Oracle® Fusion Middleware

Installing and Configuring Oracle WebCenter Sites

12*c* (12.2.1)

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Documentation for installers and system administrators that describes how to install and configure Oracle WebCenter Sites.

ORACLE

Oracle Fusion Middleware Installing and Configuring Oracle WebCenter Sites, 12c (12.2.1)

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Primary Author: Christine Ford

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Preface

This document describes how to install and configure Oracle WebCenter Sites.

Audience

Related Documents

Conventions

Audience

This document is intended for system administrators or application developers who are installing and configuring Oracle WebCenter Sites. It is assumed that readers are familiar with web technologies and have a general understanding of Windows and UNIX platforms.

Related Documents

For more information, see the following documents in the 12*c* (12.2.1) documentation set:

- *Planning an Installation of Oracle Fusion Middleware*
- *Installing and Configuring the Oracle Fusion Middleware Infrastructure*
- *Developing with Oracle WebCenter Sites*
- *Administering Oracle WebCenter Sites*
- *High Availability Guide*
- *Using Oracle WebCenter Sites*
- *Property Files Reference for Oracle WebCenter Sites*

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.

Convention	Meaning
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

Installing and Configuring Oracle WebCenter Sites

Topics in this section describe how to install Oracle WebCenter Sites and configure Oracle WebCenter Sites domains.

Understanding Oracle WebCenter Sites Installation

Preparing to Install and Configure Oracle WebCenter Sites
To prepare for your Oracle WebCenter Sites installation, verify that your system meets the basic requirements, then obtain the correct installation software.

Installing the Oracle WebCenter Sites Software

Configuring the WebCenter Sites Domain
After you have installed WebCenter Sites, you can configure the domain, which you can also extend for high availability.

Next Steps After Configuring the Domain

Deinstalling or Reinstalling Oracle WebCenter Sites
Follow the instructions in this section to deinstall or reinstall Oracle WebCenter Sites.

1

Understanding Oracle WebCenter Sites Installation

This section describes the standard installation for Oracle WebCenter Sites by explaining the standard topologies for this product.

Review the topics thoroughly to ensure that you do not encounter problems during or after installing the product or configuring the domain.

Installing and Configuring Oracle WebCenter Sites
: Topics in this section describe how to install Oracle WebCenter Sites and configure Oracle WebCenter Sites domains.

Using the Standard Installation Topology as a Starting Point
: The standard installation topology is a flexible topology that you can use in production environments.

Using This Document to Extend an Existing Domain
: The procedures in this document describe how to create a new domain. The assumption is that no other Oracle Fusion Middleware products are installed on your system.

1.1 Using the Standard Installation Topology as a Starting Point

The standard installation topology is a flexible topology that you can use in production environments.

The information in this guide helps you to create a standard installation topology for Oracle WebCenter Sites. You can later extend the standard installation topology to create a secure and highly available production environment.

The standard installation topology represents a sample topology for this product. It is not the only topology this product supports. For more information, see Understanding the Standard Installation Topology in *Planning an Installation of Oracle Fusion Middleware*.

Understanding the WebCenter Sites Standard Installation Topology
: This topology represents a standard WebLogic Server domain that contains an Administration Server and a cluster containing two Managed Servers.

Understanding Elements in the Standard Installation Topology Illustration
: The standard installation topology typically includes common elements.

Understanding the Oracle WebCenter Sites: Insights Standard Installation Topology

Understanding the Oracle WebCenter Sites: Site Capture Standard Installation Topology

Understanding the Oracle WebCenter Sites: Visitor Services Standard Installation Topology

About Oracle WebCenter Sites: Satellite Server Standalone Topology

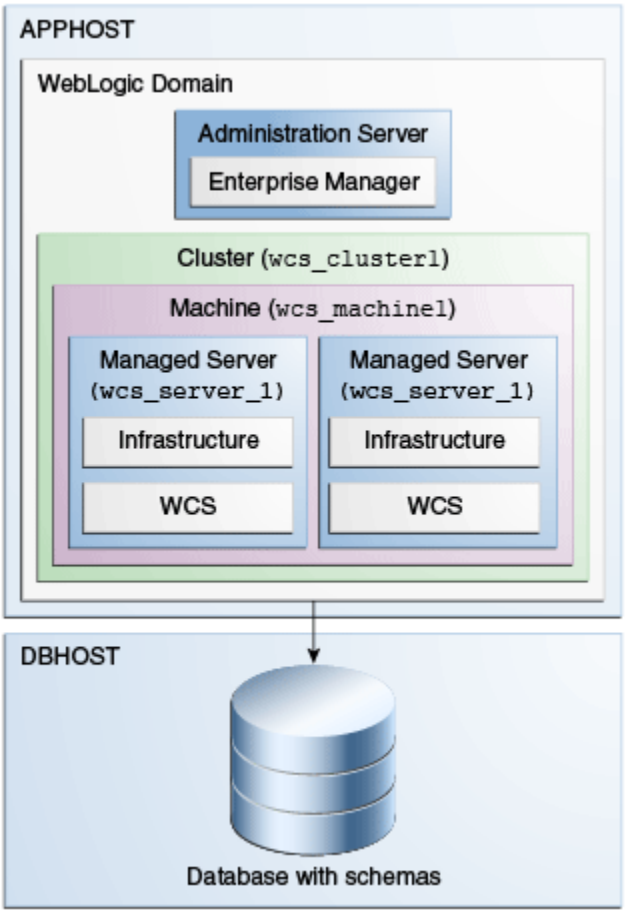
Oracle WebCenter Sites ships with a copy of Oracle WebCenter Sites: Satellite Server that installs and automatically enables on the same machine as Oracle WebCenter Sites software. This is your *co-resident* Satellite Server. It gives development and management systems the ability to simulate page delivery as it occurs on the active site (delivery system).

1.1.1 Understanding the WebCenter Sites Standard Installation Topology

This topology represents a standard WebLogic Server domain that contains an Administration Server and a cluster containing two Managed Servers.

The following figure shows the standard installation topology for WebCenter Sites.

See Table 1-1 for information on elements of this topology.



1.1.2 Understanding Elements in the Standard Installation Topology Illustration

The standard installation topology typically includes common elements.

The following table describes all elements of the topology illustration:

Table 1-1 Description of Elements in Standard Installation Topologies

Table 1-1 (Cont.) Description of Elements in Standard Installation Topologies

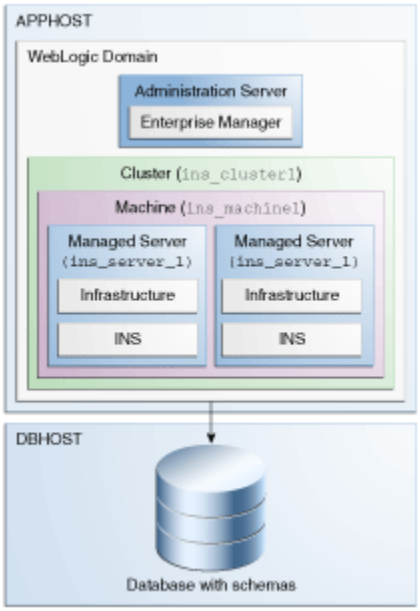
Element	Description and Links to Related Documentation
APPHOST	A standard term used in Oracle documentation to refer to the machine that hosts the application tier.
DBHOST	A standard term used in Oracle documentation to refer to the machine that hosts the database.
WebLogic Domain	A logically related group of Java components (in this case, the Administration Server, Managed Servers, and other related software components). For more information, see What is an Oracle WebLogic Server Domain? in *Understanding Oracle Fusion Middleware*.
Administration Server	Central control entity of a WebLogic domain. It maintains configuration objects for that domain and distributes configuration changes to Managed Servers. For more information, see What is the Administration Server? in *Understanding Oracle Fusion Middleware*.
Enterprise Manager	The Oracle Enterprise Manager Fusion Middleware Control is a primary tool used to manage a domain. For more information, see Oracle Enterprise Manager Fusion Middleware Control in *Understanding Oracle Fusion Middleware*.
Cluster	A collection of multiple WebLogic Server instances running simultaneously and working together. For more information, see Understanding Managed Servers and Managed Server Clusters in *Understanding Oracle Fusion Middleware*.
Machine	A logical representation of the computer that hosts one or more WebLogic Server instances (servers). Machines are also the logical glue between the Managed Servers and the Node Manager. In order to start or stop the Managed Servers using the Node Manager, associate the Managed Servers with a machine.
Managed Server	A host for your applications, application components, web services, and their associated resources. For more information, see Understanding Managed Servers and Managed Server Clusters in *Understanding Oracle Fusion Middleware*.
Infrastructure	Collection of services that include the following: • Metadata repository (MDS) Contains metadata for Oracle Fusion Middleware components, such as the Oracle Application Developer Framework. For more information, see What is the Metadata Repository? in *Understanding Oracle Fusion Middleware*. • Oracle Application Developer Framework (Oracle ADF) • Oracle Web Services Manager (OWSM)

1.1.3 Understanding the Oracle WebCenter Sites: Insights Standard Installation Topology

Figure 1-1 shows the standard installation topology for Oracle WebCenter Sites: Insights.

See Table 1-1 for information on elements of this topology.

Figure 1-1 Standard Installation Topology for Oracle WebCenter Sites: Insights

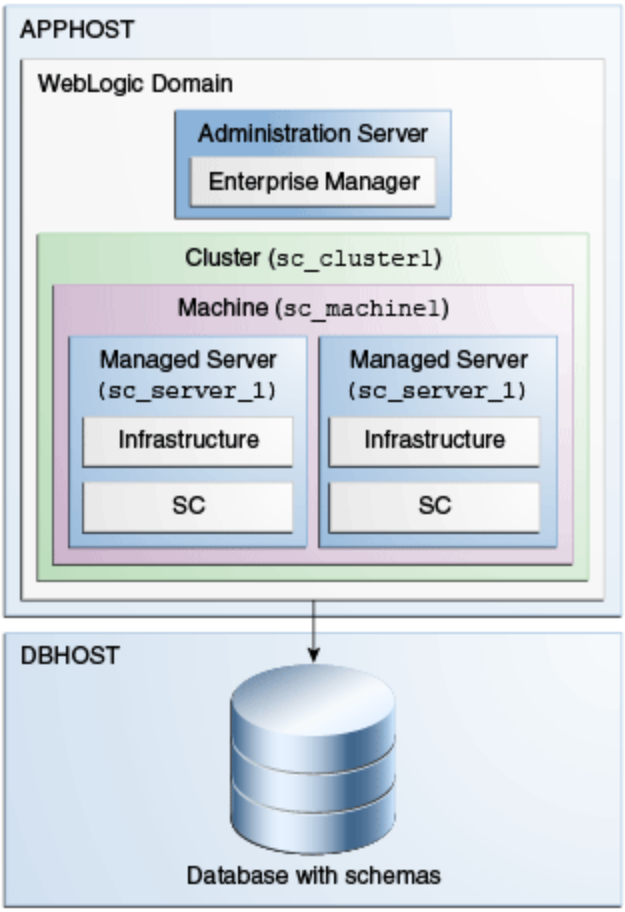


1.1.4 Understanding the Oracle WebCenter Sites: Site Capture Standard Installation Topology

Figure 1-2 shows the standard installation topology for Oracle WebCenter Sites: Site Capture.

See Table 1-1 for information on elements of this topology.

Figure 1-2 Standard Installation Topology for Oracle WebCenter Sites: Site Capture

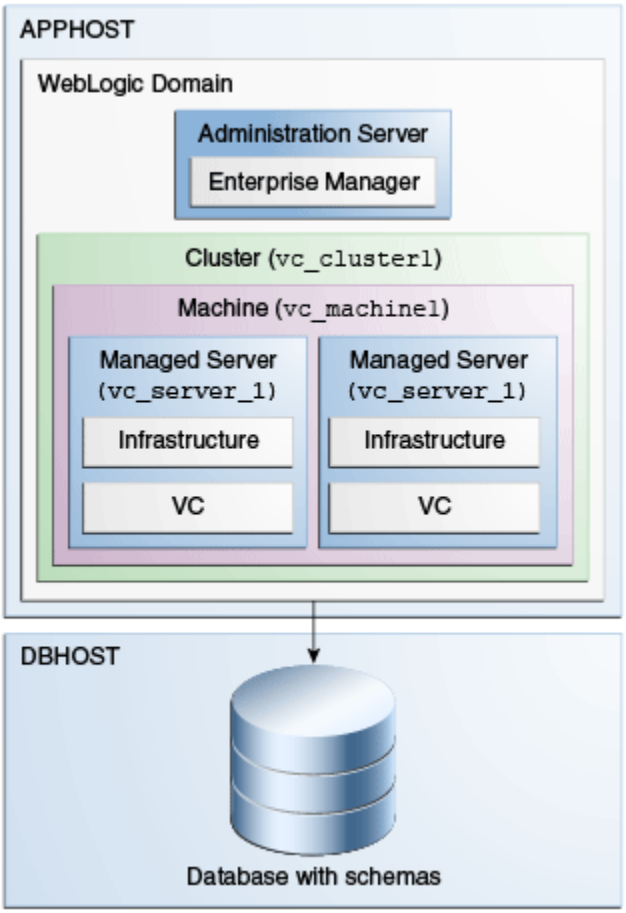


1.1.5 Understanding the Oracle WebCenter Sites: Visitor Services Standard Installation Topology

Figure 1-3 shows the standard installation topology for Oracle WebCenter Sites: Visitor Services.

See Table 1-1 for information on elements of this topology.

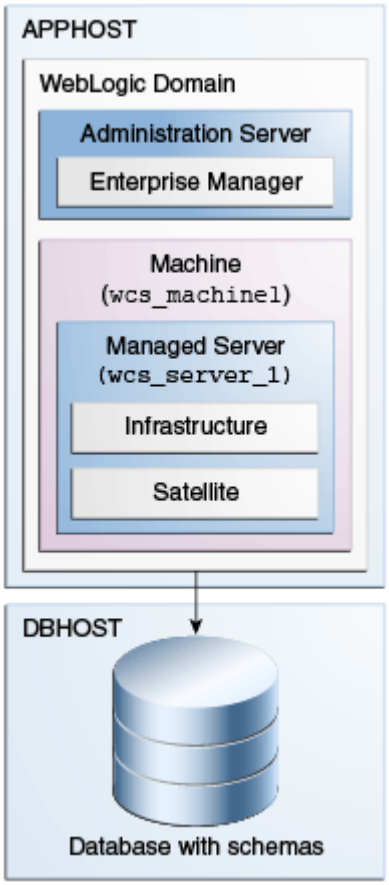
Figure 1-3 Standard Installation Topology for Oracle WebCenter Sites: Visitor Services



1.1.6 About Oracle WebCenter Sites: Satellite Server Standalone Topology

Oracle WebCenter Sites ships with a copy of Oracle WebCenter Sites: Satellite Server that installs and automatically enables on the same machine as Oracle WebCenter Sites software. This is your *co-resident* Satellite Server. It gives development and management systems the ability to simulate page delivery as it occurs on the active site (delivery system).

The following figure shows the topology for a Satellite Server co-resident installation. For more information on Satellite Server, see Caching to Optimize Performance in *Developing with Oracle WebCenter Sites*.



1.2 Using This Document to Extend an Existing Domain

The procedures in this document describe how to create a new domain. The assumption is that no other Oracle Fusion Middleware products are installed on your system.

If you have installed and configured other Oracle Fusion Middleware products on your system (for example, Fusion Middleware Infrastructure, with a domain that is up and running), use the same instructions to extend your existing domain. If you choose extend an existing domain, read Installing Multiple Products in the Same Domain in *Planning an Installation of Oracle Fusion Middleware* for detailed information.

2

Preparing to Install and Configure Oracle WebCenter Sites

To prepare for your Oracle WebCenter Sites installation, verify that your system meets the basic requirements, then obtain the correct installation software.

Installing and Configuring Oracle WebCenter Sites
: Topics in this section describe how to install Oracle WebCenter Sites and configure Oracle WebCenter Sites domains.

Roadmap for Installing and Configuring the Standard Installation Topologies
: This guide has all the steps required to install and configure standard installation topologies. The guide also refers to additional information that you can use if you want to create a modified version of this topology.

Roadmap for Verifying Your System Environment
: Before you begin the installation and configuration process, you must verify your system environment.

About Product Distributions
: You create the initial Oracle WebCenter Sites domain using the Oracle Fusion Middleware Infrastructure distribution, which contains both Oracle WebLogic Server software and Oracle Java Required Files (JRF) software.

2.1 Roadmap for Installing and Configuring the Standard Installation Topologies

This guide has all the steps required to install and configure standard installation topologies. The guide also refers to additional information that you can use if you want to create a modified version of this topology.

Table 2-1 shows the steps required to install and configure the topology.

Table 2-1 Standard Installation Roadmap

Task	Description	Documentation
Verify your system environment	Before beginning the installation, verify that the minimum system and network requirements are met.	See Roadmap for Verifying Your System Environment.

Table 2-1 (Cont.) Standard Installation Roadmap

Task	Description	Documentation
Check for any mandatory patches that will be required before or after the installation	Review the Oracle Fusion Middleware Infrastructure release notes to see if there are any mandatory patches required for the software products you are installing.	See Install and Configure in *Release Notes for Oracle Fusion Middleware Infrastructure*.
Obtain the appropriate distributions	Obtain the Oracle Fusion Middleware Infrastructure and the Oracle WebCenter Sites installation files.	See About Product Distributions.
Determine your installation directories	Verify that the installer can access or create the installer directories that it must access or create. Also, verify that the directories exist on systems that meet the minimum requirements.	See What are the Key Oracle Fusion Middleware Directories? in *Understanding Oracle Fusion Middleware*.
Install prerequisite software	Install Oracle Fusion Middleware Infrastructure to create the Oracle home directory for Oracle WebCenter Sites.	See *Installing and Configuring the Oracle Fusion Middleware Infrastructure*. There is no need to configure a domain for Infrastructure; the purpose of this task is to install oracle_common into the Oracle home.
Install the software	Run the Oracle Universal Installer to install Oracle WebCenter Sites. Installing the software transfers the software to your system and creates the Oracle home directory.	See Installing the Oracle WebCenter Sites Software.
Select a database profile and review any required custom variables.	Before you install required schemas in the database, review information about any custom variables you need to set for Oracle WebCenter Sites schemas.	See Understanding Database Requirements for an Oracle Fusion Middleware Installation.
Create the schemas	Run the Repository Creation Utility to create the schemas required for configuration.	See Creating the Database Schemas.
Create a WebLogic domain	Use the Configuration Wizard to create and configure the WebLogic domain.	See Configuring the WebCenter Sites Domain if you are creating the topology for Oracle WebCenter Sites.
Verify that you meet deployment prerequisites	Verify that your environment meets deployment requirements	See Completing Prerequisites for Configuring Visitor Services
Administer and prepare your domain for high availability	Discover additional tools and resources to administer your domain and configure your domain to be highly available.	See Next Steps After Configuring the Domain.

2.2 Roadmap for Verifying Your System Environment

Before you begin the installation and configuration process, you must verify your system environment.

The following table identifies important tasks and checks to perform to ensure that your environment is properly prepared for installing and configuring the Oracle WebCenter Sites.

Table 2-2 Roadmap for Verifying Your System Environment

Task	Description	Documentation
Verify certification and system requirements	Verify that your operating system is certified and properly configured for installation and configuration.	See Verifying Certification, System Requirements, and Interoperability.
Identify a proper installation user	Verify that the installation user has the proper permissions to install and configure the software.	See Selecting an Installation User.
Select the installation and configuration directories on your system	Verify that you can create the necessary directories for installation and configuration, according to the recommended directory structure.	See Understanding Directories for Installation and Configuration.
Install a certified JDK	The installation program for the distribution requires a certified JDK present on your system.	See Understanding JDK Requirements for an Oracle Fusion Middleware Installation.
Install and configure a database for mid-tier schemas	To configure your WebLogic domain, you must have access to a certified database that is properly configured for schemas required by Oracle WebCenter Sites.	See Understanding Database Requirements for an Oracle Fusion Middleware Installation.

Verifying Certification, System Requirements, and Interoperability

Oracle recommends that you use the certification matrix and system requirements documents with each other to verify that your environment meets the requirements for installation.

Selecting an Installation User

The user who performs installation and configuration on your system requires sufficient permissions and privileges.

Understanding Directories for Installation and Configuration

During the installation and domain configuration process, you must plan on providing the locations for these directories: Oracle Home, Domain Home, and the Application Home.

Understanding JDK Requirements for an Oracle Fusion Middleware Installation

Most Fusion Middleware products are in `.jar` file format. These distributions do *not* include a JDK. To run a `.jar` distribution installer, you must have a certified JDK already installed on your system.

Understanding Database Requirements for an Oracle Fusion Middleware Installation

Many Oracle Fusion Middleware products require database schemas prior to configuration. If you do not already have a database where you

can install these schemas, you must install and configure a certified database.

2.2.1 Verifying Certification, System Requirements, and Interoperability

Oracle recommends that you use the certification matrix and system requirements documents with each other to verify that your environment meets the requirements for installation.

1. **Verifying your environment meets certification requirements**

   Make sure that you are installing your product on a supported hardware and software configuration. For more information, see the certification document for your release on the *Oracle Fusion Middleware Supported System Configurations* page.

   Oracle has tested and verified the performance of your product on all certified systems and environments. Whenever new certifications occur, they are added to the proper certification document right away. New certifications can be released at any time. Therefore, the certification documents are kept outside the documentation libraries and are available on Oracle Technology Network.

2. **Using the system requirements document to verify certification**

   Oracle recommends that you use the *Oracle Fusion Middleware System Requirements and Specifications* document to verify that the certification requirements are met. For example, if the certification document indicates that your product is certified for installation on 64-Bit Oracle Linux 6.5, use this document to verify that your system meets the required minimum specifications. These include disk space, available memory, specific platform packages and patches, and other operating system-specific items. System requirements can change in the future. Therefore, the system requirement documents are kept outside of the documentation libraries and are available on Oracle Technology Network.

3. **Verifying interoperability among multiple products**

   Read *Understanding Interoperability and Compatibility* to learn how to install and run multiple Fusion Middleware products from the same release or mixed releases with each other.

2.2.2 Selecting an Installation User

The user who performs installation and configuration on your system requires sufficient permissions and privileges.

Understanding User Permissions
: The user who installs a Fusion Middleware product owns the files and has certain permissions on the files.

Understanding Non-Default User Permissions on UNIX Operating Systems
: Changing default permissions settings reduces the security of the installation and possibly your system.

Verifying the Installation User has Administrator Privileges on Windows Operating Systems
: The user performing the installation on Windows operating systems must have Administrator privileges to update the Windows Registry.

2.2.2.1 Understanding User Permissions

The user who installs a Fusion Middleware product owns the files and has certain permissions on the files.

The user who installs a Fusion Middleware product has the following permissions on them:

- Read and write permissions on all non-executable files (for example, `.jar`, `.properties`, or `.xml`). All other users in the same group as the file owner have read permissions only.
- Read, write, and execute permissions on all executable files (for example, `.exe`, `.sh`, or `.cmd`). All other users in the same group as the file owner have read and execute permissions only.

This means that someone other than the person who installs the software can use the installed binaries in the Oracle home to configure a domain or set of Fusion Middleware products.

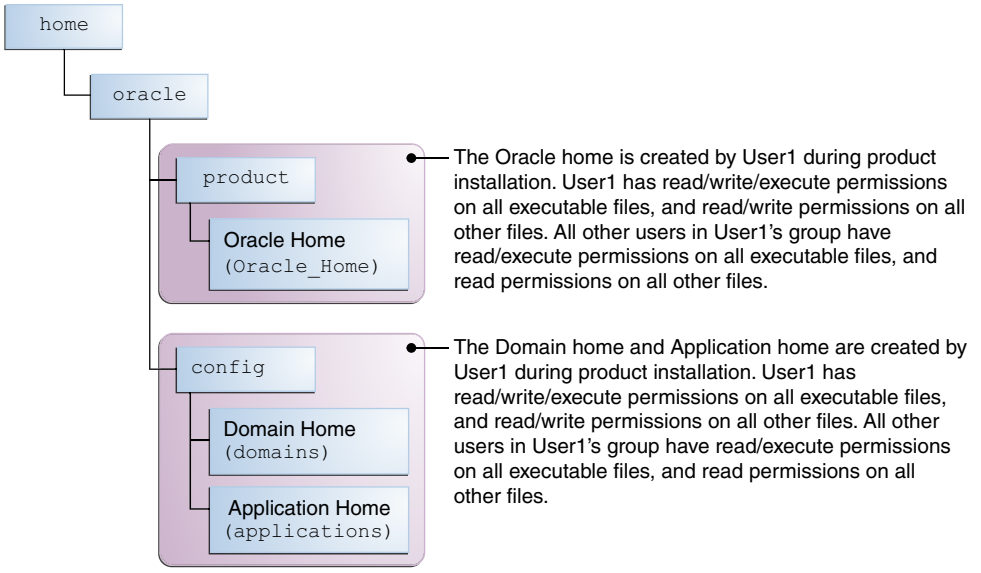
During configuration, the files generated by the configuration process are owned by the user who ran the Configuration Wizard, with the same permissions as described above for the installation user. However, security-sensitive files are not created with group permissions. Only the user that created the domain has read and write permissions and can administer the domain.

Consider the following examples:

- **Example 1: A Single User Installs the Software and Configures the Domain**

  This example shows the permissions if the same user installs the software and configures the domain.

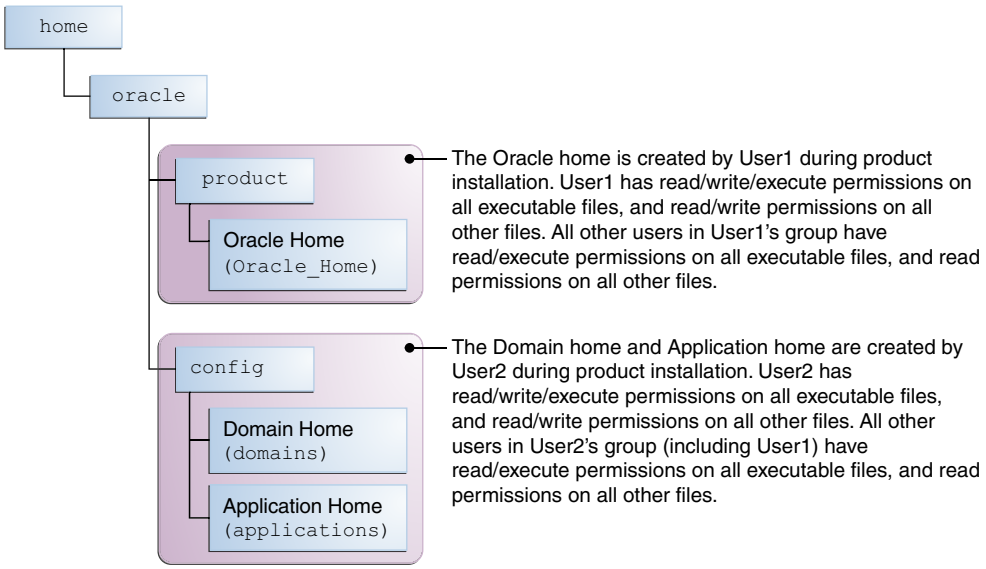
  To ensure the proper permissions and privileges for all files, Oracle recommends that the same owner perform both tasks: install the Oracle Fusion Middleware product and configure the WebLogic Server domain using the Configuration Wizard.



If domain creation must be performed by a different user than the one who installed the software, then both users should be from the same group to have the necessary permissions, as shown in the next example.

- **Example 2: The Oracle Home and Domain are Created by Different Users**

  This example shows the permissions if the Oracle home is created by one user, but the domain is configured by another user.



Note: Certain domain files do not have group permissions. For example, cwallet.sso.

Below are some additional considerations to make prior to running the installer:

- On UNIX operating systems, Oracle recommends that you set the `umask` to `027` on your system prior to installation. This ensures that file permissions are set properly during installation. Use the following command:

```
umask 027
```

You must enter this command in the same terminal window from which you plan to run the product installer.

- On UNIX operating systems, do not run the installation program as the `root` user. The installer startup validation will fail and you will not be able to continue.
- When managing a product installation (for example, applying patches, or starting Managed Servers), you must use the same user ID as was used to perform the initial product installation.
- On Windows operating systems, the user performing the installation must have Administrator privileges. See Verifying the Installation User has Administrator Privileges on Windows Operating Systems for more information.

2.2.2.2 Understanding Non-Default User Permissions on UNIX Operating Systems

Changing default permissions settings reduces the security of the installation and possibly your system.

Oracle does not recommend changing default permissions settings. If other users require access to particular files or executables, consider using the UNIX `sudo` command (or other similar command) in lieu of changing file permissions.

Refer to your UNIX operating system Administrator's Guide or contact your operating system vendor if you need further assistance.

2.2.2.3 Verifying the Installation User has Administrator Privileges on Windows Operating Systems

The user performing the installation on Windows operating systems must have Administrator privileges to update the Windows Registry.

By default, members of the Administrator's group log in to the system with regular privileges, but may request elevated permissions to perform administrative tasks.

To perform a task with elevated privileges:

1. Find the Command Prompt item, either from the Start menu or the Windows icon in the lower-left hand corner.
2. Right-click Command Prompt and select **Run as administrator**.

   This opens a new command prompt window, and all actions performed in this window will be done with administrator privileges.

   Note: If you have User Access Control enabled on your system, you may see an additional window asking you to confirm this action. Confirm and continue with this procedure.

3. Perform the desired task.

   For example, to start the product installer:

   For a jar file, enter:

   ```
   java –jar distribution_name.jar
   ```

   For an executable (`.exe`, `.bin`, or `.sh` file):

- On UNIX, enter:

  `./distribution_name.bin`

- On Windows, enter:

  `distribution_name.exe`

2.2.3 Understanding Directories for Installation and Configuration

During the installation and domain configuration process, you must plan on providing the locations for these directories: Oracle Home, Domain Home, and the Application Home.

The following sections provide information to help you decide where you want to create these directories:

Understanding the Recommended Directory Structure
: Oracle recommends specific locations for the Oracle Home, Domain Home, and Application Home.

About the Oracle Home Directory
: When you install any Oracle Fusion Middleware product, you must use an Oracle home directory.

About the Domain Home Directory
: The Domain home is the directory where domains that you configure are created.

About the Application Home Directory
: The Application home is the directory where applications for domains you configure are created.

Installing Multiple Products in the Same Domain
: There are two methods for installing and configuring multiple products in one domain.

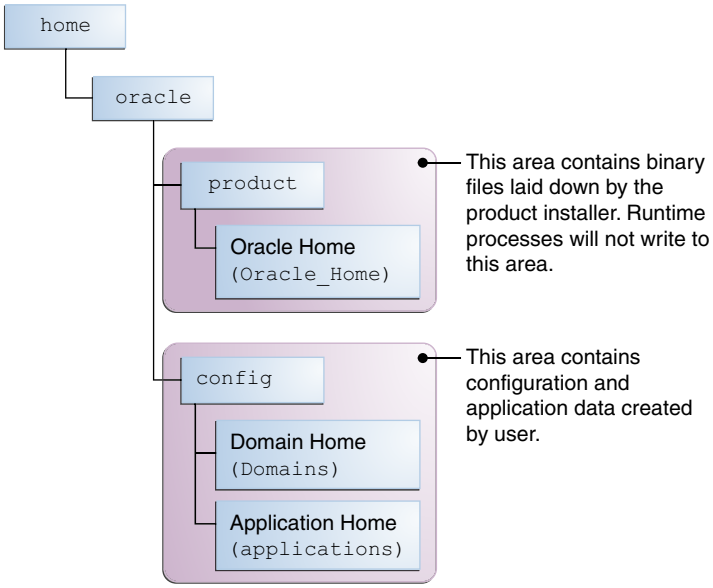
Preparing for Shared Storage
: Oracle Fusion Middleware enables you to configure multiple Oracle WebLogic Server domains from a single Oracle home. This allows you to install the Oracle home in a single location on a shared volume and reuse the Oracle home for multiple hosts installations.

2.2.3.1 Understanding the Recommended Directory Structure

Oracle recommends specific locations for the Oracle Home, Domain Home, and Application Home.

Oracle recommends a directory structure similar to the one shown in Figure 2-1.

Figure 2-1 Recommended Oracle Fusion Middleware Directory Structure



A base location (Oracle base) should be established on your system (for example, `/home/oracle`) and from there, two separate branches should be created. The `product` directory should contain the product binary files and all of the Oracle home directories. The `config` directory should contain your domain and application data.

Oracle recommends that you do not keep your configuration data anywhere underneath the Oracle home; if you upgrade your product to another major release, you will be required to create a new Oracle home for binaries. You must also make sure that your configuration data exist in a location to which the binaries in the Oracle home have access.

The `/home/oracle/product` (for the Oracle home) and `/home/oracle/config` (for the application and configuration data) directories are used in examples throughout the documentation; be sure to replace these directories with the actual directories on your system.

2.2.3.2 About the Oracle Home Directory

When you install any Oracle Fusion Middleware product, you must use an Oracle home directory.

This directory is a repository for common files that are used by multiple Fusion Middleware products installed on the same machine. These files are essential to ensuring that Fusion Middleware operates correctly on your system. They facilitate checking of cross-product dependencies during installation. For this reason, you can consider the Oracle home directory a *central support directory* for all Oracle Fusion Middleware products installed on your system.

Fusion Middleware documentation refers to the Oracle home directory as *`ORACLE_HOME`*.

Oracle Home Considerations

Keep the following in mind when creating the Oracle home directory and installing Fusion Middleware products:

- Do not include spaces in the name of your Oracle home directory; the installer gives you an error message if your Oracle home directory path contains spaces.

- You can install only one instance of each Oracle Fusion Middleware product in a single Oracle home directory. If you need to maintain separate versions of a product on the same machine, each version must be in its own Oracle home directory.

  Although you can have several different products in a single Oracle home, only one version of each product can be in the Oracle home.

Multiple Home Directories

Although in most situations, a single Oracle home directory is sufficient, it is possible to create more than one Oracle home directory. For example, you need to maintain multiple Oracle home directories in the following situations:

- You prefer to maintain separate development and production environments, with a separate product stack for each. With two directories, you can update your development environment without modifying the production environment until you are ready to do so.
- You want to maintain two different versions of a Fusion Middleware product at the same time. For example, you may want to install a new version of a product while keeping your existing version intact. In this case, you must install each product version in its own Oracle home directory.
- You need to install multiple products that are not compatible with each other. See *Understanding Interoperability and Compatibility* for more information.

Note: If you create more than one Oracle home directory, you must provide non-overlapping port ranges during the configuration phase for each product.

2.2.3.3 About the Domain Home Directory

The Domain home is the directory where domains that you configure are created.

The default Domain home location is *`ORACLE_HOME`*`/user_projects/domains/`*`domain_name`*. However, Oracle strongly recommends that you do not use this default location. Put your Domain home *outside* of the Oracle home directory, for example, in `/home/oracle/config/domains`. The `config` directory should contain domain and application data. Oracle recommends a separate domain directory so that new installs, patches, and other operations update the *`ORACLE_HOME`* only, *not* the domain configuration.

See Understanding the Recommended Directory Structure for more about the recommended directory structure and locating your Domain home.

Fusion Middleware documentation refers to the Domain home directory as *`DOMAIN_HOME`* and includes all folders up to and including the domain name. For example, if you name your domain `exampledomain` and locate your domain data in the `/home/oracle/config/domains` directory, the documentation would use *`DOMAIN_HOME`* to refer to `/home/oracle/config/domains/exampledomain`.

2.2.3.4 About the Application Home Directory

The Application home is the directory where applications for domains you configure are created.

The default Application home location is *`ORACLE_HOME`*`/user_projects/applications/`*`domain_name`*. However, Oracle strongly recommends locating

your Application home *outside* of the Oracle home directory; if you upgrade your product to another major release, you must create a new Oracle home for binaries.

See Understanding the Recommended Directory Structure for more about the recommended directory structure and locating your Application home.

Fusion Middleware documentation refers to the Application home directory as *APPLICATION_HOME* and includes all folders up to and including the domain name. For example, if you name your domain `exampledomain` and you locate your application data in the `/home/oracle/config/applications` directory, the documentation uses *APPLICATION_HOME* to refer to `/home/oracle/config/applications/exampledomain`.

2.2.3.5 Installing Multiple Products in the Same Domain

There are two methods for installing and configuring multiple products in one domain.

- **Method 1.**

  Install and configure Product A, including creating the schemas and starting all servers in the domain to verify a successful domain configuration.

  This is the method used in all installation guides in the Fusion Middleware library. You can repeat this process for as many products as necessary. It allows you to validate one product at a time and add more products incrementally.

  To install Product B, you stop the Administration Server to prevent any updates to the domain while you are adding the new product. Then, follow instructions in the installation guide for Product B, including creating the necessary schemas. Finally, extend the Product A domain to include Product B before starting all of the servers again.

- **Method 2.**

  Install but do *not* configure all of the necessary products, then create the schemas for all of the products. After creating the schemas, configure the domain using all of the necessary product templates, then start all the servers.

  This method of creating a multi-product domain may be slightly faster; however, the installation guides in the Fusion Middleware library do not provide specific instructions for this method of domain creation. You will need to refer to the supporting documentation as appropriate.

2.2.3.6 Preparing for Shared Storage

Oracle Fusion Middleware enables you to configure multiple Oracle WebLogic Server domains from a single Oracle home. This allows you to install the Oracle home in a single location on a shared volume and reuse the Oracle home for multiple hosts installations.

If you plan to use shared storage in your environment, see Using Shared Storage in *Oracle Fusion Middleware High Availability Guide* for more information.

2.2.4 Understanding JDK Requirements for an Oracle Fusion Middleware Installation

Most Fusion Middleware products are in `.jar` file format. These distributions do *not* include a JDK. To run a `.jar` distribution installer, you must have a certified JDK already installed on your system.

Make sure that the JDK is installed *outside* of the Oracle home. If you install the JDK under the Oracle home, you will encounter problems when you try to perform tasks in the future. Oracle Universal Installer validates that the Oracle home directory is empty; the install will not progress until you specify an empty directory. Oracle recommends that you locate your JDK installation in the `/uo1/oracle/products/jdk` directory. You can then use the `java -jar` command to run the installer JAR file.

Some products (such as Oracle HTTP Server and Oracle JDeveloper) are available as **platform-specific distributions**. Platform-specific distributions have a `.bin` (for UNIX operating systems) or `.exe` (for Windows operating systems) installer; in these cases, a platform-specific JDK is in the distribution and you do not need to install a JDK separately. However, you may need to upgrade this JDK to a more recent version, depending on the JDK versions that are certified.

Always verify the required JDK version by reviewing the certification information on the *Oracle Fusion Middleware Supported System Configurations* page.

To download the required JDK, navigate to the following URL and download the Java SE JDK:

http://www.oracle.com/technetwork/java/javase/downloads/index.html

2.2.5 Understanding Database Requirements for an Oracle Fusion Middleware Installation

Many Oracle Fusion Middleware products require database schemas prior to configuration. If you do not already have a database where you can install these schemas, you must install and configure a certified database.

To find a certified database for your operating system, see the certification document for your release on the *Oracle Fusion Middleware Supported System Configurations* page.

To make sure your database is properly configured for schema creation, see "Verifying Requirements for Oracle Repository Creation Utility" in the *Oracle Fusion Middleware System Requirements and Specifications* document.

Note:

For 12*c* (12.2.1), only a certified Oracle database can be used for the Oracle Fusion Middleware Infrastructure standard installation topology.

After your database is properly configured, you use the Repository Creation Utility (RCU) to create product schemas in your database. This tool is available in the Oracle home for your Oracle Fusion Middleware product. For more information about RCU, see *Creating Schemas with the Repository Creation Utility*.

2.3 About Product Distributions

You create the initial Oracle WebCenter Sites domain using the Oracle Fusion Middleware Infrastructure distribution, which contains both Oracle WebLogic Server software and Oracle Java Required Files (JRF) software.

Oracle JRF software consists of:

- Oracle Web Services Manager
- Oracle Application Development Framework (Oracle ADF)
- Oracle Enterprise Manager Fusion Middleware Control
- Repository Creation Utility (RCU)
- Other libraries and technologies required to support Oracle Fusion Middleware products

Distributions for Oracle Fusion Middleware Infrastructure and Oracle WebCenter Sites are available as `.jar` files. You must have a certified JDK installed on your system to install and configure the distribution.

Note:

For more information about distributions, see Understanding and Obtaining Product Distributions in *Planning an Installation of Oracle Fusion Middleware*.

3

Installing the Oracle WebCenter Sites Software

Follow the steps in this section to install the Oracle WebCenter Sites software.

Before beginning the installation, ensure that you have verified your system environment (Roadmap for Verifying Your System Environment) and have installed Oracle Fusion Middleware Infrastructure (*Installing and Configuring the Oracle Fusion Middleware Infrastructure*).

Installing and Configuring Oracle WebCenter Sites
: Topics in this section describe how to install Oracle WebCenter Sites and configure Oracle WebCenter Sites domains.

Verifying the Installation Checklist
: The installation process requires specific information from you.

Starting the Installation Program
: Before running the installation, you must verify the JDK and required software.

Navigating the Installation Screens
: The installation program shows a series of screens; see the following table for the order in which they appear.

Verifying the Installation
: After you complete the installation, verify it was successful by completing a series of tasks.

3.1 Verifying the Installation Checklist

The installation process requires specific information from you.

Table 3-1 lists important items that you must know before, or decide during, Oracle WebCenter Sites installation.

Table 3-1 Installation Checklist

Information	Example Value	Description
`JAVA_HOME`	`/home/Oracle/Java/jdk1.8.0_40`	Environment variable that points to the Java JDK home directory.
Database host	`examplehost.exampledomain`	Name and domain of the host where the database is running.

Table 3-1 (Cont.) Installation Checklist

Information	Example Value	Description
Database port	`1521`	Port number that the database listens on. The default Oracle database listen port is `1521`.
Database service name	`orcl`	Oracle databases require a unique service name. The default service name is `orcl`.
DBA username	`SYS`	Name of user with database administration privileges. The default DBA user on Oracle databases is `SYS`.
DBA password	`myDBApw957`	Password of the user with database administration privileges.
`ORACLE_HOME`	`/home/Oracle/product/ORACLE_HOME`	Directory in which you will install your software. This directory will include Oracle Fusion Middleware Infrastructure and Oracle WebCenter Sites, as needed.
WebLogic Server hostname	`examplehost.exampledomain.com`	Host name for Oracle WebLogic Server and Oracle WebCenter Sites consoles.
Console port	`7001`	Port for Oracle WebLogic Server and Oracle WebCenter Sites consoles.
`DOMAIN_HOME`	`/home/Oracle/config/domains/wcs_domain`	Location in which your domain data is stored.
`APPLICATION_HOME`	`/home/Oracle/config/applications/wcs_domain`	Location in which your application data is stored.
Administrator user name for your WebLogic domain	`weblogic`	Name of the user with Oracle WebLogic Server administration privileges. The default administrator user is `weblogic`.
Administrator user password	`myADMpw902`	Password of the user with Oracle WebLogic Server administration privileges.

Table 3-1 (Cont.) Installation Checklist

Information	Example Value	Description
RCU utility	*ORACLE_HOME*/oracle_common/bin	Path to the Repository Creation Utility (RCU).
RCU schema prefix	WCS	Prefix for names of database schemas used by Oracle WebCenter Sites.
RCU schema password	myRCUpw674	Password for the database schemas used by Oracle WebCenter Sites.
Configuration utility	*ORACLE_HOME*/oracle_common/common/bin	Path to the configuration wizard for domain creation and configuration.

3.2 Starting the Installation Program

Before running the installation, you must verify the JDK and required software.

To start the installation program:

1. Log in to the target system.
2. Verify that a certified JDK already exists on your system. The installer requires a certified JDK. See the appropriate certification document on the *Oracle Fusion Middleware Supported System Configurations* page.
3. Verify that you have installed all prerequisite software.
4. Go to the directory where you downloaded the installation program.
5. Launch the installation program by running the `java` executable from the JDK directory on your system:
   - On UNIX operating systems: `/home/Oracle/Java/jdk1.8.0_40/bin/java –jar fmw_12.2.1.0.0_wcsites_generic.jar`
   - On Windows operating systems: `C:\home\Oracle\Java\jdk1.8.0_40\bin\java -jar fmw_12.2.1.0.0_wcsites_generic.jar`

   Be sure to replace the JDK location in these examples with the actual JDK location on your system.

   Note:

   You can also launch the installer in silent mode to ensure that configuration options do not appear during the installation process. For more about silent or command line installation, see Using the Oracle Universal Installer in Silent Mode in *Installing Software with the Oracle Universal Installer*.

When the installation program appears, you are ready to begin the installation. See the next topic for a description of each installation program screen.

3.3 Navigating the Installation Screens

The installation program shows a series of screens; see the following table for the order in which they appear.

If you need additional help with an installation screen, click the screen name. You can also click **Help** on the installation screens for additional instructions.

Table 3-2 Oracle WebCenter Sites Install Screens

Screen	Description
Installation Inventory Setup	On UNIX operating systems, this screen opens if this is the first time you are installing any Oracle product on this host. Specify the location where you want to create your central inventory. Make sure that the operating system group name selected on this screen has write permissions to the central inventory location. For more about the central inventory, see "Understanding the Oracle Central Inventory" in *Installing Software with the Oracle Universal Installer*. This screen does not appear on Windows operating systems.
Welcome	This screen introduces you to the product installer.
Auto Updates	Use this screen to search for the latest software updates, including important security updates, via your My Oracle Support account.
Installation Location	Use this screen to specify your Oracle home directory location. This Oracle home should already contain Oracle Fusion Middleware Infrastructure. You can click **View** to verify and ensure that you are installing Oracle WebCenter Sites in the correct Oracle home. For more about Oracle Fusion Middleware directory structure, see "Selecting Directories for Installation and Configuration" in *Planning an Installation of Oracle Fusion Middleware*.
Installation Type	Choose the **WebCenter Sites** install option. If you want to install examples, choose **WebCenter Sites — With Examples**. To install Satellite Server *only*, choose **WebCenter Sites — Satellite Server**. All three options install Satellite Server.
Prerequisite Checks	Verifies that your system meets the minimum necessary requirements. To view the list of tasks that gets verified, select **View Successful Tasks**. To view log details, select **View Log**. If there are warning or error messages, see one of the documents in Roadmap for Verifying Your System Environment.

Table 3-2 (Cont.) Oracle WebCenter Sites Install Screens

Screen	Description
Installation Summary	Use this screen to verify installation options you selected. If you want to save these options to a response file, click **Save Response File** and enter the response file location and name. You can use response files later if you perform a silent installation. All feature sets that are installed after installation is complete are listed here. For more about silent or command line installation, see "Using the Oracle Universal Installer in Silent Mode" in *Installing Software with the Oracle Universal Installer*. Click **Install** to begin the installation.
Installation Progress	Shows the installation progress. When the progress bar reaches 100% complete, click **Finish** to dismiss the installer or click **Next** to see a summary.
Installation Complete	Review the summary information on this screen, then click **Finish** to dismiss the installer.

3.4 Verifying the Installation

After you complete the installation, verify it was successful by completing a series of tasks.

Reviewing the Installation Log Files
: Review the contents of the installation log files to make sure that the installer did not encounter any problems.

Checking the Directory Structure
: The contents of your installation vary based on the options you selected during the installation.

Viewing the Contents of the Oracle Home
: You can view the contents of the Oracle home using the `viewInventory` script.

3.4.1 Reviewing the Installation Log Files

Review the contents of the installation log files to make sure that the installer did not encounter any problems.

By default, the installer writes logs files to the `Oracle_Inventory_Location/logs` (on UNIX operating systems) or `Oracle_Inventory_Location\logs` (on Windows operating systems) directory.

For a description of the log files and where to find them, see Installation Log Files in *Installing Software with the Oracle Universal Installer*.

3.4.2 Checking the Directory Structure

The contents of your installation vary based on the options you selected during the installation.

For more information about the directory structure after installation, see What are the Key Oracle Fusion Middleware Directories? in *Understanding Oracle Fusion Middleware*.

3.4.3 Viewing the Contents of the Oracle Home

You can view the contents of the Oracle home using the `viewInventory` script.

For more information, see Viewing the Contents of an Oracle Home in *Installing Software with the Oracle Universal Installer*.

4

Configuring the WebCenter Sites Domain

After you have installed WebCenter Sites, you can configure the domain, which you can also extend for high availability.

The configuration steps presented here assume that you have completed the installation steps covered in:

- Preparing to Install and Configure Oracle WebCenter Sites
- Installing the Oracle WebCenter Sites Software

Refer to the following sections to create the database schemas, configure a WebLogic domain, and test the configuration:

Installing and Configuring Oracle WebCenter Sites
: Topics in this section describe how to install Oracle WebCenter Sites and configure Oracle WebCenter Sites domains.

Creating the Database Schemas
: Before you can configure an Oracle WebCenter Sites domain, you must install required schemas on a certified database for use with this release of Oracle Fusion Middleware.

Configuring the WebCenter Sites Domain
: Use the Configuration Wizard to create and configure a domain.

Starting the Servers
: After configuration is complete, you can use tools to manage your domain.

Verifying the Configuration
: After completing all configuration steps, you can perform steps to verify that your domain is properly configured.

4.1 Creating the Database Schemas

Before you can configure an Oracle WebCenter Sites domain, you must install required schemas on a certified database for use with this release of Oracle Fusion Middleware.

Follow the instructions in this section to install the schemas:

Installing and Configuring a Certified Database
You must verify that you installed and configured a certified database, and that the database is up and running.

Starting the Repository Creation Utility (RCU)
Starting RCU requires that your JDK environment variable is set correctly.

Navigating the RCU Screens to Create the Schemas
Use the RCU screens to create the database schemas.

4.1.1 Installing and Configuring a Certified Database

You must verify that you installed and configured a certified database, and that the database is up and running.

For more information, see Installing a Database and Database Schemas in *Planning an Installation of Oracle Fusion Middleware*.

4.1.2 Starting the Repository Creation Utility (RCU)

Starting RCU requires that your JDK environment variable is set correctly.

To start the Repository Creation Utility (RCU):

1. Navigate to the *`ORACLE_HOME`*`/oracle_common/bin` directory on your system.
2. Ensure that the *`JAVA_HOME`* environment variable is set to the location of a certified JDK on your system. The location should be up to but not including the `bin` directory. For example, if your JDK is located in `/home/Oracle/Java/`:

   On UNIX operating systems (in C shell):

   ```
   setenv JAVA_HOME /home/Oracle/Java/jdk1.8.0_40
   ```

   On Windows operating systems:

   ```
   set JAVA_HOME=C:\home\Oracle\Java\jdk1.8.0_40
   ```

   Be sure to replace the JDK location in these examples with the actual JDK location on your system.
3. Start RCU from the *`ORACLE_HOME`*`/oracle_common/bin` directory:

   On UNIX operating systems:

   ```
   ./rcu
   ```

   On Microsoft Windows operating systems:

   ```
   rcu.bat
   ```

4.1.3 Navigating the RCU Screens to Create the Schemas

Use the RCU screens to create the database schemas.

Introducing RCU
The Welcome screen is the first screen that appears when you start RCU.

Selecting a Method of Schema Creation
With SYSDBA permissions, you can perform database administration activities.

Providing Database Connection Details
Provide the database connection details for RCU to connect to your database.

Specifying a Custom Prefix and Selecting Schemas
The custom prefix logically groups together schemas together for use in this domain only; you must create a unique set of schemas for each domain. Schema sharing across domains is not supported.

Specifying Schema Passwords
Specify how you want to set the schema passwords on your database, then enter and confirm your passwords.

Completing Schema Creation
Navigate through the remaining RCU screens to complete schema creation.

4.1.3.1 Introducing RCU

The Welcome screen is the first screen that appears when you start RCU.

Click **Next**.

4.1.3.2 Selecting a Method of Schema Creation

With SYSDBA permissions, you can perform database administration activities.

If you have the necessary permission and privileges to perform DBA activities on your database, select **System Load and Product Load**. This procedure assumes that you have the necessary SYSDBA privileges.

If you do *not* have the necessary permission or privileges to perform DBA activities in the database, you must select **Prepare Scripts for System Load** on this screen. This option generates a SQL script that you can give to your database administrator. See Understanding System Load and Product Load in *Creating Schemas with the Repository Creation Utility*.

4.1.3.3 Providing Database Connection Details

Provide the database connection details for RCU to connect to your database.

Click **Next** to proceed, then click **OK** on the dialog window to confirm that connection to the database was successful.

4.1.3.4 Specifying a Custom Prefix and Selecting Schemas

The custom prefix logically groups together schemas together for use in this domain only; you must create a unique set of schemas for each domain. Schema sharing across domains is not supported.

Select **Create new prefix**, specify a custom prefix, then select **WebCenter Sites**. This action automatically selects the following schemas as dependencies:

- Oracle Platform Security Services

- Audit Services
- Audit Services Append
- Audit Services Viewer
- WebCenter Sites
- WebCenter Sites—Visitor Services

Tip:

You must make a note of the custom prefix you choose to enter here; you will need this later on during the domain creation process.

The Configuration Wizard also automatically creates the schema Common Infrastructure Services. This schema is grayed out; you cannot select or deselect it. This schema enables you to retrieve information from RCU during domain configuration. For more information, see Understanding the Service Table Schema in *Creating Schemas with the Repository Creation Utility*.

Tip:

For more information about custom prefixes, see Understanding Custom Prefixes in *Creating Schemas with the Repository Creation Utility*.

For more information about how to organize your schemas in a multi-domain environment, see Planning Your Schema Creation in *Creating Schemas with the Repository Creation Utility*.

Click **Next** to proceed, then click **OK** on the dialog window confirming that prerequisite checking for schema creation was successful.

4.1.3.5 Specifying Schema Passwords

Specify how you want to set the schema passwords on your database, then enter and confirm your passwords.

Tip:

You must make a note of the passwords you set on this screen; you will need them later on during the domain creation process.

4.1.3.6 Completing Schema Creation

Navigate through the remaining RCU screens to complete schema creation.

The Encrypt Tablespace check box appears on the **Map Tablespaces** screen *only* if you enabled TDE (Transparent Data Encryption) in the database (Oracle or Oracle EBR) when you start RCU. Select the **Encrypt Tablespace** check box on the Map Tablespaces screen if you want to encrypt all new tablespaces that RCU will create.

When you reach the Completion Summary screen, click **Close** to dismiss RCU.

4.2 Configuring the WebCenter Sites Domain

Use the Configuration Wizard to create and configure a domain.

For information on other methods to create domains, see Additional Tools for Creating, Extending, and Managing WebLogic Domains in *Creating WebLogic Domains Using the Configuration Wizard*.

Navigating the Configuration Wizard Screens to Create and Configure the Domain
Use the Configuration Wizard to create and configure the domain for the topology.

4.2.1 Navigating the Configuration Wizard Screens to Create and Configure the Domain

Use the Configuration Wizard to create and configure the domain for the topology.

Note:

You can use this procedure to extend an existing domain. If your needs do not match the instructions in the procedure, be sure to make your selections accordingly, or see the supporting documentation for more details.

The following sections step through the Configuration Wizard:

Starting the Configuration Wizard
Start the Configuration Wizard to begin configuring a domain.

Selecting the Domain Type and Domain Home Location (WebCenter Sites)
You must select a Domain home directory location, optimally outside the Oracle home directory.

Selecting the Configuration Templates for Oracle WebCenter Sites

Selecting the Application Home Location
: On the Application Location screen, select the location to store applications associated with your domain, also known as the *Application home* directory.

Configuring the Administrator Account
: Use the Administrator Account screen to specify the user name and password for the default WebLogic Administrator account for the domain.

Specifying the Domain Mode and JDK
: Use the Domain Mode and JDK screen to specify the domain mode and Java Development Kit (JDK).

Specifying the Database Configuration Type
: Use the Database Configuration type screen to specify details about the database and database schema.

Specifying JDBC Component Schema Information
: Use the JDBC Component Schema screen to verify or specify details about the database schemas.

Testing the JDBC Connections
: Use the JDBC Component Schema Test screen to test the data source connections.

Selecting Advanced Configuration
: Use the Advanced Configuration screen to complete the domain configuration.

Configuring the Administration Server Listen Address
: Use the Administration Server screen to select the IP address of the host.

Configuring Node Manager
: Use the Node Manager screen to select the type of Node Manager you want to configure, along with the Node Manager credentials.

Configuring Managed Servers for Oracle WebCenter Sites
: You configure Oracle WebCenter Sites components in a standalone domain. See the following topics to configure Managed Servers for Oracle WebCenter Sites.

Configuring a Cluster for WebCenter Sites

Assigning WebCenter Sites Managed Servers to the Cluster
: Use the Assign Servers to Clusters screen to assign Managed Servers to the new cluster.

Configuring Coherence Clusters
: Use the Coherence Clusters screen to configure the Coherence cluster.

Creating a New WebCenter Sites Machine
: Use the Machines screen to create new machines in the domain. A machine is required so that Node Manager can start and stop servers.

Assigning Servers to WebCenter Sites Machines
: Use the Assign Servers to Machines screen to assign the Administration Server and Managed Servers to the new machine you just created.

Reviewing Your Configuration Specifications and Configuring the Domain
: The Configuration Summary screen has detailed configuration information for the domain you are about to create.

Writing Down Your Domain Home and Administration Server URL
: The Configuration Success screen shows information about the domain you just configured.

4.2.1.1 Starting the Configuration Wizard

Start the Configuration Wizard to begin configuring a domain.

Navigate to the *ORACLE_HOME*`/oracle_common/common/bin` directory and start the WebLogic Server Configuration Wizard.

On UNIX operating systems:

```
./config.sh
```

On Microsoft Windows operating systems:

```
config.cmd
```

4.2.1.2 Selecting the Domain Type and Domain Home Location (WebCenter Sites)

You must select a Domain home directory location, optimally outside the Oracle home directory.

Oracle recommends that you locate your Domain home in accordance with the directory structure in What are the Key Oracle Fusion Middleware Directories? in *Understanding Oracle Fusion Middleware*, where the Domain home is located outside the Oracle home directory. This directory structure helps avoid issues when you need to upgrade or reinstall software.

To specify the Domain type and Domain home directory:

1. On the Configuration Type screen, select **Create a new domain**.
2. In the Domain Location field, specify your Domain home directory.

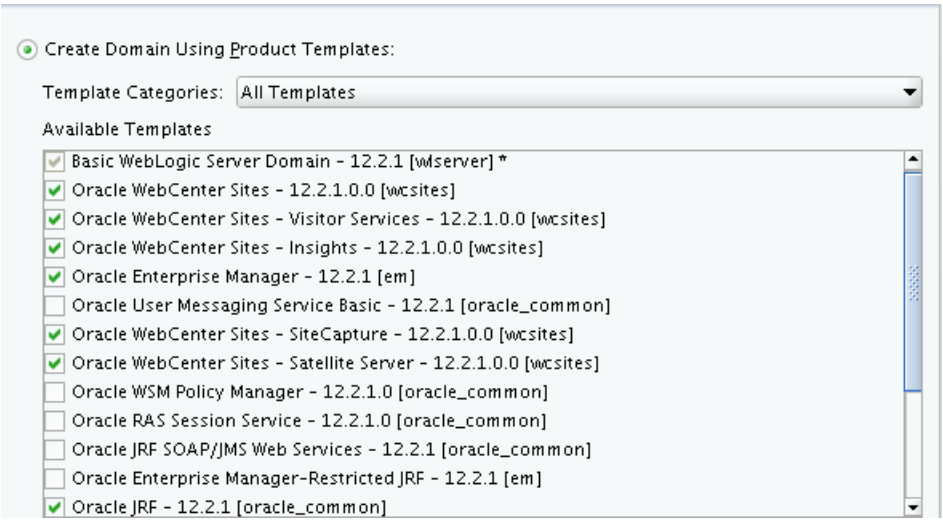
   If you change the default Domain Location path, you must edit the grant-opss-permission.sh so that it matches the domain path. If you do not make this change, the installation fails and generates an error. See Completing Prerequisites for Configuring WebCenter Sites.

For more about other options on this screen, see Configuration Type in *Creating WebLogic Domains Using the Configuration Wizard*.

4.2.1.3 Selecting the Configuration Templates for Oracle WebCenter Sites

On the Templates screen, make sure **Create Domain Using Product Templates** is selected, then select the following templates:

- Oracle WebCenter Sites - 12.2.1.0.0 [wcsites]
- Oracle WebCenter Sites - Visitor Services- 12.2.1.0.0 [wcsites]
- Oracle WebCenter Sites - Insights - 12.2.1.0.0 [wcsites]
- Oracle Enterprise Manager - 12.2.1.0 [em]
- Oracle WebCenter Sites - SiteCapture - 12.2.1.0.0 [wcsites]
- Oracle WebCenter Sites - Satellite Server - 12.2.1.0.0 [wcsites]
- Oracle JRF - 12.2.1.0 [oracle_common]
- WebLogic Coherence Cluster Extension - 12 2.1.0 [wlserver]



Tip:

See "Templates" in *Creating WebLogic Domains Using the Configuration Wizard* for more information about options on this screen.

4.2.1.4 Selecting the Application Home Location

On the Application Location screen, select the location to store applications associated with your domain, also known as the *Application home* directory.

Oracle recommends that you locate your Application home in accordance with the directory structure in What are the Key Oracle Fusion Middleware Directories? in *Understanding Oracle Fusion Middleware*, where the Application home is located outside the Oracle home directory. This directory structure helps avoid issues when you need to upgrade or re-install your software.

Tip:

For more about the Application home directory, see Choosing an Application Home in *Planning an Installation of Oracle Fusion Middleware*.

For more about options on this screen, see Application Location in *Creating WebLogic Domains Using the Configuration Wizard*.

4.2.1.5 Configuring the Administrator Account

Use the Administrator Account screen to specify the user name and password for the default WebLogic Administrator account for the domain.

Oracle recommends that you make a note of the user name and password that you enter on this screen; you need these credentials later to boot and connect to the domain's Administration Server.

4.2.1.6 Specifying the Domain Mode and JDK

Use the Domain Mode and JDK screen to specify the domain mode and Java Development Kit (JDK).

On the Domain Mode and JDK screen:

- Select **Production** in the Domain Mode field.
- Select the Oracle HotSpot JDK in the JDK field.

Tip:

For more about the options on this screen, see Domain Mode and JDK in *Creating WebLogic Domains Using the Configuration Wizard*.

4.2.1.7 Specifying the Database Configuration Type

Use the Database Configuration type screen to specify details about the database and database schema.

On the Database Configuration type screen, select **RCU Data**. This option instructs the Configuration Wizard to connect to the database and Service Table (STB) schema to automatically retrieve schema information for schemas needed to configure the domain.

Note:

If you select **Manual Configuration** on this screen, you must manually fill in parameters for your schema on the JDBC Component Schema screen.

After selecting **RCU Data**, fill in the following fields:

Field	Description
DBMS/Service	Enter the database DBMS name, or service name if you selected a service type driver. Example: `orcl.exampledomain.com`

Field	Description
Host Name	Enter the name of the server hosting the database. Example: `examplehost.exampledomain.com`
Port	Enter the port number on which the database listens. Example: `1521`
Schema Owner Schema Password	Enter the username and password for connecting to the database's Service Table schema. This is the schema username and password entered for the Service Table component on the "Schema Passwords" screen in RCU (see Specifying Schema Passwords). The default username is *`prefix`*`_STB`, where *`prefix`* is the custom prefix that you defined in RCU.

Click **Get RCU Configuration** when you finish specifying the database connection information. The following output in the Connection Result Log indicates that the operation succeeded:

```
Connecting to the database server...OK
Retrieving schema data from database server...OK
Binding local schema components with retrieved data...OK

Successfully Done.
```

Tip:

For more information about the **RCU Data** option, see Understanding the Service Table Schema in *Creating Schemas with the Repository Creation Utility*.

For more information about other options on this screen, see Datasource Defaults in *Creating WebLogic Domains Using the Configuration Wizard*.

4.2.1.8 Specifying JDBC Component Schema Information

Use the JDBC Component Schema screen to verify or specify details about the database schemas.

Verify that the values on the JDBC Component Schema screen are correct for all schemas. If you selected **RCU Data** on the previous screen, the schema table should already be populated appropriately.

Tip:

For high availability environments, see the following sections in *High Availability Guide* for additional information on configuring data sources for Oracle RAC databases:

- Configuring GridLink Data Sources with Oracle RAC
- Configuring Multi Data Sources

For more information about the other options on this screen, see JDBC Component Schema in *Creating WebLogic Domains Using the Configuration Wizard*.

4.2.1.9 Testing the JDBC Connections

Use the JDBC Component Schema Test screen to test the data source connections.

A green check mark in the Status column indicates a successful test. If you encounter any issues, see the error message in the Connection Result Log section of the screen, fix the problem, then try to test the connection again.

By default, the schema password for each schema component is the password you specified while creating your schemas. If you want different passwords for different schema components, manually edit them in the previous screen (JDBC Component Schema) by entering the password you want in the **Schema Password** column, against each row. After specifying the passwords, select the check box corresponding to the schemas that you changed the password in and test the connection again.

> **Tip:**
>
> See JDBC Component Schema Test in *Creating WebLogic Domains Using the Configuration Wizard* for more information about other options on this screen.

4.2.1.10 Selecting Advanced Configuration

Use the Advanced Configuration screen to complete the domain configuration.

On the Advanced Configuration screen, select:

- Administration Server

  Required to properly configure the listen address of the Administration Server.

- Node Manager

  Required to configure Node Manager.

- Managed Server, Clusters and Coherence

  Required to configure the WebCenter Sites Managed Server.

4.2.1.11 Configuring the Administration Server Listen Address

Use the Administration Server screen to select the IP address of the host.

On the Administration Server screen, select the drop-down list next to **Listen Address** and select the IP address of the host where the Administration Server will reside. Do not use `All Local Addresses`.

Do not specify any server groups for the Administration Server.

Use Mozilla Firefox to access Internet Protocol Version 6 (IPv6) URLs. You must enter the Global IPv6 address for creating a domain and accessing URLs. (You cannot use the local IPv6 address.)

4.2.1.12 Configuring Node Manager

Use the Node Manager screen to select the type of Node Manager you want to configure, along with the Node Manager credentials.

Select **Per Domain Default Location** as the Node Manager type, then specify Node Manager credentials.

Tip:

For more about options on this screen, see Node Manager in *Creating WebLogic Domains Using the Configuration Wizard*.

For more about Node Manager types, see Node Manager Overview in *Administering Node Manager for Oracle WebLogic Server*.

4.2.1.13 Configuring Managed Servers for Oracle WebCenter Sites

You configure Oracle WebCenter Sites components in a standalone domain. See the following topics to configure Managed Servers for Oracle WebCenter Sites.

Note: See Log File Location for Oracle Fusion Middleware Components in *Administering Oracle Fusion Middleware* for the log file location of Oracle WebCenter Sites components.

Configuring Managed Servers for WebCenter Sites

Configuring Managed Servers for Oracle WebCenter Sites: Site Capture
Use the Managed Servers screen to configure multiple Managed Servers.

Configuring Managed Servers for Oracle WebCenter Sites: Insights
Use this screen to configure multiple Managed Servers.

Configuring Managed Servers for Oracle WebCenter Sites: Satellite Server
Use this screen to configure a Managed Serves.

Configuring Managed Servers for Oracle WebCenter Sites: Visitor Services
Use this screen to configure Managed Servers.

4.2.1.13.1 Configuring Managed Servers for WebCenter Sites

On the Managed Servers screen, a new Managed Server named `wcs_server_1` is created:

1. In the Listen Address drop-down list, select the IP address of the host that the Managed Server will reside on or use the system name or DNS name that maps to a single IP address. Do not use "All Local Addresses."
2. Click Enable SSL to enable security.

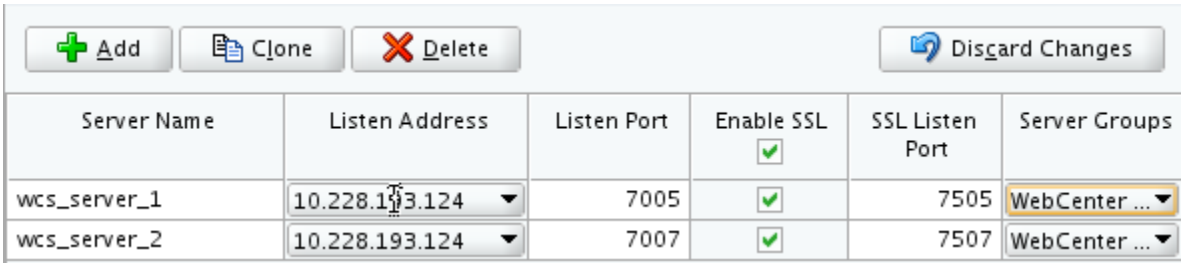
   The Server Group field has **WCSITES-MGD-SERVER** selected by default. **Server groups** target Fusion Middleware applications and services to one or more servers by mapping defined application service groups to each defined server group. A given application service group may be mapped to multiple server groups if needed. Any application services that map to a given server group are automatically targeted to all servers that are assigned to that group. For more information, see "Application Service Groups, Server Groups, and Application Service Mappings" in *Domain Template Reference*.
3. Click **Add** and repeat this process to create a second Managed Server named `wcs_server_2`. You must select the Server Group **WCSITES-MGD-SERVER** for additional Managed Servers that you add.

   Configuring a second Managed Server is one of the steps needed to configure the standard topology for high availability. If you are *not* creating a highly available environment, then this step is optional.

For more information about the high availability standard topology, see "Understanding the Fusion Middleware Standard HA Topology" in *High Availability Guide*.

For more information about the next steps to prepare for high availability after your domain is configured, see Preparing Your Environment for High Availability.

These server names and will be referenced throughout this document; if you choose different names be sure to replace them as needed.



Tip:

For more information about options on this screen, see "Managed Servers" in *Creating WebLogic Domains Using the Configuration Wizard*.

4.2.1.13.2 Configuring Managed Servers for Oracle WebCenter Sites: Site Capture

Use the Managed Servers screen to configure multiple Managed Servers.

On the Managed Servers screen, a new Managed Server named `sc_server_1` is created:

1. In the Listen Address drop-down list, select the IP address of the host that the Managed Server will reside on or use the system name or DNS name that maps to a single IP address. Do not use "All Local Addresses."
2. Click Enable SSL to enable security.
3. Leave the Server Groups settings as they appear; the Configuration Wizard assigns the correct server group automatically. A server group ensures that the correct services target Managed Servers you are creating.

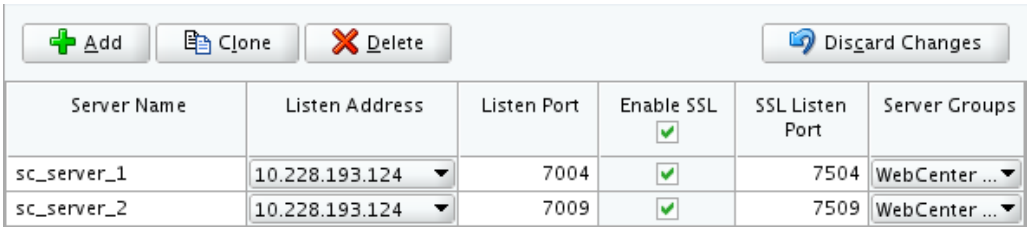
   Server groups target Fusion Middleware applications and services to one or more servers by mapping defined application service groups to each defined server group. An application service group may map to multiple server groups if needed. Any application services that map to a specific server group automatically target all servers assigned to that group. For more information, see "Application Service Groups, Server Groups, and Application Service Mappings" in *Domain Template Reference*.
4. Click **Add** and repeat this process to create a second Managed Server named `sc_server_2`. You must select the Server Group **SITECAPTURE-MGD-SVR** for additional Managed Servers that you add.

   Configuring a second Managed Server is one of the steps needed to configure the standard topology for high availability. If you are *not* creating a highly available environment, then this step is optional.

For more information about the high availability standard topology, see "Understanding the Fusion Middleware Standard HA Topology" in *High Availability Guide*.

For more information about the next steps to prepare for high availability after your domain is configured, see Preparing Your Environment for High Availability.

These server names are referenced throughout this document; if you choose different names be sure to replace them as needed.



Tip:

For more information about options on this screen, see "Managed Servers" in *Creating WebLogic Domains Using the Configuration Wizard*.

4.2.1.13.3 Configuring Managed Servers for Oracle WebCenter Sites: Insights

Use this screen to configure multiple Managed Servers.

On the Managed Servers screen, a new Managed Server named `ins_server_1` is created:

1. In the Listen Address drop-down list, select the IP address of the host that the Managed Server will reside on or use the system name or DNS name that maps to a single IP address. Do not use "All Local Addresses."
2. Click Enable SSL to enable security.
3. In the Server Groups drop-down list, select **INSIGHTS-MGD-SVR**. This server group ensures that WebCenter Sites and Oracle Web Services Manager (OWSM) services are targeted to the Managed Servers you are creating.

   There is another server group, **VS-MGD-SVR**, that targets only WebCenter Sites but not OWSM to the server. This is typically used if you want to have OWSM in a different server rather than with the WebCenter Sites server.

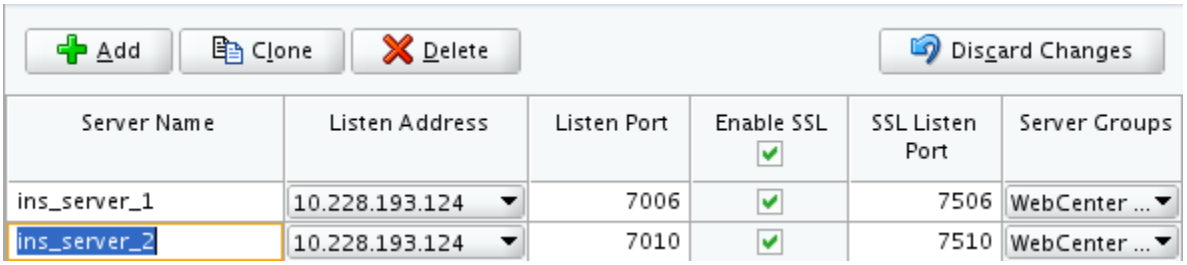
   Server groups target Fusion Middleware applications and services to one or more servers by mapping defined application service groups to each defined server group. A given application service group may be mapped to multiple server groups if needed. Any application services that map to a given server group are automatically targeted to all servers that are assigned to that group. For more information, see "Application Service Groups, Server Groups, and Application Service Mappings" in *Domain Template Reference*.
4. Click **Add** and repeat this process to create a second Managed Server named `ins_server_2`. You must select the Server Group **INSIGHTS-MGD-SVR** for additional Managed Servers that you add.

   Configuring a second Managed Server is one of the steps needed to configure the standard topology for high availability. If you are *not* creating a highly available environment, then this step is optional.

For more information about the high availability standard topology, see "Understanding the Fusion Middleware Standard HA Topology" in *High Availability Guide*.

For more information about the next steps to prepare for high availability after your domain is configured, see Preparing Your Environment for High Availability.

These server names and will be referenced throughout this document; if you choose different names be sure to replace them as needed.



Tip:

For more information about options on this screen, see "Managed Servers" in *Creating WebLogic Domains Using the Configuration Wizard*.

4.2.1.13.4 Configuring Managed Servers for Oracle WebCenter Sites: Satellite Server

Use this screen to configure a Managed Serves.

On the Managed Servers screen, a new Managed Server named`ss_server_1` is created:

1. In the Listen Address drop-down list, select the IP address of the host that the Managed Server will reside on or use the system name or DNS name that maps to a single IP address. Do not use "All Local Addresses."
2. Click Enable SSL to enable security.
3. In the Server Groups drop-down list, select **SATELLITE-MGD-SVR**. This server group ensures that Oracle WebCenter Sites: Satellite Server services target the Managed Server you are creating.

   Server groups target Fusion Middleware applications and services to one or more servers by mapping defined application service groups to each defined server group. A given application service group may be mapped to multiple server groups if needed. Any application services that map to a given server group are automatically targeted to all servers that are assigned to that group. For more information, see "Application Service Groups, Server Groups, and Application Service Mappings" in *Domain Template Reference*.

These server names and will be referenced throughout this document; if you choose different names be sure to replace them as needed.

Tip:

For more information about options on this screen, see "Managed Servers" in *Creating WebLogic Domains Using the Configuration Wizard*.

4.2.1.13.5 Configuring Managed Servers for Oracle WebCenter Sites: Visitor Services

Use this screen to configure Managed Servers.

On the Managed Servers screen, a new Managed Server named `vs_server_1` is created:

1. In the Listen Address drop-down list, select the IP address of the host that the Managed Server will reside on or use the system name or DNS name that maps to a single IP address. Do not use "All Local Addresses."
2. Click Enable SSL to enable security.
3. In the Server Groups drop-down list, select **VS-MGD-SVR**. This server group ensures that Oracle WebCenter Sites: Visitor Services and Oracle Web Services Manager (OWSM) services target the Managed Servers you are creating.

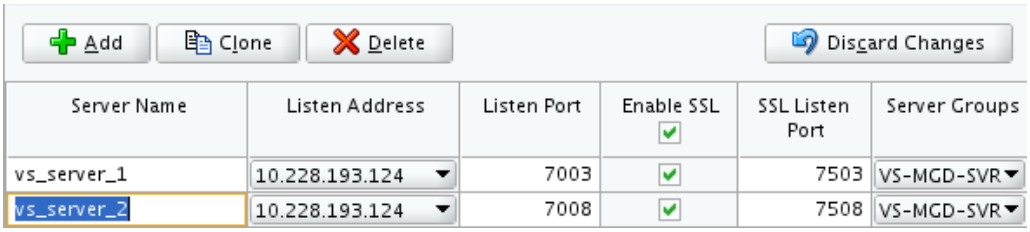
   Server groups target Fusion Middleware applications and services to one or more servers by mapping defined application service groups to each defined server group. A given application service group may be mapped to multiple server groups if needed. Any application services that map to a given server group are automatically targeted to all servers that are assigned to that group. For more information, see "Application Service Groups, Server Groups, and Application Service Mappings" in *Domain Template Reference*.
4. Click **Add** and repeat this process to create a second Managed Server named `vs_server_2` You must select the Server Group **VS-MGD-SVR** for additional Managed Servers that you add.

   Configuring a second Managed Server is one of the steps needed to configure the standard topology for high availability. If you are *not* creating a highly available environment, then this step is optional.

   For more information about the high availability standard topology, see "Understanding the Fusion Middleware Standard HA Topology" in *High Availability Guide*.

   For more information about the next steps to prepare for high availability after your domain is configured, see Preparing Your Environment for High Availability.

These server names and will be referenced throughout this document; if you choose different names be sure to replace them as needed.



Tip:

For more information about options on this screen, see "Managed Servers" in *Creating WebLogic Domains Using the Configuration Wizard*.

4.2.1.14 Configuring a Cluster for WebCenter Sites

Use the Clusters screen to create a new cluster:

1. Click **Add**.
2. Specify `wcs_cluster_1` in the Cluster Name field.
3. Leave the Cluster Address field blank.

Repeat the preceding steps to create `sc_cluster_1`, `ins_cluster_1` and `vs_cluster_1`.

By default, server instances in a cluster communicate with one another using unicast. If you want to change your cluster communications to use multicast, see "Considerations for Choosing Unicast or Multicast" in *Administering Clusters for Oracle WebLogic Server*.

You can also create clusters using Fusion Middleware Control. In this case, you can configure cluster communication (unicast or multicast) when you create the new cluster. For more information, see "Create and configure clusters" in *Oracle WebLogic Server Administration Console Online Help*.

Tip:

For more information about options on this screen, see "Clusters" in *Creating WebLogic Domains Using the Configuration Wizard*.

4.2.1.15 Assigning WebCenter Sites Managed Servers to the Cluster

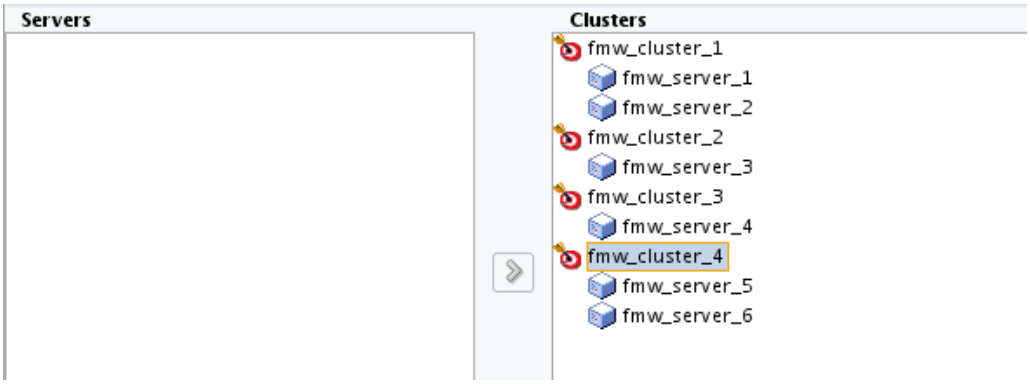
Use the Assign Servers to Clusters screen to assign Managed Servers to the new cluster.

On the Assign Servers to Clusters screen:

1. In the Clusters pane, select the cluster to which you want to assign the Managed Servers; in this case, `wcs_cluster_1`.
2. In the Servers pane, assign `wcs_server_1` to `wcs_cluster_1` by doing one of the following:
   - Click once on `wcs_server_1` to select it, then click on the right arrow to move it beneath the selected cluster (`wcs_cluster_1`) in the Clusters pane.
   - Double-click on `wcs_server_1` to move it beneath the selected cluster (`wcs_cluster_1`) in the Clusters pane.
3. Repeat to assign `wcs_server_2` to `wcs_cluster_1`.

The following image shows an example of the Clusters pane after Managed Servers are assigned to clusters.

Figure 4-1 Managed Servers Assigned to Clusters



Tip:

For more about options on this screen, see Assign Servers to Clusters in *Creating WebLogic Domains Using the Configuration Wizard*.

4.2.1.16 Configuring Coherence Clusters

Use the Coherence Clusters screen to configure the Coherence cluster.

Leave the default port number `0` as the Coherence cluster listen port. After configuration, the Coherence cluster is automatically added to the domain.

Note:

Setting the unicast listen port to `0` creates an offset for the Managed Server port numbers. The offset is `5000`, meaning the maximum allowed value that you can assign to a Managed Server port number is `60535`, instead of `65535`.

See Table 5-2 for more information and next steps for configuring Coherence.

Note:

For Coherence licensing information, see Oracle Coherence in *Licensing Information*.

4.2.1.17 Creating a New WebCenter Sites Machine

Use the Machines screen to create new machines in the domain. A machine is required so that Node Manager can start and stop servers.

Tip:

If you plan to create a high availability environment and know the list of machines your target topology requires, you can follow the instructions in this section to create all the machines at this time. For more information, see Optional Scale Out Procedure in *High Availability Guide*.

To create a new WebCenter Sites machine so that Node Manager can start and stop servers:

1. Select the Machine tab (for Windows) or the UNIX Machine tab (for UNIX), then click **Add** to create a new machine.
2. In the Name field, specify `wcs_machine_1`.
3. In the Node Manager Listen Address field, select the IP address of the machine in which the Managed Servers are being configured.

   You must select a specific interface and not `localhost`. This allows Coherence cluster addresses to be dynamically calculated.
4. Verify the port in the Node Manager Listen Port field.

Note:

If you are extending an existing domain, you can assign servers to any existing machine. It is not necessary to create a new machine unless your situation requires it.

Tip:

For more about the options on the screen, see Machines in *Creating WebLogic Domains Using the Configuration Wizard*.

4.2.1.18 Assigning Servers to WebCenter Sites Machines

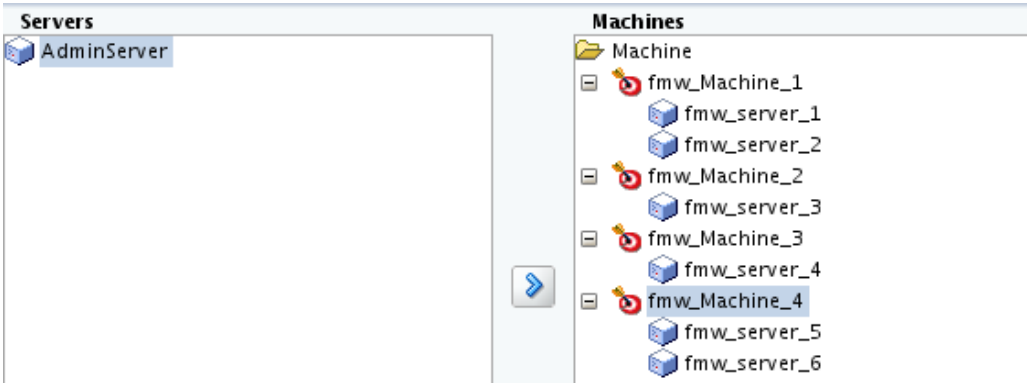
Use the Assign Servers to Machines screen to assign the Administration Server and Managed Servers to the new machine you just created.

On the Assign Servers to Machines screen:

1. In the Machines pane, select the machine to which you want to assign the servers; in this case, `wcs_machine_1`.
2. In the Servers pane, assign `AdminServer` to `wcs_machine_1` by doing one of the following:
   - Click once on `AdminServer` to select it, then click on the right arrow to move it beneath the selected machine (`wcs_machine_1`) in the Machines pane.
   - Double-click on `AdminServer` to move it beneath the selected machine (`wcs_machine_1`) in the Machines pane.
3. Repeat these steps to assign the remaining Managed Servers to their respective machines.

The following figure shows an example of the Machines pane after Managed Servers are assigned to machines.

Figure 4-2 Assign Managed Servers to Machines



Tip:

For more about options on this screen, see Assign Servers to Machines in *Creating WebLogic Domains Using the Configuration Wizard*.

4.2.1.19 Reviewing Your Configuration Specifications and Configuring the Domain

The Configuration Summary screen has detailed configuration information for the domain you are about to create.

Review each item on the screen and verify that the information is correct. To make any changes, go back to a screen by clicking the **Back** button or selecting the screen in the navigation pane. Domain creation does not start until you click **Create**.

Tip:

For more about options on this screen, see Configuration Summary in *Creating WebLogic Domains Using the Configuration Wizard*.

4.2.1.20 Writing Down Your Domain Home and Administration Server URL

The Configuration Success screen shows information about the domain you just configured.

Make a note of the following items because you need them later:

- Domain Location
- Administration Server URL

You need the domain location to access scripts that start Node Manager and Administration Server, and you need the URL to access the Administration Server.

Click **Finish** to dismiss the Configuration Wizard.

4.3 Starting the Servers

After configuration is complete, you can use tools to manage your domain.

Note:

For more information on additional tools you can use to manage your domain, see Overview of Oracle Fusion Middleware Administration Tools in *Administering Oracle Fusion Middleware*.

Follow the instructions in the following sections:

Starting the Node Manager

Starting the Administration Server

Starting the Managed Servers

4.3.1 Starting the Node Manager

To start your per-domain Node Manager, go to the *DOMAIN_HOME*/bin directory.

On UNIX operating systems, start the Node Manager as shown below, using nohup and nm.out as an example output file:

```
nohup ./startNodeManager.sh > $LOG_DIR/nm.out&
```

In this command, LOG_DIR is the location of directory in which you want to store the log files.

On Windows operating systems, run:

```
startNodeManager.cmd
```

Note:

On Windows operating systems, Oracle recommends that you configure Node Manager to run as a startup service. This allows Node Manager to start up automatically each time the system is restarted.

For more information, see Running Node Manager as a Startup Service in *Administering Node Manager for Oracle WebLogic Server*.

For more information about additional Node Manager configuration options, see *Administering Node Manager for Oracle WebLogic Server*.

4.3.2 Starting the Administration Server

To start the Administration Server, go to the *DOMAIN_HOME*/bin directory.

On UNIX operating systems, run:

```
./startWebLogic.sh
```

On Windows operating systems, run:

```
startWebLogic.cmd
```

If you selected **Production Mode** on the Domain Mode and JDK screen when you created the domain, you see a prompt for the Administrator user login credentials as provided on the Administrator Account screen.

Tip:

For more information about starting the Administration Server, see Starting and Stopping Administration Servers in *Administering Oracle Fusion Middleware*.

In production mode, a boot identity file can be created to bypass the need to provide a user name and password when starting the Administration Server. For more information, see Creating a Boot Identity File for an Administration Server in *Administering Server Startup and Shutdown for Oracle WebLogic Server*.

You can verify that the Administration Server is up and running by accessing the Administration Server Console. The URL is provided on the Configuration Success screen in Writing Down Your Domain Home and Administration Server URL (`http://administration_server_host:administration_server_port/console`). The default Administration Server port number is `7001`.

Note:

Make sure that the database hosting your product schemas is up and running and accessible by the Administration Server.

For more information about how to use the Administration Console, see Getting Started Using Oracle WebLogic Server Administration Console in *Administering Oracle Fusion Middleware*.

4.3.3 Starting the Managed Servers

To start the Managed Servers:

1. Log in to Oracle Fusion Middleware Control:

   `http://administration_server_host:administration_server_port/em`

   The Administration Server host and port number were in the URL on the Configuration Success screen (Writing Down Your Domain Home and Administration Server URL). The default Administration Server port number is `7001`.

   The login credentials were provided on the Administrator Account screen (Configuring the Administrator Account).

2. The Enterprise Manager landing page lists the servers configured for this domain and displays their status (such as **Running** or **Shutdown**). For a newly configured domain, only the **AdminServer(admin)** will be running.

3. Select the first Managed Server.

4. Next to the **WebLogic Server** menu, select **Start Up**.

5. Repeat Steps 3 and 4 to start all Managed Servers.

6. On the main landing page, verify that all the Managed Servers are up and running.

4.4 Verifying the Configuration

After completing all configuration steps, you can perform steps to verify that your domain is properly configured.

To verify that the domain is configured properly, see Performing Additional Domain Configuration Tasks.

5

Next Steps After Configuring the Domain

After configuring a product domain, there are additional tasks that you may want to perform.

Installing and Configuring Oracle WebCenter Sites
: Topics in this section describe how to install Oracle WebCenter Sites and configure Oracle WebCenter Sites domains.

Performing Basic Administrative Tasks
: After you configure your new domain, there are administration tasks that Oracle recommends you perform on the domain.

Performing Additional Domain Configuration Tasks
: Review additional configuration tasks you will likely want to perform on a new domain.

Preparing Your Environment for High Availability
: Scaling out for high availability requires additional steps.

5.1 Performing Basic Administrative Tasks

After you configure your new domain, there are administration tasks that Oracle recommends you perform on the domain.

The following table lists common administration tasks to perform on your new domain.

Table 5-1 Basic Administration Tasks for a New Domain

Task	Description	More Information
Getting familiar with Fusion Middleware administration tools	Get familiar with various tools that you can use to manage your environment.	See Overview of Oracle Fusion Middleware Administration Tools in *Administering Oracle Fusion Middleware*.
Starting and stopping products and servers	Learn how to start and stop Oracle Fusion Middleware, including the Administration Server, Managed Servers, and components.	See Starting and Stopping Oracle Fusion Middleware in *Administering Oracle Fusion Middleware*.
Configuring Secure Sockets Layer (SSL)	Learn how to set up secure communications between Oracle Fusion Middleware components using SSL.	See Configuring SSL in Oracle Fusion Middleware in *Administering Oracle Fusion Middleware*.
Monitoring Oracle Fusion Middleware	Learn how to keep track of the status of Oracle Fusion Middleware components.	See Monitoring Oracle Fusion Middleware in *Administering Oracle Fusion Middleware*.

Table 5-1 (Cont.) Basic Administration Tasks for a New Domain

Task	Description	More Information
Understanding Backup and Recovery Procedures	Learn recommended backup and recovery procedures for Oracle Fusion Middleware.	See Introducing Backup and Recovery in *Administering Oracle Fusion Middleware*.

Next Steps After Configuring the Domain

5.2 Performing Additional Domain Configuration Tasks

Review additional configuration tasks you will likely want to perform on a new domain.

Table 5-2 Additional Domain Configuration Tasks

Task	Description	More Information
Deploying Applications	Learn how to deploy your applications to Oracle Fusion Middleware.	See Deploying Applications in *Administering Oracle Fusion Middleware*.
Adding a Web Tier front-end to your domain	Oracle Web Tier hosts Web pages (static and dynamic), provides security and high performance along with built-in clustering, load balancing, and failover features. In particular, the Web Tier contains Oracle HTTP Server.	To install and configure Oracle HTTP Server in the WebLogic Server domain, see *Installing and Configuring Oracle HTTP Server*. See also Installing Multiple Products in the Same Domain in *Planning an Installation of Oracle Fusion Middleware* for important information.
Tuning and configuring Coherence for your topology	The standard installation topology includes a Coherence cluster that contains storage-enabled Managed Coherence Servers. This configuration is a good starting point for using Coherence, but depending upon your specific requirements, consider tuning and reconfiguring Coherence to improve performance in a production environment.	For more about Coherence clusters, see Configuring and Managing Coherence Clusters in *Administering Clusters for Oracle WebLogic Server*. For information on tuning Coherence, see *Administering Oracle Coherence*. For information on storing HTTP session data in Coherence, see Using Coherence*Web with WebLogic Server in *Administering HTTP Session Management with Oracle Coherence*Web*. For more about creating and deploying Coherence applications, see *Developing Oracle Coherence Applications for Oracle WebLogic Server*.

Next Steps After Configuring the Domain

5.3 Preparing Your Environment for High Availability

Scaling out for high availability requires additional steps.

Table 5-3 lists tasks to perform if you want to scale out your standard installation environment for high availability.

Table 5-3 Tasks Required to Prepare Your Environment for High Availability

Task	Description	More Information
Scaling out to multiple host computers	To enable high availability, it is important to provide failover capabilities to another host computer. That way, if one computer goes down, your environment can continue to serve consumers of your deployed applications.	See Scaling Out a Topology (Machine Scaleout) in *High Availability Guide*.
Configuring high availability for Web Tier components.	If you added a Web Tier front-end, you must configure it for high availability and the WebLogic Server software.	See Configuring High Availability for Web Tier Components in *High Availability Guide*.
Setting up a front-end load balancer	You can use a load balancer to distribute requests across servers more evenly.	See Server Load Balancing in a High Availability Environment and Configure Load Balancer in *High Availability Guide*.
Configuring Node Manager	Node Manager enables you to start, shut down, and restart the Administration Server and Managed Servers from a remote location. This document assumes you have configured a per-domain Node Manager. See Node Manager documentation for more on advanced Node Manager configuration options and features.	See *Administering Node Manager for Oracle WebLogic Server*.

Next Steps After Configuring the Domain

6

Deinstalling or Reinstalling Oracle WebCenter Sites

Follow the instructions in this section to deinstall or reinstall Oracle WebCenter Sites.

Oracle recommends that you always use the instructions in this section to remove the software. If you try to remove the software manually, you may encounter problems when you try to reinstall the software again at a later time. Following the procedures in this section ensures that the software is properly removed.

Installing and Configuring Oracle WebCenter Sites
: Topics in this section describe how to install Oracle WebCenter Sites and configure Oracle WebCenter Sites domains.

Understanding Product Deinstallation
: The Oracle Fusion Middleware deinstaller removes the software from the Oracle home directory.

Stopping Oracle Fusion Middleware
: Before running the deinstaller, Oracle recommends that you stop all servers and processes associated with the Oracle home you are going to remove.

Removing Your Database Schemas
: Before you remove the Oracle home, Oracle recommends that you run Repository Creation Utility (RCU) to remove database schemas associated with this domain.

Deinstalling the Software
: Follow the instructions in this section to start the product deinstaller and remove the software.

Removing the Oracle Home Directory Manually
: After deinstalling the software, you must manually remove your Oracle home directory and any existing sub-directories that the deinstaller did not remove.

Removing the Program Shortcuts on Windows Operating Systems
: On Windows operating systems, you must also manually remove the program shortcuts; the deinstaller does not remove them for you.

Removing the Domain and Application Data
: After deinstalling the software, you must remove the domain and application data.

Reinstalling the Software
: You can reinstall your software into the same Oracle home as a previous installation only if you deinstalled the software by following the

instructions in this section, including manually removing the Oracle home directory.

6.1 Understanding Product Deinstallation

The Oracle Fusion Middleware deinstaller removes the software from the Oracle home directory.

The following table summarizes the deinstallation procedure and links to supporting documentation.

Table 6-1 Roadmap for Product Deinstallation

Task	Description	Documentation
Stop Oracle Fusion Middleware	All servers and processes in your domain should be stopped before running the deinstaller.	See Stopping Oracle Fusion Middleware.
Remove your database schemas	Run Repository Creation Utility to remove your database schemas.	See Removing Your Database Schemas.
Remove the software	Run the product deinstaller to remove Oracle Fusion Middleware Infrastructure. Note that if your Oracle home contains multiple products, you must run the deinstaller multiple times, once for each product.	See Deinstalling the Software.
Remove the Oracle home directory	The deinstaller does not remove all files and folders from the Oracle home directory. After the deinstaller is finished, you must manually remove the Oracle home to complete your product removal.	See Removing the Oracle Home Directory Manually.
Remove your domain and application data	The deinstaller does not remove data contained in your Domain home or Application home directories, even if they are located inside the Oracle home. You must remove these directories manually.	See Removing the Domain and Application Data.

6.2 Stopping Oracle Fusion Middleware

Before running the deinstaller, Oracle recommends that you stop all servers and processes associated with the Oracle home you are going to remove.

For more information, see Stopping an Oracle Fusion Middleware Environment in *Administering Oracle Fusion Middleware*.

6.3 Removing Your Database Schemas

Before you remove the Oracle home, Oracle recommends that you run Repository Creation Utility (RCU) to remove database schemas associated with this domain.

Each domain has its own set of schemas, uniquely identified by a custom prefix (see Understanding Custom Prefixes in *Creating Schemas with the Repository Creation Utility*).

This set of schemas cannot be shared with any other domain (see Planning Your Schema Creation in *Creating Schemas with the Repository Creation Utility*).

If there are multiple sets of schemas on your database, be sure to identify the schema prefix associated with the domain you are removing.

For schema removal steps, see Dropping Schemas in *Creating Schemas with the Repository Creation Utility*.

6.4 Deinstalling the Software

Follow the instructions in this section to start the product deinstaller and remove the software.

If you want to perform a silent (command-line) deinstallation, see Running the Oracle Universal Installer for Silent Deinstallation in *Installing Software with the Oracle Universal Installer*.

Starting the Deinstallation Program
: You can start the deinstaller on either Unix or Windows.

Selecting the Product to Deinstall
: Because multiple products exist in the Oracle home, ensure that you are deinstalling the correct Oracle home.

Navigating the Deinstallation Screens
: The deinstaller shows a series of screens to confirm the deinstallation of the software.

6.4.1 Starting the Deinstallation Program

You can start the deinstaller on either Unix or Windows.

To start the deinstaller:

- **On Unix**

  Go to the *ORACLE_HOME*`/oui/bin` directory and enter the following command:

  ```
  ./deinstall.sh
  ```

- **On Windows**

  Do one of the following:

  – Use a file manager window to go to the *ORACLE_HOME*`\oui\bin` directory and double click on `deinstall.cmd`.

  – From the command line, go to the *ORACLE_HOME*`\oui\bin` and enter the following command:

  ```
  deinstall.cmd
  ```

  – From the **Start** menu, select **All Programs**, then select **Oracle**, then select **OracleHome**, and then select **Uninstall Oracle Middleware**.

6.4.2 Selecting the Product to Deinstall

Because multiple products exist in the Oracle home, ensure that you are deinstalling the correct Oracle home.

After you run the deinstaller, the Distribution to Uninstall screen opens. From the drop-down list, select **Select What Variable for Deinstallation?** and click **Uninstall**. The deinstallation program shows the screens listed in Navigating the Deinstallation Screens.

Note:

You can deinstall Oracle Fusion Middleware Infrastructure after you deinstall Oracle WebCenter Sites software by running the deinstallation wizard again. You will not encounter the Distribution to Deinstall screen if no other software depends on Oracle Fusion Middleware Infrastructure.

6.4.3 Navigating the Deinstallation Screens

The deinstaller shows a series of screens to confirm the deinstallation of the software.

If you need more help with a deinstallation screen listed in Table 6-2, click **Help** on the screen.

Table 6-2 Deinstallation Screens and Descriptions

Screen	Description
Welcome	This screen introduces you to the product deinstaller.
Deinstallation Summary	This screen shows the Oracle home directory and its contents that will be deinstalled. Verify that this is the correct directory. If you want to save these options to a response file, click **Save Response File** and enter the response file location and name. You can use response file later during a silent deinstallation. For more on silent or command line deinstallation, see Running the Oracle Universal Installer for Silent Deinstallation in *Installing Software with the Oracle Universal Installer*. Click **Deinstall** to begin removing the software.
Deinstallation Progress	Shows the deinstallation progress.
Deinstallation Complete	This screen appears when the deinstallation is complete. Review the information on this screen, then click **Finish** to dismiss the deinstaller.

6.5 Removing the Oracle Home Directory Manually

After deinstalling the software, you must manually remove your Oracle home directory and any existing sub-directories that the deinstaller did not remove.

For example, if your Oracle home directory was `/home/Oracle/product/ORACLE_HOME` on a UNIX operating system:

```
cd /home/Oracle/product
rm -rf ORACLE_HOME
```

On a Windows operating system, if your Oracle home directory was `C:\Oracle\Product\ORACLE_HOME`, use a file manager window and navigate to the `C:\Oracle\Product` directory, then right-click on the *`ORACLE_HOME`* folder and select **Delete**.

6.6 Removing the Program Shortcuts on Windows Operating Systems

On Windows operating systems, you must also manually remove the program shortcuts; the deinstaller does not remove them for you.

Go to the `C:\Program Data\Microsoft\Windows\Start Menu\Programs\Oracle\Oracle Home\Product` directory. If you only have one product installed in your Oracle home, you can remove the *`Oracle Home`* directory. If you have multiple products installed in your Oracle home, you must remove all products before removing the *`Oracle Home`*.

6.7 Removing the Domain and Application Data

After deinstalling the software, you must remove the domain and application data.

Follow these steps:

1. Manually remove your Domain home directory.

   For example, if your Domain home directory was `/home/Oracle/config/domains/wcs_domain` on a UNIX operating system:

   ```
   cd /home/Oracle/config/domains
   rm -rf wcs_domain
   ```

   On a Windows operating system, if your Domain home directory was `C:\Oracle\Config\domains\wcs_domain`, use a file manager window and navigate to the `C:\Oracle\Config\domains` directory, then right-click on the `wcs_domain` folder and select **Delete**.

2. Manually remove your Application home directory.

   For example, if your Application home directory was `/home/Oracle/config/applications/wcs_domain` on a UNIX operating system:

   ```
   cd /home/Oracle/config/applications
   rm -rf wcs_domain
   ```

   On a Windows operating system, if your Application home directory was `C:\Oracle\Config\applications\wcs_domain`, use a file manager window and navigate to the `C:\Oracle\Config\applications` directory, then right-click on the `wcs_domain` folder and select **Delete**.

3. Backup the `domain_registry.xml` file in your Oracle home, then edit the file and remove the line associated with the domain you are removing. For example, to remove the `wcs_domain`, find the following line and remove it:

   ```
   <domain location="/home/Oracle/config/domains/wcs_domain"/>
   ```

   Save and exit the file when you are finished.

6.8 Reinstalling the Software

You can reinstall your software into the same Oracle home as a previous installation only if you deinstalled the software by following the instructions in this section, including manually removing the Oracle home directory.

When you reinstall, you can then specify the same Oracle home as your previous installation.

Consider the following cases where the Oracle home is not empty:

- Installing in an existing Oracle home that contains the same feature sets.

  The installer warns you that the Oracle home you specified during installation already contains the same software you are trying to install.

  – Select a different Oracle home directory.

- Installing in an existing, non-empty Oracle home.

  For example, suppose that you chose to create your Domain home or Application home somewhere inside your existing Oracle home. This data is not removed during the deinstallation process, so if you try to reinstall into the same Oracle home, the installer does not allow it. Your options are to:

  1. Deinstall your software from the Oracle home (as this section describes) and then remove the Oracle home directory. After this is complete, you can reinstall and reuse the same Oracle home location. Any domain or application data that was in the Oracle home must be re-created.

  2. Select a different Oracle home directory.

Part II

Configuring WebCenter Sites Components

After you install and configure Oracle WebCenter Sites, you need to configure its component applications. See the topics in this section to configure component applications.

Creating a WebCenter Sites Web Tier
: After you configure a domain, you set up Oracle Web Tier or a third-party web tier.

Configuring WebCenter Sites
: After you configure the Oracle WebCenter Sites Managed Servers, you can configure a WebCenter Sites instance by completing the browser-based WebCenter Sites Configurator. WebCenter Sites runtime consists of WebCenter Sites and CAS web applications (WAR files) and the following components shared across cluster members: a `config` directory, a `data` directory, and a database instance.

Configuring Site Capture
: After you configure Oracle WebCenter Sites: Site Capture Managed Servers, you can configure Site Capture with the Site Capture Configurator. You can also integrate Site Capture with the WebCenter Sites publishing process.

Configuring Insights and Supporting Software
: This section describes how to configure Oracle WebCenter Sites: Insights, including its supporting software — Kafka, HBase, and Endeca. Insights runtime consists of an Insights web application (WAR file) and a `config` directory shared across cluster members.

Configuring Visitor Services
: After you set up the Oracle WebCenter Sites: Visitor Services Managed Servers, you can configure Visitor Services with the browser-based Visitor Services Configurator. Visitor Services runtime consists of `visitors-webapp` applications (WAR files), a `config` directory, a database instance, sample bundle code, providers, and a visitors client.

Configuring Satellite Server
: After you set up a WebLogic domain for Oracle WebCenter Sites: Satellite Server, you can run the Satellite Server Configurator to complete the configuration process.

Switching to External Authentication
: For maximum security in production environments, Oracle recommends integrating Oracle WebCenter Sites with Oracle Access Management, for an advanced identity management solution and a seamless single sign-

on user experience. You also have the option of integrating WebCenter Sites with an external LDAP authentication provider directory.

Setting Up a CAS Cluster

You can set up a Central Authentication Server (CAS) cluster in the same WebLogic domain as Oracle WebCenter Sites, in a different WebLogic domain on the same machine, or for high availability, in a different WebLogic domain on a different machine.

Setting Up a Cluster

For high availability, you can set up a WebCenter Sites cluster in a WebLogic domain with a primary cluster node on one machine and one or more secondary cluster nodes on the same or different machines. The first WebCenter Sites Managed Server you create is the primary node, and any additional WebCenter Sites Managed Servers in the same domain are secondary nodes.

Moving the Shared File System to a Database

WebCenter Sites can leverage a database to store its shared file system using the Java Nonblocking I/O (NIO) API. This eliminates the need for a network file share in a clustered environment and allows file locking to be handled by a Coherence cache. Out of the box, WebCenter Sites defaults to a disk-based shared file system (local or network). To move the shared file system to a database, complete the steps in this topic. Steps for reverting the process are also provided.

Switching from Test Mode to Production Mode

After you install and configure an Oracle WebCenter Sites domain in a Fusion Middleware test environment, you can switch WebCenter Sites (and its component applications) to an equivalent production environment.

7

Creating a WebCenter Sites Web Tier

After you configure a domain, you set up Oracle Web Tier or a third-party web tier.

For Oracle Web Tier, see *Installing and Configuring Oracle HTTP Server* or *Installation Guide* for instructions to do these tasks:

1. Install Oracle HTTP Server (OHS) or Oracle Traffic Director (OTD) in the same Oracle home as WebCenter Sites, or in a different domain.
2. Run the Configuration Wizard again to configure OHS or OTD to add it to (extend) the WebCenter Sites domain, or to create a standalone OHS or OTD domain.
3. Configure the mod_wls web server plug-in, which routes requests to Managed Servers.

For a third-party web server, see the documentation for the web server.

Configuring WebCenter Sites Components
After you install and configure Oracle WebCenter Sites, you need to configure its component applications. See the topics in this section to configure component applications.

8

Configuring WebCenter Sites

After you configure the Oracle WebCenter Sites Managed Servers, you can configure a WebCenter Sites instance by completing the browser-based WebCenter Sites Configurator. WebCenter Sites runtime consists of WebCenter Sites and CAS web applications (WAR files) and the following components shared across cluster members: a `config` directory, a `data` directory, and a database instance.

The following topics describe how to configure WebCenter Sites:

Configuring WebCenter Sites Components
: After you install and configure Oracle WebCenter Sites, you need to configure its component applications. See the topics in this section to configure component applications.

Completing Prerequisites for Configuring WebCenter Sites
: Several prerequisite tasks must be done before you use the WebCenter Sites Configurator. These tasks include granting permissions for OPSS access, modifying cache files, creating database schemas, configuring a WebCenter Sites domain, and setting property values for your environment.

Configuring WebCenter Sites with the Configurator
: The WebCenter Sites Configurator populates the database with tables and data necessary for WebCenter Sites to function. The Configurator also creates the necessary user accounts and sets the required permissions on the database objects.

Configuring and Deploying the REST-avisports Sample Site
: REST-avisports is a sample website that demonstrates client-side website development using the WebCenter Sites Aggregate REST API.

8.1 Completing Prerequisites for Configuring WebCenter Sites

Several prerequisite tasks must be done before you use the WebCenter Sites Configurator. These tasks include granting permissions for OPSS access, modifying cache files, creating database schemas, configuring a WebCenter Sites domain, and setting property values for your environment.

Before configuring WebCenter Sites, make sure these prerequisite tasks are done:

1. Grant read, write, and delete permissions for accessing the Oracle Platform Security Services credential store to *`ORACLE_HOME`*`/wcsites/wcsites_common/lib/sites-security.jar` by executing the following script.

   - On UNIX operating systems:

     `DOMAIN_HOME``/wcsites/bin/grant-opss-permission.sh`

- On Windows operating systems:

  DOMAIN_HOME\wcsites\bin\grant-opss-permission.bat

Use the WebLogic Server Administrator user name and password, when prompted by the script.

If a domain home other than the default (*ORACLE_HOME*/user_projects/domains/*domain_name*) was specified in the Fusion Middleware Configuration Wizard, make sure `grant-opss-permission.sh` or `grant-opss-permission.bat` contains the specified domain name before running it. If necessary, edit the file and update the domain name.

2. In the WebCenter Sites `config` directory, modify the files `cs-cache.xml`, `ss-cache.xml`, `linked-cache.xml`, and `cas-cache.xml` as follows:

   a. Locate the following section:

   ```
   <cacheManagerPeerProviderFactory
   class="net.sf.ehcache.distribution.RMICacheManagerPeerProviderFac
   tory" properties="peerDiscovery=automatic,
   multicastGroupAddress=230.0.0.0, multicastGroupPort=4444,
   timeToLive=0" />
   ```

   b. Change the value of the `peerDiscovery` property to manual.

   c. Save and close the file.

   d. Start the WebCenter Sites Managed Server.

3. Use the Repository Creation Utility (RCU) to create database schemas for WebCenter Sites, as Creating the Database Schemas describes.

4. Use the Fusion Middleware Configuration Wizard with the `Oracle WebCenter Sites - 12.2.1.0.0` template to create a new domain and configure one or more WebCenter Sites Managed Servers, as Configuring the WebCenter Sites Domain describes.

Note: For IBM DB2 WebCenter Sites does not support the default data source created by the Fusion Middleware Configuration Wizard. To create new data source with a driver that DB2 supports:

a. Add the IBM DB2 Driver JAR files to the class path for the WebCenter Sites domain:

   i. Stop the WebLogic Server Administration Server.

   ii. Copy the `db2jcc.jar` and `db2jcc_license_cu.jar` files from DB2 to a location that you can add to the domain class path.

   iii. Edit *`DOMAIN_HOME`*`/bin/setDomainEnv.sh` and add the following line after `# ADD EXTENSIONS TO CLASSPATHS`:

   ```
   PRE_CLASSPATH="path_to_db2jcc.jar:path_to_db2jcc_license_cu.jar:${PRE_CLASSPATH}"
   ```

   iv. Start the Administration Server.

b. Create a new data source using the preceding DB2 driver. For more information, see Specifying JDBC Component Schema Information.

8.2 Configuring WebCenter Sites with the Configurator

The WebCenter Sites Configurator populates the database with tables and data necessary for WebCenter Sites to function. The Configurator also creates the necessary user accounts and sets the required permissions on the database objects.

Note:

If you are configuring WebCenter Sites over a slow network, increase the setting of the `StuckThreadMaxTime` property to 1000 seconds per thread before starting the WebCenter Sites Configurator. The default value is 600 seconds.

In certain environments that potentially have network-related issues, the sample sites import process could take more than 600 seconds per thread during the WebCenter Sites configuration setup process. This can cause the import process or install to fail, and multiple exceptions in the log file. Oracle recommends increasing the setting to 1000 seconds to complete a successful installation of the sample sites.

To change the value of `StuckThreadMaxTime`, in the WebLogic Server Administration Console for the domain, go to **Servers -> wcsites_server1 -> Configuration -> Tuning**.

To run the browser-based WebCenter Sites Configurator after the corresponding WebLogic domain has been successfully set up:

1. (Optional) To run the Configurator in silent mode:

   a. Edit the *`DOMAIN_HOME`*`/wcsites/wcsites/config/wcs_properties_bootstrap.ini` file, and complete the inline instructions.

   b. Start the WebCenter Sites Managed Server.

c. Initiate the WebCenter Sites configuration process with the following command:

- On UNIX operating systems: xdg-open http://*sites-host*:*sites-port*/sites/sitesconfig
- On Windows operating systems: start http://*sites-host*:*sites-port*/sites/sitesconfig

2. To configure WebCenter Sites over a web server, increase the web server `timeout` value to `300 sec` before starting the WebCenter Sites configuration.

3. (Optional) Set the values of the following properties as appropriate for your environment, using the Property Management Tool in the Admin interface. Set these properties for a cluster that uses the NIO database-based file system. If you would like files stored in locations other than the default (individual folders under *`DOMAIN_HOME`*`/wcsites/wcsites/config`), specify the locations as property values because they cannot be changed once WebCenter Sites is up and running.

`xcelerate.transformpath`	Directory where Microsoft Word files are stored before WebCenter Sites transforms those files into assets.
`cs.pgcachefolder`	Deprecated. Only set if instructed to do so by Oracle Support.
`cs.xmlfolder`	Working directory for HTML rendering.
`cs.pgexportfolder`	Base export directory for the HTML files that are created when assets are published with the Export to Disk delivery type.
`vis.path`	Directory where WebCenter Sites is installed. You must include the trailing slash.
`mwb.path`	Directory where WebCenter Sites is installed. You must include the trailing slash.
`contentserver.installation.folder`	Directory where WebCenter Sites is installed. You must include the trailing slash. Applies to installations in which Satellite Server and WebCenter Sites are running in the same web application and must therefore share the user's session. Specifying this enables Satellite Server to access WebCenter Sites resources.
`cs.csdtfolder`	Directory where WebCenter Sites Developer Tools imports are stored.

For more information on the preceding properties, see *Property Files Reference for Oracle WebCenter Sites*.

4. Start the Managed Server for the WebCenter Sites primary cluster node.

5. In a web browser, access this URL: `http://`*`sites-host`*`:`*`sites-port`*`/sites/sitesconfigsetup`.

6. On the WebCenter Sites Configurator screen, click **Begin**.

7. On the Database Parameters screen, specify the **JNDI Datasource name** for the WebCenter Sites database repository This must be the repository you created using the Repository Creation Utility while setting up the WebLogic domain.
8. On the Web Application Parameters screen, select Yes if you are installing over a secure connection, leave all the parameters at their default (prepopulated) values, and click **Next**.
9. On the CAS Deployment Information screen, leave all parameters at their default (prepopulated) values and click **Next**. If using a cluster and a front-end web server for load balancing, adjust these values as appropriate for your environment.
10. On the WebCenter Sites Administrator Accounts screen, specify the credentials you want, and then click **Next**.
11. (Optional) If you chose the **WebCenter Sites with Examples** installation option when installing WebCenter Sites, the Sample Sites screen appears. On this screen, select the desired sample sites and click **Next**.
12. On the Configuration Summary screen, click **Test** and verify that all tests are successful. Then click **Start** and wait for the configuration process to complete.
13. Restart the Managed Server for the WebCenter Sites application.
14. Verify that WebCenter Sites is up and running by accessing the following URL in a web browser and logging in: `http://sites-host:sites-port/sites`.

> **Note:** The default location for `cas.log` is *`DOMAIN_HOME`*`/servers/wcsites_server1/logs/`.

To get XMLPost and Bulkloader up and running, set the following directories in the `CLASSPATH` environment variable:

```
ORACLE_HOME\wcsites\webcentersites\cas-home\lib\*
ORACLE_HOME\oracle_common\modules\clients\*
```

For information about how to configure additional cluster nodes, see Setting Up a Cluster.

For information about how to configure an external LDAP authentication provider, see Switching to Authentication Against an LDAP Directory.

For information about how to configure Oracle Access Manager integration, see Switching to Authentication Against Oracle Access Manager.

For information about how to use the WebCenter Sites Configuration Import/Export Utility, see Using the Property Management Tool in *Property Files Reference for Oracle WebCenter Sites*.

> **Note:** Because changes you make to a WAR file are not retained during redeployment, WAR file changes need to be copied over after each redeployment of the web applications. It is generally recommended to deploy the static artifacts such as images and stylesheet files onto the web server.

8.3 Configuring and Deploying the REST-avisports Sample Site

REST-avisports is a sample website that demonstrates client-side website development using the WebCenter Sites Aggregate REST API.

Before you configure and deploy the REST-avisports Sample Site, make sure these tasks are done:

- Install WebCenter Sites with **avisports** sample site.
- Start the WebCenter Sites Managed Servers and verify that they are running successfully.

To configure and deploy the REST-avisports Sample Site:

1. Locate the `sites-restavisports.war` file in the *`ORACLE_HOME`*`/wcsites/webcentersites/sites-home` directory.
2. Extract this WAR file.
3. Edit the `js/appconfig.js` file and provide this WebCenter Sites information:
   a. `SITES_HOST_NAME = `*`sites-host`*
   b. `SITES_PORT = `*`sites-port`* (for example: `7003`)
   c. `SITES_CONTEXT = sites context-root` (for example, `sites`)
4. The `sites-restavisports.war` can be deployed on any of the following servers:
   a. On a separate managed server that is available in the same domain as WebCenter Sites.
   b. On a dedicated Domain Server or an Application Server. A typical client-side website follow this setup.

When WebCenter Sites is running, you can access the REST-avisports sample site at this URL:

`http://<restavisports-host-name>:<restavisports-deployed-port>/<restavisports-app-context-path>`

9

Configuring Site Capture

After you configure Oracle WebCenter Sites: Site Capture Managed Servers, you can configure Site Capture with the Site Capture Configurator. You can also integrate Site Capture with the WebCenter Sites publishing process.

The following topics describe how to complete the configuration of Site Capture:

Configuring WebCenter Sites Components
: After you install and configure Oracle WebCenter Sites, you need to configure its component applications. See the topics in this section to configure component applications.

Configuring Site Capture with the Configurator
: The Site Capture Configurator provides instructions to configure Sites Capture in interactive or silent mode, after you complete the prerequisite tasks.

Integrating Site Capture with the WebCenter Sites Publishing Process
: The completion of a RealTime publishing session can trigger Site Capture if it is integrated with the WebCenter Sites publishing process. The following procedure integrates the WebCenter Sites publishing system to communicate with your installed Site Capture application.

9.1 Configuring Site Capture with the Configurator

The Site Capture Configurator provides instructions to configure Sites Capture in interactive or silent mode, after you complete the prerequisite tasks.

Before configuring Site Capture, ensure that the following prerequisites have been done:

- Create the necessary database schemas using the Repository Creation Utility, as Creating the Database Schemas describes
- Deploy at least one fully functional instance of WebCenter Sites.
- Create Managed Servers for Site Capture using the WebLogic Configuration Wizard and the `Oracle WebCenter Sites – Site Capture – 12.2.1.0.0` template.

  For instructions, see Configuring the WebCenter Sites Domain.
- If you have not already done so for the WebCenter Sites domain, grant read, write, and delete permissions for accessing the Oracle Platform Security Services credential store to *`ORACLE_HOME`*`/wcsites/wcsites_common/lib/sites-security.jar` by executing the following script:

  – On UNIX operating systems:

DOMAIN_HOME/wcsites/bin/grant-opss-permission.sh

– On Windows operating systems:

DOMAIN_HOME\wcsites\bin\grant-opss-permission.bat

Use the WebLogic Server Administrator user name and password, when prompted by the script.

You can start the Site Capture Configurator from the command line and run it in either interactive mode or silent mode to configure Site Capture. The Configurator provides configuration instructions.

Running the Site Capture Configurator in Interactive Mode

To run the Configurator in interactive mode, do these steps:

1. Using the command line, navigate to the *ORACLE_HOME*/wcsites/sitecapture/ directory.
2. Run the Site Capture Configurator: `java -jar sites-sitecapture-configurator.jar -configPath` *DOMAIN_HOME*`/wcsites/sitecapture/config`.
3. Follow the instructions displayed in the Configurator.
4. If the client is running Site Capture in an HTTPS environment, set the `cookie-secure` flag to `true` in `weblogic.xml`.
5. Start the Managed Server hosting this Site Capture instance.

Running the Site Capture Configurator in Silent Mode

To run the Configurator in silent mode, do these steps:

1. Edit the *DOMAIN_HOME*`/wcsites/sitecapture/config/wcs_sitecapture_properties_bootstrap.ini` file and complete the instructions.
2. Use the command line to change to the *ORACLE_HOME*`/wcsites/sitecapture/`. directory.
3. Execute `java -jar sites-sitecapture-configurator.jar -silent` *DOMAIN_HOME*`/wcsites/sitecapture/config`.
4. Start the Site Capture Managed Server.

Completing the Configuration of Site Capture

1. Log in to WebCenter Sites.
2. Access the Admin interface, click the **Admin** Tab, and navigate to **System Tools** and then **Property Management Tool**.
3. Edit the `valid.urls` property, which accepts a comma-separated URLs. For Site Capture, add `http://sitecapture-host:sitecapture-Port/__admin/*`.
4. Start the WebCenter Sites Managed Server.

Completing Site Capture Cluster Configuration

For cluster configuration, the Site Capture configuration directory must be shared across all the nodes in the cluster. The *DOMAIN_HOME*/wcsites/sitecapture directory from the primary node must be mounted and shared across all other nodes in the cluster. It should be a single copy of a folder used by all the nodes. This directory includes the config and crawler directories.

Note: If the *DOMAIN_HOME*/wcsites/sitecapture/config/wcs_sitecapture_properties_bootstrap.ini file was manually edited to change the WebCenter Sites password (oracle.wcsites.app.password) to a nonencrypted clear-text value, then the oracle.wcsites.sitecapture.password.replace value must be set to true.

For more information about configuring Site Capture, see Using the Site Capture Application in *Administering Oracle WebCenter Sites*.

Note: Because changes you make to a WAR file are not retained during redeployment, WAR file changes need to be copied over after each redeployment of the web applications. It is generally recommended to deploy the static artifacts such as images and stylesheet files onto the web server.

9.2 Integrating Site Capture with the WebCenter Sites Publishing Process

The completion of a RealTime publishing session can trigger Site Capture if it is integrated with the WebCenter Sites publishing process. The following procedure integrates the WebCenter Sites publishing system to communicate with your installed Site Capture application.

To integrate Site Capture with the WebCenter Sites publishing process, do the following steps after you install and configure the Site Capture application:

1. On the WebCenter Sites source system, go to the FW_PublishingEventRegistry table and change the blocking value from N to Y for the listener com.fatwire.cs.crawler.RemoteElementInvokingPublishingEventListener.
2. On the WebCenter Sites target system, do these steps:
   a. Click the **Admin** tab, and navigate to **System Tools** and then **Property Management**.
   b. Search by category for "Sitecapture".
   c. Edit the following four properties, and update the values as follows:
      - sitecapture.url: Specify one of the following values:
        – For a single-server installation, specify the URL of the Site Capture application:

          sc.url=http://*site-capture-host*:*site-capture-port*/__admin

        – For a clustered installation, specify the URL of the load balancer:

```
sc.url=http://load-balancer-host:load-balancer-port/__admin
```

- `sitecapture.cas.url=http://`*`cas-host`*`:`*`cas-port`*`/cas`: Specify the CAS application that is pointed to by the Site Capture application.
- `sitecapture.cs.username=`*`Rest-Admin-User`*: Specify the user name of the WebCenter Sites general Administrator exactly as it was specified during the Site Capture installation and configuration process.
- `sitecapture.cs.password=`*`Password`*: Specify the Administrator user's password exactly as it was specified during the Site Capture installation and configuration process.

10

Configuring Insights and Supporting Software

This section describes how to configure Oracle WebCenter Sites: Insights, including its supporting software — Kafka, HBase, and Endeca. Insights runtime consists of an Insights web application (WAR file) and a `config` directory shared across cluster members.

The following topics provide details about the supporting software and how to configure Insights:

Configuring WebCenter Sites Components
: After you install and configure Oracle WebCenter Sites, you need to configure its component applications. See the topics in this section to configure component applications.

Software Components Required by Insights
: Oracle WebCenter Sites: Insights relies on supporting software components, which you need to install and configure before Insights.

Configuring Insights
: You can configure Insights for your environment and test your configuration.

10.1 Software Components Required by Insights

Oracle WebCenter Sites: Insights relies on supporting software components, which you need to install and configure before Insights.

Before you deployInsights, install and configure the following software:

- Apache Kafka 0.8.2.1 (with Zookeeper) — the messaging queue (data buffer) service for Insights

  Raw data collected by Insights is put into the Kafka message queue. Insights then pulls raw data from the queue; enriches it with visitor metadata like country, browser, and operating system; and writes it to the enriched data queue. Finally, Insights pulls the enriched data and writes it to HBase for permanent storage.

- HBase 0.98.6-hadoop2 or CDH 5.2.0 (with Zookeeper) — the data store for enriched Insights data

- Oracle Endeca Server 7.6

- (Optional) Oracle Endeca Information Discovery 3.1(with Zookeeper) — the report generation tool.

  A data loader configured within Insights pulls specific ranges of data from HBase and loads them into Endeca to generate reports.

- Zookeeper – a standalone instance that Insights can use for managing properties

> **Note:** Kafka, Endeca, and HBase are third-party products not distributed as part of Insights. You must obtain them from their respective vendors. Do not run any combination of Kafka, Endeca, and HBase on the same server because their zookeeper ports would conflict with one another. Run each service on a separate server instance (recommended) or change the zookeeper ports (not recommended).

10.2 Configuring Insights

You can configure Insights for your environment and test your configuration.

Before configuring Insights, you must satisfy the following prerequisites:

- Install and configure Apache Kafka 0.8.2.1 and HBase 0.98.6-hadoop2.
- Install and configure at least one fully functional instance of WebCenter Sites.
- In the WebCenter Sites domain, configure the Insights Managed Servers, using the WebLogic Configuration Wizard and the "Oracle WebCenter Sites — Insights — 12.2.1.0.0" template, as Configuring the WebCenter Sites Domain describes.

  For Insights, the product home directory is *ORACLE_HOME*`/wcsites/insights` (*WCS_INSIGHTS_HOME*), and the configuration directory is *DOMAIN_HOME*`/wcsites/insights/config` (*WCS_INSIGHTS_CONFIG*).

- If you have not already done so for the WebCenter Sites domain, grant read, write, and delete permissions for accessing the Oracle Platform Security Services credential store to *ORACLE_HOME*`/wcsites/wcsites_common/lib/sites-security.jar` by executing the following script:

  – On UNIX operating systems:

  ```
  DOMAIN_HOME/wcsites/bin/grant-opss-permission.sh
  ```

  – On Windows operating systems:

  ```
  DOMAIN_HOME\wcsites\bin\grant-opss-permission.bat
  ```

  Use the WebLogic Server Administrator user name and password, when prompted by the script.

- Install and configure third-party supporting software for Insights, which Software Components Required by Insights describes.

To configure Insights:

1. In the *ORACLE_HOME*`/wcsites/insights/bin` directory, update the following properties in the `config.properties` file with values appropriate for your environment.

`destination`	Full path to the Insights `config` directory. By default, this is *DOMAIN_HOME*`/wcsites/insights/config`.

`server.zookeeper.connect`	Host name and client port number of the standalone Zookeeper instance in the *`hostname`*`:`*`client-port`* format. If no standalone Zookeeper instance has been configured, set this to the same value as `kafka.zookeeper.connect`.
`kafka.zookeeper.connect`	Host name and client port number of Zookeeper for the target Kafka instance in the *`hostname`*`:`*`client-port`* format.
`metadata.broker.list`	Host name and metadata broker port number of the target Kafka instance in the *`kafka-hostname`*`:`*`broker-port`* format.
`hbase.zookeeper.quorum`	Host name of the target Zookeeper instance.
`hbase.zookeeper.property.clientPort`	Port number on which the target Zookeeper instance is listening for connections.
`vs.uri`	(Optional) URI of the target Visitor Services instance. Configure this property to enable the enrichment of impression data with visitor data from Visitor Services.
`cors.allowOrigin`	Host name(s) and port number(s) (in *`hostname`*`:`*`port`* format, comma-delimited) from which cross-domain resource requests will be accepted. Specifying a wildcard (`*`) as the value disables the CORS filter.
`zookeeper.overwrite`	(Optional) Specifies whether the existing Zookeeper node configuration will be overwritten on startup. Accepts `true` or `false`.

(Optional) If you plan to load visitor impression data from HBase directly into Endeca without utilizing a data loader, also configure the following Endeca properties.

`endeca.hostname`	Host name of the target Endeca instance (not needed if already set as part of Endeca's SSL configuration described earlier).
`endeca.port`	Port number on which the target Endeca instance is listening for connections.
`endeca.datadomain`	Name of the target Endeca data domain.
`endeca.context`	Context of the target Endeca server instance.

2. Run the configuration utility: `java -jar insights-configtool.jar config.properties`.
3. Start Insights:
   a. Make sure Hbase or CDH is up and running.
   b. Start Kafka server.
   c. the Insights Managed Server.

      After the Insights Managed Server is in a Running state, access the URL`http://`*`insights-server-host-name`*`:`*`insights-port/`*

`insights/`, which should display a message, `"Insights Web Service Application!"`.

To check whether Insights is running, you can use `logger name='oracle.wcsites.insights.consumer.hbase'` set to `logger level='TRACE:32'` in `insights-logging.xml`, as the following example shows:

```
<logger name='oracle.wcsites.insights.consumer.hbase' level='TRACE:32'
useParentHandlers='false'>
```

Then try to access `http://`*`insights-server-host-name`*`:`*`insights-port`*`/insights/rest/tracker` and check for the Insights log *`DOMAIN_HOME`*`/servers/`*`insights-server`*`/logs/`. You should see a log printing `[oracle.wcsites.insights.consumer.hbase]`.

Note: If the Insights Managed Server fails to start, increase the maximum number of processes available to the user (`max user processes`) in the operating system running on the physical machine hosting Insights, and try again.

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4. Test the configuration by accessing the following URL in a web browser: `http://`*`insights-host`*`:`*`port`*`/insights/`. The "Insights Web Service Application" message confirms that Insights is running.
5. Configure WebCenter Sites to enable Insights integration:
   a. Log on to the WebCenter Sites Admin interface.
   b. Using the Property Management tool, set the following in `config.properties`:
      - `insights.enable` to `true`
      - `insights.zookeeper.connect` to the same value as `server.zookeeper.connect`
      - `insights.datacaptureurl` to `http://`*`insights-host`*`:`*`insights-port`*`/insights`
      - `insights.asset.management.enabled` to `true`
6. If your WebCenter Sites page previews are not getting tracked, make sure you have `AddAnlyticsImgtag` in your templates used for previewing your pages; for example: `<render:callelement elementname="insights/AddInsightsImgTag" args="c,cid,d,site,recid"/>`.

Note: Only users with the `analytics` role can access reports and other Insights-related configuration. Reports get data from Endeca, so if you can't see your reports, make sure you have a loader configured for your site. A loader can be scheduled to load data from Hbase periodically or all at once. For more information, see Configuring the Data Loader in *Administering Oracle WebCenter Sites*.

For more information about configuring Insights, see Developing Insights in *Developing with Oracle WebCenter Sites*.

Note: Because changes you make to a WAR file are not retained during redeployment, WAR file changes need to be copied over after each redeployment of the web applications. It is generally recommended to deploy the static artifacts such as images and stylesheet files onto the web server.

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11

Configuring Visitor Services

After you set up the Oracle WebCenter Sites: Visitor Services Managed Servers, you can configure Visitor Services with the browser-based Visitor Services Configurator. Visitor Services runtime consists of `visitors-webapp` applications (WAR files), a `config` directory, a database instance, sample bundle code, providers, and a visitors client.

The following topics describe configuring Visitor Services:

Configuring WebCenter Sites Components
: After you install and configure Oracle WebCenter Sites, you need to configure its component applications. See the topics in this section to configure component applications.

Completing Prerequisites for Configuring Visitor Services
: Before configuring Visitor Services, make sure the prerequisite tasks are done.

Configuring Visitor Services with the Configurator
: The Visitor Services Configurator supports silent mode and interactive mode.

Getting the Visitor ID
: The Oracle WebCenter Sites: Visitor Services `OAMIdentityProvider` is supported for Oracle Access Manager 11.1.2.2.0 and 11.1.2.3.0.

Completing the Visitor Services Cluster Configuration
: Visitor Services is a completely stateless web application, so there is no need for session replication or session management at the cluster level. Cluster configuration of Visitor Services mainly involves taking care of configuration data.

11.1 Completing Prerequisites for Configuring Visitor Services

Before configuring Visitor Services, make sure the prerequisite tasks are done.

To complete the prerequisites for configuring Visitor Services:

1. Create a WebCenter Sites – Visitor Services database schema with the Repository Creation Utility, as Creating the Database Schemas describes.
2. Create a WebCenter Sites – Visitor Services database schema with the Repository Creation Utility, as Creating the Database Schemas describes.
3. Create Managed Servers for Visitor Services using the WebLogic Configuration Wizard and the `Oracle WebCenter Sites Visitor Services – 12.2.1.0.0` template, asConfiguring the WebCenter Sites Domain describes.

Note: For IBM DB2 Visitor Services does not support the default data source created by the Fusion Middleware Configuration Wizard. To create new data source with a driver that DB2 supports:

a. Add the IBM DB2 Driver JAR files to the class path for the WebLogic domain.

   i. Stop the WebLogic Server Administration Server.

   ii. Copy the `db2jcc.jar` and `db2jcc_license_cu.jar` files from DB2 to a location that you can add to the domain class path.

   iii. Edit *`DOMAIN_HOME`*`/bin/setDomainEnv.sh` and add the following line after `# ADD EXTENSIONS TO CLASSPATHS`:

   ```
   PRE_CLASSPATH="path_to_db2jcc.jar:path_to_db2jcc_license_cu.jar:${PRE_CLASSPATH}"
   ```

   iv. Start the Administration Server.

b. Create a new data source using the preceding DB2 driver. For more information, see Specifying JDBC Component Schema Information.

4. Run security configuration if this was not already run for other components (for example, WebCenter Sites). If Visitor Services is configured in the same WebLogic domain as WebCenter Sites, ignore this step.

   Grant read, write, and delete permissions for accessing the Oracle Platform Security Services credential store to *`ORACLE_HOME`*`/wcsites/wcsites_common/lib/sites-security.jar` by executing the following script.

   - On UNIX operating systems:

     `DOMAIN_HOME``/wcsites/bin/grant-opss-permission.sh`

   - On Windows operating systems:

     `DOMAIN_HOME``\wcsites\bin\grant-opss-permission.bat`

   Use the WebLogic Server Administrator user name and password, when prompted by the script.

11.2 Configuring Visitor Services with the Configurator

The Visitor Services Configurator supports silent mode and interactive mode.

To configure Visitor Services in silent mode:

1. Edit the *`DOMAIN_HOME`*`/wcsites/visitorservices/config/wcs_svs_properties_bootstrap.properties` file and update it with Oracle WebCenter Sites: Visitor Services details.

   If Java Messaging Service (JMS) needs to be configured, update the JMS details; otherwise, keep `visitors.jms_service_in_use=false`.

2. Start the Visitor Services Managed Server.

Complete the bootstrap process of Visitor Services using this URL: `http://visitorservices-server:visitorservices-port/visitorservices-webcontext/bss`

3. Restart the Visitor Services Managed Server.

To configure Visitor Services in interactive mode:

1. Start the Visitor Services Managed Server.
2. In a web browser, access the Visitor Services Configurator at the following URL: `http://visitorservices-host:visitorservices-port/visitors-webapp/bootstrapconfig`
3. On the Visitor Services Configurator screen that appears, click **Begin**.
4. On the screen that appears, complete the Sites Web Application Parameters section as the following table shows.

Host name or IP address	Host name or IP address of the target WebCenter Sites instance.
Port number	Port number of the target WebCenter Sites instance.
Application context root	Context root of the target WebCenter Sites instance.
Secure connection?	If your environment is set up for SSL connectivity, select **Yes**; otherwise, select **No**.
Site name	Name of the target WebCenter Sites site.
Username	Name of the Administrator user account for the target WebCenter Sites instance.
Password	Password of the Administrator user account for the target WebCenter Sites instance.
Re-enter the Password	Confirm the password entered in the previous field.

5. Complete the Visitor Services Parameters section as follows:

Data Source JNDI Name	Full name of the Visitor Services data source. If you have used the Repository Creation Utility to create the Visitor Services data repository, this is automatically pre-populated.
Have you configured JMS resources?	If you want to integrate Visitor Services with Java Messaging Service, select **Yes**; otherwise, select **No**.
JMS connection factory JNDI name	Full name of the Java Messaging Service connection factory.
JMS enrichment queue JNDI name	Full name of the Java Messaging Service enrichment queue.

JMS profile update queue JNDI name	Full name of the Java Messaging Service profile update queue.
JMS Transaction support	Select **Yes** to enable Java Messaging Service transaction support; otherwise, select **No**.
JMS Persistence support	Select **Yes** to enable Java Messaging Service persistence support; otherwise, select **No**.

6. Click **Test** to test connectivity with the WebCenter Sites instance.
7. When the connectivity test succeeds, click **OK** to initiate the configuration process and wait for the confirmation screen to appear.
8. In the confirmation screen, you **must** click **Close** to commit your configuration; if you do not click **Close**, your configuration will be lost.
9. Restart the Visitor Services Managed Server.
10. Log in to the WebCenter Sites Admin interface.
11. Configure a Visitor Services Administrator user name and password in the WebCenter Sites Property Management Tool:
    a. Select the **Admin** interface icon.
    b. In the **Admin** tree, expand **System Tools**, and then double-click **Property Management**.
    c. Edit the `wcsites.visitors.admin.user` and `wcsites.visitors.admin.password` properties to set the user name and password.
12. Restart the WebCenter Sites Managed Server.
13. Create and enable an identity provider to use with Visitor Services. An identity provider authenticates site visitors to Visitor Services. Visitor Services ships with an Oracle Access Manager identity provider for integration with Oracle Access Manager.
14. (Optional) Create and enable an access provider to use with Visitor Services. An access provider authenticates REST calls made between Visitor Services and WebCenter Sites. Oracle recommends using an access provider to maintain a secure connection between Visitor Services and WebCenter Sites. Visitor Services ships with a basic LDAP access provider for authentication against an LDAP directory.

    You also need to set the following properties:

    - `wcsites.visitors.auth.password`
    - `visitors.rest.authalias`
    - `visitors.rest.authtype`
    - `visitors.rest.authheader`
    - `wcsites.visitors.auth.user`
15. Create and enable one or more profile providers. A profile provider allows the association of a visitor identity with a visitor profile. Visitor Services ships with an

Eloqua profile provider for integration with the Eloqua Cloud Marketing Service, and an Oracle Access Manager profile provider for integration with Oracle Access Manager.

16. Create an aggregation template. An aggregation template determines what data, based on visitor profiles, is returned to the site visitors.

    For more information, see Developing WebCenter Sites: Visitor Services in *Developing with Oracle WebCenter Sites*.

17. Restart the WebCenter Sites and Visitor Services Managed Servers.

11.3 Getting the Visitor ID

The Oracle WebCenter Sites: Visitor Services `OAMIdentityProvider` is supported for Oracle Access Manager 11.1.2.2.0 and 11.1.2.3.0.

For information about installing Oracle Access Manager, see the *Oracle Identity and Access Management Installation Guide*.

To get the `visitorId` value using `OAMIdentityProvider`:

1. Log in to WebCenter Sites at `http://`*`site-host`*`:`*`site-port`*`/sites/`.
2. Select **AdminSite**, Select the **Admin** interface icon, and click **Hide Left Hand Navigation**, **Admin**, and then **Identity Providers List**.
3. Upload the `identity-provider-oam.jar` file located under *`ORACLE_HOME`*`/wcsites/visitorservices/providers/identity-providers/`, with appropriate configuration data in the configuration field.
4. Copy the configuration located under *`ORACLE_HOME`*`/wcsites/visitorservices/providersConfig/identity-provider-oam/identity-provider-oam.properties`.
5. Click `Profile Provider List`.
6. Make sure that the User Identity Store is configured for User profiles in Oracle Access Manager. (For User Identity Store configuration, see the *Oracle Identity and Access Management Installation Guide*.
7. Upload the `profile-provider-ldap.jar` file with the name `UserIdentityStore1` located under *`ORACLE_HOME`*`/wcsites/visitorservices/providers/profile-providers/` with appropriate configuration data in the configuration field.
8. Copy the configuration located under *`ORACLE_HOME`*`/wcsites/visitorservices/providersConfig/profile-provider-ldap/profile-provider-ldap.properties`.
9. The `get visitorId for user ex` test belongs to the Oracle Access Manager embedded LDAP using the following URL in a REST client:

   `http://`*`OHS-host`*`:`*`OHS-port/visitor-services-context`*`/rest/v1/visitor/getId`

   Add the headers `content-type` and`application/x-www-form-urlencoded`, and provide the request body:

   ```
   request={
   "parameters":"{}",
   ```

```
"headers":"{}",
"cookies":"[{}]"
"header":"{\"oam_identity_domain\":\"UserIdentityStore1\",\"oam_remote_user\":
\"test\"}"
}
```

To get the `visitorId` value using `SampleIdentityProvider`:

1. Log in to WebCenter Sites at `http://`*`sites-host`*`:`*`sites-port`*`/sites/`
2. Select **AdminSite**, Select the **Admin** interface icon, and click **Hide Left Hand Navigation**, **Admin**, and then **Identity Providers List**.
3. Upload the `identity-provider-oam.jar` file located under *`ORACLE_HOME`*`/wcsites/visitorservices/providers/identity-providers/`, with appropriate configuration data in the configuration field.
4. Copy the configuration located under *`ORACLE_HOME`*`/wcsites/visitorservices/providersConfig/identity-provider-sample/identity-provider-sample.properties`.
5. Click `Profile Provider List`. (Make sure that Oracle Internet Directory or another LDAP authentication provider is installed and configured.
6. Upload the `profile-provider-ldap.jar` file located under *`ORACLE_HOME`*`/wcsites/visitorservices/providersConfig/profile-provider-ldap/profile-provider-ldap.properties`.
7. Copy the configuration located under *`ORACLE_HOME`*`/wcsites/visitorservices/providersConfig/profile-provider-ldap/profile-provider-ldap.properties`.
8. The `get visitorId for user` test belongs to the Oracle Internet Directory LDAP using the following URL in a REST client:

   `http://`*`visitorservices-host`*`:`*`visitorservices-port`*`/`*`visitorservices-context`*`/rest/v1/visitor/getId`

   Add the headers `content-type` and`application/x-www-form-urlencoded`, and provide the request body:

   ```
   request={
   "parameters":"{\"external_id\":[\"ssoid1\"]}",
   "headers":"{}",
   "cookies":"[{}]"
   "header":"{}"
   }
   ```

11.4 Completing the Visitor Services Cluster Configuration

Visitor Services is a completely stateless web application, so there is no need for session replication or session management at the cluster level. Cluster configuration of Visitor Services mainly involves taking care of configuration data.

After the first node (primary cluster node) has been created, all other nodes should use the configuration files from the primary cluster node. Of particular importance is the `visitors.properties` file. The main configuration file for Visitor Services is `visitors.properties`. This file contains details about the data source in the Visitor Services database, JMS objects, and a URL to a WebCenter Sites instance (either one node or if there is a WebCenter Sites cluster, the load-balancer URL). The secondary

nodes can use the `visitors.properties` file from the primary cluster node in either of two ways:

- All nodes in the Visitor Services cluster can have a replica of the same Visitor Services file in their class path.
- All nodes can point to single `visitors.properties` file with file path being in a shared folder.

There is a single database for the entire Visitor Services cluster. The data source property in the `visitors.properties` file for each node should point to this single database.

Other Visitor Services configuration files are not meant for modification. Copy them as is from the primary node to the secondary nodes.

Although JMS is optional, Oracle recommended that JMS be used. Each node should point to same JMS objects. A nodes should not configure a different JMS queue because having that node down would result in losing out on messages present in that queue.

The `visitors-cache.xml` file provides distributed caching configuration for managing a cache of visitors objects (`identity provider`, `access provider`, `profile provider`, `aggregation templates`, and `visitor configuration`). Because this is a distributed cache, all the nodes should have same values for the following properties inside this file:

- `multicastGroupPort`
- `multicastGroupAddress`

Oracle recommends that you set the values for these properties in the `visitors-cache.xml` file on the primary cluster node and then copy the file to each secondary node. You could also do this manually, by making the change in the file locally, on each secondary node.

The `visitors-logging.xml` file provides log-level setting for different loggers. To have a consistent logging experience across nodes, Oracle recommends that all nodes use same file or propagate changes made on one node manually to local copies of this file on all nodes.

Note: Because changes you make to a WAR file are not retained during redeployment, WAR file changes need to be copied over after each redeployment of the web applications. It is generally recommended to deploy the static artifacts such as images and stylesheet files onto the web server.

12

Configuring Satellite Server

After you set up a WebLogic domain for Oracle WebCenter Sites: Satellite Server, you can run the Satellite Server Configurator to complete the configuration process.

Completing Prerequisites for Configuring Satellite Server

Before configuring Satellite Server, ensure that the following prerequisites have been done:

- Create the necessary database schemas using the Repository Creation Utility, as Creating the Database Schemas describes.
- Create a WebLogic domain for Satellite Server using the WebLogic Configuration Wizard and the `Oracle WebCenter Sites – Satellite Server – 12.2.1.0.0` template, as Configuring the WebCenter Sites Domain describes.
- If you have not already done so for the WebCenter Sites domain, grant read, write, and delete permissions for accessing the Oracle Platform Security Services credential store to *`ORACLE_HOME`*`/wcsites/wcsites_common/lib/sites-security.jar` by running the following script:

  – On UNIX operating systems:

  ```
  DOMAIN_HOME/wcsites/bin/grant-opss-permission.sh
  ```

  – On Windows operating systems:

  ```
  DOMAIN_HOME\wcsites\bin\grant-opss-permission.bat
  ```

  Use the WebLogic Server Administrator user name and password, when prompted by the script.

  If a domain home other than the default (*`ORACLE_HOME`*`/user_projects/domains/`*`domain_name`*) was specified in the Fusion Middleware Configuration Wizard, make sure `grant-opss-permission.sh` or `grant-opss-permission.bat` contains the specified domain name before running it. If necessary, edit the file and update the domain name.

- If you plan to manually set the value of the `ss.password` property in *`ORACLE_HOME`*`/wcsites/satelliteserver/config/wcs_properties.json` in clear text, you must set the value of the `hidden.encrypted` property to `false`. (If you are using using encrypted passwords, set `hidden.encrypted` to `true`.)

Using the Import/Export Uitlity to Configure Satellite Server

You can use the Import/Export utility to import and export the Site Capture configuration store in a property file format. The exported property file has all the settings for the product in a `key=value` format.

To run the utility, see Using the Import/Export Utility to Manage Satellite Server Properties in *Property Files Reference for Oracle WebCenter Sites*

You can start the Site Capture Configurator from the command line and run it in either interactive mode or silent mode to configure Site Capture. The Configurator provides configuration instructions.

Running the Satellite Server Configurator in Interactive Mode

To run the Configurator in interactive mode, do these steps:

1. Using the command line, navigate to the *ORACLE_HOME*/wcsites/satelliteserver/ directory.
2. Run the Site Capture Configurator: `java -jar satellite-configurator.jar -configPath DOMAIN_HOME/wcsites/satelliteserver/config`
3. Follow the instructions displayed in the Configurator.
4. Start the Satellite Server Managed Server.

Running the Satellite Server Configurator in Silent Mode

To run the Configurator in silent mode:

1. Edit the *DOMAIN_HOME*/wcsites/satelliteserver/config/wcs_satelliteserver_properties_bootstrap.ini file and complete the instructions.
2. Using the command line, navigate to the *ORACLE_HOME*/wcsites/satelliteserver/ directory.
3. Run the Site Capture Configurator: `java -jar satellite-configurator.jar -silent DOMAIN_HOME/wcsites/satelliteserver/config`.
4. Start the Satellite Server Managed Server.

If you get `nullpointer` exceptions when you start the Managed Server, confirm that the following steps have been completed then run the Satellite Server Configurator again.

1. Run the `grant-opss-permission.sh` script or `grant-opss-permission.bat` command, as described in the preceding text under Completing Prerequisites for Deploying Satellite Server.
2. Update the `cs-cache.xml`, `ss-cache.xml`, `linked-cache.xml`, and `cas-cache.xml` files, as Completing Prerequisites for Configuring WebCenter Sites describes.
3. Complete initial configuration in the WebCenter Sites configuration setup URL: `http://sites-host:sites-port/sites/sitesconfigsetup`

For more information on configuring Satellite Server, see Managing Caching in *Developing with Oracle WebCenter Sites*.

Note: Because changes you make to a WAR file are not retained during redeployment, you must copy WAR file changes over after each redeployment of the web applications. Oracle recommends deploying static artifacts such as images and stylesheet files onto the web server.

Configuring WebCenter Sites Components

After you install and configure Oracle WebCenter Sites, you need to configure its component applications. See the topics in this section to configure component applications.

13

Switching to External Authentication

For maximum security in production environments, Oracle recommends integrating Oracle WebCenter Sites with Oracle Access Management, for an advanced identity management solution and a seamless single sign-on user experience. You also have the option of integrating WebCenter Sites with an external LDAP authentication provider directory.

The following topics describe how to configure WebCenter Sites for authentication against either external identity management solution:

Configuring WebCenter Sites Components
: After you install and configure Oracle WebCenter Sites, you need to configure its component applications. See the topics in this section to configure component applications.

Switching to Authentication Against an LDAP Directory
: This topic describes how to switch WebCenter Sites to authentication against an external LDAP authentication provider directory. This is a recommended solution for production environments if integration with Oracle Access Management is not viable.

Switching to Authentication Against Oracle Access Manager
: You can configure WebCenter Sites for authentication against Oracle Access Manager. This is a recommended solution for production environments.

13.1 Switching to Authentication Against an LDAP Directory

This topic describes how to switch WebCenter Sites to authentication against an external LDAP authentication provider directory. This is a recommended solution for production environments if integration with Oracle Access Management is not viable.

Before you change your authentication provider, install and configure WebCenter Sites.

To switch WebCenter Sites to authentication against an external LDAP directory:

1. (Optional) If your LDAP directory is case-sensitive, set the `ldap.caseAware` property in the *`DOMAIN_HOME`*`/wcsites/wcsites/config/wcs_properties.json` file to `true`.
2. Access the LDAP Configurator at `http://`*`sites-host`*`:`*`sites-port`*`/`*`sites-context`*`/ldapconfig`, follow the instructions on the screen, and enter the values for your environment.
3. For LDAP rollback, restart the WebCenter Sites Managed Server, and go to the same LDAP Configurator URL.

Now there is only manual LDAP integration. Nothing is written to your LDAP Server, only an LDIF file is created under the *DOMAIN_HOME*/wcsites/wcsites/config/ldap folder. The peopleparent, groupparent, username, and other fields are not prepopulated, as in the previous release.

4. Modify the LDIF file located in *DOMAIN_HOME*/wcsites/wcsites/config/ with values appropriate for your environment.

   Because the fields are not prepopulated, follow this example for ORACLEDIR :

   ```
   ldap server type -- ORACLEDIR
   ldap DSN -- dc=oracle,dc=com
   ldap host -- localhost
   ldap port -- 389
   ldap username -- cn=orcladmin
   ldap password -- password
   ldap peopleParent -- cn=Users,dc=oracle,dc=com
   ldap groupparent -- cn=Groups,dc=oracle,dc=com
   ```

5. If the LDAP server you are using is case sensitive, edit the property file *DOMAIN_HOME*/wcsites/wcsites/config/wcs_properties.json, and change the ldap.caseAware property value to true.

   By default the value of ldap.caseAware is set to false. Log in will fail if you are using a case-sensitive LDAP server and this property is set to false.

6. If you choose Oracle Virtual Directory as your LDAP authentication provider, WebCenter Sites generates an LDIF file, which you can import to your Oracle Internet Directory server and then create an adaptar in Oracle Virtual Directory to connect to the Oracle Internet Directory server.

   You cannot import an LDIF file directly to an Oracle Virtual Directory LDAP server because it does not have a storage of its own.

7. Import the LDIF file into the external LDAP authentication provider.

8. Restart the WebLogic Managed Server running this WebCenter Sites instance.

13.2 Switching to Authentication Against Oracle Access Manager

You can configure WebCenter Sites for authentication against Oracle Access Manager. This is a recommended solution for production environments.

WebCenter Sites integration is supported for Oracle Access Manager 11.1.2.2.0 and 11.1.2.3.0.

To switch WebCenter Sites to authentication against Oracle Access Manager:

1. Deploy the oamlogin.war and oamtoken.war application files located under *ORACLE_HOME*/wcsites/webcentersites/*sites-home* on the WebLogic domain containing the target WebCenter Sites instance.

2. Create the following property file: *DOMAIN_HOME*/wcsites/wcsites/config/wemsites_settings.properties.

3. Populate the wemsites_settings.properties file as follows.

oamredirect	http://*oam_server_host*:*oam_port*/oam/server/auth_cred_submit

oamlogout	oamlogout=http://*oam_server_host*:*oam_port*/oam/server/logout
forgotpassword	*helpdesk-email-address*

4. Set following properties in *DOMAIN_HOME*/wcsites/wcsites/config/SSOConfig.xml.

serviceUrl	http://{*ohs_server_host*}:{*ohs_port*}/{*sites_context_root*}/REST
ticketUrl	http://{*oamtoken_server_host*}:{oamtoken_port}/oamtoken
signoutURL	http://{*oam_server_host*}:{*oam_port*}/oam/server/logout?end_url={*end_url*} URL to be used when invoking WebCenter Sites logout. It includes the encoded URL where the browser will return after all logout processing has been completed by Oracle Access Manager.
end_url	For test (staging) environments: http%3A%2F%2F{*ohs_server_host*}%3A{*ohs_port*}%2F{*sites_context_root*}%2Fwem%2Ffatwire%2Fwem%2FWelcome For production (delivery) environments: http%3A%2F%2F{*ohs_server_host*}%3A{*ohs_port*}%2F{*sites_context_root*}%2FXcelerate%2FLoginPage.html
dbUsername	Name of the WebCenter Sites general Administrator user account.
dbPassword	Password for the WebCenter Sites general Administrator user account.
trustConfigured	Indicates to WebCenter Sites whether a trust relationship has been established between the WebCenter Sites Managed Server and the Oracle HTTP Server WebGate in Oracle Access Management. A trust relationship between the two eliminates the need to include an identity assertion in every request. Set to true if a trust relationship exists; otherwise, set to false.

5. Copy the obAccsessClient.xml and cwallet.sso files from your Oracle Access Manager instance into the *DOMAIN_HOME*/wcsites/wcsites/config/oblix/lib/ directory on the target WebCenter Sites instance.

6. Edit the oamtoken.xml file in the *sites-config* directory by setting the compatibility mode and oblix path. The compatibility mode should be set to 11G and the oblix path to the *sites-config* folder under which you have the oblix/lib folder.

7. In the Oracle Access Manager configuration for WebCenter Sites, update the protected, public, and excluded resources for as follows:

```
##########################
protected_uris
##########################
/oamlogin/test
/sites/Xcelerate/LoginPage.html
/sites/Satellite/.../*
/sites/faces/jspx/.../*
/sites/wem/fatwire/.../*
/sites/ContentServer/.../*
```

```
/sites/wem/fatwire/wem/Welcome
/console

##########################
Exclusion Scheme    OraDefaultExclusionAuthNScheme
/sites/REST
/index.html
/oamlogin/oamsso/.../*
/sites/wem/fatwire/home
/sites/**
```

For more information, see Updating the Protected, Public, and Excluded Resources for an Enterprise Deployment.

8. To integrate the OAMSDK Client with Weblogic Server as the `oamtoken.war` application, edit the `jps-config.xml` file for the WebCenter Sites domain. By default, the WebLogic domain runs with this file, which is part of the WebLogic Server 12 *c* startup script:

   `-Doracle.security.jps.config=`*`ORACLE_HOME`*`/user_projects/domains/`*`DOMAIN_NAME`*`/config/fmwconfig/jps-config.xml`

   a. Add a service instance, as the following example shows, next to existing service instances in the existing `jsp-config.xml` file:

      ```
      <serviceInstance name="credstore.oamtoken"
      provider="credstoressp" location="./oamtoken">

      <description>File Based Credential Store Service Instance</
      description>

      <property name="location" value="./oamtoken"/>

      </serviceInstance>
      ```

      `location` is the path to the directory that contains the `cwallet.sso` file. The preceding example sets this path with reference to the current `jsp-config.xml` file. Make sure the `omtoken` folder is created with respect to the current directory and the `cwallet.sso` file is placed there. The `location` value can also be an absolute path to where the `cwallet.sso` file is placed

   b. Add `<serviceInstanceRef ref="credstore.oamtoken"/>` under `<jpsContext name="default">`.

   c. Add following `<jpsContext>` element under `<jpsContexts default="default">`:

      ```
      <jpsContext name="OAMASDK">

      <serviceInstanceRef ref="credstore.oamtoken"/>

      </jpsContext>
      ```

9. Add permissions so that code in `oamtoken.war` can be used.

   The WebGate instance created in Oracle Access Manager is accessed by the client. You need to add the credential to the WebCenter Sites domain so that the security restriction can be taken care of.

   a. Launch the WebLogic Scripting Tool with the `wlst.sh` script:

```
cd ORACLE_HOME/oracle_common/common/bin/./wlst.sh
```

b. Connect to the Administration Server for the WebCenter Sites domain:

```
connect('user-name','password','sites-host:admin-port')
```

c. Grant the permissions:

```
grantPermission(codeBaseURL="file:/scratch/idc/newoam/rend/
Oracle_Home/user_projects/domains/renddomain/servers/
wcsites_server1/tmp/_WL_user/oamtoken/-",
permClass="oracle.security.jps.service.credstore.CredentialAccess
Permission",permTarget="context=SYSTEM,mapName=OAMAgent,keyName=*
",permActions="*")
```

The preceding path is basically the path where WebLogic Server has deployed the `oamtoken.war` application.

d. Restart the target WebCenter Sites Managed Server.

10. (Optional) If trust between WebCenter Sites and Oracle Access Manager has not been established, modify the configuration of the WebCenter Sites web tier as follows:

a. Log in to the Oracle Access Manager Console.

b. In the WebGate authorization policy (under the protected resource policy), go to the **Responses** tab.

c. Enable (select) the **Identity Assertion** check box.

d. Click **Apply** to save your changes.

11. Restart the WebLogic Managed Server hosting this WebCenter Sites instance.

14

Setting Up a CAS Cluster

You can set up a Central Authentication Server (CAS) cluster in the same WebLogic domain as Oracle WebCenter Sites, in a different WebLogic domain on the same machine, or for high availability, in a different WebLogic domain on a different machine.

The following topics describe how to set up a CAS cluster:

Configuring WebCenter Sites Components
: After you install and configure Oracle WebCenter Sites, you need to configure its component applications. See the topics in this section to configure component applications.

Configuring the CAS Primary Cluster Node
: This topic describes how to set up the CAS application to function on a WebCenter Sites cluster both as a single instance and as a clustered application. If you are not clustering the CAS application, you can skip the steps required specifically for clustering CAS.

Configuring the CAS Secondary Cluster Node(s)
: This topic describes how to set up one or more secondary CAS (Central Authentication Service) application cluster nodes.

14.1 Configuring the CAS Primary Cluster Node

This topic describes how to set up the CAS application to function on a WebCenter Sites cluster both as a single instance and as a clustered application. If you are not clustering the CAS application, you can skip the steps required specifically for clustering CAS.

Before completing the steps in this procedure, note the following items:

- An instance of WebCenter Sites with CAS, the primary cluster node, needs to be up and running.
- Never change the context root of the CAS application from its default value of `/cas`, even if the CAS application itself is relocated.

To set up the primary CAS cluster node:

1. Using the WebLogic Server Administration Console, create a new Managed Server for the primary CAS cluster node (for example, `cas_server1`).
   a. If CAS will be clustered, create and assign additional servers to the cluster as needed.
   b. Determine the load balancer's IP address and port becaause these values will be required to complete the setup.

c. The initial configuration of CAS will be for only a single cluster member. Once WebCenter Sites is set up and running on a single server accessed through the load balancer, you can configure additional servers.

d. (Optional) If you are deploying the CAS application on a WebLogic domain separate from the WebCenter Sites domain, do the following steps:

   i. Copy the contents of *DOMAIN_HOME*/wcsites/bin/ to the same location in the CAS domain.

   ii. Copy the contents of *ORACLE_HOME*/wcsites/wcsites_common/lib/ to the same location in the CAS domain.

   iii. Grant the CAS application access to the Oracle Platform Security Services keystore by executing the following script and following the on-screen instructions: `sh` *CAS_DOMAIN_HOME*`/wcsites/bin/grant-opss-permission.sh` on a UNIX operating system or *DOMAIN_HOME* `\wcsites\bin\grant-opss-permission.bat` on a Windows operating system.

2. Create a CAS `config` directory on the Managed Server you created in step 1. For example: *DOMAIN_HOME*`/wcsites/cas/config`.

   Subsequent steps will refer to this directory as *CAS_CONFIG_DIR*.

3. Move (do not copy) the following files and directories from *DOMAIN_HOME*`/wcsites/wcsites/config` on the Managed Server that is the primary WebCenter Sites cluster node to *CAS_CONFIG_DIR*:

   - `cas.properties`
   - `host.properties`
   - `jbossTicketCacheReplicationConfig.xml`
   - `customBeans.xml`
   - `deployerConfigContext.xml`
   - `fatwire_settings.properties`
   - `fatwire_views.properties`
   - `logging-config.xml`
   - `cas-spring-configuration`

   Note: If the WebCenter Sites node you are copying from is part of a cluster, the `host.properties` and `jbossTicketCacheReplicationConfig.xml` files may be located under *DOMAIN_HOME*`/wcsites/wcsites/config/`*node-name* and need to be copied from there to *CAS_CONFIG_DIR*.

4. Set the `host.name` parameter value in *cas_config_dir*`/host.properties` to the host name or IP address of the CAS host machine.

5. Modify *CAS_CONFIG_DIR*`/jbossTicketCacheReplicationConfig.xml` as follows:

- (Optional) If you are using IPv6 addressing, set `mcast_addr` value to a valid IPv6 multicast address. This value must be the same for each node in the cluster. For example, [ff0x:0:0:0:0:0:0:301].
- Set `bind_addr` to the host name or IP address of the CAS host machine.
- (Optional) If you are clustering the CAS application, set `ip_ttl` to a value appropriate for your environment. Oracle recommends `1` as a starting point. For a list of suggested values, see Setting Up a WebCenter Sites Cluster.

6. Set the `server.name` parameter value in *`CAS_CONFIG_DIR`*`/cas.properties` to the URL of the CAS host machine.

   Note: If you are clustering the CAS application, use the IP address and port of the load balancer.

7. Update the class path on the CAS application's Managed Server to include the full path to the *`CAS_CONFIG_DIR`* directory.
8. Deploy the `cas.war` application file to the CAS application's Managed Server.
9. On the primary WebCenter Sites cluster node, modify the following properties in the *`WCSITES_CONFIG_DIR`*`/wcs_properties.json` file, as described in the following table.

`wcsites.cas.host`	Host name or IP address of the CAS application's Managed Server. Used for external connections.
`wcsites.cas.port`	Port of the CAS application's Managed Server. Used for external connections.
`wcsites.cas.internal.url`	URL (in *`hostname:port`* format) of the CAS application's Managed Server. Used internally.

10. Restart the primary WebCenter Sites cluster node Managed Server and the CAS application's Managed Server.
11. Log in to the Admin interface on the primary WebCenter Sites cluster node to confirm the new configuration.
12. (Optional) If you are clustering the CAS application, complete the steps in Configuring the CAS Secondary Cluster Node(s).

14.2 Configuring the CAS Secondary Cluster Node(s)

This topic describes how to set up one or more secondary CAS (Central Authentication Service) application cluster nodes.

Before completing the following steps, you must have completed the steps in Configuring the CAS Primary Cluster Node.

To set up each secondary CAS cluster node:

1. Create a Managed Server for each secondary CAS cluster node and assign it to the WebLogic cluster containing the primary CAS cluster node.

2. Shut down all CAS Managed Servers.
3. Create a CAS `config` directory (*`CAS_CONFIG_DIR`*) on the new Managed Server; for example, *`DOMAIN_HOME`*`/wcsites/cas/config`.
4. Copy the contents of the *`CAS_CONFIG_DIR`* directory from the primary CAS Managed Server to the new Managed Server, the secondary cluster node.
5. Set the `host.name` parameter value in *`CAS_CONFIG_DIR`*`/host.properties` to the host name or IP address of this secondary cluster node.
6. Update the *`CAS_CONFIG_DIR`*`/jbossTicketCacheReplicationConfig.xml` file as follows:
   - Set `bind_addr` to the host name or IP address of this secondary cluster node.
   - (Optional) If you are clustering the CAS application, set `ip_ttl` to a value appropriate for your environment. Oracle recommends `1` as a starting point. See Setting Up a WebCenter Sites Cluster for a list of suggested values.
7. Start the load balancer, if it is not already running.
8. Start the new Managed Server.
9. Log in to the WebCenter Sites Admin interface to ensure that the new server is functional.

   If you get the error `Unable to access credential store` when you try to log in to WebCenter Sites, run the `grant-opss-permission.sh` script or `grant-opss-permission.bat` command, as Completing Prerequisites for Configuring WebCenter Sites describes.

After you have configured and tested all the secondary CAS cluster nodes, start the primary and all secondary CAS cluster nodes, and, optionally, restart the load balancer. Then log in to the WebCenter Sites Admin interface to confirm that the CAS cluster has been successfully configured.

Note: If the cluster members are not all colocated in a Weblogic domain on the same machine, the `timeToLive` field must be changed from the default value of `0`. Set the `timeToLive` field based on the distribution of your clustered machines. A list of possible settings follows:

timeToLive Value	Distribution of Clustered Machines
`1`	Multicast packets restricted to the same subnet (suggested cluster value if distribution unknown)
`32`	Multicast packets restricted to the same site
`64`	Multicast packets restricted to the same region
`128`	Multicast packets restricted to the same continent
`255`	Multicast packets unrestricted

15

Setting Up a Cluster

For high availability, you can set up a WebCenter Sites cluster in a WebLogic domain with a primary cluster node on one machine and one or more secondary cluster nodes on the same or different machines. The first WebCenter Sites Managed Server you create is the primary node, and any additional WebCenter Sites Managed Servers in the same domain are secondary nodes.

The following topics describe how to set up a WebCenter Sites cluster.

Configuring WebCenter Sites Components
: After you install and configure Oracle WebCenter Sites, you need to configure its component applications. See the topics in this section to configure component applications.

Preparing to Set Up a WebCenter Sites Cluster
: Now that you have installed and configured a WebCenter Sites domain with Managed Servers, set up a load balancer, run the Configurator, set up an LDAP authentication provider, and configured CAS, you can set up a cluster of WebCenter Sites Managed Servers for the domain.

Setting Up a WebCenter Sites Cluster
: After you create one or more WebCenter Sites cluster nodes as Managed Servers (`wcs_server1` and `wcs_server2`), you need to configure the nodes to set up the cluster.

15.1 Preparing to Set Up a WebCenter Sites Cluster

Now that you have installed and configured a WebCenter Sites domain with Managed Servers, set up a load balancer, run the Configurator, set up an LDAP authentication provider, and configured CAS, you can set up a cluster of WebCenter Sites Managed Servers for the domain.

Before setting up a WebCenter Sites cluster, ensure that the following tasks are done:

1. Install WebCenter Sites, as Installing the Oracle WebCenter Sites Software describes, and set up a WebLogic domain with at least one WebCenter Sites Managed Server, the primary node in a cluster, as Configuring the WebCenter Sites Domain describes.

   If you followed the instructions in Configuring the WebCenter Sites Domain, you would have a WebCenter Sites domain with one cluster and two Manager Servers to start setting up the cluster.

   To add secondary nodes, you can clone the primary node configuration through the WebLogic Server Administration Console, as Setting Up a WebCenter Sites Cluster describes. Or you can use the Fusion Middleware Configuration Wizard to extend the WebCenter Sites domain,

2. Set up a web tier and load balancer, and configure the primary cluster node to use the load balancer's IP address, as Creating a WebCenter Sites Web Tier describes.

   For more information about setting up a load balancer, see "Server Load Balancing in a High Availability Environment" and "Configure Load Balancer" in the *High Availability Guide*

3. Run the WebCenter Sites Configurator, as Configuring WebCenter Sites describes.

4. For authentication based on an external LDAP authentication provider or Oracle Access Manager, complete this integration before scaling out for a clustered environment. You can change the default identity store to an LDAP authentication provider with Oracle Access Manager, as Switching to External Authentication describes. You also have the option of integrating WebCenter Sites with an external LDAP directory, as Switching to Authentication Against an LDAP Directory describes.

5. If you want to deploy the Centeral Authentication Service (CAS) on a separate server for High Availability, set up a CAS cluster prior to WebCenter Sites cluster configuration.

6. If the CAS application is to reside on a cluster node other than the primary, complete the steps in Configuring the CAS Primary Cluster Node.

7. For a traditional, file-based cluster, set up a new shared location, containing the `wcs_properties.json` file that all the different cluster nodes can point to.

   Note: This step is not required for a cluster that uses the NIO database-based file system. For more information, see Moving the Shared File System to a Database.

   a. In the WebCenter Sites shared storage directory (*`sites-shared`*), create a directory named `config`.

   b. Move the file *`DOMAIN_HOME`*`/wcsites/wcsites/config/wcs_properties.json` to the *`sites-shared`*`/config` directory. Do not copy the file.

   c. Update the `sites.config` system property on each cluster node to reference the shared directory where `wcs_properties.json` now resides.

   Note: The `sites.config` cannot used for sharedFS. For the directory sharedFS you need to create a new directory, often the directory `wcssites/wcsites/shared` is used. The configuration utility will fail when pointing the sharedFS to `sites.config` .

8. Shut down all WebCenter Sites Managed Servers in the cluster.

15.2 Setting Up a WebCenter Sites Cluster

After you create one or more WebCenter Sites cluster nodes as Managed Servers (`wcs_server1` and `wcs_server2`), you need to configure the nodes to set up the cluster.

First you configure the primary cluster node for WebCenter Sites. Then you can configure one or more secondary nodes to work with the primary node in a cluster. Do

the following steps to complete configuration changes required for the primary node to work in a cluster configuration:

1. Register the primary cluster node:
   a. Start the WebCenter Sites Managed Server.
   b. Log in to the WebCenter Sites Admin interface, select the **Admin** tab, expand **System Tools**, and click **Cluster Node Management**.
   c. Enter valid values for the following fields for `sites_server1`:

      Node name: The node name be any unique name, such as the name as the Managed Server. For example: `sites_server1`

      Host name: The host name or IP address of the node member is the actual listen address of the node, and *not* the load balancer.

      Port number: The port number of the node member is the actual port of the node, and *not* the load balancer's port.

      Batch Host name: The host name or IP address of the node member is the actual listen address of the node, and *not* the load balancer. In a clustered environment, only one batch host is supported. The property must be set on each cluster member to point to the dedicated host.

      Batch Port number: Note that if the port number is something other than `80`, you must also specify the port number.

      Are you installing over a secure connection? : Specify the protocol of the server on which the cluster member is running. Set `yes` for HTTPS and `no` for HTTP.

   d. Click **Add** to register the primary node.

   Note: The primary node *must* be registered first.

2. Navigate to **Servers** >*sites-server* > **Server Start**, and add –`Dsites.node=`*`node_name`* under **Arguments**.

   The node name has to be the same as specified in the preceding step 1c. For example: -Dsites.node=sites_server1

3. In the *`DOMAIN_HOME`*`/wcsites/wcsites/config` directory, modify the following two files:
   - `host.properties`: Update the `host.name` property with a valid host name for this cluster node. The `host.name` value should be unique within the cluster.
   - `jbossTicketCacheReplicationConfig.xml`: Update the `bind_addr` property with a valid host or IP address for this cluster node.
4. If the cluster spans multiple physical servers, edit the `cas-cache.xml`, `cs-cache.xml`, `linked-cache.xml`, and `ss-cache.xml` files in the *`DOMAIN_HOME`*`/wcsites/wcsites/config` directory as follows.
   - (Optional) If you are using IPv6 addressing, set multicastGroupAddress value to a valid IPv6 multicast address. This value must be the same for each node in the cluster. For example: [ff0x:0:0:0:0:0:0:301].

- Set the `timeToLive` parameter to a value appropriate for your environment (typically `1`). The `timeToLive` field must be changed from the default value of `0` if the cluster members are not all colocated on the same machine. This field must be set based on the distribution of your clustered machines, as the following table shows.

1	Multicast packets restricted to the same subnet.
32	Multicast packets restricted to the same site.
64	Multicast packets restricted to the same geographical region.
128	Multicast packets restricted to the same continent.
255	No restriction.

Note: Sometimes WebCenter Sites installation may be slow and take up to several hours because other installations may be using the same multicast port. Ensure that the ports used for this installation are different from other WebCenter Sites installations on the network. If your installation seems slow, change your multicast ports as a troubleshooting step.

- (Optional) Oracle recommends changing the `multicastGroupPort` value to a unique value greater than `2048`. Ensure that the multicast port used in `jbossTicketCacheReplicationConfig.xml` is the same on each node in the cluster but is different on other clusters running on the same network

5. If the CAS application is colocated on the same WebLogic domain as WebCenter Sites, complete the CAS cluster configuration steps in Configuring the CAS Primary Cluster Node.

6. Test the first node:

   a. Start theWebCenter Sites Managed Server for this node, or if it is already running, restart it (stop and start).

   b. Log in to WebCenter Sites to ensure it is up and running.

7. To complete configuration changes required for `sites_server2` and any additional secondary nodes, ensure that the Managed Server is shut down, do the following steps, and then go back and repeat steps 2 through 6.

8. Add any additional nodes to the WebCenter Sites domain, through the WebLogic Server Administration Console (preferred), or by extending the domain through the Fusion Middleware Configuration Wizard.

   a. To add an additional node using the Administration Console, clone the existing primary node (such as `sites_server1`).

   b. For `sites_server2` or any additional secondary node added using the Configuration Wizard (*`ORACLE_HOME`*`/oracle_common/common/bin/config.sh`), copy the `config` folder from the primary node (*`ORACLE_HOME`*`/oracle_common/common/bin/config` to replace the `config` folder created

by the Configuration Wizard on the newly added node (*DOMAIN_HOME*/`wcsites/wcsites/config`).

This ensures that the configuration files on the newly added node are properly configured.

9. Complete the following steps related to the folder *DOMAIN_HOME*`/wcsites/wcsites/config`.
   a. Ensure this directory has been copied to each cluster node and is available locally.
   b. Ensure this directory is referenced in the Managed Server class path of each cluster node.
   c. Ensure this directory does not contain the `wcs_properties.json` file.
10. Register the cluster node with WebCenter Sites:
    a. Restart the Managed Server for this cluster node.
    b. Log in to the WebCenter Sites Admin interface, select the **Admin** tab, expand **System Tools**, and click **Cluster Node Management**.
    c. In the screen that appears, choose **Add** from the drop-down list and provide values for the following parameters.

Node name	This **must** be the same as the value of `-Dsites.node` for this cluster node from step 3.
Host name	The host name or IP address of this cluster node (**not** the load balancer).
Port number	The port number of this cluster node (**not** the load balancer).
Batch Host name	The host name or IP address of the node member, which is the actual listen address of the node, and **not** the load balancer. In a clustered environment, only one batch host is supported. Set this property on each cluster member to point to the dedicated host.
Batch Port number	The batch port number, which you must specify if it is something other than `80`.
Are you installing over a secure connection?	Set to **Yes** if using SSL (HTTPS); otherwise set to **No**.

11. Restart the WebCenter Sites Managed Server running this cluster node.
12. Log in to the WebCenter Sites Admin interface on this cluster node to confirm it is up and running. To view the cluster node configuration, click the **Admin** tab and navigate to **System Tools** > **System Information** > **Sites Info**.
13. (Optional) If you want to move the WebCenter Sites shared storage into a database, complete the steps in Moving the Shared File System to a Database.

For more information about clustering, see Advanced Administration: Expanding Your Environment in *Administering Oracle Fusion Middleware*.

16

Moving the Shared File System to a Database

WebCenter Sites can leverage a database to store its shared file system using the Java Nonblocking I/O (NIO) API. This eliminates the need for a network file share in a clustered environment and allows file locking to be handled by a Coherence cache. Out of the box, WebCenter Sites defaults to a disk-based shared file system (local or network). To move the shared file system to a database, complete the steps in this topic. Steps for reverting the process are also provided.

Note the following:

- Only the Oracle 11*g* and 12*c* databases are supported.
- Oracle recommends storing files managed by WebCenter Sites (also referred to as shared files) in a database. This helps in configuring highly available deployments along with streamlining backup and restore processes for your environments. The database can be WebCenter Sites's own database or a separate database. Depending upon the needs of your site, you may need to plan for additional capacity or processing, or both.
- If you are clustering WebCenter Sites, you must do the following steps before moving the shared file system:

  1. Complete the steps in Setting Up a Cluster.
  2. Add all cluster members to the Coherence Cluster:

     a. In the WebLogic Server Administration Console, navigate to ***Domain Name*** > **Environment** > **Coherence Clusters**.

     b. Select the default Coherence cluster, and then click the **Members** tab.

     c. In the **Clusters** section, enable your WebCenter Sites cluster, and then enable the `All servers in the cluster` option.

- Ensure that the primary node of the cluster has been set up and registered as a cluster node as Setting Up a WebCenter Sites Cluster describes.
- The default data source name is `wcsitesDS`. If you want to use a different data source name, you must set the `databaseConnector` bean in *`sites_config_dir`*`/NIOSharedServices.xml` to the new name before completing the following steps.

> **Note:** The *`sites_config_dir`* is *`DOMAIN_HOME`*`/wcsites/wcsites/config/`.

- If you have already setup a traditional, file-based cluster, the `wcs_properties.json` would have been moved to the `sites-shared/config` directory as part of the cluster setup. In that case, make note of the following:
  - Move the `wcs_properties.json` file back to the `sites_config_dir`.
  - If subsequently you wish to revert from database back to disk storage, then after having run the NIO Conversion utility with revert option, copy the `wcs_properties.json` file back to the `sites-shared/config` directory.
- If you want to store the WebCenter Sites shared file system in the WebCenter Sites repository database, increase the tablespace size for the *`prefix`*`_TS_WCSITES` and *`prefix`*`_TS_TMP_WCSITES` tablespaces.
- If you want to store the WebCenter Sites shared file system in a database other than the WebCenter Sites repository database, do the following steps:
  1. Create a new database with the same permissions as the WebCenter Sites repository database with the following commands:
     - `CREATE SEQUENCE`
     - `CREATE SESSION`
     - `CREATE TABLE`
     - `CREATE TRIGGER`
     - `CREATE VIEW`
     - `UNLIMITED TABLESPACE`
  2. Create a new data source pointing to the new database, and deploy the new data source as a JDBC data source on the Managed Servers running WebCenter Sites.
  3. Set the `databaseConnector` bean in *`sites_config_dir`*`/NIOSharedServices.xml` to the new data source name.

To move the WebCenter Sites shared file system from disk to a database (either the WebCenter Sites repository, or a different database), do the following steps:

1. Shut down all Managed Servers running WebCenter Sites.
2. Back up *`sites_config_dir`*. In case of any failures, you can roll back changes made to the `config` folder.
3. Make note of the location of the WebCenter Sites shared directory.

   You can look it up the location in the *`sites_config_dir`*`/wcs_properties.json` file by searching for "`wcsites.shared`".
4. Set the `databaseConnector` and `sitesDatabaseConnector` beans in *`sites_config_dir`*`/NIOConversionServices.xml` to the appropriate database connection URL or URLs.

   The beans will be different only if you plan to store the WebCenter Sites shared file system table (`WCS_SHAREDFILESYSTEM`) in a database separate from the primary WebCenter Sites database.

5. Open a command prompt and change to *ORACLE_HOME*/wcsites/webcentersites/sites-home/bin/.

6. Run the conversion script: ./nioconversion.sh *sites-home_directory sites_config_parent sites_shared_directory* convert|revert *database_driver_file*.

   This script is on a UNIX operating system. On a Windows operating system, use the nioconversion.bat command, with the same options.

   The following table describes the options of this script.

convert or revert	Converts the shared file system to database storage, or reverts it back to disk storage.
sites-home_directory	Full path to the sites-home directory. By default, this is*ORACLE_HOME*/wcsites/webcentersites/sites-home.
sites_config_parent	Full path to the parent directory containing the WebCenter Sites config directory, with no trailing slash. By default, this is *DOMAIN_HOME*/wcsites/wcsites.
sites_shared_directory	Full path of the WebCenter Sites shared file system directory (wcs_shared).
database_driver_file	Full path and name of the database driver file used for connecting to the target database.
silent (optional)	This flag minimizes messages to the console.

   UNIX example: nioconversion.sh /mySites/sites-home /mySites/config /mySites/sites-shared convert /lib/ojdbc6.jar

   Windows example: nioconversion.bat C:\mySites\sites-home C:\mySites\config C:\mySites\sites-shared convert C:\lib\ojdbc6.jar silent

   Note: Do not supply symbolically linked paths to the conversion utility, or the conversion will fail. Supply full hard paths only. If you have symbolic links, you must use the actual value stored in wcs_properties.json:wcsites.shared as a parameter when running the utility

7. When prompted, enter the credentials for WebCenter Sites and the shared file system database (if you are not storing the shared file system in the WebCenter Sites repository database), and wait for the conversion process to complete.

   The passwords will be different only if you plan to store the WebCenter Sites shared file system table (WCS_SHAREDFILESYSTEM) in a database separate from the primary WebCenter Sites database.

   The program will replicate the shared file system into the database and update all configuration files (ini/json/database tables) to reference the file system in the database.

The log file for the utility is called `sites.utilities.log`. It is created in the directory from which this utility is run.

8. Locate the old shared file system directory on the disk and rename it (do not yet delete it).
9. Start the WebCenter Sites Managed Servers and log in to the Admin interface to verify that the new configuration is fully functional.
10. Confirm that the old shared file system directory on disk was not re-created after WebCenter Sites started up. If the directory was re-created, check for any custom code that might still be referencing it.
11. If the old shared file system directory on disk was not re-created after WebCenter Sites started up, back up the directory and then delete it and its contents.

Note: If you store the WebCenter Sites shared file system in a database other than the WebCenter Sites repository database, logging in to the Admin interface takes a few extra minutes the first time.

Configuring WebCenter Sites Components

After you install and configure Oracle WebCenter Sites, you need to configure its component applications. See the topics in this section to configure component applications.

17

Switching from Test Mode to Production Mode

After you install and configure an Oracle WebCenter Sites domain in a Fusion Middleware test environment, you can switch WebCenter Sites (and its component applications) to an equivalent production environment.

To switch one or more instances of WebCenter Sites or its component applications (Insights, Visitor Services, Satellite Server, or Site Capture) from test mode to production mode:

1. Follow the standard test-to-production procedure that Moving from a Test to a Production Environment describes in *Administering Oracle Fusion Middleware*.
2. Do the additional steps in the following sections for WebCenter Sites and for each of its components that you are moving to production mode.

Additional Steps for Moving WebCenter Sites from Test to Production

To finish moving Oracle WebCenter Sites from a test environment to a production environment:

1. Replace the WebCenter Sites `config` folder with the one available in the WebCenter Sites binaries: *`ORACLE_HOME`*`/wcsites/webcentersites/sites-home/template`
2. Start the Administration Server and Managed Servers on the target machine.
3. Run the bootstrap process to complete the WebCenter Sites configuration.

Additional Steps for Moving Site Capture from Test to Production

To finish moving Oracle WebCenter Sites: Site Capture from a test environment to a production environment:

1. Replace the Site Capture `config` folder with the one available in the Site Capture binaries: *`ORACLE_HOME`*`/wcsites/sitecapture/template`
2. Run the Configurator process to complete the Site Capture configuration.
3. Start the Administration Server and Managed Servers on the target machine.

Additional Steps for Moving Insights from Test to Production

To finish moving Oracle WebCenter Sites: Insights from a test environment to a production environment:

1. Replace the Insights `config` folder, *`DOMAIN_HOME`*`/wcsites/insights/config`, with *`ORACLE_HOME`*`/wcsites/insights/template/config`.

2. Deploy the Insights configuration with the help of `configtool`.
3. Start the Administration Server and Managed Servers on the target machine.

Additional Steps for Moving Visitor Services from Test to Production

To finish moving Oracle WebCenter Sites: Visitor Services from a test environment to a production environment:

1. Replace the WebCenter Sites `config` folder with the one available in the WebCenter Sites binaries: *`ORACLE_HOME`*`/wcsites/webcentersites/sites-home/template`
2. Start the Administration Server and WebCenter Sites Managed Server on the target machine.
3. Run the bootstrap process to complete the WebCenter Sites configuration.
4. Replace the Visitor Services `config` folder with the one available in the Visitor Services binaries: *`ORACLE_HOME`*`/wcsites/webcentersites/visitorservices/template`
5. Start the Visitor Services Managed Server on the target machine.
6. Run the bootstrap process to complete the Visitor Services configuration.

Additional Steps for Moving Satellite Server from Test to Production

To finish moving Oracle WebCenter Sites: Satellite Server from a test environment to a production environment:

1. Replace the Satellite Server `config` folder with the one available in the Satellite Server binaries: *`ORACLE_HOME`*`/wcsites/satelliteserver/template`
2. Run the Configurator process to complete the Satellite Server configuration.
3. Start the Administration Server and Managed Servers on the target machine.

Configuring WebCenter Sites Components
: After you install and configure Oracle WebCenter Sites, you need to configure its component applications. See the topics in this section to configure component applications.