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Interoperability and Compatibility Guide

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Preface

This guide describe the different types of interoperability considerations you should review when upgrading Oracle Fusion Middleware 11*g* or when applying Oracle Fusion Middleware 11*g* patch sets.

This preface contains these topics:

- Audience
- Documentation Accessibility
- Related Documents
- Conventions

Audience

This document is intended for database or system administrators responsible for installations, upgrade planning, and patch set application.

Documentation Accessibility

Our goal is to make Oracle products, services, and supporting documentation accessible to all users, including users that are disabled. To that end, our documentation includes features that make information available to users of assistive technology. This documentation is available in HTML format, and contains markup to facilitate access by the disabled community. Accessibility standards will continue to evolve over time, and Oracle is actively engaged with other market-leading technology vendors to address technical obstacles so that our documentation can be accessible to all of our customers. For more information, visit the Oracle Accessibility Program Web site at `http://www.oracle.com/accessibility/`.

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Screen readers may not always correctly read the code examples in this document. The conventions for writing code require that closing braces should appear on an otherwise empty line; however, some screen readers may not always read a line of text that consists solely of a bracket or brace.

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Oracle customers have access to electronic support through My Oracle Support. For information, visit http://www.oracle.com/support/contact.html or visit http://www.oracle.com/accessibility/support.html if you are hearing impaired.

Related Documents

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

- *Oracle Fusion Middleware Upgrade Planning Guide*
- *Oracle Fusion Middleware Installation Planning Guide*
- *Oracle Fusion Middleware Patching Guide*
- *Oracle Fusion Middleware Administrator's Guide*
- *Oracle Fusion Middleware SmartUpgrade User's Guide*
- *Oracle Fusion Middleware Third-Party Application Server 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.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

What's New

This chapter describes the latest changes to the Oracle Fusion Middleware compatibility and interoperability matrices documented in this guide.

New Compatibility and Interoperability Considerations

The following sections describe changes or additions to the Oracle Fusion Middleware Interoperability and Compatibility Guide 11*g* Release 1 (11.1.1):

Chapter 1, "Understanding Compatibility and Interoperability"

This chapter provides an introduction to compatibility and interoperability and describes how to identify areas where compatibility and interoperability considerations may arise when upgrading Oracle Fusion Middleware 11*g* or when applying Oracle Fusion Middleware 11*g* patch sets.

- Table 1–1, " Tasks for Preparing to Identify and Solve Interoperability Considerations"
- Table 1–2, " Finding Compatibility and Interoperability Information"
- Table 1–3, " Oracle Fusion Middleware Certification Matrices"

Chapter 2, "Compatibility and Interoperability with Oracle Application Server 10g and Oracle Fusion Middleware 11g Components"

This chapter describes compatibility and interoperability with Oracle Application Server 10g and Oracle Fusion Middleware 11g components and identifies common compatibility issues that may arise when installing or upgrading to Oracle Fusion Middleware 11g.

- Table 2–1, " Oracle Fusion Middleware 11g Compatibility Matrix"
- Table 2–2, " Oracle HTTP Server Interoperability"
- Table 2–3, " Oracle Web Cache Interoperability"
- Table 2–4, " Oracle Identity Management Suite Interoperability"

Chapter 3, "Oracle Web Services Interoperability"

This chapter describes the Web services stacks that Oracle supports.

1

Understanding Compatibility and Interoperability

This chapter provides an introduction to compatibility and interoperability and describes how to identify areas where compatibility and interoperability considerations may arise when you are upgrading Oracle Fusion Middleware 11g components, applying patch sets, or installing new Oracle Fusion Middleware components.

- Section 1.1, "What is Compatibility?"
- Section 1.2, "What is Interoperability?"
- Section 1.3, "Understanding the Interoperability and Compatibility with Supported Databases"
- Section 1.4, "Identifying Potential Compatibility and Interoperability Issues"

1.1 What is Compatibility?

For the purposes of this guide, **compatibility** is defined as the ability of two Oracle Fusion Middleware components of different versions (or releases) to interoperate. It is possible that you will have compatibility considerations when upgrading Oracle Fusion Middleware 11*g* or when applying Oracle Fusion Middleware 11*g* patch sets. When upgrading, for example, you may need to know which components must be updated so that your existing integration points continue to work. When applying a patch set you may want to know if the new products will work with other products of the same release or if they will continue to work with previous versions.

Chapter 2, "Compatibility and Interoperability with Oracle Application Server 10g and 11g Components" provides information about the compatibility of specific Oracle Application Server 10*g* products with Oracle Fusion Middleware 11*g* (11.1.1.4.0) products.

Note: Compatibility applies to the interaction of components that are installed as part of different Oracle Fusion Middleware patch sets, such as the compatibility of 11*g* (11.1.1.3.0) components with 11*g* (11.1.1.4.0) components. Compatibility issues can arise when at least 1 of the first 4 digits in the release number is different (11.1.1.3.0 and 11.1.1.4.0).

1.1.1 Compatibility Between Oracle Fusion Middleware Software Suites

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

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

See Chapter 2, "Compatibility and Interoperability with Oracle Application Server 10g and 11g Components" for information on the compatibility of Oracle Fusion Middleware 11*g* (11.1.1.2.0) components with other 11*g* (11.1.1.2.0) components.

1.1.2 Compatibility Within Oracle Fusion Middleware Software Suites

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

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

1.2 What is Interoperability?

For the purposes of this guide, **interoperability** is defined as the ability of two Oracle Fusion Middleware components of the same version (or release) to work together (interoperate) in a supported Oracle Fusion Middleware configuration. Specifically, interoperability applies when the first 4 digits of the release or version number are the same. For example, Oracle Fusion Middleware 11*g* (11.1.1.2.0) components are generally interoperable with other 11*g* (11.1.1.2.0) components.

In some cases there may be interoperability issues between Oracle Fusion Middleware software suites. For example, you may experience issues with the co-existence of domains between Oracle Fusion Middleware 11gR1 products such as SOA and WebCenter.

See Chapter 3, "Interoperability Between Oracle Fusion Middleware 11g Components" for information on the interoperability of Oracle Fusion Middleware 11*g* (11.1.1.2.0) components with other 11*g* (11.1.1.2.0) components.

1.3 Understanding the Interoperability and Compatibility with Supported Databases

Each release of Oracle Fusion Middleware 11*g* is certified against specific database versions. Specifically, you can use these certified databases to host the Oracle Fusion Middleware 11*g* components schemas.

In some cases, you might have to upgrade your database to a supported version before upgrading to a specific Oracle Fusion Middleware 11*g* release. For more information on upgrading your Oracle Fusion Middleware components, see *Oracle Fusion Middleware Upgrade Planning Guide*.

For the latest information about the databases supported by each Oracle Fusion Middleware 11*g* release, refer to *Oracle Fusion Middleware Supported System Configurations* on the Oracle Technology Network.

From the Supported Configurations page, you can locate the specific Oracle Application Server or Oracle Fusion Middleware release you are using, as well as the target Oracle Fusion Middleware release to which you want to upgrade. For each Oracle Application Server and Oracle Fusion Middleware release, there is a corresponding spreadsheet that lists the certified configurations, including the supported databases.

The following sections describe use case scenarios that require additional consideration when using Oracle Fusion Middleware components:

1.3.1 Oracle Adaptive Access Manager with Oracle Database

Until recently, the Enterprise Edition was the only version of the Oracle database that Oracle Adaptive Access Manager (OAAM) supported. While the Enterprise Edition is still the recommended database version for use with OAAM, some users may now use the Standard Edition if appropriate.

Customers who are considering using Oracle Database Standard Edition with OAAM must be able to answer 'Yes' to each of the following questions:

1. Can your business and IT owners accept production downtime for regular database maintenance? SE has no Online Index Rebuild feature.
2. Does your deployment utilize a single data center? SE does not provide Streams or DataGuard for fail-over.
3. Does your deployment have traffic volumes with less than 200K logins and transactions per day total? SE does not support Partitioning.

If you answered 'Yes' to all three questions above, Oracle will support you using Oracle Database Standard Edition with OAAM.

1.4 Identifying Potential Compatibility and Interoperability Issues

The following sections describe how to identify and answer common compatibility and interoperability issues using information from this guide, Oracle Technology Network (OTN) and other Oracle documents:

- Before You Begin
- Using This Guide
- Using Oracle Certification Matrices
- Understanding the Compatibility Matrices in this Guide
- Collecting Your Component and Infrastructure Information
- Using Release Notes
- Using the Oracle Fusion Middleware Documentation Library

1.4.1 Before You Begin

If you are installing a new product or updating an existing one (either to a new major version or a patch set), interoperability and compatibility issues may arise. During a new product component installation, interoperability considerations relate to the

capability of the new product to integrate with other Oracle Fusion Middleware components of the same release.

Compatibility considerations relate to the capability of the new product to integrate with previous versions of Oracle Fusion Middleware products which may have already been installed. During product updates, the question is mainly one of compatibility and you may need to consider the other components that need to be updated so that existing integration points continue to work.

Table 1–1 provides a list of tasks that will help you collect the information necessary to plan your Oracle Fusion Middleware upgrade and installation strategy.

Table 1–1 Tasks for Preparing to Identify and Solve Interoperability Considerations

Task	Description	Documentation
Task 1 - Gather release and version information for your installed components and supporting infrastructure.	In order for you to identify potential interoperability and compatibility issues with your Oracle Fusion Middleware components, you must first collect the release and version information for each component or suite of components you have installed or plan to install or upgrade. In addition, you should also have version and release information for your operating system, database, JDKs and other third-party products.	See Section 1.4.5, "Collecting Your Component and Infrastructure Information"

Table 1–1 (Cont.) Tasks for Preparing to Identify and Solve Interoperability Considerations

Task	Description	Documentation
Task 2 - If you are planning an upgrade, you should develop an upgrade strategy and understand the supported starting points for upgrading to Oracle Fusion Middleware 11g.	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 using documentation from a previous release.	The *Oracle Fusion Middleware Upgrade Planning Guide* provides detailed information for developing and implementing an Oracle Fusion Middleware upgrade plan. In addition, each of the Oracle Fusion Middleware products has an upgrade guide that details the upgrade process and identifies any post-upgrade configuration tasks that must be completed. See Section 1.4.7, "Using the Oracle Fusion Middleware Documentation Library" for more information on locating the correct documentation for your upgrade.
Task 3 - If you are applying a patch set, you should understand the patching requirements for your components and supporting infrastructure.	Patching involves copying a small collection of files over an existing installation. A patch is normally associated with a particular version of an Oracle product and involves updating from one minor version of the product to a newer minor version of the same product (for example, from version 11.1.1.2.0 to version 11.1.1.3.0).	The *Oracle Fusion Middleware Patching Guide* describes the tools available for you to patch your existing Oracle Fusion Middleware or upgrade your existing Oracle Application Server environment. The guide also describes product-specific prerequisites that must be met before patching. Information about the latest patches and patch sets is located in the Oracle Fusion Middleware System Requirements and Specifications Document at `http://www.oracle.com/technology/software/products/ias/files/fusion_requirements.htm`

Task 4 - If you are Installing new Oracle Fusion Middleware components, you should understand the installation requirements and the supported starting points.	Each Fusion Middleware product suite has an installation guide that describes prerequisites, supported starting points and post-installation configuration procedures. It is important to read and follow the installation procedures to avoid potential interoperability and compatibility issues.	To download free installation documentation, release notes, white papers, or other collateral, go to Oracle Technology Network (OTN). You must register online before using OTN; registration is free and can be done at:
		
		`http://www.oracle.com/technology/membership`
		
		If you already have a user name and password for OTN, then you can go directly to the documentation section of the OTN Web site at:
		
		`http://www.oracle.com/technology/documentation`

1.4.2 Using This Guide

The chapters in this guide are organized by the different types of interoperability or compatibility issues you might have while installing, upgrading or patching your Oracle Fusion Middleware components.

Table 1–2 provides an overview of the frequently asked questions and links to the appropriate chapters where you can find more information:

Table 1–2 Finding Compatibility and Interoperability Information

Chapter	Description
Chapter 2, "Compatibility and Interoperability with Oracle Application Server 10g and 11g Components"	Review this chapter if you have any questions with the compatibility between Oracle Fusion Middleware 11*g* components and Oracle Application Server 10*g*: ■ Oracle Application Server 10g With 11gR1 Components ■ Oracle Application Server 10g Upgrade-Related Considerations
Chapter 3, "Interoperability Between Oracle Fusion Middleware 11g Components"	Review this chapter for more information on the interoperability of the following Oracle Fusion Middleware 11*g* components with other Oracle Fusion Middleware 11*g* components: ■ Oracle Web Services Interoperability ■ Oracle Identity Management Interoperability ■ Domain Extension Interoperability
Chapter 4, "Interoperability with Custom and Client Applications"	Review this chapter if the following scenarios apply to you: ■ You have created custom applications that you have deployed on Oracle Application Server 10g or Oracle Fusion Middleware 11g ■ You have created (or you maintain) client applications that interact with applications you deployed on Oracle Application Server 10g or Oracle Fusion Middleware 11g. Specifically, this chapter provides custom and client application interoperability information for the following Oracle Fusion Middleware components: ■ Oracle WebLogic Server Interoperability with Custom and Client Applications ■ Oracle SOA Suite Interoperability with Custom and Client Applications

1.4.3 Using Oracle Certification Matrices

The Oracle Fusion Middleware Certification matrices provide important compatibility and interoperability information such as supported system configurations, database versions, and third-party products. Refer to these documents to ensure that your current environment can support an upgrade or patch set.

Note: The information in this guide is meant to complement the information contained in the Oracle Fusion Middleware certification matrices. If there is a conflict of information between this guide and the certification matrices, then the information in the certification matrices should be considered the correct version as they are frequently updated.

Table 1–3 Oracle Fusion Middleware Certification Matrices

Document Name	Description	Location
Oracle Fusion Middleware Supported System Configurations	Each product area within Oracle Fusion Middleware maintains certification documentation that covers supported installation types, platforms, operating systems, databases, JDKs, and third-party products. From the Oracle Fusion Middleware Supported System Configurations page, locate the product area to review and select the appropriate certification document.	http://www.oracle.com/technology/software/products/ias/files/fusion_certification.html
Oracle Fusion Middleware System Requirements and Specifications Document	The Oracle Fusion Middleware System Requirements and Specifications document covers information such as hardware and software requirements, minimum disk space and memory requirements, and required system libraries, packages, or patches.	http://www.oracle.com/technology/software/products/ias/files/fusion_requirements.htm
Oracle Identity Management Certification Matrix	The Oracle Fusion Middleware Identity Management document maintains certification documentation that covers supported Identity and Access Management configurations.	http://www.oracle.com/technetwork/middleware/id-mgmt/identity-accessmgmt-11gr1certmatrix-161244.xls
Oracle JDeveloper and Application Development Framework 11g Certification and Support Matrix	This document identifies the various third party and Oracle products that are supported to work with the 11g versions of JDeveloper and Application Development Framework (ADF). Oracle ADF may support or certify with a superset of products than required for Oracle Fusion Middleware and this document serves as a reference for those cases.	http://www.oracle.com/technology/products/jdev/collateral/papers/11/certification/index.html

1.4.4 Understanding the Compatibility Matrices in this Guide

Interoperability and compatibility matrices are used throughout the book to identify potential issues and to provide links to additional information. When you use the interoperability and compatibility matrices in this guide, the level of support can be defined in one of the following ways:

Table 1–4 How To Use the Matrices in This Guide

Status	Description	Example
Compatible or Interoperable ✔	Integration between the components involved is expected to work with appropriate configuration. It is important to note, however, that compatibility is not a statement of certification. Certification information is located in the certification matrices described in Table 1–3.	For example, the Oracle HTTP Standalone Server 10.1.3 is compatible with Forms, Portal, Reports, Discoverer 10.1.2, but you may have some restrictions depending on your configuration.
Not Compatible or Interoperable ✘	Integration between the components involved is not expected to work.	For example, Oracle HTTP Server 11gR1 is not compatible with Forms, Portal, Reports, Discoverer 10.1.2 and Oracle highly discourages their being used together.
A reference to a specific guide or section	This reference is provided when an individual guide provides more detailed information about the compatibility requirements and considerations that you should review when upgrading, patching or installing Oracle Fusion Middleware 11*g*.	For example, refer to the *Oracle Fusion Middleware Upgrade Guide for Oracle Identity Management* for specific information about the interoperability of Oracle Application Server 10*g* Identity Management components with the Identity Management 11*g* components.
N/A	Not Applicable.	For example, there is normally no communication or interaction between custom Java EE Applications and Oracle Portal, Forms, Reports, and Discoverer installations.

1.4.5 Collecting Your Component and Infrastructure Information

Oracle Fusion Middleware release and version information is available for each installed component on your system. This information is required before you can effectively identify and solve interoperability or compatibility issues. The certification matrices described in Section 1.4.3 provide certification and system requirements information for Oracle Fusion Middleware components.

This section provides information for the following:

- Locating Oracle Fusion Middleware Product Release Information
- Locating your database-specific version and release information:
  - Locating Your Oracle Database Release Information
  - Locating your Microsoft SQL Server Version Information
  - Locating your DB2 Version Information
- Locating JDK Version Information

1.4.5.1 Locating Oracle Fusion Middleware Product Release Information

To find specific release and version information for your Oracle Fusion Middleware components, see the installed product information using the Oracle Universal Installer

(OUI). For more information, see "Viewing Release Numbers" in the *Oracle Fusion Middleware Administrator's Guide*.

> **Note:** You can also find version and release information in the installation log files located in the `oraInventory/logs` directory of your Oracle Home.

1.4.5.2 Locating Your Oracle Database Release Information

To determine the release information of your Oracle database:

Start SQL*Plus from the Oracle home directory:

```
sqlplus /nolog
SQL> CONNECT / AS SYSDBA
SQL> select * from v$version;
```

The command returns the release information, such as the following:

```
Oracle9i Enterprise Edition Release 9.2.0.8.0 - Production
PL/SQL Release 9.2.0.8.0 - Production
CORE 9.2.0.8.0 Production
TNA for 32-bit Windows: Version 9.2.0.8.0 - Production
NLSRTL Version 9.2.0.8.0 - Production
```

1.4.5.3 Locating your Microsoft SQL Server Version Information

To determine the release information of your Microsoft SQL database:

From the command line, enter the following:

```
exec xp_msver ProductVersion
```

The command returns the product version information, such as the following:

```
ProductVersion 589824 9.00.1399.06
```

1.4.5.4 Locating your DB2 Version Information

To determine the release information of DB2, do the following:

- From the **Windows** operating system command line, navigate to the following:

  ```
  \Program Files\IBM\SQLLIB\BIN>db2level
  ```

  The command returns the database version and applicable fix pack information such as the following:

  ```
  DB21085I Instance "DB2? uses "32? bits and DB2 code release "SQL09011? with
  level identifier "01020107?.
  Informational tokens are "DB2 v9.1.100.129?, "s061104?, "WR21374?, and Fix Pack
  "1?.
  Product is installed at "D:\PROGRA~1\IBM\SQLLIB" with DB2 Copy Name "DB2COPY1?.
  ```

- From **UNIX** operating system command line, type the following:

  ```
  db2ls
  ```

  This command shows the installation path, version level, fix pack information and installation date of the installed DB2 product. Output from this command goes to the console by default.

```
Install Path        Level   Fix Pack    Install Number     Install Date
-------------------------------------------------------------------------
/opt/ibm/db2/V9.1   9.1.0.0        0          1    Fri Sep 3 10:26:33 2010 EDT
```

1.4.5.5 Locating JDK Version Information

Many Fusion Middleware Components are dependent on having a supported JDK installed and configured. The currently supported JDK version information is documented in the Oracle Fusion Middleware Supported System Configurations matrix as described in Section 1.4.3.

To locate your installed JDK version information, navigate to the *ORACLE_COMMON_HOME* which contains the binary and library files required for Fusion Middleware Control and Java Required Files (JRF). Note that there can be only one Oracle Common home within each Middleware home. Typical Oracle WebLogic Server installations include either an Oracle JRockit SDK or Sun SDK as shown in the examples below:

ORACLE_COMMON_HOME/jrockit_160_17_R28.0.0-679

Or:

ORACLE_COMMON_HOME/jdk160_20

Oracle JRockit JDK 6 R28.0.0 indicates the 28.0.0 release of JRockit JVM used with Java SE 6; similarly, Oracle JRockit JDK 5.0 R28.0.0 indicates the 28.0.0 release of the JRockit JVM used with J2SE 5.0.

The following is an example of a complete release number:

R28.0.0-637-126675-1.6.0_17-20100111-2121-windows-ia32

In this example, R28.0.0 is the JRockit JVM release, 1.6.0_17 is the Java version, and windows-ia32 is the platform on which the release runs.

1.4.6 Using Release Notes

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

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

1.4.7 Using the Oracle Fusion Middleware Documentation Library

The Oracle Fusion Middleware documentation library provides access to information that may assist you when upgrading and patching your Oracle environment. You can review component-specific administration, installation, and upgrade guides for Oracle Fusion Middleware Release 11g Release 1 (11.1.1) documentation at: http://www.oracle.com/technology/documentation/middleware.html.

The following guides provide information on patching and upgrading your Oracle Fusion Middleware environment:

- *Oracle Fusion Middleware Patching Guide*

  For detailed information about applying patch sets to your Oracle Fusion Middleware environment, see "Oracle Fusion Middleware Patching and Upgrade Overview" in the *Oracle Fusion Middleware Patching Guide*.

- *Oracle Fusion Middleware Upgrade Planning Guide*

  For detailed information about the Oracle Fusion Middleware upgrade process, see "Documentation Roadmap for Upgrading Your Middleware Environment" in the *Oracle Fusion Middleware Upgrade Planning Guide*.

- *Oracle Fusion Middleware Installation Planning Guide*

  For detailed information about planning your Oracle Fusion Middleware installation (especially for new Oracle Fusion Middleware users), see "Understanding Your Starting Point" and "Common Installation Tasks" in *Oracle Fusion Middleware Installation Planning Guide*.

2

Compatibility and Interoperability with Oracle Application Server 10*g* and 11*g* Components

Compatibility and interoperability with Oracle Application Server 10g and Oracle Fusion Middleware 11g components varies by product area and version. This chapter describes common compatibility and interoperability considerations that you should review before installing or upgrading to Oracle Fusion Middleware 11g.

This chapter contains the following sections:

- Section 2.1, "Oracle Application Server 10g With 11gR1 Components"
- Section 2.2, "Oracle Application Server 10g Upgrade-Related Considerations"

2.1 Oracle Application Server 10g With 11gR1 Components

There are cases where you need to run Oracle Application Server 10*g* software components with your Oracle Fusion Middleware 11*g* components. The following sections provide some specific compatibility issues and considerations between Oracle Fusion Middleware 11*g* and Oracle Application Server 10*g*.

2.1.1 Oracle Fusion Middleware 11g Compatibility Matrix

Table 2–1 describes the compatibility of Oracle Fusion Middleware 11g components with Oracle Application Server 10g components. Note that all references to Oracle Identity Management (IDM) 10*g* refer to both 10.1.2 and 10.1.4 releases of Oracle Identity Management components.

Table 2–1 Oracle Fusion Middleware 11g Compatibility Matrix

	Oracle Identity Management 10g (Releases 10.1.2 and 10.1.4)	**Oracle Identity Management 11*g* Release 1 (11.1.1)**	**Portal, Forms, Reports, and Discoverer 11*g* Release 1 (11.1.1)**	**SOA, WebCenter, and ADF 11*g* Release 1 (11.1.1)**	**Java EE Application Deployments 11*g* Release 1 (11.1.1)**	**Oracle HTTP Server and Web Cache (Web Tier) 11*g* Release 1 (11.1.1)**
10*g* Identity Management (Releases 10.1.2 and 10.1.4)	Refer to the Section 2.2.3, "Oracle Identity Management Suite Interoperability" .	Refer to the *Oracle Fusion Middleware Upgrade Guide for Oracle Identity Management*.	✔	✔	✔	✘
10*g* Portal, Forms, Reports, and Discoverer	✔	Refer to the Section 2.2.3, "Oracle Identity Management Suite Interoperability"	Refer to the *Oracle Fusion Middleware Upgrade Guide for Oracle Portal, Forms, Reports, and Discoverer*.	N/A	N/A	✘
10*g* SOA, WebCenter, and ADF	✔	✔	N/A	Refer to the *Oracle Fusion Middleware Upgrade Guide for Oracle SOA Suite, WebCenter, and ADF*.	N/A	✘
10*g* Java EE Application Deployments	✔	✔	N/A	N/A	Refer to the *Oracle Fusion Middleware Upgrade Guide for Java EE*.	✘
10*g* Oracle HTTP Server and Web Cache	✔	Refer to Section 2.2.1, "Oracle HTTP Server Interoperability"	✘	Refer to Section 2.2.1, "Oracle HTTP Server Interoperability"	Refer to Section 2.2.1, "Oracle HTTP Server Interoperability"	N/A

2.2 Oracle Application Server 10g Upgrade-Related Considerations

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

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

For information about the Interoperability between the Oracle Fusion Middleware 11*g* suites and the equivalent installation types available in Oracle Application Server 10*g*, see Table 2–1, " Oracle Fusion Middleware 11g Compatibility Matrix".

The following sections describe some common compatibility issues that can arise during the upgrade process:

- Section 2.2.1, "Oracle HTTP Server Interoperability"
- Section 2.2.3, "Oracle Identity Management Suite Interoperability"

2.2.1 Oracle HTTP Server Interoperability

Table 2–2 describes the upgrade-related interoperability of Oracle HTTP Server with other Oracle Fusion Middleware components at the same patch level. For example, the Standalone Oracle HTTP Server 10.1.3 would be interoperable with ADF, SOA and WebCenter 10.1.3 as shown below.

Table 2–2 Oracle HTTP Server Interoperability

	Standalone OHS 10.1.3	Standalone OHS 10.1.2	Integrated OHS 10.1.2	OHS 11gR1
Forms, Portal, Reports, Discoverer 10.1.2	✘	✔	✔	✘
Forms, Portal, Reports, Discoverer 11gR1	✘	✘	✘	✔
ADF, SOA, WebCenter 10.1.3	✔	✘	✘	✘
ADF, SOA, WebCenter 11gR1	✘	✘	✘	✔

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

- Limited Support for Oracle HTTP Server 10g with Oracle WebLogic Server
- No Support for Oracle HTTP Server 11g with Oracle iAS 10g Components

2.2.1.1 Limited Support for Oracle HTTP Server 10*g* with Oracle WebLogic Server

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

- The integrated Oracle HTTP Server, which was installed and configured automatically with the 10*g* Release 2 (10.1.2) and 10*g* 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 10*g* Release 2 (10.1.2) and 10*g* 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 10*g* Release 2 (10.1.2) and 10*g* 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 11*g*.

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

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

  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.

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

2.2.1.2 No Support for Oracle HTTP Server 11*g* with Oracle iAS 10g Components

Oracle HTTP Server 11*g* is not compatible with Oracle iAS 10g components because the required `mod_oc4j` module is not compatible with Oracle HTTP Server 11*g*.

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

2.2.2 Oracle Web Cache Interoperability

Table 2–3 describes the upgrade-related interoperability of Oracle Web Cache with other Oracle Fusion Middleware components.

Table 2–3 Oracle Web Cache Interoperability

	Standalone Web Cache 10.1.2	Integrated Web Cache 10.1.2	Web Cache 11gR1
Forms, Portal, Reports, Discoverer 10.1.2	✔	✔	✘
Forms, Portal, Reports, Discoverer 11gR1	✘	✘	✔
ADF, SOA, WebCenter 10.1.3	✔	✔	✘

Table 2–3 (Cont.) Oracle Web Cache Interoperability

	Standalone Web Cache 10.1.2	Integrated Web Cache 10.1.2	Web Cache 11gR1
ADF, SOA, WebCenter 11gR1	✘	✘	✔

2.2.3 Oracle Identity Management Suite Interoperability

Table 2–4 describes the upgrade-related interoperability of Oracle HTTP Server 10g with other Oracle Fusion Middleware components

Table 2–4 Oracle Identity Management Suite Interoperability

	Oracle Internet Directory 10.1.2.3	Oracle Internet Directory 10.1.4.3	Oracle Internet Directory 11gR1
OSSO 10.1.2.3 See Section 2.2.3.1, "Interoperability of Oracle Internet Directory 11g and Single Sign-On 10g"	✔	✔	✔
OSSO 10.1.4.3 See Section 2.2.3.1, "Interoperability of Oracle Internet Directory 11g and Single Sign-On 10g"	✔	✔	✔
Forms, Portal, Reports, Discoverer 10g See Section 2.2.3.3, "Oracle Application Server 10g Dependencies on Oracle Identity Management 10g"	✔	✔	✔
Forms, Portal, Reports, Discoverer 11gR1 See Section 2.2.3.3, "Oracle Application Server 10g Dependencies on Oracle Identity Management 10g"	✔	✔	✔

This section provide answers to specific Oracle Identity Management Interoperability issues:

- Interoperability of Oracle Internet Directory 11g and Single Sign-On 10g
- Oracle Application Server 10g Dependencies on Oracle Identity Management 10g
- Oracle Identity Management 10g Components in a Collocated Home

2.2.3.1 Interoperability of Oracle Internet Directory 11g and Single Sign-On 10g

Oracle Fusion Middleware 11*g* (11.1.1.4.0) provides an upgrade path for Oracle Application Server Single Sign-On users. Specifically, you can upgrade your Oracle Application Server Single Sign-On environment to Oracle Access Manager 11*g*.

You can also continue to use your existing Oracle Application Server Single Sign-On 10*g* environment with your newer Oracle Fusion Middleware 11*g* components.

However, after upgrading your Oracle Internet Directory (and Oracle Directory Integration Platform) instances to 11*g*, there are some post-upgrade tasks required in order for Oracle Application Server Single Sign-On 10*g* to work successfully with the upgraded Oracle Internet Directory instance.

For more information, follow the instructions for upgrading Oracle Internet Directory and Oracle Directory Integration Platform in the *Oracle Fusion Middleware Upgrade Guide for Oracle Identity Management.*

2.2.3.2 Oracle Identity Management 10g Components in a Collocated Home

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

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

> **Note:** The *Oracle Fusion Middleware Upgrade Guide for Oracle Identity Management* provides additional information about the required upgrade tasks for Oracle Identity Management components. Refer to this guide before you begin your upgrade planning.

2.2.3.3 Oracle Application Server 10g Dependencies on Oracle Identity Management 10g

Some of the components in Oracle Application Server 10*g* Release 2 (10.1.2) depend upon specific Oracle Identity Management 10*g* 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 11*g*:

- If you upgrade the Oracle Portal, Forms, Reports, and Discoverer middle tier components to 11*g* 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 11*g* before you upgrade the Oracle Portal, Forms, Reports, and Discoverer components, then the only restriction to consider is when the Oracle Identity Management 10*g* components are in a collocated Oracle home. See Section 2.2.3.2, "Oracle Identity Management 10g Components in a Collocated Home".

3

Interoperability Between Oracle Fusion Middleware 11*g* Components

The following sections describe interoperability scenarios to consider when you are using Oracle Fusion Middleware 11*g* components with other Oracle Fusion Middleware 11*g* components.

This chapter contains the following sections:

- Section 3.1, "Oracle Web Services Interoperability"
- Section 3.2, "Oracle Identity Management Interoperability"
- Section 3.3, "Domain Extension Interoperability"

3.1 Oracle Web Services Interoperability

Web services are Web-based applications that use open, XML-based standards and transport protocols to exchange data with clients. Web services are developed using Java Technology APIs and tools provided by an integrated Web services category.

Oracle supports the following Web services categories, which are associated with specific Oracle Fusion Middleware products and components:

- JAX-WS Web Services for Oracle WebLogic Serve
- Web Services for ADF Business Components
- Web Services for Oracle SOA Suite
- Web Services for Oracle Service Bus 11g

These Oracle Web services categories support a variety of Web services message formats, capabilities, and security features. While this support varies from one category to another, all the Oracle Web services categories support the following standard features in the communication messages they send and receive:

- Plain SOAP
- WS-Security, With SSL
- WS-Security, No SSL

As a result, if you develop Web services applications that support these types of Web services messages, then the services you create can be used interoperably with any of the Oracle Web services security categories.

For a more information about the supported WS-Security scenarios between the categories and information on how to configure Web services endpoints, refer to the *Oracle Fusion Middleware Interoperability Guide for Oracle Web Services Manager*.

For more information about each of the Oracle Web services categories, see the following sections:

- JAX-WS Web Services for Oracle WebLogic Server
- Web Services for ADF Business Components
- Web Services for Oracle SOA Suite
- Web Services for Oracle Service Bus 11g

3.1.1 JAX-WS Web Services for Oracle WebLogic Server

JAX-WS is designed to take the place of JAX-RPC in Web services and Web applications. To compare the features that are supported for JAX-WS and JAX-RPC, see "How Do I Choose Between JAX-WS and JAX-RPC?" in *Oracle Fusion Middleware Introducing WebLogic Web Services for Oracle WebLogic Server*. For information about migrating a JAX-RPC Web service to JAX-WS, "Migrating JAX-RPC Web Services and Clients to JAX-WS."

3.1.2 Web Services for ADF Business Components

ADF Business Components simplify the development, delivery, and customization of business applications for the Java EE platform by providing a library of reusable components and supporting design time facilities in Oracle JDeveloper.

For more information, see "Integrating Service-Enabled Application Modules" in *Oracle Fusion Middleware Fusion Developer's Guide for Oracle Application Development Framework*.

3.1.3 Web Services for Oracle SOA Suite

Oracle SOA composite applications include the SOA service components. SOA service components are the basic building blocks of SOA applications, implementing a part of the overall business logic functionality.

Note that you can deploy SOA service components to the Oracle Fusion Middleware environment. For more information about developing SOA service components, see *Oracle Fusion Middleware Developer's Guide for Oracle SOA Suite*.

3.1.4 Web Services for Oracle Service Bus 11*g*

Oracle Service Bus uses the underlying WebLogic security framework as building blocks for its security services. Specifically, the Oracle Service Bus uses the WebLogic Server JAX-RPC stack to implement its web services and that the WebLogic Server security framework is used for protecting these services.

For information about configuring and attaching policies, see "Using WS-Policy in Oracle Service Bus Proxy and Business Services" in *Oracle Fusion Middleware Developer's Guide for Oracle Service Bus*.

3.2 Oracle Identity Management Interoperability

This section describes Oracle Identity Management interoperability considerations.

Note: Interoperability between the Oracle Identity Management Suite and the other Oracle Fusion Middleware 11*g* components is documented in the Oracle Fusion Middleware Supported System Configurations page at:]

http://www.oracle.com/technetwork/middleware/downloads/fmw-11gr1certmatrix.xls

3.2.1 Oracle HTTP Server 11g WebGates

Oracle HTTP Server WebGates integrate with Oracle Fusion Middleware 11*g* through the following:

- Weblogic
  - Weblogic Identity Assertion Provider that will reside in Weblogic Server
  - Oracle HTTP Server 11*g* webtier
  - Oracle HTTP Server 11*g* Webgates

  For more information, see "Configuring Single Sign-On in Oracle Fusion Middleware" in the *Oracle Fusion Middleware Application Security Guide*.
- Websphere
  - Websphere connector that will reside in Websphere
  - IBM HTTP Server 11*g* webtier
  - IBM HTTP Server 11*g* Webgates

  For more information, see *Oracle Fusion Middleware Configuration Guide for IBM WebSphere Application Server*.

Review the following Oracle Access Management (OAM) integration considerations:

- If you are using a OAM 10gR3 (10.1.4.3) backend or server, then use OAM 10.1.4.3 versions of OHS 11g WebGates for integration with Oracle Fusion Middleware components.
- If you are using a OAM 11gR1 (11.1.1.3) version of the product, then use OAM 11gR1 (11.1.1.3) versions of OHS 11gR1 webgates.

Note: For more information about individual Oracle Fusion Middleware product details integrating with OAM, see the product-specific documentation.

For more information about certified versions, see the Oracle Identity Management certification matrix at: http://www.oracle.com/technetwork/middleware/id-mgmt/identity-accessmgmt-11gr1certmatrix-161244.xls.

3.3 Domain Extension Interoperability

In general, you can extend an existing Oracle Fusion Middleware product domain to support another Oracle Fusion Middleware product, as long as they are the same version number or patch set. For example, if you have an existing SOA Suite 11.1.1.3.0 domain, do not attempt to extend or patch that domain using Oracle WebCenter 11.1.1.3.1. To avoid potential interoperability issues, wait until both suites are available at equivalent versions.

Table 3–1 describes scenarios when two different products from different Oracle Fusion Middleware suites are collocated within the same domain. In these particular scenarios you will not be able to extend, upgrade, or patch one of the products before the other is available at the same version.

Note: Oracle Identity Management domains should not be extended with any other Oracle Fusion Middleware components except for those in the SOA Suite. Oracle Identity Management does not currently support sharing a domain with any of the other products.

Table 3–1 Domain Extension Interoperability Considerations

Scenario	Description	Solution
Extending a domain with a WebLogic SIP Server	SIP servers cannot be collocated in an existing Fusion Middleware domain.	When extending an existing Fusion Middleware domain deselect the Basic WebLogic SIP Server Domain.
Extending a domain with Oracle Portal, Forms, Reports, and BI Discoverer	Oracle Portal, Forms, Reports, and BI Discoverer should not be collocated with other Oracle Fusion Middleware components	Create a separate domain for Portal, Forms, Reports and Business Intelligence Discoverer.

4

Interoperability with Custom and Client Applications

This chapter describes the interoperability considerations of your custom (or client) applications when upgrading Oracle Fusion Middleware components or when applying patch sets. The chapter contains the following sections:

- Section 4.1, "What are custom and client applications?"
- Section 4.2, "Oracle WebLogic Server Interoperability with Custom and Client Applications"
- Section 4.3, "Oracle SOA Suite Interoperability with Custom and Client Applications"

4.1 What are custom and client applications?

When you upgrade from Oracle Application Server 10*g* to Oracle Fusion Middleware 11*g*, or if you apply any patches on an existing Oracle Fusion Middleware 11*g* environment, you should consider the impact on your custom applications as defined as:

- Applications written using JDeveloper
- Applications using any other IDE, but also using any of the Oracle Fusion Middleware public Java APIs.

Specifically, the information in this section applies in the following situations:

- If you have created custom applications that you have deployed on Oracle Application Server 10*g* or Oracle Fusion Middleware 11*g*.
- If you have created or if you maintain client applications that interact with applications you deployed on Oracle Application Server 10*g* or Oracle Fusion Middleware 11*g*.

Oracle attempts to support binary and source-level compatibility between the current version of Fusion Middleware and patch set updates applied to it. Where incompatibilities arise with public interfaces, they are documented in the related API reference guides at `http://download.oracle.com/docs/cd/E14571_01/ref.htm`.

Oracle recommends that you ensure the business applications adopting these patch sets and upgrades are tested through your normal release process to ensure there are no regressions.

4.2 Oracle WebLogic Server Interoperability with Custom and Client Applications

In general, applying Oracle WebLogic patch sets should require no additional changes to your custom or client applications. When upgrading, however, you should expect some changes.

For more information on WebLogic Server compatibility, see "WebLogic Server 10.3.1 Compatibility with Previous Releases" in *Oracle Fusion Middleware Upgrade Guide for Oracle WebLogic Server*.

4.3 Oracle SOA Suite Interoperability with Custom and Client Applications

This section provides information about the interoperability between your upgraded Oracle SOA Suite 10g applications and the client applications that depend upon them.

When you upgrade your Oracle SOA Suite applications to 11*g*, you must review your client applications and make modifications to the clients before they can interoperate with the upgraded Oracle SOA Suite applications.

In some cases, a patch is necessary before the clients can work with Oracle SOA Suite 11*g*. For more information, see "Upgrading Oracle SOA Suite Client Applications" in the *Oracle Fusion Middleware Upgrade Guide for Oracle SOA Suite, WebCenter, and ADF*.

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