line.

Note:

If you are upgrading a multi-OMS environment, always start the upgrade process with the first OMS, where the Admin Server is running, and not with any of the additional OMS instances.

To identify the OMS where the Admin Server is running, run the following command on the OMS you are about to upgrade, and verify if the output displays the Admin Server details. Here, <ORACLE_HOME> is the Oracle home of the OMS.

```
$<ORACLE_HOME>/bin/emctl status oms -details
```

You should see a similar output:

```
Oracle Enterprise Manager 13 Release 5
Copyright (c) 1996, 2024 Oracle Corporation. All rights reserved
Enter Enterprise Manager Root (SYSMAN) Password :
Console Server Host : myhost.example.com
.
.
.
WLS Domain Information
Domain Name : GCDomain
Admin Server Host: myhost.example.com
.
.
.
```

> **Note:**
>
> If the Management Repository upgrade fails with the following error in the schemamanager logs, then restart the database, and then try the upgrade again.
>
> ```
> ORA-04020: deadlock detected while trying to lock object
> SYSMAN.MGMT_GLOBAL
> ```

Generating the Response File to Upgrade End-to-End in Silent Mode

Invoke the Enterprise Manager installer and generate the response file you need to use for performing an upgrade end-to-end in silent mode:

```
./em24100_<platform>.bin -getResponseFileTemplates -outputLoc
<absolute_path_to_a_directory_to_store_the_generated_response_file>
```

> **Note:**
>
> The command generates multiple response files. You must use only the `upgrade.rsp` file for this silent installation.

Editing the `upgrade.rsp` Response File to Upgrade End-to-End in Silent Mode

Edit the `upgrade.rsp` response file and enter the appropriate values for the parameters described in Editing the `upgrade.rsp` Response File for Upgrading Oracle Management Service and Oracle Management Repository in Silent Mode.

> **Note:**
>
> If you have any plug-ins that are obsolete and are not supported in Enterprise Manager 24ai Release 1, then you must first remove those plug-ins from the previous release. You can proceed with the upgrade only after removing those obsolete plug-ins.
>
> To remove the obsolete plug-ins, follow these steps:
>
> 1. First, undeploy the obsolete plug-ins from the Management Agents. Next, undeploy them from the OMS instances. For instructions, see the chapter on managing plug-ins in *Oracle Enterprise Manager Administrator's Guide*.
> 2. Finally, remove the binaries of these obsolete plug-ins from the Self Update Console. For instructions, see Updating Enterprise Manager in *Oracle Enterprise Manager Administrator's Guide*.

Invoking the Enterprise Manager Installer to Upgrade End-to-End in Silent Mode

Invoke the Enterprise Manager installer in silent mode and pass the updated response file:

```
./em24100_<platform>.bin -silent -responseFile
<absolute_path_to_the_directory_where_the_generated_and_updated_response_file_is_
stored>/upgrade.rsp
```

Note:

- To invoke the Enterprise Manager installation wizard on UNIX platforms, run `./em24100_<platform>.bin`. To invoke on Microsoft Windows platform, run `setup_em24100_win64.exe`.
- For information about the additional, advanced options you can pass while invoking the installer, refer to Advanced Installer Options Supported for Installing an Enterprise Manager System in Silent Mode.
- The installer requires about 14 GB of hard disk space in the temporary directory. If your temporary directory does not have this space, then pass the `-J-Djava.io.tmpdir` parameter and provide an alternative directory where there is 14 GB of space. The installer prompts for an alternate temporary directory if the default temporary location (usually /tmp) has less then 14GB. In that case, the user can enter the new temporary location (which should pre-exist) in the prompt. For example:

  ```
  ./em24100_<platform>.bin
  ERROR: Temporary directory /tmp does not have enough free space.
  At least 12289 MB of free space are required.
  Please input another directory or [Exit]: /u01/new_tmp
  Launcher log file is /u01/new_tmp/OraInstall2024-01-22_09-47-31AM/
  launcher2024-01-22_09-47-31AM.log.
  Extracting the installer . . . . . .
  ```

  The directory specified by this parameter will also be used as the location for the Provisioning Advisor Framework (PAF) staging directory, which is used for copying the Software Library entities related to the deployment procedures. The PAF staging directory is used only for provisioning activities — entities are copied for a deployment procedure, and then, deleted once the deployment procedure ends.

  For example,

  ```
  ./em24100_linux64.bin -J-Djava.io.tmpdir=/u01/software/em24/stage/
  ```

- While upgrading on IBM AIX, if you see an error message stating that your JDK version in the middleware home is not of a supported version, then make sure you install the supported version mentioned in the message, and then invoke the installer passing the `-skipJDKValidation` argument.

  For example,

  ```
  ./em24100_<platform>.bin -skipJDKValidation
  ```

- If a prerequisite check fails reporting a missing package, then make sure you install the required package, and retry the installation. The installer validates the package name as well as the version, so make sure you install the packages of the minimum versions mentioned in *Oracle Enterprise Manager Basic Installation Guide*. To understand the logic the installer uses to verify these packages, see *Oracle Enterprise Manager Basic Installation Guide*.

Advanced Installer Options Supported for Installing an Enterprise Manager System in Silent Mode

The following are some additional advanced options you can pass while invoking the installer in silent mode:

- After the upgrade ends successfully, the OMS and central Management Agent start automatically.

  If you do not want the OMS to start automatically, then invoke the installer with the `START_OMS` option, and set it to true or false depending on what you want to control.

  For example, if you want the OMS to start automatically then run the following command:

  ```
  ./em24100_<platform>.bin START_OMS=true -silent -responseFile <absolute_path>/upgrade.rsp
  ```

  To understand the limitations involved with this advanced option, see Limitations with the Advanced Installer Options Supported for Installing an Enterprise Manager System in Graphical Mode.

Upgrading the Additional OMS Instances

If you have additional OMS instances, then start upgrading each of them sequentially by following Step (1) to Step (3) as outlined in Upgrade End-to-End in Silent Mode (this section.)

Upgrading the Management Agents

After upgrading all the OMS instances, upgrade the Standalone Management Agents. For more information, refer to Upgrading Oracle Management Agents.

> **Note:**
>
> - Starting with Enterprise Manager 24ai Release 1, the central agent is upgraded automatically along with the old Oracle Management Service (OMS). Standalone Management Agents are not upgraded while you upgrade your OMS to 24ai Release 1 . Ensure that you upgrade them immediately after upgrading the old OMS to 24ai Release 1.
> - If you find the agent base directory of the upgraded central agent in the old Oracle Middleware home, and if you want to move it outside that old Oracle Middleware home, then follow the instructions outlined in Moving the Central Agent Base Directory Outside Oracle Middleware Home.

Upgrade the OMS and any Additional OMSs in Parallel Using Software Only with Plug-ins

This section explains how you can upgrade your OMS and any additional OMSs in parallel using the software only method with plug-ins in graphical mode.

Follow the steps below to upgrade multiple Oracle Management Services in Parallel to 24ai Release 1:

- **Step 1:** Performing Prerequisites
- **Step 2:** Installing the OMS Software Only
- **Step 3:** Running the allroot.sh Script
- **Step 4:** Applying Required Patches on the OMS
- **Step 5:** Applying Release Update in Bit Only Mode
- **Step 6:** Upgrading the Admin OMS
- **Step 7:** Performing Additional OMS Upgrades in Parallel

> **Note:**
>
> Always start the upgrade process with the first OMS, where the Admin Server (Primary OMS) is running, and not with any of the additional OMS instances.
>
> To identify the OMS where the Admin Server is running, run the following command on the OMS you are about to upgrade, and verify if the output displays the Admin Server details. Here, `<ORACLE_HOME>` is the Oracle home of the OMS.
>
> ```
> $<ORACLE_HOME>/bin/emctl status oms -details
> ```
>
> You should see a similar output:
>
> ```
> Oracle Enterprise Manager 13 Release 5
> Copyright (c) 1996, 2024 Oracle Corporation. All rights reserved
> Enter Enterprise Manager Root (SYSMAN) Password :
> Console Server Host : myhost.example.com
> […]
> WLS Domain Information
> Domain Name : GCDomain
> Admin Server Host: myhost.example.com
> […]
> ```

Performing Prerequisites

Perform the following prerequisites:

1. Ensure that all Oracle Management Agents in your enterprise are version 13.5.0.0.0 or greater.

   To find agents versions lower than 13.5.0.0.0 run the following SQL on the repository database, as a user with the Administrator role:

   ```
   select mt.target_name||' Agent Version='|| mtp.property_value from
   mgmt_target_properties mtp , mgmt_targets mt where
   mt.target_type='oracle_emd' and mt.target_guid = mtp.target_guid and
   mtp.property_name='Version' and mtp.property_value < '13.5.0.0.0'
   ```

2. Undeploy all the obsolete plug-ins from Admin (Primary) OMS.

   For instructions, see Undeploy Obsolete Plug-ins from Prerequisites for Upgrading to Enterprise Manager 24ai Release 1 chapter.

3. Run prerequisite checks on the repository:

   Step 1: Upgrading your Repository to a Supported Version

Step 2: Invoking the Enterprise Manager Installer

Step 3: Selecting the Installation Type

Step 4: Running the Prerequisite Checks

Step 5: Providing Database Connection Details

Step 6: Selecting the Deployment Size

Step 7: Checking Database Prerequisites

Step 8: Evaluating the Correction Types

Upgrading your Repository to a Supported Version

Refer to *Database Version Requirements* from Prerequisites for Installing an Enterprise Manager System.

Ensure that the existing database is a certified database as mentioned in the Enterprise Manager certification matrix available on My Oracle Support. To access the Enterprise Manager certification matrix and identify whether your database is a certified database, follow these steps in Accessing the Enterprise Manager Certification Matrix.

Alternatively, the database can be a database instance created with a preconfigured Management Repository using the database templates offered by Oracle. For information about creating a database instance with a preconfigured Management Repository using the database templates offered by Oracle, refer to Creating a Database Instance with Preconfigured Repository Using Database Templates. Ensure that this database is dedicated to Enterprise Manager.

The database configuration types that are supported are pluggable database (PDB), lone-pluggable database (Lone-PDB), and non-container database (Non-CDB).

Invoking the Enterprise Manager Installer

Invoke the Enterprise Manager Installation Wizard on the host where your existing OMS is running.

```
./em24100_<platform>.bin [-invPtrLoc <absolute_path_to_oraInst.loc>]
```

Note:

- To invoke the installation wizard on UNIX platforms, run `./em24100_<platform>.bin`.
- To invoke on Microsoft Windows platforms, run `setup_em24100_win64.exe`.
- While invoking the installer, ensure that you pass the `invPtrLoc` argument if the OMS you are upgrading was installed using the `invPtrLoc` argument.
- `-invPtrLoc` is not supported on Microsoft Windows.
- The installer requires about 14 GB of hard disk space in the temporary directory. If your temporary directory does not have this space, then pass the `-J-Djava.io.tmpdir` parameter and provide an alternative directory where there is 14 GB of space. The installer prompts for an alternate temporary directory if the default temporary location (usually `/tmp`) has less then 14GB. In that case, the user can enter the new temporary location (which should pre-exist) in the prompt. For example:

```
./em24100_<platform>.bin
ERROR: Temporary directory /tmp does not have enough free space.
At least 12289 MB of free space are required.
Please input another directory or [Exit]: /u01/new_tmp
Launcher log file is /u01/new_tmp/OraInstall2024-01-22_09-47-31AM/
launcher2024-01-22_09-47-31AM.log.
Extracting the installer . . . . . .
```

Selecting the Installation Type

On the Installation Types screen, select **Upgrade software only with plug-ins and Configure Later** to upgrade an existing Enterprise Manager system. Then select the Management Server (OMS) you want to upgrade, and click **Next**.

The installer performs the software only install with plug-ins and this step is part of the process. There is no actual upgrade in progress.

Running the Prerequisite Checks

On the Prerequisite Checks screen, check the status of the prerequisite checks run by the installation wizard, and verify whether your environment meets all the minimum requirements for a successful upgrade. Then click **Next.**

The installation wizard runs the prerequisite checks automatically when you come to this screen. The status of the prerequisite check can be either **Warning, Failed, Succeeded, Not Executed, In Progress,** or **Pending.**

If some checks result in **Warning** or **Failed** status, then investigate and correct the problems before you proceed with the upgrade. The screen provides details on why the prerequisites failed and how you can resolve them. After you correct the problems, return to this screen and click **Rerun** to check the prerequisites again.

Providing Database Connection Details

On the Database Connection Details screen, do the following, and click **Next.**

- Enter the passwords for the SYS and SYSMAN user accounts of the database that houses the Management Repository for the selected OMS.
- Confirm that you have backed up the Management Repository *(although the installer checks only if you have backed up the Management Repository, Oracle strongly recommends that you back up the OMS, the inventory, the Software Library, and other components that are critical to the functioning of Enterprise Manager. This will enable you to revert to the original contents if the upgrade fails)*. As a prerequisite, you must back up the Management Repository before starting the upgrade process. If you have not already taken a backup, then do so immediately, and then return to the installer to continue with the upgrade.
- If you have to stop the Enterprise Manager system for postupgrade maintenance, then select **Disable DDMP Jobs** to disable the DDMP jobs. If you do not plan to stop the Enterprise Manager system for postupgrade maintenance, and hence do not want to disable the DDMP jobs, then do not select the option.

  Deferred Data Migration (DDMP) is a post-upgrade activity to migrate the format of the data stored in an earlier release of Enterprise Manager to the format compatible with the upgraded Enterprise Manager system. The migration activity is essentially a job in Enterprise Manager that is submitted when the Oracle Management Repository gets upgraded, and is scheduled to run in the background when the upgraded Enterprise Manager system starts functioning.

  The time taken to migrate the data format depends on the volume of data available in your earlier release of Enterprise Manager. Therefore, if you have a large amount of data, then it takes longer to migrate.

  If you have to stop the Enterprise Manager system for postupgrade maintenance, then you can choose to disable the DDMP jobs now and run them later from the postupgrade console after the maintenance period ends and after the Enterprise Manager system becomes operational.

  To run the DDMP jobs later from the Post Upgrade Console, in the Enterprise Manager Console, from the **Setup** menu, select **Manage Enterprise Manager**, then select **Post Upgrade Tasks.**

> **Note:**
>
> For information about the various prerequisite checks that are run on the database at this point and how to fix them if they fail, see Prerequisites for Upgrading to Enterprise Manager 24ai Release 1 .

Selecting the Deployment Size

On the Deployment Size section, select one of the following options: **Small**, **Medium** or **Large**, and click **Next**.

Checking Database Prerequisites

On the Database Prerequisite Checks screen, check the status of the database prerequisite checks run by the installation wizard, and verify whether your environment meets all the minimum requirements for a successful upgrade. Then click **Next**.

The installation wizard runs the database prerequisite checks automatically when you come to this screen. The status of the prerequisite check can be either **Warning, Failed** or **Succeeded**.

If some checks result in **Warning** or **Failed** status, then investigate and correct the problems before you proceed with the upgrade. The screen provides details on why the prerequisites failed and how you can resolve them. After you correct the problems, return to this screen and click **Check Again** to check the database prerequisites again.

- If the Auto Fixable column is `Yes`, you can click on **Auto Fix** and the installer will fix the issue automatically.
- If the recommendation indicates that the Correction Type is `Manual`, you need to fix the issue manually.

For information about the various prerequisite checks that are run on the database at this point and how to fix them if they fail, see Prerequisites for Upgrading to Enterprise Manager 24ai Release 1 .

After you complete reviewing and fixing the prerequisites results, click **Next**.

The **Information** pop-up window is displayed.

Review the important information provided about the upgrade process and then click **OK**.

Evaluating the Correction Types

Correction Types can be one of the following:

1. **Not Required**: This is simply a warning message, it can be ignored.
2. **Manual**: Manually fix all issues identified as this type.
3. **Auto**: In this case, the installer has pre-defined corrective actions and is able to automatically fix these issues. These actions will automatically be run during the upgrade process. Click **Auto Fix** to perform the auto corrective in the Admin (Primary) OMS.

Installing the OMS Software Only

Invoke the Enterprise Manager Installation Wizard with the following option and pass the location where the plug-ins have been downloaded.

On the Admin (Primary) OMS, run the following:

```
./em24100_<platform>.bin -invPtrLoc <absolute_path_to_oraInst.loc_Inventory
Pointer_File> PLUGIN_LOCATION=<absolute_path_to_plugin_software_location>
```

On the additional OMS instances, run the following:

```
./em24100_<platform>.bin -invPtrLoc <absolute_path_to_oraInst.loc_Inventory
Pointer_File> PLUGIN_LOCATION=<absolute_path_to_plugin_software_location>
PARALLEL_ADD_OMS_UPG=true
```

Refer to Installing an Enterprise Manager System Using Software Only Install Along With Plugins and Configuring Later for details about Installing OMS with Software Only option.

> **Note:**
>
> The `INSTALL_SWONLY_WITH_PLUGINS` parameter is not supported starting with Enterprise Manager 13c Release 5. If you execute the `em24100_<platform>.bin` or `setup_em24100_win64.exe` script using the `INSTALL_SWONLY_WITH_PLUGINS` parameter, you will receive an invalid parameter error message since the parameter is no longer supported.

Running the allroot.sh Script

(For UNIX Only) After you install the software binaries, log in as a *root* user in a new terminal and run the `allroot.sh` script from the Oracle home of the OMS you installed in Installing the OMS Software Only.

On the Admin (Primary) OMS, run the following:

```
$<ORACLE_HOME>/allroot.sh
```

For example,

```
/u01/software/em24/oms_home/allroot.sh
```

On the additional OMS instances, run this script as well.

> **Note:**
>
> If you do not have the permission to run this script at this point, you can always run it after configuring the software binaries, but make sure you run it before you start upgrading the Management Agents.

Applying Required Patches on the OMS

Apply the latest software update, including the latest PSU patches, bundle patches and plug-ins patches on top of the Enterprise Manager 24ai Release 1 software only home.

You can download the software update in offline mode (if you do not have Internet connectivity) or online mode (if you have Internet connectivity). For instructions, see *Oracle Enterprise Manager Advanced Installation and Configuration Guide*.

Applying Release Update in Bit Only Mode

If you want to apply a release update (bundle patch) during the upgrade process, you can follow the specific release update instructions from the README file and apply the release update to the OMS using bit only mode.

Set the `ORACLE_HOME` environment variable to the new 24ai Release 1 OMS home. For example:

```
export ORACLE_HOME=/u01/software/em24/oms_home
cd <Release_Update_Directory>
$ORACLE_HOME/OMSPatcher/omspatcher apply -bitonly
```

> **Note:**
>
> For more information about `omspatcher`, see Patching Oracle Management Service and the Repository in *Enterprise Manager Administrator's Guide*.

Upgrading the Admin OMS

This section explains how you can upgrade your Admin (Primary) OMS to version 24ai Release 1.

Step 1: Stop all the OMS and Agents.

When stopping the OMS, ensure to use the command: `emctl stop oms -all`

Step 2: Start the repository and OMS upgrade

Invoke the installation wizard by running the following script from the Oracle home of the OMS you installed in Installing the OMS Software Only:

```
$<ORACLE_HOME>/sysman/install/ConfigureGC.sh
```

For Microsoft Windows platform, run the `ConfigureGC.bat` script:

```
ConfigureGC.bat
```

> **Note:**
>
> - While installing the software binaries as described in Installing the OMS Software Only, if you had passed the argument `-invPtrLoc`, then pass the same argument here as well.
> - For information about the additional, advanced options you can pass while invoking the script, refer to Using Advanced Script Options While Configuring the Enterprise Manager Software Using the Software Only Upgrade Method in Graphical Mode.

Step 3: Selecting the Installation Type

On Install types screen, do the following:

1. Select **Upgrade an existing Enterprise Manager System**.
2. Select the OMS Home you want to upgrade.
3. Click **Next**.

Step 4: Continue with the upgrade.

If an error occurs, the installer will pause. Rectify the issue and click **Retry** to resume the upgrade.

Performing Additional OMS Upgrades in Parallel

All additional OMS instances can now be upgraded simultaneously.

Run the upgrade process from all the additional OMS instances, simultaneously:

- Invoke the installation wizard by running the following script from the Oracle home of the OMS of each additional OMS instance:

  For UNIX environment, run: `<ORACLE_HOME>/sysman/install/ConfigureGC.sh`

  For Windows environment, run: `<ORACLE_HOME>/sysman/install/ConfigureGC.bat`

  For 24ai Release 1 on Microsoft Windows environment, run the `ConfigureGC.bat` script for any additional OMS upgrade using the following:

  ```
  ConfigureGC.bat
  ```

- Click **Configure** to start upgrade process.
- Upgrade process is in progress.

If an error occurs, the installer will pause. Rectify the issue and click **Retry** to resume the upgrade.

5

Upgrading Enterprise Manager and Transitioning to DR Readiness

This chapter describes how to upgrade your Enterprise Manager environment with best practices to implement the Standby OMSs using Storage Replication DR architecture.

In particular, this chapter covers the following:

- Overview of Upgrading Enterprise Manager and Transitioning to DR Readiness
- Upgrading Enterprise Manager 13*c* Release 5 to 24ai Release 1 and Transitioning to DR Readiness

Overview of Upgrading Enterprise Manager and Transitioning to DR Readiness

Enterprise Manager Maximum Availability Architecture (MAA) Disaster Recovery (DR) recommended configuration requires setting up Standby Oracle Management Services (OMS), Storage Replication, and alias hostnames. A best practice implementation of the Standby OMS using Storage Replication DR architecture includes the following:

- OMSs and agents secured against an application virtual hostname
- Each OMS and central agent configured using alias hostname
- Each OMS and central agent installed on replicated storage and replicated between sites
- Each OMS and central agent installations attached to inventory on replicated storage and replicated between sites
- Software Library storage shared between OMS servers at each site and replicated between sites
- Agents installed on each physical host at each site to provide monitoring of the hosts regardless of which site is currently the active site

Environments that have already implemented Standby OMSs using Storage Replication DR architecture configured with best practices can make use of the standard upgrade procedures and do not require the additional steps detailed in this chapter. Environments that have not yet implemented the best practices for the Standby OMSs using Storage Replication DR architecture will need to be transitioned in order to support Disaster Recovery in Enterprise Manager 24ai Release 1.

To assist with the process of transitioning to the new architecture, a new mode of the installer named Upgrade and Transition to DR Readiness has been created. This new mode is enabled by passing a parameter named `UPGRADE_TRANSITION`, and is only supported for use on the first OMS, via a standard GUI installation, and requires a specific flow of preparation and post-upgrade steps that must be followed. A software only install followed by `ConfigureGC.sh` does not provide support for Upgrade and Transition to DR Readiness. In addition, upgrading additional OMSs using Upgrade and Transition to DR Readiness is not supported. In a multi-OMS environment, the additional OMSs must first be deinstalled, the first OMS and related

post-upgrade processes associated with the transition must be completed, and then additional OMSs can be deployed.

In addition to upgrading the primary OMS and repository from Enterprise Manager Cloud Control 13 Release 5 to Enterprise Manager 24ai Release 1, the Upgrade and Transition to DR Readiness installation can perform the following steps:

- Install the Enterprise Manager 24ai software for the primary OMS on replicated storage
- Configure the upgraded Enterprise Manager 24ai primary OMS to make use of an alias hostname
- Attach the upgraded Enterprise Manager 24ai installation to a specified inventory on replicated storage

The Upgrade and Transition to DR Readiness process requires significant preparation and additional steps outside the context of the installer itself. The degree of change required as part of the upgrade and transition process depends upon the degree to which the existing installation follows best practices for the Standby OMSs using Storage Replication DR architecture. The maximum amount of change involves implementation of alias hostnames and relocation of OMS and OMS agent (Central Agent) from installations and inventory on local storage to installations and inventory on replicated storage. Variations of this process can be performed to address environments where only a subset of the configuration changes are required. The following table provides an overview of the process applicable to each scenario.

After additional OMSs are successfully deployed, WebLogic demonstration certificates are regenerated to reflect alias hostnames on all OMS servers. The binaries from the Enterprise Manager 24ai OMS on OMS1 are deinstalled, and the physical hostname agents are deployed to all Primary and Standby OMS servers.

Table 5-1 Transitions Supported by Upgrade Modes

Old Install	Upgraded Install	Old Inventory	Upgraded Inventory	Old Hostname	Upgraded Hostname	Upgrade Mode
Local or Replicated	Replicated	Local	Replicated	Physical	Alias	Upgrade and Transition to DR Readiness
Local or Replicated	Replicated	Local	Replicated	Alias	Same	Upgrade and Transition to DR Readiness
Local or Replicated	Replicated	Replicated	Same	Physical	Alias	Upgrade and Transition to DR Readiness
Local or Replicated	Replicated	Replicated	Same	Alias	Same	Upgrade

Upgrading Enterprise Manager 13*c* Release 5 to 24ai Release 1 and Transitioning to DR Readiness

This chapter covers the following::

- Process of Upgrading Enterprise Manager 13c to 24ai Release 1 and Transitioning to DR Readiness

- Upgrading to Enterprise Manager 24ai Release 1 and Transitioning to DR Readiness

Process of Upgrading Enterprise Manager 13c to 24ai Release 1 and Transitioning to DR Readiness

The upgrade and transition process starts with preparation activities across the environment to ensure readiness. Once the environment is ready, a consistent set of backups of all OMS servers are taken at both sites and the repository database. Once the backups are complete, the deinstallation of the standby OMSs and OMS agents begin. The Standby OMSs are deleted, the Standby OMS agents are deinstalled, and the Standby OMS binaries are deinstalled.

Once the Standby site deinstallation is complete, detailed preparation of servers begins on both sites. The OMS Installation Base directory is identified; Primary and Standby OMS Servers are prepared for replicated storage configuration and for alias hostnames; an Oracle Inventory Location pointer file is created in the Oracle Inventory Directory on replicated storage on Primary OMS1; the Enterprise Manager 24ai Release 1 installation software is staged on Primary OMS1 server; and the local lock file directories are created on all Primary and Standby OMS Servers.

Once the preparation on both sites is complete, additional OMSs and additional OMS agents at the primary site are deleted and deinstalled, and the upgrade and transition of OMS1 begins. The Primary OMS1 and OMS1 agent are stopped, the installer is launched, and the upgrade and transition of OMS1 and the repository begins. After the upgrade and transition of OMS1 completes, OMS1 is stopped, configured for local lock files, and restarted.

At this point, the upgrade and transition of OMS1 Agent begins. The OMS1 Agent is upgraded to Enterprise Manager 24ai Release 1, the Post Agent Upgrade Cleanup is performed for the OMS1 Agent; the OMS1 Agent is relocated from local storage and inventory to replicated storage and inventory; steps are taken to prepare and recover the OMS1 Agent to make use of the alias hostname; OMS1 related targets are relocated to the recovered alias hostname agent.

Once the Agent and target relocation is complete, the OMS1 is resecured to make use of the updated Enterprise Manager 24ai Release 1 SLB configuration and the deferred DDMP jobs are submitted. Once the DDMP Jobs complete, the upgrade and transition of OMS1 is complete and additional OMS deployment begins. An alias hostname agent is deployed to each additional OMS server on replicated storage with inventory on replicated storage. Additional OMSs are deployed using the Add Oracle Management Service deployment procedure.

After additional OMSs are successfully deployed, WebLogic demonstration certificates are regenerated to reflect alias hostnames on all OMS servers; the binaries from the Enterprise Manager 13c OMS on OMS1 are deinstalled; and physical hostname agents are deployed to all Primary and Standby OMS servers.

This completes the upgrade and transition process on both sites.

> **Note:**
>
> In development and test environments that can accommodate the associated downtime, a switchover can be performed to and back from the new standby OMSs to confirm the successful upgrade and transition, and additional patching and other maintenance tests also can be performed.

Once the upgrade and transition is complete and known to be successful, interim upgrade and transition files can be backed up as necessary and deleted.

Upgrading to Enterprise Manager 24ai Release 1 and Transitioning to DR Readiness

To upgrade your Enterprise Manager 13*c* Release 5 environment configured with Standby OMSs using Standby WebLogic Domain Disaster Recovery (DR) architecture to Enterprise Manager 24ai Release 1 and transition to Standby OMSs using Storage Replication DR architecture, follow these steps:

- **Step 1:** Preparing to Upgrade and Transition to DR Readiness
- **Step 2:** Removing Standby OMSs and OMS Agents
- **Step 3:** Preparing Primary and Standby OMSs for Upgrade and Transition to DR Readiness
- **Step 4:** Deleting Primary Additional OMSs and Additional OMS Agents
- **Step 5:** Upgrading and Transitioning the OMS1 and the Repository
- **Step 6:** Transitioning the OMS1 Agent to DR Readiness
- **Step 7:** Updating Primary Site Configuration
- **Step 8:** Adding New Primary Additional OMS Alias Hostname Agents and Additional OMSs
- **Step 9:** Finalizing Primary and Standby Site Configuration

Preparing to Upgrade and Transition to DR Readiness

This section details the preparation steps required to ensure a successful upgrade and transition. As a general approach, consider preparation for this upgrade and transition to be similar to preparation that you would perform for an upgrade or other heavy maintenance activity. As with those maintenance activities, it is important to ensure that the environment is healthy prior to commencing the upgrade and transition activities.

It is important to understand the entire upgrade and transition process as well as the conventions used in this section. There are two users referenced in the instructions:

- Root
- Oracle Software Owner User

If there is no reference to the specific user to use for a command, the command should be run as the Oracle Software Owner User. Commands that should be run as root are identified explicitly. If you cannot directly log in as root in your environment, you can make use of sudo or other means to execute the commands as root. If you are using other means to execute the commands as root in your environment, be sure to make the appropriate changes to the commands to ensure they are run with root privileges and test those commands in your development or test environment to ensure they are structured correctly.

Variables are referenced within commands using angle brackets as in `<VARIABLE>`. As environments can vary substantially, it is possible that direct variable substitution may not work for your environment. In these cases, you must identify the difference between your environment and the example environment reflected in the examples in this section, and adapt the variable substitution to reflect the differences in your environment.

Enterprise Manager servers that contain an OMS are referenced within these instructions individually as an OMS server or OMSn (such as OMS1), and collectively as OMSs or OMS servers. Thus, a reference to an OMS server often includes components besides the OMS. A reference to Start OMS with the command emctl start oms will start the full product stack installed and configured on the particular OMS server, including OMS, WebLogic Node Manager, and WebLogic Administration Server if on OMS1.

Before you proceed with Upgrading Enterprise Manager 13c Release 5 to 24ai Release 1 and Transitioning to DR Readiness, ensure that you have verified the following:

- **Step 1:** Prerequisites for Upgrading to Enterprise Manager 24ai Release 1 and Transitioning to DR Readiness
- **Step 2:** Securing Enterprise Manager Installation Against an Application Virtual Hostname
- **Step 3:** Ensuring the Replicated Storage is Provisioned and Currently Active on the Primary Site
- **Step 4:** Ensuring Upgrade and Transition Occurs on the Primary Site
- **Step 5:** Identifying the OMS Installation Base Directory
- **Step 6:** Additional Steps Required if Using Custom WLS Certificates Instead of Demonstration Certificates
- **Step 7:** Updating SLB Configuration for the Upgraded Enterprise Manager 24ai Release 1 Environment
- **Step 8:** Creating Backups

Prerequisites for Upgrading to Enterprise Manager 24ai Release 1 and Transitioning to DR Readiness

The prerequisites for performing an Upgrade and Transition to DR Readiness are a superset of the prerequisites for performing a standard upgrade. Review, understand, and ensure the environment meets the prerequisites specified in Prerequisites for Upgrading to Enterprise Manager 24ai Release 1 . Ensure that prerequisites not specifically referenced in this chapter are performed at the appropriate time in the upgrade and transition process, no later than before the start of the actual Upgrade and Transition to DR Readiness using the installer. Instructions in this chapter will address when to stop the OMS and OMS agent.

Securing Enterprise Manager Installation Against an Application Virtual Hostname

A disaster recovery configuration requires securing the OMS and agents against an application virtual hostname, which can be implemented manually with DNS or in an automated fashion with a global load balancer. Ensure that the OMS and agents have been secured against an application virtual hostname before performing the upgrade and transition. For more information on application virtual hostname, see Application Virtual Host Name Consideration in the *Oracle Enterprise Manager Advanced Installation and Configuration Guide*.

Ensuring the Replicated Storage is Provisioned and Currently Active on the Primary Site

This chapter makes use of the terms replicated storage and storage replication to describe the storage that is used for the installation, configuration, and execution of the OMS and OMS agent software using the alias hostnames. The storage for a given OMS at the primary site is replicated to the corresponding storage at the standby site. The changes are replicated at a minimum on a defined schedule, and on demand before a switchover occurs such that the same installed software and configuration can be accessed by whichever site is active. Depending upon the technologies chosen, there may be manual steps required to be taken by storage administrators in order to change the direction of the replication and prepare the other

site's storage for access. Each OMS (OMS1, OMS2, and so on) has a server at the primary site and at the standby site, and for each OMS only one server is active at any given time. The server at the active site hosts the OMS using the replicated storage.

In addition to the storage replication of OMS and OMS agent software, there are two other sets of storage replication that must be provisioned prior to performing this upgrade and transition process in order to support replication of the Software Library shared storage. Storage replication for the Software Library should already be addressed because the Software Library should already be shared between OMSs at a site and replicated between the primary and standby sites as part of the existing two-domain installation. As such, while the Software Library is backed up at the start of this upgrade and transition process, there are no steps incorporated into this upgrade and transition to address preparation of replication of the Software Library. Ensure Software Library replication is configured properly such that the Software Library is currently available on all OMSs at both the primary and standby sites using the same path on all OMSs to support the current two-domain installation, and that it will continue to be available to whichever site is active in the migrated environment.

For more information regarding storage replication requirements, see *Storage Considerations* in the *Oracle Enterprise Manager Advanced Installation and Configuration Guide*.

Ensure that the replicated storage has been provisioned as requested, and that the replication is currently configured such that the primary site is active. This will prevent delays during the maintenance window for the upgrade and transition by ensuring that the storage replication is ready to support the upgrade and transition.

Ensuring Upgrade and Transition Occurs on the Primary Site

The upgrade and transition process will upgrade and transition the Primary WebLogic domain to become the new single WebLogic domain that will be used on both sites.

Ensure that:

- The upgrade and transition process is started on the primary site.
- You do not use a standby WebLogic domain as the source domain for the upgrade and transition.

Identifying the OMS Installation Base Directory

Identify the directory to be used as the OMS Installation Base Directory, which is the parent directory for the Middleware Home, Instance Base, Agent Base, and Oracle Inventory locations on the replicated storage. The OMS Installation Base directory can serve as the mount point for the replicated storage. The example configuration of the OMS Installation Base Directory detailed in this chapter is `/u01/app/oracle/OMS` and is referenced as the variable `<OMS_MOUNT_POINT>`.

For further details on the OMS Installation Base Directory, see *Oracle Management Service High Availability* in the *Oracle Enterprise Manager Advanced Installation and Configuration Guide.*

Additional Steps Required if Using Custom WLS Certificates Instead of Demonstration Certificates

As part of the transition to alias hostnames, WebLogic Server certificates need to be updated on each OMS to reflect the alias hostname FQDN instead of the physical hostname. The upgrade and transition process includes the instructions required to perform these updates for the default WebLogic Server demonstration certificates. It does not include the instructions required to update custom WLS certificates.

For more details on configuring custom WLS certificates, see *Configuring Custom Certificates for WebLogic Server* in the *Oracle Enterprise Manager Security Guide*.

If you use custom certificates for WLS, ensure that you have obtained the needed certificates and understand the steps required to perform the updates at the appropriate point in the upgrade and transition process before proceeding.

Updating SLB Configuration for the Upgraded Enterprise Manager 24ai Release 1 Environment

SLB configuration updates are required to support Always-On Monitoring (AOM) and Java Virtual Machine Diagnostics (JVMD) SLB configuration requirements in Enterprise Manager 24ai Release 1. Ensure that the SLB configuration on both primary and standby sites is updated with the new configuration required to support AOM and JVMD. A future step will resecure the OMS to implement the updated configuration for JVMD.

For more details on SLB configuration for high availability in Enterprise Manager 24ai Release 1, see *Configuring a Load Balancer* in the *Oracle Enterprise Manager Advanced Installation and Configuration Guide*.

For more details on SLB configuration for disaster recovery in Enterprise Manager 24ai Release 1, see *Management Service Disaster Recovery* in the *Oracle Enterprise Manager Advanced Installation and Configuration Guide*.

For an example of detailed step by step instructions for configuring an SLB for a site, see the white paper *Enterprise Manager 13c Cloud Control Configuring OMS High Availability with F5 BIG-IP Local Traffic Manager*.

Creating Backups

Before starting the upgrade and transition, create a set of backups that can be used as a fallback if the entire environment need to be reset. There are five parts to the backup process:

- Full backup of each OMSs relevant directories
- Backup of the configuration of each OMS
- Backup of the Software Library
- Corresponding backups of the repository database(s)

The backups of the OMSs' relevant directories must include the instance, middleware, agent, and inventory. As the backups of the OMSs' relevant directories are filesystem backups, they must be performed as root and must be performed while the OMS and the agent are down. These backups can be performed in a staggered manner, for a single OMS at a time, to ensure availability. Each OMS must be backed up.

A single corresponding backup of the Software Library is required.

For more information on backing up Enterprise Manager, see *Backing Up and Recovering Enterprise Manager* in the *Oracle Enterprise Manager Advanced Installation and Configuration Guide*.

Preparing Primary and Standby OMSs for Upgrade and Transition to DR Readiness

To prepare the Primary and Standby OMSs for Upgrade and Transition to DR Readiness follow these steps:

- **Step 1:** Preparing All Primary and Standby OMS Servers for Replicated Storage Configuration
- **Step 2:** Preparing All Primary and Standby OMS Servers for Alias Hostnames

- **Step 3:** Creating Inventory Location Pointer File in Oracle Inventory Directory on Primary OMS1
- **Step 4:** Staging the New Version of Enterprise Manager Installation Software on Primary OMS1 Server
- **Step 5:** Preparing Local Lock File Directory on All Primary and Standby Site OMSs

Preparing All Primary and Standby OMS Servers for Replicated Storage Configuration

Configure all Primary and Standby OMS Servers for replicated storage. Each corresponding Primary and Standby OMS server must be configured to mount replicated storage containing the Middleware Home, Instance Base, Agent Base, and Oracle Inventory Home. These directories will be used in the upgrade and transition process.

A best practice is to ensure that all four of these directories are located underneath an OMS Installation Base Directory, which can serve as the mount point to the replicated storage. In addition, all OMS servers at each site must be configured to mount the shared storage for the Software Library, and the shared storage must be shared between all OMS servers at a site and must be replicated between sites. The directory paths must be identical on all OMS servers, for the Middleware Home, Instance Base, Agent Base, Oracle Inventory Home, and Software Library storage.

Preparation of all the Primary and Standby OMS Servers for replicated storage is complete when:

- The replicated storage is active on the primary site
- The replicated storage is mounted on the primary site OMS servers
- Replication is configured and running on the configured schedule
- Ownership and permissions have been set properly on the mounted storage on primary site OMS servers

For more details regarding storage considerations, see Storage Considerations in the *Oracle Enterprise Manager Advanced Installation and Configuration Guide*.

Preparing All Primary and Standby OMS Servers for Alias Hostnames

Configure alias host names for all Primary and Standby OMS Servers such that each corresponding OMS host at the Primary and Standby sites is configured with an alias host name that is the same at both the sites. Ensure that all the OMS servers at each site can communicate with all other OMS servers at the same site using the alias host names.

For more details, see Option 2 - Alias host names on both sites in Planning Host Names in the *Oracle Enterprise Manager Advanced Installation and Configuration Guide*.

Creating Inventory Location Pointer File in Oracle Inventory Directory on Primary OMS1

As a part of the upgrade and transition to replicated storage, the OMS and OMS Agent software must be associated with Oracle Inventory located on replicated storage beneath the OMS Installation Base Directory. Once the upgrade is complete, it will be important to use this Oracle Inventory location for all maintenance of the OMS and OMS Agent to ensure that software maintenance can be performed on whichever site is currently serving as the active site.

Create the Oracle Inventory directory located on replicated storage and create the `oraInst.loc` Inventory Location pointer file in that directory on Primary OMS1. The Inventory

Location pointer file will be used when launching the installer to perform the upgrade to ensure that the upgraded software will be associated with inventory on replicated storage.

For further details, see Configure an Oracle Inventory located under OMS installation base directory in the *Oracle Enterprise Manager Advanced Installation and Configuration Guide*.

Staging the New Version of Enterprise Manager Installation Software on Primary OMS1 Server

Stage the new version of Enterprise Manager installation software to a directory on the Primary OMS1 Server in preparation for the upgrade.

Preparing Local Lock File Directory on All Primary and Standby Site OMSs

Create or identify a directory owned by the Oracle Software Owner User located on local storage that can be used to store the local lock file for OHS and configure the directory consistently on all primary and standby OMS servers. In the future steps, you will configure each OMS to make use of this directory for local lock file storage.

Removing Standby OMSs and OMS Agents

Removal of the Standby OMSs and OMS Agents is done through the following steps:

- **Step 1:** Removing All Additional Standby OMS Instances
- **Step 2:** Removing the First Standby OMS
- **Step 3:** Removing All Standby OMS Agents
- **Step 4:** Deinstalling All Standby OMS Binaries

Removing All Additional Standby OMS Instances

To remove all additional standby OMS instances, see the section on removing additional standby OMS instances in *Oracle Enterprise Manager Advanced Installation and Configuration Guide*

Removing the First Standby OMS

To remove the first standby OMS, see the section on removing the first standby OMS in *Oracle Enterprise Manager Advanced Installation and Configuration Guide*

Removing All Standby OMS Agents

To remove all of the standby OMS agents, for each standby OMS agent, see the section on Deinstalling Oracle Management Agents in the *Oracle Enterprise Manager Advanced Installation and Configuration Guide*

Deinstalling All Standby OMS Binaries

To deinstall the binaries for all of the standby OMS instances, for each standby OMS, see the procedure for Deinstalling Enterprise Manager in *Oracle Enterprise Manager Advanced Installation and Configuration Guide*

Deleting Primary Additional OMSs and Additional OMS Agents

Before beginning the upgrade, delete the additional OMSs and the agents on the additional OMSs. Perform the following steps sequentially for each additional OMS in the environment.

> **Note:**
>
> Only the additional OMSs and OMS agents are being deleted at this point and hence the instructions in this section are a subset of the instructions in Prerequisites for Deinstalling Only the OMS and Retaining the Management Repository in *Oracle Enterprise Manager Advanced Installation and Configuration Guide*

To delete Primary Additional OMSs and Additional OMS Agents, follow these steps:

- **Step 1:** Stopping and Deleting Primary Additional OMSs
- **Step 2:** Stopping and Deinstalling Primary Additional OMS Agents
- **Step 3:** Deinstalling Primary Additional OMS binaries

Stopping and Deleting Primary Additional OMSs

To remove all the additional OMSs at the primary site, you need to stop and delete the additional OMS for each primary additional OMS, separately.

To stop and delete the additional OMS for each primary additional OMS, follow these steps:

1. On the additional OMS server, perform an `omsca delete` to remove the second primary OMS configuration. This cleanly removes the additional primary OMS from the Enterprise Manager repository and the WebLogic configuration, and updates configuration files appropriately.

   ```
   <OLD_ORACLE_HOME>/bin/omsca delete -OMSNAME <ADDITIONAL_OMS_NAME> -
   REP_CONN_STR "<REPOSITORY_CONNECTION_STRING>"
   ```

   The `<ADDITIONAL_OMS_NAME>` for the additional OMS, for example EMGC_OMS2, can be seen in the output of running `emctl status oms -details` on the additional OMS. In the output on the additional OMS, see the value returned for Managed Server Instance Name. For example, Managed Server Instance Name: EMGC_OMS2.

2. In the Enterprise Manager, remove the targets related to the additional OMS that has just been deleted, replacing the `<#>` with the appropriate number for the additional OMS in `OMS<#>` and `ohs<#>` in the following instructions:

   a. Wait for status to change to **Down** for the `EMGC_OMS<#>` and `ohs<#>` targets.

   b. Remove `OMS<#>` target for the deleted `OMS<#>`.

      i. Navigate to the home page for target `/EMGC_GCDomain/GCDomain/EMGC_OMS<#>`.

      ii. Select **WebLogic Server**, **Target Setup** and then select **Remove Target**.

      iii. On the Warning page, select **Yes**.

      iv. Confirm that the target is deleted.

   c. Remove `ohs<#>` target for the deleted `OMS<#>`.

      i. Navigate to the home page for target `/EMGC_GCDomain/instance<#>/ohs<#>`.

      ii. Select **Oracle HTTP Server**, **Target Setup** and then select **Remove Target**.

      iii. On the Confirmation dialog, select **Yes**.

      iv. Confirm that the target is deleted.

3. Upload from `OMS<#>` agent `<OLD_OMS_AGENT_HOME>/bin/emctl upload agent`

> **Note:**
>
> The step to upload from the `OMS<#>` agent is added in this order (after `OMS<#>` has been deleted) for customers running in a High Availability configuration, to provide administrators with visibility of the latest state of the components in the environment.

> **Note:**
>
> You may receive an error “EMD upload error:full upload has failed: uploadXMLFiles skipped :: OMS version not checked yet” while attempting the upload which may last for several minutes and then clear. If this issue persists check trace files for ping to OMS related errors (OMS_DOWN).

Stopping and Deinstalling Primary Additional OMS Agents

To remove all of the primary additional OMS agents, for each primary additional OMS agent, see the section on Deinstalling Oracle Management Agents in the *Oracle Enterprise Manager Advanced Installation and Configuration Guide*

Deinstalling Primary Additional OMS binaries

To deinstall the binaries for all of the primary additional OMS instances, for each primary additional OMS see Procedure for Deinstalling Enterprise Manager in *Oracle Enterprise Manager Advanced Installation and Configuration Guide*

Upgrading and Transitioning the OMS1 and the Repository

Before you upgrade and transition the OMS1 and the repository, ensure that:

- The environment is prepared for the upgrade and transition process. All steps previously listed for the upgrade and transition process are completed.
- Prerequisites listed in Prerequisites for Upgrading to Enterprise Manager 24ai Release 1 are met.
- Primary OMS1 and the Primary OMS1 Agent are stopped before proceeding.

Perform the upgrade and transition of OMS1 and the repository using the following steps:

- **Step 1:** Upgrading and Transitioning OMS1 and Oracle Management Repository to 24ai Release 1
- **Step 2:** Specifying Local File System Location for Lock Files on Primary OMS1
- **Step 3:** Confirming the WebLogic and the OMS are Configured for Alias Hostname

Upgrading and Transitioning OMS1 and Oracle Management Repository to 24ai Release 1

To upgrade and transition the OMS1 and the repository, follow these steps on Primary OMS1:

- **Step 1:** Invoking the Enterprise Manager Installer in GUI Mode to Upgrade and Transition to DR Readiness
- **Step 2:** Selecting the Installation Type
- **Step 3:** Applying the Latest Software Updates

- **Step 4:** Running the Prerequisite Checks and Validating the Environment
- **Step 5:** Configuring a Middleware Home and Validating the Host Name
- **Step 6:** Providing Database Connection Details
- **Step 7:** Checking Database Prerequisites
- **Step 8:** Upgrading or Migrating Plug-ins, or Deploying Dependent Plug-ins
- **Step 9:** Deploying Additional Plug-ins
- **Step 10:** Extending the Existing WebLogic Server Domain
- **Step 11:** Reviewing the Upgrade Details
- **Step 12:** Monitoring the Configuration Progress
- **Step 13:** Ending the Upgrade

Invoking the Enterprise Manager Installer in GUI Mode to Upgrade and Transition to DR Readiness

Oracle strongly recommends that you back up the Management Repository, the OMS, the inventory, the Software Library, and other components that are critical to the functioning of Enterprise Manager. This will enable you to revert to the original contents if the upgrade fails.

Invoke the Enterprise Manager Installation Wizard on the host where your existing OMS1 is running.

```
./em24100_<platform>.bin -invPtrLoc
<absolute_path_to_oraInst.loc_on_replicated_storage>
ORACLE_HOSTNAME=<OMS1_ALIAS_HOSTNAME_FQDN> UPGRADE_TRANSITION=true
OLD_INVENTORY_LOCATION=<OLD_INVENTORY_HOME>
```

Example:

```
./em24100_linux64.bin -invPtrLoc /u01/app/oracle/OMS/oraInventory/oraInst.loc
ORACLE_HOSTNAME=emoms1.example.com UPGRADE_TRANSITION=true
OLD_INVENTORY_LOCATION=/u01/app/oracle/oraInventory
```

Ensure that each of the following parameters is passed to the installer:

- Specifying the following parameter and value ensures that the Enterprise Manager 24ai Release 1 installation will be associated with Oracle Inventory located on replicated storage:

  ```
  -invPtrLoc <absolute_path_to_oraInst.loc_on_replicated_storage>
  ```

- Specifying the following parameter and value enables the Upgrade and Transition to DR Readiness mode of the installer:

  ```
  UPGRADE_TRANSITION=true
  ```

- The following parameter and value specifies the alias hostname to use for the upgraded OMS1:

  > **Note:**
  >
  > Ensure that the Host Name field on the Installation Details page is reviewed and updated if necessary to match the alias hostname of OMS1.

  ```
  ORACLE_HOSTNAME=<OMS1_ALIAS_HOSTNAME_FQDN>
  ```

- The following parameter and value specifies the directory of the old Oracle Inventory associated with the Enterprise Manager installation that is being upgraded:

  ```
  OLD_INVENTORY_LOCATION=<OLD_INVENTORY_HOME>
  ```

Selecting the Installation Type

On the Installation Types page, follow these steps:

1. Select **Upgrade and Transition to DR Readiness**.
2. Ensure that **One-System Upgrade** is selected.
3. Select the Management Server home being upgraded and transitioned.

   For example, `/u01/app/oracle/MWare1`
4. Click **Next**.

Applying the Latest Software Updates

(Optional) On the Software Updates screen, select **Search for Updates**, and then select one of the following options to apply the latest software updates, including the latest PSU patches:

- **Local Directory**, if you do not have Internet connectivity on your host, and want to download the updates in offline mode and apply them while performing the upgrade.
- **My Oracle Support**, if you have Internet connectivity on your host, and want to connect to My Oracle Support directly via the installer to download the updates in online mode and apply them while performing the upgrade.

For instructions about downloading the software updates in offline or online mode, see *Oracle Enterprise Manager Advanced Installation and Configuration Guide*. If the host from where you are running the installation wizard does not have a connection to the Internet, you can manually collect the configuration information and upload it to *My Oracle Support* after you complete the upgrade. For instructions, see *Oracle Enterprise Manager Advanced Installation and Configuration Guide*.

If you do not want to run the software updates, select **Skip** and click **Next**.

Running the Prerequisite Checks and Validating the Environment

On the Prerequisite Checks screen, check the status of the prerequisite checks run by the installation wizard, and verify whether your environment meets all the minimum requirements for a successful upgrade. Then click **Next.**

The installation wizard runs the prerequisite checks automatically when you come to this screen. The status of the prerequisite check can be either **Warning, Failed, Succeeded, Not Executed, In Progress,** or **Pending.**

If some checks result in **Warning** or **Failed** status, then investigate and correct the problems before you proceed with the upgrade. The screen provides details on why the prerequisites failed and how you can resolve them. After you correct the problems, return to this screen and click **Rerun** to check the prerequisites again.

Configuring a Middleware Home and Validating the Host Name

On the Installation Details page, follow these steps:

1. Enter a new middleware home on replicated storage where the installer can automatically install Oracle WebLogic Server and Java Development Kit. Ensure this new middleware

home is located on replicated storage under the OMS Installation Base directory. For example, `/u01/app/oracle/OMS/MWare_new`

> **Note:**
>
> - Ensure that the Middleware home you enter or validate here is used only for Enterprise Manager.
> - Ensure that no other Oracle Fusion Middleware products or components are installed in the same Middleware home.

2. Review the Host Name and ensure that it is the alias host name for OMS1 that was specified with the `ORACLE_HOSTNAME` parameter when the installer was launched. If the Host Name does not match the alias host name for OMS1, replace the contents of the field with the alias host name for OMS1.

   For example, `emoms1.example.com`

3. Click **Next**.

Providing Database Connection Details

On the Database Connection Details page, select Disable DDMP Jobs, and follow the remainder of the instructions in Providing Database Connection Details. The DDMP Jobs will be submitted later in the upgrade and transition process.

> **Note:**
>
> For information about the various prerequisite checks that are run on the database at this point and how to fix them if they fail, see Prerequisites for Upgrading to Enterprise Manager 24ai Release 1 .

Checking Database Prerequisites

On the Database Prerequisite Checks screen, check the status of the database prerequisite checks run by the installation wizard, and verify whether your environment meets all the minimum requirements for a successful upgrade. Then click **Next**.

The installation wizard runs the database prerequisite checks automatically when you come to this screen. The status of the prerequisite check can be either **Warning, Failed** or **Succeeded**.

If some checks result in **Warning** or **Failed** status, then investigate and correct the problems before you proceed with the upgrade. The screen provides details on why the prerequisites failed and how you can resolve them. After you correct the problems, return to this screen and click **Check Again** to check the database prerequisites again.

- If the Auto Fixable column is `Yes`, you can click on **Auto Fix** and the installer will fix the issue automatically.
- If the recommendation indicates that the Correction Type is `Manual`, you need to fix the issue manually.

If the installer finds that some plug-ins deployed in the previous release of Enterprise Manager are obsolete and are not supported in Enterprise Manager 24ai Release 1, then you are

prompted to `Check for Obsolete plugins`. You can return to the installer and proceed with the upgrade only after removing those obsolete plug-ins.

To remove the obsolete plug-ins, follow these steps:

1. Undeploy the obsolete plug-ins from the Management Agents. Next, undeploy them from the OMS instances. For instructions, see the chapter on Undeploying Plug-Ins in *Oracle Enterprise Manager Administrator's Guide*.
2. Optionally, remove the binaries of these obsolete plug-ins from the Self Update Console. For instructions, see the chapter on Updating Enterprise Manager in *Oracle Enterprise Manager Administrator's Guide*.

> **Note:**
>
> If you have any JVM Diagnostics Engines (JVMD Engines) or Application Dependency and Performance Engines (ADP Engines) configured in your environment, then check whether they are up and running. If they are, then check whether the Admin Server is up and stop the JVMD Engines and the ADP Engines. Once the upgrade is successful, the JVMD Engines start automatically.
>
> To check whether the Admin Server is running, run the following command from the OMS you are upgrading. Here, `<ORACLE_HOME>` is the Oracle home of the OMS.
>
> `<ORACLE_HOME>/bin/emctl status oms -details.`
>
> Example: `/u01/software/em24/oms_home/bin/emctl status oms -details`
>
> To stop the engines, on each OMS instance, run the following command from the OMS you are upgrading. Here, `<ORACLE_HOME>` is the Oracle home of the OMS.
>
> `<ORACLE_HOME>/bin/emctl extended oms adp stop -all.`

For information about the various prerequisite checks that are run on the database at this point and how to fix them if they fail, see Prerequisites for Upgrading to Enterprise Manager 24ai Release 1 .

After you complete reviewing and fixing the prerequisites results, click **Next**.

The **Information** pop-up window is displayed.

Review the important information provided about the upgrade process and then click **OK**.

Upgrading or Migrating Plug-ins, or Deploying Dependent Plug-ins

On the Plug-In Upgrade screen, review the plug-ins and click **Next.**

The plug-ins will experience one of the following effects:

- Upgraded when newer versions exist.
- Migrated when newer versions do not exist.
- Deployed when the plug-ins being upgraded have new dependencies, or when there are any new default plug-ins introduced with a release.

  Here, newer versions refer to the newer versions of plug-ins available in the Enterprise Manager software (DVD, or downloaded software) that you are using to install.

Note:

Before you proceed to the next screen, run the following command to stop all the associated OMS instances. Here, <ORACLE_HOME> is the Oracle home of the OMS.

```
$<ORACLE_HOME>/bin/emctl stop oms -all
```

Note:

- You might have a deprecated plug-in in your environment that can be upgraded to a plug-in version that is supported only in Enterprise Manager 24ai Release 1, but not in any of the future releases. If such a deprecated plug-in is selected by default in this screen for upgrade, then you are prompted to evaluate your selection and decide whether or not you want to proceed with the upgrade of such plug-ins.
- If the newer versions do not exist in the Enterprise Manager software that you are using, but exist on Oracle Software Downloads, then you can choose to manually download them from Oracle Software Downloads and upgrade your existing plug-ins, instead of having them automatically migrated by default. To do so, follow these steps:

  1. Manually download the required plug-ins.
     - Oracle Plug-ins are available for download via Plug-in Update.
     - Plug-ins produced by Oracle partners are available on the Enterprise Manager Extensibility Exchange.
  2. Invoke the installer with the following option and pass the location where the additional plug-ins have been downloaded:

     On UNIX platforms:

     ```
     ./em24100_<platform>.bin
     PLUGIN_LOCATION=<absolute_path_to_plugin_software_location>
     ```

     On Microsoft Windows platforms:

     ```
     setup_em24100_win64.exe
     PLUGIN_LOCATION=<absolute_path_to_plugin_software_location>
     ```

     This displays a list of plug-ins available in the software kit (DVD, downloaded software) as well as the plug-ins available in this custom location. You can choose the ones you want to install.

  Once the newer versions of the plug-ins are made available, this screen lists those plug-ins as plug-ins that will automatically be upgraded.
- If you see a message stating that you have unsupported plug-ins on the OMS or on some of the Management Agents, then follow the instructions outlined in the message to upgrade the plug-ins, and then retry upgrading the OMS.

Deploying Additional Plug-ins

On the Select Plug-ins screen, select the additional plug-ins you want to deploy in addition to the plug-ins that will automatically be upgraded while upgrading the OMS, and click **Next**.

> **Note:**
>
> If you select a deprecated plug-in that is supported only in 24ai Release 1, but not in any of the future releases, then you are prompted to evaluate your selection and decide whether or not you want to proceed with the deployment of such plug-ins.

> **Note:**
>
> If you want to install some plug-ins that are not listed on this screen, then follow these steps:
>
> 1. Manually download the required plug-ins.
>   - Oracle Plug-ins are available for download via Plug-in Update.
>   - Plug-ins produced by Oracle partners are available on the Enterprise Manager Extensibility Exchange.
> 2. Invoke the installer with the following option and pass the location where the additional plug-ins have been downloaded:
>
>   On UNIX platforms:
>
>    ```
>    em24100_<platform>.bin
>    PLUGIN_LOCATION=<absolute_path_to_plugin_software_location>
>    ```
>
>   On Microsoft Windows platforms:
>
>    ```
>    setup_em24100_win64.exe
>    PLUGIN_LOCATION=<absolute_path_to_plugin_software_location>
>    ```
>
>   This displays a list of plug-ins available in the software kit (DVD, downloaded software) as well as the plug-ins available in this custom location. You can choose the ones you want to install.
>
>   > **Note:**
>   >
>   > The `INSTALL_SWONLY_WITH_PLUGINS` parameter is not supported starting with Enterprise Manager 13c Release 5. If you execute the `em24100_<platform>.bin` or `setup_em24100_win64.exe` script using the `INSTALL_SWONLY_WITH_PLUGINS` parameter, you will receive an invalid parameter error message since the parameter is no longer supported.

Extending the Existing WebLogic Server Domain

On the Extend WebLogic Server Domain page, follow the instructions listed in Extending the Existing WebLogic Server Domain.

> **Note:**
>
> - The Admin Server Host still lists the physical host name for OMS1. This is ok as the Admin Server will be updated to use the OMS1 alias host name as part of this mode of the upgrade.
> - Ensure the OMS Instance Base location is located on replicated storage. If the replicated storage is configured at or above the OMS Installation Base directory, and the Middleware Home is beneath the OMS Installation Base directory, no change is required as the OMS Instance Base location will be a peer directory of the Middleware Home by default. For example, `/u01/app/oracle/OMS/gc_inst`.
> - If the mount point makes use of NFS mounted storage, a warning appears to place the lock file directory on local storage. A post-upgrade step in the upgrade and transition process will place the http lock file in a directory on local storage after the upgrade completes

Reviewing the Upgrade Details

On the Review screen, review the details you have provided for the upgrade.

> **Note:**
>
> Starting with Enterprise Manager 24 Release 1, there's an additional Oracle Management Service called Oracle Management Service (OMS) Extended Home. It allows performing administrative tasks without interrupting the Enterprise Manager operations. For example, no need of downtime when performing Enterprise Manager upgrades or updates.

1. If you want to change the details, click **Back** repeatedly until you reach the screen where you want to make the changes.
2. After you verify the details, if you are satisfied, click **Upgrade** to begin the upgrade.

> **Note:**
>
> When performing an Upgrade and Transition to DR Readiness, ensure the Host Name displayed is the alias host name for OMS1. If it is not, navigate back to the Installation Details screen and ensure the Host Name is properly specified.

Monitoring the Upgrade Progress

On the Install Progress screen, view the overall progress (in percentage) of the upgrade operation and the status of each of the Configuration Assistants.

Note:

- If a Configuration Assistant fails, the installer stops and none of the subsequent Configuration Assistants are run until the issue related to the failed Configuration Assistant is resolved. In this case, diagnose the issue, resolve it, and then, click **Retry** on the Install Progress screen to rerun the Configuration Assistants starting from the Configuration Assistant that failed.

  However, if you accidentally exit the installer before clicking **Retry**, then do NOT restart the installer to reach the same screen; instead, invoke the `runConfig.pl` script from the Oracle home of the OMS to rerun the Configuration Assistant in silent mode. If the `runConfig.pl` script fails, raise a service request and contact Oracle Support.

  ```
  $<ORACLE_HOME>/oui/bin/runConfig.pl
  <absolute_path_to_Middleware_home>
  ```

  For example,

  ```
  /u01/software/em24/oms_home/oui/bin/runConfig.pl /u01/software/em24/
  oms_home
  ```

  If the `runConfig.pl` script fails, raise a service request and contact Oracle Support.
- If the Management Repository upgrade fails with the following error in the schemamanager logs, then restart the database, and then try the upgrade again.

  ```
  ORA-04020: deadlock detected while trying to lock object
  SYSMAN.MGMT_GLOBAL
  ```

Ending the Upgrade

On the Finish screen, you should see information pertaining to the upgrade of Enterprise Manager. Review the information and click **Close** to exit the wizard.

Once the software binaries are copied and configured, you are prompted to run the `allroot.sh` script. Open another window, log in as `root`, and manually run the scripts.

If you are installing on Microsoft Windows operating system, then you will NOT be prompted to run this script.

Specifying Local File System Location for Lock Files on Primary OMS1

Once the upgrade and transition is complete, if the replicated storage is mounted using NFS, edit the httpd.conf file to specify a location on local storage for the http lock file. Follow the instructions in the following step in Performing Postinstallation Tasks After Installing an Enterprise Manager System in the *Oracle Enterprise Manager Basic Installation Guide*.

Note:

If you installed an NFS-mounted drive and created the OMS instance base directory `gc_inst` on that NFS-mounted drive, then move the lock files from the NFS-mounted drive to a local file system location. To do so, modify the lock files location in the `httpd.conf` file to map to a location on a local file system.

Confirming the WebLogic and the OMS are Configured for Alias Hostname

To confirm that the upgrade and transition has successfully configured the OMS for the alias hostname, follow these steps:

1. On the Primary OMS1, confirm the ServerName configured in the `httpd.conf` file shows the alias hostname for OMS1.

   ```
   grep ^ServerName <NEW_INSTANCE_HOMEBASE>/user_projects/domains/GCDomain/
   config/fmwconfig/components/OHS/ohs<#>/httpd.conf
   ```

   For example:

   ```
   grep ^ServerName /u01/app/oracle/OMS/gc_inst/user_projects/domains/GCDomain/
   config/fmwconfig/components/OHS/ohs1/httpd.conf
   ```

   Example Output:

   ```
   [oracle@host1 ~]$ grep ^ServerName /u01/app/oracle/OMS/gc_inst/user_projects/domains/
   GCDomain/config/fmwconfig/components/OHS/ohs1/httpd.conf
   ServerName emoms1.example.com
   ```

2. On the Primary OMS1, examine the output of `emctl status oms -details`.

   ```
   <NEW_MIDDLEWARE_HOME>/oms_home/bin/emctl status oms -details
   ```

   For example:

   ```
   /u01/app/oracle/OMS/MWare_24.1/oms_home/bin/emctl status oms -details
   ```

   Example Output (highlights):

   ```
   [oracle@host1 ~]$ /u01/app/oracle/OMS/MWare_24.1/oms_home/bin/emctl status oms -
   details
   Oracle Enterprise Manager 24 Release 1
   Copyright (c) 1996, 2024 Oracle Corporation. All rights reserved.
   Enter Enterprise Manager Root (SYSMAN) Password :
   Console Server Host : emoms1.example.com
   …
   WLS Domain Information
   Domain Name : GCDomain
   Admin Server Host : emoms1.example.com
   …
   Oracle Management Server Information
   Managed Server Instance Name: EMGC_OMS1
   Oracle Management Server Instance Host: emoms1.example.com
   WebTier is Up
   Oracle Management Server is Up
   JVMD Engine is Up
   …
   ```

3. Login to the WebLogic Administration Console via a browser using the FQDN of the physical hostname for the Primary OMS1 and review settings to confirm the alias hostname has been configured.

   ```
   https://<PRIMARY_OMS1_PHYSICAL_FQDN>:<ADMIN_SERVER_HTTPS_PORT>/console
   ```

   For example:

   ```
   https://host1.example.com:7101/console
   ```

   a. Navigate to **GCDomain**, **Environment** and then select **Servers**. Perform the following for each of the Servers in the Servers table.

      i. Click the link for the Server Name.

ii. On the **General** tab within the **Configuration** tab, verify that the `<OMS1_ALIAS_HOSTNAME_FQDN>` is displayed in the Listen Address field.

For example:

```
emoms1.example.com
```

b. Navigate to **GCDomain**, **Environment** and then select **Machines**. Perform the following steps:

i. Click the Machine Name.

ii. On the **Node Manager** tab within the **Configuration** tab, verify that the `<OMS1_ALIAS_HOSTNAME_FQDN>` is displayed in the Listen Address field.

For example:

```
emoms1.example.com
```

Transitioning the OMS1 Agent to DR Readiness

To transition the OMS1 Agent to DR Readiness follow these steps:

- **Step 1:** Upgrading the OMS1 Agent to Enterprise Manager 24ai Release 1
- **Step 2:** Verifying the OMS1 Agent Upgrade
- **Step 3:** Performing Post Agent Upgrade Cleanup for the OMS1 Agent
- **Step 4:** Relocating the OMS1 Agent From Local Storage and Inventory to Replicated Storage and Inventory
- **Step 5:** Preparing to Redeploy OMS1 Agent Using Alias Hostname
- **Step 6:** Redeploying OMS1 Agent Using Alias Hostname
- **Step 7:** Relocating OMS1 Targets to Alias Hostname OMS1 Agent
- **Step 8:** Reviewing and Updating Target and Configuration Information in Enterprise Manager
- **Step 9:** Decommissioning the Physical Hostname OMS1 Agent That No Longer Exists

Upgrading the OMS1 Agent to Enterprise Manager 24ai Release 1

To upgrade the OMS1 Agent to Enterprise Manager 24ai Release 1 , follow these steps using the command listed with each step:

1. Start the OMS1 Agent.

```
<OLD_OMS_AGENT_HOME>/bin/emctl start agent
```

Example:

```
/u01/app/oracle/oms_agent/core/24.1.0.0.0/bin/emctl start agent
```

2. Login to the EM Console and wait until the agent is healthy and all OMS related targets no longer report agent unreachable.
3. Upgrade the OMS1 Agent to Enterprise Manager 24ai Release 1, following the instructions in Upgrading Standalone Management Agents to 24ai Release 1 Using the Agent Upgrade Console or EM CLI.

> **Note:**
>
> Do not move the agent or perform cleanup yet as those activities will occur in the next steps.

Verifying the OMS1 Agent Upgrade

Verify that the OMS1 Agent was successfully upgraded to Enterprise Manager 24ai Release 1 following the instructions in Verifying Your 24ai Release 1 Management Agent Upgrade.

Performing Post Agent Upgrade Cleanup for the OMS1 Agent

After confirming that the OMS1 Agent was successfully upgraded to Enterprise Manager 24ai Release 1, cleanup the previous version of the OMS1 agent installation by following the instructions in Performing Postupgrade Cleanup of Old Management Agents.

Relocating the OMS1 Agent From Local Storage and Inventory to Replicated Storage and Inventory

To relocate the OMS1 Agent from its location on local storage registered with the local Oracle Inventory to a location on replicated storage registered with the replicated storage Oracle Inventory, follow these steps using the command listed with each step:

> **Note:**
>
> These instructions are based on the instructions in Moving the Central Agent Base Directory Outside Oracle Middleware Home. However, it is important to note that there is an additional parameter beyond those instructions in the documentation that must be provided to the command in order to make use of a different Oracle Inventory for the new location.

1. Check if a plugins.txt file exists under the agent base directory.

   ```
   ls -alF <OLD_OMS_AGENT_BASE>
   ```

   Example:

   ```
   ls -alF /u01/app/oracle/oms_agent
   ```

2. If the plugins.txt file exists under the agent base directory, take a backup of the file.

   ```
   cp -p <OLD_OMS_AGENT_BASE>/plugins.txt <OLD_OMS_AGENT_BASE>/
   plugins.txt.before_agent_migrate_regen_YYYYMMDD
   ```

   Example:

   ```
   cp -p /u01/app/oracle/oms_agent/plugins.txt /u01/app/oracle/oms_agent/
   plugins.txt.before_agent_migrate_regen_20160502
   ```

3. Ensure that the agent is up and running. Start the agent if it is not running.

   ```
   <INTERIM_OMS_AGENT_HOME>/bin/emctl status agent
   ```

   Example:

   ```
   /u01/app/oracle/oms_agent/agent_24.1.0.0.0/bin/emctl status agent
   ```

   Confirm the agent is up and running before proceeding further.

4. Regenerate the plugins.txt file.

```
<INTERIM_OMS_AGENT_HOME>/perl/bin/perl <INTERIM_OMS_AGENT_HOME>/sysman/
install/create_plugin_list.pl -instancehome
<INTERIM_OMS_AGENT_INSTANCE_HOME>
```

Example:

```
/u01/app/oracle/oms_agent/agent_24.1.0.0.0/perl/bin/perl /u01/app/oracle/
oms_agent/agent_24.1.0.0.0/sysman/install/create_plugin_list.pl -
instancehome /u01/app/oracle/oms_agent/agent_inst
```

5. Run the AgentMigrate.pl script to relocate the agent to the replicated storage and Oracle Inventory on replicated storage.

```
<INTERIM_OMS_AGENT_HOME>/perl/bin/perl <INTERIM_OMS_AGENT_HOME>/sysman/
install/AgentMigrate.pl -instanceHome <INTERIM_OMS_AGENT_INSTANCE_HOME> -
newAgentBaseDir <NEW_OMS_AGENT_BASE> -invPtrLoc <NEW_INVENTORY_HOME>/
oraInst.loc
```

Example:

```
/u01/app/oracle/oms_agent/agent_24.1.0.0.0/perl/bin/perl /u01/app/oracle/
oms_agent/agent_24.1.0.0.0/sysman/install/AgentMigrate.pl -
instanceHome /u01/app/oracle/oms_agent/agent_inst -
newAgentBaseDir /u01/app/oracle/OMS/oms_agent -invPtrLoc /u01/app/
oracle/OMS/oraInventory/oraInst.loc
```

6. Log in as root and run the root.sh script when instructed.

```
<NEW_OMS_AGENT_HOME>/root.sh
```

Example:

```
/u01/app/oracle/OMS/oms_agent/agent_24.1.0.0.0/root.sh
```

7. Get status of the agent.

```
<NEW_OMS_AGENT_HOME>/bin/emctl status agent
```

Example:

```
/u01/app/oracle/OMS/oms_agent/agent_24.1.0.0.0/bin/emctl status agent
```

8. In the Enterprise Manager Console, wait for the status of the Enterprise Manager related targets to no longer show “Diagnose for Status Pending [(Post Blackout)]” and for the OMS1 Agent and Host targets to no longer show “Agent Unreachable” before proceeding further.

9. Invoke the `AgentDeinstall.pl` script to deinstall the interim agent on local storage.

```
<INTERIM_OMS_AGENT_HOME>/perl/bin/perl <INTERIM_OMS_AGENT_HOME>/sysman/
install/AgentDeinstall.pl -agentHome <INTERIM_OMS_AGENT_HOME>
```

Example:

```
/u01/app/oracle/oms_agent/agent_24.1.0.0.0/perl/bin/perl /u01/app/oracle/
oms_agent/agent_24.1.0.0.0/sysman/install/AgentDeinstall.pl -
agentHome /u01/app/oracle/oms_agent/agent_24.1.0.0.0
```

> **Note:**
>
> Only the installation of the interim agent located on local storage under `<INTERIM_OMS_AGENT_HOME>` is to be deinstalled. Do NOT delete the targets from Enterprise Manager as those targets are now being managed by the agent that has been relocated to replicated storage under `<NEW_OMS_AGENT_HOME>`. For this reason, disregard the following message at the bottom of the output of the `AgentDeinstall.pl` command "Make sure to delete the targets manually from Enterprise Manager Console for a successful deinstallation."

Preparing to Redeploy OMS1 Agent Using Alias Hostname

The OMS1 Agent uses the existing installation on replicated storage in order to configure the OMS1 Agent with the alias hostname. To prepare to redeploy OMS1 Agent using alias hostname, follow these steps using the command listed with each step:

1. Update the `plugins.txt` file located under `<NEW_OMS_AGENT_BASE>` to contain current information.
   a. Identify the current `plugins.txt` related files.

      ```
      ls -ltr <NEW_OMS_AGENT_BASE>/plugins*
      ```

      Example:

      ```
      ls -ltr /u01/app/oracle/OMS/oms_agent/plugins*
      ```

   b. Backup the existing `plugins.txt` file if the file exists.

      ```
      cp -p <NEW_OMS_AGENT_BASE>/plugins.txt <NEW_OMS_AGENT_BASE>/
      plugins.txt.before_update_YYYYMMDD
      ```

      Example:

      ```
      cp -p /u01/app/oracle/OMS/oms_agent/plugins.txt /u01/app/oracle/OMS/
      oms_agent/plugins.txt.before_update_20190502
      ```

   c. Ensure that the agent is up and running. Start the agent if it is not running.

      ```
      <NEW_OMS_AGENT_HOME>/bin/emctl status agent
      ```

      Example:

      ```
      /u01/app/oracle/OMS/oms_agent/agent_24.1.0.0.0/bin/emctl status agent
      ```

      Confirm the agent is up and running, before proceeding further.

   d. Run the following script to generate the `plugins.txt` file.

      ```
      <NEW_OMS_AGENT_HOME>/perl/bin/perl <NEW_OMS_AGENT_HOME>/sysman/install/
      create_plugin_list.pl -instancehome <NEW_OMS_AGENT_INSTANCE_HOME>
      ```

      Example:

      ```
      /u01/app/oracle/OMS/oms_agent/agent_24.1.0.0.0/perl/bin/perl /u01/app/
      oracle/OMS/oms_agent/agent_24.1.0.0.0/sysman/install/create_plugin_list.pl
      -instancehome /u01/app/oracle/OMS/oms_agent/agent_inst
      ```

   e. Confirm the `plugins.txt` related files.

      ```
      ls -ltr <NEW_OMS_AGENT_BASE>/plugins*
      ```

      Example:

      ```
      ls -ltr /u01/app/oracle/OMS/oms_agent/plugins*
      ```

2. Upload from OMS1 agent.

   ```
   <NEW_OMS_AGENT_HOME>/bin/emctl upload agent
   ```

   Example:

   ```
   /u01/app/oracle/OMS/oms_agent/agent_24.1.0.0.0/bin/emctl upload agent
   ```

3. Stop the primary OMS1 agent.

   ```
   <NEW_OMS_AGENT_HOME>/bin/emctl stop agent
   ```

   Example:

   ```
   /u01/app/oracle/OMS/oms_agent/agent_24.1.0.0.0/bin/emctl stop agent
   ```

4. Move the OMS1 agent instance directory.

   ```
   mv <NEW_OMS_AGENT_INSTANCE_HOME> <NEW_OMS_AGENT_INSTANCE_HOME>.YYYYMMDD
   ```

   Example:

   ```
   mv /u01/app/oracle/OMS/oms_agent/agent_inst /u01/app/oracle/OMS/oms_agent/
   agent_inst.20190502
   ```

Redeploying OMS1 Agent Using Alias Hostname

To redeploy the OMS1 Agent using the alias hostname instead of the physical hostname, follow these steps using the command listed with each step:

1. Wait for the OMS1 agent and all of its monitored targets to go to unreachable state in the Enterprise Manager console.
2. Remove Oracle Home targets for the old physical hostname based agent, to prevent shared agent issues due to redeployment of the agent using the alias hostname. The same steps are performed twice; once for the upgraded interim Enterprise Manager 13*c* physical hostname agent located on local storage, and once for the Enterprise Manager 13*c* physical hostname agent located on replicated storage.
   a. Perform the following steps for the Oracle Home of the upgraded interim Enterprise Manager 13*c* physical hostname agent located on local storage:

      ```
      <INTERIM_OMS_AGENT_HOME>
      ```

      Example:

      ```
      /u01/app/oracle/oms_agent/agent_24.1.0.0.0
      ```

      i. In Enterprise Manager, navigate to the Oracle Home for the upgraded interim Enterprise Manager 13*c* physical hostname agent located on local storage.
      ii. Select **Oracle Home, Target Setup** and then select **Remove Target**.
      iii. Select **Yes** on the Confirmation dialog.
      iv. Confirm that Oracle Home has been deleted.

   b. Perform the following steps for the Oracle Home of the Enterprise Manager 13*c* physical hostname agent located on replicated storage.

      ```
      <NEW_OMS_AGENT_HOME>
      ```

      Example:

      ```
      /u01/app/oracle/OMS/oms_agent/agent_24.1.0.0.0
      ```

      i. In Enterprise Manager, navigate to the Oracle Home for the Enterprise Manager 13*c* physical hostname agent located on replicated storage.

ii. Select **Oracle Home, Target Setup** and then select **Remove Target**.

iii. Select **Yes** on the Confirmation dialog.

iv. Confirm that Oracle Home has been deleted.

> **Note:**
>
> It is critical to ensure the above steps have been completed successfully prior to performing the `agentDeploy.sh` in the next step.

3. Create `agent_inst`.

```
<NEW_OMS_AGENT_HOME>/sysman/install/agentDeploy.sh
AGENT_BASE_DIR=<NEW_OMS_AGENT_BASE>
AGENT_INSTANCE_HOME=<NEW_OMS_AGENT_INSTANCE_HOME>
ORACLE_HOSTNAME=<OMS1_ALIAS_HOSTNAME_FQDN> AGENT_PORT=<OMS_AGENT_PORT> -
configOnly OMS_HOST=<OMS_HOST> EM_UPLOAD_PORT=<OMS_UPLOAD_PORT>
AGENT_REGISTRATION_PASSWORD=<AGENT_REG_PASSWORD>
PLUGIN_RSPFILE=<NEW_OMS_AGENT_BASE>/plugins.txt
```

Example:

```
/u01/app/oracle/OMS/oms_agent/agent_24.1.0.0.0/sysman/install/agentDeploy.sh
AGENT_BASE_DIR=/u01/app/oracle/OMS/oms_agent AGENT_INSTANCE_HOME=/u01/app/
oracle/OMS/oms_agent/agent_inst ORACLE_HOSTNAME=emoms1.example.com
AGENT_PORT=3872 -configOnly OMS_HOST=em.example.com EM_UPLOAD_PORT=4900
AGENT_REGISTRATION_PASSWORD=myagentpassword PLUGIN_RSPFILE=/u01/app/
oracle/OMS/oms_agent/plugins.txt
```

4. Log in as root and run the `root.sh` script when instructed in the output of the above command.

```
<NEW_OMS_AGENT_HOME>/root.sh
```

Example:

```
/u01/app/oracle/OMS/oms_agent/agent_24.1.0.0.0/root.sh
```

5. Check status of agent. Repeat as necessary until all uploads are complete.

```
<NEW_OMS_AGENT_HOME>/bin/emctl status agent
```

Example:

```
/u01/app/oracle/OMS/oms_agent/agent_24.1.0.0.0/bin/emctl status agent
```

6. Check in Enterprise Manager to confirm that OMS1 alias hostname agent and host are listed as targets in EM with status Up.

Relocating OMS1 Targets to Alias Hostname OMS1 Agent

To relocate the OMS1 related targets associated with the physical hostname agent to the alias hostname agent, follow these steps using the command listed with each step:

1. Relocate the `oracle_emrep target` to the Management Agent of the new OMS host using the following commands:

```
<NEW_MIDDLEWARE_HOME>/oms_home/bin/emcli login -username="<EM_USERNAME>"
```

```
<NEW_MIDDLEWARE_HOME>/oms_home/bin/emcli sync
```

```
<NEW_MIDDLEWARE_HOME>/oms_home/bin/emctl config emrep -agent
<OMS1_ALIAS_HOSTNAME_FQDN>:<OMS_AGENT_PORT>
```

Example:

```
/u01/app/oracle/OMS/MWare_24.1/oms_home/bin/emcli login -
username="john.doe@example.com"

/u01/app/oracle/OMS/MWare_24.1/oms_home/bin/emcli sync

/u01/app/oracle/OMS/MWare_24.1/oms_home/bin/emctl config emrep -agent
emoms1.example.com:3872
```

> **Note:**
>
> If you encounter errors due to time zone disparities between the agents, ensure the time zones of the agents are consistent. If you run `emctl config emrep -agent` and set the flag `-ignore_timeskew`, there may be loss of monitoring data as the availability of monitored targets may be affected when the Management Services and Repository target is moved to the new Agent. For information on resetting the time zone for a management agent, see `emctl resetTZ agent` in EMCTL Commands for Management Agent in the *Oracle Enterprise Manager Administrator's Guide*. Once these errors are corrected, reattempt the target relocation.

2. Create a mapping file, under the home directory for the Oracle Software Owner User, that will be used to map the physical hostname of OMS1 to the alias hostname of OMS1.

```
vi <ORACLE_SOFTWARE_OWNER_USER_HOME>/
<PRIMARY_OMS1_PHYSICAL_HOSTNAME>_to_<OMS1_ALIAS_HOSTNAME>_host_mapping.txt
```

Example:

```
vi /home/oracle/host1_to_emoms1_host_mapping.tx
```

The file should contain a comma separated list of the FQDNs of the physical and alias hostnames. The first entry is the hostname that will be replaced (in this case the physical hostname of OMS1), and the second entry is the new hostname (in this case the alias hostname of OMS1).

```
<PRIMARY_OMS1_PHYSICAL_FQDN>,<OMS1_ALIAS_HOSTNAME_FQDN>
```

Example:

```
host1.example.com,emoms1.example.com
```

3. Run the `relocate_wls` verb via emcli once, to relocate the targets:

```
<NEW_MIDDLEWARE_HOME>/oms_home/bin/emcli relocate_wls -target_name=/
EMGC_GCDomain/GCDomain -host=<OMS1_ALIAS_HOSTNAME_FQDN> -
port=<ADMIN_SERVER_HTTPS_PORT> -
dest_agent=<OMS1_ALIAS_HOSTNAME_FQDN>:<OMS_AGENT_PORT> -
src_agent=<PRIMARY_OMS1_PHYSICAL_FQDN>:<OMS_AGENT_PORT> -debug
```

Example:

```
/u01/app/oracle/OMS/MWare_24.1/oms_home/bin/emcli relocate_wls -target_name=/
EMGC_GCDomain/GCDomain -host=emoms1.example.com -port=7101 -
dest_agent=emoms1.example.com:3872 -src_agent=host1.example.com:3872 -debug
```

4. Run the `relocate_wls` verb via emcli for a second time, with an additional parameter, to update the host name for targets as necessary:

```
<NEW_MIDDLEWARE_HOME>/oms_home/bin/emcli relocate_wls -target_name=/
EMGC_GCDomain/GCDomain -host=<OMS1_ALIAS_HOSTNAME_FQDN> -
port=<ADMIN_SERVER_HTTPS_PORT> -
dest_agent=<OMS1_ALIAS_HOSTNAME_FQDN>:<OMS_AGENT_PORT> -
src_agent=<PRIMARY_OMS1_PHYSICAL_FQDN>:<OMS_AGENT_PORT> -
input_file=old_to_new_host_mapping_file:<ORACLE_SOFTWARE_OWNER_USER_HOME>/
<PRIMARY_OMS1_PHYSICAL_HOSTNAME>_to_<OMS1_ALIAS_HOSTNAME>_host_mapping.txt -
debug
```

Example:

```
/u01/app/oracle/OMS/MWare_24.1/oms_home/bin/emcli relocate_wls -target_name=/
EMGC_GCDomain/GCDomain -host=emoms1.example.com -port=7101 -
dest_agent=emoms1.example.com:3872 -src_agent=host1.example.com:3872 -
input_file=old_to_new_host_mapping_file:/home/oracle/
host1_to_emoms1_host_mapping.txt -debug
```

5. Remove the Oracle Home of the upgraded middleware home on replicated storage that is associated with the alias hostname on Primary OMS1. This Oracle Home will be rediscovered in the next step. This is done to ensure that the associations are made properly to the correct Oracle Home.

   To remove the Oracle Home:

   a. In the Enterprise Manager, navigate to the Oracle Home for the upgraded middleware home on replicated storage that is associated with the alias hostname on Primary OMS1.

      ```
      Host <OMS1_ALIAS_HOSTNAME_FQDN>
      ```

      ```
      Host Location <NEW_MIDDLEWARE_HOME>
      ```

      Example:

      ```
      Host emoms1.example.com
      ```

      ```
      Home Location /u01/app/oracle/OMS/MWare_24.1
      ```

      Example Oracle Home target name:

      ```
      oms241_1_emoms1.example.com_9136
      ```

   b. Select **Oracle Home**, **Target Setup** and then select **Remove Target**.

   c. Select **Yes** on the Confirmation dialog.

   d. Confirm that Oracle Home is deleted.

6. Run a “Discover Promote Oracle Home Target” job on Primary OMS1 to discover the Oracle Home of the upgraded Middleware Home on replicated storage that is associated with the alias hostname.

   a. Navigate to **Enterprise**, **Job** and then select **Activity**.

   b. Click **Create Job**.

   c. Select **Discover Promote Oracle Home Target** on the Select Job Type - Oracle Enterprise Manager dialog.

   d. Click **Select**.

   e. Enter a Name for the job, such as “Promote OMS1 Oracle Home”.

   f. In the Target section, click **Add**.

   g. In the Search and Select: Targets dialog, select the OMS1 alias hostname

`<OMS1_ALIAS_HOSTNAME_FQDN>`

Example:

`emoms1.example.com`

h. Click **Select**.

i. Click the **Parameters** tab.

j. In the Path, enter the path to the upgraded Middleware Home for Primary OMS1 on replicated storage.

`<NEW_MIDDLEWARE_HOME>`

Example:

`/u01/app/oracle/OMS/MWare_24.1`

k. Ensure that **Manage Entity** is set to Oracle Home and **Action** is set to Discover And Manage.

l. Click **Submit**.

m. When the job has "succeeded", check the job output to ensure the Oracle Home was properly discovered.

7. Navigate to the home page for the Oracle Home target for the upgraded middleware home on replicated storage that is associated with the alias hostname on Primary OMS1.

a. Review the **Associated Instance** Targets list.

b. If there are no targets listed, wait a few minutes, refresh, and repeat until this the list is populated.

c. Proceed with reviewing and updating target and configuration information listed in the next section, once the list is populated.

Reviewing and Updating Target and Configuration Information in Enterprise Manager

To ensure that the WebLogic Admin console can be accessed from a link using the Enterprise Manager console, update the URL for the WebLogic Admin console. To update the URL using the Enterprise Manager console, follow these steps:

1. Navigate to the WebLogic Domain target `(/EMGC_GCDomain/GCDomain)`.
2. Select **WebLogic Domain**, **Target Setup** and then select **Monitoring Configuration**.
3. Review the host name and ensure that the hostname contains the FQDN of the alias hostname for the OMS.
4. Review the URI for the WebLogic Admin Console and update the URL for the WebLogic Admin console to contain the FQDN of the physical hostname for Primary OMS1.

`https://<PRIMARY_OMS1_PHYSICAL_FQDN>:<ADMIN_SERVER_HTTPS_PORT>/console`

For example:

`https://host1.example.com:7101/console`

5. If you made the above changes, click **Ok**. Else, click **Cancel**.

> **Note:**
>
> You need to update the URI of the WebLogic Admin console to the physical host hosting OMS1 after each switchover or failover operation.

Decommissioning the Physical Hostname OMS1 Agent That No Longer Exists

In Enterprise Manager, decommission the OMS1 Agent that no longer exists (the agent that was associated with the physical host name) using the following steps:

1. Navigate to the home page for the old physical hostname based agent on Primary OMS1.

   `<PRIMARY_OMS1_PHYSICAL_FQDN>:<OMS_AGENT_PORT>`

   For example:

   `host1.example.com:3872`

2. Select **Agent**, **Target Setup** and then select **Agent Decommission**.
3. Select **Continue** on the Confirmation dialog.
4. Review the targets monitored by the old physical hostname based agent on Primary OMS1.

> **Note:**
>
> Ensure that the monitored targets only contain the old Oracle Homes associated with the old physical hostname of the Primary OMS1 server, the agent, the physical hostname host of the Primary OMS1 server, and other targets whose name includes the physical hostname of the Primary OMS1 server. It is ok if the `/EMGC_GCDomain/GCDomain` Oracle WebLogic Domain target is listed under both the old physical hostname agent and the new alias hostname agent, as long as all other WebLogic Domain related targets that do not contain the physical host name of Primary OMS1 as part of the target name are only associated with the new alias hostname agent.
>
> If there are additional targets related to the current version of the OMS components and agents that have been upgraded and transitioned to replicated storage and alias hostname, cancel and relocate those targets to the new agent using the emcli relocate_targets command, and restart the Agent Decommission steps listed above, before proceeding further.

> **Note:**
>
> At this point, after completing the substeps above, if there are additional targets that are unrelated to the current version of the OMS components, and agents that have been upgraded and transitioned to replicated storage and alias hostnames but still need to be managed by an agent (such as other software installed locally on the OMS server or other targets that need to be monitored from this physical host), there are two options:
>
> - Relocate those targets to the new agent using emcli relocate_targets commands and later relocate them again from the new replicated storage agent to the new physical hostname agent, after it is created on Primary OMS1 in the future step Deploying Host-based Agents to Primary and Standby OMSs.
>
> Or
>
> - Allow the targets to be removed with the decommission of the agent and rediscover the targets after the new physical hostname agent is deployed on Primary OMS1 in the future step Deploying Host-based Agents to Primary and Standby OMSs

5. Select **Continue**.
6. Select **OK**, if you are presented with an Agent Decommission Confirmation dialog.

Updating Primary Site Configuration

To update the Primary Site Configuration, follow these steps:

- **Step 1:** Resecuring OMS1 to Include the Updated Enterprise Manager 24ai Release 1 SLB Configuration
- **Step 2:** Submitting DDMP Jobs

Resecuring OMS1 to Include the Updated Enterprise Manager 24ai Release 1 SLB Configuration

The SLB should be updated to include required Enterprise Manager 24ai Release 1 configuration as part of the preparation for this upgrade and transition process. This step will resecure the configuration of OMS1 to make use of the updated configuration in the SLB for Enterprise Manager 24ai Release 1 for JVMD.

For more details on SLB configuration for high availability in Enterprise Manager 24ai Release 1, see Configuring a Load Balancer in the *Oracle Enterprise Manager Advanced Installation and Configuration Guide*

For more details on SLB configuration for disaster recovery in Enterprise Manager 24ai Release 1, see Management Service Disaster Recovery in the*Oracle Enterprise Manager Advanced Installation and Configuration Guide*

For an example of detailed step by step instructions for configuring an SLB for a site, please see the white paper *Enterprise Manager 13c Cloud Control Configuring OMS High Availability with F5 BIG-IP Local Traffic Manager*

> **Note:**
>
> It is important to ensure that the emctl secure oms command is run with the same `-host`, `-slb_port`, and `-slb_console_port` used when the OMS was originally secured for the SLB configuration so that agents need not be resecured. If the SLB configuration needs to be changed more substantially, ensure that agents are resecured appropriately.

To resecure the OMS1 to include the updated Enterprise Manager 24ai Release 1 SLB configuration, follow these steps:

1. Secure OMS to reflect updated SLB configuration.

   ```
   <NEW_MIDDLEWARE_HOME>/oms_home/bin/emctl secure oms -host <OMS_HOST> -slb_port
   <SLB_VS_SECURE_UPLOAD_PORT> -slb_console_port <SLB_VS_SECURE_CONSOLE_PORT> -
   slb_jvmd_https_port <SLB_VS_SECURE_JVMD_PORT> -lock_console -lock_upload
   ```

   For example:

   ```
   /u01/app/oracle/OMS/MWare_24.1/oms_home/bin/emctl secure oms -host
   em.example.com -slb_port 4900 -slb_console_port 443 -slb_jvmd_https_port 7301
   -lock_console -lock_upload
   ```

2. Stop OMS1.

   ```
   <NEW_MIDDLEWARE_HOME>/oms_home/bin/emctl stop oms -all
   ```

   For example:

   ```
   /u01/app/oracle/OMS/MWare_24.1/oms_home/bin/emctl stop oms -all
   ```

3. Start OMS1.

   ```
   <NEW_MIDDLEWARE_HOME>/oms_home/bin/emctl start oms
   ```

   For example:

   ```
   /u01/app/oracle/OMS/MWare_24.1/oms_home/bin/emctl start oms
   ```

Submitting DDMP Jobs

The DDMP jobs were disabled earlier during the upgrade when the Disable DDMP Jobs option was selected in the installer on the Database Connection Details page. For more details on the DDMP jobs, seeTracking the Status of Deferred Data Migration Jobs

To submit the DDMP jobs, Follow these steps:

1. Navigate to **Setup**, **Manage Enterprise Manager**, and then select **Post Upgrade Tasks**.
2. Review the status of the jobs listed in the table on the Deferred Data Migration tab. All of the tabs should show a status `Not Started`.
3. Select all of the rows in the table and click the **Start** button.
4. Monitor the jobs to ensure that they complete successfully.
   a. Reload the current page using the browser's reload button.
   b. Click the refresh icon that appears at the upper right of the page.

Adding New Primary Additional OMS Alias Hostname Agents and Additional OMSs

To add new Primary Additional OMS alias hostname agents and Additional OMSs follow these steps:

- **Step 1:** Deploying Alias Host Name Agents to All Primary Additional OMS Servers
- **Step 2:** Deploying Additional OMSs

Deploying Alias Host Name Agents to All Primary Additional OMS Servers

In the Enterprise Manager, deploy an agent to the alias host name of each Primary Additional OMS server. Review the information below and use this information when following the instructions in Installing Standalone Management Agents Using Add Host Targets Wizard in the *Oracle Enterprise Manager Basic Installation Guide*.

1. On the **Add Host Targets: Host and Platform** page, enter the alias host name Fully-Qualified Domain Name for the additional OMS in the **Host** field of the first row.

   For example:

   ```
   emoms2.example.com
   ```

2. On the **Add Host Targets: Installation Details** page:

   a. Enter the Installation Base Directory, which must be located under the OMS Installation Base directory on the replicated storage. This directory path on the additional OMSs should be the same directory path as that used with the OMS1 Agent.

      For example:

      ```
      /u01/app/oracle/OMS/oms_agent
      ```

   b. Enter the port for the alias hostname agent. This should be the same port number as the port used on the first OMS and will be the port number used by the OMS agent running on the host for the OMS server at the active site.

      For example:

      ```
      3872
      ```

   c. Expand Optional Details and add the following in Additional Parameters to specify use of the replicated storage Oracle Inventory.
      `INVENTORY_LOCATION=<NEW_INVENTORY_HOME>`

      For example:

      ```
      INVENTORY_LOCATION=/u01/app/oracle/OMS/oraInventory
      ```

Deploying Additional OMSs

In Enterprise Manager, deploy an additional OMS, one at a time, using the alias host name agent of each Primary Additional OMS server. Review the information below and use this information when following the instructions in Adding an Additional Oracle Management Service in the *Oracle Enterprise Manager Basic Installation Guide*.

1. On the **Select Destination** page:

   a. Select the alias host name **Fully-Qualified Domain Name** for the additional OMS on the Destination Host.

For example:

```
emoms2.example.com
```

b. Review the **Destination Instance Base Location**. This should match the value on OMS1 and should be located on replicated storage.

For example:

```
/u01/app/oracle/OMS/gc_inst
```

c. Select or add **Source** and **Destination** Credentials. The credentials should be that of the Oracle Software Owner User.

2. On the **Destination Ports** section of the **Options** page, validate the ports displayed by default. These default ports are based on the ports already assigned and used by OMS1. It is a best practice to keep these ports on the additional OMS the same as those on OMS1.
3. If the replicated storage is NFS-mounted, be sure to move the lock files for the additional OMS from the NFS-mounted drive to a local file system location after the additional OMS is deployed, following the instructions in the Postinstallation Tasks.

Finalizing Primary and Standby Site Configuration

To finalize Primary and Standby site configuration follow these steps:

- **Step 1:** Updating Demonstration Keystores to Reflect Alias Hostnames
- **Step 2:** Deinstalling Enterprise Manager OMS Binaries on Primary OMS1
- **Step 3:** Deploying Host-based Agents to Primary and Standby OMSs
- **Step 4:** Ensuring Agents on all OMS Nodes Have Correct Time Zone Configuration
- **Step 5:** Performing Post-Upgrade and Transition Activities

Updating Demonstration Keystores to Reflect Alias Hostnames

If your site uses Demonstration WebLogic Certificates, the certificates need to be recreated with alias hostnames to ensure that WebLogic communication will work properly on both the sites. Follow the steps in Updating Demonstration Keystores to Reflect Alias Hostnames in the *Oracle Enterprise Manager Advanced Installation and Configuration Guide*.

Deinstalling Enterprise Manager OMS Binaries on Primary OMS1

To deinstall the binaries for the Enterprise Manager OMS on the Primary OMS1 server, see Deleting the Old OMS Home When the Central Agent Is Migrated to a Location Outside the Old Middleware Home.

Deploying Host-based Agents to Primary and Standby OMSs

In Enterprise Manager, deploy an agent to the physical host name of each Primary and Standby OMS server. Review the information below and use this information when following the instructions in Installing Standalone Management Agents Using Add Host Targets Wizard in the *Oracle Enterprise Manager Basic Installation Guide*.

1. On the **Add Host Targets: Host and Platform** page, enter the physical host Fully-Qualified Domain Name for each of the Primary and Standby OMS servers, each on its own row.

For example:

```
host1.example.com
```

2. On the **Add Host Targets: Installation Details** page:
   a. Enter the Installation Base Directory, which must be located on local storage as these agents will always run on the target hosts at the Primary and Standby sites.

      For example:

      ```
      /u01/app/oracle/local/oms_agent
      ```

   b. Enter the **port** for the physical hostname agent. This should be a different port number than the port number used by the alias hostname OMS agents running on the hosts for the OMS servers at the active site.

      For example:

      ```
      1830
      ```

   c. Expand Optional Details and add the following in Additional Parameters to specify use of the local storage Oracle Inventory. `INVENTORY_LOCATION=<INVENTORY_HOME>`

      For example:

      ```
      INVENTORY_LOCATION=/u01/app/oracle/oraInventory
      ```

Ensuring Agents on all OMS Nodes Have Correct Time Zone Configuration

To ensure agents on all OMS nodes have correct time zone configuration, follow these steps.

1. Check configuration of all OMS agents (the physical hostname local storage agents and the alias hostname replicated storage agents) using emcli from primary OMS1. Add additional commands as necessary for each additional OMS.

   ```
   <NEW_MIDDLEWARE_HOME>/oms_home/bin/emcli login -username="<EM_USERNAME>"

   <NEW_MIDDLEWARE_HOME>/oms_home/bin/emcli get_agent_properties -
   agent_name="<PRIMARY_OMS1_PHYSICAL_FQDN>:<LOCAL_AGENT_PORT>"

   <NEW_MIDDLEWARE_HOME>/oms_home/bin/emcli get_agent_properties -
   agent_name="<PRIMARY_OMS<#>_PHYSICAL_FQDN>:<LOCAL_AGENT_PORT>"

   <NEW_MIDDLEWARE_HOME>/oms_home/bin/emcli get_agent_properties -
   agent_name="<STANDBY_OMS1_PHYSICAL_FQDN>:<LOCAL_AGENT_PORT>"

   <NEW_MIDDLEWARE_HOME>/oms_home/bin/emcli get_agent_properties -
   agent_name="<STANDBY_OMS<#>_PHYSICAL_FQDN>:<LOCAL_AGENT_PORT>"

   <NEW_MIDDLEWARE_HOME>/oms_home/bin/emcli get_agent_properties -
   agent_name="<OMS1_ALIAS_HOSTNAME_FQDN>:<OMS_AGENT_PORT>"

   <NEW_MIDDLEWARE_HOME>/oms_home/bin/emcli get_agent_properties -
   agent_name="<OMS<#>_ALIAS_HOSTNAME_FQDN>:<OMS_AGENT_PORT>"
   ```

   For example:

   ```
   /u01/app/oracle/OMS/MWare_24.1/oms_home/bin/emcli login -
   username="john.doe@example.com"

   /u01/app/oracle/OMS/MWare_24.1/oms_home/bin/emcli get_agent_properties -
   agent_name="host1.example.com:1830"

   /u01/app/oracle/OMS/MWare_24.1/oms_home/bin/emcli get_agent_properties -
   agent_name="host2.example.com:1830"

   /u01/app/oracle/OMS/MWare_24.1/oms_home/bin/emcli get_agent_properties -
   agent_name="host3.example.com:1830"
   ```

```
/u01/app/oracle/OMS/MWare_24.1/oms_home/bin/emcli get_agent_properties -
agent_name="host4.example.com:1830"

/u01/app/oracle/OMS/MWare_24.1/oms_home/bin/emcli get_agent_properties -
agent_name="emoms1.example.com:3872"

/u01/app/oracle/OMS/MWare_24.1/oms_home/bin/emcli get_agent_properties -
agent_name="emoms2.example.com:3872"
```

2. Review the results of the command. If the local agents differ in time zone configuration from the replicated storage agents, reset the time zone for the local agents.
3. Reset the time zone for any agents as required to ensure that the OMS related agents are in a consistent time zone. This is important in the event that targets need to be moved between agents.
   a. For each agent that needs the time zone to be reset, perform the following from the agent home:

      ```
      echo $TZ

      <AGENT_HOME>/bin/emctl config agent getTZ

      <AGENT_HOME>/bin/emctl stop agent

      <AGENT_HOME>/bin/emctl resetTZ agent
      ```

   b. Login to the repository via sqlplus and run the commands provided in the output of the `emctl resetTZ agent` command.

      ```
      <AGENT_HOME>/bin/emctl start agent
      ```

4. Repeat step 1, and review the results, confirming that the time zones are now consistent.

Performing Post-Upgrade and Transition Activities

To perform Post-Upgrade and Transition activities follow these steps:

- **Step 1:** Reviewing and Completing Remaining Post-Upgrade Activities
- **Step 2:** (Optional) Performing Post-Upgrade and Transition Switchover, Patching, and Plug-in Deployment Tests
- **Step 3:** Cleanup

Reviewing and Completing Remaining Post-Upgrade Activities

At this point, steps specific to the upgrade and transition process are complete. Review the post-upgrade activities referenced in the Oracle Enterprise Manager Upgrade Guide to ensure that any remaining tasks required in your environment have been completed. Pay particular attention to steps that have not yet been accomplished as part of the upgrade and transition process, such as upgrading management agents on systems other than the OMS servers, upgrading JVMD agents, and performing any other steps appropriate in your environment such as reconfiguring WebLogic with custom certificates.

Performing Post-Upgrade and Transition Switchover, Patching, and Plug-in Deployment Tests

This step is intended to build confidence in the upgraded and transitioned environment in a test or development environment. These steps involve downtime and require planning to identify specific patches and plug-ins to deploy. Oracle recommends that switchover testing be scheduled at the first reasonable opportunity following the completion of the upgrade and transition such that any issues are identified and resolved to ensure the successful availability

of the standby to protect against unplanned and planned outages, and to provide operations personnel familiarity with the new standby configuration and switchover processes..

Patching Considerations:

When using OMSPatcher to perform patching, set the following property to disable the host verification check due to the alias hostnames configuration.

```
OMSPatcher.OMS_DISABLE_HOST_CHECK=true
```

Oracle Inventory Considerations:

Now that the upgrade and transition is complete, there are two sets of Oracle Inventory locations that need to be considered when performing any maintenance in the EM environment: local storage Oracle Inventory and replicated storage Oracle Inventory. This upgrade and transition process did not make any changes to the central Oracle Inventory pointer located in /etc/oraInst.loc. It is possible that this pointer may reference the replicated storage Oracle Inventory, the local storage Oracle Inventory, or perhaps even a different Oracle Inventory. The key is to ensure that when you are performing maintenance operations that you are aware of the Oracle Inventory that should be used for the particular installed software. Operations against the locally installed software such as the local agents should be performed against the local storage Oracle Inventory. Operations against the software installed on replicated storage such as the OMS and OMS agent should be performed against the replicated storage Oracle Inventory so that the software installed on replicated storage can be maintained regardless of which physical host is currently hosting the software.

Cleanup

When you are certain of upgrade and transition success and that you will no longer need to fall back from the upgrade and transition, and once any logs, configuration, or other long-term reference information has been copied or backed up via other means as necessary, you can remove temporary directories, backups, directories related to old installations, and so on, that were made on local and replicated storage as part of the upgrade and transition process.

The following are a list of the areas to review:

1. Review the following directories on Primary OMS1:
   a. Renamed agent base directory prior to running `agentDeploy.sh`

      `<NEW_OMS_AGENT_BASE>/agent_inst.YYYYMMDD`

      Example:

      `/u01/app/oracle/OMS/oms_agent/agent_inst.20160502`

   b. Staging directory used for the Enterprise Manager 24ai Release 1 installer

      `<UPGRADE_STAGING_DIR>`

      Example:

      `/u01/app/oracle/OMS/stage`
2. Review the following on all Primary and Standby OMS servers:
   a. Instance Base directories from the Enterprise Manager installations which have been deinstalled.

      `<OLD_INSTANCE_BASE>`

      Example:

      `/u01/app/oracle/gc_inst`

b. Backups taken before or during this upgrade and transition process.

```
<BACKUP_DIR>
```

Example:

```
/u01/app/oracle/local/backup
```

c. Scheduled jobs, such as via cron, that reference the Enterprise Manager software and/or environment.

```
<BACKUP_DIR>
```

Example:

```
crontab -l
```

6

Upgrading Oracle Management Agents

This chapter describes how you can upgrade your standalone Management Agents to 24ai Release 1 using the Agent Upgrade Console or EM CLI, and how you can create an Agent Gold Image and upgrade all your other standalone Management Agents using that gold image.

> **Note:**
>
> Starting with Enterprise Manager 24ai Release 1, the central agent is upgraded automatically along with the old Oracle Management Service (OMS) upgrade. Standalone Management Agents are not upgraded while you upgrade your OMS to 24ai Release 1. Ensure that you upgrade them immediately after upgrading the old OMS to 24ai Release 1.

In particular, this chapter covers the following:

- Overview of Upgrading Management Agents Using Agent Gold Images
- Upgrading Standalone Management Agents to 24ai Release 1 Using the Agent Upgrade Console or EM CLI
- Creating an Agent Gold Image
- Creating an Agent Gold Image Version
- Setting a Particular Agent Gold Image Version as the Current Version
- Subscribing Management Agents to an Agent Gold Image
- Updating Standalone Management Agents Using an Agent Gold Image Version
- Upgrading Hybrid Cloud Gateway Agents and Hybrid Cloud Agents

> **WARNING:**
>
> You cannot directly subscribe a Shared Agent (NFS Agent) to an Agent Gold Image. To subscribe to an Agent Gold Image, you must first convert the Shared Agent to a standalone Management Agent, and then subscribe to an Agent Gold Image.

> **Note:**
>
> Do not discover any Oracle ZFS Storage Appliance target in 24ai Release 1environment.

Overview of Upgrading Management Agents Using Agent Gold Images

To upgrade your Management Agents, Enterprise Manager offers *Agent Gold Images*, in addition to the Agent Upgrade Console and EM CLI.

Oracle recommends that you use Agent Gold Images to upgrade all your Management Agents, although you can use other upgrade approaches.

To understand what an Agent Gold Image is, what it contains, and how you benefit by using it to upgrade your Management Agents, see *Oracle Enterprise Manager Basic Installation Guide*.

Oracle recommends that you use Agent Gold Images to upgrade all your Management Agents, although you can use other upgrade approaches. However, to update your Management Agents using a gold image, you need a gold image that is based on a 24ai Release 1 standalone Management Agent. You cannot create a gold image using a 24ai Release 1 central agent.

Therefore, if you are upgrading your Enterprise Manager system from 13c, then after upgrading Oracle Management Service (OMS) to 24ai Release 1, use the Agent Upgrade Console or EM CLI to upgrade one of your standalone Management Agents to 24ai Release 1. Then, create a gold image using the standalone Management Agent that is upgraded to 24ai Release 1, and finally update all other standalone Management Agents using that gold image. Once you have updated some of your Management Agents to 24ai Release 1 using the gold image, you can use those updated Management Agents to create several other gold images.

The following is the agent base directory structure before and after the update operation:

Before Update

```
<agent_base_directory>
    |_____agentimage.properties
    |_____agentInstall.rsp
    |_____agent_inst
    |___agent_24.1.0.0.0
```

After Update

```
<agent_base_directory>
    |_____agentimage.properties
    |_____agentInstall.rsp
    |_____agent_inst
    |_____agent_24.1.0.0.0
    |_____GoldImage_<Image Version Name>
         |_____agent_24.1.0.0.0
         |_____agentimage.properties
         |_____agentInstall.rsp
         |_____plugins.txt
         |_____plugins.txt.status
```

Upgrading Standalone Management Agents to 24ai Release 1 Using the Agent Upgrade Console or EM CLI

This section describes how you can upgrade standalone Management Agents to 24ai Release 1 or higher using the Agent Upgrade Console or EM CLI. In particular, this section covers the following:

- Overview of Upgrading Standalone Management Agents to 24ai Release 1 Using the Agent Upgrade Console or EM CLI
- Before You Begin Upgrading Standalone Management Agents to 24ai Release 1 using the Agent Upgrade Console or EM CLI
- Prerequisites for Upgrading Standalone Management Agents to 24ai Release 1 Using the Agent Upgrade Console or EM CLI
- Upgrading Standalone Management Agents to 24ai Release 1 using the Agent Upgrade Console
- Upgrading Standalone Management Agents to 24ai Release 1 Using EM CLI
- After Upgrading Standalone Management Agents to 24ai Release 1 using the Agent Upgrade Console or EM CLI
- Troubleshooting 24ai Release 1 Management Agent Upgrade

Overview of Upgrading Standalone Management Agents to 24ai Release 1 Using the Agent Upgrade Console or EM CLI

The Agent Upgrade Console acts as a single-window solution to mass-upgrade your existing Management Agents to the latest version for which the software is available in Oracle Software Library (Software Library). When you upgrade a Management Agent using the Agent Upgrade Console, the structure of the installation base directory is modified suitably. The following is an example of the installation base directory structure of a 13*c* Release 5 Management Agent, when it is upgraded to 24ai Release 1:

Before Upgrade

```
<agent_base_directory>
    |agent_13.5.0.0.0
            |sbin
            |_____plugins
    |_____agent_inst
    |_____agentimage.properties
    .
    .
    .
```

After Upgrade

```
<agent_base_directory>
        |_____backup_agtup
        |_____agent_24.1.0.0.0
                |_____sbin
                |_____plugins
        |_____agent_inst
        |_____agentimage.properties
    .
    .
    .
```

Note:

- When you upgrade a Management Agent, you cannot change the location of the agent base directory.
- When you upgrade a Management Agent, the plug-ins installed on the Management Agent host are also upgraded by default, as long as the latest versions of these plug-ins exist in Oracle Software Library (Software Library). If the latest versions of these plug-ins do not exist in the Software Library, their old versions are retained.
- *(For Microsoft Windows hosts)* If you upgrade a 24.1.0.x Management Agent and you want to install another Management Agent on the same host, which points to a different OMS, ensure that you specify the `s_agentSrvcName` parameter while installing the Management Agent, as described in the *Oracle Enterprise Manager Advanced Installation and Configuration Guide.*

Before You Begin Upgrading Standalone Management Agents to 24ai Release 1 using the Agent Upgrade Console or EM CLI

Before you upgrade your Oracle Management Agents to 24ai Release 1, keep the following points in mind:

- Starting with Enterprise Manager 24ai Release 1, the central agent is upgraded automatically along with the old Oracle Management Service (OMS). Standalone Management Agents are not upgraded while you upgrade your OMS to 24ai Release 1. Ensure that you upgrade them immediately after upgrading the old OMS to 24ai Release 1.
- You can upgrade a Management Agent using the Agent Upgrade Console or EM CLI even when you do not have preferred privileged credentials or non-privileged credentials set, or are not aware of the Management Agent credentials. Privileged credentials are only required to run the `root.sh` script post-upgrade.

  If you upgrade a Management Agent as a user who does not have *root* privileges, or you upgrade a Management Agent without having preferred privileged credentials, a warning appears. You can ignore this warning during the upgrade. Later, you can log in to the Management Agent host as the *root* user, and run the `$<AGENT_BASE_DIR>/agent_24.1.0.0.0/root.sh` script.
- In some cases, the deployed version of a plug-in may not be supported on the upgraded version of a Management Agent. In these cases, ensure that you either undeploy the plug-ins that are not supported on the upgraded version of the Management Agent, or deploy versions of the plug-ins that are supported on the upgraded Management Agent.

  For more information, see how to undeploy and deploy a plug-in in the *Oracle Enterprise Manager Administrator's Guide.*.
- In Enterprise Manager 24ai Release 1, you can save the Management Agent one-off patches that you want to apply on a particular version of the Management Agent software, such that these patches are automatically applied on the software whenever a new Management Agent of the same version is deployed, or an old Management Agent is upgraded to that version.

  For information on how to do this, see Applying Patches to Oracle Management Agents While Deploying or Upgrading Them in the *Oracle Enterprise Manager Advanced Installation and Configuration Guide*.

Also, you can apply one-off patches on a plug-in and create a custom patched plug-in, such that this custom patched plug-in is deployed on all the new Management Agents that you deploy, and all the old Management Agents that you upgrade.

For information on how to do this, see Downloading, Deploying, and Upgrading Plug-Ins in the *Oracle Enterprise Manager Administration Guide*.

- Upgrading Management Agents does not require Cygwin, PsExec, or any SSH connectivity tools, as Enterprise Manager uses the existing Management Agent - OMS communication channels to perform the upgrade.
- You cannot specify a custom inventory location while upgrading Management Agents. The upgraded Management Agent uses the inventory location of the old Management Agent.
- If you select a Management Agent installed on a cluster, or a shared Management Agent for upgrade, the set of related Management Agents, that is, the other Management Agents of the cluster or the shared Oracle Home are selected for upgrade automatically.
- You cannot upgrade a Management Agent in the following scenarios:
  - The Management Agent is not up and running
  - The Management Agent is not secure
  - The Management Agent is not reachable
  - The new Management Agent software (of the same version as the OMS version) is not present in Oracle Software Library (Software Library)
  - The Management Agent Oracle home property is missing
  - The Management Agent is already undergoing an upgrade
  - The Management Agent is in blackout state
- You may not be able to upgrade certain Management Agents using the Agent Upgrade Console or EM CLI. Table 6-1 describes the reasons for this.

Table 6-1 Why Some Management Agents Cannot Be Upgraded

Reason	Description and Recommended Action
Latest Agent Software Missing	The latest Management Agent software of the OMS version is not available in Oracle Software Library. To upgrade a Management Agent for which the latest Management Agent software is not available, you need to first download and apply the latest software using the Self Update console, then use the Upgrade Agents page. To access the Self Update Console, from the **Setup** menu, select **Extensibility,** then select **Self Update.** To download the latest Management Agent software, click **Agent Software,** select the required software, then click **Download.** For more information, see Self Update console to download and apply the latest Management Agent software, in the *Oracle Enterprise Manager Basic Installation Guide*.

Agent Unsecured	The Management Agent is not secure.
	To upgrade a Management Agent which is not secure, you need to first secure the Management Agent, then use the Upgrade Agents page.
	To secure the Management Agent, from the **Setup** menu, select **Manage Enterprise Manager,** then select **Agents.** Click the required Management Agent name. From the **Agent** menu, click **Secure.**
	You can also run the following command to secure the Management Agent:
	`<EMSTATE>/bin/emctl secure agent`
	`<EMSTATE>` refers to the Management Agent instance directory, that is, `<AGENT_BASE_DIRECTORY>/agent_inst`

Table 6-1 (Cont.) Why Some Management Agents Cannot Be Upgraded

Reason	Description and Recommended Action

Oracle Home Property Missing	The Oracle Home property for the Management Agent is missing.
	This property is required to obtain the platform of the Management Agent that you want to upgrade. For upgrading *Shared Agents,* this property plays a key role in maintaining the relationship between the *Shared Agent* and the *Master Agent.* It is also required for certain essential Management Agent lifecycle operations, such as patching.
	To upgrade a Management Agent for which the Oracle Home property is missing, first run the OMS collections on the Management Agent. To do so, do one of the following:
	– Run the following command from the Management Agent host:
	`<EMSTATE>/bin/emctl control agent runCollection <TARGET_NAME>:oracle_home oracle_home_config`
	`<EMSTATE>` refers to the Management Agent instance directory, that is, `<AGENT_BASE_DIRECTORY>/agent_inst`
	`<TARGET_NAME>` refers to the Management Agent home listed as `oracle_home` in the `<EMSTATE>/sysman/emd/targets.xml` file. You can also verify using the `emctl config agent listtargets` command.
	– Navigate to the Management Agent Home page in the Enterprise Manager Console. On the Home page of the Management Agent, in the **Summary** section, in the **Configuration** subsection, click **Oracle Home and Patch Details.** On the Oracle Home page, click **Refresh Configuration.**

Agent Unreachable	The Management Agent is not reachable, that is, the Oracle Management Service (OMS) cannot communicate with the Management Agent. A Management Agent is generally unreachable when it is down, when it is blocked by the OMS, or when the Management Agent host is down. A Management Agent may also be unreachable due to network problems or certain other issues. To upgrade a Management Agent that is unreachable, you need to first restore communication between the OMS and the Management Agent. To restore communication between the OMS and the Management Agent, from the **Setup** menu, select **Manage Enterprise Manager**, then select **Agents.** Click the required Management Agent name to navigate to the Management Agent home page. Click the displayed error icon, and perform the recommended actions.

You can use the Not Upgradable Agents page to search for and view a set of Management Agents that currently cannot be upgraded. To search for and view these Management Agents, follow these steps:

1. From the **Setup** menu, select **Manage Enterprise Manager,** then select **Upgrade Agents.**
2. Click **Not Upgradable Agents.**
3. Enter or select values for parameters you want to use to search for Management Agents. You can search for Management Agents using the Management Agent name, version, platform, and the reason why the Management Agent cannot be upgraded.
4. For **Match,** select **All** or **Any** to search for results that match all the search parameters, or any of the search parameters, respectively.
5. Click **Search.**

Prerequisites for Upgrading Standalone Management Agents to 24ai Release 1 Using the Agent Upgrade Console or EM CLI

Before you upgrade your Management Agents to 24ai Release 1 or higher, meet the following prerequisites:

- If you want to upgrade a Management Agent running on a platform different from the OMS host platform, ensure that the latest Management Agent software for the platform is downloaded and applied in Software Library, using Self Update.

  To access Self Update, from the **Setup** menu, select **Extensibility,** then select **Self Update.** To check whether the latest Management Agent software for a platform is downloaded and applied, click **Agent Software,** then check the **Version** and the **Status** columns for the required platform. The software version for the platform must be the same as the OMS version. The status must read **Applied.**

  If the latest software is not downloaded and applied, select the software, then click **Download** to download it. After downloading the software, click **Apply** to apply the software. If the software has been downloaded, but not applied, click **Apply** to apply the software.

  For more information, see using Self Update to download and apply the latest Management Agent software for a platform in the *Oracle Enterprise Manager Basic Installation Guide*.

- Ensure that the Management Agents you want to upgrade are up and running.

  To verify if a Management Agent is up and running, from the **Setup** menu, select **Manage Enterprise Manager,** then select **Agents.** Check the **Status** column of the required Management Agent.

  If the Management Agent is unreachable, click the Management Agent name to navigate to the Management Agent home page. Click the Agent Unreachable icon, and perform the recommended actions.

- Ensure that the Management Agents you want to upgrade are secure.

  To verify if a Management Agent is secure, from the **Setup** menu, select **Manage Enterprise Manager,** then select **Agents.** Check the **Secure Upload** column of the required Management Agent.

  If the Management Agent is not secure, from the **Agent** menu, select **Secure** to secure it.

  Also, you can run the following command to verify if a Management Agent is secure:

  ```
  <EMSTATE>/bin/emctl status agent
  ```

  `<EMSTATE>` refers to the Management Agent instance directory, that is, `<AGENT_BASE_DIRECTORY>/agent_inst`

  If the Management Agent is secure, the Management Agent URL displayed is a HTTPS URL. However, if the Management Agent URL displayed is a HTTP URL, secure the Management Agent by running the following command:

  ```
  <EMSTATE>/bin/emctl secure agent
  ```

- Ensure that Oracle home collections are run on all the Management Agents that you want to upgrade.

  If Oracle home collections are not run on some Management Agents, they are not upgradable. These Management Agents are displayed on the Not Upgradable Agents

page, with the reason displayed as *Oracle Home Property Missing.* For information on how to access this page, see Table 6-1.

To run Oracle home collections for all the Management Agent that you want to upgrade, run the following command from the Management Agent host:

```
<EMSTATE>/bin/emctl control agent runCollection <TARGET_NAME>:oracle_home
oracle_home_config
```

`<EMSTATE>` refers to the Management Agent instance directory, that is, `<AGENT_BASE_DIRECTORY>/agent_inst`

`<TARGET_NAME>` refers to the Management Agent home listed as `oracle_home` in the `<EMSTATE>/sysman/emd/targets.xml` file. You can also verify using the `emctl config agent listtargets` command.

- Ensure that the old Management Agent does not come up during the Management Agent upgrade process.

  You may have scheduled certain cron jobs, or configured certain notification managers that start up a Management Agent when it is down. The old Management Agent is shut down as part of the upgrade process. Ensure that this Management Agent is not brought up.

- Ensure that the install user has read permissions on all the files present in Oracle Inventory, and write permissions on the Oracle Inventory directory.

  To grant read permissions on all the files present in Oracle Inventory, run the following command as the install user:

  ```
  chmod -R +r $<INVENTORY_LOCATION>
  ```

  To grant write permissions on the Oracle Inventory directory, run the following command as the install user:

  ```
  chmod +rw $<INVENTORY_LOCATION>
  ```

- Ensure that you meet the hardware requirements described in the *Oracle Enterprise Manager Basic Installation Guide*.

Upgrading Standalone Management Agents to 24ai Release 1 using the Agent Upgrade Console

To upgrade your Management Agents to 24ai Release 1 or higher using the Agent Upgrade Console, follow these steps:

1. From the **Setup** menu, select **Manage Enterprise Manager,** then select **Upgrade Agents.**
2. For **Job Name,** accept the default job name, or enter a unique job name.

   A unique job name enables you to identify the upgrade job, know details of its execution, and track its progress on the Agent Upgrade Status page.

   The job name can have a maximum length of 64 characters. It can consist of alphanumeric and special characters, and can begin with either of these.
3. Click **Add** to select the Management Agents you want to upgrade.

   In the Upgradable Agents window, search for the Management Agents you want to upgrade, using the **Agent, Installed Version, Platform,** and **Group** fields.

   Select the Management Agents you want to upgrade. Click **OK.**

> **Important:**
>
> - In this release, you can only upgrade your 13*c* Release 5 Management Agents to 24ai Release 1, and not to any other version.
> - If you select a Management Agent that is part of a particular group for upgrade, the other Management Agents of the group are not selected for upgrade by default. If you want to upgrade the other Management Agents of the group, you must select them in the Upgradable Agents window.

4. (Optional) For **Pre-upgrade Script** and **Post-upgrade Script,** enter the absolute path of the script that you want to run before and after the upgrade, respectively.

   For example, `/scratch/software/oracle/configure.sh`.

   The scripts you want to run must be present at the location you specify, on the Oracle Management Service (OMS) host (on all the OMS hosts in case of a multi-OMS environment), or on all the Management Agent hosts selected for upgrade. They can reside in a shared, NFS-mounted location accessible by the Management Agent hosts selected for upgrade.

   If the script you want to run is present only on the OMS host, and not on the Management Agent hosts selected for upgrade, then select **Script on OMS Host.**

   > **Note:**
   >
   > - You can specify only one pre-upgrade script and one post-upgrade script per session.
   > - Only shell scripts `(.sh)` and batch `(.bat)` scripts are supported. You should run only shell scripts while upgrading Management Agents installed on Unix platforms, and only batch scripts while upgrading Management Agents installed on Microsoft Windows platforms.
   > - If you want to upgrade a Management Agent installed on a Unix platform and a Management Agent installed on a Microsoft Windows platform in the same session, ensure that you do not specify a pre-upgrade or a post-upgrade script. If you want to specify a pre-upgrade or a post-upgrade script for upgrading these Management Agents, upgrade the Management Agents installed on different platforms in different sessions.

5. (Optional) For **Additional Parameters,** enter the additional options you want to use for the upgrade.

   For example, specify `-ignorePrereqs` to skip running the prerequisite checks and directly perform the Management Agent upgrade. If you want to specify multiple additional parameters, separate them using a space.

   Refer to Additional Parameters for 24ai Release 1 Management Agent Upgrade for a list of parameters you can specify.

6. For **Stage Location,** accept the default stage location, or enter a custom location. The stage location is used to store temporary Management Agent upgrade files.

   For example, `/tmp/software/oracle/EMStage`.

Ensure that the Management Agent install user has write permissions on the custom location you enter. The custom location you enter can be a shared, NFS-mounted location. If the stage location you specify and the agent base directory of the Management Agent you want to upgrade are present on the same disk, then ensure that the disk has at least 3 GB of free space. If they are present on different disks, ensure that the stage directory has at least 2.1 GB of free space, and the agent base directory has at least 750 MB of free space.

If you want to use a different stage location other than `/tmp`, you must pass the `SCARTCHPATH` value in the additional parameter in Agent Upgrade Console.

For example, `SCRATCHPATH=/u01/app/stage`.

7. Click **Submit.**

   Once you click **Submit,** a Management Agent upgrade job is created, which is sent to the Enterprise Manager job system. You are automatically taken to the Agent Upgrade Status page for the job, which displays the details of the job steps.

   To view a summary of all the submitted Management Agent upgrade jobs, or search for and view a particular set of Management Agent upgrade jobs, use the Agent Upgrade Results page of the Agent Upgrade Console. To access this page, from the **Setup** menu, select **Manage Enterprise Manager,** then select **Upgrade Agents.** Click **Agent Upgrade Results.**

   To revisit the Agent Upgrade Status page for a Management Agent upgrade job, click the name of the job on the Agent Upgrade Results page.

   If you encounter an error during the Management Agent upgrade process, or if the Management Agent upgrade fails, refer to Troubleshooting 24ai Release 1 Management Agent Upgrade.

8. If the `root.sh` step was skipped, or if this step failed, log in to the Management Agent host as the *root* user, navigate to `$<AGENT_BASE_DIR>/agent_24.1.0.0.0/` and run the `root.sh` script on the host manually.

   After `root.sh` is run, you can clean up your old Management Agents, as described in Performing Postupgrade Cleanup of Old Management Agents.

Additional Parameters for 24ai Release 1 Management Agent Upgrade

Table 6-2 describes the additional parameters you can use while upgrading 24ai Release 1 Management Agents using Agent Upgrade Console, or EM CLI. You can enter more than one parameter, using a whitespace as a separator.

Table 6-2 List of Additional Parameters for 24ai Release 1 Management Agent Upgrade

Parameter	Description
-ignorePrereqs	Skips running the prerequisite checks. Specify this parameter when you have already verified the prerequisites, and only want to perform the rest of the upgrade process.
-debug	Logs debug messages useful for debugging and resolving errors.
SCRATCHPATH	Specify this parameter if you do not have enough space on `/tmp` to use a custom path for the software extraction. You can use `SCRATCHPATH` to override the `/tmp` location.

Upgrading Standalone Management Agents to 24ai Release 1 Using EM CLI

To upgrade your Management Agents to 24ai Release 1 or higher using EM CLI, follow these steps:

1. Log in to EM CLI from the `/bin` directory present within the Oracle home of the OMS:

   ```
   $<ORACLE_HOME>/bin/emcli login -username=<user_name>
   ```

   For example,

   ```
   /u01/software/em24/middleware/oms_home/bin/emcli login -username=<user_name>
   ```

   Once you run this command, EM CLI will prompt you for a password. Enter the password for the user name you specified.

2. Synchronize EM CLI:

   ```
   $<ORACLE_HOME>/bin/emcli sync
   ```

   For example,

   ```
   /u01/software/em24/middleware/oms_home/bin/emcli sync
   ```

3. Run the `get_upgradable_agents` verb to obtain a list of the Management Agents that can be upgraded:

   ```
   emcli get_upgradable_agents
                        [-agents="agent_name_search_pattern"]
                        [-platforms="platform_search_pattern"]
                        [-versions="version_search_pattern"]
                        [-groups="group_search_pattern"]
                        [-output_file="output_file_location"]
   ```

   Note that the parameters mentioned in `[ ]` are optional.

   For example,

   ```
   /u01/software/em24/middleware/oms_home/bin/emcli get_upgradable_agents -
   agents="abc%,xyz.example.com:1243" -platforms="Linux x86,Microsoft Windows x64
   (64-bit)" -versions="24.1.0.0.0" -output_file="/scratch/agents_file.txt"
   ```

   Use the `-output_file` option to copy the list of upgradable Management Agents into a file. This file can be used later as an input parameter for the `upgrade_agents` verb.

   To view more information on the syntax and the usage of the `get_upgradable_agents` verb, run the following command:

   ```
   $<ORACLE_HOME>/bin/emcli/help get_upgradable_agents
   ```

4. Run the `upgrade_agents` verb to upgrade your Management Agents:

   ```
   emcli upgrade_agents
   -agents="names_of_agent_targets" |
   -input_file="agents_file:location_of_input_file"
                        [-allowMd5="true|false"]
                        [-validate_only]
                        [-pre_script_loc="location_of_pre_script"]
                        [-pre_script_on_oms]
                        [-post_script_loc="location_of_post_script"]
                        [-post_script_on_oms]
                        [-job_name="custom_job_name"]
   ```

```
                    [-override_credential="named_credential"]
                    [-additional_parameters]
                    [-stage_location="custom_stage_location"]
```

Note that the parameters mentioned in `[ ]` are optional.

Ensure that you specify all the Management Agents that you want to upgrade by using either `-agents`, or `-input_file="agents_file:<file_name>"`, or by specifying `agents` in a response file, and then using `-input_file="response_file:<absolute_location>"`.

For example,

```
/u01/software/em24/middleware/oms_home/bin/emcli upgrade_agents -
agents="abc%,xyz.example.com:1243" -input_file="agents_file:/scratch/
agents_file.txt" -input_file="response_file:/scratch/agent.rsp" -
stage_location=/tmp
```

The parameters that you specify with the verb override the parameters that you specify in the response file.

To view more information on the syntax and the usage of the `upgrade_agents` verb, run the following command:

```
$<ORACLE_HOME>/bin/emcli help upgrade_agents
```

If you encounter an error during the Management Agent upgrade process, or if the Management Agent upgrade fails, refer to Troubleshooting 24ai Release 1 Management Agent Upgrade.

5. To view the status of the submitted Management Agent upgrade jobs, run the `get_agent_upgrade_status` verb:

```
$<ORACLE_HOME>/bin emcli get_agent_upgrade_status
                    [-agent]
                    [-job_name]
                    [-status]
```

Note that the parameters mentioned in `[ ]` are optional.

For example,

`/u01/software/em24/middleware/oms_home/bin/emcli get_agent_upgrade_status -status="Running"` will display all the Management Agent upgrade jobs that are in progress.

You can view the detailed job step status of a particular Management Agent that was part of a particular upgrade job by using the `get_agent_upgrade_status` verb with the `-agent` and the `-job_name` options.

For example,

```
/u01/software/em24/middleware/oms_home/bin/emcli get_agent_upgrade_status -
agent=abc.example.com:1243 -job_name=UPGRADE_AGT_13603
```

If a particular Management Agent upgrade job failed, check the inputs and run the `upgrade_agents` verb again. If you want to specify a custom job name (using the `-job_name` parameter) while retrying the verb, ensure that you provide a unique job name, and not the name of the job that failed. For Management Agent upgrade troubleshooting tips, see Troubleshooting 24ai Release 1 Management Agent Upgrade.

To view more information on the syntax and the usage of the `get_agent_upgrade_status` verb, run the following command:

```
$<ORACLE_HOME>/bin/emcli/help get_agent_upgrade_status
```

6. If the `root.sh` step was skipped, or if this step failed, log in to the Management Agent host as the *root* user, navigate to `$<AGENT_BASE_DIR>/agent_24.1.0.0.0/` and run the `root.sh` script on the host manually.

   After `root.sh` is run, you can clean up your old Management Agents, as described in Performing Postupgrade Cleanup of Old Management Agents.

> **Note:**
>
> For more information on how to use the EM CLI verbs mentioned in this section, see Using Basic Operational Verbs in the *Oracle Enterprise Manager Command Line Interface Guide*.

After Upgrading Standalone Management Agents to 24ai Release 1 using the Agent Upgrade Console or EM CLI

This section describes the various tasks you can perform after upgrading your Management Agents. It consists of the following:

- Verifying Your 24ai Release 1 Management Agent Upgrade
- Moving Central Agent Base Directory Outside Oracle Middleware Home (After Upgrading 13c Central Agent)
- Performing Postupgrade Cleanup of Old Management Agents
- Viewing 13c Management Agent Upgrade Cleanup Jobs

Verifying Your 24ai Release 1 Management Agent Upgrade

This section describes how to verify the 24ai Release 1 Management Agent upgrade. It consists of the following sections:

- Verifying 24ai Release 1 Management Agent Upgrade Using the Enterprise Manager Console
- Verifying 24ai Release 1 Management Agent Upgrade Using EM CLI

Verifying 24ai Release 1 Management Agent Upgrade Using the Enterprise Manager Console

After you upgrade your Management Agents, follow these methods to verify the upgrade using the Enterprise Manager console:

- From the **Setup** menu, select **Manage Enterprise Manager,** then select **Upgrade Agents.** Click **Agent Upgrade Results.** Verify that the job you created to upgrade the Management Agents succeeded.
- From the **Setup** menu, select **Manage Enterprise Manager,** then select **Agents.** Click the name of a Management Agent that you want to verify the upgrade for, and verify the Management Agent version. The Management Agent version after the upgrade must be the same as the OMS version.

  Also, on the Agents page, verify that the Management Agent is up and running, is not blocked, and is not under blackout.
- From the **Setup** menu, select **Manage Enterprise Manager,** then select **Agents.** Click the name of the Management Agent that you want to verify the upgrade for. From the **Agent**

menu, select **Configuration,** then select **Latest.** In the Configuration Properties tab, ensure that none of the configuration properties mention the old Management Agent home.

Verifying 24ai Release 1 Management Agent Upgrade Using EM CLI

After you upgrade your Management Agents, follow these methods to verify the upgrade using EM CLI:

- Run the `get_agent_upgrade_status` verb to verify that the job you created to upgrade the Management Agents succeeded. This is described in detail in Step 5 of Upgrading Standalone Management Agents to 24ai Release 1 Using EM CLI.
- Run the `get_agent_properties` verb to verify the version of the Management Agent and its configuration properties after the upgrade:

  ```
  $<ORACLE_HOME>/bin/emcli get_agent_properties -format=csv -
  agent_name=<agent_host_name>:<agent_port>
  ```

  For example,

  ```
  /u01/software/em24/middleware/oms_home/bin/emcli get_agent_properties -
  format=csv -agent_name=abc.example.com:1872
  ```

- Run the `get_targets` verb to verify the status of the Management Agent (it should be up and running, and not be blocked, under blackout, etc.):

  ```
  $<ORACLE_HOME>/bin/emcli get_targets -format="name:csv" -
  targets=<agent_host_name>:<agent_port>:oracle_emd -alerts
  ```

  For example,

  ```
  /u01/software/em24/middleware/oms_home/bin/emcli get_targets -
  format="name:csv" -targets=abc.example.com:3872:oracle_emd -alerts
  ```

Performing Postupgrade Cleanup of Old Management Agents

After you upgrade your Management Agents to 24ai Release 1 or higher, the old agent homes, old Oracle Home targets, and backup directories of the old Management Agents remain, and are not deleted automatically. To delete these post upgrade and free up disk space, you can clean up the old Management Agents using Agent Upgrade Console or EM CLI.

> **Important:**
>
> Ensure that you perform clean up only on those Management Agents that were upgraded successfully. For information on verifying whether a Management Agent was upgraded successfully, see Verifying Your 24ai Release 1 Management Agent Upgrade.

This section describes the methods you can use to clean up Management Agents version 24ai Release 1, 24.1.0.x or higher after upgrading them. It consists of the following:

- Performing Postupgrade Cleanup of Old Management Agents Using the Agent Upgrade Console
- Performing Postupgrade Cleanup of Old Management Agents Using EM CLI

Performing Postupgrade Cleanup of Old Management Agents Using the Agent Upgrade Console

To clean up the old directories of your old Management Agents using the Clean Up Agents page of the Agent Upgrade Console, follow these steps:

1. From the **Setup** menu, select **Manage Enterprise Manager,** then select **Upgrade Agents.**
2. Click **Post Agent Upgrade Tasks.**
3. To change the default clean up job name, enter a unique value for **Job Name.**

   A unique job name enables you to identify the clean up job, know details of its execution, and track its progress.

   The job name can have a maximum length of 64 characters. It can consist of alphanumeric and special characters, and can begin with either of these.
4. Click **Add** to add Management Agents for clean up.
5. In the Agents for Clean Up window, search for the Management Agents you want to clean up, using the **Agent, Platform, Installed Version,** and **Group** fields.
6. Select the Management Agents you want to clean up. Click **OK.**
7. Click **Submit.**

Performing Postupgrade Cleanup of Old Management Agents Using EM CLI

To clean up the old directories of your old Management Agents using EM CLI, follow these steps:

1. Log in to EM CLI from the `/bin` directory present within the Oracle home of the OMS.

   ```
   $<ORACLE_HOME>/bin/emcli login -username=<user_name>
   ```

   For example,

   ```
   /u01/software/em24/middleware/oms_home/bin/emcli login -username=sysman
   ```

   Once you run this command, EM CLI will prompt you for a password. Enter the password for the user name you specified.
2. Synchronize EM CLI:

   ```
   $<ORACLE_HOME>/bin/emcli sync
   ```

   Foe example,

   ```
   /u01/software/em24/middleware/oms_home/bin/emcli sync
   ```
3. Run the `get_signoff_agents` verb to obtain a list of the Management Agents for which clean up can be performed:

   ```
   $<ORACLE_HOME>/bin/emcli get_signoff_agents
                           [-agents]
                           [-platforms]
                           [-versions]
                           [-groups]
                           [-output_file]
   ```

   Note that the parameters mentioned in `[ ]` are optional.

   For example,

```
/u01/software/em24/middleware/oms_home/bin/emcli get_signoff_agents -
output_file="/scratch/signoff_agents_file.txt"
```

Use the `-output_file` option to copy the output of the `get_signoff_agents` verb into a file, which you can later use as an input parameter for the `signoff_agents` verb.

To view more information on the syntax and the usage of the `get_signoff_agents` verb, run the following command:

```
$<ORACLE_HOME>/bin/emcli help get_signoff_agents
```

4. Run the `signoff_agents` verb to clean up your Management Agents:

```
$<ORACLE_HOME>/bin/emcli/signoff_agents
                      -agents | -input_file="agents_file:<absolute_location>" | -
input_file="response_file:<absolute_location>"
                      [-job_name]
```

Note that the parameters mentioned in `[ ]` are optional.

Ensure that you specify all the Management Agents that you want to clean up by using either `-agents`, or `-input_file="agents_file:<file_name>"`, or by specifying `agents` in a response file, and then using `-input_file="response_file:<absolute_location>"`.

For example,

```
/u01/software/em24/middleware/oms_home/bin/emcli signoff_agents -
agents="abc%,xyz.example.com:1243" -input_file="agents_file:/scratch/
signoff_agents_file.txt" -input_file="response_file:/scratch/agent.rsp" -
job_name=CLEAN_UP_12103
```

Use the `-input_file="agents_file:<absolute_location>"` option to specify a file containing the list of Management Agents that you want to clean up. Use the `-input_file="response_file:<absolute_location>"` option to specify a response file containing all the parameters that you want to use. A response file contains parameters in name value pairs, as shown:

```
agents=abc%,xyz%
job_name=CLEAN_UP_AGT_121030
```

The parameters that you specify with the verb override the parameters that you specify in the response file.

To view more information on the syntax and the usage of the `signoff_agents` verb, run the following command:

```
$<ORACLE_HOME>/bin/emcli help signoff_agents
```

> **Note:**
>
> For more information on how to use the EM CLI verbs mentioned in this section, see Using Basic Operational Verbs in the *Oracle Enterprise Manager Command Line Interface Guide*.

Moving Central Agent Base Directory Outside Oracle Middleware Home (After Upgrading 13c Central Agent)

After the central agent was upgraded, if the agent base directory of the upgraded central agent resides within the Oracle Middleware home, and you want to move it outside the Oracle Middleware home, then see Moving the Central Agent Base Directory Outside Oracle Middleware Home.

> **Important:**
>
> Moving the agent base directory is recommended only for central agents (on all platforms, including Microsoft Windows), and not recommended for standalone Management Agents.

Viewing 13c Management Agent Upgrade Cleanup Jobs

You can use the Clean Up Agents page or EM CLI to delete the old agent homes, old Oracle Home targets, and backup directories of your old Management Agents, after upgrading them. Once you select the Management Agents you want to clean up and click **Submit** on the Clean Up Agents page, or run the `signoff_agents` EM CLI verb, a Management Agent clean up job is created, which is sent to the Enterprise Manager job system. You can use the Clean Up Agent Results page, or the `get_signoff_status` EM CLI verb to search for and view a particular set of Management Agent clean up jobs.

This section describes the methods you can use to view a particular set of Management Agent clean up jobs. It consists of the following:

- Viewing 24ai Release 1 Management Agent Upgrade Cleanup Jobs Using the Agent Upgrade Console
- Viewing 24ai Release 1 Management Agent Upgrade Cleanup Jobs Using EM CLI

Viewing 24ai Release 1 Management Agent Upgrade Cleanup Jobs Using the Agent Upgrade Console

To view a particular set of Management Agent clean up jobs using the Clean Up Agent Results page of the Agent Upgrade Console, follow these steps:

1. From the **Setup** menu, select **Manage Enterprise Manager,** then select **Upgrade Agents.**
2. Click **Post Agent Upgrade Tasks.**
3. Click **Clean Up Agent Results.**
4. Enter or select values for parameters that you want to use to search for Management Agent clean up jobs. You can search for these jobs using the job name, the Management Agents that were part of the clean up, and the status of the job.
5. For **Match,** select **All** or **Any** to search for results that match all the search parameters, or any of the search parameters, respectively.
6. Click **Search.**

Viewing 24ai Release 1 Management Agent Upgrade Cleanup Jobs Using EM CLI

To view a particular set of Management Agent clean up jobs using EM CLI, follow these steps:

1. Log in to EM CLI from the `/bin` directory present within the Oracle home of the OMS:

   ```
   $<ORACLE_HOME>/bin/emcli login -username=<user_name>
   ```

   For example,

   ```
   /u01/software/em24/middleware/oms_home/bin/emcli login -username=sysman
   ```

   Once you run this command, EM CLI will prompt you for a password. Enter the password for the user name you specified.

2. Synchronize EM CLI:

   ```
   $<ORACLE_HOME>/bin/emcli sync
   ```

   For example,

   ```
   /u01/software/em24/middleware/oms_home/bin/emcli sync
   ```

3. Run the `get_signoff_status` verb to view a particular set of Management Agent clean up jobs:

   ```
   $<ORACLE_HOME>/bin/emcli get_signoff_status
                        [-agent]
                        [-job_name]
                        [-status]
   ```

   Note that the parameters mentioned in `[ ]` are optional.

   For example,

   `/u01/software/em24/middleware/oms_home/bin/emcli get_signoff_status -status="Success"` displays the Management Agent clean up jobs that succeeded.

   To view more information on the syntax and the usage of the `get_signoff_status` verb, run the following command:

   ```
   $<ORACLE_HOME>/bin/emcli help get_signoff_status
   ```

> **Note:**
>
> For more information on how to use the EM CLI verbs mentioned in this section, see Using Basic Operational Verbs in the *Oracle Enterprise Manager Command Line Interface Guide*.

Troubleshooting 24ai Release 1 Management Agent Upgrade

Table 6-3 describes how to troubleshoot certain errors you may encounter while upgrading your Management Agents.

Table 6-3 Troubleshooting Oracle Management Agent Upgrade

Problem	Troubleshooting Tip
When you click **Submit** on the Upgrade Agents page, you encounter an error mentioning that `root.sh` could not be run for a Management Agent as the preferred privileged credentials for the Oracle Home of the Management Agent are not set.	Do one of the following: • Click **OK** to continue the upgrade. After the upgrade, log in to the Management Agent host as the *root* user, and run the `$<AGENT_BASE_DIR>/agent_24.1.0.0.0/root.sh` script on the host. • Click **Cancel** to cancel the upgrade, then do the following: 1. Set the preferred privileged credentials for the Oracle Home target of the Management Agent. For information on how to do this, see Setting My Oracle Support Preferred Credentials in the *Oracle Enterprise Manager Administrator's Guide*. 2. Upgrade the Management Agent. If you do not want to set the preferred privileged credentials for the Oracle Home target of the Management Agent, when the error message is displayed, click **Cancel,** then do the following: 1. Select **Override Privileged Credentials,** then create a new credential by clicking the displayed icon. If the credential you create is not a root credential, select Sudo or PowerBroker for **Run Privilege,** and enter *root* for **Run as.** 2. Configure privilege delegation settings on the Management Agent host. 3. Upgrade the Management Agent. If the `root.sh` job step fails after the upgrade, log in to the Management Agent host as the *root* user, and run the `$<AGENT_BASE_DIR>/agent_24.1.0.0.0/root.sh` script manually.
When you click **Submit** on the Upgrade Agents page, you encounter an error mentioning that `root.sh` could not be run for a Management Agent as the privilege delegation settings for the Management Agent host are not set.	Do one of the following: • When the error message is displayed, click **OK** to continue the upgrade. After the upgrade, log in to the Management Agent host as the *root* user, and run the `$<AGENT_BASE_DIR>/agent_24.1.0.0.0/root.sh` script on the host. • When the error message is displayed, click **Cancel** to cancel the upgrade, then do the following: 1. Configure privilege delegation settings on the Management Agent host. For information on how to do this, see Setting Up Credentials in the *Oracle Enterprise Manager Lifecycle Management Administrator's Guide*. 2. Upgrade the Management Agent. If the `root.sh` job step fails after the upgrade, log in to the Management Agent host as the *root* user, and run the `$<AGENT_BASE_DIR>/agent_24.1.0.0.0/root.sh` script manually.

Table 6-3 (Cont.) Troubleshooting Oracle Management Agent Upgrade

Problem	Troubleshooting Tip
When you click **Submit** on the Upgrade Agents page, you encounter an error mentioning that `root.sh` could not be run for a Management Agent as *Run as root* is not set for the Management Agent Oracle Home preferred privileged credential.	Do one of the following: • Click **OK** to continue the upgrade. After the upgrade, log in to the Management Agent host as the *root* user, and run the `$<AGENT_BASE_DIR>/agent_24.1.0.0.0/root.sh` script on the host. • Click **Cancel** to cancel the upgrade, then do the following: 1. Edit the preferred privileged credentials for the Oracle Home target of the Management Agent to ensure that the credential has *root* privileges. For information on how to do this, see Setting Up Credentials in the *Oracle Enterprise Manager Lifecycle Management Administrator's Guide*. 2. Upgrade the Management Agent. If the `root.sh` job step fails after the upgrade, log in to the Management Agent host as the *root* user, and run the `$<AGENT_BASE_DIR>/agent_24.1.0.0.0/root.sh` script manually.

When you click **Submit** on the Upgrade Agents page, the Upgrade Agents step fails.	Diagnose the problem by following these steps:
	1. View the output logs of the failed Management Agent upgrade job steps.
	To view the output log of a Management Agent upgrade job step, on the Upgrade Agents page, click **Agent Upgrade Results.** Click the name of the Management Agent upgrade job, and select the required Management Agent. Click the name of the failed job step.
	2. View the Management Agent deployment log available at the following location:
	`$<AGENT_BASE_DIRECTORY>/agent_24.1.0.0.0/cfgtoollogs/agentDeploy/agentDeploy_<TIMESTAMP>.log`
	3. View the plug-in upgrade configuration log available at the following location:
	`$<AGENT_BASE_DIRECTORY>/backup_agtup/backup_<TIMESTAMP>/agtNew/install/logs/agentplugindeploy_<TIMESTAMP>.log`

The Management Agent cannot be upgraded as the 32-bit Management Agent software for the host platform is not present in Software Library.	You may encounter this error while upgrading Management Agents that run on the Oracle Enterprise Linux 4.x, Red Hat Enterprise Linux 4.x, and SUSE Linux Enterprise 10 64-bit platforms. If you encounter this error, click **OK.** Download and apply the latest 32-bit Management Agent software for these platforms, using the Self Update console, then upgrade the Management Agent. For more information see, using the Self Update console to download and apply the latest Management Agent software in the *Oracle Enterprise Manager Basic Installation Guide* .

Table 6-3 (Cont.) Troubleshooting Oracle Management Agent Upgrade

Problem	Troubleshooting Tip
The links on the Agent Upgrade Status page or the Agent Upgrade Results page are not working.	Diagnose the problem by viewing the following logs: • `$<OMS_INSTANCE_HOME>/user_projects/domains/EMGC_DOMAIN/servers/EMGC_OMS1/logs/*.out` • `$<OMS_INSTANCE_HOME>/user_projects/domains/EMGC_DOMAIN/servers/EMGC_OMS1/logs/*.log`
A job step in the Management Agent upgrade process hangs or is executed multiple times.	Diagnose the problem by viewing the following log: `$<OMS_INSTANCE_HOME>/em/EMGC_OMS1/sysman/log/*.trc`
EM CLI log in or synchronization fails.	Diagnose the problem by viewing the following log: `$<OMS_INSTANCE_HOME>/em/<oms_name>/sysman/emcli`
The upgraded Management Agent is blocked.	Raise an Oracle Support service request. Do not resynchronize the Management Agent.

Creating an Agent Gold Image

To create an Agent Gold Image, use either of the following methods:

- Creating an Agent Gold Image Using Gold Agent Images Home Page
- Creating an Agent Gold Image Using EM CLI

Creating an Agent Gold Image Using Gold Agent Images Home Page

To create an Agent Gold Image, follow these steps:

1. From the **Setup** menu, select **Manage Enterprise Manager,** then select **Gold Agent Images.**
2. Click **Manage All Images.**
3. Click **Create.**
4. Specify the gold image name, a description (optional), and the platform of the source Management Agent that you want to use to create the Agent Gold Image versions. Ensure that you use only a standalone Management Agent as the source, and not a central agent.
5. Click **Submit.**

Creating an Agent Gold Image Using EM CLI

When you create an Agent Gold Image version using EM CLI, the Agent Gold Image gets automatically created.

To create an Agent Gold Image by creating an Agent Gold Image version using EM CLI, see Creating an Agent Gold Image Version Using EM CLI

Creating an Agent Gold Image Version

To create an Agent Gold Image version, use either of the following methods:

- Creating an Agent Gold Image Version Using the Gold Agent Images Home Page

- Creating an Agent Gold Image Version Using EM CLI

Creating an Agent Gold Image Version Using the Gold Agent Images Home Page

To create an Agent Gold Image version, follow these steps:

> **Note:**
>
> You cannot use unsecure Management Agents to create an Agent Gold Image version. Therefore, always use only secure Management Agents. Before creating an Agent Gold Image version, meet the hardware requirements as described in the hardware requirements chapter of the *Oracle Enterprise Manager Basic Installation Guide*.
>
> If the configuration properties of the source Management Agent were changed for some reason in the emd.properties file, then before creating an agent gold image version using that source Management Agent, reload the configuration properties of that Management Agent. To do so, run the following command: `emctl reload agent`

1. From the **Setup** menu, select **Manage Enterprise Manager,** then select **Gold Agent Images.**
2. Click the name of the required Agent Gold Image.
3. Click **Manage Image Versions and Subscriptions.**
4. Select the **Versions and Drafts** tab, then from the **Actions** menu, select **Create.**
5. Specify an image version name, and a description for the image version, if required.

   The word limit for the image version name is 20 characters.
6. If you want to create the gold image version using a source Management Agent, for **Create image by,** select **Selecting a source agent,** then specify the source Management Agent that you want to use. In this case, you can also specify the following:
   - Work Directory: The working directory that must be used to create the Agent Gold Image. The default working directory is `$AGENT_INSTANCE_HOME/install`. Ensure that you have minimum 750MB space in this location.
   - Configuration Properties: The Management Agent configuration properties separated by a semicolon (;) that must be captured while creating the Agent Gold Image. The names of these properties can be found in the `$AGENT_INSTANCE_HOME/sysman/config/emd.properties` file.
   - Exclude Files: The list of files separated by ';' that must be excluded from the gold agent image version. For example, agent_24.1.0.0.0/cfgtoollogs/agentDeploy/*;agent_24.1.0.0.0/oui/*. Ensure that you provide only the relative path to the files and directories and not the absolute path.

   However, if you want to create the gold image version by importing an existing gold image version, for **Create image by,** select **Importing an image,** then specify the location of the gold image version that you want to import. In order to be able to import an image, the image should already be staged. If you have not already staged the image for this purpose, then stage it as described in the *Oracle Enterprise Manager Advanced Installation and Configuration Guide*.

> **Note:**
>
> The image can be created from a test system and staged. Also, the stage location should be accessible from the OMS.

7. Click **OK.**

   A job that creates the Agent Gold Image version is submitted to the Enterprise Manager job system. You can view the status of this job on the Gold Agent Image Activities page, in the Image Activities tab.

Creating an Agent Gold Image Version Using EM CLI

To create an Agent Gold Image version using EM CLI, follow these steps:

> **Note:**
>
> You cannot use unsecure Management Agents to create an Agent Gold Image version. Therefore, always use only secure Management Agents. Before creating an Agent Gold Image version, meet the hardware requirements as described in the hardware requirements chapter of the *Oracle Enterprise Manager Basic Installation Guide*.
>
> If the configuration properties of the source Management Agent were changed for some reason in the emd.properties file, then before creating an agent gold image version using that source Management Agent, reload the configuration properties of that Management Agent. To do so, run the following command:
>
> ```
> emctl reload agent
> ```

1. Log in to EM CLI from the `/bin` directory present within the Oracle home of the OMS:

   ```
   $<ORACLE_HOME>/bin/emcli login -username=<user_name>
   ```

   Once you run this command, EM CLI will prompt you for a password. Enter the password for the user name you specified.

2. Synchronize EM CLI:

   ```
   $<ORACLE_HOME>/bin/emcli sync
   ```

3. Run the `create_gold_agent_image` verb to create an Agent Gold Image using the specified source Management Agent or by importing an already created image from another Enterprise Management System:

   ```
   $<ORACLE_HOME>/bin/emcli create_gold_agent_image
           -image_name="gold_image_name"
           -version_name="gold_image_version_name"
           -source_agent|-import_location="source_agent|import_location"
           [-gold_image_description="gold_image_description"]
           [-working_directory="working_directory_location"]
           [-config_properties= " agent_configuration_properties"]
           [-exclude_files= "list_of_files_directories_to_exclude"]
   ```

   Note that the parameters mentioned in `[ ]` are optional.

Table 6-4 lists and describes the parameters supported for creating an Agent Gold Image version using EM CLI.

Table 6-4 Supported Parameters for Creating an Agent Gold Image Version

Parameter	Description
`-image_name`	Agent Gold Image name to which the created Agent Gold Image must be added.
`-version_name`	Version name of the Agent Gold Image. When you create an image version and update a Management Agent with it, Enterprise Manager uses the image version name you provide here to create a subdirectory in the agent base directory for the Management Agent being updated. For example, if the agent base directory of the Management Agent being updated is `/u01/software/em24/agentbasedir`, and the agent home is `/u01/software/em24/agentbasedir/agent_24.1.0.0.0`, and if you provide `OPB_BP1` as the image version name, then when you update the Management Agent with the image version, a new subdirectory `/u01/software/em24/agentbasedir/GoldImage_OPB_BP1/agent_24.1.0.0.0` is created. The word limit for the image version name is 20 characters.
`-source_agent`	Management Agent to be used as the source to create the Agent Gold Image. To view a list of the Management Agents that can be used as a source to create a gold image, run `emcli get_targets -target="oracle_emd"`.
`-import_location`	Location where the Agent Gold Image is staged for creating the gold agent image version. This location is accessible from all the OMS instances.
`-gold_image_description`	Description of the Agent Gold Image.
`-working_directory`	Working directory to be used to create the Agent Gold Image. The default working directory is `$AGENT_INSTANCE_HOME/install`. Minimum free space required is 1 GB.
`-config_properties`	Management Agent configuration properties separated by \";\" that must be captured while creating the Agent Gold Image. For example, MaxThread;GracefulShutdown.
`-exclude_files`	List of files or directories separated by \";\" that must be excluded from the gold agent image version. For example, `agent_24.1.0.0.0/cfgtoollogs/agentDeploy;agent_24.1.0.0.0/oui`. Ensure that you provide only the relative path to the files and directories and not the absolute path.

Examples:

- The following example creates an Agent Gold Image OPC_AGI_DB_JUL_13, using `example.com:3872` as the source Management Agent, and adds the gold image version to the gold image OPC_DB_MONITORING:

  ```
  $<ORACLE_HOME>/bin/emcli create_gold_agent_image -source_agent=example.com:3872 -
  version_name=OPC_AGI_DB_JUL_13 -image_name=OPC_DB_MONITORING
  ```

- The following example creates an Agent Gold Image OPC_AGI_DB_JUL_13, using `example.com:3872` as the source Management Agent, `/tmp` as the working directory, and adds the gold image version to the gold image OPC_DB_MONITORING:

  ```
  $<ORACLE_HOME>/bin/emcli create_gold_agent_image -source_agent=example.com:3872 -
  version_name=OPC_AGI_DB_JUL_13 -image_name=OPC_DB_MONITORING -
  working_directory=/tmp
  ```

- The following example creates an Agent Gold Image OPC_AGI_DB_JUL_13 using gold image software staged at import location `/abc/stage`:

  ```
  $<ORACLE_HOME>/bin/emcli create_gold_agent_image -import_location=/abc/stage -
  version_name=OPC_AGI_DB_JUL_13 -image_name=OPC_DB_MONITORING
  ```

Setting a Particular Agent Gold Image Version as the Current Version

The up-to-date version of an Agent Gold Image that you want to use to standardize the Management Agents in your enterprise is termed as the *current version* of the Agent Gold Image.

When an Agent Gold Image version is created, it is marked as a draft version. Setting a draft version of an Agent Gold Image as the current version indicates that the gold image version is ready to be used to mass deploy or mass update Management Agents. Once an image is set to Active (Current), you cannot revert it to a draft or a restricted version.

To set a draft version of an Agent Gold Image as the current version, use either of the following methods:

- Setting a Particular Agent Gold Image Version as the Current Version Using Gold Agent Images Home Page
- Setting a Particular Agent Gold Image Version as the Current Version Using EM CLI

Setting a Particular Agent Gold Image Version as the Current Version Using Gold Agent Images Home Page

To set a draft version of an Agent Gold Image as the current version, follow these steps:

1. From the **Setup** menu, select **Manage Enterprise Manager,** then select **Gold Agent Images.**
2. Click the name of the required Agent Gold Image.
3. Click **Manage Image Versions and Subscriptions.**
4. Select the **Versions and Drafts** tab. Select the gold image version that you want to set as the current version, then click **Set Current Version.**

   A job that promotes the Agent Gold Image draft version to the current version is submitted to the Enterprise Manager job system. You can view the status of this job on the Gold Agent Image Activities page, in the Image Activities tab.

Setting a Particular Agent Gold Image Version as the Current Version Using EM CLI

To set a particular Agent Gold Image version as the current version using EM CLI, follow these steps:

1. Log in to EM CLI from the `/bin` directory present within the Oracle home of the OMS:

   ```
   $<ORACLE_HOME>/bin/emcli login -username=<user_name>
   ```

   Once you run this command, EM CLI will prompt you for a password. Enter the password for the user name you specified.

2. Synchronize EM CLI:

   ```
   $<ORACLE_HOME>/bin/emcli sync
   ```

3. Run the `promote_gold_agent_image` verb to promote the Agent Gold Image version to the Current maturity level:

   ```
   $<ORACLE_HOME>/bin/emcli promote_gold_agent_image
   -version_name="gold_image_version_name"
    -maturity="Current/Restricted/Draft"
   ```

   The `-version_name` parameter defines the Agent Gold Image that you want to promote.

   The `-maturity` parameter defines the gold image maturity level.

   For example, to promote the Agent Gold Image OPC_AGI_DB_JUL_13 to the Current maturity level, run the following:

   ```
   $<ORACLE_HOME>/bin/emcli promote_gold_agent_image  -version_name=OPC_AGI_DB_JUL_13 -
   maturity=Current
   ```

Setting a Particular Agent Gold Image Version as the Restricted Version using Gold Agent Images Home Page

To set a draft or active version of a Agent Gold Image as the restricted version, use either of the following methods:

- Setting a Particular Agent Gold Image Version as the Restricted Version Using Gold Agent Images Home Page
- Setting a Particular Agent Gold Image Version as the Restricted Version Using EM CLI

Setting a Particular Agent Gold Image Version as the Restricted Version Using Gold Agent Images Home Page

To set a draft or active version of a Agent Gold Image as the restricted version, follow these steps:

1. From the **Setup** menu, select **Manage Enterprise Manager,** then select **Gold Agent Images.**
2. Click the name of the required Agent Gold Image.
3. Click **Manage Image Versions and Subscriptions.**

4. Select the **Versions and Drafts** tab. Select the gold image version that you want to set as the restricted version, then click **Set Restricted Version.**

Setting a Particular Agent Gold Image Version as the Restricted Version Using EM CLI

To set a draft or active version of a Agent Gold Image version as the restricted version using EM CLI, follow these steps:

1. Log in to EM CLI from the `/bin` directory present within the OMS home:

   ```
   $<ORACLE_HOME>/bin/emcli login -username=<user_name>
   ```

   Once you run this command, EM CLI will prompt you for a password. Enter the password for the user name you specified.

2. Synchronize EM CLI:

   ```
   $<ORACLE_HOME>/bin/emcli sync
   ```

3. Run the `promote_gold_agent_image` verb to promote the Agent Gold Image version to the Restricted maturity level:

   ```
   $<ORACLE_HOME>/bin/emcli promote_gold_agent_image -
   version_name="gold_image_version_name" -maturity="Current/Restricted/Draft"
   ```

   The `-version_name` parameter defines the Agent Gold Image version that you want to promote.

   The `-maturity` parameter defines the gold image maturity level.

   For example, to promote the Agent Gold Image OPC_AGI_DB_JUL_13 to the Restricted maturity level, run the following:

   ```
   $<ORACLE_HOME>/bin/emcli promote_gold_agent_image -version_name=OPC_AGI_DB_JUL_13 -
   maturity=Restricted
   ```

Subscribing Management Agents to an Agent Gold Image

To subscribe a set of Management Agents to an Agent Gold Image, use either of the following methods:

- Subscribing Management Agents to an Agent Gold Image Using Gold Agent Images Home Page
- Subscribing Management Agents to an Agent Gold Image Using EM CLI

> **WARNING:**
>
> You cannot directly subscribe a Shared Agent (NFS Agent) to an Agent Gold Image. To subscribe to an Agent Gold Image, you must first convert the Shared Agent to a standalone Management Agent, and then subscribe to an Agent Gold Image.

> **Note:**
>
> To subscribe a set of related Management Agents to an Agent Gold Image, it is mandatory to subscribe all the related Agents. However, to subscribe only a selected few Agents to the Agent Gold Image, set the parameter `ignoreRelatedCheck` to `true` in the `EM_GI_MASTER_INFO` table.
>
> Do not create Agent Gold Image from a node of a Cluster environment that is not subscribed. As the targets are shared, the related nodes cannot be updated. To update the related notes, set the parameter `ignoreRelatedCheck` to `true` in the `EM_GI_MASTER_INFO` table.

Subscribing Management Agents to an Agent Gold Image Using Gold Agent Images Home Page

> **Note:**
>
> You cannot install, update, or upgrade a Shared Agent (NFS Agent) using an Agent Gold Image.
>
> You cannot subscribe the following Management Agents to an Agent Gold Image:
>
> - Central Agent.
> - Already subscribed Management Agents.
> - Shared Agents (NFS Agents).
> - Unsecure Management Agents.
> - Management Agents on platforms that are different from the platforms on which the Agent Gold Image is available.
>
>   The platform is identified by the Oracle home collection, so make sure the Oracle home target is discovered and collected. To do so, On the Home page of the Management Agent, in the Summary section, click **Oracle Home and Patch Details,** and on the following page, click **Refresh Configuration.**

To subscribe a set of Management Agents to an Agent Gold Image, follow these steps:

1. From the **Setup** menu, select **Manage Enterprise Manager,** then select **Gold Agent Images.**
2. Click the name of the required Agent Gold Image.
3. Click **Manage Image Versions and Subscriptions.**
4. Select the **Subscriptions** tab. Click **Subscribe.**
5. Search for and select the required Management Agents, then click **Select.**

Subscribing Management Agents to an Agent Gold Image Using EM CLI

To subscribe a Management Agent to an Agent Gold Image using EM CLI, follow these steps:

> **Note:**
>
> You cannot subscribe the following Management Agents to an Agent Gold Image:
>
> - Central Agent.
> - Already subscribed Management Agents.
> - Shared Agents (NFS Agents).
> - Unsecure Management Agents.
> - Management Agents on platforms that are different from the platforms on which the Agent Gold Image is available.
>
>   The platform is identified by the Oracle home collection, so make sure the Oracle home target is discovered and collected. To do so, On the Home page of the Management Agent, in the Summary section, click **Oracle Home and Patch Details,** and on the following page, click **Refresh Configuration.**

1. Log in to EM CLI from the `/bin` directory present within the Oracle home of the OMS:

   ```
   $<ORACLE_HOME>/bin/emcli login -username=<user_name>
   ```

   Once you run this command, EM CLI will prompt you for a password. Enter the password for the user name you specified.

2. Synchronize EM CLI:

   ```
   $<ORACLE_HOME>/bin/emcli sync
   ```

3. Run the `subscribe_agents` verb to subscribe the specified Management Agent to a specific Agent Gold Image:

   ```
   $<ORACLE_HOME>/bin/emcli subscribe_agents
            -image_name="Image Name"
            [-agents="agent_name_pattern"]
            [-groups="group_name"]
   ```

   Note that the parameters mentioned in `[ ]` are optional.

   The `-image_name` parameter subscribes the Management Agents to the specified Agent Gold Image.

   The `-agents` parameter subscribes only the Management Agents that match the specified name pattern.

   The `-groups` parameter subscribes only the Management Agents that belong to the specified groups.

   Examples:

   - The following example subscribes the Management Agents that match the name pattern `abc%` or `xyz.example.com:1243` to the Agent Gold Image OPC_AGT_ADC_POD:

     ```
     $<ORACLE_HOME>/bin/emcli subscribe_agents -image_name="OPC_AGT_ADC_POD" -
     agents="abc%,xyz.example.com:1243"
     ```

   - The following example subscribes all the Management Agents to the Agent Gold Image OPC_AGT_ADC_POD:

     ```
     $<ORACLE_HOME>/bin/emcli subscribe_agents -image_name="OPC_AGT_ADC_POD"
     ```

- The following example subscribes all the Management Agents that belong to the group GROUP1 or GRP2 to the Agent Gold Image OPC_AGT_ADC_POD:

```
$<ORACLE_HOME>/bin/emcli subscribe_agents -image_name="OPC_AGT_ADC_POD" -
groups="GROUP1,GRP2"
```

Updating Standalone Management Agents Using an Agent Gold Image Version

Important:

Before updating standalone Management Agents using an Agent Gold Image, ensure that the standalone Management Agents subscribe to the gold image. For information on how to subscribe standalone Management Agents to an Agent Gold Image, see Subscribing Management Agents to an Agent Gold Image.

You cannot update a central agent with an Agent Gold Image. A central agent is a Management Agent that is installed by default with every OMS installation.

Note:

You cannot install, update, or upgrade a Shared Agent (NFS Agent) using an Agent Gold Image. For information about Shared Agents, see *Oracle Enterprise Manager Advanced Installation and Configuration Guide*.

Note:

To view a visual demonstration of how you update Oracle Management Agents using Agent Gold Images, access the following URL and click **Begin Video.**

```
https://apexapps.oracle.com/pls/apex/f?
p=44785:24:0:::24:P24_CONTENT_ID,P24_PREV_PAGE:12796,1
```

To update your standalone Management Agents using an Agent Gold Image version, use either of the following methods:

- Updating Standalone Management Agents Using an Agent Gold Image Version
- Updating Management Agents Using Agent Gold Image Version Using EM CLI

Updating Standalone Management Agents Using Agent Gold Image Version Using Gold Agent Images Home Page

To update your Management Agents using an Agent Gold Image version, follow these steps:

> **Note:**
>
> Before updating a standalone Management Agent using an Agent Gold Image version, meet the hardware requirements as described in the hardware requirements chapter of the *Oracle Enterprise Manager Basic Installation Guide*.

> **Note:**
>
> When you have to update a set of related Management Agents to an Agent Gold Image, it is mandatory to update all the related agents. However, there is an option to override this in case if you want to update only a selected few Agents to the Agent Gold Image. To achieve this, you have to set the parameter `closureRelated` to `false` in the `EM_GI_MASTER_INFO` table.

1. From the **Setup** menu, select **Manage Enterprise Manager,** then select **Gold Agent Images.**
2. Click the name of the required Agent Gold Image.
3. Click **Manage Image Versions and Subscriptions.**
4. Select the **Subscriptions** tab. Select the Management Agents that you want to update, select **Update,** then select **To Current Version,** or **To Restricted Version.**
5. Accept the default job name for the Management Agent update job. You can change this, if required.

   If you have not included certain Management Agents in the previous step and want to include them in the update operation now, select **Add,** then specify the additional Management Agents.

   If there is any change to the sbin directory, particularly for a complete agent upgrade or when there is an sbin-specific patch, after updating the Management Agent, the preferred privileged credentials of the Management Agent host are used for running the root.sh script on the Management Agent.

   If these credentials are not already set, then click **Override Preferred Credentials** and enter the credentials you want to use instead.

   Click **Next.**
6. By default, Image Version Pre Staged is not selected, in this case provide a stage location that is local to the destination host. However, if you select the **Image version Pre Staged**, provide a shared, NFS-mounted stage location that is accessible by all the Management Agents.

   Also, specify a method for Management Agent deployment. If you select the default option **Push,** the OMS transfers the Management Agent software to all the hosts that are selected for the update operation. However, if you want the Management Agent present on each destination host to retrieve the Management Agent software from the OMS instead, select **Pull.**
7. In the Additional Inputs section, specify any scripts that you want to run before the update operation and after the update operation. Ensure that you select **Script on OMS Host** if the script exists on the OMS host. Also, specify any additional parameters that you want to

use for the update operation. Table 6-2 gives a list of additional parameters used for upgrade.

8. In the Schedule section, specify values for the following:
   - **Batch Size:** A Management Agent update activity runs in a way that the Management Agents are updated in batches. The batch size represents the number of Management Agents present in a batch.
   - **Job Frequency:** The time (in minutes) after which the application checks whether the current batch is complete or not.
   - **Success Rate:** The percentage of the total number of Management Agents (that is, the Management Agents that are a part of the current update batch and the Management Agents that were a part of the previous update batches) that must have been updated once a batch is complete, before the next batch is allowed to begin.

     For example, if there are 1000 Agents deployed in your enterprise and the batch size is set to 100, the batch success rate is set to 90, and the Agents are updated in batches of 100. In this case, once a batch is complete, the application moves to the next batch only if 90 per cent of the total number of Management Agents are updated successfully.
   - **Start:** The time when you want to start the update operation, and the time when you want the update operation to end. By default, the time set is **Immediately**. In this context, it is the OMS time that is considered.
   - **Duration:** The duration until which you want the update operation to run.
9. In the Notify section, specify the email addresses to which you want the notifications about the update job progress to be sent.
10. In the Shell Profile section, select Update Shell Profile, and specify the location of your shell profile, if you want your shell profile to be updated with the new Management Agent Oracle home location.

    By default, this is not selected, and is optional.
11. In the Cleanup options section, select:
    - **Pre-Cleanup** to clean up the old or inactive agent homes prior to updating the Management Agents.
    - **Post-Cleanup** to clean up the old or inactive agent homes after updating the Management Agents.

    > **Note:**
    >
    > If the cleanup operation is not performed at this point, it can be done at a later time using the Agent Upgrade Console. For more information, see Performing Postupgrade Cleanup of Old Management Agents.

    A job that updates the Management Agents is submitted to the Enterprise Manager job system. You can view the status of this job on the Gold Agent Image Activities page, in the Update Activities tab.
12. Click **Update.**

    A job that updates the Management Agents is submitted to the Enterprise Manager job system. You can view the status of this job on the Gold Agent Image Activities page, in the Update Activities tab.

When you create an image version and update a Management Agent with it, Enterprise Manager uses the image version name you provide here to create a subdirectory in the agent base directory for the Management Agent being updated.

For example, if the agent base directory of the Management Agent being updated is `/u01/software/em24/agentbasedir`, and the agent home is `/u01/software/em24/agentbasedir/agent_24.1.0.0.0`, and if you provide `OPB_BP1` as the image version name, then when you update the Management Agent with the image version, a new subdirectory `/u01/software/em24/agentbasedir/GoldImage_OPB_BP1/agent_24.1.0.0.0` is created.

Updating Management Agents Using Agent Gold Image Version Using EM CLI

To update Management Agents using an Agent Gold Image version, using EM CLI, follow these steps:

> **Note:**
>
> Before updating a standalone Management Agent using an Agent Gold Image version, meet the hardware requirements as described in the hardware requirements chapter of the *Oracle Enterprise Manager Basic Installation Guide*.

1. Log in to EM CLI from the `/bin` directory present within the Oracle home of the OMS:

   ```
   $<ORACLE_HOME>/bin/emcli login -username=<user_name>
   ```

   Once you run this command, EM CLI will prompt you for a password. Enter the password for the user name you specified.

2. Synchronize EM CLI:

   ```
   $<ORACLE_HOME>/bin/emcli sync
   ```

3. Run the `get_updatable_agents` verb to display the Management Agents that can be updated using a particular Agent Gold Image version or Agent Gold Image:

   ```
   $<ORACLE_HOME>/bin/emcli get_updatable_agents
   -version_name  | -image_name
   [-agents="Full Agent Name"]
   [-versions="List of Versions"]
   [-groups="List of group names"]
   [-output_file="Location of the output file"]
   ```

   Note that the parameters mentioned in `[ ]` are optional.

   > **Note:**
   >
   > It is mandatory to specify the `-version_name` parameter or the `-image_name` parameter. If you specify both, a union of the outputs (when each of these parameters is specified individually) is displayed.

> **Note:**
>
> To view a list of Management Agents that cannot be updated, run the `get_not_updatable_agents` verb:
>
> ```
> emcli get_not_updatable_agents
>        [-version_name  | -image_name]
> ```
>
> The parameters mentioned in `[ ]` are optional.

Table 6-5 lists and describes the supporting parameters for displaying the Management Agents that can be updated using a particular Management Agent image version.

Table 6-5 Supported Parameters for Displaying Management Agents That Can Be Updated

Parameter	Description
`-version_name`	Specify this option to display the Management Agents that can be updated using the specified Agent Gold Image version.
`-image_name`	Specify this option to display the Management Agents that can be updated using the specified Agent Gold Image.
`-versions`	Specify this option to display the Management Agents that can be updated, and are of the specified versions.
`-agents`	Specify this option to display the Management Agents that can be updated, and whose name matches the specified name pattern.
`-groups`	Specify this option to display the Management Agents that can be updated, and are a part of those groups whose name matches the specified name pattern.
`-output_file`	Specify this option to add the displayed list of Management Agents that can be updated to an output file.

Examples:

- The following example lists the Management Agents that can be updated using the latest Agent Gold Image OPC_AGT_ADC_POD:

  ```
  <ORACLE_HOME>/bin/emcli get_updatable_agents -image_name="OPC_AGT_ADC_POD"
  ```

- The following example lists the Management Agents that can be updated using the Agent Gold Image version OPC_AGT_ADC_POD_JUNE:

  ```
  <ORACLE_HOME>/bin/emcli get_updatable_agents -version_name="OPC_AGT_ADC_POD_JUNE"
  ```

- The following example lists the Management Agents that are of version 13.2.0.0.0, 13.3.0.0.0, 13.4.0.0.0, 13.5.0.0.0 or 24.1.0.0.0 and can be updated using the Agent Gold Image version OPC_AGT_ADC_POD_JUNE:

```
<ORACLE_HOME>/bin/emcli get_updatable_agents -
version_name="OPC_AGT_ADC_POD_JUNE" -versions=" 13.2.0.0.0, 13.3.0.0.0,
13.4.0.0.0, 13.5.0.0.0, 24.1.0.0.0"
```

- The following example lists the Management Agents that belong to GROUP1 or GRP2, and can be updated using the Agent Gold Image version OPC_AGT_ADC_POD_JUNE:

  ```
  <ORACLE_HOME>/bin/emcli get_updatable_agents -
  version_name="OPC_AGT_ADC_POD_JUNE" -groups="GROUP1,GRP2"
  ```

- The following example lists the Management Agents that can updated using the Agent Gold Image OPC_AGT_ADC_POD_JUNE, and adds the list to the output file `/scratch/agents_file.txt`:

  ```
  <ORACLE_HOME>/bin/emcli get_updatable_agents -image_name="OPC_AGT_ADC_POD_JUNE" -
  output_file="/scratch/agents_file.txt"
  ```

4. Run the `update_agents` verbs to prepare the environment for updating your Management Agents and to submit the Management Agent update job:

   ```
   <ORACLE_HOME>/bin/emcli update_agents
           -version_name | -image_name
           -agents="agent_names" | -input_file="agents_file:input_file_location"
           [-pre_script_loc="location_of_pre_script"]
           [-pre_script_on_oms]
           [-post_script_loc="location_of_post_script"]
           [-post_script_on_oms]
           [-op_name="custom_operation_name"]
           [-override_credential="named_credential"]
           [-additional_parameters]
           [-stage_location="custom_stage_location"]
           [-is_staged="true|false"]
           [-stage_action="push|pull"]
           [-batch_size]
           [-start_time]
           [-end_time]
           [-frequency]<
           [-success_rate]
           [-runPrecleanup]
           {-runPostcleanup]
           [-email]
           [-update_profile]
           [-profile_path]
   ```

   Note that the parameters mentioned in `[ ]` are optional.

> **Note:**
>
> It is mandatory to specify the `-version_name` parameter or the `-image_name` parameter. Also, it is mandatory to specify the `-agents` parameter or the `-input_file` parameter. If you specify both `-agents` and `-input_file`, a union of the outputs (when each of these parameters is specified individually) is displayed.
>
> All parameters can be passed in a response file, using the -input_file parameter. For example, `-input_file="response_file:/scratch/response_file.txt"`.
>
> In the response file, each parameter must be specified on a new line, and in name value pairs. For example, `op_name=UPDATE_AGT_121020`
>
> If the same parameter is passed both on the command line and in the response file, the value of the command line parameter is given precedence.

Table 6-6 lists and describes the supporting parameters for updating Management Agents using an Agent Gold Image version.

Table 6-6 Supported Parameters for Updating Management Agents Using Agent Gold Image Version

Parameter	Description
`-version_name`	Agent Gold Image version to which the Management Agents should be updated.
`-image_name`	Agent Gold Image to which the Management Agents should be updated.
`-agents`	Names of all the Management Agents that should be updated.
`-input_file`	Absolute path to the file that lists the Management Agents to be updated.
`-pre_script_loc`	Absolute path to a script that should be run before updating the Management Agents.
`-pre_script_on_oms`	Indicates that the pre-script is present on the OMS host.
`-post_script_loc`	Absolute path to a script that should be run after updating the Management Agents.
`-post_script_on_oms`	Indicates that the post-script is present on the OMS host.
`-op_name`	Custom operation name for the Management Agent update.
`-override_credential`	Overrides the preferred credentials with different named credentials. Typically, the preferred credentials of the Oracle home of the Management Agent are used to run root.sh on certain Management Agents after the update. But passing this option overrides those preferred credentials.
`-additional_parameters`	Additional parameters to be passed for the Management Agent update.

Table 6-6 (Cont.) Supported Parameters for Updating Management Agents Using Agent Gold Image Version

Parameter	Description
-stage_location	Custom stage location for the Management Agent update. Minimum free space required is 1 GB if image is not already staged. Ensure that this location is accessible from all the Management Agents being updated if image is prestaged.
-is_staged	Set to 'true' if you have already staged the Agent Gold Image.
-stage_action	Set to 'pull' if you want the Management Agents to be updated to pull the Agent Gold Image. Typically, If the Agent Gold Image has not already been staged, by default the Agent Gold Image is pushed to the Management Agents to be updated. Setting to 'pull' pulls the Agent Gold Image instead.
-batch_size	Number of Management Agents present in an update batch. Default value is 100.
-start_time	Start time for the update job. Specify in \" yyyy-mm-dd hh:mm:ss\" format.
-end_time	End time for the update job. Specify in \" yyyy-mm-dd hh:mm:ss\" format.
-frequency	Time (in minutes) after which the application should check whether or not the current batch is complete, and should schedule the next batch for update. Default value is.
-success_rate	Percentage of the total number of Management Agents that must have been successfully updated in previous batches, before the next batch is allowed to begin. Default value is 90.
-runPrecleanup	Cleans up the old agent homes before updating the Management Agents.
-runPostcleanup	Cleans up the old agent homes after updating the Management Agents.
-email	Email IDs separated by a comma (,) to which notifications should be sent once the batch completes.
-update_profile	Indicates that a profile is set with agent Oracle home.
-profile_path	Absolute path to user profiles separated by a comma (,) if the update profile option is selected.

Examples:

- The following example updates `xyz.example.com:1243` using the latest Agent Gold Image in the series OPC_AGT_ADC_POD:

  ```
  <ORACLE_HOME>/bin/emcli update_agents -gold_image_series="OPC_AGT_ADC_POD" -
  agents="xyz.example.com:1243"
  ```

- The following example updates `xyz.example.com:1243` using the Agent Gold Image OPC_AGT_ADC_POD_JUNE:

```
<ORACLE_HOME>/bin/emcli update_agents -gold_image_name="OPC_AGT_ADC_POD_JUNE" -
agents="xyz.example.com:1243"
```

- The following example updates all the Management Agents present in the input file `/scratch/agents_file.txt` using the Agent Gold Image OPC_AGT_ADC_POD_JUNE:

```
<ORACLE_HOME>/bin/emcli update_agents -gold_image_name="OPC_AGT_ADC_POD_JUNE" -
input_file="agents_file:/scratch/agents_file.txt"
```

- The following example runs `/scratch/pre_script`, then updates `xyz.example.com:1243` using the Agent Gold Image OPC_AGT_ADC_POD_JUNE:

```
<ORACLE_HOME>/bin/emcli update_agents -gold_image_name="OPC_AGT_ADC_POD_JUNE" -
agents="xyz.example.com:1243" -pre_script_loc="/scratch/pre_script"
```

- The following example updates `xyz.example.com:1243` using the Agent Gold Image OPC_AGT_ADC_POD_JUNE, then runs `/scratch/post_script`:

```
<ORACLE_HOME>/bin/emcli update_agents -gold_image_name="OPC_AGT_ADC_POD_JUNE" -
agents="xyz.example.com:1243" -post_script_loc="/scratch/post_script"
```

- The following example updates `xyz.example.com:1243` (creates an update job UPDATE_JOB123) using the Agent Gold Image OPC_AGT_ADC_POD_JUNE:

```
<ORACLE_HOME>/bin/emcli update_agents -gold_image_name="OPC_AGT_ADC_POD_JUNE" -
agents="xyz.example.com:1243" -op_name="UPDATE_JOB123"
```

- The following example updates `xyz.example.com:1243` using the Agent Gold Image OPC_AGT_ADC_POD_JUNE, and uses `NAMED_CRED123` to run root.sh after the update:

```
<ORACLE_HOME>/bin/emcli update_agents -gold_image_name="OPC_AGT_ADC_POD_JUNE" -
agents="xyz.example.com:1243" -override_credential="NAMED_CRED123"
```

- The following example updates `xyz.example.com:1243` using the Agent Gold Image OPC_AGT_ADC_POD_JUNE, passing two additional parameters:

```
<ORACLE_HOME>/bin/emcli update_agents -gold_image_name="OPC_AGT_ADC_POD_JUNE" -
agents="xyz.example.com:1243" -additional_parameters="-ignorePrereqs -
newParameter"
```

- The following example updates `xyz.example.com:1243` using the latest Agent Gold Image in the series OPC_AGT_ADC_POD, passing two additional parameters:

```
<ORACLE_HOME>/bin/emcli update_agents -gold_image_series="OPC_AGT_ADC_POD" -
agents="xyz.example.com:1243" -additional_parameters="-ignorePrereqs -
newParameter"
```

- The following example updates `xyz.example.com:1243` using the latest Agent Gold Image in the series OPC_AGT_ADC_POD, without staging the gold image:

```
<ORACLE_HOME>/bin/emcli update_agents -gold_image_series="OPC_AGT_ADC_POD" -
agents="xyz.example.com:1243" -is_staged="true"
```

- The following example updates `xyz.example.com:1243` using the latest Agent Gold Image in the series OPC_AGT_ADC_POD, and the gold image is pulled by `xyz.example.com:1243`:

```
<ORACLE_HOME>/bin/emcli update_agents -gold_image_series="OPC_AGT_ADC_POD" -
agents="xyz.example.com:1243" -stage_action="pull"
```

- The following example runs the Management Agent update with maximum of 150 Management Agents getting updated in each batch:

```
<ORACLE_HOME>/bin/emcli update_agents -image_name="OPC_AGT_ADC_POD" -
agents="xyz.example.com:1243" -batch_size=150
```

- The following example runs the Management Agent update with maximum of 150 Management Agents getting updated in each batch:

> **Note:**
>
> The next batch gets scheduled only if 80% of the Management Agents are successfully updated in the previous batches.

```
<ORACLE_HOME>/bin/emcli update_agents -image_name="OPC_AGT_ADC_POD" -
agents="xyz.example.com:1243" -batch_size=150 success_rate=80
```

- The following example schedules the agent update job starting at May 7, 10:00:00 AM and ending at May 8, 10:00:00 AM:

```
<ORACLE_HOME>/bin/emcli update_agents -image_name="OPC_AGT_ADC_POD" -
agents="xyz.example.com:1243" -start_time="2019-05-07 10:00:00" -
end_time="2019-05-08 10:00:00"
```

5. Run the `get_agent_update_status` verb to displays the update results of the Management Agent:

```
<ORACLE_HOME>/bin/emcli get_agent_update_status
        -version_name | -op_name
        [-agent="agent_name_pattern"]
        [-severity="ERROR|WARNING"]
        [-severity_id="severity_id"]
        [-status="PendingUpdateInprogress|Updatable|NotUpdatable|NotExecuted|Success|
Inprogress|Failed"]
```

Note that the parameters mentioned in `[ ]` are optional.

> **Note:**
>
> It is mandatory to specify the `-op_name` parameter or the `-version_name` parameter. If you have specified `-severity` or `-severity_id`, ensure that you do not specify `-version_name` or -status.

Table 6-7 lists and describes the supporting parameters for displaying the update status of the Management Agent.

Table 6-7 Supported Parameters for Displaying Update Status of the Management Agent

Parameter	Description
`-version_name`	Displays the details of the update operation submitted for the specified Agent Gold Image version name.
`-op_name`	Displays the details of the specified update operation.
`-agent`	Displays the details of the operations submitted for Management Agents that have the specified name pattern.

Table 6-7 (Cont.) Supported Parameters for Displaying Update Status of the Management Agent

Parameter	Description
`-status`	Displays the details of the update operations that have the specified status.
`-severity`	Displays the details of the update operations that have the specified severity level.
`-severity_id`	Displays the details of the update operations that have the specified severity ID

Examples:

- The following example displays the details of the update operations submitted for the Agent Gold Image version OPC_AGT_ADC_POD_JUNE:

```
<ORACLE_HOME>/bin/emcli get_agent_update_status -
version_name="OPC_AGT_ADC_POD_JUNE"
```

- The following example displays the details of the update operations submitted for the Agent Gold Image OPC_AGT_ADC_POD_JUNE, for the Management Agent `xyz.example.com:1243`:

```
<ORACLE_HOME>/bin/emcli get_agent_update_status -
version_name="OPC_AGT_ADC_POD_JUNE" -agent="xyz.example.com:1243"
```

- The following example displays the details of the update operations submitted for the Agent Gold Image OPC_AGT_ADC_POD_JUNE, for the Management Agent `xyz.example.com:1243`, that have their status as `Failed`:

```
<ORACLE_HOME>/bin/emcli get_agent_update_status -
version_name="OPC_AGT_ADC_POD_JUNE" -agent="xyz.example.com:1243" -
status="Failed"
```

- The following example displays the details of the update operation `UPDATE_JOB123`:

```
<ORACLE_HOME>/bin/emcli get_agent_update_status  -op_name="UPDATE_JOB123"
```

- The following example displays the details of the update operation `UPDATE_JOB123`, for the Management Agent `xyz.example.com:1243`:

```
<ORACLE_HOME>/bin/emcli get_agent_update_status -op_name="UPDATE_JOB123" -
agent="xyz.example.com:1243"
```

- The following example displays the details of the update operation `UPDATE_JOB123`, for Management Agents having the status `Failed`:

```
<ORACLE_HOME>/bin/emcli get_agent_update_status -op_name="UPDATE_JOB123" -
status="Failed"
```

- The following example displays the details of the update operation `UPDATE_JOB123` for the Management Agent `xyz.example.com:1243`, having the status `Failed`:

```
<ORACLE_HOME>/bin/emcli get_agent_update_status -op_name="UPDATE_JOB123" -
status="Failed" -agent="xyz.example.com:1243"
```

- The following example displays the Management Agents of the update operation `UPDATE_JOB123`, for which severity is `ERROR`:

```
<ORACLE_HOME>/bin/emcli get_agent_update_status  -op_name="UPDATE_JOB123" -
severity="ERROR"
```

- The following example displays the Management Agents of the update operation `UPDATE_JOB123`, for which severity is `WARNING`, and severity ID is `ROOT_RUN_CHECK`:

```
<ORACLE_HOME>/bin/emcli get_agent_update_status  -op_name="UPDATE_JOB123" -
severity="WARNING" -severity_id="ROOT_RUN_CHECK"
```

- The following example displays the Management Agents of the update operation `UPDATE_JOB123`, for which severity ID is `ROOT_RUN_CHECK`:

```
<ORACLE_HOME>/bin/emcli get_agent_update_status  -op_name="UPDATE_JOB123" -
severity_id="ROOT_RUN_CHECK"
```

- The following example displays the details of the update operation `UPDATE_JOB123` for the Management Agent `xyz.example.com:1243`, with severity as `ERROR`:

```
<ORACLE_HOME>/bin/emcli get_agent_update_status  -op_name="UPDATE_JOB123" -
severity="ERROR"  -agent="xyz.example.com:1243"
```

- The following example displays the details of the update operation `UPDATE_JOB123` for the Management Agent `xyz.example.com:1243`, with severity ID as `ROOT_RUN_CHECK`:

```
<ORACLE_HOME>/bin/emcli get_agent_update_status  -op_name="UPDATE_JOB123" -
severity_id="ROOT_RUN_CHECK"  -agent="xyz.example.com:1243"
```

- The following example displays the details of the update operation `UPDATE_JOB123` for the Management Agent `xyz.example.com:1243`, with severity as `WARNING` and severity ID as `ROOT_RUN_CHECK`:

```
<ORACLE_HOME>/bin/emcli get_agent_update_status  -op_name="UPDATE_JOB123" -
severity="WARNING" -severity_id="ROOT_RUN_CHECK"  -agent="xyz.example.com:1243"
```

- The following example displays the Management Agents of the update operation `UPDATE_JOB123`, for which severity is `ERROR`:

```
<ORACLE_HOME>/bin/emcli get_agent_update_status  -op_name="UPDATE_JOB123" -
severity="ERROR"
```

Upgrading Hybrid Cloud Gateway Agents and Hybrid Cloud Agents

Enterprise Manager provides you with a single pane of glass for monitoring and managing both your on-premise and Oracle Cloud deployments, all from the same management console. By deploying Hybrid Cloud Agents onto the Oracle Cloud virtual hosts serving your Oracle Cloud services, you are able to manage Oracle Cloud targets just as you would any other.

For more information on Hybrid Cloud Management and for instructions to enable the feature, see *Oracle Enterprise Manager Administrator's Guide*.

If you have already enabled Hybrid Cloud Management, and want to upgrade your Hybrid Cloud Gateway Agents and the Hybrid Cloud Agents, then see Upgrading Standalone Management Agents to 24ai Release 1 Using the Agent Upgrade Console or EM CLI. The procedure to upgrade a Hybrid Cloud Gateway Agent or a Hybrid Cloud Agent is the same as the procedure to upgrade any normal, standalone Management Agent in an on-premise Enterprise Manager environment.

7

Upgrading or Redeploying JVMD Agents

While upgrading Enterprise Manager, all the JVM Diagnostics (JVMD) Engines are stopped as a part of the preupgrade process. Once Enterprise Manager is successfully upgraded to 24ai Release 1, the JVMD Engines that were part of your enterprise before the upgrade must be re-created.

If you are upgrading to Enterprise Manager 24ai Release 1 from an earlier release, you will need to re-install the JVMD Agents with the latest agent version (24.1 or greater).

The following topics are covered in this chapter:

- Upgrading or Redeploying JVMD Agents
- Verifying JVMD Agent Upgrade or Redeployment

> **Note:**
>
> For information about deploying JVMD Agents with basic and advanced options, see the following guides:
>
> - *Oracle Enterprise Manager Basic Installation Guide*
> - *Oracle Enterprise Manager Advanced Installation and Configuration Guide*

Upgrading or Redeploying JVMD Agents

Enterprise Manager provides a user interface that enables you to upgrade and redeploy JVMD Agents, which are simple web applications (`.war` files). The user interface enables you to simplify the process of upgrading or redeploying JVMD Agents, and upgrade or redeploy multiple JVMD Agents in one go. Alternatively, you can choose to use the WebLogic Administration console to download and deploy the latest JVMD Agent version.

> **Note:**
>
> Certain enterprise management tasks (such as configuring a custom certificate for OMS Oracle HTTP Server uploads, configuring a load balancer for multiple OMSes, etc.) introduce changes in the OMS configuration. These tasks may require you to re-secure the deployed Management Agents. If you re-secure the Management Agents deployed in your enterprise, ensure that you redeploy the deployed JVMD Agents, as described in this section.

You can upgrade or redeploy JVMD Agents using the following methods:

- Upgrading or Redeploying JVMD Agents Using the Engines and Agents Page
- Upgrading or Redeploying JVMD Agents using EMCLI

- Upgrading or Redeploying JVMD Agents Manually Using the WebLogic Administration Console

> **Note:**
>
> You can upgrade a JVMD Agent deployed on a particular Managed Server only if the available JVMD Agent binaries are of a different version than the deployed JVMD Agent version.

Upgrading or Redeploying JVMD Agents Using the Engines and Agents Page

To upgrade or redeploy JVMD Agents on monitored WebLogic domains using the Setup page, follow these steps:

1. From the **Setup** menu, select **Middleware Management,** then select **Engines And Agents.**
2. On the Engines And Agents page, click **Manage JVMD Agents.**
3. For **Operation,** select **Upgrade.**

> **Note:**
>
> Alternatively, to reach this point, you can click the upgrade icon displayed beside **JVMD Agents Count,** on the Setup page. Note that this icon is displayed only if a software version different from the current version of the JVMD Agent software is available.

If you select **Expand All** from the **View** menu, you can view the target name, target type, target host, target status, and so on of all the Managed Servers on which JVMD Agents are deployed.

Select the JVMD Agents you want to upgrade or redeploy. Click **Next.**

4. On the Target Credentials page, for each WebLogic domain, specify a value for **Oracle EMAgent Target Host Credentials** and **Oracle WebLogic Domain Credentials** (corresponding to the Admin server target), and then click **Apply**.

> **Note:**
>
> In case host and domain preferred credentials are already set for the Admin server target, they are automatically applied to the domain, and it is not required to click **Apply**.

Oracle EMAgent Target Host Credentials are the login credentials for the host on which the Management Agent, that is used to discover the WebLogic domain's Admin Server, is running. Oracle WebLogic Domain Credentials are the credentials for the Administration Server of the selected WebLogic domain.

To set the preferred credentials for a WebLogic domain's Admin server (that is, the preferred EMAgent target host credentials and the preferred Oracle WebLogic Domain credentials), from the **Setup** menu, select **Security,** then select **Preferred Credentials.** Select the **Oracle Admin Server** target type, then click **Manage Preferred Credentials.** In the Target Preferred Credentials section, set the preferred host credentials and the preferred WebLogic administrator credentials for the required WebLogic Admin server.

Click **Next.**

5. On the JVMD Agents Configurations page (in the JVMD Agent Configuration section), do the following:

   If you want to upgrade or redeploy JVMD Agents on Oracle Cloud targets, select **Configure Hybrid Cloud Mode,** and specify the **Hybrid Cloud Proxy Host** and **Hybrid Cloud Proxy Port** that is configured in Oracle Cloud. When you select **Configure Hybrid Cloud Mode,** the value for **Available JVMD Engine** is automatically set to **Other,** as the JVMD Agent connects to the proxy host, which in turn connects to the JVMD Engine.

   > **Note:**
   >
   > If the Hybrid Cloud version has been upgraded to Enterprise Manager 24ai Release 1, the Hybrid Cloud Proxy and the Hybrid Cloud Gateway used in the SSH tunnel between the target domain running in Oracle Cloud and the JVM Diagnostics Engine must also be upgraded to 24ai Release 1.

   If you have not selected **Configure Hybrid Cloud Mode,** then for each WebLogic domain, a default JVMD Engine is selected for each domain. If necessary, to change the Engine selected for a domain, select a new Engine from list of **Available JVMD Engine(s)** and click **Apply**. All the JVMD Agents deployed on Managed Servers of the selected WebLogic domain will report to this JVMD Engine. Alternatively, you can select **Other** to connect to a load balancer in case of multiple engines and manually specify the engine host, port, and protocol details.

   In Enterprise Manager 24ai Release 1, you can deploy multiple JVMD Agents that connect to JVMD Engines using HTTP or HTTPS. Hence, both the HTTP and HTTPS URLs for a JVMD Engine are displayed in the **Available JVMD Engines** list. However, if you have configured a load balancer in your setup, JVMD Agents can connect to the load balancer using HTTP or HTTPS, but cannot connect to the individual JVMD Engines using HTTPS. Hence, if you have configured a load balancer for your setup, only the HTTP and HTTPS URLs for the load balancer, and the HTTP URLs for the individual JVMD Engines are displayed in the **Available JVMD Engines** list.

   If the **WebLogic Home** and **Middleware Home** fields are displayed in this section, specify values for them. The **WebLogic Home** and **Middleware Home** fields are displayed if their values could not be obtained internally.

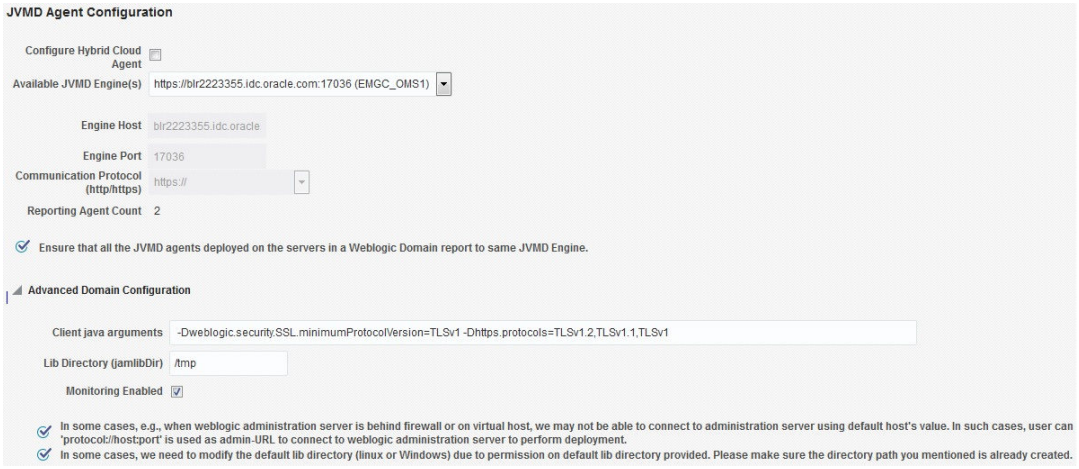
   Also, if the WebLogic Administration Server is behind a firewall or on a virtual host, the application may not be able to connect to it using the default information. In this case, you may need to provide additional information in the Advanced Domain Configuration section. For example, if the WebLogic Administration Server is on a virtual host, and the application cannot connect to it using the default host value, you must provide the virtual host IP address for **Administration server host.**

   Under **Advanced Domain Configuration**, you can specify Client java args and Lab Directory args that would be used in the java processes used to deploy JVMD agent.

   Client Java arguments: Java arguments to be used while connecting to Target domain's Admin server.

Lib Directory: Default directory path where Jvmd agent libraries will be copied during the deployment process. You should make sure the directory path you mentioned is already created.

Monitoring Enabled: To deploy an agent in monitoring disabled mode, uncheck the checkbox. You can enable/disable the monitoring using **Configure JVM Target** button on JVM Target home page.



For example, in **Client Java arguments** field some of the java args that may be required are:

- Dweblogic.security.SSL.enableJSSE=true
- Dweblogic.security.SSL.protocolVersion=TLS1
- Dweblogic.security.SSL.trustedCAKeyStore=<path to cacert>

Click **Next.**

6. On the Review page, review all the information, then click **Upgrade.**

   When you click **Upgrade,** the Diagnostic Agents Deployment Status page appears, which you can use to monitor the progress of the submitted job.

   If you encounter any errors during the upgrade or redeployment, see *Oracle Enterprise Manager Advanced Installation Guide*

Upgrading or Redeploying JVMD Agents using EMCLI

You can upgrade or redeploy JVMD Agents using EMCLI.

For example:

```
$emcli deploy_jvmd -deploy_mode redeploy
```

For more information, see Enterprise Manager Command Line Interface Guide.

Upgrading or Redeploying JVMD Agents Manually Using the WebLogic Administration Console

You can choose to use the WebLogic Administration console to manually download and deploy the required JVMD Agent version.

Following are the steps to manually download and deploy the required JVMD Agent version:

1. Log in to Weblogic console.
2. Go to **Deployments**.
3. Delete old `javadiagnosticagent.ear` or `jamagent.war` if there are any.
4. Install the `jamagent.war`, which you downloaded from EM CC.
5. Start `jamagent app` if not started already.
6. Restart the server (required only if you had an old JVMD agent).
7. Go to EM CC and verify if `ServerName_jvm` target gets created.

Verifying JVMD Agent Upgrade or Redeployment

After upgrading or redeploying your JVMD agents, verify the deployment of their new versions, as described in *Oracle Enterprise Manager Basic Installation Guide*

8

Postupgrade Tasks After Upgrading to Enterprise Manager 24ai Release 1

This chapter describes the postinstallation tasks you must perform. In particular, this part covers the following:

- Redoing the Custom Configurations
- Management Agent Status After Upgrading an Additional OMS
- Tracking the Status of Deferred Data Migration Jobs
- Upgrading Oracle Exalogic System Targets
- (Optional) Deleting the Old OMS Home
- Migrating the SYSMAN Schema to a Database Configured with CDB and PDB
- Managing JVM Targets That Continue to Be Associated with the Old OMS
- Enabling Upgrade of Job Types That Were Skipped Before the Upgrade of the Enterprise Manager System
- Configuring OMR Database in TLSv1.2
- Re-configuring External Authentication Providers Configured with OEM
- Reconfiguring Oracle HTTP Server Webgate
- (Optional) Configuring Oracle Enterprise Manager App for Grafana
- Updating the Enterprise Manager WebLogic Domain Target

Redoing the Custom Configurations

Upgrade to 24ai Release 1 is an out-of-place upgrade, and therefore, any custom configuration done on the earlier release of the Enterprise Manager system and any customization done on the WebLogic Server, which is configured with the earlier release of the Enterprise Manager system, are not carried over by the upgrade process. You will have to redo the customization on the upgraded system.

Management Agent Status After Upgrading an Additional OMS

After upgrading the first OMS, the central Management Agent gets upgraded on that host automatically as part of the OMS upgrade.

After proceeding with the upgrade of an additional OMS to 24ai Release 1, then verify the version of that upgraded additional OMS on the Managed Services page. To do so, from the **Setup** menu, select **Manage Enterprise Manager,** then select **Management Services.** Verify the OMS version.

If it still shows the older version and not the upgraded version, then restart the Management Agent on the additional OMS host.

Tracking the Status of Deferred Data Migration Jobs

This section describes the following:

- About Deferred Data Migration Jobs
- Tracking the Status of Deferred Data Migration Jobs

About Deferred Data Migration Jobs

Deferred Data Migration is a post-upgrade activity to migrate the format of the data stored in an earlier release of Enterprise Manager to the format compatible with the upgraded Enterprise Manager system. The migration activity is essentially a job in Enterprise Manager that is submitted when the Oracle Management Repository gets upgraded and is scheduled to run in the background when the upgraded Enterprise Manager system starts functioning.

The format of the data stored in Enterprise Manager is different from the format in which the data was stored in any earlier release of Enterprise Manager.

When you upgrade from an earlier release of Enterprise Manager to 24ai Release 1, the data format gets automatically converted or migrated to the format that is compatible with Enterprise Manager.

However, the time taken to migrate the data format depends on the volume of data available in your earlier release of Enterprise Manager. Therefore, if you have a large amount of data, then it takes longer to migrate, and as a result, the upgrade process takes more time to complete. Unfortunately, until the upgrade process completes, your existing Enterprise Manager system might be unavailable, particularly when you use a 1-System upgrade approach (either on the local host or on a different, remote host).

Considering this, Oracle has fine-tuned its upgrade process to migrate the data format in two distinct phases.

In the first phase, when the Enterprise Manager system is shut down and upgraded, the most critical data relevant to the functioning of Enterprise Manager is migrated within a short time so that the new system can start functioning without much downtime. At this point, only some historical data is unavailable, but you can start monitoring the targets in the upgraded Enterprise Manager system, and see new alerts generated by the upgraded Oracle Management Agent.

In the second phase, after the upgraded Enterprise Manager system starts functioning, the remaining data is migrated.

The data whose format is migrated in the second phase, after Enterprise Manager starts functioning, is called the *Deferred Data*, and this process of migrating from old to new format is called the *Deferred Data Migration*.

> **Note:**
>
> Canceling or stopping of a running DDMP job is not recommended.

> **WARNING:**
>
> Do not shut down or restart the OMS or the Management Repository while DDMP jobs are running.

Tracking the Status of Deferred Data Migration Jobs

After upgrade, check the status of the deferred data migration jobs. Ensure that the FLAT Association build task in particular is completed successfully.

To track the status of deferred data migration jobs, follow these steps:

1. In Enterprise Manager, from the **Setup** menu, select **Manage Enterprise Manager** and then, click **Post Upgrade Tasks.**
2. On the Post Upgrade Tasks page, click the **Deferred Data Migration** tab.

   The tab provides a list of data migration jobs with their status, start date and time, and end date and time.
3. In this tab, you can do the following:
   - To start a data migration job for a component, select that component and click **Start**. By default, the job starts immediately. You cannot change this behavior.
   - To rerun a failed job, click the status icon to reach the Job Run page. On the Job Run page, click **Edit**. On the Edit <JobName> Job page, click **Submit** to rerun the job.
   - To hide or unhide the table columns, from the **View** list, select an appropriate option.
   - To detach the table from the screen, click **Detach**.

Upgrading Oracle Exalogic System Targets

Ensure that you upgrade your Oracle Exalogic System targets.

1. To do so, from the **Enterprise** menu, select **Job,** then select **Library.**
2. On the Job Library page, select the job name **UPGRADE EXALOGIC SYSTEMS TO FUSION MIDDLEWARE 12.1.0.3.0 MODEL,** and click **Submit.**

For the job to run successfully and upgrade the Oracle Exalogic System targets, you should have already upgraded the Management Agents, which are monitoring these targets, to the following supported release so that they contain 12.1.0.3 or later versions of the Oracle Fusion Middleware Plug-in.

- If you upgraded from Enterprise Manager Cloud Control 12*c* Release 5 (12.1.0.5), and if you had not performed this step when you upgraded to 12*c* Release 5 (12.1.0.5), then perform this step now in 13*c* Release 2. Ensure that the Management Agent in this case is either 13*c* Release 3, 13*c* Release 2, 13*c* Release 1, 12*c* Release 5 (12.1.0.5), or 12*c* Release 4 (12.1.0.4).
- If you upgraded from Enterprise Manager Cloud Control 12*c* Release 4 (12.1.0.4), and if you had not performed this step when you upgraded to 12*c* Release 4 (12.1.0.4), then perform this step now in 13*c* Release 2. Ensure that the Management Agent in this case is either 13*c* Release 3, 13*c* Release 2, 13*c* Release 1, or 12*c* Release 4 (12.1.0.4).

If one or more such Management Agents are not upgraded yet to any of these supported releases, then the job fails and does not upgrade the Oracle Exalogic System targets. Under

such circumstances, to resolve the issue, first upgrade those Management Agents, and then try submitting this job to upgrade the Oracle Exalogic System targets.

(Optional) Deleting the Old OMS Home

After upgrading your Enterprise Manager system completely (either a full release or an additional OMS), you can choose to delete your old OMS home. For instructions, see Deleting the Old OMS Home.

Migrating the SYSMAN Schema to a Database Configured with CDB and PDB

If you plan to migrate the SYSMAN schema to a database configured with CDB and PDB, then ensure that you meet the following requirements:

1. Upgrade the database to a non-CDB-based database. During the database upgrade process, ensure that the character set of the non-CDB-based database is the same as the CDB. Then, migrate the SYSMAN schema from the upgraded non-CDB-based database to a new PDB in the CDB.
2. Correct the connect descriptor with updated database details. To do so, follow these steps on each OMS instance:
   a. Stop the OMS.

      ```
      emctl stop oms
      ```

   b. Start the administration server on the first OMS. Skip this step when you are following these instructions on every other OMS in your environment.

      ```
      emctl start oms -admin_only
      ```

   c. Modify the connect descriptor for the Management Repository:

      ```
      emctl config oms -store_repos_details -repos_conndesc
      "(DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(HOST=<host_name>)(PORT=<port>))
      (CONNECT_DATA=(SERVER=DEDICATED)(SERVICE_NAME=<service_name>)))"
      ```

      For example,

      ```
      emctl config oms -store_repos_details -repos_conndesc
      "(DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(HOST=dbhost.example.com)(PORT=1522))
      (CONNECT_DATA=(SERVER=DEDICATED)(SERVICE_NAME=pdb2.example.com)))"
      ```

   d. Stop and start all the OMS instances.

      ```
      emctl stop oms -all
      ```

      ```
      emctl start oms
      ```

   e. Modify the monitoring configuration of the OMS and the Management Repository target.

      ```
      emctl config emrep -conn_desc "<TNS_connect_descriptor>"
      ```

Managing JVM Targets That Continue to Be Associated with the Old OMS

If you have any JVM targets associated with the old OMS, then even after you refresh the WebLogic domain, on the WebLogic domain home page, you will continue to see the JVM target that was associated with the old OMS. This is an expected behavior.

You can choose to either retain it for viewing historical data or delete it. To delete it, right-click the orphaned JVM target, and select **Remove Target.**

Enabling Upgrade of Job Types That Were Skipped Before the Upgrade of the Enterprise Manager System

If you had selectively skipped or postponed the upgrade of certain job types as described in Selectively Skipping Some Job Type Updates for Reduced Downtime of Your Enterprise Manager System, then after upgrading the Enterprise Manager system, make sure you clear the values you inserted into the MGMT_PARAMETERS table.

To do so, as a SYSMAN user, log in to the database that houses the Oracle Management Repository, and run the following query:

```
DELETE FROM MGMT_PARAMETERS WHERE parameter_name LIKE
'mgmt_job_skip_job_type_upg%');

COMMIT;
```

In addition, as the SYSMAN user, create a SQLPlus session against the Oracle Management Repository and run the following:

> **WARNING:**
>
> Do not include the job types `PropagateTarget` and `ExecLoaderCallbacks` to the list.

```
BEGIN

FOR c IN (SELECT job_type_id

FROM MGMT_JOB_TYPE_MAX_VERSIONS

WHERE job_type IN ('<job type 1>', '<job type 2>', ...))

LOOP

MGMT_JOB_ENGINE.reschedule_on_new_jobtype_ver(c.job_type_id);

COMMIT;

END LOOP;

END;
```

Configuring OMR Database in TLSv1.2

To configure OMR Database in TLSv1.2, see *Configuing TLSv1.2 for Communication with the Enterprise Manager Repository* in the *Enterprise Manager Security Guide*.

Re-configuring External Authentication Providers Configured with OEM

If Enterprise Manager is authenticated with any external Authentication provider or Single Sign-On solutions (SSO), then after upgrading to Enterprise Manager 24ai Release 1, the external Authentication provider or SSO must be configured again.

For more information, refer to Configuring Authentication section in the *Enterprise Manager Security Guide*.

Reconfiguring Oracle HTTP Server Webgate

After upgrading to Oracle Enterprise Manager 24ai Release 1, ensure to reconfigure Oracle HTTP Server Webgate since it's not reconfigured automatically.

Oracle Enterprise Manager 24ai Release 1 bundles Webgate version 12.2.1.4.

To check the prerequisites for configuring Webgate 12.2.1.4, see General Prerequisites for Configuring Oracle HTTP Server Webgate.

To reconfigure Webgate, see Configuring Oracle HTTP Server WebGate .

After configuring Webgate, run the following command to configure Identity asserter and LDAP provider in Weblogic domain:

```
emctl config auth oam [-sysman_pwd <pwd>] -oid_host <host> -oid_port <port>
-oid_principal <principal> [-oid_credential <credential>]
-user_base_dn <dn> -group_base_dn <dn>
-oam_host <host< -oam_port <port> [-logout_url <url>] [-user_dn <dn>] [-
group_dn <dn>]
```

(Optional) Configuring Oracle Enterprise Manager App for Grafana

After upgrading to Enterprise Manager 24ai Release 1, you can configure the Oracle Enterprise Manager App for Grafana.

The Oracle Enterprise Manager App for Grafana allows you to integrate and display EM Metrics data in Grafana. EM collects extensive metric data from various managed targets, and this app allows you to leverage this data for your use cases. You can create custom EM-based Grafana dashboards by browsing and selecting the EM metrics of interest, or for advanced use cases running SQL queries against the EM Repository's SDK views or Target Databases. The App is an extension to EM's data visualization capabilities for added dashboard customization supported by Grafana. The Oracle Enterprise Manager App for Grafana is available for download. For more information about installing, enabling and using this app, see Oracle Enterprise Manager App for Grafana User's Guide.

Updating the Enterprise Manager WebLogic Domain Target

Starting with Enterprise Manager Cloud Control 13c Release 5, BI Publisher is no longer part of the Enterprise Manager upgrade process. For more information, see Upgrading Oracle BI Publisher While Upgrading to Enterprise Manager 24ai Release 1.

After upgrading to Enterprise Manager 24ai Release 1, the embedded BIP related WebLogic artifacts will still be shown as monitored targets in Enterprise Manager console. Since these targets no longer exist, they are stale and it is necessary to refresh the WebLogc domain by doing the following:

1. Login to Enterprise Manager 24ai Release 1 console, go to **Targets** > **Middleware** and navigate to GCDomain.
2. Refresh WebLogic domain and delete stale targets.
   Go to WebLogic Domain menu, click **Refresh WebLogic Domain** and click **Remove Targets**.

   Finding Targets - In Progress process starts. Click **Close** to view targets to be removed.
3. Delete any remaining stale BIP targets.
   Go to main menu, click on **Targets** > **All Targets** and search for `bip`

   For each target:

   a. Right Click on targets.
   b. Choose Target Setup.
      i. Choose remove Target.
      ii. Confirm Deletion.
      iii. Receive Confirmation.

For more information about Oracle Analytics Server with Enterprise Manager, see Installing and Configuring Oracle Analytics Server with Oracle Enterprise Manager.

Part III
Appendixes

This part contains the following appendixes:

- Editing the `upgrade.rsp` Response File for Upgrading Oracle Management Service and Oracle Management Repository in Silent Mode
- Updating Server Load Balancer Configuration Settings
- Moving the Central Agent Base Directory Outside Oracle Middleware Home
- Deleting the Old OMS Home

A

Editing the `upgrade.rsp` Response File for Upgrading Oracle Management Service and Oracle Management Repository in Silent Mode

This appendix describes the following:

- Parameters to Edit in the `upgrade.rsp` File for Upgrading Oracle Management Service and Oracle Management Repository in Silent Mode

Parameters to Edit in the `upgrade.rsp` File for Upgrading Oracle Management Service and Oracle Management Repository in Silent Mode

Table A-1 describes the parameters you must update in the `upgrade.rsp` response file for upgrading end-to-end (normal upgrade) the Oracle Management Service (OMS) and Oracle Management Repository (Management Repository) in silent mode.

> **Note:**
>
> The following parameters are not required and can be ignored from the `upgrade.rsp` response file:
>
> `JVM_DIAGNOSTICS_TABLESPACE_LOCATION`, `DATABASE_HOSTNAME`, `LISTENER_PORT` and `SERVICENAME_OR_SID`.

Table A-1 Editing the Parameters of the upgrade.rsp File for Upgrading the OMS and Management Repository in Silent Mode

Parameter Name	Applicable Upgrade Approach	Data Type	Are Double Quotes Required for the Value?	Description
UNIX_GROUP_NAME	Applicable to normal upgrade as well as software-only upgrade.	String	Yes	The UNIX group name that the user belongs to. Example: `UNIX_GROUP_NAME="dba"` This parameter is required only when central inventory does not exist.

Table A-1 (Cont.) Editing the Parameters of the upgrade.rsp File for Upgrading the OMS and Management Repository in Silent Mode

Parameter Name	Applicable Upgrade Approach	Data Type	Are Double Quotes Required for the Value?	Description
INVENTORY_LOCATION	Applicable to normal upgrade as well as software-only upgrade.	String	Yes	The inventory location absolute path. Example: `INVENTORY_LOCATION="/u01/oracle/oraInventory"` This parameter is required only when central inventory does not exist, and if the OMS you are upgrading was installed using the `invPtrLoc` argument.
INSTALL_UPDATES_SELECTION	Applicable to normal upgrade as well as software-only upgrade.	String	Yes	By default, this parameter value is set to `"skip"` indicating that the software updates will not be skipped. • If you have already downloaded and staged the software updates, set the value to `"staged"`. Example: `INSTALL_UPDATES_SELECTION="staged"` If the `"staged"` value is provided, `STAGE_LOCATION` parameter must also be provided. For instructions, see *Oracle Enterprise Manager Advanced Installation and Configuration Guide*.
STAGE_LOCATION	Applicable to normal upgrade as well as software-only upgrade.	String	Yes	The location where the software updates are staged and available. This parameter is only used if `INSTALL_UPDATES_SELECTION` is set to `"staged"`. If you want to download the software updates during the installation, set `INSTALL_UPDATES_SELECTION="download"`, and provide the following parameters: `MYORACLESUPPORT_USERNAME_FOR_SOFTWAREUPDATES` and `MYORACLESUPPORT_PASSWORD_FOR_SOFTWAREUPDATES`.
MYORACLESUPPORT_USERNAME_FOR_SOFTWAREUPDATES	Applicable to normal upgrade as well as software-only upgrade.	String	Yes	If you want to download the software updates during the installation, set `INSTALL_UPDATES_SELECTION="download"`, and provide the following parameters: `MYORACLESUPPORT_USERNAME_FOR_SOFTWAREUPDATES` and `MYORACLESUPPORT_PASSWORD_FOR_SOFTWAREUPDATES`.

Table A-1 (Cont.) Editing the Parameters of the upgrade.rsp File for Upgrading the OMS and Management Repository in Silent Mode

Parameter Name	Applicable Upgrade Approach	Data Type	Are Double Quotes Required for the Value?	Description
MYORACLESUPPORT_PASSWORD_FOR_SOFTWAREUPDATES	Applicable to normal upgrade as well as software-only upgrade.	String	Yes	If you want to download the software updates during the installation, set `INSTALL_UPDATES_SELECTION="download"`, and provide the following: `MYORACLESUPPORT_USERNAME_FOR_SOFTWAREUPDATES` and `MYORACLESUPPORT_PASSWORD_FOR_SOFTWAREUPDATES`.
ORACLE_MIDDLEWARE_HOME_LOCATION	Applicable only to normal upgrade (upgrade end-to-end). Not applicable to software-only upgrade. **Comment out this parameter when performing software-only upgrade.**	String	Yes	The middleware home location where Oracle WebLogic Server, Java Development Kit (JDK) and oracle homes get installed. Example: `ORACLE_MIDDLEWARE_HOME_LOCATION="/u01/software/em24/mwhome"` The middleware location requires write permission in the specified directory or folder. **Note:** Ensure the number of characters in the middleware home path does not exceed 70 characters for Unix platform and 25 characters for Windows platform. For example, the Windows middleware home path `C:\Oracle\MW\EM` containing only 15 characters is acceptable. However, the path: `C:\OracleSoftware\OracleMiddleware\OracleEnterpriseManager\OMS\newrelease\mwhome` which contains more than 25 characters is not acceptable for Windows platforms. The Middleware home should be used only for Enterprise Manager. No other Oracle Fusion Middleware products or components should get installed in the same Middleware home.

Table A-1 (Cont.) Editing the Parameters of the upgrade.rsp File for Upgrading the OMS and Management Repository in Silent Mode

Parameter Name	Applicable Upgrade Approach	Data Type	Are Double Quotes Required for the Value?	Description
ORACLE_INSTANCE_HOME_LOCATION	Applicable to normal upgrade as well as software-only upgrade.	String	Yes	By default, `gc_inst` is considered as the OMS Instance Base directory for storing all OMS-related configuration files, and by default, it is created outside the Middleware home. • To accept the default location and the directory name, leave the parameter blank. • To have a custom location and a custom directory name, enter the absolute path to the custom location leading up to the custom directory name. Example: `ORACLE_INSTANCE_HOME_LOCATION="/u01/software/em24/gc_inst"` **Important:** If you are installing on an NFS-mounted drive and creating the OMS instance base directory (gc_inst) on that NFS-mounted drive, then after you install, move the lock files from the NFS-mounted drive to a local file system location. Modify the lock file location in the httpd.conf file to map to a location on a local file system. For instructions, refer to Moving Lock Files from an NFS-Mounted Drive to a Local File System Location.
OLD_BASE_DIR	Applicable to normal upgrade as well as software-only upgrade.	String	Yes	The old middleware home that you want to upgrade. It's the middleware home where the OMS is currently installed and present. This parameter is applicable when `ONE_SYSTEM=true` is provided.
ORACLE_HOSTNAME	Not applicable to normal upgrade as well as software-only upgrade. **Comment out this parameter.**	String	Yes	Not applicable. Current host name where the installer is invoked. By default, the fully qualified hostname of the machine will be taken automatically. There's no need to provide this value in the response file when upgrading. This value may be provided only for `TWO_SYSTEM` upgrade which it's deprecated. This value should NOT be provided for `ONE_SYSTEM` upgrade. The `ORACLE_HOSTNAME` parameter value should be provided only if you want to configure with a different hostname.

Table A-1 (Cont.) Editing the Parameters of the upgrade.rsp File for Upgrading the OMS and Management Repository in Silent Mode

Parameter Name	Applicable Upgrade Approach	Data Type	Are Double Quotes Required for the Value?	Description
ONE_SYSTEM	Applicable to normal upgrade as well as software-only upgrade.	Boolean	No	By default, it's set to `true`. The `true` value indicates `ONE_SYSTEM` upgrade. The `false` value indicates `TWO_SYSTEM` upgrade which it's deprecated.
AGENT_BASE_DIR	Applicable to normal upgrade (upgrade end-to-end). Not applicable to software-only upgrade. **Comment out this parameter when performing software-only upgrade.**	String	Yes	The agent home location outside of OMS path where the agent will be upgraded. Agent is upgraded as part of the OMS upgrade. Example: `AGENT_BASE_DIR="/u01/software/em24/agentbasedir"`
OLD_DATABASE_CONNECTION_DESCRIPTION	Not applicable to normal upgrade as well as software-only upgrade. **Comment out this parameter.**	String	Yes	The old repository connect descriptor. Applicable only for two-system upgrade, when setting `ONE_SYSTEM=false`.
OLD_DATABASE_SYSMAN_PASSWORD	Not applicable to normal upgrade as well as software-only upgrade. **Comment out this parameter.**	String	Yes	Old Repository `SYSMAN` password required only for `TWO_SYSTEM` system upgrade which it's deprecated.
WLS_ADMIN_SERVER_USERNAME	Applicable to normal upgrade as well as software-only upgrade.	String	Yes	Enter the Weblogic server user name.
WLS_ADMIN_SERVER_PASSWORD	Applicable to normal upgrade as well as software-only upgrade.	String	Yes	Enter the Weblogic admin server password.
WLS_ADMIN_SERVER_CONFIRM_PASSWORD	Applicable to normal upgrade as well as software-only upgrade.	String	Yes	Confirm the Weblogic admin server password.
NODE_MANAGER_PASSWORD	Applicable to normal upgrade as well as software-only upgrade.	String	Yes	Enter the Node Manager Password.
NODE_MANAGER_CONFIRM_PASSWORD	Applicable to normal upgrade as well as software-only upgrade.	String	Yes	Confirm the Node Manager Password.
JVM_DIAGNOSTICS_TABLESPACE_LOCATION	Not applicable to normal upgrade as well as software-only upgrade. **Therefore, comment out this parameter.**	String	Yes	Not applicable for upgrade.

Table A-1 (Cont.) Editing the Parameters of the upgrade.rsp File for Upgrading the OMS and Management Repository in Silent Mode

Parameter Name	Applicable Upgrade Approach	Data Type	Are Double Quotes Required for the Value?	Description
DATABASE_HOSTNAME	Not applicable to normal upgrade as well as software-only upgrade. **Therefore, comment out this parameter.**	String	Yes	Hostname of the Repository database. Not required for upgrade. Value is autopopulated.
LISTENER_PORT	Not applicable to normal upgrade as well as software-only upgrade. **Therefore, comment out this parameter.**	String	Yes	Listener port on which the Repository database is running. Not required for upgrade. Value is autopopulated.
SERVICENAME_OR_SID	Not applicable to normal upgrade as well as software-only upgrade. **Therefore, comment out this parameter.**	String	Yes	Service name (SID) of the Repository database. Not required for upgrade. Value is autopopulated.
SYS_PASSWORD	Applicable to normal upgrade, software-only upgrade, and additional OMS upgrade.	String	Yes	The SYS database user password used to create the repository schema.
dbUser	Applicable to normal upgrade (upgrade end-to-end), software-only upgrade, and additional OMS upgrade.	String	Yes	The database user name that creates the repository schema during the upgrade process. This is the non-SYS database user (a database user other than the SYS user). The `dbUser` parameter value cannot be `SYS`. Naming convention: User name should start with the `SYSMAN_` prefix. For example: `dbUser=SYSMAN_ADMIN` If the user doesn't exist, the upgrade process creates the new user in the Repository database. This parameter is only required if `INSTALL_WITH_NON_SYS_USER = true`.
dbPassword	Applicable to normal upgrade, software-only upgrade, and additional OMS upgrade.	String	Yes	The password of the database user that creates the repository schema. This is the non-SYS database user password. This parameter is only required if `INSTALL_WITH_NON_SYS_USER = true`.
SYSMAN_PASSWORD	Applicable to normal upgrade, software-only upgrade, and additional OMS upgrade.	String	Yes	The SYSMAN user password.
EMPREREQ_AUTO_CORRECTION	Applicable to normal upgrade as well as software-only upgrade.	Boolean	No	It specifies if the EM prerequisites check uses the auto correction option. Example: `EMPREREQ_AUTO_CORRECTION=false`

Table A-1 (Cont.) Editing the Parameters of the upgrade.rsp File for Upgrading the OMS and Management Repository in Silent Mode

Parameter Name	Applicable Upgrade Approach	Data Type	Are Double Quotes Required for the Value?	Description
INSTALL_WITH_NON_SYS_USER	Applicable to normal upgrade as well as software-only upgrade.	Boolean	No	It specifies if the upgrade is being performed using a database user different than `SYS`. This user is also known as non-SYS user. For example: `INSTALL_WITH_NON_SYS_USER=true` If this parameter is set to `true`, you also need to provide the `dbUser` and `dbPassword` parameters (the user name and password of the non-SYS user). The `dbUser` parameter value cannot be `SYS` and should always start with `SYSMAN_`.
Is_oneWaySSL	Applicable to normal (end-to-end) upgrade as well as software-only upgrade.	Boolean	No	Applicable for one-way SSL configuration. Set it to `true` if the repository database is configured with one-way SSL. Example: `Is_oneWaySSL=true` If `Is_oneWaySSL=true` is set, then the `TRUSTSTORE_LOCATION` and `TRUSTSTORE_PASSWORD` parameters must also be provided.
TRUSTSTORE_LOCATION	Applicable to normal (end-to-end) upgrade as well as software-only upgrade.	String	Yes	Applicable for one-way or two-way SSL configuration (`Is_oneWaySSL=true` or `Is_twoWaySSL=true`) It specifies the absolute location of TrustStore Wallet file.
TRUSTSTORE_PASSWORD	Applicable to normal (end-to-end) upgrade as well as software-only upgrade.	String	Yes	Applicable for one-way or two-way SSL configuration (`Is_oneWaySSL=true` or `Is_twoWaySSL=true`) It specifies the TrustStore Wallet password.
Is_twoWaySSL	Applicable to normal (end-to-end) upgrade as well as software-only upgrade.	Boolean		Applicable for two-way SSL configuration. Set it to `true` if repository database is configured with Two way SSL. Example: `Is_twoWaySSL=true` If `Is_twoWaySSL=true` is set, `KEYSTORE_LOCATION`, `KEYSTORE_PASSWORD`, `TRUSTSTORE_LOCATION` and `TRUSTSTORE_PASSWORD` parameters must also be provided.
KEYSTORE_LOCATION	Applicable to normal (end-to-end) upgrade as well as software-only upgrade.	String		Applicable for two-way SSL configuration. Absolute location of KeyStore wallet file.
KEYSTORE_LOCATION	Applicable to normal (end-to-end) upgrade as well as software-only upgrade.	String		Applicable for two-way SSL configuration. KeyStore wallet password.

Table A-1 (Cont.) Editing the Parameters of the upgrade.rsp File for Upgrading the OMS and Management Repository in Silent Mode

Parameter Name	Applicable Upgrade Approach	Data Type	Are Double Quotes Required for the Value?	Description
REPOSITORY_BACKUP_DONE	Applicable to normal upgrade as well as software-only upgrade. Not applicable to additional OMS upgrade. **Comment out this parameter for additional OMS upgrade.**	Boolean	No	Applicable for `ONE_SYSTEM` upgrade scenario from 10.2.0.5/11.1/12.1.0.1.0 / 12.1.0.2.0/12.1.0.3.0 -> 12.1.0.4.0. As a prerequisite, you must back up the Management Repository before you start upgrading your Enterprise Manager system. If you have already taken a backup, then set this parameter to `true`. Otherwise, take a backup immediately, then set this parameter to `true`, and then proceed with the upgrade operation. For example: `REPOSITORY_BACKUP_DONE=false`
PLUGIN_SELECTION	Applicable to normal upgrade as well as software-only upgrade.	String	Yes	List of new plug-ins to be deployed during upgrade. All plug-ins deployed to the old Enterprise Manager system will be automatically upgraded/migrated based on the availability of newer version of plug-in software. The string list contains a list of strings and each string is the `PLUGIN_ID` of the desired plug-in. (DVD)/Disk1/plug-ins has list of plug-ins that are shipped as part of DVD. If you want to install 12.1.0.4.0_oracle.sysman.empa_2000_0.opar, pass PLUGIN_SELECTION={"oracle.sysman.empa" } For example: `PLUGIN_SELECTION={'oracle.sysman.empa'}`
b_upgrade	Applicable to normal upgrade as well as software-only upgrade.	Boolean	No	Set it to `b_upgrade=true`
EM_INSTALL_TYPE	Applicable to normal upgrade as well as software-only upgrade.	String	No	Set it to `EM_INSTALL_TYPE="NOSEED"`

B

Updating Server Load Balancer Configuration Settings

For information on updating Server Load Balancer Configuration settings refer Configuring Multiple Management Services Behind a Server Load Balancer(SLB) section of the *Enterprise Manager Advanced Installation and Configuration Guide*

C

Moving the Central Agent Base Directory Outside Oracle Middleware Home

This appendix describes the following:

- Overview of Moving the Central Agent Base Directory Outside Oracle Middleware Home
- Moving the Central Agent Base Directory Outside Oracle Middleware Home

Overview of Moving the Central Agent Base Directory Outside Oracle Middleware Home

Central agent is the Oracle Management Agent that is deployed by default with the first Oracle Management Service.

Oracle strongly recommends that you maintain the agent base directory outside the middleware home, although you can choose to maintain it inside the middleware home. Each Enterprise Manager upgrade is an out-of-place upgrade that results in a new middleware home created for the upgraded release. By maintaining the agent base directory outside the middleware home, you do not have any dependency on the previous release's middleware home, and therefore, you can conveniently delete the previous release's middleware home when it is not needed.

Therefore, when you install a new 24ai Release 1 OMS, you will see the agent base directory created outside the middleware home by default (unless you chose to maintain it inside the middleware home). Similarly, when you upgrade to 24ai Release 1, you will see the agent base directory upgraded outside the middleware home by default (unless you chose to maintain it inside the middleware home in the previous releases).

However, in some cases when you upgrade from older Enterprise Manager versions, you will continue to see the agent base directory inside the middleware home (unless you had already migrated it outside the middleware home). You can choose to migrate the agent base directory to a location outside the middleware if you want.

Note that moving the agent base directory of a central agent outside the Oracle Middleware home is a one-time activity. Once the agent base directory of a central agent is moved outside the middleware home, it remains at the same location even after subsequent upgrades.

> **Important:**
>
> Moving the agent base directory is recommended only for central agents (on all platforms, including Microsoft Windows), and not recommended for standalone Management Agents.

Moving the Central Agent Base Directory Outside Oracle Middleware Home

To move the central agent base directory outside Oracle Middleware Home, follow these steps:

1. Run the following script:

   ```
   <AGENT_HOME>/perl/bin/perl <AGENT_HOME>/sysman/install/create_plugin_list.pl -
   instancehome <AGENT_INSTANCE_HOME>
   ```

   Here, `<AGENT_HOME>` represents the current central agent Oracle home, and `<AGENT_INSTANCE_HOME>` represents the current central agent instance home.

2. Run the following script:

   ```
   <AGENT_HOME>/perl/bin/perl <AGENT_HOME>/sysman/install/AgentMigrate.pl -instanceHome
   <AGENT_INSTANCE_HOME> -newAgentBaseDir <AGENT_BASE_DIRECTORY>
   ```

   Here, `<AGENT_HOME>` represents the current central agent Oracle home, `<AGENT_INSTANCE_HOME>` represents the current central agent instance home, and `<AGENT_BASE_DIRECTORY>` represents the new location to which you want to migrate the central agent base directory.

   To verify whether the migration was successful, switch to the Enterprise Manager console and perform these steps:

   a. From the **Targets** menu, select **All Targets.** Select the central agent target. On the Management Agent home page, in the Summary section, verify the Oracle home path and the agent state directory path. Ensure that both these paths point to the new locations.

   b. Access the home pages of the targets monitored by the central agent. Check the status of these targets. Ensure that they are up and running.

D

Deleting the Old OMS Home

Central agent is the Oracle Management Agent (Management Agent) that is deployed by default with the first Oracle Management Service (OMS).

Oracle strongly recommends that you maintain the agent base directory outside the middleware home, although you could choose to maintain it inside the middleware home. While upgrading Enterprise Manager, you had the option of migrating the agent base directory to a location outside the middleware as described in Moving the Central Agent Base Directory Outside Oracle Middleware Home. If you had already migrated the central agent, then you can directly remove the old OMS home. Otherwise, you must first migrate the central agent and then remove the old OMS home.

> **Note:**
>
> Starting with Enterprise Manager 24 Release 1, the central agent is upgraded automatically along with the old Oracle Management Service (OMS).

This appendix describes how you can remove the old OMS home under both these circumstances. In particular, it covers the following:

- Deleting the Old OMS Home When the Central Agent Is Still Present in the Old Middleware Home
- Deleting the Old OMS Home When the Central Agent Is Migrated to a Location Outside the Old Middleware Home

Deleting the Old OMS Home When the Central Agent Is Still Present in the Old Middleware Home

If you have not already migrated the central agent to a location outside the old middleware home, then you must first migrate the central agent and then remove the old OMS, or in other words the old middleware home. To do so, follow these steps:

1. Migrate the central agent to a location outside the old middleware home.
   a. Create a list of plug-ins.

      ```
      <AGENT_HOME>/perl/bin/perl <AGENT_HOME>/sysman/install/
      create_plugin_list.pl -instancehome <AGENT_INSTANCE_HOME>
      ```

      Here, `<AGENT_HOME>` represents the current central agent Oracle home, and `<AGENT_INSTANCE_HOME>` represents the current central agent instance home.

   b. Convert the central agent to a standalone agent.

      ```
      <AGENT_HOME>/perl/bin/perl <AGENT_HOME>/sysman/install/AgentMigrate.pl -
      instanceHome <AGENT_INSTANCE_HOME> -newAgentBaseDir <AGENT_BASE_DIRECTORY>
      ```

      Here, `<AGENT_HOME>` represents the current central agent Oracle home, `<AGENT_INSTANCE_HOME>` represents the new central agent instance home, and

<AGENT_BASE_DIRECTORY> represents the location to which you want to migrate the central agent base directory.

> **Note:**
>
> After migrating the central agent, you must deinstall the central agent. For information on how to deinstall the central agent, refer Deinstalling Oracle Management Agents.

2. Remove the old OMS home, or in other words the old middleware home.
   a. Detach the old OMS home.

      ```
      <OLD_ORACLE_HOME>/oui/bin/detachHome.sh -force -allDepHomes -silent
      ORACLE_HOME=<OLD_ORACLE_HOME> -waitForCompletion -invPtrLoc <ORACLE_HOME>/
      oraInst.loc
      ```

   b. Detach the Oracle common directory.

      ```
      <OLD_ORACLE_HOME>/oui/bin/detachHome.sh -force -allDepHomes -silent
      ORACLE_HOME=<OLD_MW_HOME>/oracle_common -waitForCompletion -invPtrLoc
      <OLD_MW_HOME>/oraInst.loc
      ```

   c. Check whether any processes are running from the old middleware home.

      ```
      ps -ef | grep <OLD_MW_HOME>
      ```

   d. If no processes are running from the old middleware home, then delete the old middleware home.

      ```
      rm -rf <OLD_ORACLE_HOME>
      ```

> **Note:**
>
> During the process of detaching the home (step a and b), you may receive a message "The Oracle home '<oracle home>' could not be updated as it does not exist." You can ignore this message.

Deleting the Old OMS Home When the Central Agent Is Migrated to a Location Outside the Old Middleware Home

If you have already migrated the central agent to a location outside the old middleware home, first deinstall the central agent, and then you can directly remove the old OMS, or in other words the old middleware home. To do so, follow these steps:

> **Note:**
>
> To deinstall the central agent, refer Deinstalling Oracle Management Agents.
>
> If your old OMS home version is 13c release 1, then ignore steps 1, 2, and follow only steps 3, 4.

1. Detach the old OMS home.

```
<OLD_ORACLE_HOME>/oui/bin/detachHome.sh -force -allDepHomes -silent
ORACLE_HOME=<OLD_ORACLE_HOME> -waitForCompletion -invPtrLoc <OLD_ORACLE_HOME>/
oraInst.loc
```

2. Detach the Oracle common directory.

```
<OLD_ORACLE_HOME>/oui/bin/detachHome.sh -force -allDepHomes -silent
ORACLE_HOME=<OLD_MW_HOME>/oracle_common -waitForCompletion -invPtrLoc
<OLD_MW_HOME>/oracle_common/oraInst.loc
```

3. Check whether any processes are running from the old middleware home.

```
ps -ef | grep <OLD_MW_HOME>
```

4. If no processes are running from the old middleware home, then delete the old middleware home.

```
rm -rf <OLD_MW_HOME>
```

> **Note:**
>
> During the process of detaching the home (step 1, 2), you may receive a message "The Oracle home '<oracle home>' could not be updated as it does not exist." You can ignore this message.

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