Oracle® Fusion Middleware

Upgrading Oracle HTTP Server

12c (12.2.1)

E55868-02

March 2016

This guide describes an upgrade of the Oracle HTTP Server to this release of Oracle Fusion Middleware.

ORACLE

Oracle Fusion Middleware Upgrading Oracle HTTP Server , 12c (12.2.1)

E55868-02

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Contents

Preface

This preface contains the following sections:

Audience

This manual is intended for Oracle Fusion Middleware system administrators who are responsible for upgrading Oracle Fusion Middleware. It is assumed that the readers of this manual have knowledge of the following:

- Oracle Fusion Middleware 11*g* or Oracle Fusion Middleware 12*c* system administration and configuration information for the existing deployment
- The configuration and expected behavior of the system or systems being upgraded

Documentation Accessibility

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Related Documents

For more information, see the following related documentation available in the Oracle Fusion Middleware 12c documentation library:

- *Planning an Upgrade of Oracle Fusion Middleware*
- *Installing and Configuring Oracle HTTP Server*
- *Administrator's Guide for Oracle HTTP Server*

- *Administering Oracle Fusion Middleware*
- *Understanding Oracle Fusion Middleware*
- *Upgrading to the Oracle Fusion Middleware Infrastructure*

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.

What's New in This Guide

The following topics introduce the new and changed features of the standalone Oracle HTTP Server and provides pointers to additional information.

New and Changed Features for 12c

Other Significant Changes in this Document for 12c

New and Changed Features for 12c

Before you begin the upgrade process, review the following list of changes for standalone Oracle HTTP Servers in 12c:

- The installer will no longer create a separate instance directory for Oracle HTTP Server. Instance information for the standalone OHS will be stored in a new **standalone domain** home. For more information, see Understanding the Standalone Oracle HTTP Server Topology.
- OPMN agent and `opmnctl` command line utility are no longer used in Oracle Fusion Middleware. Instead, system components are managed by NodeManager and WLST commands.

What's New in This Guide

Other Significant Changes in this Document for 12c

This guide is new to the Fusion Middleware library in 12c.

What's New in This Guide

1

Understanding the Oracle HTTP Server Upgrade to 12*c*

Before you upgrade your Oracle HTTP Server to 12*c*, make sure that you understand the differences from your Oracle HTTP Server 11*g* deployment.

1.1 Differences between Oracle HTTP Server 11*g* and 12*c*

There are a few key differences to be aware of before you upgrade your Oracle HTTP Server to this release of Oracle Fusion Middleware.

The following table lists the key differences between Oracle HTTP Server 11*g* and 12*c*:

In Oracle HTTP Server 11*g*:	**In Oracle HTTP Server 12*c*:**
Oracle HTTP Server instances are typically configured in a separate Oracle instance directory outside the 11*g* Middleware home.	Oracle HTTP Server instances can be configured a part of an Oracle WebLogic Server domain, using the Oracle Fusion Middleware Configuration Wizard.
Oracle HTTP Server instances are managed using the Oracle Process Manager and Notification Server (OPMN) management software.	When configured as part of an Oracle Application Server Infrastructure domain, Oracle HTTP Server instances can be managed using Oracle Enterprise Manager Fusion Middleware

In Oracle HTTP Server 11*g*:	In Oracle HTTP Server 12*c*:
Optionally, the Oracle HTTP Server instances can be associated with the WebLogic domain.	Control and the Oracle WebLogic Scripting Tool (WLST). In Oracle Fusion Middleware 12*c*, the Node Manager agent is responsible for delegating and executing management requests to Oracle HTTP Server instances.
mod_osso is supported and included with Oracle HTTP Server 11*g*. If you use mod_osso in 11*g*, it will be disabled after upgrade as it is not supported in 12*c*.	mod_osso is not supported or included with Oracle HTTP Server 12*c*. Oracle WebGate is the recommended replacement. You can install WebGate with Oracle HTTP Server. For more information on configuring WebGate with Oracle HTTP Server, see *Oracle Fusion Middleware Installing and Configuring Oracle HTTP Server*.

For more information about the changes to the ways system components, such as Oracle HTTP Server, are configured and managed in Oracle Fusion Middleware 12*c*, as well as other key changes for Oracle Fusion Middleware 12*c*, see the following:

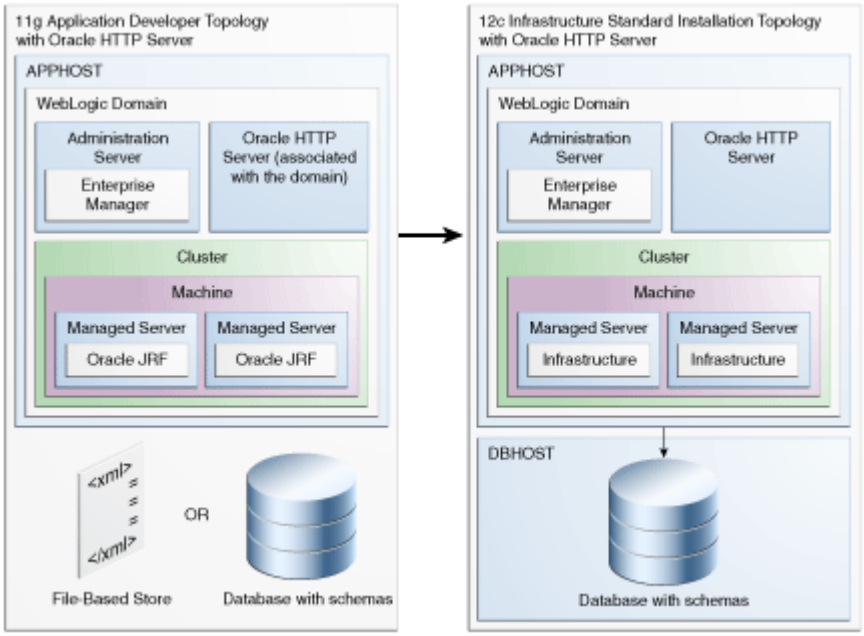
- New and Changed Features for 12*c*
- New and Deprecated Terminology for 12*c*
- What is the WebLogic Management Framework?

1.2 Fusion Middleware Infrastructure Upgrade Topology with Oracle HTTP Server

This topic contains the Oracle Fusion Middleware 11*g* Application Developer standard upgrade topology with Oracle HTTP Server and the resulting Oracle Fusion

Middleware 12*c* Infrastructure topology as it appears after you complete the upgrade procedures in this guide.

Figure 1-1 Infrastructure Standard Upgrade Topology with Oracle HTTP Server



Most of the elements in Figure 1-1 are described in Table 1-1.

Table 1-1 Description of the Elements in the Infrastructure Standard Upgrade Topology with Oracle HTTP Server

Element	Description and Links to Additional Documentation
11*g* Application Developer Topology with Oracle HTTP Server	This is the label for the left side of Figure 1-1. It shows a typical single-host topology created using the Oracle Fusion Middleware 11*g* Application Developer installer. It consists of a single domain that contains a cluster of two managed servers and the Administration Server. It also has an optional file-based store or database with schemas. Figure 1-1 also shows an Oracle HTTP Server instance as part of the 11*g* domain. This document describes, step-by-step, how to upgrade this topology to an equivalent topology created using the Oracle Fusion Middleware 12*c* Infrastructure distribution.
12*c* Infrastructure Standard Installation Topology with Oracle HTTP Server	This is the label for the right side of the figure. It shows a typical single-host topology created using the Oracle Fusion Middleware 12*c* Infrastructure distribution. Like the Application Developer 11*g* topology, it also consists of a single domain that contains a cluster of two managed servers and the Administration Server. Figure 1-1 also shows an Oracle HTTP Server instance as part of the 12*c* domain.

Table 1-1 (Cont.) Description of the Elements in the Infrastructure Standard Upgrade Topology with Oracle HTTP Server

Element	Description and Links to Additional Documentation
Oracle HTTP Server "associated with the domain"	An Oracle HTTP Server 11*g* instance that has been configured to be "associated with" the Oracle WebLogic Server domain. In Oracle Fusion Middleware 11*g*, system component instance, such as Oracle HTTP Server, are configured with an Oracle Universal Installer-based configuration wizard and are managed using Oracle Process Manager and Notification Server.
Oracle HTTP Server	Unlike the Oracle HTTP Server 11*g* instance in the left side of the diagram, the Oracle HTTP Server 12*c* instance shown in the 12*c* topology is configured as part of the domain using the Oracle Fusion Middleware Configuration Wizard. It is managed using Oracle Enterprise Manager Fusion Middleware Control, the Oracle WebLogic Scripting Tool (WLST), and the Oracle WebLogic Server Node Manager software.

1.3 Determining whether Oracle HTTP Server is Standalone or Managed (Collocated)

Oracle HTTP Server is the web server component for Oracle Fusion Middleware. It provides a listener for Oracle WebLogic Server and the framework for hosting static pages, dynamic pages, and applications over the Web. If you configure Oracle HTTP Server in a WebLogic Server domain, it is called as the Managed Oracle HTTP Server because you can manage the Oracle HTTP Server instances like any other elements of the WebLogic Server domain using Enterprise Manager Fusion Middleware Control, or WLST Command line interface, or the WebLogic Server Node Manager. If you install the Oracle HTTP software in a separate Oracle home without installing the Oracle Fusion Middleware Infrastructure, it is called as the standalone mode.

To determine whether you are upgrading a managed or a standalone Oracle HTTP Server:

If you are an 11*g* user: Check for the `registered` property in the file `$ORACLE_INSTANCE/config/OPMN/opmn/instance.properties`. If it is set to true, then the instance is registered. A managed Oracle HTTP Server is registered, if it is not registered then it is Standalone Oracle HTTP Server.

If you are a 12*c* user: Check the element `extention-template-ref` and its attribute `name` in the file `$DOMAIN_HOME/init-info/domain-info.xml`. If you find an element with the name **Oracle HTTP Server (Standalone)**, then it is a standalone Oracle HTTP Server. And if you find an element with name **Oracle HTTP Server (Collocated)**, then it is collocated.

Part I

Upgrading a Standalone Oracle HTTP Server

Part I contains the following chapters:

2

Introduction to the Standalone Oracle HTTP Server Upgrade

This chapter provides a general introduction to the Oracle Fusion Middleware Standalone Oracle HTTP Server and an overview of the steps you must perform to upgrade from an Oracle Fusion Middleware 11*g* or a previous 12*c* release (12.1.2) of Oracle HTTP Server to this Oracle HTTP Server 12*c* release (12.2.1).

Caution:

This section should be used to upgrade an Oracle HTTP Server that is NOT managed through a WebLogic Server domain.

If your Oracle HTTP Server is managed through Oracle WebLogic, then follow the procedure in Upgrading a Managed Oracle HTTP Server .

This chapter includes the following sections:

2.1 Understanding the Standalone Oracle HTTP Server Topology

In 12*c*, a **standalone Oracle HTTP Server** is not managed by or registered to an Oracle WebLogic Server domain. A standalone Oracle HTTP Server 12*c* topology is installed and configured without the Oracle Fusion Middleware Infrastructure. A **managed Oracle HTTP Server**, however, is associated with an existing Oracle WebLogic Server domain. For the standalone scenario, you install the Oracle HTTP Server software in its own Oracle home, and you configure the Oracle HTTP Server instance in its own **standalone domain**.

Note:

- For more information on installing and configuring a standalone Oracle HTTP Server, see *Installing and Configuring Oracle HTTP Server*.
- For more information on the latest 12*c* standalone domain, see What Is a Standalone Domain? in *Understanding Oracle Fusion Middleware*.
- For more information on the administration scenarios and key features of the Oracle HTTP Server, see Introduction to Oracle HTTP Server *Administrator's Guide for Oracle HTTP Server*.
- For more information on upgrading a managed Oracle HTTP Server, see Performing the Infrastructure Upgrade in *Upgrading to the Oracle Fusion Middleware Infrastructure*.

Figure 2-1 shows a standalone Oracle HTTP Server topology.

Figure 2-1 Standalone Oracle HTTP Server Upgrade Topology

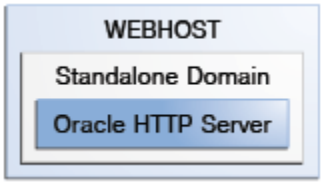


Table 2-1 describe the elements of this topology

Table 2-1 Description of the Elements in the Oracle Fusion Middleware Standalone Oracle HTTP Server Upgrade Topology

Element	Description and Links to Additional Documentation
WEBHOST	Standard term used in Oracle documentation referring to the machine that hosts the Web tier.
Standalone Domain	A standalone domain is only created if you are upgrading from 11*g* to 12*c*. If you are upgrading from 12.1.2 or 12.1.3, then the standalone domain already exists and there is no need to create the standalone domain. The standalone domain has a directory structure similar to an Oracle WebLogic domain, but it does not contain an Administration Server or Managed Servers. The Oracle WebLogic Server Node Manager and other tools allow you to manage the standalone Oracle HTTP Server instance. For more information on standalone domains, see What Is a Standalone Domain? in *Understanding Oracle Fusion Middleware*.

2.2 Overview of the Standalone Oracle HTTP Server Upgrade Process

The valid starting points for upgrading the Oracle HTTP Server are 11*g* Release 11.1.1.7 and above and 12*c* Release 12.1.2 and above.

The following sections provide a high level overview of the procedures you need to perform to upgrade your standalone Oracle HTTP Server:

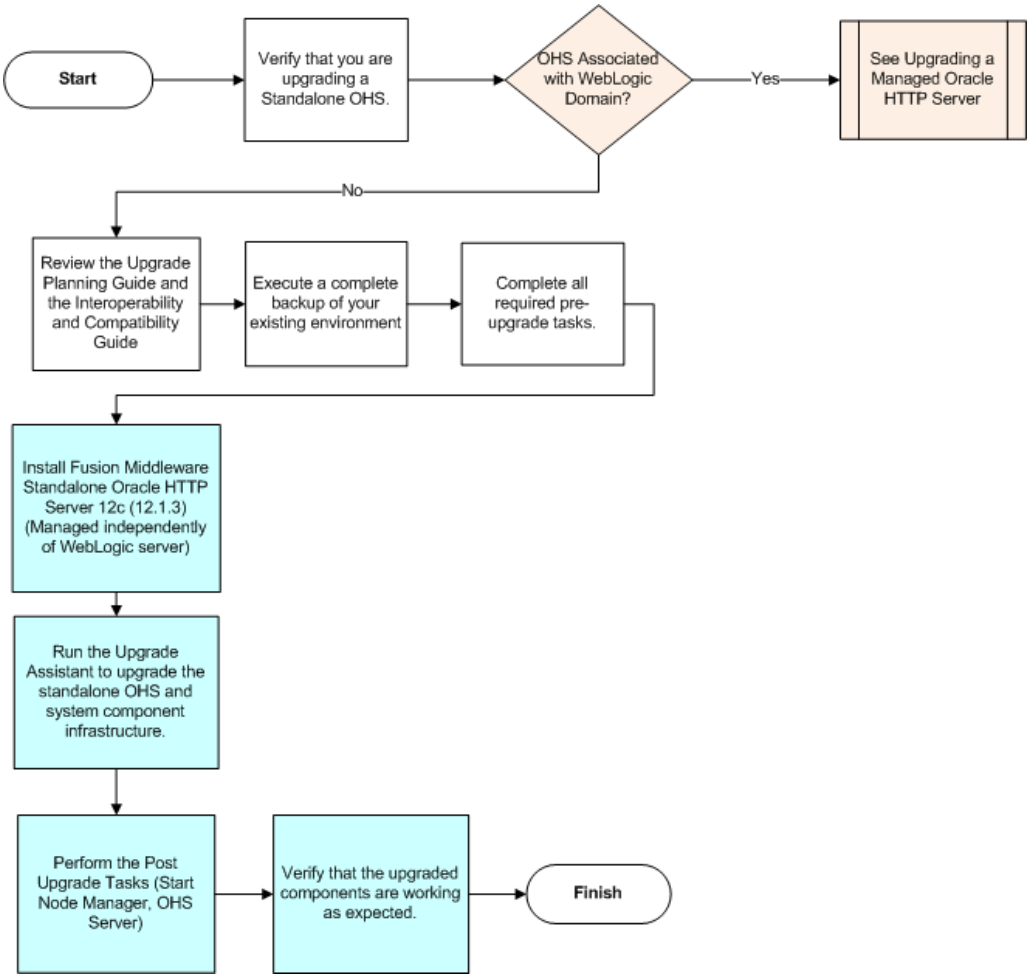
2.2.1 Flow Chart of the Standalone Upgrade Process from 11*g* to 12*c*

Figure 2-2 shows the high-level procedures associated with a standalone Oracle HTTP Server upgrade when the starting point is 11*g*. The tools used for each step are also listed.

Detailed instructions for upgrading your standalone Oracle HTTP Server are described in Upgrading a Standalone Oracle HTTP Server from 11*g* to 12*c* .

Note: Before starting the upgrade, you must shutdown the 11*g* instance.

Figure 2-2 Standalone Oracle HTTP Server Upgrade from 11g to 12c



2.2.2 Roadmap for Upgrading a Standalone Oracle HTTP Server from 11*g* to 12*c*

Table 2-2 describes the tasks that must be completed to upgrade a standalone Oracle HTTP Server from 11*g* to 12*c*.

Table 2-2 Overview of the Standalone Oracle HTTP Server Upgrade Process

Task	Description	Documentation
Verify that you are upgrading a standalone Oracle HTTP Server.	The steps in this document describe the process for upgrading a standalone Oracle HTTP Server. If you are upgrading an Oracle HTTP Server that is managed by a WebLogic server domain, the upgrade steps are different.	To determine which Oracle HTTP Server you have in your existing environment, see For information on upgrading a managed Oracle HTTP Server, see Performing the Infrastructure Upgrade in *Upgrading to the Oracle Fusion Middleware Infrastructure*.
Verify your system environment.	Before beginning the upgrade, verify that the minimum system and network requirements are met.	See Verifying Certification and System Requirements in *Planning an Installation of Oracle Fusion Middleware*.

Table 2-2 (Cont.) Overview of the Standalone Oracle HTTP Server Upgrade Process

Task	Description	Documentation
Obtain the Oracle HTTP Server distribution.	To create the topology described in this guide, obtain the Oracle Fusion Middleware Oracle HTTP Server distribution.	See Understanding and Obtaining Product Distributions in *Planning an Installation of Oracle Fusion Middleware*.
Install the software.	Run the installation program to install the software. Select the installation type **Standalone Oracle HTTP Server (managed independently of WebLogic server)**. This transfers the software to your system and creates a new Oracle home directory.	See Installing the Standalone Oracle HTTP Server.
Run the Upgrade Assistant.	After the installation, you need to use the Upgrade Assistant to upgrade the Oracle HTTP Server and system component infrastructure.	See Upgrading the 11*g* Domain using Upgrade Assistant.
Verify whether the upgrade is successful.	Your Oracle HTTP Server should continue to function as expected. If you have post-upgrade issues, you will need to troubleshoot the installation and retry the upgrade.	See Troubleshooting Oracle HTTP Server in *Administrator's Guide for Oracle HTTP Server*.

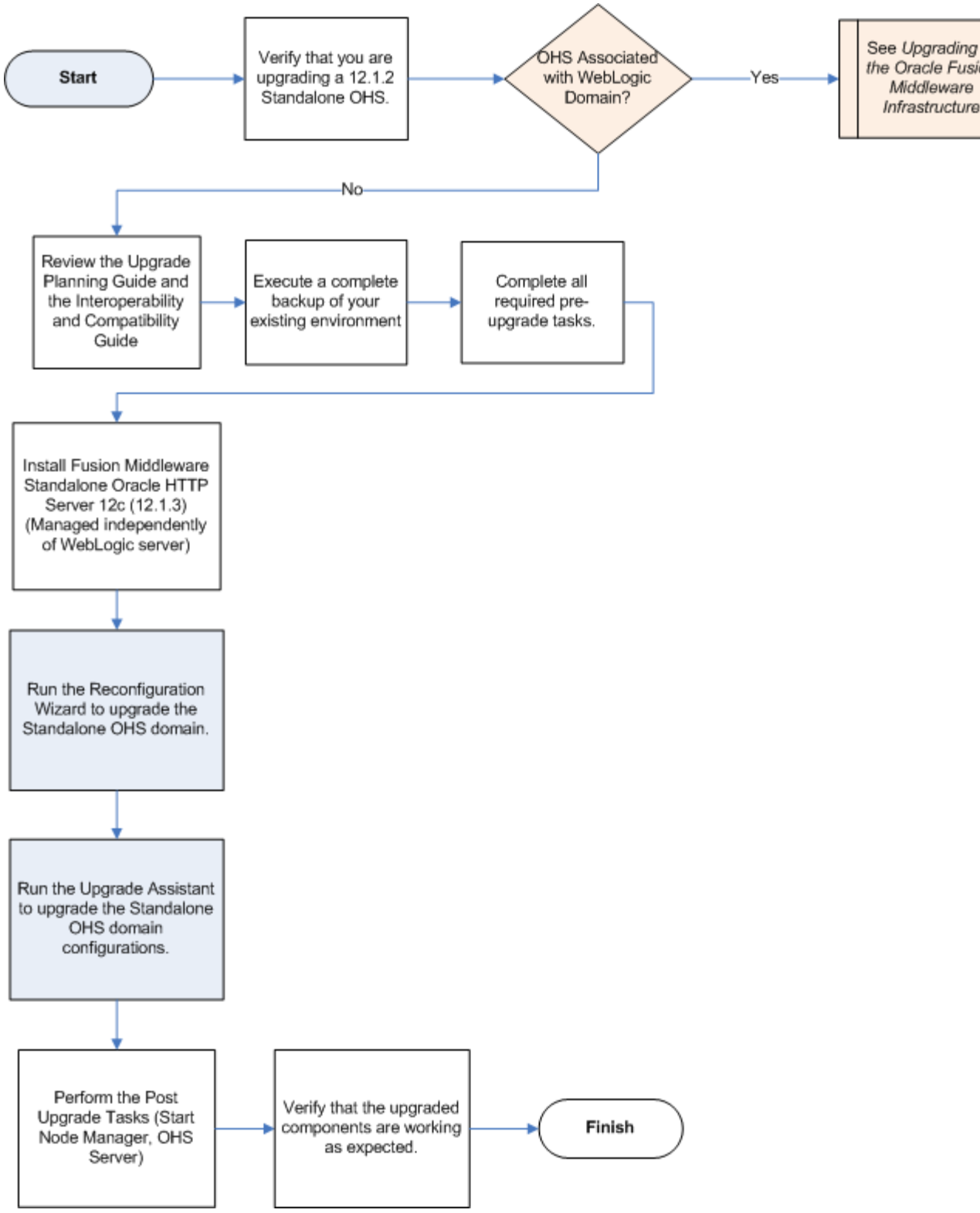
2.2.3 Flow Chart of the Standalone Oracle HTTP Server Upgrade Process from a Previous 12*c* Release

Figure 2-3 shows the high-level procedures associated with a standalone Oracle HTTP Server upgrade when the starting point is another 12*c* release. The tools used for each step are also listed.

Detailed instructions for upgrading your standalone Oracle HTTP Server are described in Upgrading a Standalone Oracle HTTP Server from a Previous 12*c* Release.

Note: Before starting the upgrade, you must shutdown the 12*c* instance.

Figure 2-3 Standalone Oracle HTTP Server Upgrade from a Previous 12c release



2.2.4 Roadmap for Upgrading a Standalone Oracle HTTP Server from a Previous 12*c* Release

Table 2-3 describes the tasks that must be completed to upgrade a standalone Oracle HTTP Server from a previous release of 12*c* to the latest version.

Table 2-3 Overview of the Standalone Oracle HTTP Server Upgrade Process

Task	Description	Documentation
Verify that you are upgrading a standalone 12.1.2 Oracle HTTP Server.	The steps in this document describe the process for upgrading a standalone Oracle HTTP Server. If you are upgrading an Oracle HTTP Server that is managed by a WebLogic server domain, the upgrade steps are different.	For information on upgrading a managed Oracle HTTP Server, see Performing the Infrastructure Upgrade in *Upgrading to the Oracle Fusion Middleware Infrastructure*.
Verify your system environment.	Before beginning the upgrade, verify that the minimum system and network requirements are met.	See Verifying Certification and System Requirements in *Planning an Installation of Oracle Fusion Middleware*.
Obtain the Oracle HTTP Server distribution.	To create the topology described in this guide, obtain the Oracle Fusion Middleware Oracle HTTP Server distribution.	See Understanding and Obtaining Product Distributions in *Planning an Installation of Oracle Fusion Middleware*.
Install the software.	Run the installation program to install the software. This transfers the software to your system and creates a new Oracle home directory.	See Installing the Standalone Oracle HTTP Server.

Reconfiguring the domain.	To start the Reconfiguration Wizard from 12*c* Oracle HTTP Server installation to perform domain-related upgrades, run the following command:
	On UNIX:
	`ORACLE_HOME/oracle_common/common/bin/reconfig.sh`
	On Windows:
	`ORACLE_HOME\oracle_common\common\bin\reconfig.cmd`
		See Upgrading the 12.1.2 Domain using the Re-Configuration Wizard.

Run the Upgrade Assistant.	After the installation, you need to use the Upgrade Assistant to upgrade the Oracle HTTP Server and system component infrastructure.	See Upgrading the 12*c* Domain using Upgrade Assistant.
Verify the upgrade was successful.	Your Oracle HTTP Server should continue to function as expected. If you have post-upgrade issues, you need to troubleshoot the installation and retry the upgrade.	Troubleshooting Oracle HTTP Server in *Administrator's Guide for Oracle HTTP Server*.

3

Upgrading a Standalone Oracle HTTP Server from 11*g* to 12*c*

This chapter describes the procedures for upgrading an 11*g* standalone Oracle HTTP Server to 12*c*; one that is not managed by, or registered to, an existing Oracle WebLogic Server (WLS) domain.

> **Note:** The information in this chapter assumes that you have read and performed any required pre-upgrade tasks in Planning an Upgrade of Oracle Fusion Middleware.

This chapter contains the following sections:

3.1 Important Pre-Upgrade Considerations

Before you begin the upgrade, it is important to make sure that your existing setup is not impacted during or after the upgrade. If you are using Oracle Web Cache or WebGate, or if you have Application-specific artifacts in your 11*g* domain, review the topics under this section carefully to prevent impact to your existing setup.

Oracle HTTP Server 12*c* installation and is upgraded as part of the Oracle HTTP Server upgrade process through Upgrade Assistant.

Application Artifacts from 11g

Application artifacts include all of your web resources: JSP files, images, stylesheets, Javascript, static HTML pages in addition to your Java classes and source files and web application configuration files. The integrated development environment (IDE) uses all of these resources, and refers to them as web application artifacts.

3.1.1 Oracle Web Cache 11*g* Users

Oracle Web Cache is a secure reverse proxy cache and a compression engine deployed between a browser and the HTTP server or a browser and the Content Management server to improve the performance of the websites by caching frequently accessed content. Oracle has released the last version of Web Cache in 11*g*. Web Cache is not available in 12*c*.

Consider the following limitations if you are using Web Cache in your 11*g* environment:

- Web Cache is not available in Fusion Middleware 12*c*. Correspondingly, there is no upgrade for Web Cache.
- Web Cache 11*g* front-ending a 12*c* Oracle HTTP Server is not a certified combination.
- If you are using both Web Cache and Oracle HTTP Server in your 11*g* setup, you can only upgrade the Oracle HTTP Server to 12*c*. In that case, you need to disable the 11*g* Web Cache and change the configuration settings to divert the traffic to Oracle HTTP Server directly.
- If you are using both Web Cache and Oracle HTTP Server in your 11*g* setup, and you have registered them to a Oracle WebLogic Server (WLS) domain for administering them through the Enterprise Manager Fusion Middleware Control, then you must also upgrade the WLS domain to 12*c*. In that case, the associated Oracle HTTP Server is also upgraded to 12*c*. However, the Web Cache is removed from the 12*c* Fusion Middleware Control.

3.1.2 WebGate 11*g* Users

A WebGate is a web-server plug-in for Oracle Access Manager (OAM) that intercepts HTTP requests and forwards them to the Access Server for authentication and authorization. WebGate is included as part of Oracle HTTP Server 12*c* installation and is upgraded as part of the Oracle HTTP Server upgrade process through Upgrade Assistant.

3.1.3 Application Artifacts from 11*g*

Application artifacts include all of your web resources: JSP files, images, stylesheets, Javascript, static HTML pages in addition to your Java classes and source files and web application configuration files. The integrated development environment (IDE) uses all of these resources, and refers to them as web application artifacts.

If you have 11*g* application artifacts that you want to continue using in 12*c*, carefully review the following:

- As part of upgrading Oracle HTTP Server from an 11*g* Oracle instance to a 12*c* domain, the Oracle HTTP Server configuration directory layout is being migrated from an Oracle instance to a standalone domain.
- Oracle HTTP Server 11*g* configuration files that reside in the component configuration directory of the Oracle instance are migrated automatically.
- Application artifacts that reside within the Oracle instance, including any combination of static files (such as HTML or images, CGI or FastCGI scripts or applications, or third-party modules), must be migrated manually after the upgrade to 12*c*.

  For more information, see Migrating 11g Application Artifacts.

3.2 Upgrading an 11*g* Standalone Oracle HTTP Server

Upgrading a standalone Oracle HTTP Server from 11*g* to 12*c* is an out-of-place upgrade. You must install the Oracle HTTP Server 11*g* software in a new Oracle home and then use the Upgrade Assistant to upgrade the 11*g* domain.

Perform the following tasks to complete the standalone Oracle HTTP Server upgrade:

Installing the Standalone Oracle HTTP Server

Upgrading the 11g Domain using Upgrade Assistant

Verifying the Upgrade

3.2.1 Installing the Standalone Oracle HTTP Server

To install the standalone Oracle HTTP Server:

1. Log in to the target system.
2. Download the Oracle HTTP Server distribution (ohs_linux64.bin | setup_ohs_win64.exe) from Oracle Technology Network or Oracle Software Delivery Cloud on your system.
3. Change to the directory where you downloaded the Oracle HTTP Server distribution.
4. Check that your machines meet the following requirements:
   - Ensure that the system, patch, kernel, and other requirements are met as specified in *Installing and Configuring Oracle HTTP Server*.
   - Because Oracle HTTP Server is installed by default on port 7777, you must ensure that port 7777 is not used by any service on the nodes. To check if this port is in use, run the following command before installing Oracle HTTP Server. You must free the port if it is in use.

     ```
     netstat -an | grep 7777
     ```
5. Launch the installation program by entering the following command:

   On UNIX operating system:

   ```
   ./ohs_linux64.bin
   ```

   On Windows operating system:

```
setup_ohs_win64.exe
```

6. On the Installation Inventory Setup screen, specify the location where you want to create your central inventory in the **Inventory Directory** field.

   Make sure that the Operating System Group name that you selecte on this screen has write permissions to the central inventory location. Click **OK**.

   > **Note:** This screen does not appear on Windows operating systems. For more information about the central inventory, see Understanding the Oracle Central Inventory in *Installing Software with the Oracle Universal Installer*.

7. On the Welcome screen, review the information and click **Next**.

8. On the Auto Updates screen, select one of the following and click **Next**:

   - `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.

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

   Since you are installing the standard installation topology for Oracle HTTP Server in a standalone domain, you can specify an Oracle home directory of your choice. However, ensure that you install the software in a new Oracle home.

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

10. On the Installation Type screen, select **Standalone HTTP Server (Managed independently of WebLogic server)** and click **Next**.

    For more information about the installation types, see Introducing the Oracle HTTP Server Standard Installation Topologies in *Installing and Configuring Oracle HTTP Server*.

11. On the Prerequisite Check screen, verify that your system meets the minimum necessary requirements and click **Next**. If you see a warning or error message, see Oracle Fusion Middleware System Requirements and Specifications.

    For more information about other options on this screen, click **Help**.

12. The Specify Security Updates screen only appears when you select **Standalone HTTP Server (Managed independently of WebLogic server)** as the installation type.

    If you already have an Oracle Support account, use this screen to indicate how you would like to receive security updates.

If you do not have an Oracle Support account and you are sure that you want to skip this step, clear the check box and verify your selection in the follow-up dialog box.

13. On the Installation Summary screen, verify the installation options you selected.

    To save these options to a response file, click **Save Response File** and enter the location and the name of the response file. You can use response files for silent installation. Click **Install**.

14. On the Installation Progress screen, click **Next** when the progress bar displays 100%.

    If the installation is successful, the Installation Complete screen displays the message `Oracle HTTP Server (OHS) installation completed successfully`. Click **Finish** to dismiss the installer.

You have installed the Oracle HTTP Server in a standalone mode.

3.2.2 Upgrading the 11*g* Domain using Upgrade Assistant

To upgrade the 11*g* domain using Upgrade Assistant:

1. Run the Upgrade Assistant from the 12.2.1 Oracle home by entering the following command:

   On UNIX operating system:

   ```
   12c_Oracle_Home/oracle_common/upgrade/bin/.ua
   ```

   On Windows operating system:

   ```
   12c_Oracle_Home\oracle_common\upgrade\bin\ua.bat
   ```

2. The Welcome screen provides an overview of the Upgrade Assistant and some information about important pre-upgrade tasks. Click **Next**.

   For more information about using the Upgrade Assistant, see *Upgrading with the Upgrade Assistant* or click **Help** on the Upgrade Assistant screen.

3. On the Standalone Components screen, select **Standalone System Component Configurations**.

   Select **Create a New Domain** and click **Next**.

Note:

- **Create a New Domain** option should only be used if you are upgrading from version 11*g*.
- If you have already created a new 12*c* standalone domain for your upgraded 11*g* system components, you can extend the standalone domain with the standalone Oracle HTTP Server using **Update an Existing Domain** option.
- **Update an Existing Domain** option should only be used if you are upgrading from a previous 12*c* release (12.1.2 or 12.1.3) to the latest 12*c* release (12.2.1).

4. The Component List screen displays the standalone system component infrastructure and the Oracle HTTP Server that are available for upgrade.

   Review the list to verify that the required components are displayed. If you do not see the components you want to upgrade, you may have selected the wrong domain. Click **Back** to go to the previous screen and specify a different domain.

5. On the Prerequisites screen, acknowledge that the prerequisites have been met by checking all the three boxes. Click **Next**.

   Warning: The Upgrade Assistant does not verify whether the prerequisites have been met.

6. On the Instance Directories screen, select **11*g* Source** and provide the directory location of the 11g instance that you want to upgrade.

   This instance is used as a basis for configuring the 12*c* Oracle HTTP Server instance. The 11*g* Oracle HTTP Server installation is not altered.

   Click **+** to add additional 11*g* instance directories, if necessary. Click **Next**.

   Note: You cannot use the Upgrade Assistant to upgrade Oracle 10*g* instances to Oracle 12*c*. You must first upgrade Oracle 10*g* instances to 11*g*. For more information on migrating 10*g* to 11*g*, see the 11*g* upgrade documentation for your components.

7. On the Node Manager screen, specify the following to create a new Node Manager to administer your standalone domain.

Option	Description
User Name	To specify the user name used to access Node Manager.
Password	To specify the password used to access Node Manager. Re-enter the password for confirmation.
Listen Address	To enter the DNS name or IP address upon which Node Manager listens.
Listen Port	To enter the listening port number of Node Manager.

Note: The user name and password are only used to authenticate connections between Node Manager and clients. They are independent from the server Administrator credentials.

8. The Examine screen displays the status of the Upgrade Assistant as it examines each component, verifying that the component is ready for upgrade. If the status is "succeeded", click **Upgrade**.

   If the examine phase fails, Oracle recommends that you cancel the upgrade by clicking **No** on the Examination Failure dialog box. Click **View Log** to see what caused the error and refer to Troubleshooting Your Upgrade 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** on 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 options you have selected by expanding the tree.

   Review the Source Version and the Target Version to make sure that both the versions are correct before proceeding with the upgrade.

   The response file collects and stores all the information that you have entered through the Upgrade Assistant's graphical user interface , and enables you to perform a silent upgrade at a later time. The silent upgrade performs exactly the same function that the Upgrade Assistant wizard 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** and provide the location and name of the response file.

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

10. The Upgrade Progress screen shows the status of the upgrade process and the projected Target Version of the component after a successful upgrade. Click **Next**.

    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.

11. On the End of Upgrade, click **Finish** to complete the upgrade and dismiss the wizard.

3.2.3 Verifying the Upgrade

You can verify that the upgrade is successful if you are able to start the Node Manager and the Standalone Oracle HTTP Server properly. If you experience post-upgrade issues, you need to troubleshoot the installation and retry the upgrade. For more information, see Troubleshooting Oracle HTTP Server in *Administrator's Guide for Oracle HTTP Server*.

To start the Node Manager and the Standalone Oracle HTTP Server, see the following topics:

Starting the Node Manager
: Server instances in a WebLogic Server production environment are often distributed across multiple domains, machines, and geographic locations. Node Manager is a WebLogic Server utility that enables you to manage (start, shut down, and restart) your Oracle HTTP Server instance.

Starting the Standalone Oracle HTTP Server
: You can use the startComponent.sh | cmd script to start the standalone Oracle HTTP Server.

3.2.3.1 Starting the Node Manager

Server instances in a WebLogic Server production environment are often distributed across multiple domains, machines, and geographic locations. Node Manager is a WebLogic Server utility that enables you to manage (start, shut down, and restart) your Oracle HTTP Server instance.

On Windows operating systems, it is recommended that you configure Node Manager to run as a startup service. This allows Node Manager to start up automatically each time the system is restarted. For more information, see Running Node Manager as a Startup Service in *Administering Node Manager for Oracle WebLogic Server*.

Note: On UNIX platform, do not run Node Manager as the root user.

To start the Node Manager:

1. Change directory to the following:

   ```
   Domain_home/bin
   ```

2. On the UNIX operating system, start the Node Manager by running the following command:

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

   Where, nohup and nm.out are sample output files.

   On the Windows operating system, start the Node Manager by running the following command:

   ```
   startNodeManager.cmd
   ```

   You can also use a shortcut on the **Start** menu to start the Node Manager (**Tools** > **Node Manager**).

3.2.3.2 Starting the Standalone Oracle HTTP Server

You can use the startComponent.sh | cmd script to start the standalone Oracle HTTP Server.

To start the standalone Oracle HTTP Server:

1. Change directory to the following

   Domain_home/bin

2. On UNIX operating system, enter the following command:

   ```
   ./startComponent.sh ohs_name
   ```

   On Windows operating system, enter the following command:

   ```
   startComponent.cmd ohs_name
   ```

   For more information, see Starting and Stopping System Components in *Administering Oracle Fusion Middleware*.

4

Upgrading a Standalone Oracle HTTP Server from a Previous 12*c* Release

This chapter describes the process of upgrading a Standalone Oracle HTTP Server to the latest 12*c* from a previous Standalone Oracle HTTP Server 12*c* release.

Note:

The information in this chapter assumes that you have read and performed any required pre-upgrade tasks in *Planning an Upgrade of Oracle Fusion Middleware*.

This chapter contains the following sections:

4.1 Installing the Standalone Oracle HTTP Server

To install the standalone Oracle HTTP Server:

1. Log in to the target system.
2. Download the Oracle HTTP Server distribution (ohs_linux64.bin | setup_ohs_win64.exe) from Oracle Technology Network or Oracle Software Delivery Cloud on your system.
3. Change to the directory where you downloaded the Oracle HTTP Server distribution.
4. Check that your machines meet the following requirements:
   - Ensure that the system, patch, kernel, and other requirements are met as specified in *Installing and Configuring Oracle HTTP Server*.
   - Because Oracle HTTP Server is installed by default on port 7777, you must ensure that port 7777 is not used by any service on the nodes. To check if this port is in use, run the following command before installing Oracle HTTP Server. You must free the port if it is in use.

```
netstat -an | grep 7777
```

5. Launch the installation program by entering the following command:

   On UNIX operating system:

   ```
   ./ohs_linux64.bin
   ```

   On Windows operating system:

   ```
   setup_ohs_win64.exe
   ```

6. On the Installation Inventory Setup screen, specify the location where you want to create your central inventory in the **Inventory Directory** field.

   Make sure that the Operating System Group name that you selecte on this screen has write permissions to the central inventory location. Click **OK**.

   > **Note:** This screen does not appear on Windows operating systems. For more information about the central inventory, see Understanding the Oracle Central Inventory in *Installing Software with the Oracle Universal Installer*.

7. On the Welcome screen, review the information and click **Next**.

8. On the Auto Updates screen, select one of the following and click **Next**:

   - `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.

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

   Since you are installing the standard installation topology for Oracle HTTP Server in a standalone domain, you can specify an Oracle home directory of your choice. However, ensure that you install the software in a new Oracle home.

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

10. On the Installation Type screen, select **Standalone HTTP Server (Managed independently of WebLogic server)** and click **Next**.

    For more information about the installation types, see Introducing the Oracle HTTP Server Standard Installation Topologies in *Installing and Configuring Oracle HTTP Server*.

11. On the Prerequisite Check screen, verify that your system meets the minimum necessary requirements and click **Next**. If you see a warning or error message, see Oracle Fusion Middleware System Requirements and Specifications.

    For more information about other options on this screen, click **Help**.

12. The Specify Security Updates screen only appears when you select **Standalone HTTP Server (Managed independently of WebLogic server)** as the installation type.

    If you already have an Oracle Support account, use this screen to indicate how you would like to receive security updates.

    If you do not have an Oracle Support account and you are sure that you want to skip this step, clear the check box and verify your selection in the follow-up dialog box.

13. On the Installation Summary screen, verify the installation options you selected.

    To save these options to a response file, click **Save Response File** and enter the location and the name of the response file. You can use response files for silent installation. Click **Install**.

14. On the Installation Progress screen, click **Next** when the progress bar displays 100%.

    If the installation is successful, the Installation Complete screen displays the message `Oracle HTTP Server (OHS) installation completed successfully`. Click **Finish** to dismiss the installer.

You have installed the Oracle HTTP Server in a standalone mode.

4.2 Upgrading the 12.1.2 Domain using the Re-Configuration Wizard

You need to upgrade the 12.1.2 Oracle HTTP Server domain using the 12*c* Re-Configuration Wizard. To upgrade the 12.1.2 domain, follow the procedure documented in Using the Reconfiguration Wizard to Upgrade Your 12c Domain.

4.3 Upgrading the 12*c* Domain using Upgrade Assistant

To upgrade the 12*c* domain using Upgrade Assistant:

1. Run the Upgrade Assistant from the 12.2.1 Oracle home by entering the following command:

    On UNIX operating system:

    ```
    12c_Oracle_Home/oracle_common/upgrade/bin/.ua
    ```

    On Windows operating system:

    ```
    12c_Oracle_Home\oracle_common\upgrade\bin\ua.bat
    ```

2. The Welcome screen provides an overview of the Upgrade Assistant and some information about important pre-upgrade tasks. Click **Next**.

    For more information about using the Upgrade Assistant, see *Upgrading with the Upgrade Assistant* or click **Help** on the Upgrade Assistant screen.

3. On the Standalone Components screen, select **Standalone System Component Configurations**.

   Select **Update an Existing Domain** and enter the 12.1.2 domain location in the **Domain Directory** field. You can also click **Browse** to select the 12.1.1 domain directory using the navigation tree. Click **Next**.

   Note:

   - **Create a New Domain** option should only be used if you are upgrading from version 11*g*.
   - If you have already created a new 12*c* standalone domain for your upgraded 11*g* system components, you can extend the standalone domain with the standalone Oracle HTTP Server using **Update an Existing Domain** option.
   - **Update an Existing Domain** option should only be used if you are upgrading from a previous 12*c* release (12.1.2 or 12.1.3) to the latest 12*c* release (12.2.1).

   ---

4. The Component List screen displays the standalone system component infrastructure and the Oracle HTTP Server that are available for upgrade.

   Review the list to verify that the required components are displayed. If you do not see the components you want to upgrade, you may have selected the wrong domain. Click **Back** to go to the previous screen and specify a different domain.

5. On the Prerequisites screen, acknowledge that the prerequisites have been met by checking all the three boxes. Click **Next**.

   Warning: The Upgrade Assistant does not verify whether the prerequisites have been met.

   ---

6. On the Instance Directories screen, select **12*c* Source** and click **Next**.

   You do not need to enter the Oracle instance directories when upgrading to the latest 12*c* release from a previous 12*c* release.

7. The Examine screen displays the status of the Upgrade Assistant as it examines each component, verifying that the component is ready for upgrade. If the status is "succeeded", click **Upgrade**.

   If the examine phase fails, Oracle recommends that you cancel the upgrade by clicking **No** on the Examination Failure dialog box. Click **View Log** to see what caused the error and refer to Troubleshooting Your Upgrade 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** on 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.

8. On the Upgrade Summary screen, review the summary of the options you have selected by expanding the tree.

   Review the Source Version and the Target Version to make sure that both the versions are correct before proceeding with the upgrade.

   The response file collects and stores all the information that you have entered through the Upgrade Assistant's graphical user interface , and enables you to perform a silent upgrade at a later time. The silent upgrade performs exactly the same function that the Upgrade Assistant wizard 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** and provide the location and name of the response file.

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

9. The Upgrade Progress screen shows the status of the upgrade process and the projected Target Version of the component after a successful upgrade. Click **Next**.

   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.

10. On the End of Upgrade, click **Finish** to complete the upgrade and dismiss the wizard.

4.4 Verifying the Upgrade

You can verify that the upgrade is successful if you are able to start the Node Manager and the Standalone Oracle HTTP Server properly. If you experience post-upgrade issues, you need to troubleshoot the installation and retry the upgrade. For more information, see Troubleshooting Oracle HTTP Server in *Administrator's Guide for Oracle HTTP Server*.

To start the Node Manager and the Standalone Oracle HTTP Server, see the following topics:

Starting the Node Manager
Server instances in a WebLogic Server production environment are often distributed across multiple domains, machines, and geographic locations. Node Manager is a WebLogic Server utility that enables you to manage (start, shut down, and restart) your Oracle HTTP Server instance.

Starting the Standalone Oracle HTTP Server
You can use the startComponent.sh | cmd script to start the standalone Oracle HTTP Server.

4.4.1 Starting the Node Manager

Server instances in a WebLogic Server production environment are often distributed across multiple domains, machines, and geographic locations. Node Manager is a WebLogic Server utility that enables you to manage (start, shut down, and restart) your Oracle HTTP Server instance.

On Windows operating systems, it is recommended that you configure Node Manager to run as a startup service. This allows Node Manager to start up automatically each time the system is restarted. For more information, see Running Node Manager as a Startup Service in *Administering Node Manager for Oracle WebLogic Server*.

Note: On UNIX platform, do not run Node Manager as the root user.

To start the Node Manager:

1. Change directory to the following:

   `Domain_home/bin`

2. On the UNIX operating system, start the Node Manager by running the following command:

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

   Where, nohup and nm.out are sample output files.

   On the Windows operating system, start the Node Manager by running the following command:

   ```
   startNodeManager.cmd
   ```

   You can also use a shortcut on the **Start** menu to start the Node Manager (**Tools** > **Node Manager**).

4.4.2 Starting the Standalone Oracle HTTP Server

You can use the startComponent.sh | cmd script to start the standalone Oracle HTTP Server.

To start the standalone Oracle HTTP Server:

1. Change directory to the following

   `Domain_home/bin`

2. On UNIX operating system, enter the following command:

   ```
   ./startComponent.sh ohs_name
   ```

   On Windows operating system, enter the following command:

   ```
   startComponent.cmd ohs_name
   ```

   For more information, see Starting and Stopping System Components in *Administering Oracle Fusion Middleware*.

Part II

Upgrading a Managed Oracle HTTP Server

Part II contains the following chapters:

5

Upgrading a Managed Oracle HTTP Server from 11*g* to 12*c*

This chapter describes the procedure for upgrading a managed Oracle HTTP Server from 11*g* to 12*c*. The valid starting points for this upgrade are 11*g* releases 11.1.1.7 and above.

Upgrading a Managed Oracle HTTP Server

Installing the Managed 12c (12.2.1) Oracle HTTP Server
: Before you upgrade your existing Managed Oracle HTTP Server components, you must first install the Oracle HTTP Server Release 12.2.1.

Creating the Required Schemas before Upgrade
: If you are upgrading from Oracle HTTP Server 11*g*, you must create the required 12*c* schemas before you begin the upgrade. The schemas required for Oracle HTTP Server are: Service Table (STB) and Oracle Platform Security Services (OPSS).

Upgrading the 11g Schema using the Upgrade Assistant
: You need to upgrade the 11*g* OPSS and IAU (Audit Services) schema using the 12*c* Upgrade Assistant.

Upgrading the 11g Domain using the Re-Configuration Wizard
: You need to upgrade the 11*g* Oracle HTTP Server domain using the 12*c* Re-Configuration Wizard.

Upgrading the Component Configuration
: If you are running the Upgrade Assistant from an Oracle home that contains managed domain components, then the **WebLogic Component Configuration** upgrade option is available.

Post-Upgrade Tasks
: The post-upgrade tasks include starting the Node Manager, starting the Administration Server, starting the Oracle HTTP Server, and verifying whether the upgrade from 11*g* to 12*c* is successful.

5.1 Installing the Managed 12*c* (12.2.1) Oracle HTTP Server

Before you upgrade your existing Managed Oracle HTTP Server components, you must first install the Oracle HTTP Server Release 12.2.1.

To install the Oracle HTTP Server:

1. Log in to the host where you want to install the Oracle HTTP Server.

2. Download the Oracle HTTP Server product distribution (ohs_linux64.bin | setup_ohs_win64.exe) from Oracle Technology Network or Oracle Software Delivery Cloud on your host system.

3. Check that your machines meet the following requirements:

   - Ensure that the system, patch, kernel, and other requirements are met as specified in *Installing and Configuring Oracle HTTP Server*.

   - Because Oracle HTTP Server is installed by default on port 7777, you must ensure that port 7777 is not used by any service on the nodes. To check if this port is in use, run the following command before installing Oracle HTTP Server. You must free the port if it is in use.

     ```
     netstat -an | grep 7777
     ```

4. On UNIX platforms, if the `/etc/oraInst.loc` file exists, check that its contents are correct. Specifically, check that the inventory directory is correct and that you have write permissions for that directory.

   If the `/etc/oraInst.loc` file does not exist, you can skip this step.

5. Run the installer by entering the following command:

   On UNIX operating system:

   ```
   ./ohs_linux64.bin
   ```

   On Windows operating system:

   setup_ohs_win64.exe

6. On the Installation Inventory Setup screen, specify the location where you want to create your central inventory in the **Inventory Directory** field.

   Make sure that the Operating System Group name that you select on this screen has write permissions to the central inventory location. Click **OK**.

   > **Note:** This screen does not appear on Windows operating systems. For more information about the central inventory, see Understanding the Oracle Central Inventory in *Installing Software with the Oracle Universal Installer*.

7. On the Welcome screen, review the information and click **Next**.

8. On the Auto Updates screen, select one of the following and click **Next**:

   - `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.

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

   Since you are installing the standard installation topology for a collocated Oracle HTTP Server in a WebLogic Server domain, enter the path to an existing Oracle Fusion Middleware Infrastructure Oracle home.

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

10. On the Installation Type screen, select **Collocated HTTP Server (Managed through WebLogic Server)** and click **Next**.

    For more information about the installation types, see Introducing the Oracle HTTP Server Standard Installation Topologies in *Installing and Configuring Oracle HTTP Server*.

11. On the Prerequisite Check screen, verify that your system meets the minimum necessary requirements and click **Next**. If you see a warning or error message, see Oracle Fusion Middleware System Requirements and Specifications.

    For more information about other options on this screen, click **Help**.

12. On the Installation Summary screen, verify the installation options you selected.

    To save these options to a response file, click **Save Response File** and enter the location and the name of the response file. You can use response files for silent installation. Click **Install**.

13. On the Installation Progress screen, click **Next** when the progress bar displays 100%.

    If the installation is successful, the Installation Complete screen displays the message `Oracle HTTP Server (OHS) installation completed successfully`. Click **Finish** to dismiss the installer.

You have installed the Oracle HTTP Server in a collocated mode.

Installing the Oracle HTTP Server Software

Installing and Configuring Oracle HTTP Server

5.2 Creating the Required Schemas before Upgrade

If you are upgrading from Oracle HTTP Server 11*g*, you must create the required 12*c* schemas before you begin the upgrade. The schemas required for Oracle HTTP Server are: Service Table (STB) and Oracle Platform Security Services (OPSS).

> **Note:** This procedure assumes that you are a SYS or SYSDBA user with full database administrator privileges. If you are a user with limited database privileges, follow the procedure stated in Creating Schemas as a User With Limited Database Privileges. For in-depth information about using RCU, see *Creating Schemas with the Repository Creation Utility*.

To create the 12*c* schema:

1. Change directory to the following:

   12c_Oracle_Home/oracle_common/bin/

2. Run the RCU by entering the following command:

   ./rcu

3. On the Welcome screen, click **Next**.

4. On the Create Repository screen, select **Create Repository** and then select **System Load and Product Load**. Click **Next**.

5. On the Database Connection Details screen, select the **Database Type** and enter the following details:

Option	Example
Host Name	dbhost.oracle.com
Port	1521
Service Name	example.oracle.com
Username	SYS or SYSDBA
Password	N/A
Role	Normal or SYSDBA

   If the prerequisite check is successful, click **OK** to continue to the next page. If the check fails, review the details you entered and try again.

6. On the Select Components screen, select **Create new prefix** and enter the same prefix as the 11*g* schema.

   The custom prefix is used to logically group these schemas together for use in this domain.

   Select **AS Common Schemas**. All of the schemas in this section are automatically selected. Click **Next**.

   You must remember the prefix and schema names for the components you are installing; you need this information while configuring your product installation. Oracle recommends that you note these values.

7. Verify that the prerequisites checking is successful. Click **OK** to go to the next page.

8. On the Schema Passwords screen, specify the passwords for your schema owners.

   You must remember the passwords you enter on this screen; you need this information while configuring your product installation. Oracle recommends that you note these values.

9. On the Map Tablespaces screen, configure the desired tablespace mapping for the schemas you want to create.

   When you click **Next**, a separate dialog window appears asking you to confirm that you want to create these tablespaces. Click **OK** to proceed and dismiss the dialog window.

A second dialog window appears showing the progress of tablespace creation. After this is complete, click **OK** to dismiss this window and go to the next screen.

10. Verify the information on the Summary screen and click **Create** to begin schema creation.

    This screen contains information about the log files that were created from this RCU operation. You can click on the name of a particular log file to view the contents of that file.

11. Review the information on the Completion Summary screen to verify that the operation is completed successfully. Click **Close** to complete the schema creation and dismiss RCU.

Determining Which Schemas to Create

Understanding System Load and Product Load

Understanding Custom Prefixes

Planning Your Schema Creation

5.3 Upgrading the 11*g* Schema using the Upgrade Assistant

You need to upgrade the 11*g* OPSS and IAU (Audit Services) schema using the 12*c* Upgrade Assistant.

To upgrade the 11*g* OPSS and IAU schema:

1. Run the Upgrade Assistant from the 12.2.1 Oracle home by entering the following command:

   On UNIX operating system:

   ```
   12c_Oracle_Home/oracle_common/upgrade/bin/.ua
   ```

   On Windows operating system:

   ```
   12c_Oracle_Home\oracle_common\upgrade\bin\ua.bat
   ```

2. The Welcome screen provides an overview of the Upgrade Assistant and some information about important pre-upgrade tasks. Click **Next**.

   For more information about using the Upgrade Assistant, see *Upgrading with the Upgrade Assistant* or click **Help** on the Upgrade Assistant screen.

3. On the Selected Schemas screen, select **Individually Selected Schemas** to upgrade selected schemas for your installed components and click **Next**.

   The Upgrade Assistant identifies the components that are available for a schema upgrade thus allowing you to select the schemas you want to include in the upgrade.

Caution: Upgrade only those schemas that are used to support your 12.2.1 components. Do not upgrade schemas that are currently being used to support 11*g* or 12*c* components that are not included in the Oracle Fusion Middleware 12.2.1 release.

---

4. The Available Components screen provides a list of installed Oracle Fusion Middleware components that have schemas that can be upgraded. When you select a component, the schemas and any dependencies are automatically selected.

   Select **Oracle Platform Security Services**. Selecting this automatically selects **Oracle Audit Services**. Click **Next**.

5. On the Domain Directory screen, enter the 11*g* WebLogic domain directory. Click **Browse** and use the navigation tree to select the 11*g* WebLogic domain directory.

   The Upgrade Assistant requires the 11*g* domain location to access the jps-config.xml file.

6. On the Prerequisites screen, acknowledge that the prerequisites have been met by checking all the three boxes. Click **Next**.

   Warning: The Upgrade Assistant does not verify whether the prerequisites have been met.

7. The Examine screen displays the status of the Upgrade Assistant as it examines each component, verifying that the component is ready for upgrade. If the status is "succeeded", click **Upgrade**.

   If the examine phase fails, Oracle recommends that you cancel the upgrade by clicking **No** on the Examination Failure dialog box. Click **View Log** to see what caused the error and refer to Troubleshooting Your Upgrade 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** on 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.

8. On the Upgrade Summary screen, review the summary of the options you have selected by expanding the tree.

   Review the Source Version and the Target Version to make sure that both the versions are correct before proceeding with the upgrade.

   The response file collects and stores all the information that you have entered through the Upgrade Assistant's graphical user interface , and enables you to perform a silent upgrade at a later time. The silent upgrade performs exactly the same function that the Upgrade Assistant wizard 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** and provide the location and name of the response file.

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

9. The Upgrade Progress screen shows the status of the upgrade process and the projected Target Version of the component after a successful upgrade. Click **Next**.

> **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.

10. On the End of Upgrade, click **Finish** to complete the upgrade and dismiss the wizard.

5.4 Upgrading the 11*g* Domain using the Re-Configuration Wizard

You need to upgrade the 11*g* Oracle HTTP Server domain using the 12*c* Re-Configuration Wizard.

To upgrade the 11*g* domain, follow the procedure documented in Using the Reconfiguration Wizard to Upgrade Your 12c Domain.:

After reconfiguring the 11*g* domain, go to the Node Manager screen and select Node Manager type as **Per Domain Default Location**, Node Manager Configuration as **Create New Configuration**, and provide a username and password for the new Node Manager Credentials.

5.5 Upgrading the Component Configuration

If you are running the Upgrade Assistant from an Oracle home that contains managed domain components, then the **WebLogic Component Configuration** upgrade option is available.

To upgrade the component configurations for Oracle HTTP Server:

1. Run the Upgrade Assistant from the 12.2.1 Oracle home by entering the following command:

   On UNIX operating system:

   ```
   12c_Oracle_Home/oracle_common/upgrade/bin/.ua
   ```

   On Windows operating system:

   ```
   12c_Oracle_Home\oracle_common\upgrade\bin\ua.bat
   ```

2. The Welcome screen provides an overview of the Upgrade Assistant and some information about important pre-upgrade tasks. Click **Next**.

   For more information about using the Upgrade Assistant, see *Upgrading with the Upgrade Assistant* or click **Help** on the Upgrade Assistant screen.

3. On the WebLogic Components screen, select the **WebLogic Component Configurations** option to upgrade component configurations for a managed WebLogic Server domain. Enter the connection details required to connect to the WebLogic Administration Server that is managing the domain and click **Next**.

4. The Component List screen provides a list of components that are included in the WebLogic domain's component configuration upgrade. The name of the domain is provided along with the list of components located within the domain.

   Review the list to verify that the required components are displayed. If you do not see the components you want to upgrade, you may have selected the wrong domain. Click **Back** to go to the previous screen and specify a different domain.

5. On the Prerequisites screen, acknowledge that the prerequisites have been met by checking all the three boxes. Click **Next**.

   Warning: The Upgrade Assistant does not verify whether the prerequisites have been met.

6. The Examine screen displays the status of the Upgrade Assistant as it examines each component, verifying that the component is ready for upgrade. If the status is "succeeded", click **Upgrade**.

   If the examine phase fails, Oracle recommends that you cancel the upgrade by clicking **No** on the Examination Failure dialog box. Click **View Log** to see what caused the error and refer to Troubleshooting Your Upgrade 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** on 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 options you have selected by expanding the tree.

   Review the Source Version and the Target Version to make sure that both the versions are correct before proceeding with the upgrade.

   The response file collects and stores all the information that you have entered through the Upgrade Assistant's graphical user interface , and enables you to perform a silent upgrade at a later time. The silent upgrade performs exactly the same function that the Upgrade Assistant wizard 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** and provide the location and name of the response file.

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

8. The Upgrade Progress screen shows the status of the upgrade process and the projected Target Version of the component after a successful upgrade. Click **Next**.

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.

9. On the End of Upgrade, click **Finish** to complete the upgrade and dismiss the wizard.

5.6 Post-Upgrade Tasks

The post-upgrade tasks include starting the Node Manager, starting the Administration Server, starting the Oracle HTTP Server, and verifying whether the upgrade from 11*g* to 12*c* is successful.

Starting the Node Manager
: Server instances in a WebLogic Server production environment are often distributed across multiple domains, machines, and geographic locations. Node Manager is a WebLogic Server utility that enables you to start, shut down, and restart Administration Server and Managed Server instances from a remote location.

Starting the Administration Server
: One instance of WebLogic Server in each domain acts as an Administration Server. The Administration Server provides a central point for managing a WebLogic Server domain. All other WebLogic Server instances in a domain are called Managed Servers. In a domain with only a single WebLogic Server instance, that server functions both as Administration Server and Managed Server.

Starting the Oracle HTTP Server
: You can use Enterprise Manager Fusion Middleware Control or the `opmnctl` command to start, stop, and restart Oracle HTTP Server.

Verifying that Oracle HTTP Server Installation is Successful
: If you can log in to the Administration Console and the Enterprise Manager Fusion Middleware Control, you have installed Oracle HTTP Server successfully.

5.6.1 Starting the Node Manager

Server instances in a WebLogic Server production environment are often distributed across multiple domains, machines, and geographic locations. Node Manager is a WebLogic Server utility that enables you to start, shut down, and restart Administration Server and Managed Server instances from a remote location.

On Windows operating systems, it is recommended that you configure Node Manager to run as a startup service. This allows Node Manager to start up automatically each time the system is restarted. For more information, see Running Node Manager as a Startup Service in *Administering Node Manager for Oracle WebLogic Server*.

Note: On UNIX platform, do not run Node Manager as the root user.

To start the Node Manager:

1. Change directory to the following:

   Oracle_home/wlserver/server/bin/

2. On the UNIX operating system, start the Node Manager by running the following command:

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

   Where, nohup and nm.out are sample output files.

   On the Windows operating system, start the Node Manager by running the following command:

   ```
   startNodeManager.cmd
   ```

   You can also use a shortcut on the **Start** menu to start the Node Manager (**Tools** > **Node Manager**).

5.6.2 Starting the Administration Server

One instance of WebLogic Server in each domain acts as an Administration Server. The Administration Server provides a central point for managing a WebLogic Server domain. All other WebLogic Server instances in a domain are called Managed Servers. In a domain with only a single WebLogic Server instance, that server functions both as Administration Server and Managed Server.

In a development environment, it is usually sufficient to start an Administration Server and deploy your applications directly onto the Administration Server. However, in a production environment, it is recommended that you create Managed Servers to run your applications.

To start an Administration Server:

1. Change directory to the following:

   Oracle_Home\user_projects\domains*DOMAIN_NAME*

   Where, *DOMAIN_NAME* is the name of the directory in which you located the domain.

2. On the Windows operating system, start the Administration Server by running the following command:

   ```
   startWebLogic.cmd
   ```

   On the Windows operating system, the Configuration Wizard creates a shortcut on the Start menu to start the Administration Server that you created.

   On the UNIX operating system, start the Administration Server by running the following command:

   ```
   ./startWebLogic.sh
   ```

   Note: If the server prompts you to enter a username and password, enter the name of a WebLogic Server user who has permission to start servers.

5.6.3 Starting the Oracle HTTP Server

You can use Enterprise Manager Fusion Middleware Control or the `opmnctl` command to start, stop, and restart Oracle HTTP Server.

Starting the Oracle HTTP Server using the Enterprise Manager Fusion Middleware Control

To start an Oracle HTTP Server using the Enterprise Manager Fusion Middleware Control:

1. Go to the Oracle HTTP Server home page.
2. From the Oracle HTTP Server menu:
   a. Select **Control**.
   b. Select **Start Up** from the **Control** menu.

   Or
3. From the Target Navigation tree:
   a. Right-click the Oracle HTTP Server instance you want to start.
   b. Select **Control**.
   c. Select **Start Up** from the **Control** menu.

Starting the Oracle HTTP Server using opmnctl

To start Oracle HTTP Server components in an Oracle instance using `opmnctl`:

1. Change directory to the following:

   ORACLE_INSTANCE`/bin`
2. Run the following command to start all Oracle HTTP Server components in an Oracle instance

   ```
   opmnctl startproc process-type=OHS
   ```

Determining the Status of Oracle HTTP Server Components using opmnctl

To determine the status of the Oracle HTTP Server components:

1. Change directory to the following:

   ORACLE_INSTANCE`/bin`
2. Enter the following command:

   ```
   opmnctl status
   ```

   Following is a sample output:

```
Processes in Instance: instance1
---------------------------------+--------------------+---------+---------
ias-component                    | process-type       |     pid | status
---------------------------------+--------------------+---------+---------
webcache1                        | WebCache-admin     |   19556 | Alive
```

```
webcache1                      | WebCache          |   19555 | Alive
ohs1                           | OHS               |    7249 | Alive
```

5.6.4 Verifying that Oracle HTTP Server Installation is Successful

If you can log in to the Administration Console and the Enterprise Manager Fusion Middleware Control, you have installed Oracle HTTP Server successfully.

To verify whether the software patch is installed successfully:

1. Log in to the following URL:

   http://*MachineName*.us.oracle.com:7777

2. To access Enterprise Manager Fusion Middleware Control:

   http://*MachineName*.us.oracle.com:7001/em

6

Upgrading a Managed Oracle HTTP Server from a Previous 12*c* Release

This chapter describes the procedure for upgrading a managed Oracle HTTP Server from to a latest 12*c* release from a previous 12*c* release. The valid starting point for this upgrade are 12*c* releases 12.1.2 and above.

This procedure assumes that you have the 12.1.2 Fusion Middleware Infrastructure (JRF plus the WebLogic Server) installed and configured on your system.

Before installing the 12*c* software, shut down all the 12.1.2 server instances except the RDBMS.

Upgrading a Managed Oracle HTTP Server

Installing the Managed 12c (12.2.1) Oracle HTTP Server
: Before you upgrade your existing Managed Oracle HTTP Server components, you must first install the Oracle HTTP Server Release 12.2.1.

Upgrading the 12c (12.1.2 or 12.1.3) Schema using Upgrade Assistant
: You need to upgrade the 12*c* (12.1.2 or 12.1.3) OPSS and IAU (Audit Services) schema using the 12*c* Upgrade Assistant.

Upgrading the 12.1.2 Domain using the Re-Configuration Wizard

Upgrading the Component Configuration
: If you are running the Upgrade Assistant from an Oracle home that contains managed domain components, then the **WebLogic Component Configuration** upgrade option is available.

Post-Upgrade Tasks
: The post-upgrade tasks include starting the Node Manager, starting the Administration Server, starting the Oracle HTTP Server, and verifying whether the upgrade from 12.1.2 to 12.2.1 is successful.

6.1 Installing the Managed 12*c* (12.2.1) Oracle HTTP Server

Before you upgrade your existing Managed Oracle HTTP Server components, you must first install the Oracle HTTP Server Release 12.2.1.

To install the Oracle HTTP Server:

1. Log in to the host where you want to install the Oracle HTTP Server.
2. Download the Oracle HTTP Server product distribution (ohs_linux64.bin | setup_ohs_win64.exe) from Oracle Technology Network or Oracle Software Delivery Cloud on your host system.
3. Check that your machines meet the following requirements:

- Ensure that the system, patch, kernel, and other requirements are met as specified in *Installing and Configuring Oracle HTTP Server*.
- Because Oracle HTTP Server is installed by default on port 7777, you must ensure that port 7777 is not used by any service on the nodes. To check if this port is in use, run the following command before installing Oracle HTTP Server. You must free the port if it is in use.

  ```
  netstat -an | grep 7777
  ```

4. On UNIX platforms, if the `/etc/oraInst.loc` file exists, check that its contents are correct. Specifically, check that the inventory directory is correct and that you have write permissions for that directory.

   If the `/etc/oraInst.loc` file does not exist, you can skip this step.

5. Run the installer by entering the following command:

   On UNIX operating system:

   ```
   ./ohs_linux64.bin
   ```

   On Windows operating system:

   setup_ohs_win64.exe

6. On the Installation Inventory Setup screen, specify the location where you want to create your central inventory in the **Inventory Directory** field.

   Make sure that the Operating System Group name that you select on this screen has write permissions to the central inventory location. Click **OK**.

   Note: This screen does not appear on Windows operating systems. For more information about the central inventory, see Understanding the Oracle Central Inventory in *Installing Software with the Oracle Universal Installer*.

7. On the Welcome screen, review the information and click **Next**.

8. On the Auto Updates screen, select one of the following and click **Next**:

   - `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.

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

   Since you are installing the standard installation topology for a collocated Oracle HTTP Server in a WebLogic Server domain, enter the path to an existing Oracle Fusion Middleware Infrastructure Oracle home.

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

10. On the Installation Type screen, select **Collocated HTTP Server (Managed through WebLogic Server)** and click **Next**.

    For more information about the installation types, see Introducing the Oracle HTTP Server Standard Installation Topologies in *Installing and Configuring Oracle HTTP Server*.

11. On the Prerequisite Check screen, verify that your system meets the minimum necessary requirements and click **Next**. If you see a warning or error message, see Oracle Fusion Middleware System Requirements and Specifications.

    For more information about other options on this screen, click **Help**.

12. On the Installation Summary screen, verify the installation options you selected.

    To save these options to a response file, click **Save Response File** and enter the location and the name of the response file. You can use response files for silent installation. Click **Install**.

13. On the Installation Progress screen, click **Next** when the progress bar displays 100%.

    If the installation is successful, the Installation Complete screen displays the message `Oracle HTTP Server (OHS) installation completed successfully`. Click **Finish** to dismiss the installer.

You have installed the Oracle HTTP Server in a collocated mode.

Installing the Oracle HTTP Server Software

Installing and Configuring Oracle HTTP Server

6.2 Upgrading the 12*c* (12.1.2 or 12.1.3) Schema using Upgrade Assistant

You need to upgrade the 12*c* (12.1.2 or 12.1.3) OPSS and IAU (Audit Services) schema using the 12*c* Upgrade Assistant.

To upgrade the 12*c* (12.1.2 or 12.1.3) OPSS and IAU schema:

1. Run the Upgrade Assistant from the 12.2.1 Oracle home by entering the following command:

    On UNIX operating system:

    ```
    12c_Oracle_Home/oracle_common/upgrade/bin/.ua
    ```

    On Windows operating system:

    ```
    12c_Oracle_Home\oracle_common\upgrade\bin\ua.bat
    ```

2. The Welcome screen provides an overview of the Upgrade Assistant and some information about important pre-upgrade tasks. Click **Next**.

    For more information about using the Upgrade Assistant, see *Upgrading with the Upgrade Assistant* or click **Help** on the Upgrade Assistant screen.

3. On the Selected Schemas screen, select **Individually Selected Schemas** to upgrade selected schemas for your installed components and click **Next**.

   The Upgrade Assistant identifies the components that are available for a schema upgrade thus allowing you to select the schemas you want to include in the upgrade.

   Caution: Upgrade only those schemas that are used to support your 12.2.1 components. Do not upgrade schemas that are currently being used to support 11*g* or 12*c* components that are not included in the Oracle Fusion Middleware 12.2.1 release.

4. The Available Components screen provides a list of installed Oracle Fusion Middleware components that have schemas that can be upgraded. When you select a component, the schemas and any dependencies are automatically selected.

   Select **Oracle Platform Security Services**. Selecting this automatically selects **Oracle Audit Services**. Click **Next**.

5. On the Domain Directory screen, enter the 12*c* (12.1.2 or 12.1.3) WebLogic domain directory. Click **Browse** and use the navigation tree to select the 12*c* WebLogic domain directory.

   The Upgrade Assistant requires the 12*c* domain location to access the jps-config.xml file.

6. On the Prerequisites screen, acknowledge that the prerequisites have been met by checking all the three boxes. Click **Next**.

   Warning: The Upgrade Assistant does not verify whether the prerequisites have been met.

7. The Examine screen displays the status of the Upgrade Assistant as it examines each component, verifying that the component is ready for upgrade. If the status is "succeeded", click **Upgrade**.

   If the examine phase fails, Oracle recommends that you cancel the upgrade by clicking **No** on the Examination Failure dialog box. Click **View Log** to see what caused the error and refer to Troubleshooting Your Upgrade 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** on 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.

8. On the Upgrade Summary screen, review the summary of the options you have selected by expanding the tree.

   Review the Source Version and the Target Version to make sure that both the versions are correct before proceeding with the upgrade.

   The response file collects and stores all the information that you have entered through the Upgrade Assistant's graphical user interface , and enables you to perform a silent upgrade at a later time. The silent upgrade performs exactly the same function that the Upgrade Assistant wizard 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** and provide the location and name of the response file.

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

9. The Upgrade Progress screen shows the status of the upgrade process and the projected Target Version of the component after a successful upgrade. Click **Next**.

   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.

10. On the End of Upgrade, click **Finish** to complete the upgrade and dismiss the wizard.

6.3 Upgrading the 12.1.2 Domain using the Re-Configuration Wizard

You need to upgrade the 12.1.2 Oracle HTTP Server domain using the 12*c* Re-Configuration Wizard. To upgrade the 12.1.2 domain, follow the procedure documented in Using the Reconfiguration Wizard to Upgrade Your 12c Domain.

6.4 Upgrading the Component Configuration

If you are running the Upgrade Assistant from an Oracle home that contains managed domain components, then the **WebLogic Component Configuration** upgrade option is available.

To upgrade the component configurations for Oracle HTTP Server:

1. Run the Upgrade Assistant from the 12.2.1 Oracle home by entering the following command:

   On UNIX operating system:

   ```
   12c_Oracle_Home/oracle_common/upgrade/bin/.ua
   ```

   On Windows operating system:

   ```
   12c_Oracle_Home\oracle_common\upgrade\bin\ua.bat
   ```

2. The Welcome screen provides an overview of the Upgrade Assistant and some information about important pre-upgrade tasks. Click **Next**.

For more information about using the Upgrade Assistant, see *Upgrading with the Upgrade Assistant* or click **Help** on the Upgrade Assistant screen.

3. On the WebLogic Components screen, select the **WebLogic Component Configurations** option to upgrade component configurations for a managed WebLogic Server domain. Enter the connection details required to connect to the WebLogic Administration Server that is managing the domain and click **Next**.

4. The Component List screen provides a list of components that are included in the WebLogic domain's component configuration upgrade. The name of the domain is provided along with the list of components located within the domain.

   Review the list to verify that the required components are displayed. If you do not see the components you want to upgrade, you may have selected the wrong domain. Click **Back** to go to the previous screen and specify a different domain.

5. On the Prerequisites screen, acknowledge that the prerequisites have been met by checking all the three boxes. Click **Next**.

   Warning: The Upgrade Assistant does not verify whether the prerequisites have been met.

6. The Examine screen displays the status of the Upgrade Assistant as it examines each component, verifying that the component is ready for upgrade. If the status is "succeeded", click **Upgrade**.

   If the examine phase fails, Oracle recommends that you cancel the upgrade by clicking **No** on the Examination Failure dialog box. Click **View Log** to see what caused the error and refer to Troubleshooting Your Upgrade 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** on 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 options you have selected by expanding the tree.

   Review the Source Version and the Target Version to make sure that both the versions are correct before proceeding with the upgrade.

   The response file collects and stores all the information that you have entered through the Upgrade Assistant's graphical user interface , and enables you to perform a silent upgrade at a later time. The silent upgrade performs exactly the same function that the Upgrade Assistant wizard 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** and provide the location and name of the response file.

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

8. The Upgrade Progress screen shows the status of the upgrade process and the projected Target Version of the component after a successful upgrade. Click **Next**.

> **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.

9. On the End of Upgrade, click **Finish** to complete the upgrade and dismiss the wizard.

6.5 Post-Upgrade Tasks

The post-upgrade tasks include starting the Node Manager, starting the Administration Server, starting the Oracle HTTP Server, and verifying whether the upgrade from 12.1.2 to 12.2.1 is successful.

Starting the Node Manager
: Server instances in a WebLogic Server production environment are often distributed across multiple domains, machines, and geographic locations. Node Manager is a WebLogic Server utility that enables you to start, shut down, and restart Administration Server and Managed Server instances from a remote location.

Starting the Administration Server
: One instance of WebLogic Server in each domain acts as an Administration Server. The Administration Server provides a central point for managing a WebLogic Server domain. All other WebLogic Server instances in a domain are called Managed Servers. In a domain with only a single WebLogic Server instance, that server functions both as Administration Server and Managed Server.

Starting the Oracle HTTP Server
: You can use Enterprise Manager Fusion Middleware Control or the `opmnctl` command to start, stop, and restart Oracle HTTP Server.

Verifying that Oracle HTTP Server Installation is Successful
: If you can log in to the Administration Console and the Enterprise Manager Fusion Middleware Control, you have installed Oracle HTTP Server successfully.

6.5.1 Starting the Node Manager

Server instances in a WebLogic Server production environment are often distributed across multiple domains, machines, and geographic locations. Node Manager is a

WebLogic Server utility that enables you to start, shut down, and restart Administration Server and Managed Server instances from a remote location.

On Windows operating systems, it is recommended that you configure Node Manager to run as a startup service. This allows Node Manager to start up automatically each time the system is restarted. For more information, see Running Node Manager as a Startup Service in *Administering Node Manager for Oracle WebLogic Server*.

Note: On UNIX platform, do not run Node Manager as the root user.

To start the Node Manager:

1. Change directory to the following:

   Oracle_home/wlserver/server/bin/

2. On the UNIX operating system, start the Node Manager by running the following command:

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

   Where, nohup and nm.out are sample output files.

   On the Windows operating system, start the Node Manager by running the following command:

   ```
   startNodeManager.cmd
   ```

   You can also use a shortcut on the **Start** menu to start the Node Manager (**Tools** > **Node Manager**).

6.5.2 Starting the Administration Server

One instance of WebLogic Server in each domain acts as an Administration Server. The Administration Server provides a central point for managing a WebLogic Server domain. All other WebLogic Server instances in a domain are called Managed Servers. In a domain with only a single WebLogic Server instance, that server functions both as Administration Server and Managed Server.

In a development environment, it is usually sufficient to start an Administration Server and deploy your applications directly onto the Administration Server. However, in a production environment, it is recommended that you create Managed Servers to run your applications.

To start an Administration Server:

1. Change directory to the following:

   Oracle_Home\user_projects\domains*DOMAIN_NAME*

   Where, *DOMAIN_NAME* is the name of the directory in which you located the domain.

2. On the Windows operating system, start the Administration Server by running the following command:

   ```
   startWebLogic.cmd
   ```

On the Windows operating system, the Configuration Wizard creates a shortcut on the Start menu to start the Administration Server that you created.

On the UNIX operating system, start the Administration Server by running the following command:

```
./startWebLogic.sh
```

Note: If the server prompts you to enter a username and password, enter the name of a WebLogic Server user who has permission to start servers.

6.5.3 Starting the Oracle HTTP Server

You can use Enterprise Manager Fusion Middleware Control or the `opmnctl` command to start, stop, and restart Oracle HTTP Server.

Starting the Oracle HTTP Server using the Enterprise Manager Fusion Middleware Control

To start an Oracle HTTP Server using the Enterprise Manager Fusion Middleware Control:

1. Go to the Oracle HTTP Server home page.
2. From the Oracle HTTP Server menu:
   a. Select **Control**.
   b. Select **Start Up** from the **Control** menu.

   Or
3. From the Target Navigation tree:
   a. Right-click the Oracle HTTP Server instance you want to start.
   b. Select **Control**.
   c. Select **Start Up** from the **Control** menu.

Starting the Oracle HTTP Server using opmnctl

To start Oracle HTTP Server components in an Oracle instance using `opmnctl`:

1. Change directory to the following:

   ORACLE_INSTANCE`/bin`
2. Run the following command to start all Oracle HTTP Server components in an Oracle instance

   ```
   opmnctl startproc process-type=OHS
   ```

Determining the Status of Oracle HTTP Server Components using opmnctl

To determine the status of the Oracle HTTP Server components:

1. Change directory to the following:

   ORACLE_INSTANCE`/bin`

2. Enter the following command:

   ```
   opmnctl status
   ```

   Following is a sample output:

```
Processes in Instance: instance1
---------------------------------+--------------------+---------+---------
ias-component                    | process-type       |     pid | status
---------------------------------+--------------------+---------+---------
webcache1                        | WebCache-admin     |   19556 | Alive
webcache1                        | WebCache           |   19555 | Alive
ohs1                             | OHS                |    7249 | Alive
```

6.5.4 Verifying that Oracle HTTP Server Installation is Successful

If you can log in to the Administration Console and the Enterprise Manager Fusion Middleware Control, you have installed Oracle HTTP Server successfully.

To verify whether the software patch is installed successfully:

1. Log in to the following URL:

   http://*MachineName*.us.oracle.com:7777

2. To access Enterprise Manager Fusion Middleware Control:

   http://*MachineName*.us.oracle.com:7001/em

A.1 Migrating 11g Application Artifacts

You will have to manually migrate any 11*g* application artifacts that reside within the Oracle instance, including any combination of static files such as HTML or images, CGI or FastCGI scripts or applications, or third-party modules. Application artifacts that were referred to by the 11*g* configuration, but were stored in directories outside of the Oracle instance, will continue to be referenced by the migrated configuration used by Oracle HTTP Server 12c.

For example, if a third-party plug-in module was installed into the Oracle home with Oracle HTTP Server 11g, and the configuration referenced it by the Oracle home location using the configuration in the example below, the plug-in module must be installed manually into the Oracle home with 12*c* Oracle HTTP Server or the upgraded configuration must be modified to reference it elsewhere.

```
LoadModule example_module "${ORACLE_HOME}/ohs/modules/mod_example.so"
```

Similarly, if static files were copied into the `/htdocs` directory within the 11*g* component configuration directory, then they too must be manually copied into the 12*c* instance configuration directory or the upgraded configuration must be modified to reference it elsewhere. Other types of application artifacts must be manually migrated in a similar manner.