

Oracle® Fusion Middleware

Upgrade Planning Guide

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Oracle Fusion Middleware Upgrade Planning Guide, 11g Release 1 (11.1.1)

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Preface

This preface contains the following sections:

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

Audience

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

- Oracle Application Server 10g system administration and configuration
- The configuration and expected behavior of the system being upgraded

Documentation Accessibility

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<http://www.fcc.gov/cgb/consumerfacts/trs.html>, and a list of phone numbers is available at <http://www.fcc.gov/cgb/dro/trsphonebk.html>.

Related Documents

For more information, see the following related documentation available in the Oracle Fusion Middleware 11g documentation library:

- Related Upgrade Documentation
 - *Oracle Fusion Middleware Upgrade Guide for Java EE*
 - *Oracle Fusion Middleware Upgrade Guide for Oracle SOA Suite, WebCenter, and ADF*
 - *Oracle Fusion Middleware Upgrade Guide for Oracle Identity Management*
 - *Oracle Fusion Middleware Upgrade Guide for Oracle Portal, Forms, Reports, and Discoverer*
- *Oracle Fusion Middleware Installation Planning Guide*
- *Oracle Fusion Middleware Administrator's Guide*

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.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Developing an Upgrade Strategy

Before you begin an upgrade to Oracle Fusion Middleware 11g, there are important tasks you should perform in preparation for the upgrade.

Use the following tasks to ensure that your upgrade has as little impact as possible on your day-to-day operations:

- [Task 1: Understand the Differences Between Oracle Application Server 10g and Oracle Fusion Middleware 11g](#)
- [Task 2: Understand the Upgrade Starting Points](#)
- [Task 3: Get Familiar With the Installation and Upgrade Tools](#)
- [Task 4: Develop a Backup Strategy for Upgrade](#)
- [Task 5: Understand Your Compatibility and Interoperability Requirements](#)
- [Task 6: Review the System Requirements for Upgrade](#)
- [Task 7: Locate the Required Upgrade Documentation](#)

1.1 Task 1: Understand the Differences Between Oracle Application Server 10g and Oracle Fusion Middleware 11g

Before you begin planning your upgrade to Oracle Fusion Middleware, you should be familiar with the differences between Oracle Application Server 10g and Oracle Fusion Middleware 11g.

Refer to [Chapter 2, "Introduction to Oracle Fusion Middleware for 10g Users"](#) for an introduction to architecture, directory structure, terminology, and installation and configuration tools of Oracle Fusion Middleware 11g.

1.2 Task 2: Understand the Upgrade Starting Points

Refer to the following sections for more information about what Oracle Application Server versions are supported for upgrading to Oracle Fusion Middleware 11g:

- [What is an Upgrade Starting Point?](#)
- [Supported Starting Points for Oracle Fusion Middleware 11g](#)
- [Using OracleMetaLink to Obtain the Latest Oracle Application Server Patch Set](#)
- [What If I'm Not Running a Supported Upgrade Starting Point?](#)

1.2.1 What is an Upgrade Starting Point?

An upgrade starting point is a specific version of Oracle Application Server that you must be running in order to upgrade to Oracle Fusion Middleware 11g. If you are not running a version of Oracle Application Server that is a supported upgrade starting point, then you must first upgrade to a supported starting point.

For example, if you are running Oracle Application Server 10g (9.0.4), then you must first upgrade to 10g Release 2 (10.1.2) before you can upgrade to Oracle Fusion Middleware 11g.

1.2.2 Supported Starting Points for Oracle Fusion Middleware 11g

You can upgrade to Oracle Fusion Middleware 11g from the following previous versions of Oracle Application Server 10g:

- Oracle Application Server 10g Release 2 (10.1.2)
- Oracle Application Server 10g Release 3 (10.1.3)
- Oracle Application Server Portal Release 2 (10.1.4)
- Oracle Identity Management 10g (10.1.4)

For information about the latest database versions supported by Oracle Fusion Middleware 11g, see [Chapter 6, "Upgrading and Preparing Your Databases"](#).

Note: Before starting an upgrade, Oracle recommends that you upgrade to the latest patch set for your release. For example, if you are upgrading from 10g Release 2 (10.1.2), you should apply the latest 10g Release 2 (10.1.2) patch set before you begin the upgrade process.

For more information, see [Section 1.2.3, "Using OracleMetaLink to Obtain the Latest Oracle Application Server Patch Set"](#).

1.2.3 Using OracleMetaLink to Obtain the Latest Oracle Application Server Patch Set

For the most up-to-date information about available Oracle Application Server 10g patch set, including the database versions required for Oracle Fusion Middleware 11g Release 1 (11.1.1), refer to My Oracle Support (formerly OracleMetaLink):

<http://metalink.oracle.com/>

After logging into My Oracle Support, click the **Patches and Updates** tab. From the resulting Web page, you can view the latest certifications by product, platform, and product availability.

1.2.4 What If I'm Not Running a Supported Upgrade Starting Point?

If you are running an Oracle Application Server release prior to the supported upgrade starting points, then you must first upgrade to a supported upgrade starting point. After you upgrade to a supported starting point, you can then use the Oracle Fusion Middleware 11g upgrade documentation to perform the upgrade.

Specifically, refer to [Table 1-1](#) for information on upgrading from earlier versions of Oracle Application Server to a supported starting point.

Table 1–1 Upgrade Paths to a Supported Oracle Fusion Middleware 11g Upgrade Starting Point

Version	Starting Point Upgrade Path	More Information
Oracle Application Server Release 2 (9.0.2)	Upgrade to Oracle Application Server 10g Release 2 (10.1.2)	<i>Oracle Application Server Upgrade and Compatibility Guide</i> for your platform, available in the Oracle Application Server 10g Release 2 (10.1.2) documentation library
Oracle Application Server Release 2 (9.0.3)	Upgrade to Oracle Application Server 10g Release 3 (10.1.3)	<i>Oracle Application Server Upgrade and Compatibility Guide</i> for your platform, available in the Oracle Application Server 10g Release 3 (10.1.3) documentation library
Oracle Application Server 10g (9.0.4)	Upgrade to Oracle Application Server 10g Release 2 (10.1.2)	<i>Oracle Application Server Upgrade and Compatibility Guide</i> for your platform, available in the Oracle Application Server 10g Release 2 (10.1.2) documentation library

1.3 Task 3: Get Familiar With the Installation and Upgrade Tools

The procedures and tools you use to install and configure the Oracle Fusion Middleware components are very different from the ones you used to install and configure Oracle Application Server 10g.

Refer to [Section 2.2, "Oracle Fusion Middleware Installation and Configuration Tools"](#) for an overview of the installation and configuration tools required to set up a complete Oracle Fusion Middleware 11g environment.

1.4 Task 4: Develop a Backup Strategy for Upgrade

Before you begin upgrading your Oracle Application Server 10g environment, be sure you have backed up system-critical files.

Refer to [Chapter 5, "Backup Strategies for Upgrade"](#) for specific information on making sure all the various components of your environment can be restored in the event of a failed upgrade.

1.5 Task 5: Understand Your Compatibility and Interoperability Requirements

Before you begin upgrading your Oracle Application Server 10g environment, consider any compatibility and interoperability issues associated with upgrade.

For more information, refer to [Chapter 4, "Understanding Version Compatibility and Interoperability"](#).

Note that potential issues can be avoided by making sure you have applied the latest Oracle Application Server 10g patch sets, and that you have reviewed the list of recommended patches that are designed to help you avoid any problems during upgrade.

For more information, see [Section 4.5, "Applying Patch Sets to Address Specific Upgrade Interoperability Issues"](#).

1.6 Task 6: Review the System Requirements for Upgrade

Before performing any installation you should read the system requirements and certification documentation to ensure that your environment meets the minimum installation requirements for the products you are installing.

For more information, refer to "System Requirements and Prerequisites" in the *Oracle Fusion Middleware Installation Planning Guide*.

1.7 Task 7: Locate the Required Upgrade Documentation

The Oracle Fusion Middleware documentation library provides upgrade documentation for each of the Oracle Fusion Middleware product suites.

Depending upon the 10g Release 2 (10.1.2) or 10g Release 3 (10.1.3) environment you are upgrading, use [Table 1–2](#) to determine which guide to use when upgrading your Oracle Application Server components to Oracle Fusion Middleware.

Table 1–2 Road Map to the Oracle Fusion Middleware Upgrade Documentation

To Upgrade a...	Refer to this document...
10g Release 2 (10.1.2) Portal and Wireless Middle Tier	<i>Oracle Fusion Middleware Upgrade Guide for Oracle Portal, Forms, Reports, and Discoverer</i>
10g Release 2 (10.1.2) Business Intelligence and Forms	<i>Oracle Fusion Middleware Upgrade Guide for Oracle Portal, Forms, Reports, and Discoverer</i>
10g Release 2 (10.1.2) Forms and Reports Services	<i>Oracle Fusion Middleware Upgrade Guide for Oracle Portal, Forms, Reports, and Discoverer</i>
10g Release 2 (10.1.2) Identity Management	<i>Oracle Fusion Middleware Upgrade Guide for Oracle Identity Management</i>
10g Release 3 (10.1.3) Middle Tier or Cluster Topology	<ul style="list-style-type: none"> ▪ <i>Oracle Fusion Middleware Upgrade Guide for Java EE</i> for information about upgrading your Java EE applications from Oracle Containers for Java EE (OC4J) to Oracle WebLogic Server ▪ <i>Oracle Fusion Middleware Upgrade Guide for Oracle SOA Suite, WebCenter, and ADF</i> for information about upgrading your Oracle SOA Suite, Oracle WebCenter, and Oracle ADF applications.
10g (10.1.4) Identity Management	<i>Oracle Fusion Middleware Upgrade Guide for Oracle Identity Management</i>

Introduction to Oracle Fusion Middleware for 10g Users

This chapter introduces Oracle Fusion Middleware 11g Release 1 (11.1.1) to Oracle Application Server 10g users.

This chapter contains the following sections:

- [Terminology and Concepts for 10g Users](#)
- [Oracle Fusion Middleware Installation and Configuration Tools](#)
- [Oracle Fusion Middleware Administration Tools and Processes](#)
- [Oracle Fusion Middleware Upgrade Tools and Processes](#)

2.1 Terminology and Concepts for 10g Users

The following sections describe some of the new Oracle Fusion Middleware terminology and concepts for Oracle Application Server 10g users:

- [Terminology and Concepts for 10g Release 2 \(10.1.2\) Users](#)
- [Terminology and Concepts for 10g Release 3 \(10.1.3\) Users](#)
- [Oracle HTTP Server and Oracle Web Cache Concepts for 10g Users and 11g Users](#)

2.1.1 Terminology and Concepts for 10g Release 2 (10.1.2) Users

This section describes some key differences between Oracle Application Server 10g Release 2 (10.1.2) and the Oracle Fusion Middleware 11g:

- [Figure 2–1](#) shows an illustration of a typical 10g Release 2 (10.1.2) environment and compares it to a typical Oracle Fusion Middleware 11g environment.
- [Table 2–1](#) provides a list of Oracle Application Server 10g Release 2 (10.1.2) terms and concepts that you are likely familiar with. The table provides a summary of the equivalent terms and concepts in Oracle Fusion Middleware.

Note: The 10g Release 2 (10.1.2) environment shown in [Figure 2–1](#) is simplified to show only an Oracle Portal instance and an Oracle BI Discoverer instance. In fact, a 10g Release 2 (10.1.2) environment can also include Oracle Reports and Oracle Forms Services, as well as an associated Oracle Application Server Identity Management installation.

For more detailed information about the Oracle Portal, Forms, Reports, and Discoverer components, as well as the Oracle Identity Management components of Oracle Fusion Middleware 11g, see the following guides:

- *Oracle Fusion Middleware Upgrade Guide for Oracle Portal, Forms, Reports, and Discoverer*
- *Oracle Fusion Middleware Upgrade Guide for Oracle Identity Management*

Figure 2–1 Comparison of Terminology Used in 10g Release 2 (10.1.2) and 11g

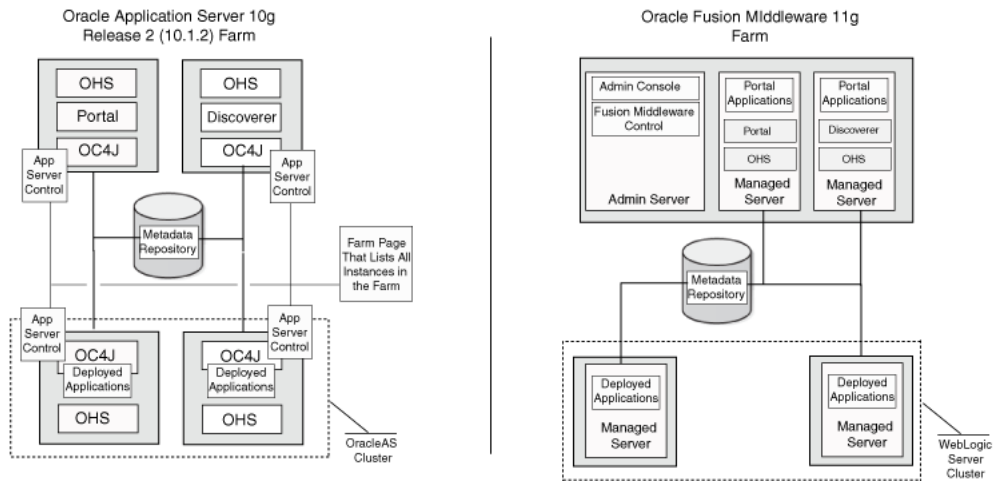


Table 2–1 Terminology and Concepts in 10g Release 2 (10.1.2) and Oracle Fusion Middleware 11g

10g Release 2 (10.1.2) Term	Equivalent Term in Oracle Fusion Middleware 11g	Differences
Oracle Application Server farm	Oracle Fusion Middleware farm	<p>In 10g Release 2 (10.1.2), a farm contained all the Oracle Application Server instances that shared the same Oracle Metadata Repository.</p> <p>In Oracle Fusion Middleware, a farm consists of a single Oracle WebLogic Server domain and the corresponding Oracle system components associated with the domain.</p> <p>A Oracle WebLogic Server domain consists of an administration server, which hosts the Web-based management consoles, and one or more managed servers.</p>

Table 2–1 (Cont.) Terminology and Concepts in 10g Release 2 (10.1.2) and Oracle Fusion Middleware 11g

10g Release 2 (10.1.2) Term	Equivalent Term in Oracle Fusion Middleware 11g	Differences
Oracle Enterprise Manager Application Server Control	Oracle WebLogic Server Administration Console Oracle Enterprise Manager Fusion Middleware Control	<p>In 10g Release 2 (10.1.2), you use Application Server Control to manage your entire application server environment. Application Server Control was deployed on every Oracle Application Server 10g Release 2 (10.1.2) instance.</p> <p>When multiple application server instances were associated with a common metadata repository, you could navigate to the Farm page, which listed all the application server instances in the farm.</p> <p>In Oracle Fusion Middleware, there are two Web-based management consoles:</p> <ul style="list-style-type: none"> ■ You manage the WebLogic servers with the Oracle WebLogic Server Administration Console. ■ You manage the Oracle Fusion Middleware system components with Fusion Middleware Control.
Oracle Application Server Cluster	Oracle WebLogic Server cluster	<p>In 10g Release 2 (10.1.2), an Oracle Application Server Cluster consisted of one or more application server instances with identical configuration and application deployments. Application server instances within the cluster appear and function as a single instance.</p> <p>Oracle WebLogic Server provides a similar clustering feature. You can cluster two or more managed servers.</p>

2.1.2 Terminology and Concepts for 10g Release 3 (10.1.3) Users

This section describes some key differences between Oracle Application Server 10g Release 3 (10.1.3) and the Oracle Fusion Middleware 11g:

- [Figure 2–2](#) shows an illustration of a typical Oracle Application Server 10g Release 3 (10.1.3) environment and compares it to a typical Oracle Fusion Middleware 11g environment.
- [Table 2–2](#) provides a list of Oracle Application Server 10g Release 2 (10.1.2) terms and concepts, as well as a summary of the equivalent terms and concepts in Oracle Fusion Middleware.

Figure 2–2 Comparison of 10g Release 3 (10.1.3) and Oracle Fusion Middleware 11g Terminology

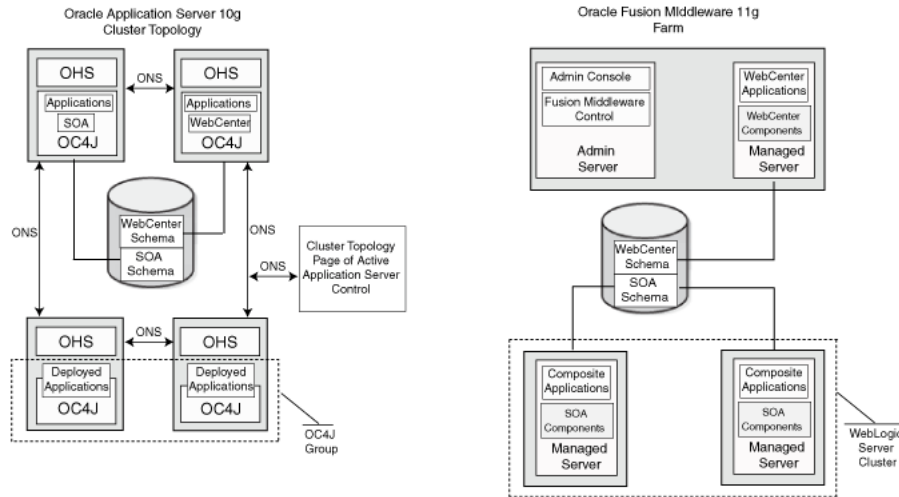


Table 2–2 Terminology and Concepts in 10g Release 3 (10.1.3) and Oracle Fusion Middleware 11g

10g Release 2 (10.1.2) Term	Equivalent Term in Oracle Fusion Middleware 11g	Differences
Oracle Application Server Cluster Topology	Oracle Fusion Middleware farm	<p>In 10g Release 3 (10.1.3), a cluster topology consists of two or more application server instances that share the same Oracle Notification Service (ONS) address.</p> <p>You can manage the cluster topology from the Cluster Topology page of the Application Server Control.</p> <p>In Oracle Fusion Middleware, a farm consists of a single Oracle WebLogic Server domain and the Oracle system components associated with the domain.</p> <p>An Oracle WebLogic Server domain consists of an administration server, which hosts the Web-based management consoles, and one or more managed servers.</p>
Oracle Application Server Control	Oracle WebLogic Server Administration Console Oracle Enterprise Manager Fusion Middleware Control	<p>In 10g Release 3 (10.1.3), you use Application Server Control to manage the application server environment. Application Server Control is deployed on every Oracle Application Server 10g Release 3 (10.1.3) instance, but only one is up and running and identified as the active Fusion Middleware Control.</p> <p>In Oracle Fusion Middleware, there are two Web-based management consoles, both running out of the Administration Server:</p> <ul style="list-style-type: none"> ■ You manage the WebLogic servers with the Oracle WebLogic Server Administration Console. ■ You manage the Oracle Fusion Middleware system components with Fusion Middleware Control.

Table 2–2 (Cont.) Terminology and Concepts in 10g Release 3 (10.1.3) and Oracle Fusion Middleware 11g

10g Release 2 (10.1.2) Term	Equivalent Term in Oracle Fusion Middleware 11g	Differences
OC4J Group	Oracle WebLogic Server cluster	<p>In 10g Release 3 (10.1.3), you can use OC4J groups to to group identically configured OC4J instances. You can then deploy applications to the group and perform certain management tasks on the group, rather than on individual OC4J instances.</p> <p>Oracle WebLogic Server provides a similar clustering feature. You can cluster two or more managed servers.</p>

2.1.3 Oracle HTTP Server and Oracle Web Cache Concepts for 10g Users and 11g Users

The following sections compare how Oracle HTTP Server and Oracle Web Cache are used in the Oracle Application Server 10g and Oracle Fusion Middleware 11g environments:

- [Configuring Oracle HTTP Server and Oracle Web Cache in Oracle Application Server 10g](#)
- [Configuring the Web Tier in Oracle Fusion Middleware 11g](#)

2.1.3.1 Configuring Oracle HTTP Server and Oracle Web Cache in Oracle Application Server 10g

In Oracle Application Server 10g, Oracle HTTP Server and Oracle Web Cache were integrated with the rest of the Oracle Application Server middle-tier components automatically during the installation.

For example:

- In Oracle Application Server 10g Release 2 (10.1.2), you could select the Oracle HTTP Server and Oracle Web Cache components as part of a standard Oracle Application Server installation. During the installation and configuration of your environment, the routing of requests would automatically be configured between Oracle HTTP Server and Oracle Web Cache.

Components such as Oracle Single Sign-On and Oracle Portal require an Oracle HTTP Server, so in 10g Release 2 (10.1.2) installations, Oracle HTTP Server was automatically configured to communicate with those components.

- In Oracle Application Server 10g Release 3 (10.1.3), several of the common installation types included an instance of Oracle HTTP Server that was automatically configured to route requests to the OC4J instance.

Users could then later reconfigure Oracle HTTP Server to route requests to an OC4J group or to specific OC4J instances in a 10g Release 3 (10.1.3) cluster topology.

2.1.3.2 Configuring the Web Tier in Oracle Fusion Middleware 11g

In Oracle Fusion Middleware 11g, Oracle HTTP Server is still automatically installed and configured for specific components that require a Web server. For example, Oracle HTTP Server is automatically installed and configured with the following Oracle Fusion Middleware components:

- Oracle Identity Federation in the Oracle Identity Management software suite

- Oracle Portal and Oracle Business Intelligence Discoverer in the Oracle Portal, Forms, Reports and Discoverer suite

However, for the other Oracle Fusion Middleware suites, Oracle HTTP Server and Oracle Web Cache are packaged as a separate installation called the Web tier.

The assumption is that in production environments, many Oracle Fusion Middleware customers will configure a separate set of computers to host the Oracle HTTP Server and Oracle Web Cache components. Packaging these components as a separate Web tier installation facilitates setting up this type of environment.

2.2 Oracle Fusion Middleware Installation and Configuration Tools

Unlike Oracle Application Server 10g, the installation and configuration of your Oracle Fusion Middleware components is separated. In other words, you first use an installation program to install the necessary files on disk, and then you use a configuration wizard to configure the environment.

Because the Oracle Fusion Middleware system components are designed to work with Oracle WebLogic Server, the first step in configuring any Oracle Fusion Middleware environment is usually to install Oracle WebLogic Server. Second, you install the Oracle Fusion Middleware component software, and third, you configure the software. Each installation and configuration step is performed with a specialized tool.

As an example of the tools required to install and configure Oracle Fusion Middleware, consider the steps required to install and configure a typical Oracle SOA Suite.

In particular, to install and configure a production-ready Oracle SOA Suite environment, you use the installation and configuration tools that are shown in [Figure 2-3](#). The call outs in the figure correspond to the order in which you typically perform each installation and configuration task. Each step is described in more detail in [Table 2-3](#).

For more information about the tools available for installing and configuring an Oracle Fusion Middleware environment, refer to the *Oracle Fusion Middleware Installation Planning Guide*.

Figure 2-3 Installation and Configuration Tools Used to Install and Configure a Typical Oracle SOA Suite Environment

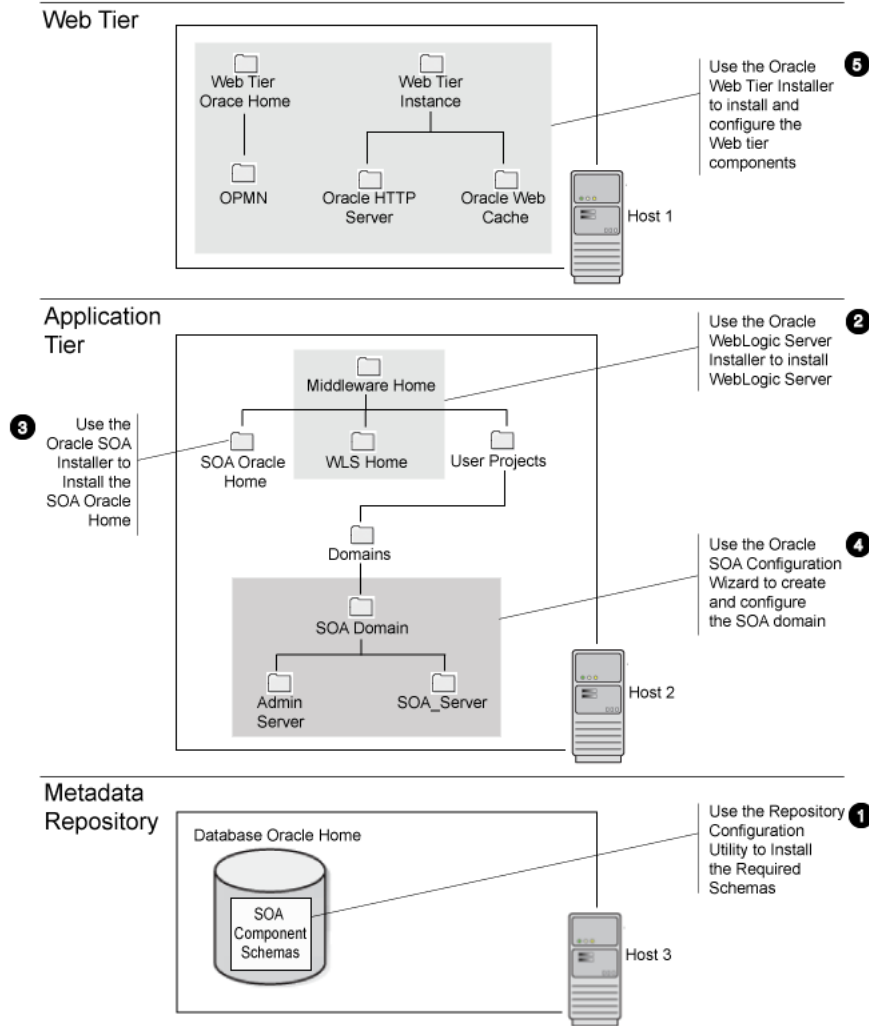


Table 2-3 Summary of the Oracle Fusion Middleware Installation and Configuration Tools for a Typical Oracle SOA Suite Installation

Step Number	Task	Performed with this Tool	Location of the Required Tool	More Information
1	Install the required schemas in a supported version of the Oracle database.	Repository Creation Utility (RCU)	On the Repository Creation Utility CD-ROM.	<i>Oracle Fusion Middleware Repository Creation Utility User's Guide</i>
2	Install the Oracle WebLogic Server files on disk. This creates the Middleware home and the Weblogic Server home directory inside the Middleware home.	Oracle WebLogic Server Installer	On the Oracle WebLogic Server CD-ROM.	<i>Oracle WebLogic Server Installation Guide</i>

Table 2–3 (Cont.) Summary of the Oracle Fusion Middleware Installation and Configuration Tools for a Typical Oracle SOA Suite Installation

Step Number	Task	Performed with this Tool	Location of the Required Tool	More Information
3	Install the Oracle SOA Suite software on disk. This creates the SOA Oracle home.	Oracle SOA Suite Installer	On the Oracle SOA Suite CD-ROM	<i>Installation Guide for Oracle SOA Suite</i>
4	Configure the SOA domain. This creates the SOA domain directory structure. Note that the domain directories can be located anywhere on disk, but are often installed inside the <code>user_projects</code> directory of the Middleware home.	Oracle SOA Suite Configuration Wizard	Run <code>config.sh</code> or <code>config.bat</code> from the <code>common/bin</code> directory of the SOA Oracle home created in step 3.	<i>Installation Guide for Oracle SOA Suite</i>
5	Optionally, install and configure a Web tier. You will also need to configure Oracle HTTP Server to route requests to the appropriate Oracle WebLogic Server server.	Oracle Web Tier Installer	Oracle Web Tier and Utilities CD-ROM	Installation Guide for Oracle Web Tier

2.3 Oracle Fusion Middleware Administration Tools and Processes

The following sections describe some key differences between Oracle Application Server 10g and Oracle Fusion Middleware 11g administration tools and processes:

- [Comparison of Key Management Tasks for 10g Release 2 \(10.1.2\) Users](#)
- [Comparison of Key Management Tasks for 10g Release 3 \(10.1.3\) Users](#)

2.3.1 Comparison of Key Management Tasks for 10g Release 2 (10.1.2) Users

[Table 2–4](#) shows some of the key differences between Oracle Application Server 10g Release 2 (10.1.2) and Oracle Fusion Middleware 11g.

Table 2–4 Summary of Differences Between Oracle Fusion Middleware 11g and Oracle Application Server 10g Release 2 (10.1.2)

Task or Feature	In 10g Release 2 (10.1.2)...	In Oracle Fusion Middleware 11g...	More Information
Installing and managing an Oracle Application Server farm	<p>Configure multiple Oracle Application Server instances so they use the same Oracle Metadata Repository.</p> <p>This creates an OracleAS Farm, which can be managed from the Oracle Enterprise Manager Application Server Control Farm page.</p>	<p>Use the installation and configuration tools to:</p> <ol style="list-style-type: none"> 1. Install the selected Oracle WebLogic Serversoftware on disk 2. Install and configure the Oracle instances using the Oracle Portal, Forms, Reports, and Discoverer installer in an Oracle WebLogic Serverdomain. <p>The resulting Oracle Fusion Middleware farm can be managed from the Fusion Middleware Control.</p>	<ul style="list-style-type: none"> ■ <i>Oracle Fusion Middleware Installation Planning Guide</i> ■ <i>Oracle Fusion Middleware Quick Installation Guide for Oracle WebLogic Server</i> ■ <i>Oracle Fusion Middleware Installation Guide for Oracle Portal, Forms, Reports, and Discoverer</i>
Using OracleAS Clusters	<p>Add selected J2EE and Web Cache instances within an OracleAS Farm to an OracleAS Cluster. Perform this task from the Farm page in the Fusion Middleware Control Console.</p>	<p>Use the Oracle WebLogic Server configuration wizard, or the appropriate management tool, to configure selected managed servers into an Oracle WebLogic Server cluster.</p>	<p>"Overview of Oracle Fusion Middleware Administration Tools" in the <i>Oracle Fusion Middleware Administrator's Guide</i></p>
Replicating application state across a cluster	<p>From the Application Server Control Farm page, create an OracleAS Cluster. OC4J clusters are based on processes and islands within an OracleAS Cluster.</p>	<p>Use the Oracle WebLogic Server configuration wizard to configure selected managed servers into Oracle WebLogic Server clusters.</p>	<p><i>Oracle Fusion Middleware Upgrade Guide for Java EE</i></p>
Creating new OC4J instances	<p>Click Create Instance on the OC4J Home page in the Application Server Control console.</p>	<p>Use the Oracle WebLogic Server configuration wizard, or the appropriate management tool, to create new managed servers in each Oracle WebLogic Server domain.</p>	<p>"Overview of Oracle Fusion Middleware Administration Tools" in the <i>Oracle Fusion Middleware Administrator's Guide</i></p>

Table 2–4 (Cont.) Summary of Differences Between Oracle Fusion Middleware 11g and Oracle Application Server 10g Release 2 (10.1.2)

Task or Feature	In 10g Release 2 (10.1.2)...	In Oracle Fusion Middleware 11g...	More Information
Using command-line tools to manage servers, clusters, and system components	Use one of the following: <ul style="list-style-type: none"> ▪ Distributed Configuration Management (DCM) command line (dcmctl) ▪ Oracle Process Manager and Notification Server (OPMN) command line (opmnctl) 	Use one of the following, depending upon the components you are managing: <ul style="list-style-type: none"> ▪ The Oracle WebLogic Server scripting tool (WLST) for managing the Oracle WebLogic Server domain. ▪ OPMN and the <code>opmnctl</code> commands for the Oracle Identity Management components, Oracle Portal, Forms, Reports, and Discoverer components, and the Web tier components. 	"Getting Started Using Command-Line Tools" in the <i>Oracle Fusion Middleware Administrator's Guide</i>
Using OracleAS Identity Management	Configure OracleAS Identity Management using the Application Server Infrastructure page in Application Server Control.	Configure Oracle Internet Directory as your identity store during the Oracle Portal, Forms, Reports, and Discoverer installation.	<i>Oracle Fusion Middleware Installation Guide for Oracle Portal, Forms, Reports, and Discoverer</i>

2.3.2 Comparison of Key Management Tasks for 10g Release 3 (10.1.3) Users

Table 2–4 shows some of the key differences between Oracle Application Server 10g Release 2 (10.1.2) and Oracle Fusion Middleware 11g.

Table 2–5 Comparison of Key Management Tasks in 10g Release 3 (10.1.3) and Oracle Fusion Middleware 11g

Task or Feature	In 11g Release 1 (11.1.1)...	In Oracle Fusion Middleware 11g	More Information
Creating and Managing the middle-tier environment	Use the Topology Network Configuration page to configure the cluster, or perform the equivalent task during the installation. This causes the selected Oracle Application Server instances to appear on the Cluster Topology page of the Fusion Middleware Control Console.	<ol style="list-style-type: none"> 1. Install the Oracle WebLogic Server software on disk. 2. Install the Oracle SOA Suite and WebCenter software on disk. 3. Use the configuration wizard in the SOA or WebCenter Oracle home to create the SOA or WebCenter domain and deploy the system components. 	<ul style="list-style-type: none"> ▪ <i>Oracle Fusion Middleware Installation Guide for Oracle SOA Suite</i> ▪ <i>Oracle Fusion Middleware Installation Guide for Oracle WebCenter</i> ▪ Section 2.2, "Oracle Fusion Middleware Installation and Configuration Tools"

Table 2–5 (Cont.) Comparison of Key Management Tasks in 10g Release 3 (10.1.3) and Oracle Fusion Middleware 11g

Task or Feature	In 11g Release 1 (11.1.1)...	In Oracle Fusion Middleware 11g	More Information
Using clusters	Create multiple OC4J instances and organize them into a group. Use the Group page in the Fusion Middleware Control Console to manage the group.	Use the appropriate management tool to create an Oracle WebLogic Server cluster.	"Overview of Oracle Fusion Middleware Administration Tools" in the <i>Oracle Fusion Middleware Administrator's Guide</i>
Replicating application state across a cluster	Application clustering, which can be configured from the Fusion Middleware Control Console during deployment or post-deployment.	Use the appropriate management tool to create an Oracle WebLogic Server cluster.	"Overview of Oracle Fusion Middleware Administration Tools" in the <i>Oracle Fusion Middleware Administrator's Guide</i>
Creating new OC4J instances	Click Create OC4J Instance on the Application Server page, or use the <code>createinstance</code> command in the <code>bin</code> directory of the Oracle Application Server Oracle home.	Use the appropriate management tool to create a new managed server and apply the required domain template.	"Scaling Your Environment" in the <i>Oracle Fusion Middleware Administrator's Guide</i>
Using command-line tools to manage instances and clusters	Use the <code>opmnctl</code> commands and the <code>admin_client.jar</code> utility provide additional management capabilities.	Use one of the following, depending upon the components you are managing: <ul style="list-style-type: none"> ■ The Oracle WebLogic Server scripting tool (WLST) for managing the Oracle WebLogic Server domain, as well as Oracle SOA Suite, and WebCenter components. ■ OPMN and the <code>opmnctl</code> commands for managing the Oracle Identity Management components, Oracle Portal, Forms, Reports, and Discoverer components, and the Web tier components. 	"Getting Started Using Command-Line Tools" in the <i>Oracle Fusion Middleware Administrator's Guide</i>
Using OracleAS Identity Management	Configure OracleAS Identity Management using the Identity Management task on the OC4J Administration page in the Fusion Middleware Control Console.	Configure Oracle Internet Directory as your identify store in the Fusion Middleware Control.	<i>Oracle Fusion Middleware Installation Guide for Oracle Portal, Forms, Reports, and Discoverer</i>

2.4 Oracle Fusion Middleware Upgrade Tools and Processes

Table 2–6 provides a summary of the tools you can use to help automate and validate your upgrade to Oracle Fusion Middleware 11g.

Refer to the rest of the Oracle Fusion Middleware upgrade documentation for specific information on how to use these tools as part of your overall upgrade experience.

Table 2–6 Summary of the Tools Required When Upgrading to Oracle Fusion Middleware 11g

Upgrade Tool	Description	Notes and Considerations
Repository Creation Utility (RCU)	<p>Use this tool to install the database schemas required for specific types of Oracle Fusion Middleware upgrades.</p> <p>In particular, you must run RCU and install the required schemas before upgrading to the following Oracle Fusion Middleware software suites:</p> <ul style="list-style-type: none"> ■ Oracle SOA Suite ■ Oracle WebCenter ■ Oracle Business Intelligence Discoverer 	<p>When upgrading from a previous release, do not install the 11g schemas for Oracle Internet Directory or Oracle Portal.</p> <p>Instead, you associate your new Oracle Fusion Middleware middle tier with the existing 10g ODS schema (for Oracle Internet Directory) and PORTAL schema (for Oracle Portal).</p> <p>Later you use the Upgrade Assistant to upgrade the Oracle Internet Directory and Oracle Portal schemas to 11g.</p>
Oracle WebLogic Server Installer	<p>Before you can upgrade to Oracle Fusion Middleware, you must install an equivalent Oracle Fusion Middleware 11g environment. Your first step in installing your new Oracle Fusion Middleware environment is to install the Oracle WebLogic Server software on disk.</p> <p>With the Oracle WebLogic Server installer, you create a new Middleware home. Later, you use the software in the Middleware home to configure a new, custom Oracle WebLogic Server domain for your new Oracle Fusion Middleware software.</p>	<p>You can optionally install the following components in "standalone mode" without an Oracle WebLogic Server Middleware home:</p> <ul style="list-style-type: none"> ■ Oracle Internet Directory ■ Oracle Virtual Directory ■ Oracle HTTP Server ■ Oracle Web Cache <p>For standalone components, there is no need to run the Oracle WebLogic Server installer.</p>
<p>Oracle SOA Suite installation and configuration tools:</p> <ul style="list-style-type: none"> ■ Oracle SOA Suite Installer ■ Oracle SOA Suite Configuration Wizard 	<ul style="list-style-type: none"> ■ Use the installer to install the Oracle SOA Suite software inside the Middleware home you created with the Oracle WebLogic Server installer. ■ Use the configuration wizard to configure a new, specialized Oracle WebLogic Server domain and to deploy the new Oracle SOA Suite software. 	<p>You can also extend an existing Oracle WebLogic Server domain to support the Oracle SOA Suite software.</p> <p>For more information, see the <i>Oracle Fusion Middleware Installation Guide for Oracle SOA Suite</i>.</p>
<p>Oracle WebCenter installation and configuration tools:</p> <ul style="list-style-type: none"> ■ Oracle WebCenter Installer ■ WebCenter Configuration wizard 	<ul style="list-style-type: none"> ■ Use the installer to install the Oracle WebCenter software inside the Middleware home you created with the Oracle WebLogic Server installer. ■ Use the configuration wizard to configure a new, specialized Oracle WebLogic Server domain for your Oracle WebCenter software. 	<p>You can also extend an existing Oracle WebLogic Server domain to support the Oracle WebCenter software.</p> <p>For more information, see the <i>Oracle Fusion Middleware Installation Guide for Oracle WebCenter</i>.</p>

Table 2–6 (Cont.) Summary of the Tools Required When Upgrading to Oracle Fusion Middleware 11g

Upgrade Tool	Description	Notes and Considerations
Oracle Identity Management Installer	<p>Use this tool to install the Oracle Identity Management software.</p> <p>You can also use this tool to:</p> <ul style="list-style-type: none"> ■ Configure a new, specialized Oracle WebLogic Server domain to configure your Oracle Identity Management 11g components. <p>OR</p> <ul style="list-style-type: none"> ■ Configure a standalone Oracle Internet Directory instance that is not associated with an Oracle WebLogic Server domain. 	<p>During the configuration, you configure the new, 11g Oracle Internet Directory to use your existing 10g ODS schema.</p> <p>Later, you run the Upgrade Assistant to upgrade the ODS schema to 11g.</p>
Oracle Portal, Forms, Reports, and Discoverer Installer	<p>Use this tool to:</p> <ul style="list-style-type: none"> ■ Install and configure the Oracle Portal, Forms, Reports, and Discoverer 11g component software. ■ Configure a new, specialized Oracle WebLogic Server domain to support the Oracle Portal, Forms, Reports, and Discoverer 11g components. 	<p>You have the following options when installing and configuring the Oracle Portal, Forms, Reports, and Discoverer software:</p> <ul style="list-style-type: none"> ■ You can choose to install the software only and configure the domain and components later. ■ You can install the components into separate Oracle homes, or associate them with separate Oracle WebLogic Server domains.
Oracle Fusion Middleware Upgrade Assistant	<p>After you install your new Oracle Fusion Middleware components, you can use this tool to automate many of the upgrade steps for the following component software:</p> <ul style="list-style-type: none"> ■ Oracle B2B and Oracle BAM schemas ■ Oracle Portal, Forms, Reports, and Discoverer middle tiers and the Oracle Portal and Oracle BI Discoverer schemas ■ Oracle Internet Directory middle tier and (ODS) schema. ■ Oracle HTTP Server and Oracle Web Cache middle-tier configurations 	<p>Refer to the appropriate upgrade documentation for specific information on how and when to use the Oracle Fusion Middleware Upgrade Assistant as part of your overall upgrade process.</p>
Oracle JDeveloper	<p>Use this tool to automate the upgrade of Oracle SOA Suite, Oracle WebCenter, and Oracle ADF applications.</p> <p>When you open an application in Oracle JDeveloper 11g, it automatically converts specific elements of the applications so they can be compiled and deployed on Oracle Fusion Middleware 11g.</p>	<p>For more information, refer to the <i>Oracle Fusion Middleware Upgrade Guide for Oracle SOA Suite, WebCenter, and ADF</i>.</p>

Planning an Enterprise Deployment Upgrade

This chapter provides an overview of the steps required to upgrade an Oracle Application Server 10g enterprise deployment.

The information in this chapter should be considered after you review the general planning guidelines in [Chapter 1, "Developing an Upgrade Strategy"](#).

This chapter contains the following sections:

- [What Is an Enterprise Deployment?](#)
- [Recommended Procedure for Upgrading an Enterprise Deployment](#)
- [System Availability During an Enterprise Deployment Upgrade](#)

3.1 What Is an Enterprise Deployment?

An enterprise deployment typically consists of more than just the application server middle tiers, which are used to deploy your applications.

Instead, an enterprise deployment typically consists of the following:

- The databases that support the application server and Identity Management components, as well as your deployed applications.
- One or more application server installations, which consists of the middle-tier system components and the applications you develop and deploy on the application server tier.
- Identity Management installations, which provides security and directory services for the Oracle Fusion Middleware components and the applications you deploy.

For more specific information about typical enterprise deployments supported by Oracle Fusion Middleware 11g, refer to the following documentation resources:

- *Oracle Fusion Middleware Enterprise Deployment Guide for Oracle SOA Suite*
- *Oracle Fusion Middleware Enterprise Deployment Guide for Oracle WebCenter*
- *Oracle Fusion Middleware Enterprise Deployment Guide for Oracle Identity Management*

3.2 Recommended Procedure for Upgrading an Enterprise Deployment

The goal of an Oracle Fusion Middleware upgrade is to upgrade your entire enterprise to Oracle Fusion Middleware 11g.

As you plan your enterprise upgrade, the following sections describe the broad steps you will need to consider:

- [Task 1: Upgrade the Databases Where Your Metadata Repositories Are Installed](#)
- [Task 2: Upgrade Your Application Server Installations](#)
- [Task 3: Upgrade Your Identity Management Components](#)

3.2.1 Task 1: Upgrade the Databases Where Your Metadata Repositories Are Installed

Each release of Oracle Fusion Middleware has specific requirements for database features and capabilities. As a result, before you begin any upgrade, you should review the databases you are currently using and verify that they are supported by the Oracle Fusion Middleware software you are about to install.

For information on the supported database versions, as well as the guidelines and procedures for upgrading your databases, refer to [Chapter 6, "Upgrading and Preparing Your Databases"](#).

3.2.2 Task 2: Upgrade Your Application Server Installations

Upgrading the application server installations in your environment involves not only upgrading the application servers and the system components that comprise the middle tiers, but also upgrading:

- The metadata repositories that support the application server system components
- The custom applications you have deployed on the application servers
- The Web tier components (Oracle HTTP Server and Oracle Web Cache) that route requests to the middle tiers

Depending upon the types of applications you have, the order that you upgrade these elements of the application server installation will vary. For example:

- In an Oracle SOA Suite environment, you should install and configure your 11g environment first, and then upgrade your applications in Oracle JDeveloper. This allows you to set up your 11g data source and application server connections in Oracle JDeveloper before you upgrade the applications.
- In a Java EE environment, where you are not using Oracle SOA Suite, WebCenter, or Oracle ADF, you can upgrade the applications first. Then you can configure an environment with the resources and services required by each application after the applications are modified.
- In an Oracle Portal, Forms, Reports, and Discoverer environment, you must upgrade the Discoverer schema in the Metadata repository before upgrading the middle tier and upgrade the Portal schema after you upgrade middle tier.

Refer to the upgrade guide for your specific Oracle Fusion Middleware software environment for more information:

- *Oracle Fusion Middleware Upgrade Guide for Java EE*
- *Oracle Fusion Middleware Upgrade Guide for Oracle SOA Suite, WebCenter, and ADF*
- *Oracle Fusion Middleware Upgrade Guide for Oracle Portal, Forms, Reports, and Discoverer*

3.2.3 Task 3: Upgrade Your Identity Management Components

Depending upon the Oracle Identity Management components you are using in your environment, the Oracle Identity Management upgrade involves upgrading one or more of these components:

- Oracle Internet Directory
- Oracle Directory Integration Platform
- Oracle Identity Federation
- Oracle Virtual Directory

The Oracle Identity Management components can be upgraded independently of the application server installations. In many cases, a single Oracle Identity Management environment can support multiple application server installations. As a result, you might choose to upgrade all of your middle tiers first and then upgrade your Oracle Identity Management environment.

For example, if you upgrade your Oracle SOA Suite 10g Release 3 (10.1.3) components to 11g, then you can continue to use your existing Oracle Identity Management 10g components until there is an opportunity to upgrade your centralized Oracle Identity Management environment.

For more information, refer to the *Oracle Fusion Middleware Upgrade Guide for Oracle Identity Management*.

3.3 System Availability During an Enterprise Deployment Upgrade

In general, you can upgrade your Oracle Identity Management and application server environments independently. In other words, you can keep your Oracle Identity Management components up and running while you upgrade your application server installations.

However, when you start the process of upgrading your application server installations, there are specific requirements for each type of middle tier that will determine whether or not you will have any downtime during the upgrade process.

For example, when you upgrade your Oracle SOA Suite middle tiers, you must also upgrade the metadata repository that contains the Oracle SOA Suite schemas and the custom Oracle SOA Suite applications you have developed and deployed on the Oracle SOA Suite middle tier.

Understanding Version Compatibility and Interoperability

This chapter contains the following sections:

- [Obtaining the Latest Certification Information for Oracle Fusion Middleware 11g](#)
- [About Database Compatibility](#)
- [Types of Interoperability Considerations During Upgrade](#)
- [Using the Oracle Fusion Middleware Upgrade Compatibility Matrix](#)
- [Applying Patch Sets to Address Specific Upgrade Interoperability Issues](#)

4.1 Obtaining the Latest Certification Information for Oracle Fusion Middleware 11g

The information in this chapter was accurate at the time this document was published. For the very latest certification information, refer to the resources listed in the section, "System Requirements and Prerequisites" in the *Oracle Fusion Middleware Installation Planning Guide*.

4.2 About Database Compatibility

Many of the Oracle Fusion Middleware components require a database, which is used to store required component schemas. For information on the database requirements for Oracle Fusion Middleware, as well instructions for upgrading the database if necessary, see [Chapter 6, "Upgrading and Preparing Your Databases"](#).

4.3 Types of Interoperability Considerations During Upgrade

The following sections describe the types of Interoperability issues you might need to consider while upgrading your Oracle Application Server software to Oracle Fusion Middleware 11g:

- [Interoperability Between Oracle Fusion Middleware Software Suites](#)
- [Interoperability Within Oracle Fusion Middleware Software Suites](#)

4.3.1 Interoperability Between Oracle Fusion Middleware Software Suites

When you are upgrading your Oracle Application Server 10g environment to Oracle Fusion Middleware 11g, you will likely update one area of your environment at a time.

For example, you might upgrade the middle tiers in one department or organization to Oracle Fusion Middleware 11g in order to support new Oracle SOA Suite features. At the same time, you may leave your company-wide Oracle Identity Management components at Oracle Application Server 10g.

For information about the interoperability between the Oracle Fusion Middleware 11g suites and the equivalent installation types available in Oracle Application Server 10g, see [Section 4.4, "Using the Oracle Fusion Middleware Upgrade Compatibility Matrix"](#).

4.3.2 Interoperability Within Oracle Fusion Middleware Software Suites

While you are upgrading your Oracle Application Server environment to Oracle Fusion Middleware 11g, you should also consider potential interoperability issues within a specific software suite.

In most cases, these interoperability issues are temporary and occur only during the upgrade process. After you finish the complete procedure for upgrading the software suite, the issues are resolved. However, you should still be aware of these potential issues, because they can influence your upgrade planning.

[Table 4–1](#) lists some specific examples of some potential inter-suite interoperability issues that may affect your upgrade planning.

Table 4–1 Interoperability Considerations While Upgrading Specific Oracle Fusion Middleware Software Suites

Oracle Fusion Middleware Software Suite	Issue	Description	Solution
Oracle Identity Management Suite	Interoperability between Oracle Internet Directory 11g and Oracle Single Sign-On 10g	After upgrading your Oracle Internet Directory (and Oracle Directory Integration Platform) to 11g, there are some post-upgrade tasks required in order for Oracle Single Sign-On 10g to work successfully with the upgraded Oracle Internet Directory instance.	Follow the instructions for upgrading Oracle Internet Directory and Oracle Directory Integration Platform in the <i>Oracle Fusion Middleware Upgrade Guide for Oracle Identity Management</i> .
Oracle Identity Management suite	Interoperability between the Oracle Internet Directory 10g schema (ODS) and Oracle Internet Directory 11g during installation	In preparation for upgrade, you must install Oracle Internet Directory 11g against the existing Oracle Identity Management 10g schema (ODS). However, until you run the Upgrade Assistant to upgrade the ODS schema, the Oracle Internet Directory 11g instance is read-only and is not production ready.	Follow the instructions in the <i>Oracle Fusion Middleware Upgrade Guide for Oracle Identity Management</i> . In particular, refer to "Understanding the Implications of Installing Oracle Internet Directory 11g Against the Oracle Internet Directory 10g Schema" in the <i>Oracle Fusion Middleware Upgrade Guide for Oracle Identity Management</i> .

Table 4–1 (Cont.) Interoperability Considerations While Upgrading Specific Oracle Fusion Middleware Software Suites

Oracle Fusion Middleware Software Suite	Issue	Description	Solution
Oracle Portal, Forms, Reports, and Discoverer Suite	Interoperability between the Oracle Portal middle tier and the Oracle Portal schema in the Oracle Metadata Repository	<p>The order in which you install Oracle Portal 11g and upgrade the Oracle Portal component schema is important.</p> <p>Specifically, you must install Oracle Portal 11g against the Oracle Portal 10g schema.</p> <p>However, until you run the Upgrade Assistant to upgrade the PORTAL schema, the new Oracle Portal 11g environment is not operational.</p>	<p>Follow the instructions in the <i>Oracle Fusion Middleware Upgrade Guide for Oracle Portal, Forms, Reports, and Discoverer</i>.</p> <p>In particular, refer to "Task 5a: Understand the Implications of Installing Oracle Portal Against the Oracle Application Server 10g PORTAL schema" in the <i>Oracle Fusion Middleware Upgrade Guide for Oracle Portal, Forms, Reports, and Discoverer</i></p>
Oracle Portal, Forms, Reports, and Discoverer Suite	Interoperability between the Oracle BI Discoverer middle tier and the Oracle BI Discoverer schema in the Oracle Metadata Repository	<p>The order in which you install the Oracle BI Discoverer schema and upgrade the middle tier is important.</p> <p>You must install the Oracle BI Discoverer 11g schema in the database, then install the Oracle BI Discoverer 11g middle tier, and then upgrade the Oracle BI Discoverer schema.</p>	<p>Follow the instructions for upgrading the Oracle Portal, Forms, Reports, and Discoverer components in the <i>Oracle Fusion Middleware Upgrade Guide for Oracle Portal, Forms, Reports, and Discoverer</i>.</p>
Oracle SOA Suite	Interoperability between your upgraded Oracle SOA Suite applications and the client applications that depend upon them	<p>When you upgrade your Oracle SOA Suite applications to 11g, you must review your client applications and make modifications to the clients before they can interoperate with the upgraded Oracle SOA Suite applications.</p> <p>In some cases, a patch is necessary before the clients can work with Oracle SOA Suite 11g.</p>	<p>Refer to the following for more information:</p> <ul style="list-style-type: none"> ▪ "Upgrading Oracle SOA Suite Client Applications" in the <i>Oracle Fusion Middleware Upgrade Guide for Oracle SOA Suite, WebCenter, and ADF</i>. ▪ Section 4.5, "Applying Patch Sets to Address Specific Upgrade Interoperability Issues"

4.4 Using the Oracle Fusion Middleware Upgrade Compatibility Matrix

The following sections describe the Oracle Fusion Middleware compatibility matrix, which you can use to determine some of the more common upgrade-related interoperability and compatibility issues:

- [How to Use the Compatibility Matrix](#)
- [Understanding the Compatibility Matrix](#)
- [About Oracle HTTP Server Interoperability During Upgrade](#)

- [About Oracle Identity Management Interoperability During Upgrade](#)

4.4.1 How to Use the Compatibility Matrix

The Oracle Fusion Middleware compatibility matrix can help you plan your upgrade to Oracle Fusion Middleware 11g.

For example, if you want to upgrade a 10g (10.1.4) Identity Management instance to Oracle Fusion Middleware 11g, then you can use the compatibility matrix as follows:

1. Locate the column in [Table 4–2](#) that represents Oracle Identity Management 11g.
2. Locate the row that represents the type and of Oracle homes you are currently running in Oracle Application Server 10g.

For example, if you are running Oracle Portal in a 10g Release 2 (10.1.2) Oracle home, locate the **11g Portal, Forms, Reports, and Discoverer** row of the table.

The **11g Identity Management** column of that row indicates that you should refer to the *Oracle Fusion Middleware Upgrade Guide for Oracle Portal, Forms, Reports, and Discoverer* for more information about using Oracle Portal with Oracle Identity Management 11g.

The Oracle Fusion Middleware 11g compatibility matrix is shown in [Table 4–2](#).

Table 4–2 Oracle Fusion Middleware 11g Compatibility Matrix

	Identity Management 11g Release 1 (11.1.1)	Portal, Forms, Reports, and Discoverer 11g Release 1 (11.1.1)	SOA, WebCenter, and ADF 11g Release 1 (11.1.1)	Java EE Application Deployments 11g Release 1 (11.1.1)	Oracle HTTP Server and Web Cache (Web Tier) 11g Release 1 (11.1.1)
10g Identity Management	Refer to the <i>Oracle Fusion Middleware Upgrade Guide for Oracle Identity Management</i> .	Supported	Supported	Supported	Not Supported
10g Portal, Forms, Reports, and Discoverer	Refer to the Section 4.4.4, "About Oracle Identity Management Interoperability During Upgrade" .	Refer to the <i>Oracle Fusion Middleware Upgrade Guide for Oracle Portal, Forms, Reports, and Discoverer</i> .	N/A.	N/A	Not Supported

Table 4–2 (Cont.) Oracle Fusion Middleware 11g Compatibility Matrix

	Identity Management 11g Release 1 (11.1.1)	Portal, Forms, Reports, and Discoverer 11g Release 1 (11.1.1)	SOA, WebCenter, and ADF 11g Release 1 (11.1.1)	Java EE Application Deployments 11g Release 1 (11.1.1)	Oracle HTTP Server and Web Cache (Web Tier) 11g Release 1 (11.1.1)
10g SOA, WebCenter, and ADF	Supported	N/A	Refer to the <i>Oracle Fusion Middleware Upgrade Guide for Oracle SOA Suite, WebCenter, and ADF</i> .	N/A	Not Supported
10g Java EE Application Deployments	Supported	N/A	N/A	Refer to the <i>Oracle Fusion Middleware Upgrade Guide for Java EE</i> .	Not Supported
10g Oracle HTTP Server and Web Cache	Refer to the <i>Oracle Fusion Middleware Upgrade Guide for Oracle Identity Management</i> .	Not Supported	Refer to Section 4.4.3, "About Oracle HTTP Server Interoperability During Upgrade"	Refer to Section 4.4.3, "About Oracle HTTP Server Interoperability During Upgrade"	N/A

4.4.2 Understanding the Compatibility Matrix

When you use the compatibility matrix ([Table 4–2](#)), the level of support can be defined in one of the following ways:

- **Supported** - This means there are no known issues with using these two components together.

For example, your SOA, WebCenter, and ADF applications can be use Oracle Application Server 10g Identity Management components with no restrictions. Similarly, you can associate a new 11g SOA, WebCenter, or ADF environment with an existing 10g Identity Management installation.
- **Not Supported** - This means that Oracle does not support the interoperability between these two installations.

For example, if you upgrade your Web tier (Oracle HTTP Server or Oracle Web Cache), you must upgrade the Oracle Fusion Middleware component to which the Web tier is routing requests.
- **A reference to a specific Upgrade guide or section** - This reference is provided when the individual upgrade guide provides more detailed information about the compatibility requirements and issues that you should consider when upgrading to Oracle Fusion Middleware 11g.

For example, refer to the *Oracle Fusion Middleware Upgrade Guide for Oracle Identity Management* for specific information about the interoperability of Oracle Application Server 10g Identity Management components with the Identity Management 11g components.
- **N/A** - Not Applicable.

For example, there is normally no communication or interactivity between custom Java EE Applications and Oracle Portal, Forms, Reports, and Discoverer installations.

4.4.3 About Oracle HTTP Server Interoperability During Upgrade

The following sections describe the upgrade-related interoperability capabilities and limitations of Oracle HTTP Server 10g and Oracle HTTP Server 11g:

- [Limited Support for Oracle HTTP Server 10g with Oracle WebLogic Server](#)
- [No Support for Oracle HTTP Server 11g with OC4J 10g](#)

4.4.3.1 Limited Support for Oracle HTTP Server 10g with Oracle WebLogic Server

Two different versions of Oracle HTTP Server were available with the Oracle Application Server 10g Release 2 (10.1.2) and 10g Release 3 (10.1.3):

- The integrated Oracle HTTP Server, which was installed and configured automatically with the 10g Release 2 (10.1.2) and 10g Release 3 (10.1.3) components by Oracle Universal Installer. This integrated version of the Oracle HTTP Server was based on Apache 1.3.
- The standalone, separately-installed Oracle HTTP Server, which was available on the 10g Release 2 (10.1.2) and 10g Release 3 (10.1.3) Companion CD-ROM. This standalone version of Oracle HTTP Server was based on Apache 2.0.

The interoperability capabilities and restrictions for the integrated Oracle HTTP Server and the standalone Oracle HTTP Server are different:

- The integrated Oracle HTTP Server for 10g Release 2 (10.1.2) and 10g Release 3 (10.1.3) is based on Apache 1.3 and currently is not certified for use with Oracle WebLogic Server for Oracle Fusion Middleware 11g.

As a result, you cannot configure the integrated Oracle HTTP Server to route requests to Oracle WebLogic Server 11g.

- The standalone Oracle HTTP Server is based on Apache 2.0, which is certified with Oracle WebLogic Server 11g.

As a result, you can configure the standalone Oracle HTTP Server to route requests to Oracle WebLogic Server by following the same instructions as you would for Apache 2.0.

For more information, see *Oracle Fusion Middleware Using Web Server Plug-Ins with Oracle WebLogic Server*.

4.4.3.2 No Support for Oracle HTTP Server 11g with OC4J 10g

Oracle HTTP Server 11g is not supported with OC4J 10g. This is because the required `mod_oc4j` module is not compatible with Oracle HTTP Server 11g.

As a result, do not upgrade your Oracle HTTP Server instances to 11g until after you have upgraded your OC4J 10g instances to 11g.

4.4.4 About Oracle Identity Management Interoperability During Upgrade

Some of the components in Oracle Application Server 10g Release 2 (10.1.2) depend upon specific Oracle Identity Management 10g components. As a result, you should consider the following when you upgrade Oracle Identity Management or Oracle Portal, Forms, Reports, and Discoverer to Oracle Fusion Middleware 11g:

- If you upgrade the Oracle Portal, Forms, Reports, and Discoverer middle-tier components to 11g before you upgrade the associated Oracle Identity Management components, then there are no known interoperability restrictions.
- If you upgrade the Oracle Identity Management components to 11g before you upgrade the Oracle Portal, Forms, Reports, and Discoverer components, then the only restriction to consider is when the Oracle Identity Management 10g components are in a colocated Oracle home.

A colocated Oracle Identity Management 10g Oracle home contains all four of the primary Oracle Identity Management 10g components (Oracle Internet Directory, Oracle Directory Integration Platform, Oracle Single Sign-On, and Oracle Delegated Administration Services). However, you can upgrade only Oracle Internet Directory and Oracle Directory Integration Platform to 11g.

As a result, after you upgrade Oracle Internet Directory and Oracle Directory Integration Platform to a new 11g Oracle instance, you must then decommission the Oracle Internet Directory and Oracle Directory Integration Platform instances in the 10g Oracle home.

For complete information about the required post-upgrade tasks for Oracle Internet Directory and Oracle Directory Integration Platform, see "Upgrading Your Oracle Internet Directory Environment" in the *Oracle Fusion Middleware Upgrade Guide for Oracle Identity Management*.

4.5 Applying Patch Sets to Address Specific Upgrade Interoperability Issues

In general, Oracle assumes that you are running the latest Oracle Application Server 10g patch sets before you begin the upgrade to Oracle Fusion Middleware 11g.

In addition, in some specific cases, you must apply an additional software patches to your Oracle Application Server 10g components before you start the upgrade process. These patches are designed to address specific interoperability issues that you might encounter while upgrading your Oracle Application Server 10g environment to Oracle Fusion Middleware 11g.

For example:

- Before you export your Oracle B2B data in preparation for upgrading the Oracle B2B schema from 10g to 11g, you must apply a patch to the Oracle B2B environment.
- Before you upgrade your Oracle Business Activity Monitoring schema to 11g, you must apply a patch to the database that contains the Oracle BAM 10g schemas.
- Before your Oracle BPEL Process Manager client applications that are still running in an Oracle Application Server 10g environment can invoke Oracle BPEL Process Manager 11g processes, you must apply a patch set to the Oracle Application Server 10g Oracle home.

Refer to the *Oracle Fusion Middleware Release Notes* for specific information about required patch sets that address specific interoperability and compatibility issues that surface during upgrade. The release notes for each release are available on the Oracle Technology Network (OTN):

<http://www.oracle.com/technology/documentation/>

Backup Strategies for Upgrade

Before you start the upgrade process, you should have a clear understanding of the backup requirements. These requirements vary somewhat, depending upon whether you are upgrading a middle tier, an MDS Repository, or Oracle Identity Management Oracle home.

The following sections provide more information:

- [Backup Strategies for Middle Tier Upgrades](#)
- [Backup Strategies for Metadata Repository Upgrades](#)
- [Backup Strategies for Identity Management Upgrades](#)

5.1 Backup Strategies for Middle Tier Upgrades

When you upgrade a middle tier installation, you install the Oracle Fusion Middleware 11g Release 1 (11.1.1) Oracle Application Server Suite, Oracle SOA Suite, or Oracle WebCenter Suite into a new Oracle home directory and then use the Oracle Fusion Middleware Upgrade Assistant to copy your configuration data from the original Oracle Application Server 10g source Oracle home to the new Oracle Fusion Middleware 11g directories.

The upgrade process alters only the 11g Release 1 (11.1.1) destination directories; the source Oracle home is always left unchanged. As a result, there is no need to implement additional or new backup strategies for the source Oracle home, other than those you already use to protect your application server data.

On the other hand, you may want to create a backup of the new 11g Release 1 (11.1.1) destination middle-tier environment before you run the Upgrade Assistant. This backup will allow you to restore to a pre-upgrade (that is, newly installed) state. Restoring from backups is an efficient alternative to reinstalling the entire instance, in the event that upgrade results are unsatisfactory.

A useful 11g Release 1 (11.1.1) backup would include both the Oracle home and any Oracle instances created during or after the 11g Release 1 (11.1.1) installation. You can use the Oracle Fusion Middleware Backup and Recovery software to perform this backup.

For more information, see the *Oracle Fusion Middleware Administrator's Guide* for instructions on backing up and restoring your Oracle Fusion Middleware environment.

5.2 Backup Strategies for Metadata Repository Upgrades

In most cases, when you upgrade the metadata repository, you must first upgrade the database that hosts the repository to a database version supported by Oracle Fusion Middleware 11g Release 1 (11.1.1).

For more information, see [Chapter 6, "Upgrading and Preparing Your Databases"](#).

The following sections provide additional information:

- [Backing Up the Database Before Upgrading the Database Version](#)
- [Backing Up the Database Before Upgrading the Schemas in the OracleAS Metadata Repository](#)
- [Locating the Oracle Database Backup Documentation](#)

5.2.1 Backing Up the Database Before Upgrading the Database Version

As with any database upgrade, standard procedure dictates that you back up your database before you upgrade to a new database version.

Note that you should also consider backing up the database again, after you have successfully upgraded to a new database version. This way, your backup will reflect the newly upgraded state of the database.

For more information, see the Oracle Database documentation for your platform and database version.

5.2.2 Backing Up the Database Before Upgrading the Schemas in the OracleAS Metadata Repository

Depending upon the Oracle Application Server components you are upgrading, you should be sure to perform a backup of the database before upgrading the component schemas stored in the database.

For some components, the schema upgrade is performed "in-place," which means that the Upgrade Assistant alters the component schemas that exist in the database. It does not create a new copy of the schemas or the data they contain. In an "in-place" upgrade, the schema changes made by the Upgrade Assistant are irreversible.

For example, the Oracle Portal schema upgrade and the Oracle Internet Directory schema upgrade are in-place upgrades. The Oracle BI Discoverer, Oracle BAM, and Oracle B2B schemas are not.

Before you run the Upgrade Assistant to perform an "in-place" upgrade of the component schemas in the database, you should perform a backup of the database that contains the schemas. This backup will allow you to restore your database to its original state if necessary.

5.2.3 Locating the Oracle Database Backup Documentation

The Oracle database documentation library contains extensive information about database backup features, strategies, and procedures. Refer the documentation library for your database version for more information.

For example:

- If you are using Oracle Database 10g Release 2 (10.2), then see the *Oracle Database Backup and Recovery Quick Start Guide* in the Oracle Database 10g Release 2 (10.2) documentation library.

- If you are using Oracle Database 11g, then see the *Oracle Database Backup and Recovery User's Guide* in the Oracle Database 11g documentation library.

The Oracle Database documentation libraries are available on the Oracle Technology Network (OTN):

<http://www.oracle.com/technology/documentation/>

5.3 Backup Strategies for Identity Management Upgrades

When you upgrade an Oracle Identity Management installation, you install the Oracle Identity and Access Management Suite into new Oracle home and Oracle instance directories. You then use the Oracle Fusion Middleware Upgrade Assistant to perform two distinct tasks:

1. Copy your configuration data from the Oracle Identity Management source Oracle home to the new 11g Release 1 (11.1.1) Oracle Identity Management destination directories.
2. Upgrade the Oracle Identity Management schemas in the MDS Repository

Refer to the following backup and recovery recommendations when upgrading an Oracle Identity Management installation:

- [Backup Strategies for the Oracle Identity Management Middle Tier](#)
- [Backup Strategies for the Oracle Identity Management Schemas](#)
- [Additional Backup Strategies When Upgrading Oracle Identity Management](#)

5.3.1 Backup Strategies for the Oracle Identity Management Middle Tier

During the first part of the upgrade process, the Upgrade Assistant alters only the 11g Release 1 (11.1.1) directories; the source Oracle Identity Management Oracle home is left unchanged. As a result, there is no need to implement additional or new backup strategies for the source Oracle home, other than those you already use to protect your application server data.

5.3.2 Backup Strategies for the Oracle Identity Management Schemas

During the second part of the upgrade process, the Upgrade Assistant upgrades the Oracle Identity Management schemas to 11g Release 1 (11.1.1). This upgrade of the schemas is performed "in place," which means that the Upgrade Assistant alters the Oracle Identity Management schemas that exist in the database. It does not create a new copy of the schemas or the data they contain. The schema changes made by the Upgrade Assistant are irreversible.

As a result, before you run the Upgrade Assistant to upgrade the schemas in the OracleAS Metadata Repository, you should perform a backup of the database that contains the schemas. This backup will allow you to restore your database to its original state before you ran the Upgrade Assistant.

See Also: *Oracle Fusion Middleware Administrator's Guide* for information about procedures and tools for backing up and recovering your Oracle Fusion Middleware installations

Oracle Database Backup and Recovery Basics in the Oracle Database documentation library for information and guidelines for backing up your Oracle database

5.3.3 Additional Backup Strategies When Upgrading Oracle Identity Management

Immediately after you complete the installation of the Oracle Identity and Access Management Suite, and before you run the Oracle Fusion Middleware Upgrade Assistant, you may want to create a backup of the newly installed 11g Release 1 (11.1.1) destination middle-tier environment. This backup will allow you to restore to a pre-upgrade (that is, newly installed) state. Restoring from backups is an efficient alternative to reinstalling the entire instance, in the event that upgrade results are unsatisfactory.

A useful 11g Release 1 (11.1.1) backup would include both the Oracle home and any Oracle instances created during or after the 11g Release 1 (11.1.1) installation. You can use the Oracle Fusion Middleware Backup and Recovery software to perform this backup.

See Also: *Oracle Fusion Middleware Administrator's Guide* for instructions on backing up and restoring your Oracle Fusion Middleware environment

5.4 Backup Strategies After Upgrading Your Oracle Application Server Instances

After you have completed and verified the upgrade of your Oracle Fusion Middleware environment, consider backing up your Oracle Fusion Middleware 11g Release 1 (11.1.1) installations so you can easily restore your environment to the newly upgraded state.

In particular, consider backing up the database that hosts your upgraded Oracle Fusion Middleware schemas immediately after the upgrade process. After this initial post-upgrade backup, you can begin your regularly scheduled database backup routine. The initial backup after the upgrade will ensure that you can restore your environment to the newly upgraded 11g Release 1 (11.1.1) state without repeating the upgrade process.

In addition, after you have moved your development or deployment activities to the newly upgraded Oracle Fusion Middleware installations, be sure to modify your regular backup routine to include the new Oracle Fusion Middleware directories, including the Oracle Fusion Middleware Oracle home directories and Oracle instance directories.

Upgrading and Preparing Your Databases

This chapter contains the following sections:

- [Task 1: Review the Oracle Fusion Middleware Metadata Repository Database Requirements](#)
- [Task 2: Determine Your Current Database Version](#)
- [Task 3: Upgrade the Database to a Version Supported by Oracle Fusion Middleware 11g](#)
- [Task 4: Check for Invalid Objects in the Upgraded Database](#)
- [Task 5: Relocate the Database Datafiles, Control Files, and Log Files](#)
- [Task 6: Determine Whether Any Additional Database Patches Are Required for Upgrade to Oracle Fusion Middleware 11g](#)

6.1 Task 1: Review the Oracle Fusion Middleware Metadata Repository Database Requirements

The following sections contain information about supported database versions for Oracle Fusion Middleware Oracle Spatial GeoRaster component schemas:

- [Summary of the Database Requirements for Oracle Fusion Middleware 11g Release 1 \(11.1.1\)](#)
- [Obtaining the Latest Oracle Application Server Database Requirements](#)

6.1.1 Summary of the Database Requirements for Oracle Fusion Middleware 11g Release 1 (11.1.1)

You can use the following database versions with Oracle Fusion Middleware 11g Release 1 (11.1.1):

- Oracle Database 10g Release 2 (10.2.0.4)
- Oracle Database 11g Release 1 (11.1.0.7)

6.1.2 Obtaining the Latest Oracle Application Server Database Requirements

The Oracle Fusion Middleware 11g software requirements included in this guide were accurate at the time this manual was published.

For links to the most up-to-date information about software requirements, including the database versions required for Oracle Fusion Middleware 11g, refer to "System

Requirements and Prerequisites" in the *Oracle Fusion Middleware Installation Planning Guide*.

6.2 Task 2: Determine Your Current Database Version

To determine the version of your Oracle database, query the `PRODUCT_COMPONENT_VERSION` view, as follows:

```
prompt> sqlplus "sys/password as sysdba"  
SQL> SELECT version FROM v$instance;
```

In this example, replace *password* with the password for the SYS database user.

6.3 Task 3: Upgrade the Database to a Version Supported by Oracle Fusion Middleware 11g

The following sections summarize the steps required to upgrade your database to a version supported by Oracle Fusion Middleware 11g:

- [Installing the Oracle Text Database Option \(Required for Oracle Portal\)](#)
- [Upgrading to Oracle Database 10g Release 2 \(10.2.0.4\)](#)
- [Upgrading to Oracle Database 11g Release 1 \(11.1.0.7\)](#)

6.3.1 Installing the Oracle Text Database Option (Required for Oracle Portal)

When you upgrade your database to a supported version for Oracle Fusion Middleware 11g, note that if you are using Oracle Portal, then you must be sure that the Oracle Text database option is installed and configured as part of the database upgrade process.

Specifically:

- If you are upgrading to Oracle Database 10g Release 2 (10.2.0.4), then you must install the Oracle Text option from the Oracle Database Companion CD-ROM after you install 10g Release 2 (10.2.0.1) and before you apply the Oracle Database 10g Release 2 (10.2.0.4) patch set.

For more information, refer to the Oracle Database 10g installation documentation.

- If you are upgrading to Oracle Database 11g (11.1.0.7), then you must install Oracle Text from the Oracle Database Example CD-ROM after you install Oracle Database 11g (11.1.0.1) and before you apply the Oracle Database 11g (11.1.0.7) patch set.

For more information, refer to the Oracle Database 11g installation documentation.

6.3.2 Upgrading to Oracle Database 10g Release 2 (10.2.0.4)

For complete instructions for upgrading to Oracle Database 10g Release 2 (10.2.0.4), refer to the *Oracle Database Upgrade Guide* in the Oracle Database 10g Release 2 (10.2.0.4) documentation library on the Oracle Technology Network (OTN):

<http://www.oracle.com/technology/documentation/database10gR2.html>

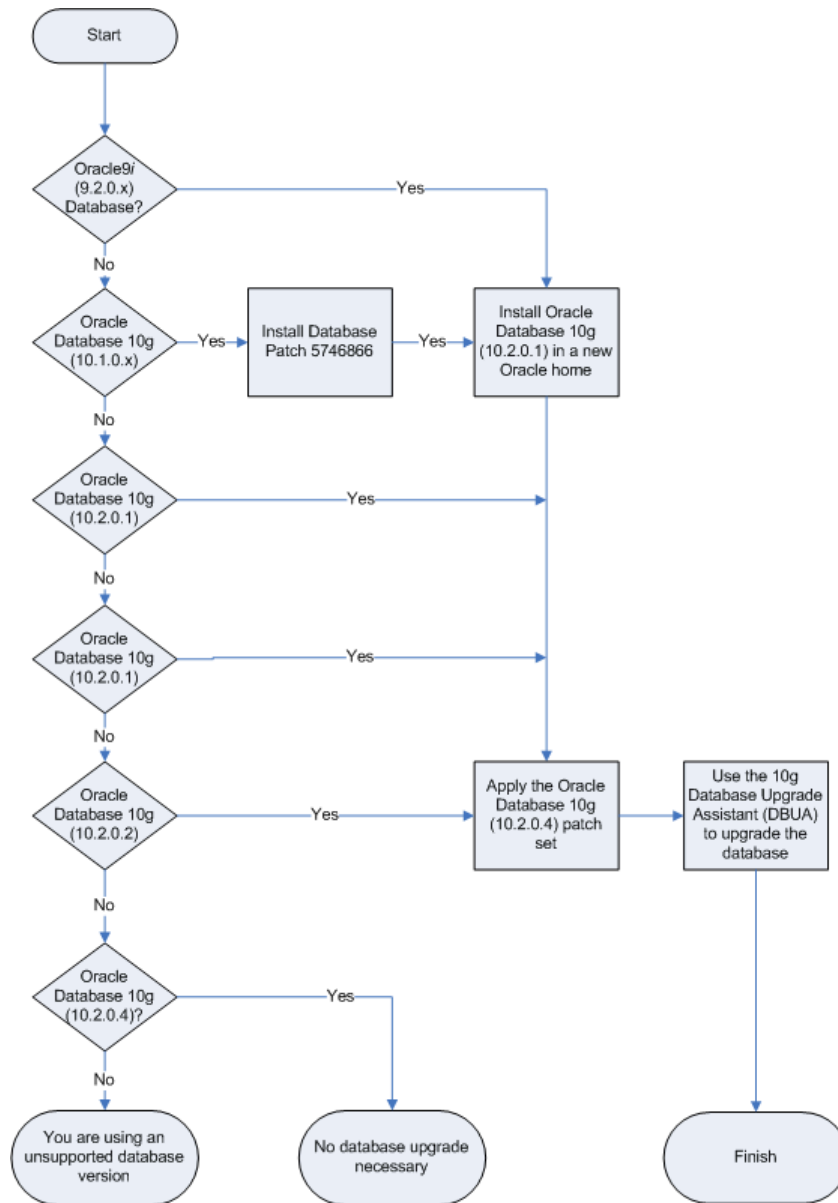
In particular, refer to the section, "Determine the Upgrade Path to the New Oracle Database 10g Release" in the Oracle Database 10g Release 2 (10.2.0.4) *Oracle Database Upgrade Guide* for specific information about upgrading from any supported Oracle Database version.

For the purposes of this guide, [Figure 6–1](#) provides a summary of the steps you will likely have to take to upgrade to Oracle Database 10g Release 2 (10.2.0.4).

Note: Patch 5126270 is required before you begin the upgrade process; otherwise, the Database Upgrade Assistant may fail during the database upgrade. To obtain this patch, log in to My Oracle Support (formerly OracleMetaLink), click Patches and Updates, and search for patch 5126270:

<http://metalink.oracle.com/>

Figure 6–1 Typical Upgrade Path to Oracle Database 10g Release 2 (10.2.0.4)



6.3.3 Upgrading to Oracle Database 11g Release 1 (11.1.0.7)

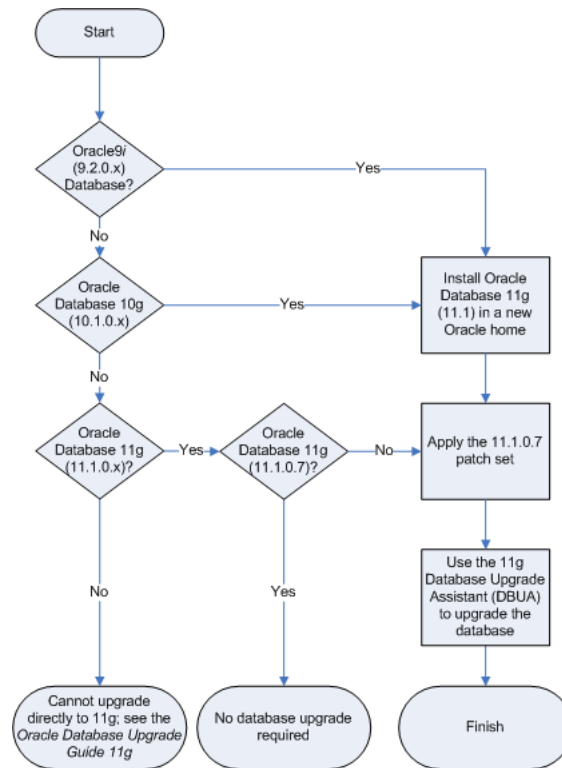
For complete instructions for upgrading to Oracle Database 11g Release 1 (11.1.0.7), refer to the *Oracle Database Upgrade Guide* in the Oracle Database 11g Release 1 (11.1.0.7) documentation library on the Oracle Technology Network (OTN):

<http://www.oracle.com/technology/documentation/>

In particular, refer to the section, "Determine the Upgrade Path" in the Oracle Database 11g Release 1 (11.1.0.7) *Oracle Database Upgrade Guide* for specific information about upgrading from any supported Oracle Database version.

For the purposes of this guide, [Figure 6–1](#) provides a summary of the steps you will likely have to take to upgrade to Oracle Database 11g Release 1 (11.1.0.7).

Figure 6–2 Typical Upgrade Path to Oracle Database 11g Release 1 (11.1.0.7)



6.4 Task 4: Check for Invalid Objects in the Upgraded Database

Before you upgrade the schemas in your database, it is good practice to check to make sure that none of the database objects required by Oracle Fusion Middleware are invalid:

1. Connect to the OracleAS Metadata Repository database.

For example:

```
ORACLE_HOME/bin/sqlplus "connect / as sysdba"
```

2. When prompted, enter the SYS password.
3. Issue the following SQL command:

```
SELECT owner, object_type, object_name
```

```
FROM all_objects  
WHERE status='INVALID';
```

The query should not return any database objects that have an Oracle Application Server component schema (such as PORTAL, WIRELESS, and so on) in the 'owner' column.

If you find any invalid objects, run the `utlrbp.sql` script from the SQL*Plus command line to recompile the invalid objects:

```
@?/rdms/admin/utlrbp.sql
```

For more information about invalid objects, see "About Dependencies Among Schema Objects" in the *Oracle Database Administrator's Guide*.

6.5 Task 5: Relocate the Database Datafiles, Control Files, and Log Files

By default, after you upgrade your database, the datafiles, control files, and log files associated with the database remain in their original location. For example, if you previously used Oracle Application Server 10g installer to upgrade a Metadata Repository seed database, the datafiles for the Metadata Repository database remain in the source Oracle home.

As a result, Oracle recommends that if you have not done so already, you relocate these files as a safeguard against inadvertently deleting them (for example, by deleting or decommissioning the entire source Oracle home directory tree). In addition, there may be performance benefits to moving the database files outside of the source Oracle home.

For more information, refer to "Renaming and Relocating Datafiles" in the *Oracle Database Administrator's Guide*. The documentation library for your version of the Oracle Database can be found on the Oracle Technology Network (OTN):

<http://www.oracle.com/technology/documentation/>

6.6 Task 6: Determine Whether Any Additional Database Patches Are Required for Upgrade to Oracle Fusion Middleware 11g

Potential interoperability and upgrade issues can be avoided by making sure you have applied the latest Oracle Application Server 10g patch sets, and that you have reviewed the list of recommended patches that are designed to help you avoid any problems during upgrade.

For more information, see [Section 4.5, "Applying Patch Sets to Address Specific Upgrade Interoperability Issues"](#).

Refer to the *Oracle Fusion Middleware Release Notes* for specific information about required patches that address specific interoperability and compatibility issues that surface during upgrade. The release notes for each release are available on the Oracle Technology Network (OTN):

<http://www.oracle.com/technology/documentation/>

A

Using the Upgrade Assistant Command-Line Interface

This chapter describes how to run the Oracle Fusion Middleware Upgrade Assistant from the command-line interface.

By default, the upgrade documentation describes how to use the graphical user interface to upgrade your Oracle Application Server 10g components to Oracle Fusion Middleware 11g. However, you can use the command-line interface, documented in this appendix, to automate the upgrade process with operating system scripts or to run the Upgrade Assistant remotely in a terminal window.

This chapter contains the following sections:

- [Invoking the Graphical User Interface](#)
- [Getting Help on the Upgrade Assistant Command-Line Options](#)
- [Using the Upgrade Assistant Command Line to Upgrade a Middle Tier](#)
- [Using the Upgrade Assistant Command Line to Upgrade the Oracle SOA Suite Schemas](#)
- [Using the Upgrade Assistant Command Line to Upgrade the Oracle Portal and Oracle BI Discoverer Schemas](#)
- [Using the Upgrade Assistant Command Line to Upgrade Oracle Identity Management](#)
- [Using the Upgrade Assistant Command Line to Verify an Upgraded Environment](#)

A.1 Invoking the Graphical User Interface

The following arguments can be used when you launch the Upgrade Assistant graphical user interface:

On Windows systems:

```
ORACLE_HOME\bin\ua.bat  
[-logLevel log_level]
```

On UNIX systems:

```
ORACLE_HOME/bin/ua  
[-logLevel log_level]  
[-invPtrLoc inventory_location]
```

Refer to [Table A-1](#) for a description of the command line arguments available when you are invoking the Upgrade Assistant graphical user interface (GUI).

Table A-1 Summary of the Upgrade Assistant Command-Line Arguments When Launching the Graphical User Interface

Argument	Description
<code>-logLevel <i>log_level</i></code>	Replace <i>log_level</i> with one of the following values: <ul style="list-style-type: none"> ▪ NOTIFICATION ▪ WARNING ▪ ERROR ▪ INCIDENT_ERROR ▪ TRACE The default setting if you do not provide this argument is NOTIFICATION.
<code>-invPtrLoc <i>inventory_location</i></code>	On UNIX systems, you can use this argument if you have multiple Oracle inventory files on the host. For more information, see Section B.1.7, "Starting the Upgrade Assistant on UNIX Systems When Using Multiple Oracle Universal Installer Inventory Locations" .

A.2 Getting Help on the Upgrade Assistant Command-Line Options

At any time, you can use the following command to display a list of the options available from the Upgrade Assistant command line:

- On Windows systems:
`ORACLE_HOME\bin\ua.bat -help`
- On UNIX systems:
`ORACLE_HOME/bin/ua -help`

A.3 Using the Upgrade Assistant Command Line to Upgrade a Middle Tier

To use the Upgrade Assistant command line to upgrade a middle tier, enter the following command at the operating system prompt.

For example, you can use the arguments described here to upgrade an Oracle Portal, Forms, Reports, and Discoverer middle tier or a Web tier middle tier:

- On Windows systems:

```
ORACLE_HOME\bin\ua.bat MT
  -sourceHome SOURCE_ORACLE_HOME
  -destInstanceHome ORACLE_INSTANCE
  [-logLevel log_level]
  [-[no]verbose]
  [-[no]silent]
  [-[no]retainPorts]
  [-[no]stopComponents]
  [-[no]startComponents]
  [-wlsHost wls_host]
  [-wlsPort wls_port]
  [-wlsUserName wls_user]
```
- On UNIX systems:

```

ORACLE_HOME/bin/ua MT
-sourceHome SOURCE_ORACLE_HOME
-destInstanceHome ORACLE_INSTANCE
[-logLevel log_level]
[-[no]verbose]
[-[no]silent]
[-[no]retainPorts]
[-[no]stopComponents]
[-[no]startComponents]
[-wlsHost wls_host]
[-wlsPort wls_port]
[-wlsUserName wls_user]
[-invPtrLoc inventory_location]

```

Note: The wls (Oracle WebLogic Server) options are not supported when you are running the Upgrade Assistant from a Web Tier Oracle home.

Refer to [Table A-2](#) for a description of the command line arguments available when you are upgrading a middle tier.

Table A-2 Summary of the Upgrade Assistant Command-Line Arguments When Upgrading a Middle Tier

Argument	Description
-sourcehome SOURCE_ORACLE_HOME	Replace SOURCE_ORACLE_HOME with the full path to the Oracle Application Server 10g Oracle home that you want to upgrade. This is a required argument for middle-tier upgrades.
-destInstanceHome ORACLE_INSTANCE	Replace ORACLE_INSTANCE with the full path to the newly installed Oracle Fusion Middleware 11g Oracle instance. This is a required argument for middle-tier upgrades.
-logLevel log_level	Replace log_level with one of the following values: <ul style="list-style-type: none"> ■ NOTIFICATION ■ WARNING ■ ERROR ■ INCIDENT_ERROR ■ TRACE The default setting if you do not provide this argument is NOTIFICATION.
[-no]verbose	Use this argument to output detailed information to the screen when you are running the Upgrade Assistant in command-line mode. Use -noverbose to limit the amount of detail displayed on the screen. The default setting if you do not include this argument is -noverbose.
[-no]silent	Use this argument to turn off prompts and user confirmations during the upgrade. The default setting if you do not specify this argument is -nosilent. The Upgrade Assistant will prompt only for passwords.

Table A–2 (Cont.) Summary of the Upgrade Assistant Command-Line Arguments When Upgrading a Middle Tier

Argument	Description
-[no]retainPorts	<p>Select this option to retain the port numbers used by the source middle tiers.</p> <p>The default setting is <code>-retainPorts</code>.</p> <p>Note: Be sure to refer to "Important Notes When Using the Source Oracle Home Ports in the Destination Oracle Instance" in <i>Oracle Fusion Middleware Upgrade Guide for Oracle Portal, Forms, Reports, and Discoverer</i>.</p>
-[no]stopComponents	<p>Use this argument to stop all the components in the Source Oracle home before the upgrade process begins.</p> <p>The default setting is <code>-stopComponents</code>.</p> <p>Stopping the source components is necessary to avoid any port conflicts when you select the Use source Oracle home ports in destination option in the GUI or the <code>-retainPorts</code> command-line argument.</p>
-[no]startComponents	<p>If you select this option, then Upgrade Assistant will attempt to start the 11g Oracle instance immediately after the upgrade. To start the components manually after the upgrade, use the <code>-nostartComponents</code> argument.</p> <p>The default setting is <code>-startComponents</code>.</p>
wls_host <i>wls_host</i> wls_port <i>wls_port</i> wls_user <i>wls_user</i>	<p>Use these arguments to provide the host, port, and user name of the Administration Server in the destination Oracle WebLogic Server domain.</p> <p>For example, the port and user name are usually 7001 and <code>weblogic</code>, respectively.</p> <p>These settings default to the values associated with the specified Oracle Fusion Middleware 11g Oracle instance.</p> <p>Note that these arguments are not required or supported when you are upgrading a Web tier Oracle home.</p>
-invPtrLoc <i>inventory_location</i>	<p>On UNIX systems, you can use this argument if you have multiple Oracle inventory files on the host.</p> <p>For more information, see Section B.1.7, "Starting the Upgrade Assistant on UNIX Systems When Using Multiple Oracle Universal Installer Inventory Locations".</p>

A.4 Using the Upgrade Assistant Command Line to Upgrade the Oracle SOA Suite Schemas

The following sections describe how to use the Upgrade Assistant command line to upgrade the Oracle SOA Suite schemas:

- [Using the Command Line to Upgrade the Oracle B2B Schema](#)
- [Using the Command Line to Upgrade the Oracle Business Activity Monitoring Schema](#)

A.4.1 Using the Command Line to Upgrade the Oracle B2B Schema

To use the Upgrade Assistant command line to upgrade the Oracle B2B schema, enter the following command at the operating system prompt:

- On Windows systems:

```
ORACLE_HOME\bin\ua.bat B2B
-targetURL target_database_connect_string
-targetUserName target_database_user
-[no]ErrorMode
-[no]CheckMode
-[no]UpgradeMode
```

- On UNIX systems:

```
ORACLE_HOME/bin/ua B2B
-targetURL target_database_connect_string
-targetUserName target_database_user
-[no]ErrorMode
-[no]CheckMode
-[no]UpgradeMode
```

Table A-3 provides information about the Oracle B2B schema upgrade command-line upgrade options. Table A-4 provides a description of the command-line arguments common to all Oracle SOA Suite and Oracle Portal, Forms, Reports, and Discoverer schema upgrades.

Table A-3 Summary of the Upgrade Assistant Command-Line Arguments When Upgrading the Oracle B2B Schema

Argument	Description
-targetURL <i>target_database_connect_string</i>	<p>Enter the database connection string for the target database:</p> <ul style="list-style-type: none"> ■ The target database is the database base where the Oracle B2B 11g schema resides. ■ The connection string identifies the host, port, and system identifier (SID) of the target database: host:port:SID For example: dbhost2:1521:schemaDB2 <p>This is a required argument.</p>
-targetUserName <i>target_database_user</i>	<p>Enter the database user name that will be used to connect to the target database. For example, <i>SYS</i>.</p> <p>This is a required argument.</p>

Table A-4 Upgrade Assistant Command-Line Arguments Common to All Schema Upgrades

Argument	Description
-[no]ErrorMode	<p>Use this argument to control whether or not the schema upgrade process stops on the first occurrence of any type of error condition.</p> <p>The default is noErrorMode.</p>

Table A-4 (Cont.) Upgrade Assistant Command-Line Arguments Common to All Schema Upgrades

Argument	Description
-[no]CheckMode	Use this argument to control whether or not the Upgrade Assistant performs the examination phase of the upgrade. The default is CheckMode.
-[no]UpgradeMode	Use this argument to control whether or not the Upgrade Assistant actually performs the upgrade after performing the examination phase. The default is UpgradeMode.

A.4.2 Using the Command Line to Upgrade the Oracle Business Activity Monitoring Schema

To use the Upgrade Assistant command line to upgrade the Oracle BAM schema, enter the following command at the operating system prompt:

- On Windows systems:

```
ORACLE_HOME\bin\ua.bat BAM
  -targetURL target_db_connection_string
  -targetUserName target_db_user_name
  -dbHost source_db_host
  -dbPort source_db_port
  -dbServiceName source_db_service_name
  -bamUserName source_bam_schema_name
  -[no]ErrorMode
  -[no]CheckMode
  -[no]UpgradeMode
```

- On UNIX systems:

```
ORACLE_HOME/bin/ua BAM
  -targetURL target_db_connection_string
  -targetUserName target_db_user_name
  -dbHost source_db_host
  -dbPort source_db_port
  -dbServiceName source_db_service_name
  -bamUserName source_bam_schema_name
  -[no]ErrorMode
  -[no]CheckMode
  -[no]UpgradeMode
```

[Table A-5](#) describes the command-line arguments required when you are upgrading the Oracle BAM schema.

Table A-5 Summary of the Upgrade Assistant Command-Line Arguments When Upgrading the Oracle BAM Schema

Argument	Description
-targetURL <i>target_db_connection_string</i>	Enter the database connection string for the target database: <ul style="list-style-type: none"> The target database is the database base where the Oracle B2B 11g schema resides. The connection string identifies the host, port, and system identifier (SID) of the target database: host:port:SID For example: dbhost2:1521:schemaDB2 This is a required argument.
-targetUserName <i>target_db_user_name</i>	Enter the database user name that will be used to connect to the target database. For example, SYS. This is a required argument.
-dbHost <i>source_db_host</i>	Enter the name of the host where the source database resides. This is the database that contains the Oracle BAM 10g schema. This is a required argument.
-dbPort <i>source_db_port</i>	Enter the listening port of the source database (for example, 1521). This is the database that contains the Oracle BAM 10g schema. This is a required argument.
-dbServiceName <i>source_db_service_name</i>	Enter the service name of the source database. For example: schemadb2.example.com This is the database that contains the Oracle BAM 10g schema. This is a required argument.
-bamUserName <i>source_bam_schema_name</i>	Enter the database user associated with the Oracle BAM schema in the source database.
-[no]ErrorMode -[no]CheckMode -[no]UpgradeMode	See Table A-4, "Upgrade Assistant Command-Line Arguments Common to All Schema Upgrades" .

A.5 Using the Upgrade Assistant Command Line to Upgrade the Oracle Portal and Oracle BI Discoverer Schemas

To use the Upgrade Assistant command line to upgrade the Oracle Portal and Oracle Business Intelligence Discoverer schemas in a Oracle Portal, Forms, Reports, and Discoverer installation, enter the following command at the operating system prompt:

- On Windows systems:

```
ORACLE_HOME\bin\ua.bat MR
  -portal
  -discoverer
  -oidHost oid_host
  -oidSslPort oid_ssl_port
```

```
-schemaName disco_schema_name
-[no]ErrorMode
-[no]CheckMode
-[no]UpgradeMode
```

- On UNIX systems:

```
ORACLE_HOME/bin/ua MR
-portal
-discoverer
-oidHost oid_host
-oidSslPort oid_ssl_port
-schemaName disco_schema_name
-[no]ErrorMode
-[no]CheckMode
-[no]UpgradeMode
```

Table A-6 describes the command-line arguments required when you are upgrading the Oracle Portal and Oracle Business Intelligence Discoverer schemas.

Table A-6 Summary of the Upgrade Assistant Command-Line Arguments When Upgrading the Oracle BAM Schema

Argument	Description
-portal	Use this argument when you are upgrading the Oracle Portal schema. You can use it alone, or with the <code>-discoverer</code> argument if you are upgrading both the Oracle Portal and Oracle Business Intelligence Discoverer schema at the same time.
-discoverer	Use this argument when you are upgrading the Oracle Business Intelligence Discoverer schema. You can use it alone, or with the <code>-portal</code> argument, if you are upgrading both the Oracle Portal and Oracle Business Intelligence Discoverer schema at the same time.
-oidHost <i>oid_host</i>	Enter the name of the host where the Oracle Internet Directory instance resides. This argument is required.
-oidSslPort <i>oid_ssl_port</i>	Enter the secure (SSL) listening port of the Oracle Internet Directory instance. This argument is required.
-schemaName <i>disco_schema_name</i>	Enter the name of the target Oracle Business Intelligence Discoverer 11g schema. This is the name of the schema that you entered when you created the Discoverer schema with the Repository Creation Utility. The 11g schema name usually includes a unique prefix that is used to identify the schema in the database.
-[no]ErrorMode -[no]CheckMode -[no]UpgradeMode	See Table A-4, "Upgrade Assistant Command-Line Arguments Common to All Schema Upgrades".

A.6 Using the Upgrade Assistant Command Line to Upgrade Oracle Identity Management

To use the Upgrade Assistant command line to upgrade Oracle Identity Management, enter the following command at the operating system prompt:

- On Windows systems:

```
ORACLE_HOME\bin\ua.bat IM
  -sourceHome SOURCE_ORACLE_HOME
  -destInstanceHome ORACLE_INSTANCE
  [-logLevel log_level]
  [-[no]verbose]
  [-[no]silent]
  [-[no]retainPorts]
  [-[no]startComponents]
  [-wlsHost wls_host]
  [-wlsPort wls_port]
  [-wlsUserName wls_user]
  [-dbHost db_host]
  [-dbPort db_port]
  [-dbServiceName db_service]
```

- On UNIX systems:

```
ORACLE_HOME/bin/ua IM
  -sourceHome SOURCE_ORACLE_HOME
  -destInstanceHome ORACLE_INSTANCE
  [-logLevel log_level]
  [-[no]verbose]
  [-[no]silent]
  [-[no]retainPorts]
  [-[no]startComponents]
  [-wlsHost wls_host]
  [-wlsPort wls_port]
  [-wlsUserName wls_user]
  [-dbHost oid_db_host]
  [-dbPort oid_db_port]
  [-dbServiceName oid_db_service]
  [-rac db_racspec]
  [-invPtrLoc inventory_location]
```

Refer to [Table A-7](#) for a description of the command line arguments available when you are upgrading Oracle Identity Management.

Table A-7 Summary of the Upgrade Assistant Command-Line Arguments When Upgrading Oracle Identity Management

Argument	Description
-sourcehome SOURCE_ORACLE_HOME	Replace SOURCE_ORACLE_HOME with the full path to the Oracle Application Server 10g Oracle home that you want to upgrade. This is a required argument.
-destInstanceHome ORACLE_INSTANCE	Replace ORACLE_INSTANCE with the full path to the newly installed Oracle Fusion Middleware 11g Oracle instance. This is a required argument.

Table A-7 (Cont.) Summary of the Upgrade Assistant Command-Line Arguments When Upgrading Oracle Identity Management

Argument	Description
<code>-logLevel log_level</code>	<p>Replace <i>log_level</i> with one of the following values:</p> <ul style="list-style-type: none"> ▪ NOTIFICATION ▪ WARNING ▪ ERROR ▪ INCIDENT_ERROR ▪ TRACE <p>The default setting if you do not provide this argument is NOTIFICATION.</p>
<code>-[no]verbose</code>	<p>Use this argument to output detailed information to the screen when you are running the Upgrade Assistant in command-line mode. Use <code>-noverbose</code> to limit the amount of detail displayed on the screen.</p> <p>The default setting if you do not include this argument is <code>-noverbose</code>.</p>
<code>-[no]silent</code>	<p>Use this argument to turn off prompts and user confirmations during the upgrade. The default setting if you do not specify this argument is <code>-nosilent</code>.</p>
<code>-[no]retainPorts</code>	<p>Select this option to retain the port numbers used by the 10g source Oracle home.</p> <p>The default setting is <code>-retainPorts</code>.</p> <p>Note: Be sure to refer to "Important Notes When Using the Source Oracle Home Ports in the Destination Oracle Instance" in <i>Oracle Fusion Middleware Upgrade Guide for Oracle Portal, Forms, Reports, and Discoverer</i>.</p>
<code>-[no]startComponents</code>	<p>If you select this option, then Upgrade Assistant will attempt to start the 11g Oracle instance immediately after the upgrade. To start the components manually after the upgrade, use the <code>-nostartComponents</code> argument.</p> <p>The default setting is <code>-startComponents</code>.</p>
<code>wls_host wls_host</code> <code>wls_port wls_port</code> <code>wls_user wls_user</code>	<p>Use these arguments to provide the host, port, and user name of the Administration Server in the destination Oracle WebLogic Server domain.</p> <p>For example, the port and user name are usually 7001 and <code>weblogic</code>, respectively.</p>
<code>-dbHost oid_db_host</code> <code>-dbPort oid_db_port</code> <code>-dbServiceName oid_db_service</code>	<p>Use these arguments to enter the host, port, and service name of the database where the Oracle Internet Directory instance resides.</p> <p>For example: <code>schemadb2.example.com</code></p> <p>These arguments are required for an Oracle Internet Directory or Oracle Identity Federation upgrade only.</p>

Table A–7 (Cont.) Summary of the Upgrade Assistant Command-Line Arguments When Upgrading Oracle Identity Management

Argument	Description
<code>-rac db_racspec</code>	<p>On UNIX systems, use this argument to enter the connection details to the nodes in a Real Application Clusters environment.</p> <p>Note this argument is necessary only if you are upgrading Oracle Directory Integration Platform in a Real Application Clusters environment.</p> <p>You must enter a list of the instances in the cluster, in the following format:</p> <pre>host:port:instance^host:port:instance^...@service</pre> <p>For more information, see "About Specifying Real Application Clusters (RAC) Database Details on the Specify Database Details Screen" in the <i>Oracle Fusion Middleware Upgrade Guide for Oracle Identity Management</i>.</p>
<code>-invPtrLoc inventory_location</code>	<p>On UNIX systems, you can use this argument if you have multiple Oracle inventory files on the host.</p> <p>For more information, see Section B.1.7, "Starting the Upgrade Assistant on UNIX Systems When Using Multiple Oracle Universal Installer Inventory Locations".</p>

A.7 Using the Upgrade Assistant Command Line to Verify an Upgraded Environment

To use the Upgrade Assistant command line to verify an Oracle Fusion Middleware environment, enter the following command at the operating system prompt:

- On Windows systems:

```
ORACLE_HOME\bin\ua.bat VERIFY
  -destInstanceHome ORACLE_INSTANCE
  [-logLevel log_level]
  [-wlsHost wls_host]
  [-wlsPort wls_port]
  [-wlsUserName wls_user]
```

- On UNIX systems:

```
ORACLE_HOME/bin/ua VERIFY
  -destInstanceHome ORACLE_INSTANCE
  [-logLevel log_level]
  [-wlsHost wls_host]
  [-wlsPort wls_port]
  [-wlsUserName wls_user]
  [-invPtrLoc inventory_location]
```

Refer to [Table A–8](#) for a description of the command line arguments available when you are verifying an upgrade.

Table A–8 Summary of the Upgrade Assistant Command-Line Arguments When Verifying an Upgrade

Argument	Description
<code>-destInstanceHome ORACLE_INSTANCE</code>	Replace <code>ORACLE_INSTANCE</code> with the full path to the newly installed Oracle Fusion Middleware 11g Oracle instance.

Table A–8 (Cont.) Summary of the Upgrade Assistant Command-Line Arguments When Verifying an Upgrade

Argument	Description
<i>-logLevel log_level</i>	Replace <i>log_level</i> with one of the following values: <ul style="list-style-type: none"> ▪ NOTIFICATION ▪ WARNING ▪ ERROR ▪ INCIDENT_ERROR ▪ TRACE The default setting if you do not provide this argument is NOTIFICATION.
<i>wls_host wls_host</i> <i>wls_port wls_port</i> <i>wls_user wls_user</i>	Use these arguments to provide the host, port, and user name of the Administration Server in the destination Oracle WebLogic Server domain. For example, the port and user name are usually 7001 and <i>weblogic</i> , respectively.
<i>-invPtrLoc inventory_location</i>	On UNIX systems, you can use this argument if you have multiple Oracle inventory files on the host. For more information, see Section B.1.7, "Starting the Upgrade Assistant on UNIX Systems When Using Multiple Oracle Universal Installer Inventory Locations" .

Troubleshooting Your Upgrade

This chapter contains the following sections:

- [General Upgrade Troubleshooting Guidelines and Procedures](#)
- [Component-Specific Troubleshooting Instructions](#)

B.1 General Upgrade Troubleshooting Guidelines and Procedures

This section contains the following sections, which describe how to resolve problems and issues that occur while you are using the Upgrade Assistant to upgrade to Oracle Fusion Middleware 11g:

- [General Troubleshooting Guidelines](#)
- [Resolving Common Upgrade Assistant Errors](#)
- [Examining the Log File](#)
- [Investigating Examination Failures](#)
- [Investigating Upgrade Failures](#)
- [Restarting the Upgrade Assistant](#)
- [Starting the Upgrade Assistant on UNIX Systems When Using Multiple Oracle Universal Installer Inventory Locations](#)

B.1.1 General Troubleshooting Guidelines

If errors occur while you are running the Upgrade Assistant, use the following steps to troubleshoot the problem:

1. Locate and open the Upgrade Assistant log file with a text editor:
For the location of the log file, see [Section B.1.3, "Examining the Log File"](#).
2. Locate any error messages that are identified by number; for example, UPGAST-00091.
3. Look up the error in the *Oracle Fusion Middleware Error Messages Reference*.

The description of the error in the *Oracle Fusion Middleware Error Messages Reference* should include a description of the cause of the error, as well as the action you should take to resolve the error.

4. Based on whether or not you can locate an error message and the error message description, do the following:

- If, by reviewing the log files and the *Oracle Fusion Middleware Error Messages Reference*, you are able to identify a solution to the upgrade failure, you can implement your solution and then re-start the Upgrade Assistant and perform the upgrade again.

When you re-run the Upgrade Assistant, any components that were upgraded successfully during the previous run will not be affected. However, the Upgrade Assistant will attempt to upgrade any components that were not upgraded successfully during a previous run of the utility.

- Contact Oracle Support for any errors that are not documented or that cannot be resolved by following documented actions. Note that some errors that occur will require the repository to be restored from backup, the problem to be resolved, and another upgrade to be run.

B.1.2 Resolving Common Upgrade Assistant Errors

If errors occur while you are running the Upgrade Assistant, you must correct the conditions that caused them before you try the upgrade again. The following sections provide some guidance in resolving Upgrade Assistant errors:

- [Source Oracle Home Not Listed by OracleAS Upgrade Assistant](#)
- [Error Message States that No Components Can Be Upgraded](#)
- [Troubleshooting Database Connection Problems When Upgrading Schemas](#)

B.1.2.1 Source Oracle Home Not Listed by OracleAS Upgrade Assistant

If the source Oracle home does not appear as expected in the drop-down list on the Oracle Homes, suspect one of these conditions: wrong installation type, Oracle homes are on different computers, or the Oracle home is not identified in the inventory of Oracle products. The solution for each of these is detailed below.

Wrong Installation Type The source Oracle home will not appear if the installation type of the source middle tier is not compatible with the installation type of the destination middle tier instance.

Oracle Homes on Different Computers Another case in which the source middle tier will not appear as a selection is that the source middle tier instance is installed on a different computer from the destination middle tier instance. If this is the case, you must install the destination middle tier instance on the same computer as the source instance to be upgraded.

Oracle Home Not Identified in the Oracle Inventory The Upgrade Assistant locates Oracle Application Server Oracle homes on your system by analyzing the contents of the Oracle inventory.

Every time you install an Oracle software product on a host computer, Oracle Universal Installer saves information about the software installation on your hard disk. The directories and files that contain this software configuration information are referred to as the Oracle Universal Installer inventory.

In some cases, a particular installation may not appear in the inventory. It could be that the inventory directory was deleted or damaged, or it could be that multiple inventories are installed on the computer. On UNIX systems, you can resolve this issue by referring to [Section B.1.7, "Starting the Upgrade Assistant on UNIX Systems When Using Multiple Oracle Universal Installer Inventory Locations"](#).

B.1.2.2 Error Message States that No Components Can Be Upgraded

This error can appear when you are attempting to upgrade an Oracle Application Server 10g Release 3 (10.1.3.1.0) Basic Installation, which does not include an instance of Oracle HTTP Server. In this situation, there are no components that can be upgraded automatically by the Oracle Fusion Middleware Upgrade Assistant.

B.1.2.3 Troubleshooting Database Connection Problems When Upgrading Schemas

If you have trouble connecting to a database when using the Upgrade Assistant to upgrade a component schema, try connecting to the database using another tool, such as SQL*Plus. This will help you troubleshoot the problem by verifying that the database is up and running and available on the network.

B.1.3 Examining the Log File

The Upgrade Assistant generates a set of log files that you can use to troubleshoot, verify, or analyze the upgrade process.

The Upgrade Assistant log file is located in the following directory; its name contains the date and time of the Upgrade Assistant session:

- On Windows systems:

`DESTINATION_ORACLE_HOME\upgrade\logs\`

- On UNIX systems:

`DESTINATION_ORACLE_HOME/upgrade/logs/`

B.1.4 Investigating Examination Failures

To determine the cause of an examination failure:

1. Note the name of the failed component in the OracleAS Upgrade Assistant dialog or command-line output.
2. Open the following Upgrade Assistant log file.
For the location of the log file, see [Section B.1.3, "Examining the Log File"](#).
3. In the log file, search for the message `Starting to examine component_name`.
4. Refer to the *Oracle Fusion Middleware Error Messages Reference* for information about specific error messages in the Upgrade log files.

B.1.5 Investigating Upgrade Failures

To determine the cause of an upgrade failure:

1. Note the name of the failed component in the OracleAS Upgrade Assistant dialog or command-line output.
2. Open the Upgrade log file:
For the location of the log file, see [Section B.1.3, "Examining the Log File"](#).
3. Search for the message `Starting to upgrade component_name`.
4. Refer to the *Oracle Fusion Middleware Error Messages Reference* for information about specific error messages in the Upgrade log files.

B.1.6 Restarting the Upgrade Assistant

When you are upgrading a middle tier, you can restart the Upgrade Assistant after it has partially or completely processed an Oracle home. Follow these steps:

1. Start the Upgrade Assistant in GUI or command-line mode.
The OracleAS Upgrade Assistant displays a message, which explains whether or not the previous upgrade was successful.
2. If the previous upgrade was not completed, close the dialog (GUI version) or enter Yes (command-line version) and continue with the upgrade.

B.1.7 Starting the Upgrade Assistant on UNIX Systems When Using Multiple Oracle Universal Installer Inventory Locations

On UNIX systems, the Oracle Universal Installer creates an inventory location file, `/etc/orainst.loc`, when it installs Oracle products. This file contains the location (full path) of the Oracle Universal Installer directory, and the group name of the user who installed it.

The Upgrade Assistant locates valid source Oracle home locations with the information from this directory, the default inventory. Additional inventories files are sometimes created after installation so you can manage Oracle homes independently (thereby circumventing the Oracle Universal Installer features that track all Oracle homes in a single inventory).

If there are multiple inventory location files on the computer on which you are performing an upgrade, and you want to be able to select a non-default inventory location, you must start the Upgrade Assistant with the `-invPtrloc` argument, specifying the inventory location file(s) for the Oracle homes involved in the upgrade.

For example, if the Oracle Application Server 10g Oracle home and the Oracle Fusion Middleware 11g Oracle home are installed in different inventories, then you must specify both inventories on the Upgrade Assistant command line.

For complete information about the Oracle inventory, see the *Oracle Universal Installer and OPatch User's Guide* in the Oracle Database documentation library on Oracle Technology Network (OTN):

<http://www.oracle.com/technology/documentation/>

The syntax for starting the Upgrade Assistant for multiple inventory locations is provided below.

Graphical User Interface (GUI) Version:

```
ua [-invPtrloc inventory_location_file]...
```

For example:

```
ua -invPtrloc /du03/oracle_inventory1/orainst.loc -invPtrloc /etc/orainst.loc
```

Command-line Version:

```
ua -sourcehome SOURCE_ORACLE_HOME [-invPtrloc inventory_location_file]...  
[-verbose] [-noprompt]
```

For example:

```
ua -sourcehome /du03/oracle/appserver1/ -invPtrloc /du03/oracle_  
inventory1/orainst.loc -invPtrloc /etc/orainst.loc -verbose -noprompt
```


B.2 Component-Specific Troubleshooting Instructions

The following sections describe how to troubleshoot problems during the upgrade of specific Oracle Fusion Middleware components or suites:

- [Recovering From and Retrying an Interrupted Oracle BAM Schema Upgrade](#)
- [Locating and Configuring the Oracle BAM Upgrade Log Files](#)

B.2.1 Recovering From and Retrying an Interrupted Oracle BAM Schema Upgrade

If the Oracle BAM schema upgrade is interrupted for any reason, you might have to perform some recovery steps before you can retry the upgrade procedure.

Note: The procedure for upgrading the Oracle Business Activity Monitoring (BAM) schema is documented in the *Oracle Fusion Middleware Upgrade Guide for Oracle SOA Suite, WebCenter, and ADF*.

During a Oracle BAM schema upgrade, the Upgrade Assistant automatically performs several tasks for you, including exporting the Oracle BAM schema from the source database and importing it into the database that hosts your Oracle Fusion Middleware 11g schemas. Upgrade Assistant uses Oracle Data Pump to perform the export and import operations.

If the Oracle BAM schema upgrade is interrupted (for example, if you exit the Upgrade Assistant during the upgrade, or if the database goes down), then you can recover from the upgrade interruption by using the following instructions:

1. Connect to the database that hosts the Oracle BAM 11g schemas.

Use the same database user and password that you used when connected to the database from the Upgrade Assistant.

For example:

```
connect sys/mypassword as sysdba
```

2. Enter the following SQL command to identify whether or not any Oracle Data Pump jobs are currently running:

```
SELECT * FROM DBA_DATAPUMP_JOBS;
```

3. If any Oracle Data Pump jobs are running, then wait until the job complete before proceeding to the next step.
4. Enter the following SQL command to drop a specific database table that was created during the export process.

```
DROP TABLE ORACLEBAM1013_EXPORT;
```

If the table exists, you cannot retry the upgrade, because the upgrade procedure will not run successfully.

5. Run the Upgrade Assistant again and retry the Oracle BAM upgrade.

B.2.2 Locating and Configuring the Oracle BAM Upgrade Log Files

When you use the Upgrade Assistant to upgrade Oracle BAM, the Upgrade Assistant uses the Morpheus command line utility to perform the 11g schema upgrade and report conversions, so the upgraded 10g schema can be used in Oracle BAM 11g.

The Morpheus command-line utility is located in following folder in the Oracle SOA Suite 11g Oracle home:

- On Windows systems:

`ORACLE_HOME\bam\bin\morpheus.bat`

- On UNIX systems:

`ORACLE_HOME/bam/bin/morpheus`

When the BAM upgrade runs the morpheus utility, it logs all the Morpheus-related log messages in an upgrade output log file identified by an `.out` file extension, located in the `ORACLE_HOME/upgrade/logs` folder.

The upgrade log level can be configured by modifying the following configuration file:

`ORACLE_HOME/bam/bin/morpheus.logging.properties`

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