Oracle® Fusion Middleware

Upgrading Oracle WebCenter

14c (14.1.2.0.0)
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Oracle Fusion Middleware Upgrading Oracle WebCenter, 14c (14.1.2.0.0)

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Primary Author: Oracle Corporation

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Preface

This document describes how to upgrade an existing Oracle WebCenter environment to 14c (14.1.2.0.0).

Audience

Identify the target audience for your book and learn more about this document intended for.

This document is intended for system administrators who are responsible for installing, maintaining, and upgrading Oracle WebCenter. It is assumed that readers have knowledge of the following:

- Oracle Fusion Middleware system administration and configuration.
- Configuration parameters and expected behavior of the system being upgraded.

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Related Documents

Upgrade documentation is organized by tasks in the 14c (14.1.2.0.0) documentation library. The task-specific pages provide direct links to common upgrade procedures and related documentation.

You can refer the Oracle Fusion Middleware Library for additional information.

- For installation information, see Fusion Middleware Installation Documentation.
- For upgrade information, see Fusion Middleware Upgrade Documentation.
- For administration-related information, see Fusion Middleware Administration Documentation.
- For release-related information, see Fusion Middleware Release Notes.

Conventions

The following text conventions are used in this document:

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

1

Introduction to the Oracle WebCenter Upgrade

Upgrading Oracle WebCenter to 14c (14.1.2.0.0) is a multi-step process. The procedures you perform to upgrade and reconfigure your current deployment depends on the configuration of your domain and the components you will be upgrading. Having a complete understanding of this process before you begin the upgrade can help you limit unnecessary downtime.

Understanding the Oracle WebCenter Upgrade

Before upgrading your Oracle WebCenter environment to 14c (14.1.2.0.0), you should understand how your pre-upgrade environment will be affected by the upgrade. Also, you must understand the difference between *in place* and *out of place* upgrades.

For example, schemas and domain directory upgrades are performed *in place*, which updates the existing files during the upgrade. The 14c (14.1.2.0.0) Oracle Home binaries are upgraded *out of place*, as the binaries are installed in a new directory.

The upgrade to 14c (14.1.2.0.0) includes the midtier and the schemas. You cannot perform a midtier-only or schema-only upgrade.

- **Oracle WebLogic Server, JRF and WebCenter Oracle Home Binaries - Upgraded Out of Place**

  You install the Oracle Infrastructure 14c (14.1.2.0.0) (which includes WebLogic Server and JRF) and the Oracle WebCenter distribution binaries in a new Oracle home. The upgrade of binaries is considered *out of place* as the existing binaries are not overwritten.

- **Schemas - Upgraded In Place**

  The existing schemas are upgraded *in place*, which means that the Upgrade Assistant updates and overwrites the schemas during the upgrade process. The servers must be down during this process.

- **Domain Directory Reconfiguration - Upgraded In Place**

  The existing domain is upgraded *in place*. During the upgrade you identify the location of the existing 12c domain that will be reconfigured to point to the new 14c (14.1.2.0.0) home directory.

- **Domain Component Configuration - Upgraded In Place**

  After the reconfiguration of the existing domain, the Upgrade Assistant is used again to upgrade any remaining domain component configurations to point to the new 14c (14.1.2.0.0) home directory.

Understanding the Starting Points for an Oracle WebCenter Upgrade

Before you begin your upgrade, verify that your components are eligible for an upgrade to this release. If a component is not at a supported starting point, then you must upgrade it to a supported starting point before you can start an upgrade to 14c (14.1.2.0.0).

The only supported starting point for Oracle WebCenter is 12c (12.2.1.4).

Understanding the Interoperability and Compatibility Restrictions

Before you begin the upgrade process, you should understand how all of the components within your existing domain will be impacted by the upgrade. Verify that components in your pre-upgrade environment will not have compatibility or interoperability issues post-upgrade.

In general, you cannot upgrade a domain that contains components that are not yet available or have been deprecated in Oracle Fusion Middleware 14c (14.1.2.0.0). There are other restrictions on the components that can be upgraded to 14c (14.1.2.0.0) and you need to be sure that you have reviewed this information carefully before you proceed with the upgrade.

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Pre-Upgrade Tasks for Oracle WebCenter Components

You can use the pre-upgrade checklists to determine which tasks must be completed before you start the upgrade. The tasks that you perform will vary depending on your existing deployment and the components and configurations that are being upgraded. Do not start an upgrade until you have reviewed the list and completed all required tasks.

> **Note:**
>
> Before you start any upgrade, make sure that you have created a complete backup of your pre-upgrade environment. If the upgrade fails, you will have to restore from backup and restart the upgrade.

Pre-Upgrade Checklist

The Pre-Upgrade Checklist identifies tasks that can be performed before you begin your upgrade to ensure that you have a successful upgrade and limited downtime.

Upgrades are performed while the servers are down. This checklist is meant to identify important — and often time-consuming — pre-upgrade tasks that you can perform before the upgrade to limit your downtime. The more preparation you can do before you begin the upgrade process, the less time you spend offline.

> **Note:**
>
> The pre-upgrade procedures you perform depend on the configuration of your existing system, the components you are upgrading, and the environment that you want to create at the end of the upgrade and configuration process. **Complete only those tasks that apply to your configurations or use cases.**

This table describes the Pre-Upgrade Checklist. It lists all the required components and describes them in detail.

Table 2-1 Tasks to Perform Before You Upgrade Oracle Fusion Middleware

Task	Description
Required Create a complete backup of your existing environment.	Back up all system-critical files and databases that contain any schemas that are to be upgraded. If the upgrade fails, you must restore your pre-upgrade environment and begin the upgrade again. See Creating a Complete Backup. • Make sure that your backup includes the schema version registry table. See Backing Up the Schema Version Registry Table. • If you have modified or customized any of the startup scripts or any of the configuration files in your existing domain (for example, setting a value for the cookie-path property), you need to copy them to the temporary directory location (outside of the existing domain) during the upgrade, and redeploy them after the upgrade.
Optional Clone your production environment to use as an upgrade testing platform.	In addition to creating a complete backup of your system files, Oracle strongly recommends that you clone your production environment. This environment can be used to test the upgrade.
Required Verify that you install and upgrade your product on a supported hardware and software configuration. **CAUTION**: Do not attempt an upgrade if you are unable to use the latest supported operating system. As with all supported configurations, failure to comply with these requirements may cause your upgrade to fail.	Verify that your hardware and software configurations (including operating systems) are supported by the latest certifications and requirements documents. Also make sure to use a supported JDK version before you install the product distributions. Oracle recommends that you verify this information right before you start the upgrade as the certification requirements are frequently updated. **Make sure that you have applied the latest patches to your components before you upgrade.** See Verifying Certification and System Requirements.
Optional Create a Non-SYSDBA user to run the Upgrade Assistant with necessary privileges.	Oracle recommends that you create the FMW user to run the Upgrade Assistant. The FMW user can run the Upgrade Assistant without any system administration privileges. See Creating a Non-SYSDBA User to Run the Upgrade Assistant.
Required If you are using auto_login wallet, you must update wallet files.	Auto_login_only wallets are the only supported wallets in 14c (14.1.2.0.0). Before upgrading to 14c (14.1.2.0.0), you must update all existing 12c (12.2.1.4.0) auto_login wallets to auto_login_only using convert_to_auto_login_only.pl. See Convert Auto_login Wallets to Auto_login_only .
Required Linux and UNIX Operating System users must set their `DISPLAY` environment variables before starting the Fusion Middleware tools.	Setting the DISPLAY Environment Variable If the `DISPLAY` environment variable is not set up properly to allow for GUI mode, you may encounter an error.

Creating a Complete Backup

Before you start an upgrade, back up all system-critical files, including the databases that host your Oracle Fusion Middleware schemas.

The backup must include the `SCHEMA_VERSION_REGISTRY` table so that you can restore the contents back to its pre-upgrade state if the upgrade fails.

The Upgrade Assistant Prerequisites screen prompts you to acknowledge that backups have been performed before you proceed with the actual upgrade. However, note that the Upgrade Assistant does not verify that a backup has been created.

See:

- Backing Up Your Environment in *Administering Oracle Fusion Middleware*
- Upgrading and Preparing Your Oracle Databases for 14c (14.1.2.0.0) in *Planning an Upgrade of Oracle Fusion Middleware*

Backing Up the Schema Version Registry Table

Your system backup must include the `SYSTEM.SCHEMA_VERSION_REGISTRY$` table or the `FMWREGISTRY.SCHEMA_VERSION_REGISTRY$` table.

Each Fusion Middleware schema has a row in the `SYSTEM.SCHEMA_VERSION_REGISTRY$` table. If you run the Upgrade Assistant to update an existing schema and it does not succeed, you must restore the original schema before you can try again. Before you run the Upgrade Assistant, make sure you back up your existing database schemas and the schema version registry.

> **Note:**
>
> Before you upgrade a schema using the Upgrade Assistant, you must perform a complete database backup. During the upgrade, you are required to acknowledge that backups have been performed.

Maintaining Customized Domain and Environment Settings

If you have modified any domain-generated, server startup scripts, or configuration files in your pre-upgrade environment, it is important to note that these changes are overwritten during the installation, domain upgrade, and reconfiguration operations. Save your customized files to a shared library location so that you can continue to use them after the upgrade.

Every domain installation includes dynamically-generated domain and server startup scripts, such as `setDomainEnv`. These files are replaced by newer versions during the installation and upgrade process. To maintain your custom domain-level environment settings, Oracle recommends that you create a separate file to store the custom domain information before you upgrade, instead of modifying the scripts directly.

For example, if you want to customize server startup parameters that apply to all servers in a domain, you can create a file called `setUserOverrides.cmd` (Windows) or `setUserOverrides.sh` (UNIX) and configure it to add custom libraries to the WebLogic Server classpath, specify additional command-line options for running the servers, or specify additional environment variables. When using the `pack` and `unpack` commands, any custom settings that you add to this file are preserved during the domain upgrade operation and are carried over to the remote servers.

The following example illustrates startup customizations in a `setUserOverrides` file:

```
# add custom libraries to the WebLogic Server system claspath
  if [ "${POST_CLASSPATH}" != "" ] ; then
    POST_CLASSPATH="${POST_CLASSPATH}${CLASSPATHSEP}${HOME}/foo/fooBar.jar"
    export POST_CLASSPATH
```

```
  else
    POST_CLASSPATH="${HOME}/foo/fooBar.jar"
    export POST_CLASSPATH
  fi

# specify additional java command-line options for servers
JAVA_OPTIONS="${JAVA_OPTIONS}  -Dcustom.property.key=custom.value"
```

If the `setUserOverrides` file exists during a server startup, the file is included in the startup sequence and any overrides contained within this file take effect. You must store the `setUserOverrides` file in the *`EXISTING_DOMAIN_HOME`*`/bin` directory.

> **Note:**
>
> If you are unable to create the `setUserOverrides` script before an upgrade, you need to reapply your settings as described in Re-apply Customizations to Startup Scripts in *Upgrading Oracle WebLogic Server*.

Cloning Your Source Environment for Testing

Create a copy of your source environment, upgrade the cloned environment, verify that the upgraded components work as expected, and then (and only then) upgrade your environment.

Cloning your source environment for testing is recommended, but not required.

Upgrades cannot be reversed. In most cases, if an error occurs, you must stop the upgrade and restore the entire environment from backup and begin the upgrade process from the beginning. Identifying potential upgrade issues in a cloned environment can eliminate unnecessary downtime.

> **Note:**
>
> It is beyond the scope of this document to describe the cloning procedures for all components and operating systems. Cloning procedures are component and operating system-specific. At a high level, you install the pre-upgrade version of your component domain on a test machine, create the required schemas using the Repository Creation Utility (RCU), and perform the upgrade.

Additional benefits of running an upgrade in a cloned environment include the following:

- Uncover and correct any upgrade issues.
- Practice completing an end-to-end upgrade.
- Understand the upgrade performance and how purge scripts can help.
- Understand the time required to complete the upgrade.
- Understand the database resource usage (such as temporary tablespace; PGA, and so on).

> **Note:**
>
> You can run the pre-upgrade Readiness Check on the cloned environment to help identify potential upgrade issues with your data, but you must perform a complete test upgrade on a cloned environment to ensure a successful upgrade.

Verifying Certification and System Requirements

Review the certification matrix and system requirements documents to verify that your environment meets the necessary requirements for installation. You may be required to upgrade your operating system, hardware or other software packages.

> **Note:**
>
> When checking the certification, system requirements, and interoperability information, be sure to check specifically for any operating system requirements. It is important for you to download software specifically designed for your operating system environment, explicitly.

> **WARNING:**
>
> Make sure that your current environment has been patched to the latest patch set *before* you begin the upgrade. Certifications are based on fully patched environments, unless stated otherwise.

Verify Your Environment Meets Certification Requirements

Oracle has tested and verified the performance of your product on all certified systems and environments. Make sure that you are installing your product on a supported hardware or software configuration.

Whenever new certifications occur, they are added to the appropriate certification document right away. New certifications can occur at any time, and for this reason the certification documents are kept outside of the documentation libraries and are available on Oracle Technology Network. See the Certification Matrix for 14c (14.1.2.0.0).

Verify System Requirements and Specifications

It is important to use both the System Requirements and Specifications document and the Oracle Fusion Middleware Certification Matrix to verify that the system requirements such as disk space, available memory, specific platform packages and patches, and other operating system-specific items are met.

Use the Oracle Fusion Middleware System Requirements and Specifications document to verify that the requirements of the Oracle Fusion Middleware Certification matrix are met. For example, if the Certification Matrix indicates that your product is certified for installation on 64-Bit Oracle Linux 8, the System Requirements and Specifications document should be used to verify that your Oracle Linux 8 system has met the required minimum specifications such as disk space, available memory, specific platform packages and patches, and other operating

system-specific items. This document is updated as needed and resides outside of the documentation libraries on the Oracle Technology Network (OTN).

> **Note:**
>
> Do not attempt an upgrade if you are unable to meet the minimum system requirements.

Specifically, you can use the Oracle Fusion Middleware System Requirements and Specifications document to verify the following:

- Processor Requirements
- Java Development Kit (JDK) Requirements
- General Memory and Disk Space Requirements
- Product-Specific Memory and Disk Space Requirements
- Network Requirements
- UNIX Operating System Requirements
- Windows Operating Systems Requirements
- Virtualization Requirements
- Database Requirements

What if my operating system is not supported?

If you are running your environment on an unsupported operating system, you will need to create a supported environment before you begin your upgrade. Do not attempt an upgrade on an unsupported operating system.

Use the migration steps for your environment.

Migrating a Managed Domain from an Unsupported Operating System

If you are currently running your managed or collocated Oracle Fusion Middleware domain on an unsupported operating system, then you must migrate your existing environment to a supported operating system before you upgrade.

After the migration, validate that all of your existing Oracle Fusion Middleware 12c (12.2.1.4.0) software is working properly on the updated machine, and only then perform the upgrade to Oracle Fusion Middleware 14c (14.1.2.0.0).

In these tasks, *host* refers to the existing unsupported source machine and *target* refers to the new supported target machine.

> **Note:**
>
> These steps assume that your database is located on a separate host and will not be moved.

Upgrading an operating system typically involves the following:

> **Caution:**
>
> These steps are provided as an example of the operating system upgrade process and may or may not include all of the procedures you must perform to update your specific operating system. Consult your operating system's upgrade documentation for more information.

Stopping Servers and Processes

Before you run the Upgrade Assistant to upgrade your schemas and configurations, you must shut down all of the pre-upgrade processes and servers, including the Administration Server and any managed servers.

An Oracle Fusion Middleware environment can consist of an Oracle WebLogic Server domain, an Administration Server, multiple managed servers, Java components, system components, and a database used as a repository for metadata. The components may be dependent on each other, so they must be stopped in the correct order.

> **Note:**
>
> The procedures in this section describe how to stop the existing, pre-upgrade servers and processes using the WLST command-line utility or a script. You can also use the Oracle Fusion Middleware Control and the Oracle WebLogic Server Remote Console. See Starting and Stopping Administration and Managed Servers and Node Manager.
>
> As of release 14c (14.1.2.0.0), the WebLogic Server Administration Console has been removed. For comparable functionality, you should use the WebLogic Remote Console. For more information, see Oracle WebLogic Remote Console.

To stop your pre-upgrade Fusion Middleware environment, navigate to the pre-upgrade domain and follow the steps below:

> **Note:**
>
> It is important that you stop the following servers in the correct order.

Step 1: Stop System Components

To stop system components, such as Oracle HTTP Server, use the `stopComponent` script:

- (UNIX) *`EXISTING_DOMAIN_HOME`*`/bin/stopComponent.sh` *`component_name`*
- (Windows) *`EXISTING_DOMAIN_HOME`*`\bin\stopComponent.cmd` *`component_name`*

You can stop system components in any order.

Step 2: Stop Any Managed Servers

To stop a WebLogic Server Managed Server, use the `stopManagedWebLogic` script:

- (UNIX) *EXISTING_DOMAIN_HOME*/bin/stopManagedWebLogic.sh *managed_server_name admin_url*
- (Windows) *EXISTING_DOMAIN_HOME*\bin\stopManagedWebLogic.cmd *managed_server_name admin_url*

When prompted, enter your user name and password.

Step 3: Stop the Administration Server

To stop the Administration Server, use the `stopWebLogic` script:

- (UNIX) *EXISTING_DOMAIN_HOME*/bin/stopWebLogic.sh
- (Windows) *EXISTING_DOMAIN_HOME*\bin\stopWebLogic.cmd

When prompted, enter your user name, password, and the URL of the Administration Server.

Step 4: Stop Node Manager

To stop Node Manager, close the command shell in which it is running.

Alternatively, after setting the `nodemanager.properties` attribute `QuitEnabled` to `true` (the default is `false`), you can use WLST to connect to Node Manager and shut it down. See stopNodeManager in *WLST Command Reference for Oracle WebLogic Server*.

Back Up All Files from the Host Machine

Make sure that you have created a complete backup of your entire 12c (12.2.1.4.0) deployment before you begin the upgrade process. These files can be used if there is an issue during the migration and you have to restart the process.

> **Note:**
>
> If the operating system upgrade takes place on the same machine, there is a risk of corrupting the source environment if the upgrade fails.
> For general information about creating a complete backup of your existing environment, see Backing Up Your Environment in *Oracle Fusion Middleware Administrator's Guide*.

During the upgrade you must have access to the contents of the following:

- *12c_DOMAIN_HOME*
- *12c*`/nodemanager` directory located in *12c_ORACLE_HOME*`/wlserver/common/`

The following steps explain how to use the **pack** command to create a domain template jar file. This is only one method that can be used to create a backup. Consult your own backup and recovery plans to choose the backup method that best suits your deployment.

1. Pack the domain that was created on the unsupported host using the pack command as follows:

```
cd ORACLE_HOME/oracle_common/common/bin/
```

```
./pack.sh -domain=/scratch/username/<product>_12214/user_projects/domains/
base_domain -template=/scratch/<product>.jar - template_author=<user_name>
-template_name=<product>_domain
```

2. Copy the domain template jar file that you just created to the new supported host.
Do not unpack the jar file. At this stage you are just copying the file to a temporary location on the new host until it is time to unpack the domain into the new 14.1.2 Oracle Home. To simplify the unpack process, consider recreating the exact same directory structure that you used in your 12.2.1.4 domain. This will ensure that the file is not overwritten.

> **Note:**
>
> Do not proceed with the upgrade until you have a complete backup.

Set Up the Target Machine with the 12*c* Host Name and IP Address

The host name and IP address of the target machine must be made identical to the host. This requires you to change the IP address and name of the source machine or decommission the source machine to avoid conflicts in the network.

The process of changing an IP address and host name vary by operating system. Consult your operating system's administration documentation for more information.

Copy the Contents of the Domain Template to the New Target Host

Unpack the contents of the generated domain template jar file on the target host. The directory structure on the target machine must be identical to the structure of the host machine.

1. On the target machine, navigate to the new Oracle home.

```
cd 1412_ORACLE_HOME/oracle_common/common/bin/
```

2. Use the unpack command to copy the files to the new target:

```
./unpack.sh -domain=/scratch/<username>/<product>_12214/user_projects/
domains/base_domain -template=/scratch/<product>.jar -user_name=weblogic -
password=<enter your password>
```

Install the 14c (14.1.2.0.0) Product Distributions on the Target Machine

Oracle recommends an Out-of-Place approach for upgrade. Therefore, you must install the product distributions in a new Oracle home on the target machine.

Refer to the component-specific installation guides for the component(s) you are installing.

Upgrade the Target Environment Using the Standard Upgrade Procedure

After installing the product on the target machine, you must upgrade each product component individually using an Upgrade Utility specified in the component-specific upgrade guide and complete any post-upgrade tasks.

If you are upgrading additional components, see the component-specific upgrade guide.

> **Note:**
>
> The Node Manager upgrade procedure requires access to the original Node Manager files. Use the 12c (12.2.1.4.0) Node Manger files that you backed up from the source machine.

Verify That the Database Hosting Oracle Fusion Middleware is Supported

You must have a supported Oracle database configured with the required schemas before you run Oracle Fusion Middleware 14c (14.1.2.0.0).

Review the Fusion Middleware database requirements before starting the upgrade to ensure that the database hosting Oracle Fusion Middleware is supported and has sufficient space to perform an upgrade. See the Certification Matrix for 14c (14.1.2.0.0).

> **Note:**
>
> If your database version is no longer supported, you must upgrade to a supported version before starting an upgrade.

Verify That the JDK Is Certified for This Release of Oracle Fusion Middleware

At the time this document was published, the certified JDK for 14c (14.1.2.0.0) was 17.0.12.

Refer to the Oracle Fusion Middleware Supported System Configurations information on the Oracle Technology Network (OTN) to verify that the JDK you are using is supported.

If your JDK is not supported, or you do not have a JDK installed, you must download the required Java SE JDK, from the following website:

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

Make sure that the JDK is installed outside of the Oracle home. The Oracle Universal Installer validates that the designated Oracle home directory is empty, and the install does not progress until an empty directory is specified. If you install JDK under Oracle home, you may experience issues in future operations. Therefore, Oracle recommends that you use install the JDK in the following directory: `/home/oracle/products/jdk`.

For more information on the difference between generic and platform-specific installers, see Understanding the Difference Between Generic and Platform-Specific Distributions in the *Oracle Fusion Middleware Download, Installation, and Configuration Readme Files*.

Verify the Database User for the WLSSchemaDataSource Data Source

This step is required if your existing domain has a `WLSSchemaDataSource` data source.

If your domain has the `WLSSchemaDataSource` data source, then you will need to verify which database user is assigned to it. If `<PREFIX>_WLS_RUNTIME` is assigned to it, then you need to change that to `<PREFIX>_WLS` .

This change is necessary due to the following changes:

- The 14c (14.1.2.0.0) Upgrade Assistant uses the information in the `WLSSchemaDataSource` data source,when a domain-based schema upgrade is performed. That upgrade will fail if the `<PREFIX>_WLS` database user is not assigned to the `WLSSchemaDataSource`, or if `<PREFIX>_WLS` is not entered as the "Schema User Name" on the "WLS Schema" page of the Upgrade Assistant.
- Oracle recommends that you use the 12c Oracle WebLogic Administration Console to change the database user to `<PREFIX>_WLS` in the `WLSSchemaDataSource` data source. Doing this will avoid the Upgrade Assistant failure, and also allow the Reconfiguration Wizard to pre-populate fields with the correct values.
- The `<PREFIX>_WLS_RUNTIME` database user is reserved for use with a new `WLSRuntimeSchemaDataSource`, which was introduced in 14c (14.1.2.0.0). This new `WLSRuntimeSchemaDataSource` will be created when the 14c (14.1.2.0.0) Reconfiguration Wizard (reconfig.sh) is used to upgrade the domain.

You can use your Oracle WebLogic 12*c* Administration Console to change the user in the WLSSchemaDataSource from `<PREFIX>_WLS_RUNTIME` to `<PREFIX>_WLS`.

1. Log in the 12*c* (12.2.1.4.0) Administration Console.
2. In the administration console under Domain Structure, expand **Services** (by clicking the **+** next to it). Then click **Data Sources**.
3. If the user in Properties field contains `<PREFIX>_WLS_RUNTIME` , change it to`<PREFIX>_WLS`.
4. Save the change.
5. Use the Change Center to commit the change, if your domain is running in production mode.

Updating Policy Files when Using Enhanced Encryption (AES 256)

If you plan to use enhanced encryption, such as Advanced Encryption Standard (AES) 256, in your upgraded environment, Oracle recommends that you apply the latest required policy files to the JDK before you upgrade.

The Java platform defines a set of APIs spanning major security areas, including cryptography, public key infrastructure, authentication, secure communication, and access control. These APIs allow developers to easily integrate security mechanisms into their application code.

Some of the security algorithms used in Fusion Middleware 14c (14.1.2.0.0) require additional policy files for the JDK. See Java Cryptography Architecture Oracle Providers Documentation.

> **Note:**
>
> If you attempt to use enhanced encryption without applying these policy files to the JDK before you begin the upgrade, the upgrade can fail and you must restore the entire pre-upgrade environment and start the upgrade from the beginning.

Purging Unused Data

Purging unused data and maintaining a purging methodology before an upgrade can optimize the upgrade process.

Some components have automated purge scripts. If you are using purge scripts, wait until the purge is complete before starting the upgrade process. The upgrade may fail if the purge scripts are running while using the Upgrade Assistant to upgrade your schemas.

Creating a Non-SYSDBA User to Run the Upgrade Assistant

Oracle recommends that you create a non-SYSDBA user called `FMW` to run the Upgrade Assistant. This user has the privileges required to modify schemas, but does not have full administrator privileges.

SYSDBA is an administrative privilege that is required to perform high-level administrative operations such as creating, starting up, shutting down, backing up, or recovering the database. The SYSDBA system privilege is for a fully empowered database administrator. When you connect with the SYSDBA privilege, you connect with a default schema and not with the schema that is generally associated with your user name. For SYSDBA, this schema is SYS. Access to a default schema can be a very powerful privilege. For example, when you connect as user SYS, you have unlimited privileges on data dictionary tables. Therefore, Oracle recommends that you create a non-SYSDBA user to upgrade the schemas. The privileges listed below must be granted to user FMW before starting the Upgrade Assistant.

> **Notes:**
>
> The non-SYSDBA user FMW is created solely for the purpose of running the Upgrade Assistant. After this step is complete, drop the FMW user. Note that privileges required for running the Upgrade Assistant may change from release to release.

> **Note:**
>
> In this example we are using the name `FMW` for our non-SYSDBA administrator. Substitute `FMW` with your admin name.

When granting privileges, make sure that you specify your actual user names and password for the schemas in your domain.

```
CREATE USER FMW IDENTIFIED BY "<FMW password>";
GRANT pdb_dba TO FMW;
GRANT MANAGE SCHEDULER TO FMW;
```

```
GRANT USE ON EDITION ORA$BASE TO FMW WITH GRANT OPTION;
GRANT EXECUTE ON DBMS_LOB TO FMW WITH GRANT OPTION;
GRANT EXECUTE ON DBMS_OUTPUT TO FMW WITH GRANT OPTION;
GRANT EXECUTE ON DBMS_STATS TO FMW WITH GRANT OPTION;
GRANT EXECUTE ON sys.dbms_aq TO FMW WITH GRANT OPTION;
GRANT EXECUTE ON sys.dbms_aqadm TO FMW WITH GRANT OPTION;
GRANT EXECUTE ON sys.dbms_aqin TO FMW WITH GRANT OPTION;
GRANT EXECUTE ON sys.dbms_aqjms TO FMW WITH GRANT OPTION;
GRANT EXECUTE ON utl_file TO FMW WITH GRANT OPTION;
GRANT EXECUTE ON dbms_lock TO FMW WITH GRANT OPTION;
GRANT SELECT ON sys.V_$INSTANCE TO FMW WITH GRANT OPTION;
GRANT SELECT ON sys.GV_$INSTANCE TO FMW WITH GRANT OPTION;
GRANT SELECT ON sys.V_$SESSION TO FMW WITH GRANT OPTION;
GRANT SELECT ON sys.GV_$SESSION TO FMW WITH GRANT OPTION;
GRANT SELECT ON dba_scheduler_jobs TO FMW WITH GRANT OPTION;
GRANT SELECT ON dba_scheduler_job_run_details TO FMW WITH GRANT OPTION;
GRANT SELECT ON dba_scheduler_running_jobs TO FMW WITH GRANT OPTION;
GRANT SELECT ON dba_aq_agents TO FMW WITH GRANT OPTION;
GRANT EXECUTE ON sys.DBMS_SHARED_POOL TO FMW WITH GRANT OPTION;
GRANT SELECT ON dba_2pc_pending TO FMW WITH GRANT OPTION;
GRANT SELECT ON dba_pending_transactions TO FMW WITH GRANT OPTION;
GRANT EXECUTE ON DBMS_FLASHBACK TO FMW WITH GRANT OPTION;
GRANT EXECUTE ON dbms_crypto TO FMW WITH GRANT OPTION;
GRANT EXECUTE ON dbms_job TO FMW WITH GRANT OPTION;
GRANT SELECT ON dba_scheduler_job_classes TO FMW WITH GRANT OPTION;
GRANT SELECT ON SYS.DBA_DATA_FILES TO FMW WITH GRANT OPTION;
GRANT SELECT ON SYS.V_$ASM_DISKGROUP TO FMW WITH GRANT OPTION;
GRANT EXECUTE ON SYS.DBMS_ASSERT TO FMW WITH GRANT OPTION;
GRANT EXECUTE ON DBMS_SCHEDULER TO FMW WITH GRANT OPTION;
GRANT SELECT ON dba_data_files TO FMW WITH GRANT OPTION;
GRANT EXECUTE ON UTL_RAW TO FMW WITH GRANT OPTION;
GRANT EXECUTE ON DBMS_XMLDOM TO FMW WITH GRANT OPTION;
GRANT EXECUTE ON DBMS_APPLICATION_INFO TO FMW WITH GRANT OPTION;
GRANT EXECUTE ON DBMS_UTILITY TO FMW WITH GRANT OPTION;
GRANT EXECUTE ON DBMS_SESSION TO FMW WITH GRANT OPTION;
GRANT EXECUTE ON DBMS_METADATA TO FMW WITH GRANT OPTION;
GRANT EXECUTE ON DBMS_XMLGEN TO FMW WITH GRANT OPTION;
GRANT EXECUTE ON DBMS_DATAPUMP TO FMW WITH GRANT OPTION;
GRANT EXECUTE ON DBMS_MVIEW TO FMW WITH GRANT OPTION;
GRANT SELECT ON dba_objects TO FMW WITH GRANT OPTION;
GRANT SELECT ON dba_queue_subscribers TO FMW WITH GRANT OPTION;
GRANT SELECT ON dba_subscr_registrations TO FMW WITH GRANT OPTION;
GRANT EXECUTE ON DBMS_RLS TO FMW WITH GRANT OPTION;
GRANT READ ON CTXSYS.CTX_PENDING TO FMW WITH GRANT OPTION;
GRANT SELECT ON SYS.V_$PARAMETER TO FMW WITH GRANT OPTION;
GRANT CREATE PROCEDURE TO FMW;
GRANT SELECT ON dba_users TO FMW WITH GRANT OPTION;
GRANT ALL ON sys.v_$parameter TO FMW WITH GRANT OPTION;
```

Identifying Existing Schemas Available for Upgrade

This optional step can be used before an upgrade to query the schema version registry table. This table contains schema information such as the schema owner, version number, component name and ID, date of creation and modification, and custom prefixes.

You can let the Upgrade Assistant upgrade all of the schemas in the domain, or you can select individual schemas to upgrade. To help decide, follow these steps to view a list of all the schemas that are available for an upgrade:

1. If you are using an Oracle database, connect to the database by using an account that has Oracle DBA privileges, and run the following from SQL*Plus:

```
SET LINE 120
COLUMN MRC_NAME FORMAT A14
COLUMN COMP_ID FORMAT A20
COLUMN VERSION FORMAT A12
COLUMN STATUS FORMAT A9
COLUMN UPGRADED FORMAT A8
SELECT MRC_NAME, COMP_ID, OWNER, VERSION, STATUS, UPGRADED FROM
SCHEMA_VERSION_REGISTRY WHERE OWNER LIKE UPPER('<PREFIX>_%');
```

2. Examine the report that is generated.

Notes:

- After the upgrade you can generate the report again to see the updated versions of your schemas. If an upgrade was not needed for a schema, the `schema_version_registry` table retains the schema at its pre-upgrade version.
- If your existing schemas are not from a supported version, then you must upgrade them to a supported version before using the 14c (14.1.2.0.0) upgrade procedures. Refer to your pre-upgrade version documentation for more information.
- If you used an OID-based policy store in the earlier versions, make sure to create a new OPSS schema before you perform the upgrade. After the upgrade, the OPSS schema remains an LDAP-based store.
- You can only upgrade schemas for products that are available for upgrade in Oracle Fusion Middleware release 14c (14.1.2.0.0). Do not attempt to upgrade a domain that includes components that are not yet available for upgrade to 14c (14.1.2.0.0).

Convert Auto_login Wallets to Auto_login_only

Before upgrading the Oracle HTTP Server (OHS) instance to 14c (14.1.2.0.0), all existing OHS `auto_login wallets` must be converted to `auto_login_only` using `convert_to_auto_login_only.pl`.

As of Oracle HTTP Server (OHS) 14c (14.1.2.0.0), `Auto_login_only` wallets are the only supported wallets. You will need to identify and convert any `auto_login` wallets to `auto_login_only` before starting the server.

1. Identify all `auto_login` wallets. The `auto_login` wallets will have 2 additional files:

   ```
   cwallet.sso
   ewallet.p12
   ```

2. Use the `convert_to_auto_login_only.pl` script to convert each `auto_login` wallet to `auto_login_only`.

   ```
   Usage:
   perl <path_to_convert_to_auto_login_only.pl> <auto_login_wallet directory>
   <auto_login_only_wallet directory>
   <Password of auto_login_wallet>
   auto_login_wallet directory - Directory path to the existing auto_login
   wallet directory
   auto_login_only_wallet directory - Directory path to the new
   auto_login_only wallet directory, directory will be created
   by the tool
   Password of auto_login_wallet - Optional: Password of the existing
   auto_login wallet
   ```

   The following commands use the default wallet as an example. You must adjust the directory path for your specific environment –`DOMAIN_HOME` and `ORACLE_HOME` environment variables must be set prior to running following commands:

   ```
   Linux/Unix:
   cd $DOMAIN_HOME/config/fmwconfig/components/OHS/ohs1/keystores/
   $ORACLE_HOME/perl/bin/perl $ORACLE_HOME/ohs/common/bin/
   convert_to_auto_login_only.pl default default/auto_login_only
   Windows:
   cd %DOMAIN_HOME%\config\fmwconfig\components\OHS\ohs1\keystores
   %ORACLE_HOME%\perl\bin\perl %ORACLE_HOME%
   \ohs\common\bin\convert_to_auto_login_only.pl default
   default\auto_login_only
   ```

3. Update all wallet directives to use the new `auto_login_only_wallet` directory. Sample entries (you must adjust the directory path for your specific environment):

   ```
   #SSLWallet "${ORACLE_INSTANCE}/config/fmwconfig/components/$
   {COMPONENT_TYPE}/instances/${COMPONENT_NAME}/keystores
   /default"
   SSLWallet "${ORACLE_INSTANCE}/config/fmwconfig/components/$
   {COMPONENT_TYPE}/instances/${COMPONENT_NAME}/keystores/default
   /auto_login_only"
   #WLSSLWallet "${ORACLE_INSTANCE}/config/fmwconfig/components/$
   {COMPONENT_TYPE}/instances/${COMPONENT_NAME}/keystores
   /default"
   WLSSLWallet "${ORACLE_INSTANCE}/config/fmwconfig/components/$
   {COMPONENT_TYPE}/instances/${COMPONENT_NAME}/keystores
   /default/auto_login_only"
   ```

> **Note:**
>
> The `convert_to_auto_login_only.pl` script does not import requested certificates (CSRs). If a certificate signing request (CSR) is required, then a new `auto_login_only` wallet will need to be created.
>
> After the upgrade you will need to run another script to remove version information from the files located in the `htdocs` directory. See #unique_47.

Setting the DISPLAY Environment Variable

If the `DISPLAY` environment variable is not set up properly to allow for GUI mode, you may encounter an error.

Linux and UNIX Operating System Users:

If the `DISPLAY` environment variable is not set up properly to allow for GUI mode, you may encounter the following error:

```
Xlib: connection to ":1.0" refused by server
Xlib: No protocol specified
```

To resolve this issue, set the `DISPLAY` environment variable to the system name or IP address of your local workstation, and rerun Upgrade Assistant.

If you continue to receive these errors after setting `DISPLAY`, try launching another GUI tool, such as `vncconfig`. If you see the same errors, your `DISPLAY` environment variable may still not be set correctly.

Performing the Oracle WebCenter Pre-Upgrade Tasks

Before upgrading to Oracle WebCenter products 14c (14.1.2.0.0), perform pre-upgrade tasks that apply to your environment.

The pre-upgrade tasks for Oracle WebCenter include the following:

Pre-Upgrade Task	More Information
Disable all deprecated or obsolete components before upgrade.	Disabling Obsolete Components Before Upgrade
Export metadata for Portlet Producer Applications	Exporting Metadata for Portlet Producer Applications
Complete the pre-upgrade tasks for Oracle WebCenter Content (if you will be upgrading Content or WebCenter Content Web UI).	Performing Pre-Upgrade Tasks for WebCenter Content
Complete the pre-upgrade tasks for Oracle WebCenter Enterprise Capture (if you will be upgrading Enterprise Capture).	Performing Pre-Upgrade Tasks for Oracle WebCenter Enterprise Capture

Disabling Obsolete Components Before Upgrade

The following components should be disabled before the upgrade because they are obsolete or disabled.

> **Note:**
>
> Failure to disable these components may cause the upgrade to fail and content servers will not be able to start.

- CheckoutAndOpenInNative
- CIS_Helper
- ContentTrackerReports
- SiteStudioExternalApplications
- FormEditor (which uses the now deprecated FCKEditor)
- proxyconnections8
- UrmAgent
- PDFExportConverter (IBR)
- Folders_g

For more information about disabling components, see Enabling or Disabling a Component Using the Component Manager in *Administering Oracle WebCenter Content*.

Exporting Metadata for Portlet Producer Applications

If your application is consuming any preconfigured portlet producers, which includes the WSRP Parameter Form Portlet, the sample WSRP portlet producers, and sample PDK-Java portlet producers, then you need to run the `exportPortletClientMetadata` WLST command to export portlet client metadata and producer customizations and personalizations for WebCenter Portal.

```
exportPortletClientMetadata(appName='webcenter', fileName='/tmp/
portletClientExport.ear')
```

3

Upgrading an Oracle WebCenter Domain

It is important to understand the general upgrade procedures for Oracle WebCenter and WebCenter Content. Also, in order to Upgrade Oracle WebCenter Domain, some additional component-specific tasks may be required.

The procedures outlined in the following sections describe the high-level process of upgrading a basic WebCenter domain to 14c (14.1.2.0.0). Most upgrades follow these general procedures, but the actual upgrade procedures you will perform depend on which components are being upgraded. There may be additional pre- or post- upgrade procedures associated with your components. Therefore, you will need to locate the upgrade procedures for each component in your pre-upgrade environment to complete the domain upgrade.

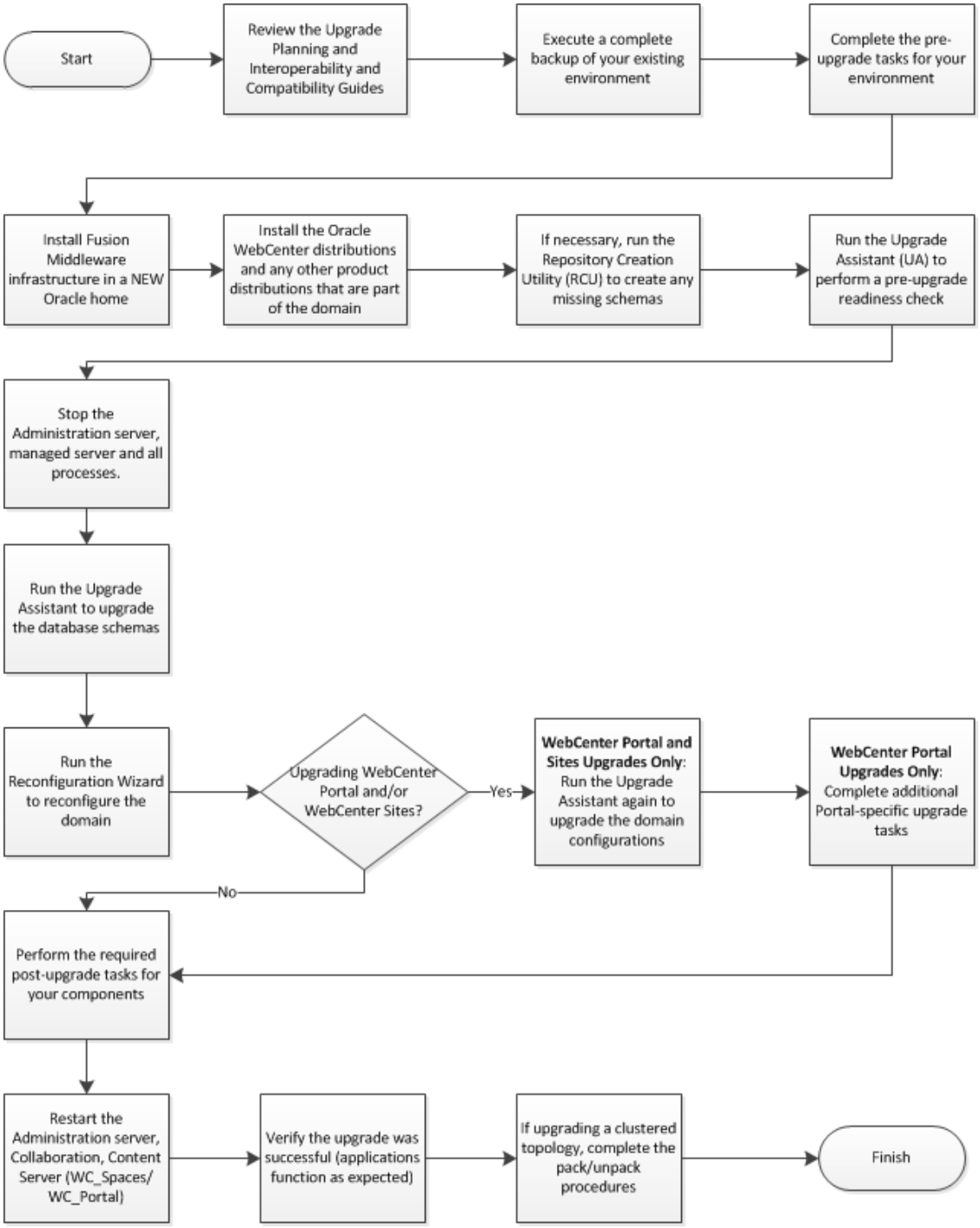
For example, if your Oracle WebCenter domain includes Oracle WebCenter Content and WebCenter Portal, you would need to follow the procedures described in Upgrading Oracle WebCenter Content .

About the Oracle WebCenter Upgrade Process

Review the process flow for upgrading WebCenter products to get a better understanding of the upgrade procedures and when you will perform them.

This process flow shows the high-level procedures for upgrading a WebCenter domain to 14c (14.1.2.0.0). The actual procedures you will perform depends on your pre-upgrade environment and the components you will be upgrading.

Figure 3-1 Upgrading Oracle WebCenter to 14c (14.1.2.0.0)



Task	Description
Required Complete all of the Oracle Fusion Middleware standard pre-upgrade tasks, as well as any additional component-specific tasks you may be required to perform.	Pre-Upgrade Tasks for Oracle WebCenter Components

Task	Description
Required Install the product distributions for all the products that are part of the domain.	The binaries should be installed into a new Oracle home on the same host as the existing deployment. Only install binaries for products that exist on the existing deployment. Adding new products can only be done after the upgrade is complete.
Optional Run a pre-upgrade readiness check with the Upgrade Assistant.	When run in `-readiness` mode, the Upgrade Assistant performs a read-only check to determine if there might be problems in the starting point environment that would prevent a successful upgrade. The checks vary by component and a complete report is generated to help troubleshoot any potential issues. **Note:** You must disable the system component `CheckoutAndOpenInNative` before running readiness check or upgrade. Otherwise the readiness check fails with: `EXCEPTION The component CheckoutAndOpenInNative is deprecated.`
Required Stop the Administration Server, Managed Servers and any other running applications in your existing deployment.	Failure to shut down the existing environment during the upgrade can corrupt your schemas and/or component configurations.
Required Run the Upgrade Assistant to upgrade individually selected schemas or all schemas used by the domain.	Oracle recommends that you allow the Upgrade Assistant to upgrade all schemas within the selected domain whenever possible.
Required Run the Reconfiguration Wizard to reconfigure the domain.	
Required Complete all of the required post-upgrade tasks described in your component-specific documentation. Some components will not work correctly if these tasks are not performed after the upgrade.	Performing Post-Upgrade Configuration Tasks
Required Restart the administration server and the managed servers.	
Required Verify the upgrade was successful (applications function as expected, etc.)	Verifying the New Applications Work as Expected
Optional Upgrade WebCenter for a cluster topology, if applicable	Upgrading WebCenter in a Clustered Topology

Installing a Product Distribution

Before beginning your upgrade, download Oracle Fusion Middleware Infrastructure and the WebCenter Content distributions on the target system and install them using Oracle Universal Installer.

> **Note:**
>
> When Infrastructure is required for the upgrade, you must install the Oracle Fusion Middleware Infrastructure distribution first before you install other Fusion Middleware products. If your JDK is not supported, or you do not have a JDK installed, you must download the required Java SE JDK before you begin

To install the 14c (14.1.2.0.0) distributions:

1. Sign in to the target system.
2. Download the following from Oracle Technology Network or Oracle Software Delivery Cloud to your target system:
   - Oracle Fusion Middleware Infrastructure (`fmw_14.1.2.0.0_infrastructure_generic.jar`)
   - Oracle WebCenter Content (`fmw_14.1.2.0.0_wccontent_generic.jar`)
3. Change to the directory where you downloaded the 14c (14.1.2.0.0) product distribution.
4. Start the installation program for Oracle Fusion Middleware Infrastructure:
   - (UNIX) *JDK_HOME*`/bin/java -jar fmw_14.1.2.0.0_infrastructure_generic.jar`
   - (Windows) *JDK_HOME*`\bin\java -jar fmw_14.1.2.0.0_infrastructure_generic.jar`

After your Infrastructure installation is complete, you will install the remaining distributions the same way using the correct distribution names. For example, to start the installation program for Oracle WebCenter Content, use `fmw_14.1.2.0.0_wccontent_generic.jar` as the distribution name

5. On UNIX operating systems, the Installation Inventory Setup screen appears if this is the first time you are installing an 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, and click **Next**.

   > **Note:**
   >
   > The Installation Inventory Setup screen does not appear on Windows operating systems.

6. On the Welcome screen, review the information to make sure that you have met all the prerequisites. Click **Next**.
7. On the Auto Updates screen, select an option:
   - **Skip Auto Updates**: If you do not want your system to check for software updates at this time.

- **Select patches from directory**: To navigate to a local directory if you downloaded patch files.
- **Search My Oracle Support for Updates**: To automatically download software updates if you have a My Oracle Support account. You must enter Oracle Support credentials then click **Search**. To configure a proxy server for the installer to access My Oracle Support, click **Proxy Settings**. Click **Test Connection** to test the connection.

Click **Next**.

8. On the Installation Location screen, specify the location for the Oracle home directory and click **Next**.

   For more information about Oracle Fusion Middleware directory structure, see Understanding Directories for Installation and Configuration in *Oracle Fusion Middleware Planning an Installation of Oracle Fusion Middleware*.

9. On the Installation Type screen, select the products to install.

   Click **Next**.

10. The Prerequisite Checks screen analyzes the host computer to ensure that the specific operating system prerequisites have been met.

    To view the list of tasks that are verified, select **View Successful Tasks**. To view log details, select **View Log**. If any prerequisite check fails, then an error message appears at the bottom of the screen. Fix the error and click **Rerun** to try again. To ignore the error or the warning message and continue with the installation, click **Skip** (not recommended).

11. On the Installation Summary screen, verify the installation options that 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. The response file collects and stores all the information that you have entered, and enables you to perform a silent installation (from the command line) at a later time.
    Click **Install** to begin the installation.

12. On the Installation Progress screen, when the progress bar displays 100%, click **Finish** to dismiss the installer, or click **Next** to see a summary.

13. The Installation Complete screen displays the Installation Location and the Feature Sets that are installed. Review this information and click **Finish** to close the installer.

14. After you have installed Oracle Fusion Middleware Infrastructure, repeat the steps above to install the other product distributions.

Running a Pre-Upgrade Readiness Check

To identify potential issues with the upgrade, Oracle recommends that you run a readiness check before you start the upgrade process. Be aware that the readiness check may not be able to discover all potential issues with your upgrade. An upgrade may still fail, even if the readiness check reports success.

About Running a Pre-Upgrade Readiness Check

You can run the Upgrade Assistant in `-readiness` mode to detect issues before you perform the actual upgrade. You can run the readiness check in GUI mode using the Upgrade Assistant or in silent mode using a response file.

The Upgrade Assistant readiness check performs a read-only, pre-upgrade review of your Fusion Middleware schemas and WebLogic domain configurations that are at a supported starting point. The review is a read-only operation.

The readiness check generates a formatted, time-stamped readiness report so you can address potential issues before you attempt the actual upgrade. If no issues are detected, you can begin the upgrade process. Oracle recommends that you read this report thoroughly before performing an upgrade.

You can run the readiness check while your existing Oracle Fusion Middleware domain is online (while other users are actively using it) or offline.

You can run the readiness check any number of times before performing any actual upgrade. However, do not run the readiness check after an upgrade has been performed, as the report results may differ from the result of pre-upgrade readiness checks.

> **Note:**
>
> To prevent performance from being affected, Oracle recommends that you run the readiness check during off-peak hours.

Starting the Upgrade Assistant in Readiness Mode

Use the `-readiness` parameter to start the Upgrade Assistant in readiness mode.

To perform a readiness check on your pre-upgrade environment with the Upgrade Assistant:

1. Go to the `oracle_common/upgrade/bin` directory:
   - (UNIX) *`ORACLE_HOME`*`/oracle_common/upgrade/bin`
   - (Windows) *`ORACLE_HOME`*`\oracle_common\upgrade\bin`
2. Start the Upgrade Assistant.
   - (UNIX) `./ua -readiness`
   - (Windows) `ua.bat -readiness`

> **Note:**
>
> If the `DISPLAY` environment variable is not set up properly to allow for GUI mode, you may encounter the following error:
>
> ```
> Xlib: connection to ":1.0" refused by server
> Xlib: No protocol specified
> ```
>
> To resolve this issue, set the `DISPLAY` environment variable to the system name or IP address of your local workstation, and rerun Upgrade Assistant.
>
> If you continue to receive these errors after setting `DISPLAY`, try launching another GUI tool, such as `vncconfig`. If you see the same errors, your `DISPLAY` environment variable may still not be set correctly.

For information about other parameters that you can specify on the command line, see:

Upgrade Assistant Parameters

When you start the Upgrade Assistant from the command line, you can specify additional parameters.

Table 3-1 Upgrade Assistant Command-Line Parameters

Parameter	Required or Optional	Description
`-readiness`	Required for readiness checks **Note**: Readiness checks cannot be performed on standalone installations (those not managed by the WebLogic Server).	Performs the upgrade readiness check without performing an actual upgrade. Schemas and configurations are checked. Do not use this parameter if you have specified the `-examine` parameter.
`-threads`	Optional	Identifies the number of threads available for concurrent schema upgrades or readiness checks of the schemas. The value must be a positive integer in the range 1 to 8. The default is 4.
`-response`	Required for silent upgrades or silent readiness checks	Runs the Upgrade Assistant using inputs saved to a response file generated from the data that is entered when the Upgrade Assistant is run in GUI mode. Using this parameter runs the Upgrade Assistant in *silent mode* (without displaying Upgrade Assistant screens).
`-examine`	Optional	Performs the examine phase but does not perform an actual upgrade. Do not specify this parameter if you have specified the `-readiness` parameter.
`-logLevel` *attribute*	Optional	Sets the logging level, specifying one of the following attributes: • `TRACE` • `NOTIFICATION` • `WARNING` • `ERROR` • `INCIDENT_ERROR` The default logging level is `NOTIFICATION`. Consider setting the `-logLevel TRACE` attribute to so that more information is logged. This is useful when troubleshooting a failed upgrade. The Upgrade Assistant's log files can become very large if `-logLevel TRACE` is used.

Table 3-1 (Cont.) Upgrade Assistant Command-Line Parameters

Parameter	Required or Optional	Description
`-logDir` *location*	Optional	Sets the default location of upgrade log files and temporary files. You must specify an existing, writable directory where the Upgrade Assistant creates log files and temporary files. The default locations are: (UNIX) *ORACLE_HOME*`/oracle_common/upgrade/logs` *ORACLE_HOME*`/oracle_common/upgrade/temp` (Windows) *ORACLE_HOME*`\oracle_common\upgrade\logs` *ORACLE_HOME*`\oracle_common\upgrade\temp`
`-help`	Optional	Displays all of the command-line options.

Performing a Readiness Check with the Upgrade Assistant

Navigate through the screens in the Upgrade Assistant to complete the pre-upgrade readiness check.

Readiness checks are performed only on schemas or component configurations that are at a supported upgrade starting point.

To complete the readiness check:

1. On the Welcome screen, review information about the readiness check. Click **Next**.
2. On the Readiness Check Type screen, select the readiness check that you want to perform:
   - **Individually Selected Schemas** allows you to select individual schemas for review before upgrade. The readiness check reports whether a schema is supported for an upgrade or where an upgrade is needed.
     When you select this option, the screen name changes to Selected Schemas.
   - **Domain Based** allows the Upgrade Assistant to discover and select all upgrade-eligible schemas or component configurations in the domain specified in the **Domain Directory** field.
     When you select this option, the screen name changes to Schemas and Configuration.

     Leave the default selection if you want the Upgrade Assistant to check all schemas and component configurations at the same time, or select a specific option:
     - **Include checks for all schemas** to discover and review all components that have a schema available to upgrade.
     - **Include checks for all configurations** to review component configurations for a managed WebLogic Server domain.

Click **Next**.

3. If you selected **Individually Selected Schemas**: On the Available Components screen, select the components that have a schema available to upgrade for which you want to perform a readiness check.

   If you selected **Domain Based**: On the Component List screen, review the list of components that are present in your domain for which you want to perform a readiness check.

   If you select a component that has dependent components, those components are automatically selected. For example, if you select Oracle Platform Security Services, Oracle Audit Services is automatically selected.

   Depending on the components you select, additional screens may display. For example, you may need to:

   - Specify the domain directory.
   - Specify schema credentials to connect to the selected schema: **Database Type**, **DBA User Name**, and **DBA Password**. Then click **Connect**.

     > **Note:**
     >
     > Oracle database is the default database type. Make sure that you select the correct database type before you continue. If you discover that you selected the wrong database type, do not go back to this screen to change it to the correct type. Instead, close the Upgrade Assistant and restart the readiness check with the correct database type selected to ensure that the correct database type is applied to all schemas.

   - Select the **Schema User Name** option and specify the **Schema Password**.

     > **Note:**
     >
     > The Upgrade Assistant automatically enables default credentials. If you are unable to connect, make sure that you manually enter the credentials for your schema before you continue.

   Click **Next** to start the readiness check.

4. On the Readiness Summary screen, review the summary of the readiness checks that will be performed based on your selections.

   If you want to save your selections to a response file to run the Upgrade Assistant again later in response (or silent) mode, click **Save Response File** and provide the location and name of the response file. A silent upgrade performs exactly the same function that the Upgrade Assistant performs, but you do not have to manually enter the data again.

   For a detailed report, click **View Log**.

   Click **Next**.

5. On the Readiness Check screen, review the status of the readiness check. The process can take several minutes.

   If you are checking multiple components, the progress of each component displays in its own progress bar in parallel.

   When the readiness check is complete, click **Continue**.

6. On the End of Readiness screen, review the results of the readiness check (**Readiness Success** or **Readiness Failure**):
   - If the readiness check is successful, click **View Readiness Report** to review the complete report. Oracle recommends that you review the Readiness Report before you perform the actual upgrade even when the readiness check is successful. Use the **Find** option to search for a particular word or phrase within the report. The report also indicates where the completed Readiness Check Report file is located.
   - If the readiness check encounters an issue or error, click **View Log** to review the log file, identify and correct the issues, and then restart the readiness check. The log file is managed by the command-line options you set.

Understanding the Readiness Report

After performing a readiness check for your domain, review the report to determine whether you need to take any action for a successful upgrade.

The format of the readiness report file is:

`readiness<timestamp>.txt`

Where, *timestamp* indicates the date and time of when the readiness check was run.

A readiness report contains the following information:

Table 3-2 Readiness Report Elements

Report Information	Description	Required Action
Overall Readiness Status: SUCCESS or FAILURE	The top of the report indicates whether the readiness check passed or completed with one or more errors.	If the report completed with one or more errors, search for FAIL and correct the failing issues before attempting to upgrade. You can re-run the readiness check as many times as necessary before an upgrade.
Timestamp	The date and time that the report was generated.	No action required.
Log file location `/oracle_common/upgrade/logs`	The directory location of the generated log file.	No action required.
Domain Directory	Displays the domain location	No action required.
Readiness report location `/oracle_common/upgrade/logs`	The directory location of the generated readiness report.	No action required.
Names of components that were checked	The names and versions of the components included in the check and status.	If your domain includes components that cannot be upgraded to this release, such as SOA Core Extension, do not attempt an upgrade.
Names of schemas that were checked	The names and current versions of the schemas included in the check and status.	Review the version numbers of your schemas. If your domain includes schemas that cannot be upgraded to this release, do not attempt an upgrade.
Individual Object Test Status: FAIL	The readiness check test detected an issue with a specific object.	Do not upgrade until all failed issues have been resolved.

Table 3-2 (Cont.) Readiness Report Elements

Report Information	Description	Required Action
Individual Object Test Status: PASS	The readiness check test detected no issues for the specific object.	If your readiness check report shows only the PASS status, you can upgrade your environment. Note, however, that the Readiness Check cannot detect issues with externals such as hardware or connectivity during an upgrade. You should always monitor the progress of your upgrade.
Completed Readiness Check of <Object> Status: FAILURE	The readiness check detected one or more errors that must be resolved for a particular object such as a schema, an index, or datatype.	Do not upgrade until all failed issues have been resolved.
Completed Readiness Check of <Object> Status: SUCCESS	The readiness check test detected no issues.	No action required.

Stopping Servers and Processes

Before you run the Upgrade Assistant to upgrade your schemas and configurations, you must shut down all of the pre-upgrade processes and servers, including the Administration Server and any managed servers.

An Oracle Fusion Middleware environment can consist of an Oracle WebLogic Server domain, an Administration Server, multiple managed servers, Java components, system components, and a database used as a repository for metadata. The components may be dependent on each other, so they must be stopped in the correct order.

> **Note:**
>
> The procedures in this section describe how to stop the existing, pre-upgrade servers and processes using the WLST command-line utility or a script. You can also use the Oracle Fusion Middleware Control and the Oracle WebLogic Server Remote Console. See Starting and Stopping Administration and Managed Servers and Node Manager.
>
> As of release 14c (14.1.2.0.0), the WebLogic Server Administration Console has been removed. For comparable functionality, you should use the WebLogic Remote Console. For more information, see Oracle WebLogic Remote Console.

To stop your pre-upgrade Fusion Middleware environment, navigate to the pre-upgrade domain and follow the steps below:

> **Note:**
>
> It is important that you stop the following servers in the correct order.

Step 1: Stop System Components

To stop system components, such as Oracle HTTP Server, use the `stopComponent` script:

- (UNIX) *EXISTING_DOMAIN_HOME*`/bin/stopComponent.sh` *component_name*
- (Windows) *EXISTING_DOMAIN_HOME*`\bin\stopComponent.cmd` *component_name*

You can stop system components in any order.

Step 2: Stop Any Managed Servers

To stop a WebLogic Server Managed Server, use the `stopManagedWebLogic` script:

- (UNIX) *EXISTING_DOMAIN_HOME*`/bin/stopManagedWebLogic.sh` *managed_server_name admin_url*
- (Windows) *EXISTING_DOMAIN_HOME*`\bin\stopManagedWebLogic.cmd` *managed_server_name admin_url*

When prompted, enter your user name and password.

Step 3: Stop the Administration Server

To stop the Administration Server, use the `stopWebLogic` script:

- (UNIX) *EXISTING_DOMAIN_HOME*`/bin/stopWebLogic.sh`
- (Windows) *EXISTING_DOMAIN_HOME*`\bin\stopWebLogic.cmd`

When prompted, enter your user name, password, and the URL of the Administration Server.

Step 4: Stop Node Manager

To stop Node Manager, close the command shell in which it is running.

Alternatively, after setting the `nodemanager.properties` attribute `QuitEnabled` to `true` (the default is `false`), you can use WLST to connect to Node Manager and shut it down. See stopNodeManager in *WLST Command Reference for Oracle WebLogic Server*.

Upgrading Product Schemas

After stopping servers and processes, use the Upgrade Assistant to upgrade your 12.2.1.4.0 schemas to the 14c (14.1.2.0.0) release of Oracle Fusion Middleware.

> **Note:**
>
> If your domain has the `WLSSchemaDataSource` data source, then you will need to verify which database user is assigned to it. If `<`*PREFIX*`>_WLS_RUNTIME` is assigned to it, then you need to change that to `<`*PREFIX*`>_WLS` . For more information, see Verify the Database User for the WLSSchemaDataSource Data Source.

> **Note:**
>
> As of 14c (14.1.2.0.0) the following schema changes have been made to help you prepare for an optional zero downtime upgrade to a future release:
>
> - Schemas created prior to 14c (14.1.2.0.0) with editions disabled and then upgraded to 14c (14.1.2.0.0) will become editions enabled.
> - Schemas created in 14c (14.1.2.0.0) will be created with editions enabled.

The Upgrade Assistant allows you to upgrade individually selected schemas or all schemas associated with a domain. The option you select determines which Upgrade Assistant screens you will use.

Identifying Existing Schemas Available for Upgrade

This optional step can be used before an upgrade to query the schema version registry table. This table contains schema information such as the schema owner, version number, component name and ID, date of creation and modification, and custom prefixes.

You can let the Upgrade Assistant upgrade all of the schemas in the domain, or you can select individual schemas to upgrade. To help decide, follow these steps to view a list of all the schemas that are available for an upgrade:

1. If you are using an Oracle database, connect to the database by using an account that has Oracle DBA privileges, and run the following from SQL*Plus:

```
SET LINE 120
COLUMN MRC_NAME FORMAT A14
COLUMN COMP_ID FORMAT A20
COLUMN VERSION FORMAT A12
COLUMN STATUS FORMAT A9
COLUMN UPGRADED FORMAT A8
SELECT MRC_NAME, COMP_ID, OWNER, VERSION, STATUS, UPGRADED FROM
SCHEMA_VERSION_REGISTRY WHERE OWNER LIKE UPPER('<PREFIX>_%');
```

2. Examine the report that is generated.

Notes:

- After the upgrade you can generate the report again to see the updated versions of your schemas. If an upgrade was not needed for a schema, the `schema_version_registry` table retains the schema at its pre-upgrade version.
- If your existing schemas are not from a supported version, then you must upgrade them to a supported version before using the 14c (14.1.2.0.0) upgrade procedures. Refer to your pre-upgrade version documentation for more information.
- If you used an OID-based policy store in the earlier versions, make sure to create a new OPSS schema before you perform the upgrade. After the upgrade, the OPSS schema remains an LDAP-based store.
- You can only upgrade schemas for products that are available for upgrade in Oracle Fusion Middleware release 14c (14.1.2.0.0). Do not attempt to upgrade a domain that includes components that are not yet available for upgrade to 14c (14.1.2.0.0).

Starting the Upgrade Assistant

Run the Upgrade Assistant to upgrade product schemas, domain component configurations, or standalone system components to 14c (14.1.2.0.0).

To start the Upgrade Assistant:

Note:

Before you start the Upgrade Assistant, make sure that the JVM character encoding is set to UTF-8 for the platform on which the Upgrade Assistant is running. If the character encoding is not set to UTF-8, then you will not be able to download files containing Unicode characters in their names. This can cause the upgrade to fail. To set the character encoding, run the following:

UNIX operating systems:

```
export UA_PROPERTIES="-Dfile.encoding=UTF-8 ${UA_PROPERTIES}"
```

Windows operating systems:

```
set UA_PROPERTIES=-Dfile.encoding=UTF-8 %UA_PROPERTIES%
```

1. Go to the `oracle_common/upgrade/bin` directory:
   - (UNIX) *ORACLE_HOME*`/oracle_common/upgrade/bin`
   - (Windows) *ORACLE_HOME*`\oracle_common\upgrade\bin`
2. Start the Upgrade Assistant:
   - (UNIX) `./ua`

- (Windows) `ua.bat`

For information about other parameters that you can specify on the command line, such as logging parameters, see:

Upgrade Assistant Parameters

When you start the Upgrade Assistant from the command line, you can specify additional parameters.

Table 3-3 Upgrade Assistant Command-Line Parameters

Parameter	Required or Optional	Description
`-readiness`	Required for readiness checks **Note**: Readiness checks cannot be performed on standalone installations (those not managed by the WebLogic Server).	Performs the upgrade readiness check without performing an actual upgrade. Schemas and configurations are checked. Do not use this parameter if you have specified the `-examine` parameter.
`-threads`	Optional	Identifies the number of threads available for concurrent schema upgrades or readiness checks of the schemas. The value must be a positive integer in the range 1 to 8. The default is 4.
`-response`	Required for silent upgrades or silent readiness checks	Runs the Upgrade Assistant using inputs saved to a response file generated from the data that is entered when the Upgrade Assistant is run in GUI mode. Using this parameter runs the Upgrade Assistant in *silent mode* (without displaying Upgrade Assistant screens).
`-examine`	Optional	Performs the examine phase but does not perform an actual upgrade. Do not specify this parameter if you have specified the `-readiness` parameter.
`-logLevel` *attribute*	Optional	Sets the logging level, specifying one of the following attributes: • `TRACE` • `NOTIFICATION` • `WARNING` • `ERROR` • `INCIDENT_ERROR` The default logging level is `NOTIFICATION`. Consider setting the `-logLevel TRACE` attribute to so that more information is logged. This is useful when troubleshooting a failed upgrade. The Upgrade Assistant's log files can become very large if `-logLevel TRACE` is used.

Table 3-3 (Cont.) Upgrade Assistant Command-Line Parameters

Parameter	Required or Optional	Description
`-logDir` *location*	Optional	Sets the default location of upgrade log files and temporary files. You must specify an existing, writable directory where the Upgrade Assistant creates log files and temporary files. The default locations are: (UNIX) *ORACLE_HOME*`/oracle_common/upgrade/logs` *ORACLE_HOME*`/oracle_common/upgrade/temp` (Windows) *ORACLE_HOME*`\oracle_common\upgrade\logs` *ORACLE_HOME*`\oracle_common\upgrade\temp`
`-help`	Optional	Displays all of the command-line options.

Upgrading Oracle WebCenter Schemas Using the Upgrade Assistant

Navigate through the screens in the Upgrade Assistant to upgrade the product schemas.

To upgrade product schemas with the Upgrade Assistant:

1. On the Welcome screen, review an introduction to the Upgrade Assistant and information about important pre-upgrade tasks. Click **Next**.

> **Note:**
>
> For more information about any Upgrade Assistant screen, click **Help** on the screen.

2. On the Selected Schemas screen, select the schema upgrade operation that you want to perform:
   - **Individually Selected Schemas** if you want to select individual schemas for upgrade and you do not want to upgrade all of the schemas used by the domain.

> **Caution:**
>
> Upgrade only those schemas that are used to support your 14c (14.1.2.0.0) components. Do not upgrade schemas that are currently being used to support components that are not included in Oracle Fusion Middleware 14c (14.1.2.0.0).

- **All Schemas Used by a Domain** to allow the Upgrade Assistant to discover and select all components that have a schema available to upgrade in the domain specified in the **Domain Directory** field. This is also known as a *domain assisted schema upgrade*. Additionally, the Upgrade Assistant pre-populates connection information on the schema input screens.

> **Note:**
>
> Oracle recommends that you select **All Schemas Used by a Domain** for most upgrades to ensure all of the required schemas are included in the upgrade.

Click **Next**.

3. If you selected **Individually Selected Schemas**: On the Available Components screen, select the components for which you want to upgrade schemas. When you select a component, the schemas and any dependencies are automatically selected.
4. On the Prerequisites screen, acknowledge that the prerequisites have been met by selecting all the check boxes. Click **Next**.

> **Note:**
>
> The Upgrade Assistant does not verify whether the prerequisites have been met.

5. On the Schema Credentials screen(s), specify the database connection details for each schema you are upgrading (the screen name changes based on the schema selected):
   - Select the database type from the **Database Type** drop-down menu.
   - Enter the database connection details, and click **Connect**.
   - Select the schema you want to upgrade from the **Schema User Name** drop-down menu, and then enter the password for the schema. Be sure to use the correct schema prefix for the schemas you are upgrading.
6. On the Examine screen, review the status of the Upgrade Assistant as it examines each schema, verifying that the schema is ready for upgrade. If the status is **Examine finished**, click **Next**.

   If the examine phase fails, Oracle recommends that you cancel the upgrade by clicking **No** in the Examination Failure dialog. Click **View Log** to see what caused the error and refer to Troubleshooting Your Upgrade in *Upgrading with the Upgrade Assistant* for information on resolving common upgrade errors.

> **Note:**
>
> - If you resolve any issues detected during the examine phase without proceeding with the upgrade, you can start the Upgrade Assistant again without restoring from backup. However, if you proceed by clicking **Yes** in the Examination Failure dialog box, you need to restore your pre-upgrade environment from backup before starting the Upgrade Assistant again.
> - Canceling the examination process has no effect on the schemas or configuration data; the only consequence is that the information the Upgrade Assistant has collected must be collected again in a future upgrade session.

7. On the Upgrade Summary screen, review the summary of the schemas that will be upgraded and/or created.

   Verify that the correct Source and Target Versions are listed for each schema you intend to upgrade.

   If you want to save these options to a response file to run the Upgrade Assistant again later in response (or silent) mode, click **Save Response File** and provide the location and name of the response file. A silent upgrade performs exactly the same function that the Upgrade Assistant performs, but you do not have to manually enter the data again.

   Click **Next** .

8. On the Upgrade Progress screen, monitor the status of the upgrade.

   > **Caution:**
   >
   > Allow the Upgrade Assistant enough time to perform the upgrade. Do not cancel the upgrade operation unless absolutely necessary. Doing so may result in an unstable environment.

   If any schemas are not upgraded successfully, refer to the Upgrade Assistant log files for more information.

   > **Note:**
   >
   > The progress bar on this screen displays the progress of the current upgrade procedure. It does not indicate the time remaining for the upgrade.

   Click **Next**.

9. If the upgrade is successful: On the Upgrade Success screen, click **Close** to complete the upgrade and close the wizard.

   If the upgrade fails: On the Upgrade Failure screen, click **View Log** to view and troubleshoot the errors. The logs are available at *NEW_ORACLE_HOME*`/oracle_common/upgrade/logs`.

> **Note:**
>
> If the upgrade fails, you must restore your pre-upgrade environment from backup, fix the issues, then restart the Upgrade Assistant.

Verifying the Schema Upgrade

After completing all the upgrade steps, verify that the upgrade was successful by checking that the schema version in `schema_version_registry` has been properly updated.

If you are using an Oracle database, connect to the database as a user having Oracle DBA privileges, and run the following from SQL*Plus to get the current version numbers. Be sure to replace <*PREFIX*> with your schema prefix.

```
SET LINE 120
COLUMN MRC_NAME FORMAT A14
COLUMN COMP_ID FORMAT A20
COLUMN VERSION FORMAT A12
COLUMN STATUS FORMAT A9
COLUMN UPGRADED FORMAT A8
SELECT MRC_NAME, COMP_ID, OWNER, EDITION NAME, VERSION, STATUS, UPGRADED FROM
SCHEMA_VERSION_REGISTRY where owner like '<PREFIX>_%';
```

In the query result:

- Verify that the `EDITION NAME` column appears as `ORA$BASE`.
- Check that the number in the `VERSION` column matches the latest version number for that schema. For example, verify that the schema version number is 14.1.2.0.0.

> **Note:**
>
> Not all schema versions will be updated. Some schemas do not require an upgrade to this release and will retain their pre-upgrade version number.

- The `STATUS` field will be either `UPGRADING` or `UPGRADED` during the schema patching operation, and will become `VALID` when the operation is completed.
- If the status appears as `INVALID`, the schema update failed. You should examine the logs files to determine the reason for the failure.
- Synonym objects owned by `IAU_APPEND` and `IAU_VIEWER` will appear as `INVALID`, but that does not indicate a failure.

  They become invalid because the target object changes after the creation of the synonym. The synonyms objects will become valid when they are accessed. You can safely ignore these `INVALID` objects.

About Reconfiguring the Domain

Run the Reconfiguration Wizard to reconfigure your domain component configurations to 14c (14.1.2.0.0).

> **Note:**
>
> If the source is a clustered environment, run the Reconfiguration Wizard on the primary node only.

When you reconfigure a WebLogic Server domain, the following items are automatically updated, depending on the applications in the domain:

- WebLogic Server core infrastructure
- Domain version

Note:

Before you begin the domain reconfiguration, note the following limitations:

- The Reconfiguration Wizard does not update any of your own applications that are included in the domain.
- Transforming a non-dynamic cluster domain to a dynamic cluster domain during the upgrade process is not supported.

  The dynamic cluster feature is available when running the Reconfiguration Wizard, but Oracle only supports upgrading a non-dynamic cluster upgrade and then adding dynamic clusters. You cannot add dynamic cluster during the upgrade process.
- If the installation that you're upgrading does not use Oracle Access Management (OAM), then you must edit two files to prevent the Reconfiguration Wizard from attempting to update the nonexistent OAM Infrastructure schema, which causes the upgrade to fail.

  Comment out the lines in your `$DOMAIN/init-info/domain-info.xml` that are similar to this example:

```
<!--extention-template-ref name="Oracle Identity Navigator"
  version="14.1.2.0.0"
  location="/u01/app/oracle/product/fmw/iam111130/common/templates/
applications/yourcomany.oinav_14.1.2.0.0_template.jar"
  symbol=""/-->

<!--install-comp-ref name="oracle.idm.oinav" version="14.1.2.0.0"
  symbol="yourcompany.idm.oinav_14.1.2.0.0_iam141200_ORACLE_HOME"
  product_home="/u01/app/oracle/product/fmw/iam141200"/-->
```

  and similarly comment out the lines in `$DOMAIN/config/config.xml` that are similar to this example:

```
<!--app-deployment>
  <name>oinav#14.1.2.0.0</name>
  <target>AdminServer</target>
  <module-type>ear</module-type>

  <source-path>/u01/app/oracle/product/fmw/iam141200/oinav/modules/
oinav.ear_14.1.2.0.0/oinav.ear</source-path>
  <deployment-order>500</deployment-order>
  <security-dd-model>DDOnly</security-dd-model>
  <staging-mode>nostage</staging-mode>
</app-deployment-->
```

Specifically, when you reconfigure a domain, the following occurs:

- The domain version number in the `config.xml` file for the domain is updated to the Administration Server's installed WebLogic Server version.

- Reconfiguration templates for all installed Oracle products are automatically selected and applied to the domain. These templates define any reconfiguration tasks that are required to make the WebLogic domain compatible with the current WebLogic Server version.
- Start scripts are updated.

  If you want to preserve your modified start scripts, be sure to back them up before starting the Reconfiguration Wizard.

> **Note:**
>
> When the domain reconfiguration process starts, you can't undo the changes that it makes. Before running the Reconfiguration Wizard, ensure that you have backed up the domain as covered in the pre-upgrade checklist. If an error or other interruption occurs while running the Reconfiguration Wizard, you must restore the domain by copying the files and directories from the backup location to the original domain directory. This is the only way to ensure that the domain has been returned to its original state before reconfiguration.

Backing Up the Domain

Before running the Reconfiguration Wizard, create a backup copy of the domain directory.

1. Create a backup of the domain directory.
2. Before updating the domain on each remote Managed Server, create a backup copy of the domain directory on each remote machine.
3. Verify that the backed up versions of the domain are complete.

If domain reconfiguration fails for any reason, you must copy all files and directories from the backup directory into the original domain directory to ensure that the domain is returned entirely to its original state before reconfiguration.

Starting the Reconfiguration Wizard

> **Note:**
>
> Shut down the administration server and all collocated managed servers before starting the reconfiguration process. See Stopping Servers and Processes .

To start the Reconfiguration Wizard in graphical mode:

1. Sign in to the system on which the domain resides.
2. Open the command shell (on UNIX operating systems) or open a command prompt window (on Windows operating systems).
3. Go to the `oracle_common/common/bin` directory:
   - (UNIX) *`NEW_ORACLE_HOME`*`/oracle_common/common/bin`
   - (Windows) *`NEW_ORACLE_HOME`*`\oracle_common\commom\bin`
4. Start the Reconfiguration Wizard with the following logging options:
   - (UNIX) `./reconfig.sh -log=`*`log_file`*` -log_priority=ALL`

- (Windows) `reconfig.cmd -log=log_file -log_priority=ALL`

where *log_file* is the absolute path of the log file you'd like to create for the domain reconfiguration session. This can be helpful if you need to troubleshoot the reconfiguration process.

The parameter `-log_priority=ALL` ensures that logs are logged in fine mode.

> **Note:**
>
> When you run this command, the following error message might appear to indicate that the default cache directory is not valid:
>
> ```
> *sys-package-mgr*: can't create package cache dir
> ```
>
> You can change the cache directory by setting the environment variable `CONFIG_JVM_ARGS`. For example:
>
> ```
> CONFIG_JVM_ARGS=-Dpython.cachedir=valid_directory
> ```

Reconfiguring the Domain with the Reconfiguration Wizard

Navigate through the screens in the Reconfiguration Wizard to reconfigure your existing domain.

> **Note:**
>
> If the source is a clustered environment, run the Reconfiguration Wizard on the primary node only. Use the pack/unpack utility to apply the changes to other cluster members in the domain.

To reconfigure the domain with the Reconfiguration Wizard:

1. On the Select Domain screen, specify the location of the domain you want to upgrade or click **Browse** to navigate and select the domain directory. Click **Next**.
2. On the Reconfiguration Setup Progress screen, view the progress of the setup process. When complete, click **Next**.

   During this process:

   - The reconfiguration templates for your installed products, including Fusion Middleware products, are automatically applied. This updates various domain configuration files such as `config.xml`, `config-groups.xml`, and `security.xml` (among others).
   - Scripts and other files that support your Fusion Middleware products are updated.
   - The domain upgrade is validated.
3. On the Domain Mode and JDK screen, select the JDK to use in the domain or click **Browse** to navigate to the JDK you want to use. The supported JDK version for 14c (14.1.2.0.0) is 17.0.12 and later. Click **Next**.

> **Note:**
>
> You cannot change the **Domain Mode** at this stage. Your domain will retain its pre-upgrade domain mode. If you want to change the domain to secure mode, then after the upgrade see Changing Domain Mode Post Upgrade.

For a list of JDKs that are supported for a specific platform, see Oracle Fusion Middleware Supported System Configurations.

4. On the Database Configuration Type screen, select **RCU Data** to connect to the Server Table (<*PREFIX*>_STB) schema.

   Note: <*PREFIX*> is the RCU schema prefix of the 12.2.1.4 domain that is being upgraded.

   Enter the database connection details using the RCU service table (<*PREFIX*>_STB) schema credentials and click **Get RCU Configuration**.

   The Reconfiguration Wizard uses this connection to automatically update the data sources required for components in your domain.

   > **Note:**
   >
   > By default **Oracle's Driver (Thin) for Service connections; Versions: Any** is the selected driver. If you specified an instance name in your connection details — instead of the service name — you must select **Oracle's Driver (Thin) for pooled instance connections; Versions: Any** If you do not change the driver type, then the connection will fail.

   If the check is successful, click **Next**. If the check fails, reenter the connection details correctly and try again.

5. On the JDBC Component Schema screen, verify that the DBMS/Service and the Host name is correct for each component schema and click **Next**.

6. On the JDBC Component Schema Test screen, select all the component schemas and click **Test Selected Connections** to test the connection for each schema. The result of the test is indicated in the Status column.

   When the check is complete, click **Next**.

7. On the Advanced Configuration screen, you can select all categories for which you want to perform advanced configuration. For each category you select, the appropriate configuration screen is displayed to allow you to perform advanced configuration.

   > **Note:**
   >
   > The categories that are listed on the Advanced Configuration screen depend on the resources defined in the templates you selected for the domain.

   For this upgrade, select none of the options and click **Next**.

8. On the Configuration Summary screen, review the detailed configuration settings of the domain before continuing.

You can limit the items that are displayed in the right-most panel by selecting a filter option from the **View** drop-down list.

To change the configuration, click **Back** to return to the appropriate screen. To reconfigure the domain, click **Reconfig**.

> **Note:**
>
> The location of the domain does not change when you reconfigure it.

9. The Reconfiguration Progress screen displays the progress of the reconfiguration process.

   During this process:

   - Domain information is extracted, saved, and updated.
   - Schemas, scripts, and other such files that support your Fusion Middleware products are updated.

   When the progress bar shows 100%, click **Next**.

10. The End of Configuration screen indicates whether the reconfiguration process completed successfully or failed. It also displays the location of the domain that was reconfigured as well as the Administration Server URL (including the listen port). If the reconfiguration is successful, it displays **Oracle WebLogic Server Reconfiguration Succeeded**.

    If the reconfiguration process did not complete successfully, an error message is displayed indicates the reason. Take appropriate action to resolve the issue. If you cannot resolve the issue, contact My Oracle Support.

    Note the Domain Location and the Admin Server URL for further operations.

Upgrading Domain Component Configurations

After reconfiguring the domain, use the Upgrade Assistant to upgrade the domain *component* configurations inside the domain to match the updated domain configuration.

Starting the Upgrade Assistant

Run the Upgrade Assistant to upgrade product schemas, domain component configurations, or standalone system components to 14c (14.1.2.0.0).

To start the Upgrade Assistant:

> **Note:**
>
> Before you start the Upgrade Assistant, make sure that the JVM character encoding is set to UTF-8 for the platform on which the Upgrade Assistant is running. If the character encoding is not set to UTF-8, then you will not be able to download files containing Unicode characters in their names. This can cause the upgrade to fail. To set the character encoding, run the following:
>
> UNIX operating systems:
>
> ```
> export UA_PROPERTIES="-Dfile.encoding=UTF-8 ${UA_PROPERTIES}"
> ```
>
> Windows operating systems:
>
> ```
> set UA_PROPERTIES=-Dfile.encoding=UTF-8 %UA_PROPERTIES%
> ```

1. Go to the `oracle_common/upgrade/bin` directory:
   - (UNIX) *ORACLE_HOME*`/oracle_common/upgrade/bin`
   - (Windows) *ORACLE_HOME*`\oracle_common\upgrade\bin`
2. Start the Upgrade Assistant:
   - (UNIX) `./ua`
   - (Windows) `ua.bat`

For information about other parameters that you can specify on the command line, such as logging parameters, see:

Upgrade Assistant Parameters

When you start the Upgrade Assistant from the command line, you can specify additional parameters.

Table 3-4 Upgrade Assistant Command-Line Parameters

Parameter	Required or Optional	Description
`-readiness`	Required for readiness checks **Note**: Readiness checks cannot be performed on standalone installations (those not managed by the WebLogic Server).	Performs the upgrade readiness check without performing an actual upgrade. Schemas and configurations are checked. Do not use this parameter if you have specified the `-examine` parameter.
`-threads`	Optional	Identifies the number of threads available for concurrent schema upgrades or readiness checks of the schemas. The value must be a positive integer in the range 1 to 8. The default is 4.

Table 3-4 (Cont.) Upgrade Assistant Command-Line Parameters

Parameter	Required or Optional	Description
`-response`	Required for silent upgrades or silent readiness checks	Runs the Upgrade Assistant using inputs saved to a response file generated from the data that is entered when the Upgrade Assistant is run in GUI mode. Using this parameter runs the Upgrade Assistant in *silent mode* (without displaying Upgrade Assistant screens).
`-examine`	Optional	Performs the examine phase but does not perform an actual upgrade. Do not specify this parameter if you have specified the `-readiness` parameter.
`-logLevel` *attribute*	Optional	Sets the logging level, specifying one of the following attributes: • `TRACE` • `NOTIFICATION` • `WARNING` • `ERROR` • `INCIDENT_ERROR` The default logging level is `NOTIFICATION`. Consider setting the `-logLevel TRACE` attribute to so that more information is logged. This is useful when troubleshooting a failed upgrade. The Upgrade Assistant's log files can become very large if `-logLevel TRACE` is used.
`-logDir` *location*	Optional	Sets the default location of upgrade log files and temporary files. You must specify an existing, writable directory where the Upgrade Assistant creates log files and temporary files. The default locations are: (UNIX) *ORACLE_HOME*`/oracle_common/upgrade/logs` *ORACLE_HOME*`/oracle_common/upgrade/temp` (Windows) *ORACLE_HOME*`\oracle_common\upgrade\logs` *ORACLE_HOME*`\oracle_common\upgrade\temp`
`-help`	Optional	Displays all of the command-line options.

Upgrading Domain Component Configurations Using the Upgrade Assistant

Navigate through the screens in the Upgrade Assistant to upgrade component configurations in the WebLogic domain.

After running the Reconfiguration Wizard to reconfigure the WebLogic domain to 14c (14.1.2.0.0), you must run the Upgrade Assistant to upgrade the domain *component* configurations to match the updated domain configuration.

To upgrade domain component configurations with the Upgrade Assistant:

1. On the Welcome screen, review an introduction to the Upgrade Assistant and information about important pre-upgrade tasks. Click **Next**.

   > **Note:**
   >
   > For more information about any Upgrade Assistant screen, click **Help** on the screen.

2. On the next screen:
   - Select **All Configurations Used By a Domain**. The screen name changes to WebLogic Components.
   - In the **Domain Directory** field, enter the WebLogic domain directory path.

   Click **Next**.

3. On the Component List screen, verify that the list includes all the components for which you want to upgrade configurations and click **Next**.

   If you do not see the components you want to upgrade, click **Back** to go to the previous screen and specify a different domain.

4. On the Prerequisites screen, acknowledge that the prerequisites have been met by selecting all the check boxes. Click **Next**.

   > **Note:**
   >
   > The Upgrade Assistant does not verify whether the prerequisites have been met.

5. On the Examine screen, review the status of the Upgrade Assistant as it examines each component, verifying that the component configuration is ready for upgrade. If the status is **Examine finished**, click **Next**.

   If the examine phase fails, Oracle recommends that you cancel the upgrade by clicking **No** in the Examination Failure dialog. Click **View Log** to see what caused the error and refer to Troubleshooting Your Upgrade in *Upgrading with the Upgrade Assistant* for information on resolving common upgrade errors.

> **Note:**
>
> - If you resolve any issues detected during the examine phase without proceeding with the upgrade, you can start the Upgrade Assistant again without restoring from backup. However, if you proceed by clicking **Yes** in the Examination Failure dialog box, you need to restore your pre-upgrade environment from backup before starting the Upgrade Assistant again.
> - Canceling the examination process has no effect on the configuration data; the only consequence is that the information the Upgrade Assistant has collected must be collected again in a future upgrade session.

6. On the Upgrade Summary screen, review the summary of the options you have selected for component configuration upgrade.

   The response file collects and stores all the information that you have entered, and enables you to perform a silent upgrade at a later time. The silent upgrade performs exactly the same function that the Upgrade Assistant performs, but you do not have to manually enter the data again. If you want to save these options to a response file, click **Save Response File** and provide the location and name of the response file.

   Click **Upgrade** to start the upgrade process.

7. On the Upgrade Progress screen, monitor the status of the upgrade.

   > **Caution:**
   >
   > Allow the Upgrade Assistant enough time to perform the upgrade. Do not cancel the upgrade operation unless absolutely necessary. Doing so may result in an unstable environment.

   If any components are not upgraded successfully, refer to the Upgrade Assistant log files for more information.

   > **Note:**
   >
   > The progress bar on this screen displays the progress of the current upgrade procedure. It does not indicate the time remaining for the upgrade.

   Click **Next**.

8. If the upgrade is successful: On the Upgrade Success screen, click **Close** to complete the upgrade and close the wizard. The Post-Upgrade Actions window describes the manual tasks you must perform to make components functional in the new installation. This window appears only if a component has post-upgrade steps.

   If the upgrade fails: On the Upgrade Failure screen, click **View Log** to view and troubleshoot the errors. The logs are available at *ORACLE_HOME*`/oracle_common/upgrade/logs`.

> **Note:**
>
> If the upgrade fails you must restore your pre-upgrade environment from backup, fix the issues, then restart the Upgrade Assistant.

Verifying the Domain-Specific-Component Configurations Upgrade

To verify that the domain-specific-component configurations upgrade was successful, sign in to the Remote Console and verify that the version numbers for each upgraded component is 14.1.2.0.0.

> **Note:**
>
> Before you can access the Hosted WebLogic Remote Console, you must deploy the hosted WebLogic Remote Console. For more information, see the Remote Console Online Help.

To sign in to the Remote Console, go to: `http://hostname:port/rconsole` or for HTTPS, `https://hostname:port/rconsole`.

> **Note:**
>
> After a successful upgrade, make sure you run the administration tools from the new 14c (14.1.2.0.0) Oracle home directory and not from the previous Oracle home directory.
>
> During the upgrade process, some OWSM documents, including policy sets and predefined documents such as policies and assertion templates, may need to be upgraded. If a policy set or a predefined document is upgraded, its version number is incremented by 1.
>
> If you created the FMW user to run the Upgrade Assistant, ensure that you delete the account after verifying your upgrade was successful.

Performing Post-Upgrade Configuration Tasks

You may have to perform additional configuration tasks after an upgrade depending on which components are in your deployment.

> **Note:**
>
> You may have additional post-upgrade tasks if your deployment contains the following:
>
> Performing Post Upgrade Tasks for WebCenter Content
>
> Post Upgrade Tasks for WebCenter Portal

Changing Domain Mode Post Upgrade

After the upgrade, your domain retains its original pre-upgrade domain security mode settings. If you want to change the domain mode, to enable enhanced security, for example, you must explicitly change the settings using the WebLogic Remote Console or by modifying the `DomainMBean`.

If your domain is currently set to Production Mode, and you want to enable added security, then after the upgrade use the WebLogic Remote Console to change the domain mode and enable the Secured Production Mode. Change the Domain Mode in *Oracle WebLogic Remote Console Online Help*.

> **Caution:**
>
> Changes to the domain mode require a full domain restart - a rolling restart is not sufficient. You must stop all managed servers before you attempt to change the domain mode.

When upgrading a domain to 14c (14.1.2.0.0), if there is no explicit secure mode setting, then the Reconfiguration Wizard will explicitly set secure mode to *disabled* in the upgraded domain. This is to preserve the behavior that was present in the original domain. If there is an explicit secure mode setting, it will be preserved in the upgraded domain. For more information, see Understand How Domain Mode Affects the Default Security Configuration in *Securing a Production Environment for Oracle WebLogic Server*.

> **Note:**
>
> Secured Production Mode enforces more restrictive and stringent security settings to ensure less vulnerability to threats. To make sure that your domain is secure, after enabling Secured Production Mode, you will have to choose the security configuration options that are appropriate for the environment in which the domain runs, such as obtaining and storing certificates, protecting user accounts, and securing the network on which the domain runs. If these options are not properly configured, you will be blocked from using WebLogic Server.
>
> After you have created your WebLogic domain, several key steps remain to ensure its integrity such as selecting appropriate security configurations. For more information, see Securing the Domain After You Have Created It in *Administering Security for Oracle WebLogic Server*.

Starting Servers and Processes

After a successful upgrade, restart all processes and servers, including the Administration Server and any Managed Servers.

The components may be dependent on each other so they must be started in the correct order.

> **Note:**
>
> The procedures in this section describe how to start servers and processes using the WLST command-line utility or a script. You can also use the Oracle Fusion Middleware Control and the Oracle WebLogic Server Remote Console. See Starting and Stopping Administration and Managed Servers and Node Manager.
>
> As of release 14c (14.1.2.0.0), the WebLogic Server Administration Console has been removed. For comparable functionality, you should use the WebLogic Remote Console. For more information, see Oracle WebLogic Remote Console.

To start your Fusion Middleware environment, follow the steps below:

> **Note:**
>
> Depending on your existing security settings, you may need to perform additional configuration before you can manage a domain with secured production mode enabled. For more information, see Connecting to the Administration Server using WebLogic Remote Console
>
> .

Step 1: Start the Administration Server

To start the Administration Server, use the `startWebLogic` script:

- (UNIX) *`NEW_DOMAIN_HOME`*`/bin/startWebLogic.sh`
- (Windows) *`NEW_DOMAIN_HOME`*`\bin\startWebLogic.cmd`

> **Note:**
>
> When using secured production mode, you must provide additional parameters to start the Administration Server. See Connecting to the Administration Server using WLST in *Administering Security for Oracle WebLogic Server*.

When prompted, enter your user name, password, and the URL of the Administration Server.

Step 2: Start Node Manager

To start Node Manager, use the `startNodeManager` script:

- (UNIX) *`NEW_DOMAIN_HOME`*`/bin/startNodeManager.sh`
- (Windows) *`NEW_DOMAIN_HOME`*`\bin\startNodeManager.cmd`

Step 3: Start Any Managed Servers

To start a WebLogic Server Managed Server, use the `startManagedWebLogic` script:

- (UNIX) *`NEW_DOMAIN_HOME`*`/bin/startManagedWebLogic.sh` *`managed_server_name admin_url`*

- (Windows) *NEW_DOMAIN_HOME*\bin\startManagedWebLogic.cmd *managed_server_name admin_url*

> **Note:**
>
> When using secured production mode, you must provide additional parameters to start the Managed Servers. See Starting Managed Servers using a Start Script in *Administering Security for Oracle WebLogic Server*.

> **Note:**
>
> The startup of a Managed Server will typically start the applications that are deployed to it. Therefore, it should not be necessary to manually start applications after the Managed Server startup.

Step 4: Start System Components

To start system components, such as Oracle HTTP Server, use the `startComponent` script:

- (UNIX) *NEW_DOMAIN_HOME*/bin/startComponent.sh *component_name*
- (Windows) *NEW_DOMAIN_HOME*\bin\startComponent.cmd *component_name*

You can start system components in any order.

Synchronizing Keystores

If SSL was configured in your pre-upgrade environment, you must synchronize the keystores from the OPSS security store to your local repository.

To synchronize your keystores, first open a WLST session in offline mode:

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

Next, from the WSLT command prompt (`wls:/offline>`), execute the following commands to sync your keystore:

```
connect('username', 'password','t3://host:port')
svc = getOpssService(name='KeyStoreService')
svc.listKeyStoreAliases(appStripe="system",name="keystoreName",password='',type="*")
syncKeyStores(appStripe='system',keystoreFormat='KSS')
```

Substitute *username*, *password*, *host*, and *port* with the appropriate values for your system (the default values are localhost and 7001). Enter your keystore's name for *keystoreName*.

After you have run the above commands, restart the managed servers.

Verifying the New Applications Work as Expected

Once all of the servers have been successfully started, open your component applications and make sure that everything is working as expected. Use your component-specific Administration and Developers guides to help you navigate the new features of your upgraded environment.

4

Upgrading WebCenter in a Clustered Topology

Use this process to upgrade a clustered, multi-node WebCenter topology.

To upgrade a WebCenter cluster topology, where your domain has servers running on more than one machine, you will perform the entire upgrade process on the first node (Node 1) and then pack and unpack the domain on the other node(s) as described below. The same products on Node 1 must be installed on each additional machine (except in the case where the products are installed on shared storage used by all machines in cluster).

To upgrade a clustered topology:

1. Perform a complete upgrade on Node 1. Upgrading an Oracle WebCenter Domain
   a. Perform all post-upgrade configuration tasks. Performing Post-Upgrade Configuration Tasks
   b. Verify that the upgrade was successful. Verifying the New Applications Work as Expected
2. Pack the domain on the node where the Administration Server resides.

   ```
   cd NEW_ORACLE_HOME/common/bin
   ./pack.sh -managed=true -domain=DOMAIN_HOME -template=wcdomaintemplate.jar -
   template_name=wc_domain_template
   ```

3. Copy `wcdomaintemplate.jar` to the *NEW_ORACLE_HOME*`/common/bin` on the other machines.
4. Remove or move the old domain directories (`DOMAIN_HOME` and `APPLICATION_HOME`) on the other machines.
5. Unpack the domain on each of the other machines:

   ```
   cd NEW_ORACLE_HOME/common/bin
   ./unpack.sh -domain=DOMAIN_HOME -template=wcdomaintemplate.jar -overwrite_domain=true
   ```

6. Start the servers.

Troubleshooting a WebCenter Cluster Upgrade

If you encounter errors while upgrading your WebCenter clustered topology, review these post-upgrade tasks.

Accessing WebCenter Content URLs Post Upgrade

This step is only necessary when you cannot access WebCenter Content URLs after a clustered topology upgrade.

After performing pack and unpack on secondary nodes, you may not be able to access WebCenter Content URLs on secondary nodes. This happens when the pack and unpack process does not completely propagate the WebCenter Content Server on the secondary node.

1. Modify the variables in the Intradoc.cfg file.

   a) Navigate to <Domain_Home>/ucm/cs/bin
   b) Locate the Intradoc.cfg file and update the server directory: IdcHomeDir with the new 14c (14.1.2.0.0) install location.

   NOTE: You will need to do this for each WebCenter Content managed server.

2. Modify the idcs_components.hda file.

   a) Navigate to <Domain_Home>/ucm/cs/data
   b) Locate the idcs_components.hda file and remove all deprecated components.

   TIP: To quickly update the file, create a copy of the existing idcs_components.hda file on Node1 and paste it on Node2 in the same location (<Domain_Home>/ucm/cs/data). This will overwrite the file on Node2.

.

Part I
Upgrading Oracle WebCenter

Part II contains the following chapters:

5

Upgrading WebCenter Sites

Use this procedure to upgrade WebCenter Sites from 12*c* (12.2.1.4.0).

> **Note:**
>
> - Any changes that you have made to the pre-upgrade environment are overwritten during the upgrade process. Oracle recommends that you save your customized files to a shared library location so that you can continue to use them after the upgrade.
> - If the existing Sites environment is configured with NIO-based Shared File System to a database, revert it back to disk storage before starting the upgrade process.

For information about the differences between in-place and out-of-place upgrades, see About In-Place versus Out-of-Place Upgrades in *Planning an Upgrade of Oracle Fusion Middleware*.

> **Note:**
>
> There are two approaches that you can consider while upgrading depending on your requirement:
>
> 1. You can upgrade the delivery environment and clone it after the upgrade to create development and management environments.
>
>   If you consider this approach, synchronization is required. You must publish the contents from your development and management environments in to the delivery environment before the upgrade. You can then clone your upgraded delivery environment to create development and management environments.
> 2. Alternatively, you can upgrade each environment individually.
>
>   If you consider this approach, synchronization is not required.

Follow the steps in the following topics to perform the upgrade:

About the WebCenter Sites Upgrade Process

Review the flowchart and roadmap for an overview of the upgrade process for WebCenter Sites.

Figure 5-1 Upgrade Process Flowchart for WebCenter Sites

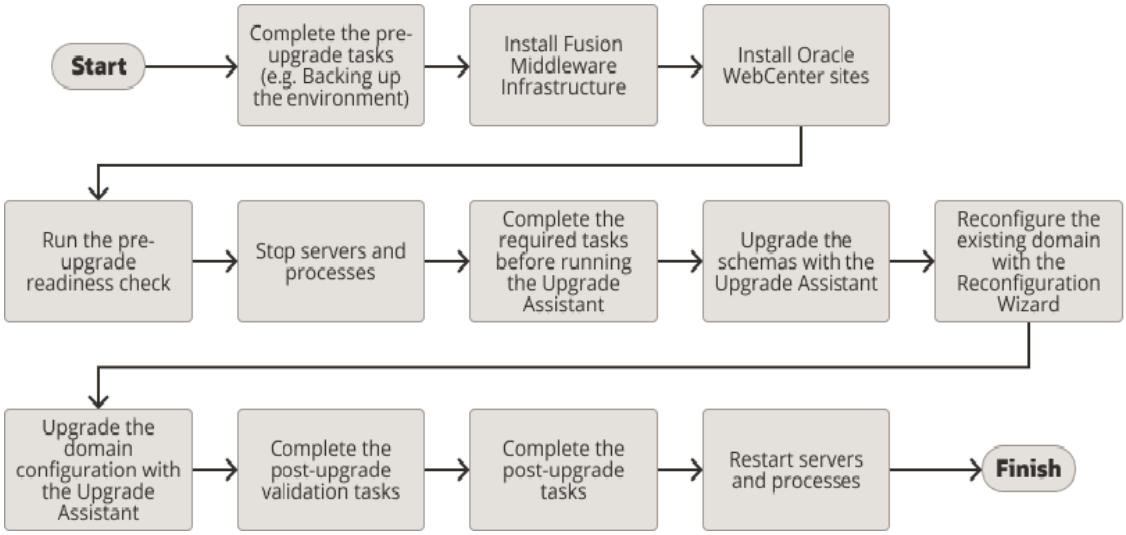


Table 5-1 provides a roadmap for tasks that you must perform to upgrade WebCenter Sites from a previous 12*c* release.

Table 5-1 Tasks for Upgrading WebCenter Sites

Task	Description
Required If you have not done so already, review the introductory topics in this guide and complete the required pre-upgrade tasks.	The pre-upgrade tasks include cloning your production environment, verifying system requirements and certifications, purging unused data, and creating non-SYSDBA user. For a complete list of pre-upgrade tasks, see Pre-Upgrade Tasks for Oracle WebCenter Components . **Important:** You must back up the WebLogic domain, Sites configuration directory, Sites shared directory, and Sites schema before starting the upgrade process.
Required Download and install the 14c (14.1.2.0.0) Oracle Fusion Middleware Infrastructure and Oracle WebCenter Sites distributions.	The Infrastructure distribution packs the WebLogic Server and the Java Required Files (JRF) that are required to set up the foundation to install other Fusion Middleware products. As per the upgrade topology defined in this guide, you must install the Infrastructure in a new Oracle home. You must install the Oracle WebCenter Sites distribution in the Oracle home that is created when you install the 14.1.2.0.0 Infrastructure. To install the product distributions, follow the procedure described in Installing a Product Distribution.

Table 5-1 (Cont.) Tasks for Upgrading WebCenter Sites

Task	Description
Optional Run a pre-upgrade readiness check.	See Running a Pre-Upgrade Readiness Check.
Required Shut down the existing environment (stop all Administration and Managed Servers).	**WARNING:** Failure to shut down your servers during an upgrade may lead to data corruption. See Stopping Servers and Processes.
Required Complete the required tasks before running the Upgrade Assistant.	The pre-upgrade tasks are a set of tasks that you must complete before starting the upgrade process with the Upgrade Assistant. These tasks are listed in Pre-Upgrade Tasks for Oracle WebCenter Components .
Required Upgrade the product schemas with the Upgrade Assistant.	Upgrade the schemas components that are available for upgrade with the Upgrade Assistant by following the procedure described in Upgrading Product Schemas.
Required Reconfigure the existing domain.	When you run the Reconfiguration Wizard on your existing domain, it prepares your domain for upgrade by selecting and applying the reconfiguration templates. Reconfigure the domain by following the procedure described in About Reconfiguring the Domain.
Required Upgrade the domain configuration.	Upgrade all the configurations contained in your domain with the Upgrade Assistant by following the procedure described in Upgrading Domain Component Configurations.
Required Complete the post-upgrade validation tasks.	Oracle has provided validation scripts that you can run on your newly upgraded domain to ensure data integrity after a successful schema and configuration upgrade. You can review the validation summary report for any inconsistencies in data that may have occurred during the schema and configuration upgrade processes. To use the validation script, see Post-Upgrade Validation Tasks.
Required Complete the other post-upgrade configuration tasks.	Other post-upgrade tasks include restoring any custom settings, starting Administration Server and Managed Servers, reconfiguring passwords, and other administrative tasks listed in Performing Post-Upgrade Configuration Tasks.
Required Restart the servers and processes.	See Starting Servers and Processes.

Installing the Product Distribution

Before beginning your upgrade, download the 14c (14.1.2.0.0) Oracle Fusion Middleware Infrastructure and Oracle WebCenter Sites distributions on the target system and install them using Oracle Universal Installer.

> **Note:**
>
> When Infrastructure is required for the upgrade, you must install the Oracle Fusion Middleware Infrastructure distribution first before you install other Fusion Middleware products. If your JDK is not supported, or you do not have a JDK installed, you must download the required Java SE JDK before you begin

Ensure that you download and install all the Oracle products that are part of your domain, for example Oracle HTTP Server. You must install the 14.1.2.0.0 binaries into a new Oracle home. It should be on the same host as the existing Oracle home.

To install the 14c (14.1.2.0.0) distributions:

1. Sign in to the target system.
2. Download the following from Oracle Technology Network or Oracle Software Delivery Cloud to your target system:
   - Oracle Fusion Middleware Infrastructure (fmw_14.1.2.0.0_infrastructure_generic.jar)
   - Oracle WebCenter Sites (fmw_14.1.2.0.0_wcsites_generic.jar)
3. Change to the directory where you downloaded the 14c (14.1.2.0.0) product distribution.
4. Start the installation program for Oracle Fusion Middleware Infrastructure:
   - (UNIX) `JDK_HOME/bin/java -jar fmw_14.1.2.0.0_infrastructure_generic.jar`
   - (Windows) `JDK_HOME\bin\java -jar fmw_14.1.2.0.0_infrastructure_generic.jar`
5. On UNIX operating systems, the Installation Inventory Setup screen appears if this is the first time you are installing an 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, and click **Next**.

   > **Note:**
   >
   > The Installation Inventory Setup screen does not appear on Windows operating systems.
6. On the Welcome screen, review the information to make sure that you have met all the prerequisites. Click **Next**.
7. On the Auto Updates screen, select an option:
   - **Skip Auto Updates**: If you do not want your system to check for software updates at this time.
   - **Select patches from directory**: To navigate to a local directory if you downloaded patch files.

- **Search My Oracle Support for Updates**: To automatically download software updates if you have a My Oracle Support account. You must enter Oracle Support credentials then click **Search**. To configure a proxy server for the installer to access My Oracle Support, click **Proxy Settings**. Click **Test Connection** to test the connection.

Click **Next**.

8. On the Installation Location screen, specify the location for the Oracle home directory and click **Next**.

   For more information about Oracle Fusion Middleware directory structure, see Understanding Directories for Installation and Configuration in *Oracle Fusion Middleware Planning an Installation of Oracle Fusion Middleware*.

9. On the Installation Type screen, select the following:

   - For Infrastructure, select **Fusion Middleware Infrastructure**
   - For Oracle WebCenter Sites, select **WebCenter Sites**

   > **Note:**
   >
   > If you have installed Oracle WebCenter Sites with Examples on the source environment, ensure that you select **WebCenter Sites with Examples** on the target as well.

   Click **Next**.

10. The Prerequisite Checks screen analyzes the host computer to ensure that the specific operating system prerequisites have been met.

    To view the list of tasks that are verified, select **View Successful Tasks**. To view log details, select **View Log**. If any prerequisite check fails, then an error message appears at the bottom of the screen. Fix the error and click **Rerun** to try again. To ignore the error or the warning message and continue with the installation, click **Skip** (not recommended).

11. On the Installation Summary screen, verify the installation options that 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. The response file collects and stores all the information that you have entered, and enables you to perform a silent installation (from the command line) at a later time.
    Click **Install** to begin the installation.

12. On the Installation Progress screen, when the progress bar displays 100%, click **Finish** to dismiss the installer, or click **Next** to see a summary.

13. The Installation Complete screen displays the Installation Location and the Feature Sets that are installed. Review this information and click **Finish** to close the installer.

14. After you have installed Oracle Fusion Middleware Infrastructure, enter the following command to start the installer for your product distribution and repeat the steps above to navigate through the installer screens:

    (UNIX) `JDK_HOME/bin/java -jar fmw_14.1.2.0.0_wcsites_generic.jar`

    (Windows) `JDK_HOME\bin\java -jar fmw_14.1.2.0.0_wcsites_generic.jar`

Running a Pre-Upgrade Readiness Check

To identify potential issues with the upgrade, Oracle recommends that you run a readiness check before you start the upgrade process. Be aware that the readiness check may not be able to discover all potential issues with your upgrade. An upgrade may still fail, even if the readiness check reports success.

About Running a Pre-Upgrade Readiness Check

You can run the Upgrade Assistant in `-readiness` mode to detect issues before you perform the actual upgrade. You can run the readiness check in GUI mode using the Upgrade Assistant or in silent mode using a response file.

The Upgrade Assistant readiness check performs a read-only, pre-upgrade review of your Fusion Middleware schemas and WebLogic domain configurations that are at a supported starting point. The review is a read-only operation.

The readiness check generates a formatted, time-stamped readiness report so you can address potential issues before you attempt the actual upgrade. If no issues are detected, you can begin the upgrade process. Oracle recommends that you read this report thoroughly before performing an upgrade.

You can run the readiness check while your existing Oracle Fusion Middleware domain is online (while other users are actively using it) or offline.

You can run the readiness check any number of times before performing any actual upgrade. However, do not run the readiness check after an upgrade has been performed, as the report results may differ from the result of pre-upgrade readiness checks.

> **Note:**
>
> To prevent performance from being affected, Oracle recommends that you run the readiness check during off-peak hours.

Starting the Upgrade Assistant in Readiness Mode

Use the `-readiness` parameter to start the Upgrade Assistant in readiness mode.

To perform a readiness check on your pre-upgrade environment with the Upgrade Assistant:

1. Go to the `oracle_common/upgrade/bin` directory:
   - (UNIX) *ORACLE_HOME*`/oracle_common/upgrade/bin`
   - (Windows) *ORACLE_HOME*`\oracle_common\upgrade\bin`
2. Start the Upgrade Assistant.
   - (UNIX) `./ua -readiness`
   - (Windows) `ua.bat -readiness`

> **Note:**
>
> If the `DISPLAY` environment variable is not set up properly to allow for GUI mode, you may encounter the following error:
>
> ```
> Xlib: connection to ":1.0" refused by server
> Xlib: No protocol specified
> ```
>
> To resolve this issue, set the `DISPLAY` environment variable to the system name or IP address of your local workstation, and rerun Upgrade Assistant.
>
> If you continue to receive these errors after setting `DISPLAY`, try launching another GUI tool, such as `vncconfig`. If you see the same errors, your `DISPLAY` environment variable may still not be set correctly.

For information about other parameters that you can specify on the command line, see:

Upgrade Assistant Parameters

When you start the Upgrade Assistant from the command line, you can specify additional parameters.

Table 5-2 Upgrade Assistant Command-Line Parameters

Parameter	Required or Optional	Description
`-readiness`	Required for readiness checks **Note**: Readiness checks cannot be performed on standalone installations (those not managed by the WebLogic Server).	Performs the upgrade readiness check without performing an actual upgrade. Schemas and configurations are checked. Do not use this parameter if you have specified the `-examine` parameter.
`-threads`	Optional	Identifies the number of threads available for concurrent schema upgrades or readiness checks of the schemas. The value must be a positive integer in the range 1 to 8. The default is 4.
`-response`	Required for silent upgrades or silent readiness checks	Runs the Upgrade Assistant using inputs saved to a response file generated from the data that is entered when the Upgrade Assistant is run in GUI mode. Using this parameter runs the Upgrade Assistant in *silent mode* (without displaying Upgrade Assistant screens).
`-examine`	Optional	Performs the examine phase but does not perform an actual upgrade. Do not specify this parameter if you have specified the `-readiness` parameter.

Table 5-2 (Cont.) Upgrade Assistant Command-Line Parameters

Parameter	Required or Optional	Description
`-logLevel` *attribute*	Optional	Sets the logging level, specifying one of the following attributes: • `TRACE` • `NOTIFICATION` • `WARNING` • `ERROR` • `INCIDENT_ERROR` The default logging level is `NOTIFICATION`. Consider setting the `-logLevel TRACE` attribute to so that more information is logged. This is useful when troubleshooting a failed upgrade. The Upgrade Assistant's log files can become very large if `-logLevel TRACE` is used.
`-logDir` *location*	Optional	Sets the default location of upgrade log files and temporary files. You must specify an existing, writable directory where the Upgrade Assistant creates log files and temporary files. The default locations are: (UNIX) *ORACLE_HOME*`/oracle_common/upgrade/logs` *ORACLE_HOME*`/oracle_common/upgrade/temp` (Windows) *ORACLE_HOME*`\oracle_common\upgrade\logs` *ORACLE_HOME*`\oracle_common\upgrade\temp`
`-help`	Optional	Displays all of the command-line options.

Performing a Readiness Check with the Upgrade Assistant

Navigate through the screens in the Upgrade Assistant to complete the pre-upgrade readiness check.

Readiness checks are performed only on schemas or component configurations that are at a supported upgrade starting point.

To complete the readiness check:

1. On the Welcome screen, review information about the readiness check. Click **Next**.
2. On the Readiness Check Type screen, select the readiness check that you want to perform:

- **Individually Selected Schemas** allows you to select individual schemas for review before upgrade. The readiness check reports whether a schema is supported for an upgrade or where an upgrade is needed.
  When you select this option, the screen name changes to Selected Schemas.
- **Domain Based** allows the Upgrade Assistant to discover and select all upgrade-eligible schemas or component configurations in the domain specified in the **Domain Directory** field.
  When you select this option, the screen name changes to Schemas and Configuration.

  Leave the default selection if you want the Upgrade Assistant to check all schemas and component configurations at the same time, or select a specific option:

  – **Include checks for all schemas** to discover and review all components that have a schema available to upgrade.

  – **Include checks for all configurations** to review component configurations for a managed WebLogic Server domain.

Click **Next**.

3. If you selected **Individually Selected Schemas**: On the Available Components screen, select the components that have a schema available to upgrade for which you want to perform a readiness check.

   If you selected **Domain Based**: On the Component List screen, review the list of components that are present in your domain for which you want to perform a readiness check.

   If you select a component that has dependent components, those components are automatically selected. For example, if you select Oracle Platform Security Services, Oracle Audit Services is automatically selected.

   Depending on the components you select, additional screens may display. For example, you may need to:

   - Specify the domain directory.
   - Specify schema credentials to connect to the selected schema: **Database Type**, **DBA User Name**, and **DBA Password**. Then click **Connect**.

     > **Note:**
     >
     > Oracle database is the default database type. Make sure that you select the correct database type before you continue. If you discover that you selected the wrong database type, do not go back to this screen to change it to the correct type. Instead, close the Upgrade Assistant and restart the readiness check with the correct database type selected to ensure that the correct database type is applied to all schemas.

   - Select the **Schema User Name** option and specify the **Schema Password**.

     > **Note:**
     >
     > The Upgrade Assistant automatically enables default credentials. If you are unable to connect, make sure that you manually enter the credentials for your schema before you continue.

   Click **Next** to start the readiness check.

4. On the Readiness Summary screen, review the summary of the readiness checks that will be performed based on your selections.

   If you want to save your selections to a response file to run the Upgrade Assistant again later in response (or silent) mode, click **Save Response File** and provide the location and name of the response file. A silent upgrade performs exactly the same function that the Upgrade Assistant performs, but you do not have to manually enter the data again.

   For a detailed report, click **View Log**.

   Click **Next**.

5. On the Readiness Check screen, review the status of the readiness check. The process can take several minutes.

   If you are checking multiple components, the progress of each component displays in its own progress bar in parallel.

   When the readiness check is complete, click **Continue**.

6. On the End of Readiness screen, review the results of the readiness check (**Readiness Success** or **Readiness Failure**):

   - If the readiness check is successful, click **View Readiness Report** to review the complete report. Oracle recommends that you review the Readiness Report before you perform the actual upgrade even when the readiness check is successful. Use the **Find** option to search for a particular word or phrase within the report. The report also indicates where the completed Readiness Check Report file is located.
   - If the readiness check encounters an issue or error, click **View Log** to review the log file, identify and correct the issues, and then restart the readiness check. The log file is managed by the command-line options you set.

Understanding the Readiness Report

After performing a readiness check for your domain, review the report to determine whether you need to take any action for a successful upgrade.

The format of the readiness report file is:

`readiness<timestamp>.txt`

Where, *timestamp* indicates the date and time of when the readiness check was run.

A readiness report contains the following information:

Table 5-3 Readiness Report Elements

Report Information	Description	Required Action
Overall Readiness Status: SUCCESS or FAILURE	The top of the report indicates whether the readiness check passed or completed with one or more errors.	If the report completed with one or more errors, search for FAIL and correct the failing issues before attempting to upgrade. You can re-run the readiness check as many times as necessary before an upgrade.
Timestamp	The date and time that the report was generated.	No action required.
Log file location `/oracle_common/upgrade/logs`	The directory location of the generated log file.	No action required.

Table 5-3 (Cont.) Readiness Report Elements

Report Information	Description	Required Action
Domain Directory	Displays the domain location	No action required.
Readiness report location `/oracle_common/upgrade/logs`	The directory location of the generated readiness report.	No action required.
Names of components that were checked	The names and versions of the components included in the check and status.	If your domain includes components that cannot be upgraded to this release, such as SOA Core Extension, do not attempt an upgrade.
Names of schemas that were checked	The names and current versions of the schemas included in the check and status.	Review the version numbers of your schemas. If your domain includes schemas that cannot be upgraded to this release, do not attempt an upgrade.
Individual Object Test Status: FAIL	The readiness check test detected an issue with a specific object.	Do not upgrade until all failed issues have been resolved.
Individual Object Test Status: PASS	The readiness check test detected no issues for the specific object.	If your readiness check report shows only the PASS status, you can upgrade your environment. Note, however, that the Readiness Check cannot detect issues with externals such as hardware or connectivity during an upgrade. You should always monitor the progress of your upgrade.
Completed Readiness Check of <Object> Status: FAILURE	The readiness check detected one or more errors that must be resolved for a particular object such as a schema, an index, or datatype.	Do not upgrade until all failed issues have been resolved.
Completed Readiness Check of <Object> Status: SUCCESS	The readiness check test detected no issues.	No action required.

Stopping Servers and Processes

Before you run the Upgrade Assistant to upgrade your schemas and configurations, you must shut down all of the pre-upgrade processes and servers, including the Administration Server and any managed servers.

An Oracle Fusion Middleware environment can consist of an Oracle WebLogic Server domain, an Administration Server, multiple managed servers, Java components, system components such as Identity Management components, and a database used as a repository for metadata. The components may be dependent on each other, so they must be stopped in the correct order.

> **Note:**
>
> The procedures in this section describe how to stop the existing, pre-upgrade servers and processes using the WLST command-line utility or a script. You can also use the Oracle Fusion Middleware Control and the Oracle WebLogic Server Remote Console. See Starting and Stopping Administration and Managed Servers and Node Manager.
>
> As of release 14c (14.1.2.0.0), the WebLogic Server Administration Console has been removed. For comparable functionality, you should use the WebLogic Remote Console. For more information, see Oracle WebLogic Remote Console.

To stop your pre-upgrade Fusion Middleware environment, navigate to the pre-upgrade domain and follow the steps below:

Step 1: Stop the Managed Servers

To stop a WebLogic Server Managed Server, use the `stopManagedWebLogic` script:

- (UNIX) *`DOMAIN_HOME`*`/bin/stopManagedWebLogic.sh` *`managed_server_name admin_url`*
- (Windows) *`DOMAIN_HOME`*`\bin\stopManagedWebLogic.cmd` *`managed_server_name admin_url`*

When prompted, enter your user name and password.

Step 2: Stop System Components

To stop system components, such as Oracle HTTP Server, use the `stopComponent` script:

- (UNIX) *`DOMAIN_HOME`*`/bin/stopComponent.sh` *`component_name`*
- (Windows) *`DOMAIN_HOME`*`\bin\stopComponent.cmd` *`component_name`*

You can stop system components in any order.

Step 3: Stop the Administration Server

To stop the Administration Server, use the `stopWebLogic` script:

- (UNIX) *`DOMAIN_HOME`*`/bin/stopWebLogic.sh`
- (Windows) *`DOMAIN_HOME`*`\bin\stopWebLogic.cmd`

When prompted, enter your user name, password, and the URL of the Administration Server.

Step 4: Stop Node Manager

To stop Node Manager, close the command shell in which it is running.

Alternatively, after setting the `nodemanager.properties` attribute `QuitEnabled` to `true` (the default is `false`), you can use WLST to connect to Node Manager and shut it down. See stopNodeManager in *WLST Command Reference for Oracle WebLogic Server*.

Upgrading Product Schemas

After stopping servers and processes, use the Upgrade Assistant to upgrade your 12.2.1.4.0 schemas to the 14c (14.1.2.0.0) release of Oracle Fusion Middleware.

> **Note:**
>
> If your domain has the `WLSSchemaDataSource` data source, then you will need to verify which database user is assigned to it. If `<PREFIX>_WLS_RUNTIME` is assigned to it, then you need to change that to `<PREFIX>_WLS` . For more information, see Verify the Database User for the WLSSchemaDataSource Data Source.

> **Note:**
>
> As of 14c (14.1.2.0.0) the following schema changes have been made to help you prepare for an optional zero downtime upgrade to a future release:
>
> - Schemas created prior to 14c (14.1.2.0.0) with editions disabled and then upgraded to 14c (14.1.2.0.0) will become editions enabled.
> - Schemas created in 14c (14.1.2.0.0) will be created with editions enabled.

The Upgrade Assistant allows you to upgrade individually selected schemas or all schemas associated with a domain. The option you select determines which Upgrade Assistant screens you will use.

Starting the Upgrade Assistant

Run the Upgrade Assistant to upgrade product schemas, domain component configurations, or standalone system components to 14c (14.1.2.0.0).

To start the Upgrade Assistant:

> **Note:**
>
> Before you start the Upgrade Assistant, make sure that the JVM character encoding is set to UTF-8 for the platform on which the Upgrade Assistant is running. If the character encoding is not set to UTF-8, then you will not be able to download files containing Unicode characters in their names. This can cause the upgrade to fail. To set the character encoding, run the following:
>
> UNIX operating systems:
>
> ```
> export UA_PROPERTIES="-Dfile.encoding=UTF-8 ${UA_PROPERTIES}"
> ```
>
> Windows operating systems:
>
> ```
> set UA_PROPERTIES=-Dfile.encoding=UTF-8 %UA_PROPERTIES%
> ```

1. Go to the `oracle_common/upgrade/bin` directory:
   - (UNIX) *ORACLE_HOME*`/oracle_common/upgrade/bin`
   - (Windows) *ORACLE_HOME*`\oracle_common\upgrade\bin`
2. Start the Upgrade Assistant:
   - (UNIX) `./ua`
   - (Windows) `ua.bat`

For information about other parameters that you can specify on the command line, such as logging parameters, see:

Upgrade Assistant Parameters

When you start the Upgrade Assistant from the command line, you can specify additional parameters.

Table 5-4 Upgrade Assistant Command-Line Parameters

Parameter	Required or Optional	Description
`-readiness`	Required for readiness checks **Note**: Readiness checks cannot be performed on standalone installations (those not managed by the WebLogic Server).	Performs the upgrade readiness check without performing an actual upgrade. Schemas and configurations are checked. Do not use this parameter if you have specified the `-examine` parameter.
`-threads`	Optional	Identifies the number of threads available for concurrent schema upgrades or readiness checks of the schemas. The value must be a positive integer in the range 1 to 8. The default is 4.

Table 5-4 (Cont.) Upgrade Assistant Command-Line Parameters

Parameter	Required or Optional	Description
`-response`	Required for silent upgrades or silent readiness checks	Runs the Upgrade Assistant using inputs saved to a response file generated from the data that is entered when the Upgrade Assistant is run in GUI mode. Using this parameter runs the Upgrade Assistant in *silent mode* (without displaying Upgrade Assistant screens).
`-examine`	Optional	Performs the examine phase but does not perform an actual upgrade. Do not specify this parameter if you have specified the `-readiness` parameter.
`-logLevel` *attribute*	Optional	Sets the logging level, specifying one of the following attributes: • `TRACE` • `NOTIFICATION` • `WARNING` • `ERROR` • `INCIDENT_ERROR` The default logging level is `NOTIFICATION`. Consider setting the `-logLevel TRACE` attribute to so that more information is logged. This is useful when troubleshooting a failed upgrade. The Upgrade Assistant's log files can become very large if `-logLevel TRACE` is used.
`-logDir` *location*	Optional	Sets the default location of upgrade log files and temporary files. You must specify an existing, writable directory where the Upgrade Assistant creates log files and temporary files. The default locations are: (UNIX) *ORACLE_HOME*`/oracle_common/upgrade/logs` *ORACLE_HOME*`/oracle_common/upgrade/temp` (Windows) *ORACLE_HOME*`\oracle_common\upgrade\logs` *ORACLE_HOME*`\oracle_common\upgrade\temp`
`-help`	Optional	Displays all of the command-line options.

Upgrading Product Schemas Using the Upgrade Assistant

Navigate through the screens in the Upgrade Assistant to upgrade the product schemas.

To upgrade product schemas with the Upgrade Assistant:

1. On the Welcome screen, review an introduction to the Upgrade Assistant and information about important pre-upgrade tasks. Click **Next**.

   > **Note:**
   >
   > For more information about any Upgrade Assistant screen, click **Help** on the screen.

2. On the Selected Schemas screen, **All Schemas Used by a Domain** to upgrade the schemas for all the components that WebCenter Sites uses. Click **Next**.
3. If you selected **Individually Selected Schemas**: On the Available Components screen, select Oracle WebCenter Sites and other components, as listed in step 2. Click **Next**. When you select a component, the schemas and any dependencies are automatically selected.
4. On the Prerequisites screen, acknowledge that the prerequisites have been met by selecting all the check boxes. Click **Next**.

   > **Note:**
   >
   > The Upgrade Assistant does not verify whether the prerequisites have been met.

5. On the WebCenter Sites Source Version screen, select the source version and click **Next**. This is the starting point of your upgrade.
6. On the WebCenter Sites Source Schema screen, select the database type from the **Database Type** drop-down list.

   Specify the database connect string in the **Database Connect String** field .

   Specify the user name with DBA privileges in the **DBA User Name** field. Specify the DBA password in the **DBA Password** field.

   Specify the user name and password for the schema in the **Schema User Name** and **Schema Password** fields, respectively.

   > **Note:**
   >
   > For the DB2 database schema upgrade, the Oracle WebCenter Sites component will not be listed if you select **All Schemas Used by a Domain** in the Selected Schemas screen because WebCenter Sites uses a different driver class from what WebLogic provides. Therefore, you must upgrade Oracle WebCenter Sites schema by selecting **Individually Selected Schemas** separately from the rest of the components that WebCenter Sites uses.

7. On the WebCenter Sites Location screen, specify the complete location of the existing Sites home and Sites shared directory, and location of the configuration file: wcs_properties.json.

   Click **Next**.

8. On the Examine screen, review the status of the Upgrade Assistant as it examines each schema, verifying that the schema is ready for upgrade. If the status is **Examine finished**, click **Next**.

   If the examine phase fails, Oracle recommends that you cancel the upgrade by clicking **No** in the Examination Failure dialog. Click **View Log** to see what caused the error and refer to Troubleshooting Your Upgrade in *Upgrading with the Upgrade Assistant* for information on resolving common upgrade errors.

   > **Note:**
   >
   > - If you resolve any issues detected during the examine phase without proceeding with the upgrade, you can start the Upgrade Assistant again without restoring from backup. However, if you proceed by clicking **Yes** in the Examination Failure dialog box, you need to restore your pre-upgrade environment from backup before starting the Upgrade Assistant again.
   > - Canceling the examination process has no effect on the schemas or configuration data; the only consequence is that the information the Upgrade Assistant has collected must be collected again in a future upgrade session.

9. On the Upgrade Summary screen, review the summary of the schemas that will be upgraded and/or created.

   Verify that the correct Source and Target Versions are listed for each schema you intend to upgrade.

   If you want to save these options to a response file to run the Upgrade Assistant again later in response (or silent) mode, click **Save Response File** and provide the location and name of the response file. A silent upgrade performs exactly the same function that the Upgrade Assistant performs, but you do not have to manually enter the data again.

   Click **Next** .

10. On the Upgrade Progress screen, monitor the status of the upgrade.

    > **Caution:**
    >
    > Allow the Upgrade Assistant enough time to perform the upgrade. Do not cancel the upgrade operation unless absolutely necessary. Doing so may result in an unstable environment.

    If any schemas are not upgraded successfully, refer to the Upgrade Assistant log files for more information.

> **Note:**
>
> The progress bar on this screen displays the progress of the current upgrade procedure. It does not indicate the time remaining for the upgrade.

Click **Next**.

11. If the upgrade is successful: On the Upgrade Success screen, click **Close** to complete the upgrade and close the wizard.

    If the upgrade fails: On the Upgrade Failure screen, click **View Log** to view and troubleshoot the errors. The logs are available at *NEW_ORACLE_HOME*/oracle_common/upgrade/logs.

> **Note:**
>
> If the upgrade fails, you must restore your pre-upgrade environment from backup, fix the issues, then restart the Upgrade Assistant.

Verifying the Schema Upgrade

After completing all the upgrade steps, verify that the upgrade was successful by checking that the schema version in schema_version_registry has been properly updated.

If you are using an Oracle database, connect to the database as a user having Oracle DBA privileges, and run the following from SQL*Plus to get the current version numbers. Be sure to replace <*PREFIX*> with your schema prefix.

```
SET LINE 120
COLUMN MRC_NAME FORMAT A14
COLUMN COMP_ID FORMAT A20
COLUMN VERSION FORMAT A12
COLUMN STATUS FORMAT A9
COLUMN UPGRADED FORMAT A8
SELECT MRC_NAME, COMP_ID, OWNER, EDITION NAME, VERSION, STATUS, UPGRADED FROM
SCHEMA_VERSION_REGISTRY where owner like '<PREFIX>_%';
```

In the query result:

- Verify that the EDITION NAME column appears as ORA$BASE.
- Check that the number in the VERSION column matches the latest version number for that schema. For example, verify that the schema version number is 14.1.2.0.0.

> **Note:**
>
> Not all schema versions will be updated. Some schemas do not require an upgrade to this release and will retain their pre-upgrade version number.

- The STATUS field will be either UPGRADING or UPGRADED during the schema patching operation, and will become VALID when the operation is completed.
- If the status appears as INVALID, the schema update failed. You should examine the logs files to determine the reason for the failure.

- Synonym objects owned by `IAU_APPEND` and `IAU_VIEWER` will appear as `INVALID`, but that does not indicate a failure.

  They become invalid because the target object changes after the creation of the synonym. The synonyms objects will become valid when they are accessed. You can safely ignore these `INVALID` objects.

About Reconfiguring the Domain

Run the Reconfiguration Wizard to reconfigure your domain component configurations to 14c (14.1.2.0.0).

> **Note:**
>
> If the source is a clustered environment, run the Reconfiguration Wizard on the primary node only.

When you reconfigure a WebLogic Server domain, the following items are automatically updated, depending on the applications in the domain:

- WebLogic Server core infrastructure
- Domain version

Note:

Before you begin the domain reconfiguration, note the following limitations:

- The Reconfiguration Wizard does not update any of your own applications that are included in the domain.
- Transforming a non-dynamic cluster domain to a dynamic cluster domain during the upgrade process is not supported.

  The dynamic cluster feature is available when running the Reconfiguration Wizard, but Oracle only supports upgrading a non-dynamic cluster upgrade and then adding dynamic clusters. You cannot add dynamic cluster during the upgrade process.
- If the installation that you're upgrading does not use Oracle Access Management (OAM), then you must edit two files to prevent the Reconfiguration Wizard from attempting to update the nonexistent OAM Infrastructure schema, which causes the upgrade to fail.

  Comment out the lines in your `$DOMAIN/init-info/domain-info.xml` that are similar to this example:

```
<!--extention-template-ref name="Oracle Identity Navigator"
  version="14.1.2.0.0"
  location="/u01/app/oracle/product/fmw/iam111130/common/templates/
applications/yourcomany.oinav_14.1.2.0.0_template.jar"
  symbol=""/-->

<!--install-comp-ref name="oracle.idm.oinav" version="14.1.2.0.0"
  symbol="yourcompany.idm.oinav_14.1.2.0.0_iam141200_ORACLE_HOME"
  product_home="/u01/app/oracle/product/fmw/iam141200"/-->
```

  and similarly comment out the lines in `$DOMAIN/config/config.xml` that are similar to this example:

```
<!--app-deployment>
  <name>oinav#14.1.2.0.0</name>
  <target>AdminServer</target>
  <module-type>ear</module-type>

  <source-path>/u01/app/oracle/product/fmw/iam141200/oinav/modules/
oinav.ear_14.1.2.0.0/oinav.ear</source-path>
  <deployment-order>500</deployment-order>
  <security-dd-model>DDOnly</security-dd-model>
  <staging-mode>nostage</staging-mode>
</app-deployment-->
```

Specifically, when you reconfigure a domain, the following occurs:

- The domain version number in the `config.xml` file for the domain is updated to the Administration Server's installed WebLogic Server version.

- Reconfiguration templates for all installed Oracle products are automatically selected and applied to the domain. These templates define any reconfiguration tasks that are required to make the WebLogic domain compatible with the current WebLogic Server version.
- Start scripts are updated.

  If you want to preserve your modified start scripts, be sure to back them up before starting the Reconfiguration Wizard.

> **Note:**
>
> When the domain reconfiguration process starts, you can't undo the changes that it makes. Before running the Reconfiguration Wizard, ensure that you have backed up the domain as covered in the pre-upgrade checklist. If an error or other interruption occurs while running the Reconfiguration Wizard, you must restore the domain by copying the files and directories from the backup location to the original domain directory. This is the only way to ensure that the domain has been returned to its original state before reconfiguration.

Backing Up the Domain

Before running the Reconfiguration Wizard, create a backup copy of the domain directory.

1. Create a backup of the domain directory.
2. Before updating the domain on each remote Managed Server, create a backup copy of the domain directory on each remote machine.
3. Verify that the backed up versions of the domain are complete.

If domain reconfiguration fails for any reason, you must copy all files and directories from the backup directory into the original domain directory to ensure that the domain is returned entirely to its original state before reconfiguration.

Starting the Reconfiguration Wizard

> **Note:**
>
> Shut down the administration server and all collocated managed servers before starting the reconfiguration process. See Stopping Servers and Processes .

To start the Reconfiguration Wizard in graphical mode:

1. Sign in to the system on which the domain resides.
2. Open the command shell (on UNIX operating systems) or open a command prompt window (on Windows operating systems).
3. Go to the `oracle_common/common/bin` directory:
   - (UNIX) *`NEW_ORACLE_HOME`*`/oracle_common/common/bin`
   - (Windows) *`NEW_ORACLE_HOME`*`\oracle_common\commom\bin`
4. Start the Reconfiguration Wizard with the following logging options:
   - (UNIX) `./reconfig.sh -log=`*`log_file`*` -log_priority=ALL`

- (Windows) `reconfig.cmd -log=log_file -log_priority=ALL`

where *log_file* is the absolute path of the log file you'd like to create for the domain reconfiguration session. This can be helpful if you need to troubleshoot the reconfiguration process.

The parameter `-log_priority=ALL` ensures that logs are logged in fine mode.

> **Note:**
>
> When you run this command, the following error message might appear to indicate that the default cache directory is not valid:
>
> ```
> *sys-package-mgr*: can't create package cache dir
> ```
>
> You can change the cache directory by setting the environment variable `CONFIG_JVM_ARGS`. For example:
>
> ```
> CONFIG_JVM_ARGS=-Dpython.cachedir=valid_directory
> ```

Reconfiguring the WebCenter Sites Domain with the Reconfiguration Wizard

Navigate through the screens in the Reconfiguration Wizard to reconfigure your existing domain.

> **Note:**
>
> Reconfiguration templates are automatically selected for every Oracle product that is installed, and are applied to the domain. These templates define any reconfiguration tasks that are required to make the WebLogic domain compatible with the current WebLogic Server version. If you see a template that is reported as missing, verify whether you have installed that respective Oracle product in your domain. For example, if Oracle HTTP Server is part of your existing domain, ensure that you install the 14c (14.1.2.0.0) Oracle HTTP Server product distribution.

> **Note:**
>
> If the source is a clustered environment, run the Reconfiguration Wizard on the primary node only.

To reconfigure the domain with the Reconfiguration Wizard:

1. On the Select Domain screen, specify the location of the domain you want to upgrade or click **Browse** to navigate and select the domain directory. Click **Next**.
2. On the Reconfiguration Setup Progress screen, view the progress of the setup process. When complete, click **Next**.

   During this process:

   - The reconfiguration templates for your installed products, including Fusion Middleware products, are automatically applied. This updates various domain configuration files such as `config.xml`, `config-groups.xml`, and `security.xml` (among others).

- Scripts and other files that support your Fusion Middleware products are updated.
- The domain upgrade is validated.

3. On the Domain Mode and JDK screen, select the JDK to use in the domain or click **Browse** to navigate to the JDK you want to use. The supported JDK version for 14c (14.1.2.0.0) is 17.0.12 and later. Click **Next**.

> **Note:**
>
> You cannot change the **Domain Mode** at this stage. Your domain will retain its pre-upgrade domain mode. If you want to change the domain to secure mode, then after the upgrade see Changing Domain Mode Post Upgrade.

For a list of JDKs that are supported for a specific platform, see Oracle Fusion Middleware Supported System Configurations.

4. On the Database Configuration Type screen, select **RCU Data** to connect to the Server Table (<*PREFIX*>_STB) schema.

Note: <*PREFIX*> is the RCU schema prefix of the 12.2.1.4 domain that is being upgraded.

Enter the database connection details using the RCU service table (<*PREFIX*>_STB) schema credentials and click **Get RCU Configuration**.

The Reconfiguration Wizard uses this connection to automatically update the data sources required for components in your domain.

> **Note:**
>
> By default **Oracle's Driver (Thin) for Service connections; Versions: Any** is the selected driver. If you specified an instance name in your connection details — instead of the service name — you must select **Oracle's Driver (Thin) for pooled instance connections; Versions: Any** If you do not change the driver type, then the connection will fail.

If the check is successful, click **Next**. If the check fails, reenter the connection details correctly and try again.

5. On the JDBC Component Schema screen, verify that the DBMS/Service and the Host name is correct for each component schema and click **Next**.

6. For DB2, Populate the DBMS/Service and HostName for the WCSITES Component Schema in the 'Component Datasources' screen for reconfig.

7. On the JDBC Component Schema Test screen, select all the component schemas and click **Test Selected Connections** to test the connection for each schema. The result of the test is indicated in the Status column.

When the check is complete, click **Next**.

8. On the Advanced Configuration screen, you can select all categories for which you want to perform advanced configuration. For each category you select, the appropriate configuration screen is displayed to allow you to perform advanced configuration.

> **Note:**
>
> The categories that are listed on the Advanced Configuration screen depend on the resources defined in the templates you selected for the domain.

For this upgrade, select none of the options and click **Next**.

9. On the Configuration Summary screen, review the detailed configuration settings of the domain before continuing.

   You can limit the items that are displayed in the right-most panel by selecting a filter option from the **View** drop-down list.

   To change the configuration, click **Back** to return to the appropriate screen. To reconfigure the domain, click **Reconfig**.

   > **Note:**
   >
   > The location of the domain does not change when you reconfigure it.

10. The Reconfiguration Progress screen displays the progress of the reconfiguration process.

    During this process:

    - Domain information is extracted, saved, and updated.
    - Schemas, scripts, and other such files that support your Fusion Middleware products are updated.

    When the progress bar shows 100%, click **Next**.

11. The End of Configuration screen indicates whether the reconfiguration process completed successfully or failed. It also displays the location of the domain that was reconfigured as well as the Administration Server URL (including the listen port). If the reconfiguration is successful, it displays **Oracle WebLogic Server Reconfiguration Succeeded**.

    If the reconfiguration process did not complete successfully, an error message is displayed indicates the reason. Take appropriate action to resolve the issue. If you cannot resolve the issue, contact My Oracle Support.

    Note the Domain Location and the Admin Server URL for further operations.

Upgrading Domain Component Configurations

After reconfiguring the domain, use the Upgrade Assistant to upgrade the domain *component* configurations inside the domain to match the updated domain configuration.

Starting the Upgrade Assistant

Run the Upgrade Assistant to upgrade product schemas, domain component configurations, or standalone system components to 14c (14.1.2.0.0).

To start the Upgrade Assistant:

> **Note:**
>
> Before you start the Upgrade Assistant, make sure that the JVM character encoding is set to UTF-8 for the platform on which the Upgrade Assistant is running. If the character encoding is not set to UTF-8, then you will not be able to download files containing Unicode characters in their names. This can cause the upgrade to fail. To set the character encoding, run the following:
>
> UNIX operating systems:
>
> ```
> export UA_PROPERTIES="-Dfile.encoding=UTF-8 ${UA_PROPERTIES}"
> ```
>
> Windows operating systems:
>
> ```
> set UA_PROPERTIES=-Dfile.encoding=UTF-8 %UA_PROPERTIES%
> ```

1. Go to the `oracle_common/upgrade/bin` directory:
   - (UNIX) *ORACLE_HOME*`/oracle_common/upgrade/bin`
   - (Windows) *ORACLE_HOME*`\oracle_common\upgrade\bin`
2. Start the Upgrade Assistant:
   - (UNIX) `./ua`
   - (Windows) `ua.bat`

For information about other parameters that you can specify on the command line, such as logging parameters, see:

Upgrade Assistant Parameters

When you start the Upgrade Assistant from the command line, you can specify additional parameters.

Table 5-5 Upgrade Assistant Command-Line Parameters

Parameter	Required or Optional	Description
`-readiness`	Required for readiness checks **Note**: Readiness checks cannot be performed on standalone installations (those not managed by the WebLogic Server).	Performs the upgrade readiness check without performing an actual upgrade. Schemas and configurations are checked. Do not use this parameter if you have specified the `-examine` parameter.
`-threads`	Optional	Identifies the number of threads available for concurrent schema upgrades or readiness checks of the schemas. The value must be a positive integer in the range 1 to 8. The default is 4.

Table 5-5 (Cont.) Upgrade Assistant Command-Line Parameters

Parameter	Required or Optional	Description
`-response`	Required for silent upgrades or silent readiness checks	Runs the Upgrade Assistant using inputs saved to a response file generated from the data that is entered when the Upgrade Assistant is run in GUI mode. Using this parameter runs the Upgrade Assistant in *silent mode* (without displaying Upgrade Assistant screens).
`-examine`	Optional	Performs the examine phase but does not perform an actual upgrade. Do not specify this parameter if you have specified the `-readiness` parameter.
`-logLevel` *attribute*	Optional	Sets the logging level, specifying one of the following attributes: • `TRACE` • `NOTIFICATION` • `WARNING` • `ERROR` • `INCIDENT_ERROR` The default logging level is `NOTIFICATION`. Consider setting the `-logLevel TRACE` attribute to so that more information is logged. This is useful when troubleshooting a failed upgrade. The Upgrade Assistant's log files can become very large if `-logLevel TRACE` is used.
`-logDir` *location*	Optional	Sets the default location of upgrade log files and temporary files. You must specify an existing, writable directory where the Upgrade Assistant creates log files and temporary files. The default locations are: (UNIX) *ORACLE_HOME*`/oracle_common/upgrade/logs` *ORACLE_HOME*`/oracle_common/upgrade/temp` (Windows) *ORACLE_HOME*`\oracle_common\upgrade\logs` *ORACLE_HOME*`\oracle_common\upgrade\temp`
`-help`	Optional	Displays all of the command-line options.

Upgrading WebCenter Sites Domain Components Using the Upgrade Assistant

Navigate through the screens in the Upgrade Assistant to upgrade component configurations in the WebLogic domain.

When performing a reduced downtime upgrade for WebCenter Sites, you must run the Upgrade Assistant a second time to upgrade the component configurations. This step is not needed for the other WebCenter components.

To upgrade domain component configurations with the Upgrade Assistant:

1. On the Welcome screen, review an introduction to the Upgrade Assistant and information about important pre-upgrade tasks. Click **Next**.

   > **Note:**
   >
   > For more information about any Upgrade Assistant screen, click **Help** on the screen.

2. On the next screen:
   - Select **All Configurations Used By a Domain**. The screen name changes to WebLogic Components.
   - In the **Domain Directory** field, enter the WebLogic domain directory path.

   Click **Next**.

3. On the Component List screen, verify that the list includes all the components for which you want to upgrade configurations and click **Next**.

   If you do not see the components you want to upgrade, click **Back** to go to the previous screen and specify a different domain.

4. On the Prerequisites screen, acknowledge that the prerequisites have been met by selecting all the check boxes. Click **Next**.

   > **Note:**
   >
   > The Upgrade Assistant does not verify whether the prerequisites have been met.

5. On the WebCenter Sites Source Version screen, select **12.2.1.0.0 or Later** and click **Next**. This is the starting point of your upgrade.

6. (Clustered environment) If the Source environment is a Clustered environment, use the pack/unpack utility to apply the changes to other cluster members in the domain.

   In Primary node, go to path of target environment and execute PACK command:

   ```
   $ORACLE_HOME/oracle_common/common/bin
   ```

   In Secondary cluster member nodes, go to target environment and execute UNPACK command:

   ```
   $ORACLE_HOME/oracle_common/common/bin
   ```

a. On each of the Secondary cluster member nodes, replace the Sites `config` folder with the one from the Primary node by copying the `$DOMAIN_HOME/wcsites/wcsites/config/` to each of the nodes from the Primary node.

b. On each of the Secondary cluster member nodes, update the following files located at `DOMAIN_HOME/wcsites/wcsites/config/`:

- host properties:
  In this file, replace IP-Address details of Primary node with Secondary node details
- jbossTicketCacheReplicationConfig.xml:
  Update the `bind_addr` property with a valid host or IP address of Primary node with Secondary node details for this Secondary cluster node

> **Note:**
>
> 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.

- cas-cache.xml:
  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 collocated on the same machine. This field must be set based on the distribution of your clustered machines, as shown in the following table:

Table 5-6 Description of the different values of the timeToLive field

timeToLive Value	Description
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.
256	No restriction.

Repeat this step for `cs-cache.xml`, `linked-cache.xml`, and `ss-cache.xml` files.

> **Note:**
>
> For all these 4-xml files(cas-cache.xml, cs-cache.xml, linked-cache.xml, and ss-cache.xml) the values of “multicastGroupAddress”, “timeToLive”, “multicastGroupPort” should be appropriate as per the Primary node

c. On each of the Secondary cluster member node go to path `EXISTING_DOMAIN_HOME/bin` and modify `setStartupEnv.sh` file

- Ensure `-Dsites.node=`*<Secondary cluster node name>*. If this parameter is not present then add this parameter
- Ensure `-Dsites.config=`*<Folder Path containing wcs_properties.json file>*

> **Note:**
>
> The `wcs_properties.json` file is shared among Primary and Secondary cluster member nodes, so the location path of this file should be the same for Primary and Secondary cluster member nodes.

7. On the Examine screen, review the status of the Upgrade Assistant as it examines each component, verifying that the component configuration is ready for upgrade. If the status is **Examine finished**, click **Next**.

   If the examine phase fails, Oracle recommends that you cancel the upgrade by clicking **No** in the Examination Failure dialog. Click **View Log** to see what caused the error and refer to Troubleshooting Your Upgrade in *Upgrading with the Upgrade Assistant* for information on resolving common upgrade errors.

> **Note:**
>
> - If you resolve any issues detected during the examine phase without proceeding with the upgrade, you can start the Upgrade Assistant again without restoring from backup. However, if you proceed by clicking **Yes** in the Examination Failure dialog box, you need to restore your pre-upgrade environment from backup before starting the Upgrade Assistant again.
> - Canceling the examination process has no effect on the configuration data; the only consequence is that the information the Upgrade Assistant has collected must be collected again in a future upgrade session.

8. On the Upgrade Summary screen, review the summary of the options you have selected for component configuration upgrade.

   The response file collects and stores all the information that you have entered, and enables you to perform a silent upgrade at a later time. The silent upgrade performs exactly the same function that the Upgrade Assistant performs, but you do not have to manually enter the data again. If you want to save these options to a response file, click **Save Response File** and provide the location and name of the response file.

   Click **Upgrade** to start the upgrade process.

9. On the Upgrade Progress screen, monitor the status of the upgrade.

> **Caution:**
>
> Allow the Upgrade Assistant enough time to perform the upgrade. Do not cancel the upgrade operation unless absolutely necessary. Doing so may result in an unstable environment.

If any components are not upgraded successfully, refer to the Upgrade Assistant log files for more information.

> **Note:**
>
> The progress bar on this screen displays the progress of the current upgrade procedure. It does not indicate the time remaining for the upgrade.

Click **Next**.

10. If the configuration upgrade is successful, summary files are generated at the following location:

    NEW_ORACLE_HOME/oracle_common/upgrade/logs/

    If the source is a clustered environment, the summary details are generated for each cluster as follows:

    NEW_ORACLE_HOME/oracle_common/upgrade/logs/

    If the schema upgrade fails, you can review the logs for possible errors. The log file is generated at the following location:

    NEW_ORACLE_HOME/oracle_common/upgrade/logs

    Click **Close** to close the Upgrade Assistant.

Verifying the Domain-Specific-Component Configurations Upgrade

To verify that the domain-specific-component configurations upgrade was successful, sign in to the Remote Console and verify that the version numbers for each upgraded component is 14.1.2.0.0.

> **Note:**
>
> Before you can access the Hosted WebLogic Remote Console, you must deploy the hosted WebLogic Remote Console. For more information, see the Remote Console Online Help.

To sign in to the Remote Console, go to: `http://hostname:port/rconsole` or for HTTPS, `https://hostname:port/rconsole`.

> **Note:**
>
> After a successful upgrade, make sure you run the administration tools from the new 14c (14.1.2.0.0) Oracle home directory and not from the previous Oracle home directory.
>
> During the upgrade process, some OWSM documents, including policy sets and predefined documents such as policies and assertion templates, may need to be upgraded. If a policy set or a predefined document is upgraded, its version number is incremented by 1.
>
> If you created the FMW user to run the Upgrade Assistant, ensure that you delete the account after verifying your upgrade was successful.

Post-Upgrade Tasks

The post-upgrade tasks include restoring any custom settings, starting Administration Server and Managed Servers, reconfiguring passwords, and other administrative tasks listed in this topic.

After upgrading to WebCenter Sites 14.1.2.0.0:

1. During the Sites and Satellite Server upgrade, the property `wcsites.HTTPHeaderValue` in the `wcs_properties.json` file is changed. If you customized `wcsites.HTTPHeaderValue`, then you will need to add those changes again after the upgrade.
2. Re-enable Lucene search indexes.

   Follow these steps after the upgrade process to re-enable Lucene search indexes to perform search operations in Contributor UI. Indexes need to be recreated as the Lucene version is now upgraded:

   a. Set the ORACLE_HOME environment variable to the directory where you have installed Oracle WebCenter Sites.

   b. Stop all servers and components including the Admin Server and all managed servers.

   c. Create a complete backup of the existing <`DOMAIN_HOME/wcsites/wcsites/lucene`> folder. The `/lucene` folder is located in the WebCenter Sites `/shared` folder.

   d. Set the following environment variables using a terminal window:

      - JAVA_HOME to the latest supported JDK version (currently JDK 1.8.0_211)
      - LUCENEPATH to the existing `<DOMAIN_HOME/wcsites/wcsites/lucene>` as shown in the following example:
        ```
        export LUCENEPATH=/scratch/Sites12.2.1.4.0/DOMAIN_HOME/wcsites/wcsites/lucene>
        ```

   e. Download the Lucene jar files (JARS).

   f. Navigate to the folder where the Lucene JARs were downloaded and execute the following two commands:

> **Note:**
>
> Make sure that there are no exceptions (errors) when executing these commands which migrate the indices from Lucene version 4.4 to 6.6 version.

On Linux operating systems:

```
find $LUCENEPATH -mindepth 1 -type d -exec java
        -cp lucene-core-5.5.5.jar:lucene-backward-codecs-5.5.5.jar
        org.apache.lucene.index.IndexUpgrader {} \;


find $LUCENEPATH -mindepth 1 -type d -exec java
        -cp lucene-core-6.6.0.jar:lucene-backward-codecs-6.6.0.jar
        org.apache.lucene.index.IndexUpgrader {} \;
```

On Windows operating systems (substitute your actual directory paths):

```
c:\LuceneJars>java -cp
      lucene-core-5.5.5.jar;lucene-backward-codecs-5.5.5.jar
org.apache.lucene.index.IndexUpgrader
      <Path of \lucene folder present in Sites \shared folder>\<Flex or
Basic Asset type
      Name (such as Flex_C11)>


c:\LuceneJars>java -cp
      lucene-core-6.6.0.jar;lucene-backward-codecs-6.6.0.jar
org.apache.lucene.index.IndexUpgrader
      Path of \lucene folder present in Sites \shared folder>\<Flex or
Basic Asset type
      Name (such as Flex_C11)>
```

3. Restore or re-deploy the custom settings from your existing environment to your 14.1.2.0.0 environment.

   These include custom changes made to Java libraries, static web resources, or element changes.

   To restore changes made to the Java libraries or static web pages, see Migrating Custom Java Libraries or Static Web Resources.

4. Start Administration Server and Managed Servers. See Starting Servers and Processes.

   > **Note:**
   >
   > Before you start the Administration Server and Managed Servers, clear the cached images and files in the browser.

5. Reconfigure passwords for the publishing process.

   a. Sign in to the Administration Server URL as the Administrator.

b. Go to **Admin** menu and click **Destinations** under **Publishing**.

c. Update the publishing destination URL, Port, Username, and Password.

6. If external WebRoots are configured, update WebRoots from Sites Admin user interface.

7. If your source was a clustered environment, copy the config directory xml file settings from your source environment on which you run the Upgrade Assistant, to all other nodes on your upgraded environment.

   These include the following:

   - cs-cache.xml
   - cas-cache.xml
   - ss-cache.xml
   - linked-cache.xml
   - MobilityServices.xml
   - Custom/RestResources.xml
   - wcs_properties_bootstrap.ini

8. (Applicable only if you are using SQL server) Fusion Middleware Infrastructure requires the SQL Server database to be configured in a case sensitive mode. As a result, ics:sql jsp tag provided by WebCenter Sites require the table value to be in the same case as stated in the database.

   Following is the syntax of the ics:sql statement:

   ```
   <ics:sql
         sql="sql commands"
         listname="list name"
         table="name of table"
         [limit="max number of results"]/>
   ```

   You must provide the name of the table in the same case as specified in the SQL Server database.

9. The following properties are reset to the application Admin user account values provided during Sites Configuration Setup process:

   - xcelerate.batchuser and password
   - cs.emailpassword

   You must update these properties with their appropriate values using the Property Management Tool.

10. After WCC integration, reset the wcc.server.password in WCC Configuration to view all the mapped rules.

11. If the instance is delivery and has any of the Sample Sites published, then you must republish the Sample Sites to the delivery instance from upgraded development instance.

12. **(If you are upgrading from a previous 12*c* release only and if Sites is installed with RSS and Site Capture on same domain)**

    a. If you are upgrading Sites with RSS and Site Capture to 14c (14.1.2.0.0) from 12.2.1.0 or a later release, you must create a new domain and install RSS and Site Capture again.

    b. If you are not installing Site Capture on the same port, perform the following:

       i. Change the Site Capture port in the FW_View and FW_Application tables for Site Capture in Sites

ii. Change the port number in the valid.urls property

iii. Change the port number in other properties under the *SiteCapture* category

c. After installing RSS, change the RSS port in the SystemSatellite table, unless RSS is installed on same port.

Changing Domain Mode Post Upgrade

After the upgrade, your domain retains its original pre-upgrade domain security mode settings. If you want to change the domain mode, to enable enhanced security, for example, you must explicitly change the settings using the WebLogic Remote Console or by modifying the `DomainMBean`.

If your domain is currently set to Production Mode, and you want to enable added security, then after the upgrade use the WebLogic Remote Console to change the domain mode and enable the Secured Production Mode. Change the Domain Mode in *Oracle WebLogic Remote Console Online Help*.

> **Caution:**
>
> Changes to the domain mode require a full domain restart - a rolling restart is not sufficient. You must stop all managed servers before you attempt to change the domain mode.

When upgrading a domain to 14c (14.1.2.0.0), if there is no explicit secure mode setting, then the Reconfiguration Wizard will explicitly set secure mode to *disabled* in the upgraded domain. This is to preserve the behavior that was present in the original domain. If there is an explicit secure mode setting, it will be preserved in the upgraded domain. For more information, see Understand How Domain Mode Affects the Default Security Configuration in *Securing a Production Environment for Oracle WebLogic Server*.

> **Note:**
>
> Secured Production Mode enforces more restrictive and stringent security settings to ensure less vulnerability to threats. To make sure that your domain is secure, after enabling Secured Production Mode, you will have to choose the security configuration options that are appropriate for the environment in which the domain runs, such as obtaining and storing certificates, protecting user accounts, and securing the network on which the domain runs. If these options are not properly configured, you will be blocked from using WebLogic Server.
>
> After you have created your WebLogic domain, several key steps remain to ensure its integrity such as selecting appropriate security configurations. For more information, see Securing the Domain After You Have Created It in *Administering Security for Oracle WebLogic Server*.

Starting Servers and Processes

After a successful upgrade, restart all processes and servers, including the Administration Server and any Managed Servers.

The components may be dependent on each other so they must be started in the correct order.

> **Note:**
>
> The procedures in this section describe how to start servers and processes using the WLST command-line utility or a script. You can also use the Oracle Fusion Middleware Control and the Oracle WebLogic Server Remote Console. See Starting and Stopping Administration and Managed Servers and Node Manager.
>
> As of release 14c (14.1.2.0.0), the WebLogic Server Administration Console has been removed. For comparable functionality, you should use the WebLogic Remote Console. For more information, see Oracle WebLogic Remote Console.

To start your Fusion Middleware environment, follow the steps below:

> **Note:**
>
> Depending on your existing security settings, you may need to perform additional configuration before you can manage a domain with secured production mode enabled. For more information, see Connecting to the Administration Server using WebLogic Remote Console
>
> .

Step 1: Start the Administration Server

To start the Administration Server, use the `startWebLogic` script:

- (UNIX) *`NEW_DOMAIN_HOME`*`/bin/startWebLogic.sh`
- (Windows) *`NEW_DOMAIN_HOME`*`\bin\startWebLogic.cmd`

> **Note:**
>
> When using secured production mode, you must provide additional parameters to start the Administration Server. See Connecting to the Administration Server using WLST in *Administering Security for Oracle WebLogic Server*.

When prompted, enter your user name, password, and the URL of the Administration Server.

Step 2: Start Node Manager

To start Node Manager, use the `startNodeManager` script:

- (UNIX) *`NEW_DOMAIN_HOME`*`/bin/startNodeManager.sh`

- (Windows) *NEW_DOMAIN_HOME*\bin\startNodeManager.cmd

Step 3: Start Any Managed Servers

To start a WebLogic Server Managed Server, use the `startManagedWebLogic` script:

- (UNIX) *NEW_DOMAIN_HOME*/bin/startManagedWebLogic.sh *managed_server_name admin_url*
- (Windows) *NEW_DOMAIN_HOME*\bin\startManagedWebLogic.cmd *managed_server_name admin_url*

> **Note:**
>
> When using secured production mode, you must provide additional parameters to start the Managed Servers. See Starting Managed Servers using a Start Script in *Administering Security for Oracle WebLogic Server*.

> **Note:**
>
> The startup of a Managed Server will typically start the applications that are deployed to it. Therefore, it should not be necessary to manually start applications after the Managed Server startup.

Step 4: Start System Components

To start system components, such as Oracle HTTP Server, use the `startComponent` script:

- (UNIX) *NEW_DOMAIN_HOME*/bin/startComponent.sh *component_name*
- (Windows) *NEW_DOMAIN_HOME*\bin\startComponent.cmd *component_name*

You can start system components in any order.

Additional Configuration for Sites when Using Secure Mode

If you enabled secure mode post upgrade for WebCenter Sites, then you must complete these additional steps before starting the servers.

Your domain retains the mode configuration after the upgrade. If you want to change domain mode to Secure Mode, you will have to manually enable the mode change and then perform the following tasks to complete the configuration change.

1. Enable Secure Production Mode on the upgraded domain as described in Changing Domain Mode Post Upgrade.
2. Create custom self-signed certificates or demo certificates as described in Configure Keystores.
3. Add certificates to AdminServer, Managed Server, OPSS and JDK as described in Configuring Keystores using the WebLogic Remote Console. Optionally, you may want to create a Boot Identity file as described in Creating a Boot Identity File for an Administration Server.
4. Run script to change protocol and port.

a. Navigate to the properties file located in Oracle_Home/wcsites/webcentersites/sites-home/bin/changePortProtocol.properties.

b. Execute `./changePortProtocol.sh`

```
cdOH/wcsites/webcentersites/sites-home/bin
chmod777 changePortProtocol.sh
./changePortProtocol.sh
```

Migrating Custom Java Libraries or Static Web Resources

Perform this optional step only if custom Java libraries or static web resources were added to the web application in your pre-upgrade environment and you want to continue to use them in the upgraded environment.

If the web application includes custom Java libraries (jar files) or custom static web resources, such as css, js, or images, then you will have to manually migrate them to the upgraded environment after the upgrade. If you do not migrate these resources, you will not be able to access the functionality in the upgraded environment.

The WebCenter Sites web application is shipped as a WAR file. The web application is deployed during Config Wizard process initially and can be redeployed multiple times during the application lifecycle. Oracle recommends that you do not include any implementation-specific customizations to the Sites WAR file as the changes will be overwritten during the upgrade process.

When extending the WebLogic Server Shared Libraries framework, Sites provides `extend.sites.webapp-lib.war` as a shared library. This file is located in `NEW_ORACLE_HOME/wcsites/webcentersites/sites-home/` directory. Any implementation-specific customizations, such as static web resources or JAVA libraries, can be included in this WAR file. This shared library gets deployed during application lifecycle and shares the same context root as sites (/sites/). The contents of this shared library will not be overwritten during patching process.

Additionally, if the Sites UI has been customized, the code changes must also be migrated to the upgraded environment.

Post-Upgrade Validation Tasks

Oracle has provided validation scripts that you can run on your newly upgraded domain to ensure data integrity after a successful schema and configuration upgrade. You can review the validation summary report for any inconsistencies in data that may have occurred during the schema and configuration upgrade processes.

To run the validation script:

1. The validation script is available at the following locations in the new Oracle Home:

   (UNIX) *Oracle_Home*`/wcsites/plugins/upgrade/`

   (UNIX) `./validation.sh`

   (Windows) *Oracle_Home*`\wcsites\plugins\upgrade\`

   (Windows) `validation.bat`

2. When the validation check is complete, validation summary report: Validation.txt is generated. Save it at any location on your system.

3. Review the validation summary report to check if there is any inconsistency in the data between your existing domain and the newly configured 14.1.2.0.0 domain.

6

Upgrading Oracle WebCenter Content

The process of upgrading an Oracle WebCenter Content 12c (12.2.1.4.0) environment to an Oracle WebCenter Content 14c (14.1.2.0.0) environment includes some restrictions, prerequisites, and post upgrade tasks to be performed.

Performing Pre-Upgrade Tasks for WebCenter Content

You may need perform additional Content-specific pre-upgrade tasks before you can upgrade WebCenter Content to 14c (14.1.2.0.0)

The following tasks must be completed before you can upgrade your existing Oracle WebCenter Content and Content server environment:

> **Note:**
>
> You must complete all of the required Oracle WebCenter pre-upgrade tasks before performing the WebCenter Content-specific tasks. See Performing the Oracle WebCenter Pre-Upgrade Tasks

Performing Pre-Upgrade Tasks for Oracle WebCenter Enterprise Capture

You must perform pre-upgrade tasks in order to upgrade WebCenter Enterprise Capture.

Before upgrading Oracle WebCenter Enterprise Capture, review the following and complete all applicable tasks.

Once you have completed the Oracle WebCenter Enterprise Capture pre-upgrade tasks, go to section Upgrading an Oracle WebCenter Domain .

- Upgrade only standard (non Fusion Application) environments already running Oracle WebCenter Enterprise Capture.
- Upgrade all Oracle WebCenter Enterprise Capture systems within a clustered environment simultaneously.You can upgrade independent Oracle WebCenter Enterprise Capture systems separately.
- Identify a time to perform the updates that will not interfere with operations.

  The services will be unavailable while the update is being performed.
- Stop the Oracle WebCenter Enterprise Capture server before upgrading.

Verify the Batch Processing has Completed and Capture JMS Queues are Empty

Verify all batch processing completes and ensure that the Capture JMS queues are empty.

1. Open a browser and enter `http://hostname:port/rconsole` (or for HTTPS, `https://hostname:port/rconsole`).

   Where:

   Where `hostname` and `port` match the values you set when you deployed Hosted WebLogic Remote Console.
2. In the "Domain Structure" navigation panel on the left, expand "Services".
3. Expand the "Messaging" node.
4. Select the "JMS Servers" item in the tree list.
5. Select the "capture-jms-server" item in the "JMS Servers" list in the main panel.
6. Select the "Monitoring" tab.
7. Select the "Monitoring" sub-tab.
8. Verify that the "Messages Current" and "Messages Pending" values in the table are both "0".

   If either of these values is greater than zero, indicating pending jobs, wait until all jobs have been processed and these counters show "0" before proceeding.

Performing an Upgrade of Oracle WebCenter Content

WebCenter Content can be upgraded after performing the required pre-configuration tasks.

Once all of the pre-upgrade configuration tasks are complete, you can upgrade the WebCenter Content domain using the standard Fusion Middleware procedures described in Upgrading an Oracle WebCenter Domain .

After the upgrade you will need to perform additional post-upgrade configuration tasks as described in Performing Post Upgrade Tasks for WebCenter Content

Performing Post Upgrade Tasks for WebCenter Content

There are a few post upgrade tasks to be performed in order to successfully complete the WebCenter Content.

Complete these tasks after you have upgraded Oracle WebCenter Content.

> **Note:**
>
> These post-upgrade tasks should be done in addition to the general WebCenter post-upgrade tasks in Performing Post-Upgrade Configuration Tasks.

Configuring the Oracle WebCenter Content Server Domain to Include WebCenter Content - Web UI

Extending the upgraded WebCenter Content Server domain to include the WebCenter Content Web UI components follows the standard WebLogic Server configuration procedures.

See Extending WebLogic Domains for detailed information about extending the domain with the Fusion Middleware Configuration Wizard.

To launch the Configuration Wizard:

On UNIX Operating Systems:

```
cd /14c_Oracle_Home/oracle_common/common/bin
```

```
./config.sh
```

On Windows Operating Systems:

```
cd \14c_Oracle_Home\oracle_common\common\bin
```

When prompted, select the **WebCenter Content - Web UI - 14.1.2.0.0** template.

Configuring E-Business Suite AXF Schema After an Upgrade

After the upgrade you will need to run a script to update the endpoint configuration of the AXF schema.

After the upgrade, Oracle E-Business Suite (EBS) users can run the following script to update the Endpoint in the E-Business Suite Application Extension Framework (AXF) schema.

1. Navigate to the Universal Content Management (Oracle UCM) 14c (14.1.2.0.0) installation directory:

   ```
   cd /12cOracle_HOME/wccontent/ucm/Distribution/EBSIntegration/R12
   ```

2. Copy the following files to the /bin directory of the database hosting the EBS AXF schema

   `EbsUpdateScript.sh` and `EbsUpdateTables.sql`

3. Run the script from the `/bin` directory and when prompted provide the following information:

   "Enter AXF User name on EBS Schema "

   "Enter AXF Password on EBS Schema "

   "Enter HostName where UCM is running "

   "Enter Port where UCM is running "

Once you have provided this information, the EBS AXF schema will be updated.

Upgrading Oracle Application Adapters for Oracle WebCenter Content

The Oracle WebCenter Content application adapters as described in *Administering the Application Adapters for Oracle WebCenter* contain manual steps for installing the adapters to their respective ERP system (EBS and PeopleSoft). In order to upgrade to from any previous release, these adapters must be reinstalled.

To reinstall the EBS adapter:

1. Follow the instructions in Compiling Oracle E-Business Suite Forms in *Administering the Application Adapters for Oracle WebCenter* to upgrade the `AXF_CUSTOM.PLL` module.
2. If you are configured for SSL, follow the instructions in Configuring the Integration for SSL in *Administering the Application Adapters for Oracle WebCenter*.

To reimport the PeopleSoft project, follow the instructions (steps 1-6) in Importing the Oracle PeopleSoft Project in *Administering the Application Adapters for Oracle WebCenter*.

Configuring the Report Library for Records Management in Content Server

If you plan to configure the Records Management feature in Content Server, you need to configure the report library for Records Management after creating the domain that includes the WebCenter Content Managed Server, before starting it for the first time. Without this library, you cannot check in any templates to Content Server.

For more information on configuring the report library for Records Management, see Configuring the Report Library for Records Management in Content Server in the *Installing and Configuring Oracle WebCenter Content*.

Starting Oracle WebCenter Content Server with SOA or BAM

When WebCenter Content is integrated with Oracle SOA or Oracle Business Activity Monitoring (BAM), you must start SOA and BAM before starting Oracle WebCenter Content or Oracle Inbound Refinery (IBR).

For more information on launching WebCenter Content server from Fusion Middleware Control, see Getting Started with Administering Oracle WebCenter Content in *Administering Oracle WebCenter Content*

If you attempt to start the WebCenter Content server or IBR before starting Oracle SOA or BAM servers, then you may see the following error:

```
oracle.wsm.policymanager.PolicyManagerException:
WSM-02120 : Unable to connect to the policy access service.
```

7

Upgrading WebCenter Portal

Use this procedure to upgrade WebCenter Portal from 12c (12.2.1.4.0) to 14c (14.1.2.0.0).

Follow the steps in the following topics to perform the upgrade:

Creating a Complete Backup

Before you start an upgrade, back up all system-critical files, including the databases that host your Oracle Fusion Middleware schemas.

The backup must include the `SCHEMA_VERSION_REGISTRY` table so that you can restore the contents back to its pre-upgrade state if the upgrade fails.

The Upgrade Assistant Prerequisites screen prompts you to acknowledge that backups have been performed before you proceed with the actual upgrade. However, note that the Upgrade Assistant does not verify that a backup has been created.

See:

- Backing Up Your Environment in *Administering Oracle Fusion Middleware*
- Upgrading and Preparing Your Oracle Databases for 14c (14.1.2.0.0) in *Planning an Upgrade of Oracle Fusion Middleware*

Installing the Product Distribution

Before beginning your upgrade, download the 14c (14.1.2.0.0) Oracle Fusion Middleware Infrastructure and Oracle WebCenter Portal distributions on the target system and install them using Oracle Universal Installer.

> **Note:**
>
> When Infrastructure is required for the upgrade, you must install the Oracle Fusion Middleware Infrastructure distribution first before you install other Fusion Middleware products. If your JDK is not supported, or you do not have a JDK installed, you must download the required Java SE JDK before you begin

Ensure that you download and install all the Oracle products that are part of your domain, for example Oracle HTTP Server. You must install the 14.1.2.0.0 binaries into a new Oracle home. It should be on the same host as the existing Oracle home.

To install the 14c (14.1.2.0.0) distributions:

1. Sign in to the target system.
2. Download the following from Oracle Technology Network or Oracle Software Delivery Cloud to your target system:
   - Oracle Fusion Middleware Infrastructure (fmw_14.1.2.0.0_infrastructure_generic.jar)
   - Oracle WebCenter Portal (fmw_14.1.2.0.0__wcportal.jar)

3. Change to the directory where you downloaded the 14c (14.1.2.0.0) product distribution.
4. Start the installation program for Oracle Fusion Middleware Infrastructure:
   - (UNIX) `JDK_HOME/bin/java -jar fmw_14.1.2.0.0_infrastructure_generic.jar`
   - (Windows) `JDK_HOME\bin\java -jar fmw_14.1.2.0.0_infrastructure_generic.jar`
5. On UNIX operating systems, the Installation Inventory Setup screen appears if this is the first time you are installing an 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, and click **Next**.

   > **Note:**
   >
   > The Installation Inventory Setup screen does not appear on Windows operating systems.

6. On the Welcome screen, review the information to make sure that you have met all the prerequisites. Click **Next**.
7. On the Auto Updates screen, select an option:
   - **Skip Auto Updates**: If you do not want your system to check for software updates at this time.
   - **Select patches from directory**: To navigate to a local directory if you downloaded patch files.
   - **Search My Oracle Support for Updates**: To automatically download software updates if you have a My Oracle Support account. You must enter Oracle Support credentials then click **Search**. To configure a proxy server for the installer to access My Oracle Support, click **Proxy Settings**. Click **Test Connection** to test the connection.

   Click **Next**.
8. On the Installation Location screen, specify the location for the Oracle home directory and click **Next**.

   For more information about Oracle Fusion Middleware directory structure, see Understanding Directories for Installation and Configuration in *Oracle Fusion Middleware Planning an Installation of Oracle Fusion Middleware*.
9. On the Installation Type screen, select the following:
   - For Infrastructure, select **Fusion Middleware Infrastructure**
   - For Oracle WebCenter Portal select **WebCenter Portal**

   Click **Next**.
10. The Prerequisite Checks screen analyzes the host computer to ensure that the specific operating system prerequisites have been met.

    To view the list of tasks that are verified, select **View Successful Tasks**. To view log details, select **View Log**. If any prerequisite check fails, then an error message appears at the bottom of the screen. Fix the error and click **Rerun** to try again. To ignore the error or the warning message and continue with the installation, click **Skip** (not recommended).
11. On the Installation Summary screen, verify the installation options that 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. The response file collects and stores all the

information that you have entered, and enables you to perform a silent installation (from the command line) at a later time.
Click **Install** to begin the installation.

12. On the Installation Progress screen, when the progress bar displays 100%, click **Finish** to dismiss the installer, or click **Next** to see a summary.
13. The Installation Complete screen displays the Installation Location and the Feature Sets that are installed. Review this information and click **Finish** to close the installer.
14. After you have installed Oracle Fusion Middleware Infrastructure, enter the following command to start the installer for your product distribution and repeat the steps above to navigate through the installer screens:

    (UNIX) *JDK_HOME*`/bin/java -jar fmw_14.1.2.0.0_wcportal.jar`

    (Windows) *JDK_HOME*`\bin\java -jar fmw_14.1.2.0.0_wcportal.jar`

> **Note:**
>
> After installing the product distributions, you have to apply the applicable bundle patches. Ensure that the Oracle Home contains the binaries for both WebCenter Content and WebCenter Portal so that all the required patches are applied to the same Oracle Home.

Running a Pre-Upgrade Readiness Check

To identify potential issues with the upgrade, Oracle recommends that you run a readiness check before you start the upgrade process. Be aware that the readiness check may not be able to discover all potential issues with your upgrade. An upgrade may still fail, even if the readiness check reports success.

About Running a Pre-Upgrade Readiness Check

You can run the Upgrade Assistant in `-readiness` mode to detect issues before you perform the actual upgrade. You can run the readiness check in GUI mode using the Upgrade Assistant or in silent mode using a response file.

The Upgrade Assistant readiness check performs a read-only, pre-upgrade review of your Fusion Middleware schemas and WebLogic domain configurations that are at a supported starting point. The review is a read-only operation.

The readiness check generates a formatted, time-stamped readiness report so you can address potential issues before you attempt the actual upgrade. If no issues are detected, you can begin the upgrade process. Oracle recommends that you read this report thoroughly before performing an upgrade.

You can run the readiness check while your existing Oracle Fusion Middleware domain is online (while other users are actively using it) or offline.

You can run the readiness check any number of times before performing any actual upgrade. However, do not run the readiness check after an upgrade has been performed, as the report results may differ from the result of pre-upgrade readiness checks.

> **Note:**
>
> To prevent performance from being affected, Oracle recommends that you run the readiness check during off-peak hours.

Starting the Upgrade Assistant in Readiness Mode

Use the `-readiness` parameter to start the Upgrade Assistant in readiness mode.

To perform a readiness check on your pre-upgrade environment with the Upgrade Assistant:

1. Go to the `oracle_common/upgrade/bin` directory:
   - (UNIX) *ORACLE_HOME*`/oracle_common/upgrade/bin`
   - (Windows) *ORACLE_HOME*`\oracle_common\upgrade\bin`
2. Start the Upgrade Assistant.
   - (UNIX) `./ua -readiness`
   - (Windows) `ua.bat -readiness`

> **Note:**
>
> If the `DISPLAY` environment variable is not set up properly to allow for GUI mode, you may encounter the following error:
>
> ```
> Xlib: connection to ":1.0" refused by server
> Xlib: No protocol specified
> ```
>
> To resolve this issue, set the `DISPLAY` environment variable to the system name or IP address of your local workstation, and rerun Upgrade Assistant.
>
> If you continue to receive these errors after setting `DISPLAY`, try launching another GUI tool, such as `vncconfig`. If you see the same errors, your `DISPLAY` environment variable may still not be set correctly.

For information about other parameters that you can specify on the command line, see:

Upgrade Assistant Parameters

When you start the Upgrade Assistant from the command line, you can specify additional parameters.

Table 7-1 Upgrade Assistant Command-Line Parameters

Parameter	Required or Optional	Description
`-readiness`	Required for readiness checks **Note**: Readiness checks cannot be performed on standalone installations (those not managed by the WebLogic Server).	Performs the upgrade readiness check without performing an actual upgrade. Schemas and configurations are checked. Do not use this parameter if you have specified the `-examine` parameter.
`-threads`	Optional	Identifies the number of threads available for concurrent schema upgrades or readiness checks of the schemas. The value must be a positive integer in the range 1 to 8. The default is 4.
`-response`	Required for silent upgrades or silent readiness checks	Runs the Upgrade Assistant using inputs saved to a response file generated from the data that is entered when the Upgrade Assistant is run in GUI mode. Using this parameter runs the Upgrade Assistant in *silent mode* (without displaying Upgrade Assistant screens).
`-examine`	Optional	Performs the examine phase but does not perform an actual upgrade. Do not specify this parameter if you have specified the `-readiness` parameter.
`-logLevel` *attribute*	Optional	Sets the logging level, specifying one of the following attributes: • `TRACE` • `NOTIFICATION` • `WARNING` • `ERROR` • `INCIDENT_ERROR` The default logging level is `NOTIFICATION`. Consider setting the `-logLevel TRACE` attribute to so that more information is logged. This is useful when troubleshooting a failed upgrade. The Upgrade Assistant's log files can become very large if `-logLevel TRACE` is used.

Table 7-1 (Cont.) Upgrade Assistant Command-Line Parameters

Parameter	Required or Optional	Description
`-logDir` *location*	Optional	Sets the default location of upgrade log files and temporary files. You must specify an existing, writable directory where the Upgrade Assistant creates log files and temporary files. The default locations are: (UNIX) *ORACLE_HOME*`/oracle_common/upgrade/logs` *ORACLE_HOME*`/oracle_common/upgrade/temp` (Windows) *ORACLE_HOME*`\oracle_common\upgrade\logs` *ORACLE_HOME*`\oracle_common\upgrade\temp`
`-help`	Optional	Displays all of the command-line options.

Performing a Readiness Check with the Upgrade Assistant

Navigate through the screens in the Upgrade Assistant to complete the pre-upgrade readiness check.

Readiness checks are performed only on schemas or component configurations that are at a supported upgrade starting point.

To complete the readiness check:

1. On the Welcome screen, review information about the readiness check. Click **Next**.
2. On the Readiness Check Type screen, select the readiness check that you want to perform:
   - **Individually Selected Schemas** allows you to select individual schemas for review before upgrade. The readiness check reports whether a schema is supported for an upgrade or where an upgrade is needed.
     When you select this option, the screen name changes to Selected Schemas.
   - **Domain Based** allows the Upgrade Assistant to discover and select all upgrade-eligible schemas or component configurations in the domain specified in the **Domain Directory** field.
     When you select this option, the screen name changes to Schemas and Configuration.

     Leave the default selection if you want the Upgrade Assistant to check all schemas and component configurations at the same time, or select a specific option:
     - **Include checks for all schemas** to discover and review all components that have a schema available to upgrade.
     - **Include checks for all configurations** to review component configurations for a managed WebLogic Server domain.

Click **Next**.

3. If you selected **Individually Selected Schemas**: On the Available Components screen, select the components that have a schema available to upgrade for which you want to perform a readiness check.

   If you selected **Domain Based**: On the Component List screen, review the list of components that are present in your domain for which you want to perform a readiness check.

   If you select a component that has dependent components, those components are automatically selected. For example, if you select Oracle Platform Security Services, Oracle Audit Services is automatically selected.

   Depending on the components you select, additional screens may display. For example, you may need to:

   - Specify the domain directory.
   - Specify schema credentials to connect to the selected schema: **Database Type**, **DBA User Name**, and **DBA Password**. Then click **Connect**.

     > **Note:**
     >
     > Oracle database is the default database type. Make sure that you select the correct database type before you continue. If you discover that you selected the wrong database type, do not go back to this screen to change it to the correct type. Instead, close the Upgrade Assistant and restart the readiness check with the correct database type selected to ensure that the correct database type is applied to all schemas.

   - Select the **Schema User Name** option and specify the **Schema Password**.

     > **Note:**
     >
     > The Upgrade Assistant automatically enables default credentials. If you are unable to connect, make sure that you manually enter the credentials for your schema before you continue.

   Click **Next** to start the readiness check.

4. On the Readiness Summary screen, review the summary of the readiness checks that will be performed based on your selections.

   If you want to save your selections to a response file to run the Upgrade Assistant again later in response (or silent) mode, click **Save Response File** and provide the location and name of the response file. A silent upgrade performs exactly the same function that the Upgrade Assistant performs, but you do not have to manually enter the data again.

   For a detailed report, click **View Log**.

   Click **Next**.

5. On the Readiness Check screen, review the status of the readiness check. The process can take several minutes.

   If you are checking multiple components, the progress of each component displays in its own progress bar in parallel.

   When the readiness check is complete, click **Continue**.

6. On the End of Readiness screen, review the results of the readiness check (**Readiness Success** or **Readiness Failure**):
   - If the readiness check is successful, click **View Readiness Report** to review the complete report. Oracle recommends that you review the Readiness Report before you perform the actual upgrade even when the readiness check is successful. Use the **Find** option to search for a particular word or phrase within the report. The report also indicates where the completed Readiness Check Report file is located.
   - If the readiness check encounters an issue or error, click **View Log** to review the log file, identify and correct the issues, and then restart the readiness check. The log file is managed by the command-line options you set.

Understanding the Readiness Report

After performing a readiness check for your domain, review the report to determine whether you need to take any action for a successful upgrade.

The format of the readiness report file is:

`readiness<timestamp>.txt`

Where, *timestamp* indicates the date and time of when the readiness check was run.

A readiness report contains the following information:

Table 7-2 Readiness Report Elements

Report Information	Description	Required Action
Overall Readiness Status: SUCCESS or FAILURE	The top of the report indicates whether the readiness check passed or completed with one or more errors.	If the report completed with one or more errors, search for FAIL and correct the failing issues before attempting to upgrade. You can re-run the readiness check as many times as necessary before an upgrade.
Timestamp	The date and time that the report was generated.	No action required.
Log file location `/oracle_common/upgrade/logs`	The directory location of the generated log file.	No action required.
Domain Directory	Displays the domain location	No action required.
Readiness report location `/oracle_common/upgrade/logs`	The directory location of the generated readiness report.	No action required.
Names of components that were checked	The names and versions of the components included in the check and status.	If your domain includes components that cannot be upgraded to this release, such as SOA Core Extension, do not attempt an upgrade.
Names of schemas that were checked	The names and current versions of the schemas included in the check and status.	Review the version numbers of your schemas. If your domain includes schemas that cannot be upgraded to this release, do not attempt an upgrade.
Individual Object Test Status: FAIL	The readiness check test detected an issue with a specific object.	Do not upgrade until all failed issues have been resolved.

Table 7-2 (Cont.) Readiness Report Elements

Report Information	Description	Required Action
Individual Object Test Status: PASS	The readiness check test detected no issues for the specific object.	If your readiness check report shows only the PASS status, you can upgrade your environment. Note, however, that the Readiness Check cannot detect issues with externals such as hardware or connectivity during an upgrade. You should always monitor the progress of your upgrade.
Completed Readiness Check of <Object> Status: FAILURE	The readiness check detected one or more errors that must be resolved for a particular object such as a schema, an index, or datatype.	Do not upgrade until all failed issues have been resolved.
Completed Readiness Check of <Object> Status: SUCCESS	The readiness check test detected no issues.	No action required.

Stopping Servers and Processes

Before you run the Upgrade Assistant to upgrade your schemas and configurations, you must shut down all of the pre-upgrade processes and servers, including the Administration Server and any managed servers.

An Oracle Fusion Middleware environment can consist of an Oracle WebLogic Server domain, an Administration Server, multiple managed servers, Java components, system components, and a database used as a repository for metadata. The components may be dependent on each other, so they must be stopped in the correct order.

> **Note:**
>
> The procedures in this section describe how to stop the existing, pre-upgrade servers and processes using the WLST command-line utility or a script. You can also use the Oracle Fusion Middleware Control and the Oracle WebLogic Server Remote Console. See Starting and Stopping Administration and Managed Servers and Node Manager.
>
> As of release 14c (14.1.2.0.0), the WebLogic Server Administration Console has been removed. For comparable functionality, you should use the WebLogic Remote Console. For more information, see Oracle WebLogic Remote Console.

To stop your pre-upgrade Fusion Middleware environment, navigate to the pre-upgrade domain and follow the steps below:

> **Note:**
>
> It is important that you stop the following servers in the correct order.

Step 1: Stop System Components

To stop system components, such as Oracle HTTP Server, use the `stopComponent` script:

- (UNIX) *EXISTING_DOMAIN_HOME*`/bin/stopComponent.sh` *component_name*
- (Windows) *EXISTING_DOMAIN_HOME*`\bin\stopComponent.cmd` *component_name*

You can stop system components in any order.

Step 2: Stop Any Managed Servers

To stop a WebLogic Server Managed Server, use the `stopManagedWebLogic` script:

- (UNIX) *EXISTING_DOMAIN_HOME*`/bin/stopManagedWebLogic.sh` *managed_server_name admin_url*
- (Windows) *EXISTING_DOMAIN_HOME*`\bin\stopManagedWebLogic.cmd` *managed_server_name admin_url*

When prompted, enter your user name and password.

Step 3: Stop the Administration Server

To stop the Administration Server, use the `stopWebLogic` script:

- (UNIX) *EXISTING_DOMAIN_HOME*`/bin/stopWebLogic.sh`
- (Windows) *EXISTING_DOMAIN_HOME*`\bin\stopWebLogic.cmd`

When prompted, enter your user name, password, and the URL of the Administration Server.

Step 4: Stop Node Manager

To stop Node Manager, close the command shell in which it is running.

Alternatively, after setting the `nodemanager.properties` attribute `QuitEnabled` to `true` (the default is `false`), you can use WLST to connect to Node Manager and shut it down. See stopNodeManager in *WLST Command Reference for Oracle WebLogic Server*.

Upgrading Product Schemas

After stopping servers and processes, use the Upgrade Assistant to upgrade your 12.2.1.4.0 schemas to the 14c (14.1.2.0.0) release of Oracle Fusion Middleware.

> **Note:**
>
> If your domain has the `WLSSchemaDataSource` data source, then you will need to verify which database user is assigned to it. If `<`*PREFIX*`>_WLS_RUNTIME` is assigned to it, then you need to change that to `<`*PREFIX*`>_WLS` . For more information, see Verify the Database User for the WLSSchemaDataSource Data Source.

> **Note:**
>
> As of 14c (14.1.2.0.0) the following schema changes have been made to help you prepare for an optional zero downtime upgrade to a future release:
>
> - Schemas created prior to 14c (14.1.2.0.0) with editions disabled and then upgraded to 14c (14.1.2.0.0) will become editions enabled.
> - Schemas created in 14c (14.1.2.0.0) will be created with editions enabled.

The Upgrade Assistant allows you to upgrade individually selected schemas or all schemas associated with a domain. The option you select determines which Upgrade Assistant screens you will use.

Identifying Existing Schemas Available for Upgrade

This optional step can be used before an upgrade to query the schema version registry table. This table contains schema information such as the schema owner, version number, component name and ID, date of creation and modification, and custom prefixes.

You can let the Upgrade Assistant upgrade all of the schemas in the domain, or you can select individual schemas to upgrade. To help decide, follow these steps to view a list of all the schemas that are available for an upgrade:

1. If you are using an Oracle database, connect to the database by using an account that has Oracle DBA privileges, and run the following from SQL*Plus:

```
SET LINE 120
COLUMN MRC_NAME FORMAT A14
COLUMN COMP_ID FORMAT A20
COLUMN VERSION FORMAT A12
COLUMN STATUS FORMAT A9
COLUMN UPGRADED FORMAT A8
SELECT MRC_NAME, COMP_ID, OWNER, VERSION, STATUS, UPGRADED FROM
SCHEMA_VERSION_REGISTRY WHERE OWNER LIKE UPPER('<PREFIX>_%');
```

2. Examine the report that is generated.

Notes:

- After the upgrade you can generate the report again to see the updated versions of your schemas. If an upgrade was not needed for a schema, the `schema_version_registry` table retains the schema at its pre-upgrade version.
- If your existing schemas are not from a supported version, then you must upgrade them to a supported version before using the 14c (14.1.2.0.0) upgrade procedures. Refer to your pre-upgrade version documentation for more information.
- If you used an OID-based policy store in the earlier versions, make sure to create a new OPSS schema before you perform the upgrade. After the upgrade, the OPSS schema remains an LDAP-based store.
- You can only upgrade schemas for products that are available for upgrade in Oracle Fusion Middleware release 14c (14.1.2.0.0). Do not attempt to upgrade a domain that includes components that are not yet available for upgrade to 14c (14.1.2.0.0).

Starting the Upgrade Assistant

Run the Upgrade Assistant to upgrade product schemas, domain component configurations, or standalone system components to 14c (14.1.2.0.0).

To start the Upgrade Assistant:

Note:

Before you start the Upgrade Assistant, make sure that the JVM character encoding is set to UTF-8 for the platform on which the Upgrade Assistant is running. If the character encoding is not set to UTF-8, then you will not be able to download files containing Unicode characters in their names. This can cause the upgrade to fail. To set the character encoding, run the following:

UNIX operating systems:

```
export UA_PROPERTIES="-Dfile.encoding=UTF-8 ${UA_PROPERTIES}"
```

Windows operating systems:

```
set UA_PROPERTIES=-Dfile.encoding=UTF-8 %UA_PROPERTIES%
```

1. Go to the `oracle_common/upgrade/bin` directory:
   - (UNIX) *ORACLE_HOME*`/oracle_common/upgrade/bin`
   - (Windows) *ORACLE_HOME*`\oracle_common\upgrade\bin`
2. Start the Upgrade Assistant:
   - (UNIX) `./ua`

- (Windows) `ua.bat`

For information about other parameters that you can specify on the command line, such as logging parameters, see:

Upgrade Assistant Parameters

When you start the Upgrade Assistant from the command line, you can specify additional parameters.

Table 7-3 Upgrade Assistant Command-Line Parameters

Parameter	Required or Optional	Description
`-readiness`	Required for readiness checks **Note**: Readiness checks cannot be performed on standalone installations (those not managed by the WebLogic Server).	Performs the upgrade readiness check without performing an actual upgrade. Schemas and configurations are checked. Do not use this parameter if you have specified the `-examine` parameter.
`-threads`	Optional	Identifies the number of threads available for concurrent schema upgrades or readiness checks of the schemas. The value must be a positive integer in the range 1 to 8. The default is 4.
`-response`	Required for silent upgrades or silent readiness checks	Runs the Upgrade Assistant using inputs saved to a response file generated from the data that is entered when the Upgrade Assistant is run in GUI mode. Using this parameter runs the Upgrade Assistant in *silent mode* (without displaying Upgrade Assistant screens).
`-examine`	Optional	Performs the examine phase but does not perform an actual upgrade. Do not specify this parameter if you have specified the `-readiness` parameter.
`-logLevel` *attribute*	Optional	Sets the logging level, specifying one of the following attributes: • `TRACE` • `NOTIFICATION` • `WARNING` • `ERROR` • `INCIDENT_ERROR` The default logging level is `NOTIFICATION`. Consider setting the `-logLevel TRACE` attribute to so that more information is logged. This is useful when troubleshooting a failed upgrade. The Upgrade Assistant's log files can become very large if `-logLevel TRACE` is used.

Table 7-3 (Cont.) Upgrade Assistant Command-Line Parameters

Parameter	Required or Optional	Description
`-logDir` *location*	Optional	Sets the default location of upgrade log files and temporary files. You must specify an existing, writable directory where the Upgrade Assistant creates log files and temporary files. The default locations are: (UNIX) *ORACLE_HOME*`/oracle_common/upgrade/logs` *ORACLE_HOME*`/oracle_common/upgrade/temp` (Windows) *ORACLE_HOME*`\oracle_common\upgrade\logs` *ORACLE_HOME*`\oracle_common\upgrade\temp`
`-help`	Optional	Displays all of the command-line options.

Upgrading Oracle WebCenter Schemas Using the Upgrade Assistant

Navigate through the screens in the Upgrade Assistant to upgrade the product schemas.

To upgrade product schemas with the Upgrade Assistant:

1. On the Welcome screen, review an introduction to the Upgrade Assistant and information about important pre-upgrade tasks. Click **Next**.

> **Note:**
>
> For more information about any Upgrade Assistant screen, click **Help** on the screen.

2. On the Selected Schemas screen, select the schema upgrade operation that you want to perform:
   - **Individually Selected Schemas** if you want to select individual schemas for upgrade and you do not want to upgrade all of the schemas used by the domain.

> **Caution:**
>
> Upgrade only those schemas that are used to support your 14c (14.1.2.0.0) components. Do not upgrade schemas that are currently being used to support components that are not included in Oracle Fusion Middleware 14c (14.1.2.0.0).

- **All Schemas Used by a Domain** to allow the Upgrade Assistant to discover and select all components that have a schema available to upgrade in the domain specified in the **Domain Directory** field. This is also known as a *domain assisted schema upgrade*. Additionally, the Upgrade Assistant pre-populates connection information on the schema input screens.

> **Note:**
>
> Oracle recommends that you select **All Schemas Used by a Domain** for most upgrades to ensure all of the required schemas are included in the upgrade.

Click **Next**.

3. If you selected **Individually Selected Schemas**: On the Available Components screen, select the components for which you want to upgrade schemas. When you select a component, the schemas and any dependencies are automatically selected.
4. On the Prerequisites screen, acknowledge that the prerequisites have been met by selecting all the check boxes. Click **Next**.

> **Note:**
>
> The Upgrade Assistant does not verify whether the prerequisites have been met.

5. On the Schema Credentials screen(s), specify the database connection details for each schema you are upgrading (the screen name changes based on the schema selected):
   - Select the database type from the **Database Type** drop-down menu.
   - Enter the database connection details, and click **Connect**.
   - Select the schema you want to upgrade from the **Schema User Name** drop-down menu, and then enter the password for the schema. Be sure to use the correct schema prefix for the schemas you are upgrading.
6. On the Examine screen, review the status of the Upgrade Assistant as it examines each schema, verifying that the schema is ready for upgrade. If the status is **Examine finished**, click **Next**.

   If the examine phase fails, Oracle recommends that you cancel the upgrade by clicking **No** in the Examination Failure dialog. Click **View Log** to see what caused the error and refer to Troubleshooting Your Upgrade in *Upgrading with the Upgrade Assistant* for information on resolving common upgrade errors.

> **Note:**
>
> - If you resolve any issues detected during the examine phase without proceeding with the upgrade, you can start the Upgrade Assistant again without restoring from backup. However, if you proceed by clicking **Yes** in the Examination Failure dialog box, you need to restore your pre-upgrade environment from backup before starting the Upgrade Assistant again.
> - Canceling the examination process has no effect on the schemas or configuration data; the only consequence is that the information the Upgrade Assistant has collected must be collected again in a future upgrade session.

7. On the Upgrade Summary screen, review the summary of the schemas that will be upgraded and/or created.

   Verify that the correct Source and Target Versions are listed for each schema you intend to upgrade.

   If you want to save these options to a response file to run the Upgrade Assistant again later in response (or silent) mode, click **Save Response File** and provide the location and name of the response file. A silent upgrade performs exactly the same function that the Upgrade Assistant performs, but you do not have to manually enter the data again.

   Click **Next** .

8. On the Upgrade Progress screen, monitor the status of the upgrade.

   > **Caution:**
   >
   > Allow the Upgrade Assistant enough time to perform the upgrade. Do not cancel the upgrade operation unless absolutely necessary. Doing so may result in an unstable environment.

   If any schemas are not upgraded successfully, refer to the Upgrade Assistant log files for more information.

   > **Note:**
   >
   > The progress bar on this screen displays the progress of the current upgrade procedure. It does not indicate the time remaining for the upgrade.

   Click **Next**.

9. If the upgrade is successful: On the Upgrade Success screen, click **Close** to complete the upgrade and close the wizard.

   If the upgrade fails: On the Upgrade Failure screen, click **View Log** to view and troubleshoot the errors. The logs are available at *NEW_ORACLE_HOME*`/oracle_common/upgrade/logs`.

> **Note:**
>
> If the upgrade fails, you must restore your pre-upgrade environment from backup, fix the issues, then restart the Upgrade Assistant.

Verifying the Schema Upgrade

After completing all the upgrade steps, verify that the upgrade was successful by checking that the schema version in `schema_version_registry` has been properly updated.

If you are using an Oracle database, connect to the database as a user having Oracle DBA privileges, and run the following from SQL*Plus to get the current version numbers. Be sure to replace <*PREFIX*> with your schema prefix.

```
SET LINE 120
COLUMN MRC_NAME FORMAT A14
COLUMN COMP_ID FORMAT A20
COLUMN VERSION FORMAT A12
COLUMN STATUS FORMAT A9
COLUMN UPGRADED FORMAT A8
SELECT MRC_NAME, COMP_ID, OWNER, EDITION NAME, VERSION, STATUS, UPGRADED FROM
SCHEMA_VERSION_REGISTRY where owner like '<PREFIX>_%';
```

In the query result:

- Verify that the `EDITION NAME` column appears as `ORA$BASE`.
- Check that the number in the `VERSION` column matches the latest version number for that schema. For example, verify that the schema version number is 14.1.2.0.0.

> **Note:**
>
> Not all schema versions will be updated. Some schemas do not require an upgrade to this release and will retain their pre-upgrade version number.

- The `STATUS` field will be either `UPGRADING` or `UPGRADED` during the schema patching operation, and will become `VALID` when the operation is completed.
- If the status appears as `INVALID`, the schema update failed. You should examine the logs files to determine the reason for the failure.
- Synonym objects owned by `IAU_APPEND` and `IAU_VIEWER` will appear as `INVALID`, but that does not indicate a failure.

  They become invalid because the target object changes after the creation of the synonym. The synonyms objects will become valid when they are accessed. You can safely ignore these `INVALID` objects.

About Reconfiguring the Domain

Run the Reconfiguration Wizard to reconfigure your domain component configurations to 14c (14.1.2.0.0).

> **Note:**
>
> If the source is a clustered environment, run the Reconfiguration Wizard on the primary node only.

When you reconfigure a WebLogic Server domain, the following items are automatically updated, depending on the applications in the domain:

- WebLogic Server core infrastructure
- Domain version

Note:

Before you begin the domain reconfiguration, note the following limitations:

- The Reconfiguration Wizard does not update any of your own applications that are included in the domain.
- Transforming a non-dynamic cluster domain to a dynamic cluster domain during the upgrade process is not supported.

  The dynamic cluster feature is available when running the Reconfiguration Wizard, but Oracle only supports upgrading a non-dynamic cluster upgrade and then adding dynamic clusters. You cannot add dynamic cluster during the upgrade process.
- If the installation that you're upgrading does not use Oracle Access Management (OAM), then you must edit two files to prevent the Reconfiguration Wizard from attempting to update the nonexistent OAM Infrastructure schema, which causes the upgrade to fail.

  Comment out the lines in your `$DOMAIN/init-info/domain-info.xml` that are similar to this example:

```
<!--extention-template-ref name="Oracle Identity Navigator"
  version="14.1.2.0.0"
  location="/u01/app/oracle/product/fmw/iam111130/common/templates/
applications/yourcomany.oinav_14.1.2.0.0_template.jar"
  symbol=""/-->

<!--install-comp-ref name="oracle.idm.oinav" version="14.1.2.0.0"
  symbol="yourcompany.idm.oinav_14.1.2.0.0_iam141200_ORACLE_HOME"
  product_home="/u01/app/oracle/product/fmw/iam141200"/-->
```

  and similarly comment out the lines in `$DOMAIN/config/config.xml` that are similar to this example:

```
<!--app-deployment>
  <name>oinav#14.1.2.0.0</name>
  <target>AdminServer</target>
  <module-type>ear</module-type>

  <source-path>/u01/app/oracle/product/fmw/iam141200/oinav/modules/
oinav.ear_14.1.2.0.0/oinav.ear</source-path>
  <deployment-order>500</deployment-order>
  <security-dd-model>DDOnly</security-dd-model>
  <staging-mode>nostage</staging-mode>
</app-deployment-->
```

Specifically, when you reconfigure a domain, the following occurs:

- The domain version number in the `config.xml` file for the domain is updated to the Administration Server's installed WebLogic Server version.

- Reconfiguration templates for all installed Oracle products are automatically selected and applied to the domain. These templates define any reconfiguration tasks that are required to make the WebLogic domain compatible with the current WebLogic Server version.
- Start scripts are updated.

  If you want to preserve your modified start scripts, be sure to back them up before starting the Reconfiguration Wizard.

> **Note:**
>
> When the domain reconfiguration process starts, you can't undo the changes that it makes. Before running the Reconfiguration Wizard, ensure that you have backed up the domain as covered in the pre-upgrade checklist. If an error or other interruption occurs while running the Reconfiguration Wizard, you must restore the domain by copying the files and directories from the backup location to the original domain directory. This is the only way to ensure that the domain has been returned to its original state before reconfiguration.

Backing Up the Domain

Before running the Reconfiguration Wizard, create a backup copy of the domain directory.

1. Create a backup of the domain directory.
2. Before updating the domain on each remote Managed Server, create a backup copy of the domain directory on each remote machine.
3. Verify that the backed up versions of the domain are complete.

If domain reconfiguration fails for any reason, you must copy all files and directories from the backup directory into the original domain directory to ensure that the domain is returned entirely to its original state before reconfiguration.

Starting the Reconfiguration Wizard

> **Note:**
>
> Shut down the administration server and all collocated managed servers before starting the reconfiguration process. See Stopping Servers and Processes .

To start the Reconfiguration Wizard in graphical mode:

1. Sign in to the system on which the domain resides.
2. Open the command shell (on UNIX operating systems) or open a command prompt window (on Windows operating systems).
3. Go to the `oracle_common/common/bin` directory:
   - (UNIX) *`NEW_ORACLE_HOME`*`/oracle_common/common/bin`
   - (Windows) *`NEW_ORACLE_HOME`*`\oracle_common\commom\bin`
4. Start the Reconfiguration Wizard with the following logging options:
   - (UNIX) `./reconfig.sh -log=`*`log_file`*` -log_priority=ALL`

- (Windows) `reconfig.cmd -log=log_file -log_priority=ALL`

where *log_file* is the absolute path of the log file you'd like to create for the domain reconfiguration session. This can be helpful if you need to troubleshoot the reconfiguration process.

The parameter `-log_priority=ALL` ensures that logs are logged in fine mode.

> **Note:**
>
> When you run this command, the following error message might appear to indicate that the default cache directory is not valid:
>
> ```
> *sys-package-mgr*: can't create package cache dir
> ```
>
> You can change the cache directory by setting the environment variable `CONFIG_JVM_ARGS`. For example:
>
> ```
> CONFIG_JVM_ARGS=-Dpython.cachedir=valid_directory
> ```

Reconfiguring the Domain with the Reconfiguration Wizard

Navigate through the screens in the Reconfiguration Wizard to reconfigure your existing domain.

> **Note:**
>
> If the source is a clustered environment, run the Reconfiguration Wizard on the primary node only. Use the pack/unpack utility to apply the changes to other cluster members in the domain.

To reconfigure the domain with the Reconfiguration Wizard:

1. On the Select Domain screen, specify the location of the domain you want to upgrade or click **Browse** to navigate and select the domain directory. Click **Next**.
2. On the Reconfiguration Setup Progress screen, view the progress of the setup process. When complete, click **Next**.

   During this process:

   - The reconfiguration templates for your installed products, including Fusion Middleware products, are automatically applied. This updates various domain configuration files such as `config.xml`, `config-groups.xml`, and `security.xml` (among others).
   - Scripts and other files that support your Fusion Middleware products are updated.
   - The domain upgrade is validated.
3. On the Domain Mode and JDK screen, select the JDK to use in the domain or click **Browse** to navigate to the JDK you want to use. The supported JDK version for 14c (14.1.2.0.0) is 17.0.12 and later. Click **Next**.

> **Note:**
>
> You cannot change the **Domain Mode** at this stage. Your domain will retain its pre-upgrade domain mode. If you want to change the domain to secure mode, then after the upgrade see Changing Domain Mode Post Upgrade.

For a list of JDKs that are supported for a specific platform, see Oracle Fusion Middleware Supported System Configurations.

4. On the Database Configuration Type screen, select **RCU Data** to connect to the Server Table (<*PREFIX*>_STB) schema.

   Note: <*PREFIX*> is the RCU schema prefix of the 12.2.1.4 domain that is being upgraded.

   Enter the database connection details using the RCU service table (<*PREFIX*>_STB) schema credentials and click **Get RCU Configuration**.

   The Reconfiguration Wizard uses this connection to automatically update the data sources required for components in your domain.

   > **Note:**
   >
   > By default **Oracle's Driver (Thin) for Service connections; Versions: Any** is the selected driver. If you specified an instance name in your connection details — instead of the service name — you must select **Oracle's Driver (Thin) for pooled instance connections; Versions: Any** If you do not change the driver type, then the connection will fail.

   If the check is successful, click **Next**. If the check fails, reenter the connection details correctly and try again.

5. On the JDBC Component Schema screen, verify that the DBMS/Service and the Host name is correct for each component schema and click **Next**.

6. On the JDBC Component Schema Test screen, select all the component schemas and click **Test Selected Connections** to test the connection for each schema. The result of the test is indicated in the Status column.

   When the check is complete, click **Next**.

7. On the Advanced Configuration screen, you can select all categories for which you want to perform advanced configuration. For each category you select, the appropriate configuration screen is displayed to allow you to perform advanced configuration.

   > **Note:**
   >
   > The categories that are listed on the Advanced Configuration screen depend on the resources defined in the templates you selected for the domain.

   For this upgrade, select none of the options and click **Next**.

8. On the Configuration Summary screen, review the detailed configuration settings of the domain before continuing.

You can limit the items that are displayed in the right-most panel by selecting a filter option from the **View** drop-down list.

To change the configuration, click **Back** to return to the appropriate screen. To reconfigure the domain, click **Reconfig**.

> **Note:**
>
> The location of the domain does not change when you reconfigure it.

9. The Reconfiguration Progress screen displays the progress of the reconfiguration process.

   During this process:

   - Domain information is extracted, saved, and updated.
   - Schemas, scripts, and other such files that support your Fusion Middleware products are updated.

   When the progress bar shows 100%, click **Next**.

10. The End of Configuration screen indicates whether the reconfiguration process completed successfully or failed. It also displays the location of the domain that was reconfigured as well as the Administration Server URL (including the listen port). If the reconfiguration is successful, it displays **Oracle WebLogic Server Reconfiguration Succeeded**.

    If the reconfiguration process did not complete successfully, an error message is displayed indicates the reason. Take appropriate action to resolve the issue. If you cannot resolve the issue, contact My Oracle Support.

    Note the Domain Location and the Admin Server URL for further operations.

Upgrading Domain Component Configurations

After reconfiguring the domain, use the Upgrade Assistant to upgrade the domain *component* configurations inside the domain to match the updated domain configuration.

Starting the Upgrade Assistant

Run the Upgrade Assistant to upgrade product schemas, domain component configurations, or standalone system components to 14c (14.1.2.0.0).

To start the Upgrade Assistant:

> **Note:**
>
> Before you start the Upgrade Assistant, make sure that the JVM character encoding is set to UTF-8 for the platform on which the Upgrade Assistant is running. If the character encoding is not set to UTF-8, then you will not be able to download files containing Unicode characters in their names. This can cause the upgrade to fail. To set the character encoding, run the following:
>
> UNIX operating systems:
>
> ```
> export UA_PROPERTIES="-Dfile.encoding=UTF-8 ${UA_PROPERTIES}"
> ```
>
> Windows operating systems:
>
> ```
> set UA_PROPERTIES=-Dfile.encoding=UTF-8 %UA_PROPERTIES%
> ```

1. Go to the `oracle_common/upgrade/bin` directory:
   - (UNIX) *ORACLE_HOME*`/oracle_common/upgrade/bin`
   - (Windows) *ORACLE_HOME*`\oracle_common\upgrade\bin`
2. Start the Upgrade Assistant:
   - (UNIX) `./ua`
   - (Windows) `ua.bat`

For information about other parameters that you can specify on the command line, such as logging parameters, see:

Upgrade Assistant Parameters

When you start the Upgrade Assistant from the command line, you can specify additional parameters.

Table 7-4 Upgrade Assistant Command-Line Parameters

Parameter	Required or Optional	Description
`-readiness`	Required for readiness checks **Note**: Readiness checks cannot be performed on standalone installations (those not managed by the WebLogic Server).	Performs the upgrade readiness check without performing an actual upgrade. Schemas and configurations are checked. Do not use this parameter if you have specified the `-examine` parameter.
`-threads`	Optional	Identifies the number of threads available for concurrent schema upgrades or readiness checks of the schemas. The value must be a positive integer in the range 1 to 8. The default is 4.

Table 7-4 (Cont.) Upgrade Assistant Command-Line Parameters

Parameter	Required or Optional	Description
`-response`	Required for silent upgrades or silent readiness checks	Runs the Upgrade Assistant using inputs saved to a response file generated from the data that is entered when the Upgrade Assistant is run in GUI mode. Using this parameter runs the Upgrade Assistant in *silent mode* (without displaying Upgrade Assistant screens).
`-examine`	Optional	Performs the examine phase but does not perform an actual upgrade. Do not specify this parameter if you have specified the `-readiness` parameter.
`-logLevel` *attribute*	Optional	Sets the logging level, specifying one of the following attributes: • `TRACE` • `NOTIFICATION` • `WARNING` • `ERROR` • `INCIDENT_ERROR` The default logging level is `NOTIFICATION`. Consider setting the `-logLevel TRACE` attribute to so that more information is logged. This is useful when troubleshooting a failed upgrade. The Upgrade Assistant's log files can become very large if `-logLevel TRACE` is used.
`-logDir` *location*	Optional	Sets the default location of upgrade log files and temporary files. You must specify an existing, writable directory where the Upgrade Assistant creates log files and temporary files. The default locations are: (UNIX) *ORACLE_HOME*`/oracle_common/upgrade/logs` *ORACLE_HOME*`/oracle_common/upgrade/temp` (Windows) *ORACLE_HOME*`\oracle_common\upgrade\logs` *ORACLE_HOME*`\oracle_common\upgrade\temp`
`-help`	Optional	Displays all of the command-line options.

Upgrading Domain Component Configurations Using the Upgrade Assistant

Navigate through the screens in the Upgrade Assistant to upgrade component configurations in the WebLogic domain.

After running the Reconfiguration Wizard to reconfigure the WebLogic domain to 14c (14.1.2.0.0), you must run the Upgrade Assistant to upgrade the domain *component* configurations to match the updated domain configuration.

To upgrade domain component configurations with the Upgrade Assistant:

1. On the Welcome screen, review an introduction to the Upgrade Assistant and information about important pre-upgrade tasks. Click **Next**.

   > **Note:**
   >
   > For more information about any Upgrade Assistant screen, click **Help** on the screen.

2. On the next screen:
   - Select **All Configurations Used By a Domain**. The screen name changes to WebLogic Components.
   - In the **Domain Directory** field, enter the WebLogic domain directory path.

   Click **Next**.

3. On the Component List screen, verify that the list includes all the components for which you want to upgrade configurations and click **Next**.

   If you do not see the components you want to upgrade, click **Back** to go to the previous screen and specify a different domain.

4. On the Prerequisites screen, acknowledge that the prerequisites have been met by selecting all the check boxes. Click **Next**.

   > **Note:**
   >
   > The Upgrade Assistant does not verify whether the prerequisites have been met.

5. On the Examine screen, review the status of the Upgrade Assistant as it examines each component, verifying that the component configuration is ready for upgrade. If the status is **Examine finished**, click **Next**.

   If the examine phase fails, Oracle recommends that you cancel the upgrade by clicking **No** in the Examination Failure dialog. Click **View Log** to see what caused the error and refer to Troubleshooting Your Upgrade in *Upgrading with the Upgrade Assistant* for information on resolving common upgrade errors.

> **Note:**
>
> - If you resolve any issues detected during the examine phase without proceeding with the upgrade, you can start the Upgrade Assistant again without restoring from backup. However, if you proceed by clicking **Yes** in the Examination Failure dialog box, you need to restore your pre-upgrade environment from backup before starting the Upgrade Assistant again.
> - Canceling the examination process has no effect on the configuration data; the only consequence is that the information the Upgrade Assistant has collected must be collected again in a future upgrade session.

6. On the Upgrade Summary screen, review the summary of the options you have selected for component configuration upgrade.

   The response file collects and stores all the information that you have entered, and enables you to perform a silent upgrade at a later time. The silent upgrade performs exactly the same function that the Upgrade Assistant performs, but you do not have to manually enter the data again. If you want to save these options to a response file, click **Save Response File** and provide the location and name of the response file.

   Click **Upgrade** to start the upgrade process.

7. On the Upgrade Progress screen, monitor the status of the upgrade.

   > **Caution:**
   >
   > Allow the Upgrade Assistant enough time to perform the upgrade. Do not cancel the upgrade operation unless absolutely necessary. Doing so may result in an unstable environment.

   If any components are not upgraded successfully, refer to the Upgrade Assistant log files for more information.

   > **Note:**
   >
   > The progress bar on this screen displays the progress of the current upgrade procedure. It does not indicate the time remaining for the upgrade.

   Click **Next**.

8. If the upgrade is successful: On the Upgrade Success screen, click **Close** to complete the upgrade and close the wizard. The Post-Upgrade Actions window describes the manual tasks you must perform to make components functional in the new installation. This window appears only if a component has post-upgrade steps.

   If the upgrade fails: On the Upgrade Failure screen, click **View Log** to view and troubleshoot the errors. The logs are available at *ORACLE_HOME*`/oracle_common/upgrade/logs`.

> **Note:**
>
> If the upgrade fails you must restore your pre-upgrade environment from backup, fix the issues, then restart the Upgrade Assistant.

Verifying the Domain-Specific-Component Configurations Upgrade

To verify that the domain-specific-component configurations upgrade was successful, sign in to the Remote Console and verify that the version numbers for each upgraded component is 14.1.2.0.0.

> **Note:**
>
> Before you can access the Hosted WebLogic Remote Console, you must deploy the hosted WebLogic Remote Console. For more information, see the Remote Console Online Help.

To sign in to the Remote Console, go to: `http://hostname:port/rconsole` or for HTTPS, `https://hostname:port/rconsole`.

> **Note:**
>
> After a successful upgrade, make sure you run the administration tools from the new 14c (14.1.2.0.0) Oracle home directory and not from the previous Oracle home directory.
>
> During the upgrade process, some OWSM documents, including policy sets and predefined documents such as policies and assertion templates, may need to be upgraded. If a policy set or a predefined document is upgraded, its version number is incremented by 1.
>
> If you created the FMW user to run the Upgrade Assistant, ensure that you delete the account after verifying your upgrade was successful.

Post Upgrade Tasks for WebCenter Portal

After the upgrade is complete, complete the following configuration steps:

1. Ensure that faceted search and sort for the following fields is enabled.
   Desktop Client Application should be used for the following steps:

   Log in to the Access Configuration Manager and select **Advanced Search** the select the following fields:

   - dDocAccount - Click **Edit** - If not selected, select the checkbox "Is a filter category". Click **OK**
   - dDocAuthor - Click **Edit** - If not selected, select the checkbox "Is a filter category" and "Is sortable" Click **OK**

- dDocLastModifiedDate - Click **Edit** - If not selected, select the checkbox "Is a filter category" and "Is sortable" Click **OK**
- dDocTitle - Click **Edit** - If not selected, select the checkbox "Is sortable" Click **OK**
- dFormat - Click **Edit**- If not selected, select the checkbox "Is a filter category" Click **OK**
- xWCTags - Click **Edit** - If not selected, select the checkbox "Is a filter category" Click **OK**

2. Rebuilding the Search Index in WebCenter Content
   To rebuild and update the search index in Oracle WebCenter Content, Desktop Client Application should be used for the following steps:
   a. Access Repository Manager
   b. On the Repository Manager page, click the Indexer tab.
   c. Under Collection Rebuild cycle section, click Start and in the dialog, uncheck "Use fast rebuild" and then click **OK** to proceed.
3. . Run the `importPortletClientMetadata()` WLST command to import the portlet client customizations which were exported during the pre-upgrade steps. Ignore this step, if your have not run the `exportPortletClientMetadata()` WLST command during Pre-Upgrade.

   ```
   importPortletClientMetadata(appName='webcenter', fileName='/tmp/
   portletClientExport.ear')
   ```

4. Restart all managed server and search server with Portal being last as described below.

Starting Servers and Processes

After a successful upgrade, restart all processes and servers, including the Administration Server and any Managed Servers.

The components may be dependent on each other so they must be started in the correct order.

> **Note:**
>
> The procedures in this section describe how to start servers and processes using the WLST command-line utility or a script. You can also use the Oracle Fusion Middleware Control and the Oracle WebLogic Server Remote Console. See Starting and Stopping Administration and Managed Servers and Node Manager.
>
> As of release 14c (14.1.2.0.0), the WebLogic Server Administration Console has been removed. For comparable functionality, you should use the WebLogic Remote Console. For more information, see Oracle WebLogic Remote Console.

To start your Fusion Middleware environment, follow the steps below:

> **Note:**
>
> Depending on your existing security settings, you may need to perform additional configuration before you can manage a domain with secured production mode enabled. For more information, see Connecting to the Administration Server using WebLogic Remote Console
>
> .

Step 1: Start the Administration Server

To start the Administration Server, use the `startWebLogic` script:

- (UNIX) *NEW_DOMAIN_HOME*`/bin/startWebLogic.sh`
- (Windows) *NEW_DOMAIN_HOME*`\bin\startWebLogic.cmd`

> **Note:**
>
> When using secured production mode, you must provide additional parameters to start the Administration Server. See Connecting to the Administration Server using WLST in *Administering Security for Oracle WebLogic Server*.

When prompted, enter your user name, password, and the URL of the Administration Server.

Step 2: Start Node Manager

To start Node Manager, use the `startNodeManager` script:

- (UNIX) *NEW_DOMAIN_HOME*`/bin/startNodeManager.sh`
- (Windows) *NEW_DOMAIN_HOME*`\bin\startNodeManager.cmd`

Step 3: Start Any Managed Servers

To start a WebLogic Server Managed Server, use the `startManagedWebLogic` script:

- (UNIX) *NEW_DOMAIN_HOME*`/bin/startManagedWebLogic.sh` *managed_server_name admin_url*
- (Windows) *NEW_DOMAIN_HOME*`\bin\startManagedWebLogic.cmd` *managed_server_name admin_url*

> **Note:**
>
> When using secured production mode, you must provide additional parameters to start the Managed Servers. See Starting Managed Servers using a Start Script in *Administering Security for Oracle WebLogic Server*.

> **Note:**
>
> The startup of a Managed Server will typically start the applications that are deployed to it. Therefore, it should not be necessary to manually start applications after the Managed Server startup.

Step 4: Start System Components

To start system components, such as Oracle HTTP Server, use the `startComponent` script:

- (UNIX) *`NEW_DOMAIN_HOME`*`/bin/startComponent.sh` *`component_name`*
- (Windows) *`NEW_DOMAIN_HOME`*`\bin\startComponent.cmd` *`component_name`*

You can start system components in any order.

Changing Domain Mode Post Upgrade

After the upgrade, your domain retains its original pre-upgrade domain security mode settings. If you want to change the domain mode, to enable enhanced security, for example, you must explicitly change the settings using the WebLogic Remote Console or by modifying the `DomainMBean`.

If your domain is currently set to Production Mode, and you want to enable added security, then after the upgrade use the WebLogic Remote Console to change the domain mode and enable the Secured Production Mode. Change the Domain Mode in *Oracle WebLogic Remote Console Online Help*.

> **Caution:**
>
> Changes to the domain mode require a full domain restart - a rolling restart is not sufficient. You must stop all managed servers before you attempt to change the domain mode.

When upgrading a domain to 14c (14.1.2.0.0), if there is no explicit secure mode setting, then the Reconfiguration Wizard will explicitly set secure mode to *disabled* in the upgraded domain. This is to preserve the behavior that was present in the original domain. If there is an explicit secure mode setting, it will be preserved in the upgraded domain. For more information, see Understand How Domain Mode Affects the Default Security Configuration in *Securing a Production Environment for Oracle WebLogic Server*.

Note:

Secured Production Mode enforces more restrictive and stringent security settings to ensure less vulnerability to threats. To make sure that your domain is secure, after enabling Secured Production Mode, you will have to choose the security configuration options that are appropriate for the environment in which the domain runs, such as obtaining and storing certificates, protecting user accounts, and securing the network on which the domain runs. If these options are not properly configured, you will be blocked from using WebLogic Server.

After you have created your WebLogic domain, several key steps remain to ensure its integrity such as selecting appropriate security configurations. For more information, see Securing the Domain After You Have Created It in *Administering Security for Oracle WebLogic Server*.

A

About Updating the JDK Location After Installing an Oracle Fusion Middleware Product

The binaries and other metadata and utility scripts in the Oracle home and Domain home, such as RCU or Configuration Wizard, use a JDK version that was used while installing the software and continue to refer to the same version of the JDK. The JDK path is stored in a variable called JAVA_HOME which is centrally located in .globalEnv.properties file inside the *ORACLE_HOME*/oui directory.

The utility scripts such as config.sh|cmd, launch.sh, or opatch reside in the *ORACLE_HOME*, and when you invoke them, they refer to the JAVA_HOME variable located in .globalEnv.properties file. To point these scripts and utilities to the newer version of JDK, you must update the value of the JAVA_HOME variable in the .globalEnv.properties file by following the directions listed in Updating the JDK Location in an Existing Oracle Home .

To make the scripts and files in your Domain home directory point to the newer version of the JDK, you can follow one of the following approaches:

- Specify the path to the newer JDK on the Domain Mode and JDK screen while running the Configuration Wizard.

  For example, consider that you installed Oracle Fusion Middleware Infrastructure with the JDK version 8u191. So while configuring the WebLogic domain with the Configuration Assistant, you can select the path to the newer JDK on the Domain Mode and JDK screen of the Configuration Wizard. Example: /scratch/jdk/jdk17.0.12.

- Manually locate the files that have references to the JDK using grep (UNIX) or findstr (Windows) commands and update each reference. See Updating the JDK Location in an Existing Oracle Home .

> **Note:**
>
> If you install the newer version of the JDK in the same location as the existing JDK by overwriting the files, then you don't need to take any action.

Updating the JDK Location in an Existing Oracle Home

The getProperty.sh|cmd script displays the value of a variable, such as JAVA_HOME, from the .globalEnv.properties file. The setProperty.sh|cmd script is used to set the value of variables, such as OLD_JAVA_HOME or JAVA_HOME that contain the locations of old and new JDKs in the .globalEnv.properties file.

The getProperty.sh|cmd and setProperty.sh|cmd scripts are located in the following location:

(Linux) *ORACLE_HOME*/oui/bin

(Windows) *ORACLE_HOME*\oui\bin

Where, *ORACLE_HOME* is the directory that contains the products using the current version of the JDK, such as jdk17.0.12.

To update the JDK location in the .globalEnv.properties file:

1. Use the `getProperty.sh|cmd` script to display the path of the current JDK from the JAVA_HOME variable. For example:

   (Linux) *ORACLE_HOME*/oui/bin/getProperty.sh JAVA_HOME

   (Windows) *ORACLE_HOME*\oui\bin\getProperty.cmd JAVA_HOME

   echo JAVA_HOME

   Where JAVA_HOME is the variable in the .globalEnv.properties file that contains the location of the JDK.

2. Back up the path of the current JDK to another variable such as OLD_JAVA_HOME in the .globalEnv.properties file by entering the following commands:

   (Linux) *ORACLE_HOME*/oui/bin/setProperty.sh -name OLD_JAVA_HOME -value *specify_the_path_of_current_JDK*

   (Windows) *ORACLE_HOME*\oui\bin\setProperty.cmd -name OLD_JAVA_HOME -value *specify_the_path_of_current_JDK*

   This command creates a new variable called OLD_JAVA_HOME in the .globalEnv.properties file, with a value that you have specified.

3. Set the new location of the JDK in the JAVA_HOME variable of the .globalEnv.properties file, by entering the following commands:

   (Linux) *ORACLE_HOME*/oui/bin/setProperty.sh -name JAVA_HOME -value *specify_the_location_of_new_JDK*

   (Windows) *ORACLE_HOME*\oui\bin\setProperty.cmd -name JAVA_HOME -value *specify_the_location_of_new_JDK*

   After you run this command, the JAVA_HOME variable in the .globalEnv.properties file now contains the path to the new JDK, such as jdk17.0.12.

Updating the JDK Location in an Existing Domain Home

You must search the references to the current JDK manually, and replace those instances with the location of the new JDK.

You can use the `grep` or `findstr` commands to search for the jdk-related references.

You'll likely be required to update the location of JDK in the following three files:

(Linux) *DOMAIN_HOME*/bin/setNMJavaHome.sh

(Windows) *DOMAIN_HOME*\bin\setNMJavaHome.cmd

(Linux) *DOMAIN_HOME*/nodemanager/nodemanager.properties

(Windows)*DOMAIN_HOME*\nodemanager\nodemanager.properties

(Linux) *DOMAIN_HOME*/bin/setDomainEnv.sh

(Windows)*DOMAIN_HOME*\bin\setDomainEnv.cmd