# Oracle® Fusion Middleware

Upgrading to the Oracle Fusion Middleware Infrastructure 12c (12.2.1)

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Documentation for Oracle Fusion Middleware administrators who want to upgrade to the Oracle Fusion Middleware Infrastructure 12*c*.

ORACLE

Oracle Fusion Middleware Upgrading to the Oracle Fusion Middleware Infrastructure, 12c (12.2.1)

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# Contents


Preface ..... ix

Audience ..... ix
Related Documents ..... ix
Conventions ..... ix

What's New in This Guide ..... xi

New and Changed Features for 12c (12.2.1) ..... xi
Other Changes to This Guide ..... xi

**1** Preparing for the Oracle Fusion Middleware Infrastructure Upgrade

1.1 Understanding the Starting Points for an Oracle Fusion Middleware Infrastructure Upgrade ..... 1-2
1.1.1 About Oracle Fusion Middleware Infrastructure 12c ..... 1-2
1.1.2 Key Differences Between Application Developer 11g and Infrastructure 12c ..... 1-2
1.2 Upgrading Security Store ..... 1-6
1.3 Understanding the Standard Upgrade Topologies for Infrastructure ..... 1-6
1.3.1 Fusion Middleware Infrastructure Standard Upgrade Topology ..... 1-6
1.3.2 Fusion Middleware Infrastructure Standard Upgrade Topology with Oracle HTTP Server ..... 1-9
1.4 Understanding the Additional New Features for Oracle Fusion Middleware 12c ..... 1-11
1.5 Flow Chart and Task Roadmaps for Upgrading to Oracle Fusion Middleware Infrastructure ..... 1-12
1.5.1 Flow Chart for Upgrading the Infrastructure Standard Upgrade Topologies ..... 1-12
1.5.2 Task Roadmap for Upgrading the Infrastructure Standard Upgrade Topologies ..... 1-12
1.6 About Upgrading Oracle HTTP Server ..... 1-14
1.7 Upgrading Custom Applications Using Oracle JDeveloper 12c ..... 1-14

**2** Pre-Upgrade Checklist

2.1 Creating a Complete Backup (Required) ..... 2-5
2.2 Cloning Your Production Environment for Testing (Recommended) ..... 2-6
2.3 Verifying Certification and System Requirements ..... 2-6
2.3.1 Verify Your Environment Meets Certification Requirements ..... 2-7

2.3.2 Verify System Requirements and Specifications ..... 2-7
2.3.3 Verify that the database hosting Oracle Fusion Middleware is supported ..... 2-8
2.3.4 Verify that the JDK is certified for this release of Oracle Fusion Middleware. ..... 2-8
2.4 Migrating from a 32-Bit to a 64-Bit Operating System ..... 2-8
2.4.1 Procure the Hardware that Supports your Upgrade's 64-bit Software Requirement ..... 2-10
2.4.2 Stop all processes, including the Administration Server, Managed Servers, and Node Manager ..... 2-10
2.4.3 Back up all Files from the 32-bit Host Machine ..... 2-10
2.4.4 Set up the Target 64-bit Machine with the 11g Host Name and IP Address ..... 2-10
2.4.5 Restore the 11g Backup from 32-bit Host to 64-bit Host ..... 2-10
2.4.6 Install the 12c Product Distribution(s) on the Target Machine ..... 2-11
2.4.7 Upgrade the Target 64-bit Environment Using the Standard Upgrade Procedure .. 2-11
2.5 Purging Unused Data ..... 2-11
2.6 Creating the Required Schemas Before Upgrade ..... 2-11
2.7 Reassociating File-based Policy Stores to Database-based Policy Stores (Required) ..... 2-12
2.7.1 Creating 11g OPSS and IAU Schemas ..... 2-13
2.7.2 Reassociating the 11g Policy Store with the Database-Based Policy Store and OPSS Schema ..... 2-13
2.7.3 Validating that the Policy Store Reassociation is Successful ..... 2-13
2.8 Creating the 12c OPSS Schema for an OID-based Security Store ..... 2-14
2.9 Upgrading Security Stores to the Latest Version ..... 2-15
2.10 Creating a Non-SYSDBA User ..... 2-16
2.11 Using Enhanced Encryption (AES 256) ..... 2-17
2.12 Creating an Edition on the Server for Edition-Based Redefinition (Optional) ..... 2-18
2.13 Downloading and Installing the 12c Oracle Fusion Middleware Product Distributions . 2-18
2.14 Maintaining Custom Domain Environment Settings ..... 2-19
2.15 Running a Pre-Upgrade Readiness Check ..... 2-19
2.16 Locating the Component-Specific Upgrade Documentation ..... 2-20

**3** Upgrading to the 12c Infrastructure from the 11g Release

3.1 Completing the Pre-Upgrade Tasks for Infrastructure (Required) ..... 3-2
3.1.1 Maintaining Your Custom setDomainEnv Settings (Optional) ..... 3-3
3.1.2 Using No-Auth SSL Mode in OID Security Store ..... 3-4
3.1.3 Removing the Server Instance Scope from OWSM Policy Sets ..... 3-5
3.1.4 Cloning Predefined Documents and Migrating OWSM Policy Attachments ..... 3-5
3.2 Installing Oracle Fusion Middleware Infrastructure on APPHOST ..... 3-5
3.3 Installing Oracle HTTP Server ..... 3-6
3.4 Stopping Servers and Processes ..... 3-6
3.5 Using the Schema Version Registry to Identify Existing 11g Schemas ..... 3-7
3.6 Creating the Required Schemas Before You Upgrade ..... 3-7
3.6.1 Determining Which Schemas to Create ..... 3-7
3.6.2 Creating the Required Schemas with the Repository Creation Utility (RCU) ..... 3-8

3.7 About Upgrading Schemas using the Upgrade Assistant ..... 3-8
3.8 Identifying Schemas that Can be Upgraded with the Upgrade Assistant ..... 3-9
3.9 Starting the Upgrade Assistant ..... 3-10
3.10 Upgrading Schemas with the Upgrade Assistant ..... 3-11
3.11 Upgrade Assistant Screens ..... 3-15
3.11.1 Welcome ..... 3-16
3.11.2 Schemas ..... 3-16
3.11.3 All Schemas Used by Domain ..... 3-17
3.11.4 All Configurations Used by a Domain ..... 3-18
3.11.5 Standalone Components ..... 3-19
3.11.6 Available Components ..... 3-20
3.11.7 All Schemas Component List ..... 3-21
3.11.8 WebLogic Server Component List ..... 3-22
3.11.9 Prerequisites ..... 3-23
3.11.10 Edition-Based Redefinition (EBR) Database Upgrade ..... 3-24
3.11.11 Schema Credentials Screen ..... 3-25
3.11.12 Instance Directories ..... 3-28
3.11.13 Node Manager ..... 3-29
3.11.14 User Messaging Service Configuration ..... 3-30
3.11.15 Examine ..... 3-32
3.11.16 Examine Failure ..... 3-33
3.11.17 Upgrade Summary ..... 3-34
3.11.18 Upgrade Progress ..... 3-35
3.11.19 Upgrade Success ..... 3-36
3.11.20 Upgrade Failure ..... 3-37
3.11.21 Cancel Upgrade ..... 3-38
3.12 Reconfiguring the Domain using the Reconfiguration Wizard ..... 3-38
3.13 Upgrading the Domain Component Configurations Using the Upgrade Assistant ..... 3-48
3.13.1 Task 1: Starting the Upgrade Assistant ..... 3-49
3.13.2 Task 2: Upgrading Component Configurations ..... 3-49
3.14 Troubleshooting the Infrastructure Upgrade ..... 3-51
3.14.1 Error while Reconfiguring the Domain using Reconfiguration Wizard ..... 3-52
3.14.2 Authentication Failure — JSchException: Auth Fail ..... 3-52
3.14.3 Error while Copying User Messaging Service (UMS) Configuration Files ..... 3-52
3.15 Performing the Post-Upgrade Tasks ..... 3-53

**4** Upgrading the 12c Infrastructure from a Previous 12c Release

4.1 Performing the Required Pre-Upgrade Tasks ..... 4-2
4.2 About Upgrading Schemas using the Upgrade Assistant ..... 4-2
4.3 Identifying Schemas that Can be Upgraded with the Upgrade Assistant ..... 4-3
4.4 Starting the Upgrade Assistant ..... 4-4
4.5 Upgrading Schemas with the Upgrade Assistant ..... 4-4
4.6 Upgrade Assistant Screens ..... 4-9

4.6.1 Welcome ..... 4-10
4.6.2 Schemas ..... 4-10
4.6.3 All Schemas Used by Domain ..... 4-11
4.6.4 All Configurations Used by a Domain ..... 4-12
4.6.5 Standalone Components ..... 4-13
4.6.6 Available Components ..... 4-14
4.6.7 All Schemas Component List ..... 4-15
4.6.8 WebLogic Server Component List ..... 4-16
4.6.9 Prerequisites ..... 4-17
4.6.10 Edition-Based Redefinition (EBR) Database Upgrade ..... 4-18
4.6.11 Schema Credentials Screen ..... 4-19
4.6.12 Instance Directories ..... 4-22
4.6.13 Node Manager ..... 4-23
4.6.14 User Messaging Service Configuration ..... 4-24
4.6.15 Examine ..... 4-26
4.6.16 Examine Failure ..... 4-27
4.6.17 Upgrade Summary ..... 4-28
4.6.18 Upgrade Progress ..... 4-29
4.6.19 Upgrade Success ..... 4-30
4.6.20 Upgrade Failure ..... 4-31
4.6.21 Cancel Upgrade ..... 4-32
4.7 Reconfiguring the Domain using the Reconfiguration Wizard ..... 4-32
4.8 Upgrading the Domain Component Configurations Using the Upgrade Assistant ..... 4-42
4.8.1 Task 1: Starting the Upgrade Assistant ..... 4-43
4.8.2 Task 2: Upgrading Component Configurations ..... 4-43

**5** Tasks to Perform After Upgrade

5.1 Using the Upgrade Validation Checklist ..... 5-2
5.2 Starting and Stopping Servers in the Correct Order ..... 5-2
5.2.1 Starting the Node Manager ..... 5-4
5.2.2 Starting the Administration Server ..... 5-4
5.2.3 Starting the Webtier (Oracle HTTP Server) ..... 5-5
5.3 Verifying the Domain-specific-Component Configurations Upgrade ..... 5-5
5.4 Reapplying Custom Configuration Settings to setDomainEnv ..... 5-5
5.5 Configuring an Oracle Fusion Middleware 12c Audit Data Store ..... 5-6
5.6 Maintaining the Security Status of Older Java EE Web Service Applications ..... 5-6
5.7 Documentation Resources for Managing your Oracle Fusion Middleware 12c Software ..... 5-7
5.8 Using Your 11g Application Deployments in Oracle Fusion Middleware 12c ..... 5-7
5.8.1 About Oracle Application Development Framework (ADF) 12c ..... 5-8
5.8.2 About Oracle JDeveloper 12c ..... 5-8

**A** Running a Pre-Upgrade Readiness Check

A.1 Starting the Upgrade Assistant with Optional Arguments ..... A-1

A.1.1 Starting the Upgrade Assistant with Additional Parameters (Optional) ..... A-1
A.1.2 Starting the Upgrade Assistant in Response File Mode ..... A-4
A.2 Running a Pre-Upgrade Readiness Check ..... A-9
A.2.1 Starting the Upgrade Assistant in Readiness Mode ..... A-10
A.2.2 Performing the Readiness Check ..... A-10
A.2.3 Understanding the Readiness Report ..... A-12
A.3 Readiness Check Screens ..... A-21
A.3.1 Welcome ..... A-22
A.3.2 Readiness Check Type: Individually Selected Schemas ..... A-23
A.3.3 Readiness Check Type: Domain Based ..... A-23
A.3.4 Available Components ..... A-25
A.3.5 Schema Credentials ..... A-25
A.3.6 Readiness Summary ..... A-26
A.3.7 Readiness Check ..... A-27
A.3.8 Log Viewer ..... A-28
A.3.9 Readiness Success ..... A-29
A.3.10 Sample Readiness Report ..... A-30
A.4 Setting the DISPLAY Environment Variable ..... A-31
A.5 Starting the Reconfiguration Wizard ..... A-31

# Preface

Use this guide to upgrade the schemas, domain configurations, and supported 11g Oracle Fusion Middleware technologies to Oracle Fusion Middleware Infrastructure 12*c* (12.2.1).

This guide also provides information for upgrading from Oracle Fusion Middleware Infrastructure 12c (12.1.2 or 12.1.3) to 12c (12.2.1).


Audience

Related Documents

Conventions


## Audience

This document is intended for administrators who are familiar with Oracle Fusion Middleware installation, upgrade, and administration tasks.

## Related Documents

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

- *Planning an Upgrade of Oracle Fusion Middleware*
- *Installing and Configuring the Oracle Fusion Middleware Infrastructure*
- *Upgrading Oracle WebLogic Server*
- *Upgrading Oracle HTTP Server*
- *Upgrading Oracle Data Integrator*
- *Upgrading Oracle SOA Suite and Business Process Management*

## Conventions

The following text conventions are used in this document:

| Convention | Meaning |
|---|---|
| **boldface** | Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary. |

| Convention | Meaning |
| --- | --- |
| *italic* | Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values. |
| `monospace` | Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter. |

# What's New in This Guide

The topics in this chapter introduce the new and changed features of the Oracle Fusion Middleware upgrade tools and processes.

It also provides information about this book and provides pointers to additional information.

New and Changed Features for 12c (12.2.1)

Other Changes to This Guide

## New and Changed Features for 12c (12.2.1)

Oracle Fusion Middleware 12*c* introduces the following new upgrade processes and tools, as well as a new set of installers, which are now referred to as distributions:

- As of release 12c (12.1.2), there is a new distribution called Oracle Fusion Middleware Infrastructure. This distribution includes an installer that combines the features and capabilities of the Oracle WebLogic Server and Application Developer 11*g* installers.

  As a result, this distribution contains everything required to create Oracle WebLogic Server domains that can be used to deploy and manage Java and Oracle Application Development Framework (Oracle ADF) applications.

  For more information, see *Understanding Oracle Fusion Middleware*.

- As of release 12c (12.1.2), there is a new and improved Oracle Fusion Middleware Upgrade Assistant, which is used to upgrade the Oracle Fusion Middleware database schemas and upgrade the component configurations to 12*c*.

  For more information, see *Planning an Upgrade of Oracle Fusion Middleware*.

- As of release 12c (12.1.2), there is a new Reconfiguration Wizard, which upgrades your existing 11*g* domains to 12*c*.

  For more information, see *Upgrading Oracle WebLogic Server*.

## Other Changes to This Guide

As of release 12c (12.1.2), there is a new book for Oracle Fusion Middleware documentation library. However, it contains information similar to the Oracle ADF content formerly included in the Oracle Fusion Middleware 11*g* version of *Oracle Fusion Middleware Upgrade Guide for SOA, WebCenter, and ADF*.

For Oracle Fusion Middleware 12*c*, a separate guide was required to describe the upgrade process for Oracle Fusion Middleware 11*g* users who have installed and

configured an Application Developer 11*g* environment for the deployment and management of their Java and Oracle ADF custom applications.

# 1

# Preparing for the Oracle Fusion Middleware Infrastructure Upgrade

The topics in this section provide a high-level overview of the steps you should perform to prepare for an upgrade.

Understanding the Starting Points for an Oracle Fusion Middleware Infrastructure Upgrade
: The primary focus of the upgrade procedures in this guide is to upgrade an existing Application Server 11*g* domain and the Oracle Fusion Middleware component configurations in that domain to Oracle Fusion Middleware Infrastructure 12*c* (12.2.1).

Upgrading Security Store
: Before upgrading the OPSS security store, it is important to back up the security store so that it can be recovered in case the upgrade fails.

Understanding the Standard Upgrade Topologies for Infrastructure
: There are two upgrade topologies: Standard infrastructure upgrade topology and Infrastructure upgrade topology with Oracle HTTP Server.

Understanding the Additional New Features for Oracle Fusion Middleware 12c
: Before you begin the upgrade to Oracle Fusion Middleware Infrastructure 12*c*, review the new features and changes available in Oracle Fusion Middleware 12*c*.

Flow Chart and Task Roadmaps for Upgrading to Oracle Fusion Middleware Infrastructure
: The sections in this topic describe the high-level steps for upgrading the Oracle Fusion Middleware standard upgrade topology.

About Upgrading Oracle HTTP Server
: This guide explains how to upgrade Oracle HTTP Server 11*g* instances that have been configured so they are "associated with" an Oracle WebLogic Server domain. The upgrade is performed as you are upgrading the domain to which the Oracle HTTP Server has been associated.

Upgrading Custom Applications Using Oracle JDeveloper 12c
: If you have deployed custom applications to an Oracle Fusion Middleware Application Developer 11*g* domain, then the application deployments should function as they did in Oracle Fusion Middleware 11*g* after the upgrade procedure is complete. However, if you want to take advantage of new Oracle Application Development Framework (Oracle ADF) 12*c* features, download and install Oracle JDeveloper 12*c*.

# 1.1 Understanding the Starting Points for an Oracle Fusion Middleware Infrastructure Upgrade

The primary focus of the upgrade procedures in this guide is to upgrade an existing Application Server 11*g* domain and the Oracle Fusion Middleware component configurations in that domain to Oracle Fusion Middleware Infrastructure 12*c* (12.2.1).

You can upgrade to this version of Oracle Fusion Middleware Infrastructure from the following supported starting points:

- Oracle Fusion Middleware Application Developer 11*g* (11.1.1.6. 11.1.1.7, 11.1.1.8, 11.1.1.9)
- Oracle Fusion Middleware Infrastructure 12*c* (12.1.2 and 12.1.3).

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**Note:**

If you are upgrading Oracle HTTP Server instances associated with an existing Application Developer 11*g* domain or instructions for upgrading a standalone Oracle HTTP Server, see *Upgrading Oracle HTTP Server*.

---

About Oracle Fusion Middleware Infrastructure 12c
Oracle Fusion Middleware Infrastructure distribution, which is available as part of the Oracle Fusion Middleware 12*c* (12.2.1) release, provides a set of technologies and components similar to those provided by the Oracle WebLogic Server and Application Developer installers in 11*g*.

Key Differences Between Application Developer 11g and Infrastructure 12c
Oracle Fusion Middleware Infrastructure 12*c* is similar to the 11*g* Application Developer installation, except for few differences listed in this section.

## 1.1.1 About Oracle Fusion Middleware Infrastructure 12*c*

Oracle Fusion Middleware Infrastructure distribution, which is available as part of the Oracle Fusion Middleware 12*c* (12.2.1) release, provides a set of technologies and components similar to those provided by the Oracle WebLogic Server and Application Developer installers in 11*g*.

For more information about Oracle Fusion Middleware Infrastructure, see About Oracle Application Server Infrastructure 12*c* in *Understanding Interoperability and Compatibility*.

## 1.1.2 Key Differences Between Application Developer 11*g* and Infrastructure 12*c*

Oracle Fusion Middleware Infrastructure 12*c* is similar to the 11*g* Application Developer installation, except for few differences listed in this section.

Infrastructure 12c Includes Oracle WebLogic Server
The Application Developer 11*g* installation required two separate installations (Oracle WebLogic Server and then Application Developer to add the Oracle JRF libraries and components). In Oracle Fusion Middleware 12*c*, a fresh installation requires only the Oracle Fusion Middleware Infrastructure distribution, which contains both Oracle

WebLogic Server and the required Java Required Files (JRF) technologies.

Database Schema Requirement for Infrastructure 12c
: Unlike the Application Developer 11*g* installation, the Infrastructure 12*c* installation requires you to create a set of required schemas in a supported database. In particular, you must use the 12*c* Repository Creation Utility (RCU) to create the required database schemas before you can configure the Oracle Fusion Middleware Infrastructure 12 *c* software.

Using an OID-based Policy Store
: If you are using an Oracle Internet Directory (OID)-based policy store in 11*g*, use the 12*c* Repository Creation Utility (RCU) to create the new 12*c* OPSS schema. In the Upgrade Assistant, select the OPSS schema; the Upgrade Assistant upgrades the OID-based policy store. You do not need to reassociate an OID-based policy store before upgrade.

Infrastructure 12c Domains Can Include Oracle HTTP Server
: In Oracle Fusion Middleware 11*g*, Oracle HTTP Server instances are typically configured in a separate Oracle instance directory outside the 11*g* Middleware home. However, in Oracle Fusion Middleware 12*c*, Oracle HTTP Server instances can be configured a part of an Oracle WebLogic Server domain, using the Oracle Fusion Middleware Configuration Wizard.

#### 1.1.2.1 Infrastructure 12*c* Includes Oracle WebLogic Server

The Application Developer 11*g* installation required two separate installations (Oracle WebLogic Server and then Application Developer to add the Oracle JRF libraries and components). In Oracle Fusion Middleware 12*c*, a fresh installation requires only the Oracle Fusion Middleware Infrastructure distribution, which contains both Oracle WebLogic Server and the required Java Required Files (JRF) technologies.

Note that the upgrade procedure does not require the configuration of a new Oracle Fusion Middleware 12*c* domain. Instead, you use the Reconfiguration Wizard to upgrade the domain. For more information, see Understanding and Obtaining the Upgrade and Configuration Tools in *Planning an Upgrade of Oracle Fusion Middleware*.

#### 1.1.2.2 Database Schema Requirement for Infrastructure 12*c*

Unlike the Application Developer 11*g* installation, the Infrastructure 12*c* installation requires you to create a set of required schemas in a supported database. In particular, you must use the 12*c* Repository Creation Utility (RCU) to create the required database schemas before you can configure the Oracle Fusion Middleware Infrastructure 12 *c* software.

Depending upon your requirements, you must install one or more of the following database schemas before you can upgrade to Oracle Fusion Middleware Infrastructure 12*c*:

- The Service Table (STB) schema is a new schema required for all Oracle Fusion Middleware Infrastructure 12*c* installations. This schema enables a new 12*c* feature called Cross-Component Wiring. For more information, see Cross-Component Wiring in *Administering Oracle Fusion Middleware*. You must install this schema before upgrading to 12*c*.
- The OPSS schema, which provides a database-based policy store for Oracle Platform Security Services.

Table 1-1 provides an overview of the policy stores used in 11*g* and how to upgrade them.

***Table 1-1 Overview of Upgrading the Oracle Fusion Middleware 11g Policy Store***

| If you are using... | Then perform the following action: | More Information |
|---|---|---|
| Oracle Internet Directory (OID)-based policy store in 11*g* | – Before the upgrade, use the 12*c* Repository Creation Utility (RCU) to create the new 12*c* OPSS schema.<br>– In the Upgrade Assistant, select the OPSS schema; the Upgrade Assistant upgrades the OID-based policy store.<br>**Note:** The 12*c* OPSS database schema is required only so you can reference the 12*c* schema during the reconfiguration of the domain. Your domain will continue to use the OID-based policy store after the upgrade. | – Upgrading an OID-Based Security Store |
| Database-based policy store and the OPSS schema | Use the Upgrade Assistant to upgrade the existing 11*g* OPSS schema. | – Using the Reconfiguration Wizard to Reconfigure the Domain |

- The IAU schema, which is used for the OPSS auditing capabilities.

  You might be required to create the IAU 12*c*schema, depending on whether or not you are using an Audit Data Store in 11*g* and the type of Audit Data Store you are using. For more information, see Table 1-2.

***Table 1-2 Overview of Upgrading the Oracle Fusion Middleware 11g Audit Store***

*Table 1-2 (Cont.) Overview of Upgrading the Oracle Fusion Middleware 11g Audit Store*

| If you are using... | Then perform the following action: | More Information |
|---|---|---|
| File- based audit store in 11*g* | – Before the upgrade, create a new 12*c* IAU schema. | – Creating the Required Schemas with the Repository Creation Utility (RCU) |
| Database-based audit store and the IAU 11*g* schema | – Use the Upgrade Assistant to upgrade the existing 11*g* IAU schema, and then reference the upgraded 11*g* schema during the domain reconfiguration. | – Using the Reconfiguration Wizard to Reconfigure the Domain |

#### 1.1.2.3 Using an OID-based Policy Store

If you are using an Oracle Internet Directory (OID)-based policy store in 11*g*, use the 12*c* Repository Creation Utility (RCU) to create the new 12*c* OPSS schema. In the Upgrade Assistant, select the OPSS schema; the Upgrade Assistant upgrades the OID-based policy store. You do not need to reassociate an OID-based policy store before upgrade.

> **Note:** The 12*c* OPSS database schema is required only so you can reference the 12*c* schema during the reconfiguration of the domain. Your domain will continue to use the OID-based policy store after the upgrade.

#### 1.1.2.4 Infrastructure 12*c* Domains Can Include Oracle HTTP Server

In Oracle Fusion Middleware 11*g*, Oracle HTTP Server instances are typically configured in a separate Oracle instance directory outside the 11*g* Middleware home. However, in Oracle Fusion Middleware 12*c*, Oracle HTTP Server instances can be configured a part of an Oracle WebLogic Server domain, using the Oracle Fusion Middleware Configuration Wizard.

Oracle HTTP Server 11*g* instances are managed using the Oracle Process Manager and Notification Server (OPMN) management software. Optionally, the Oracle HTTP Server 11*g* instances can be "associated with" the WebLogic domain.

When configured as part of an Oracle Fusion Middleware Infrastructure domain, Oracle HTTP Server instances can be managed using Oracle Enterprise Manager Fusion Middleware Control and the Oracle WebLogic Scripting Tool (WLST). In Oracle Fusion Middleware 12*c*, the Node Manager agent is responsible for delegating and executing management requests to OHS instances.

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

For more information on upgrade the Oracle HTTP Server, see *Upgrading Oracle HTTP Server*.

## 1.2 Upgrading Security Store

Before upgrading the OPSS security store, it is important to back up the security store so that it can be recovered in case the upgrade fails.

For details about backing up the security store, see Backing Up and Recovering the OPSS Security Store.

The upgrade procedure varies depending on the type of security store you start from. The security store to be upgraded can be file-based, OID-based, or DB-based. Note that the procedures vary depending upon the type of source audit data store (file-based or DB-based).

- Upgrading a DB-Based Security Store
- Upgrading an OID-Based Security Store
- Upgrading a Shared Security Store
- Upgrading a File-Based Security Store

## 1.3 Understanding the Standard Upgrade Topologies for Infrastructure

There are two upgrade topologies: Standard infrastructure upgrade topology and Infrastructure upgrade topology with Oracle HTTP Server.

Using the Oracle Fusion Middleware Application Developer 11*g* software, you can create a variety of production topologies to suit the needs of your applications, your organization, and your application users.

As a result, it is difficult to provide exact upgrade instructions for every possible Application Developer 11*g* installation. To solve this problem, this upgrade documentation provides detailed instructions for upgrading two typical Application Developer configurations. These typical topologies are referred to as the Oracle Fusion Middleware 12*c* standard upgrade topologies.

Specifically, for the purposes of this guide, it is assumed that you have used Oracle WebLogic Server and the Application Developer 11*g* software to configure a domain that contains a cluster of two managed servers, both of which are configured to support Oracle JRF and the deployment of Oracle ADF applications.

Your actual topology may vary, but the topologies described here provide an example that can be used as a guide to upgrade other similar Application Developer topologies.

This guide explains how to upgrade the following two specific upgrade topologies step-by-step:

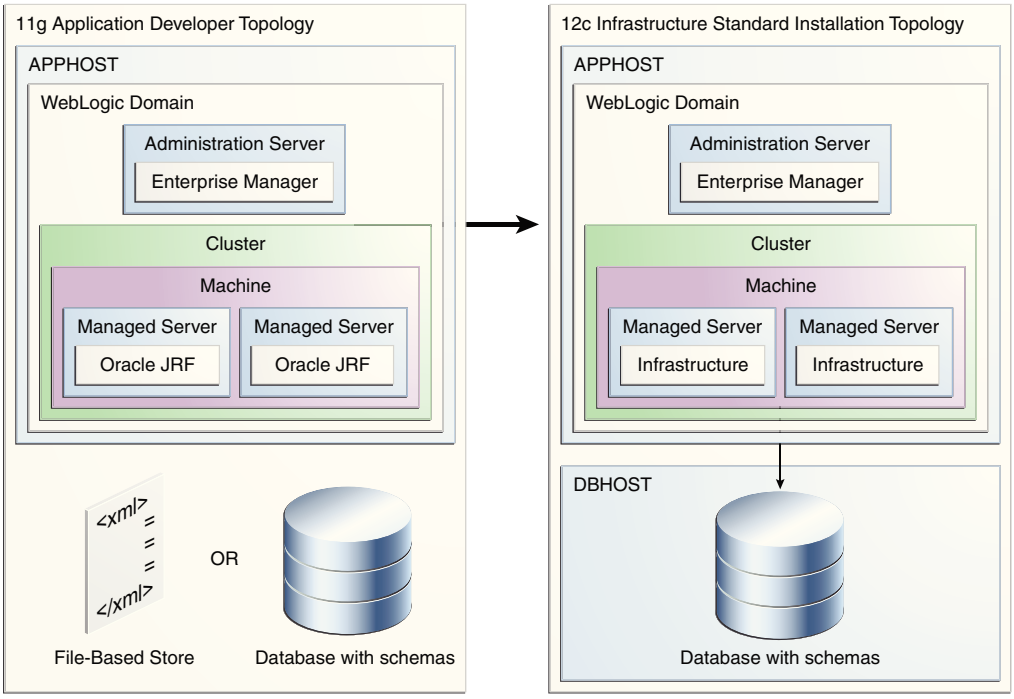
Fusion Middleware Infrastructure Standard Upgrade Topology

Fusion Middleware Infrastructure Standard Upgrade Topology with Oracle HTTP Server

### 1.3.1 Fusion Middleware Infrastructure Standard Upgrade Topology

Figure 1-1 shows the Oracle Fusion Middleware 11*g* Application Developer standard upgrade topology and the resulting Oracle Fusion Middleware 12*c* Infrastructure topology as it appears after you complete the upgrade procedures in this guide.

***Figure 1-1 Infrastructure Upgrade Topology***




All elements in this topology illustration are described in Table 1-3.

***Table 1-3 Description of the Elements in the Infrastructure Standard Upgrade Topology***

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

***Table 1-3 (Cont.) Description of the Elements in the Infrastructure Standard Upgrade Topology***

| Element | Description and Links to Additional Documentation |
|---|---|
| DBHOST | Standard term used in Oracle documentation referring to the machine that is hosting the database.<br>Note that for Application Developer 11*g*, a database is optional; for Oracle Fusion Middleware 12*c*, a database is required. For more information, see Database Schema Requirement for Infrastructure 12*c*. |
| File-Based Store | An XML, file-based security store. In 11*g*, you could use a file-base security store or a database-based security store.<br>However, in 12*c*, the file-based store is deprecated, and you must use the Oracle Platform Security Services (OPSS) schema in a supported database. The Reconfiguration Wizard automates the process of reassociating file-based stores to DB-based stores. |
| Database with Schemas | Represents a supported database, where the Oracle Fusion Middleware schemas have been created using the Repository Creation Utility (RCU). |
| WebLogic Domain | A logically related group of Java components (in this case, the administration Server, Managed Servers, and other related software components).<br>For more information, see What is an Oracle WebLogic Server Domain in *Understanding Oracle Fusion Middleware*. |
| Administration Server | The central control entity of a domain which maintains the domain's configuration objects and distributes configuration changes to Managed Servers.<br>For more information, see What is the Administration Server in *Understanding Oracle Fusion Middleware*. |
| Enterprise Manager | Oracle Enterprise Manager Fusion Middleware Control. This is the main tool that can be used to manage your domain.<br>For more information, see Oracle Enterprise Manager Fusion Middleware Control in *Understanding Oracle Fusion Middleware*. |
| Cluster | A collection of multiple WebLogic Server instances running simultaneously and working together.<br>For more information, see Understanding Managed Servers and Managed Server Clusters in *Understanding Oracle Fusion Middleware*. |
| Machine | Logical representation of the computer that hosts one or more WebLogic Server instances (servers). Machines are also the logical glue between WebLogic Managed Servers and the Node Manager; in order to start or stop a Managed Server with Node Manager, the Managed Server must be associated with a machine. |

*Table 1-3 (Cont.) Description of the Elements in the Infrastructure Standard Upgrade Topology*

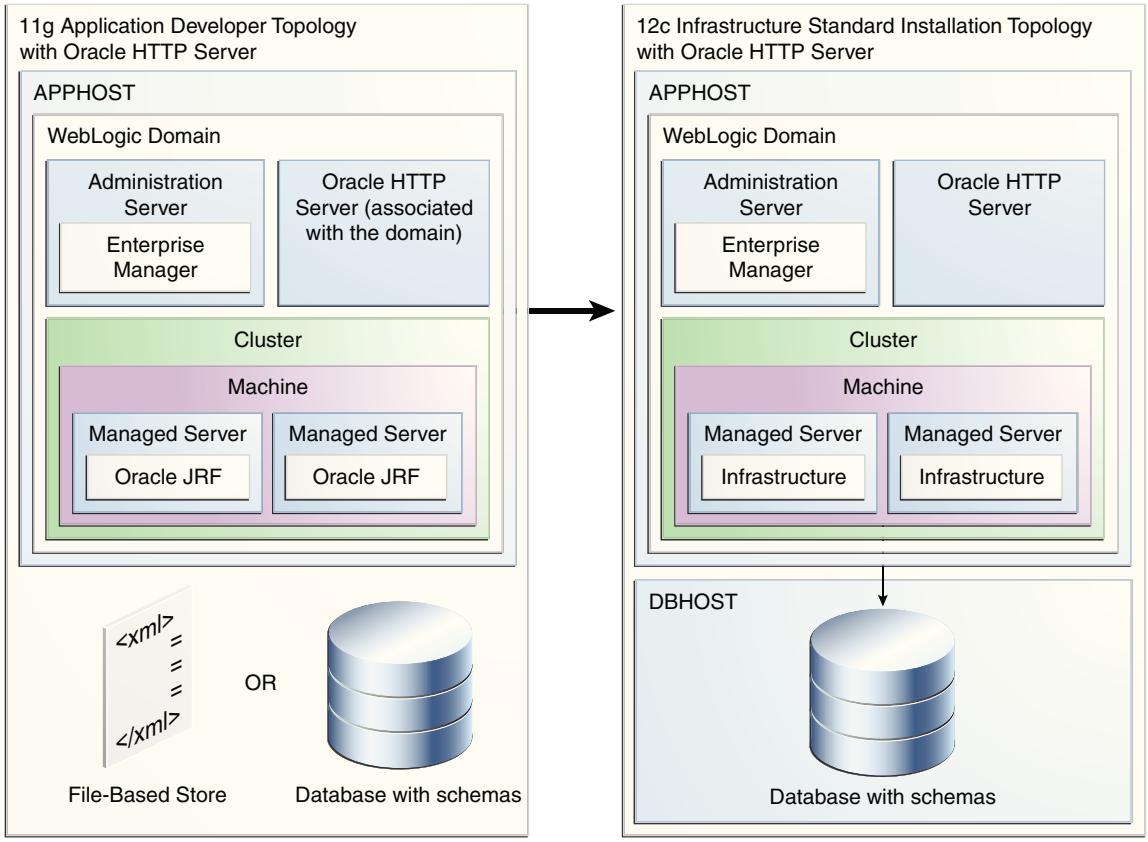
| Element | Description and Links to Additional Documentation |
|---|---|
| Managed Server | Host for your applications, application components, Web services, and their associated resources.<br>For more information, see Understanding Managed Servers and Managed Server Clusters in *Understanding Oracle Fusion Middleware*. |
| Oracle JRF | Oracle JRF (Java Required Files) consists of those components not included in the Oracle WebLogic Server installation and that provide common functionality for Oracle business applications and application frameworks.<br>JRF consists of several independently developed libraries and applications that are deployed into a common location. The components that are considered part of Java Required Files include Oracle Application Development Framework shared libraries and ODL logging handlers. |
| Infrastructure | Oracle Fusion Middleware 12*c* term (similar to Oracle JRF) that refers to the collection of services that include the following:<br>• Metadata repository (MDS)<br>This contains metadata for Oracle Fusion Middleware components, such as the Oracle Application Developer Framework.<br>For more information, see What is the Metadata Repository in *Understanding Oracle Fusion Middleware*.<br>• Oracle Application Developer Framework (ADF)<br>• Oracle Web Services Manager (OWSM) |

The Application Developer 11*g* topology is similar to the Oracle Fusion Middleware Infrastructure 12*c* topology, except for the differences described in Key Differences Between Application Developer 11*g* and Infrastructure 12*c*.

## 1.3.2 Fusion Middleware Infrastructure Standard Upgrade Topology with Oracle HTTP Server

Figure 1-2 shows the Oracle Fusion Middleware 11*g* Application Developer standard upgrade topology with Oracle HTTP Server and the resulting Oracle Fusion Middleware 12*c* Infrastructure topology as it appears after you complete the upgrade procedures in this guide.

***Figure 1-2 Infrastructure Standard Upgrade Topology with Oracle HTTP Server***




Most of the elements in this topology illustration are described in Table 1-3.

Additional elements and those different from Figure 1-1 are described in Table 1-4.

***Table 1-4 Description of the Elements in the Infrastructure Standard Upgrade Topology with Oracle HTTP Server***

| Element | Description and Links to Additional Documentation |
|---|---|
| 11*g* Application Developer Topology with Oracle HTTP Server | This is the label for the left side of Figure 1-2. It shows a typical single-host topology created using the Oracle Fusion Middleware 11*g* Application Developer installer.<br>It consists of a single domain that contains a cluster of two managed servers and the Administration Server. It also has an optional file-based store or database with schemas.<br>Figure 1-2 also shows an Oracle HTTP Server instance as part of the 11*g* domain.<br>This document describes, step-by-step, how to upgrade this topology to an equivalent topology created using the Oracle Fusion Middleware 12*c* Infrastructure distribution. |

***Table 1-4 (Cont.) Description of the Elements in the Infrastructure Standard Upgrade Topology with Oracle HTTP Server***

| Element | Description and Links to Additional Documentation |
|---|---|
| 12*c* Infrastructure Standard Installation Topology with Oracle HTTP Server | This is the label for the right side of the figure. It shows a typical single-host topology created using the Oracle Fusion Middleware 12*c* Infrastructure distribution.<br>Like the Application Developer 11*g* topology, it also consists of a single domain that contains a cluster of two managed servers and the Administration Server.<br>Figure 1-2 also shows an Oracle HTTP Server instance as part of the 12*c* domain. |
| Oracle HTTP Server associated with the domain | An Oracle HTTP Server 11*g* instance that has been configured to be associated with the Oracle WebLogic Server domain. In Oracle Fusion Middleware 11*g*, system component instance, such as Oracle HTTP Server, are configured with an Oracle Universal Installer-based configuration wizard and are managed using Oracle Process Manager and Notification Server. |
| Oracle HTTP Server | Unlike the Oracle HTTP Server 11*g* instance in the left side of the diagram, the Oracle HTTP Server 12*c* instance shown in the 12*c* topology is configured as part of the domain using the Oracle Fusion Middleware Configuration Wizard. It is managed using Oracle Enterprise Manager Fusion Middleware Control, the Oracle WebLogic Scripting Tool (WLST), and the Oracle WebLogic Server Node Manager software. |

**Note:** There are changes to way Oracle HTTP Server instances are created and managed in an Oracle Fusion Middleware 12*c* Oracle WebLogic Server domain. For more information, see Infrastructure 12*c* Domains Can Include Oracle HTTP Server.

## 1.4 Understanding the Additional New Features for Oracle Fusion Middleware 12*c*

Before you begin the upgrade to Oracle Fusion Middleware Infrastructure 12*c*, review the new features and changes available in Oracle Fusion Middleware 12*c*.

In particular, refer to the following sections in *Understanding Oracle Fusion Middleware*:

- New and Changed Features for 12c (12.1.3)
- New and Deprecated Terminology for 12c (12.1.3)
- What is the WebLogic Management Framework?

# 1.5 Flow Chart and Task Roadmaps for Upgrading to Oracle Fusion Middleware Infrastructure

The sections in this topic describe the high-level steps for upgrading the Oracle Fusion Middleware standard upgrade topology.

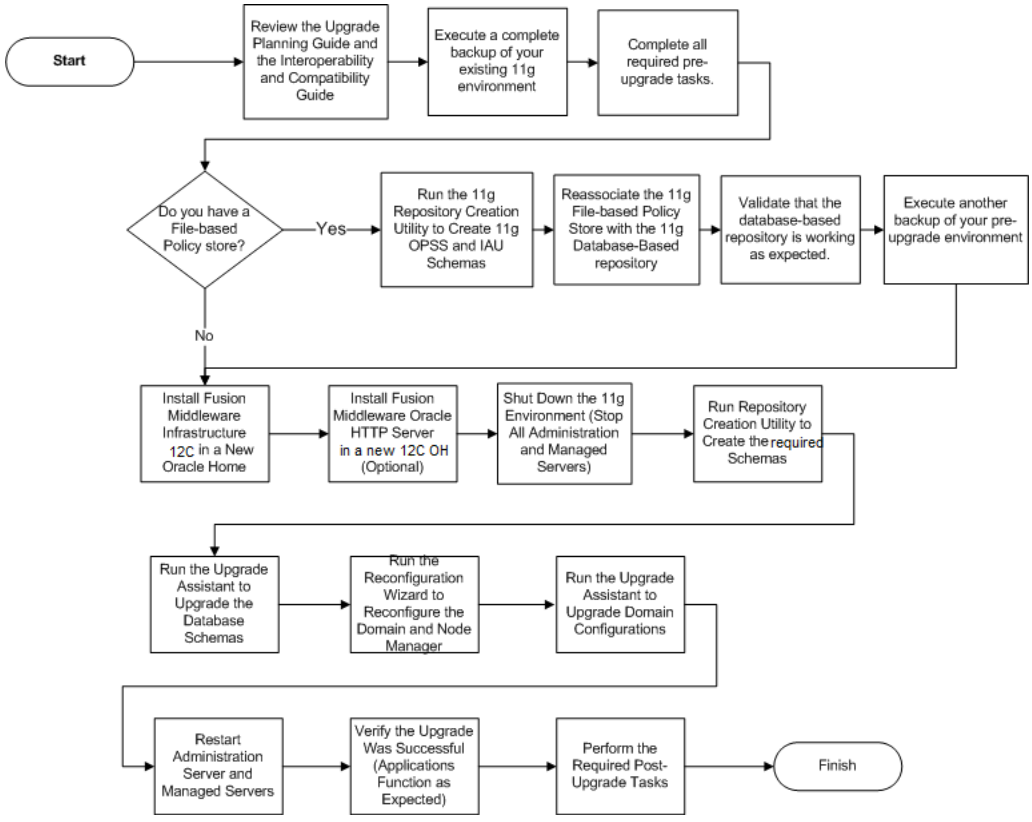
Flow Chart for Upgrading the Infrastructure Standard Upgrade Topologies
: This topic contains a flow chart showing the high-level process flow for upgrading the standard infrastructure topologies.

Task Roadmap for Upgrading the Infrastructure Standard Upgrade Topologies
: This topic describes the high-level tasks that must be completed to upgrade to Fusion Middleware Infrastructure 12*c*.

## 1.5.1 Flow Chart for Upgrading the Infrastructure Standard Upgrade Topologies

This topic contains a flow chart showing the high-level process flow for upgrading the standard infrastructure topologies.

***Figure 1-3 Flow Chart of the Infrastructure Upgrade Steps***




## 1.5.2 Task Roadmap for Upgrading the Infrastructure Standard Upgrade Topologies

This topic describes the high-level tasks that must be completed to upgrade to Fusion Middleware Infrastructure 12*c*.

***Table 1-5 Oracle Fusion Middleware Infrastructure Upgrade Roadmap***

***Table 1-5 (Cont.) Oracle Fusion Middleware Infrastructure Upgrade Roadmap***

| Task | Description | More Information |
|---|---|---|
| Review the new 12*c* concepts and perform common upgrade tasks. | Before planning your upgrade, you must review the 12*c* concepts, and common upgrade tasks. | *Planning an Upgrade of Oracle Fusion Middleware*<br>Understanding the Starting Points for an Oracle Fusion Middleware Infrastructure Upgrade<br>Understanding the Standard Upgrade Topologies for Infrastructure. |
| Execute a compete backup of your existing 11*g* environment. | The backup is important because the upgrade process will reconfigure your existing domain directories. | Completing the Pre-Upgrade Tasks for Infrastructure (Required) |
| Install Infrastructure 12.2.1 in a new Oracle Home. | Install Oracle Fusion Middleware Infrastructure 12*c* in a new Oracle Home on the host where you installed Oracle Fusion Middleware Application Developer 11*g*.<br>If the 11*g* environment includes Oracle HTTP Server instances that are associated with the domain, then Install Oracle HTTP Server 12*c* in the same Oracle home as the Infrastructure. | Installing Oracle Fusion Middleware Infrastructure on APPHOST.<br>Installing Oracle HTTP Server. |
| Shut down the 11*g* environment. | Stop the Administration Server and all the Managed Servers. | Stopping Servers and Processes. |
| Run the Upgrade Assistant to upgrade the database schemas. | Run the Upgrade Assistant to upgrade your existing 11*g* schemas to 12*c*. | |
| Run Repository Creation Utility (RCU) to create the 12*c* schemas. (For 11*g* to 12*c* upgrades only.) | Unlike Oracle Fusion Middleware 11*g*, you cannot configure an Oracle Fusion Middleware 12*c* domain without installing the required schemas in a supported database. | Creating the Required Schemas Before You Upgrade. |
| Run the Reconfiguration Wizard to reconfigure the 11*g* domain and Node Manager (if needed). | After upgrading the 11*g* schemas, you must run the Reconfiguration Wizard to reconfigure your existing 11*g* domain and Node Manager. | Using the Reconfiguration Wizard to Reconfigure the Domain |
| Run the Upgrade Assistant to upgrade domain configurations. | Use the Upgrade Assistant to upgrade any WebLogic component configurations. | Using the Upgrade Assistant to Upgrade Component Configurations |
| Perform the required post-upgrade tasks. | Perform the required post-upgrade tasks like verifying the upgrade and deployed applications. | Tasks to Perform After Upgrade |

## 1.6 About Upgrading Oracle HTTP Server

This guide explains how to upgrade Oracle HTTP Server 11*g* instances that have been configured so they are "associated with" an Oracle WebLogic Server domain. The upgrade is performed as you are upgrading the domain to which the Oracle HTTP Server has been associated.

To upgrade a standalone Oracle HTTP Server instance (one that is *not* associated with an 11*g* domain) refer to *Upgrading Oracle HTTP Server*.

## 1.7 Upgrading Custom Applications Using Oracle JDeveloper 12*c*

If you have deployed custom applications to an Oracle Fusion Middleware Application Developer 11*g* domain, then the application deployments should function as they did in Oracle Fusion Middleware 11*g* after the upgrade procedure is complete. However, if you want to take advantage of new Oracle Application Development Framework (Oracle ADF) 12*c* features, download and install Oracle JDeveloper 12*c*.

For more information, see *Installing Oracle JDeveloper*.

To test your 11*g* applications in preparation for an upgrade to Oracle Fusion Middleware Infrastructure 12*c*, open your existing Oracle JDeveloper 11*g* projects in Oracle JDeveloper 12*c*. Oracle JDeveloper migrates the projects to 12*c* . You can then test your applications with the embedded application server that is available from within Oracle JDeveloper. After you have reviewed and optionally modified your applications in Oracle JDeveloper 12*c*, upgrade the Application Developer 11*g* domain to Oracle Fusion Middleware Infrastructure 12*c* and redeploy the applications.

For more information about migrating your applications, see Migrating From a Previous Version to Oracle JDeveloper in *Installing Oracle JDeveloper*.

# 2

# Pre-Upgrade Checklist

You must complete all applicable tasks before you begin the upgrade process. Failure to do so may result in a failed upgrade.

The tasks described in this pre-upgrade checklist assume that you have read Planning an Upgrade to Oracle Fusion Middleware 12c and understand the requirements of this upgrade.

**Note:**

The pre-upgrade procedures you perform depend on the configuration of your existing system, the components you are upgrading, and the environment you want to create at the end of the upgrade and configuration process.

In addition to the common, pre-upgrade procedures described here, you may also have component-specific tasks to perform. Consult your component-specific upgrade documentation for other required procedures.

***Table 2-1 Tasks to Perform Before You Upgrade to Oracle Fusion Middleware 12c***

| Task | Description | Documentation |
|---|---|---|
| Create a complete backup of your pre-upgrade environment. | **REQUIRED FOR ALL UPGRADES.**<br>Back up all system-critical files and database(s) that contain any schemas that are to be upgraded before you begin your upgrade.<br>If the upgrade fails, you need to restore your pre-upgrade environment and begin the upgrade again. | Creating a Complete Backup (Required) |

*Table 2-1 (Cont.) Tasks to Perform Before You Upgrade to Oracle Fusion Middleware 12c*

| Task | Description | Documentation |
|---|---|---|
| Verify that you are installing and upgrading your product on a supported hardware and software configuration.<br>**NOTE:** Do not attempt an upgrade if you are unable to use the latest supported operating system. As with all supported configurations, failure to comply with these requirements may cause your upgrade to fail. | As part of the upgrade planning process, you already verified that your hardware and software configurations (including operating systems) are supported by the latest certifications and requirements documents.<br>Just before you start the upgrade, verify this information again, as the certification requirements may have changed.<br>**Make sure that you have applied the latest patches to your components before you upgrade.** | Verifying Certification and System Requirements |
| Remove any outdated or unused data before you upgrade. | To optimize performance, consider purging data and objects that will not be used in the upgraded environment. | Purging Unused Data |
| Clone your production environment to use as an upgrade testing platform. | In addition to creating a complete backup of your system files, you should also clone your production environment. This environment can be used to test the upgrade. | Cloning Your Production Environment for Testing (Recommended) |
| Verify that you are running a 64-bit operating system. Most Oracle Fusion Middleware 12*c* components require a 64-Bit operating system. | Required only if you are currently running a 32-bit operating system. | Migrating from a 32-Bit to a 64-Bit Operating System |
| Depending on your upgrade starting point, you may be required to create new 12*c* schemas before an upgrade. | Oracle Fusion Middleware 12*c* requires that you use the Repository Creation Utility (RCU) to create new schemas before you can upgrade your existing environment. | Creating the Required Schemas Before an Upgrade |
| If you are using a file-based policy store, then you must reassociate it to a database-based policy store. | This step is not required if you are upgrading from a previous 12*c* release. | Reassociating File-based Policy Stores to Database-based Policy Stores (Required) |
| Understand the schema requirements when using an OID-based security store. | If you are using an OID-based security store, you need to create a 12*c* OPSS schema before you upgrade. | Creating the 12*c* OPSS Schema for an OID-based Security Store |
| Oracle recommends that you maintain the highest level of security for all Fusion Middleware security stores. | Before the upgrade, back up your existing security stores and then upgrade them using the security store-specific procedures. | Upgrading Security Stores to the Latest Version |

*Table 2-1 (Cont.) Tasks to Perform Before You Upgrade to Oracle Fusion Middleware 12c*

| Task | Description | Documentation |
|---|---|---|
| Some of the security algorithms used in Fusion Middleware 12*c* require additional policy files for the JDK. | Required only if you plan to use enhanced encryption (such as AES 256). Oracle recommends that you apply the required policy files to the JDK before you upgrade. | Using Enhanced Encryption (AES 256) |
| Create a new Non-SYSDBA user to avoid running the upgrade as SYS AS SYSDBA. | Oracle recommends that you create a non-SYSDBA user called fmw to run Upgrade Assistant with only those privileges required by the Upgrade Assistant. | Creating a Non-SYSDBA User |
| Oracle Database Users: Before upgrading an Edition-Based Redefinition (EBR) enabled schema, you must connect to the database server and create an edition on the database server for 12*c* (12.2.1). | This step is required only if you are using an Edition-Based Redefinition (EBR) database. | Creating an Edition on the Server for Edition-Based Redefinition (Optional) |
| Download and install the new 12*c* products in to a new Oracle home before you upgrade. | Install the 12*c* (12.2.1) versions of the products you already have in your pre-upgrade environment. Note that some products have not yet been released for 12*c* (12.2.1), but will become available in a future release. | Downloading and Installing the 12*c* Oracle Fusion Middleware Product Distributions |
| Run the Readiness Check on your production environment before you begin the upgrade. | The Upgrade Assistant can be run in `-readiness` mode to detect potential issues that could prevent a successful upgrade. | Running a Pre-Upgrade Readiness Check |
| Use the component-specific upgrade documentation to complete your upgrade. | The documentation covers component-specific tasks that are required for the upgrade. Some of the tasks are performed before the upgrade and some are performed after. Always consult your Oracle Fusion Middleware upgrade documentation to ensure you have a successful upgrade. | Locating the Component-Specific Upgrade Documentation |

Creating a Complete Backup (Required)

Before you install any new 12*c* distributions and begin upgrading your Oracle Fusion Middleware 11*g* or 12*c* deployment, be sure you have backed up all system-critical files; including all of the databases that host your Oracle Fusion Middleware schemas.

Cloning Your Production Environment for Testing (Recommended)

Oracle strongly recommends that you create a copy of your actual production environment, upgrade the cloned environment, verify that

the upgraded components work as expected, and then (and only then) upgrade your production environment.

Verifying Certification and System Requirements
: The certification matrix and system requirements documents should be used in conjunction with each other to verify that your environment meets the necessary requirements for installation.

Migrating from a 32-Bit to a 64-Bit Operating System
: Most Oracle Fusion Middleware 12c components require a 64-Bit operating system. If you are running a 32-bit environment, then you must migrate your 32-bit environment to a 64-bit software environment before you upgrade.

Purging Unused Data
: Purging unused data before an upgrade can optimize the upgrade process. Automated purge scripts are available for some components and can run before an upgrade to purge unused and obsolete data.

Creating the Required Schemas Before Upgrade
: Before you upgrade, you may be required to create new schemas for your 12*c* deployment. To determine which additional schemas need to be created for 12*c*, compare the component schemas you have in your existing environment to the schemas required for your upgrade.

Reassociating File-based Policy Stores to Database-based Policy Stores (Required)
: Oracle Fusion Middleware 12*c* uses database-based policy stores. A database-based policy store is recommended for a production environment. If you are using a file-based or OID-based policy store, you must reassociate the store to a database-based store prior to upgrade.

Creating the 12c OPSS Schema for an OID-based Security Store
: The only supported LDAP-based OPSS security store is **Oracle Internet Directory** (OID). An LDAP-based policy store is typically used in production environments. If you are using an OID-based security store in 11*g*, you must create the new 12*c* schemas using the Repository Creation Utility (RCU).

Upgrading Security Stores to the Latest Version
: Upgrading to the latest version of the OPSS security store enable you to use enhanced features and fixes. OPSS security store is a part of Oracle Fusion Middleware product installation and therefore, you can use the Upgrade Assistant directly to upgrade the OPSS schema.

Creating a Non-SYSDBA User
: Oracle recommends that you create a non-SYSDBA user to run the Upgrade Assistant. The user created using this procedure has the privileges required to complete the upgrade.

Using Enhanced Encryption (AES 256)
: The Java platform defines a set of APIs spanning major security areas, including cryptography, public key infrastructure, authentication, secure communication, and access control. These APIs allow developers to easily integrate security mechanisms into their application code If you plan to use enhanced encryption (such as AES 256), Oracle recommends that you apply these policy files to the JDK before you upgrade.

Creating an Edition on the Server for Edition-Based Redefinition (Optional)
: Before upgrading an Edition-Based Redefinition (EBR) enabled schema, you must connect to the database server and create an edition on the database server for 12*c*.

Downloading and Installing the 12c Oracle Fusion Middleware Product Distributions
: Oracle Fusion Middleware product distributions are available for download on Oracle Technology Network (OTN) and Oracle Software Delivery Cloud.

Maintaining Custom Domain Environment Settings
: Every domain includes dynamically generated domain and server startup scripts, such as `setDomainEnv`. Oracle recommends that you do not modify these startup scripts, as any changes made to them are overwritten during subsequent domain upgrade and reconfiguration operations.

Running a Pre-Upgrade Readiness Check
: The Upgrade Assistant can be run in the **-readiness** mode to perform a read-only, pre-upgrade check on your domain. If issues are detected, you can correct them before starting the actual upgrade.

Locating the Component-Specific Upgrade Documentation
: The component specific upgrade documentation provides upgrade procedure and information for every individual component including Oracle WebLogic Server, Oracle Fusion Middleware Infrastructure, Oracle HTTP Server, Oracle SOA Suite and Oracle Business Process Management, Oracle Webcenter, User Messaging Service, and Oracle Data Integrator.

## 2.1 Creating a Complete Backup (Required)

Before you install any new 12*c* distributions and begin upgrading your Oracle Fusion Middleware 11*g* or 12*c* deployment, be sure you have backed up all system-critical files; including all of the databases that host your Oracle Fusion Middleware schemas.

Performing a complete database backup prior to performing a schema upgrade is a prerequisite for running Upgrade Assistant. In the Upgrade Assistant prerequisites GUI screen, you will be required to acknowledge that backups have been performed, before proceeding with the actual upgrade.

---

**Note:**

Your system backup must include the SYSTEM.SCHEMA_VERSION_REGISTRY$ table.

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

---

For more information, see Backing Up Your Oracle Fusion Middleware Environment and Upgrading and Preparing Your Oracle Databases for 12c.

## 2.2 Cloning Your Production Environment for Testing (Recommended)

Oracle strongly recommends that you create a copy of your actual production environment, upgrade the cloned environment, verify that the upgraded components work as expected, and then (and only then) upgrade your production environment.

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

---

**Note:** Cloning procedures are component-specific. At a high level, you will install the pre-upgrade version of your component domain on a test machine, create the required schemas using the Repository Creation Utility (RCU), and perform the upgrade. Depending on what you are upgrading, you may be required to perform additional cloning tasks to replicate your production environment. Your component-specific upgrade documentation provides the complete upgrade procedure.

---

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

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

---

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

---

## 2.3 Verifying Certification and System Requirements

The certification matrix and system requirements documents should be used in conjunction with each other to verify that your environment meets the necessary requirements for installation.

---

**Note:** When checking the certification, system requirements, and interoperability information, be sure to check specifically for any 32-bit or 64-bit system requirements. It is important for you to download software specifically designed for the 32-bit or 64-bit environment, explicitly.

---

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

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

Verify System Requirements and Specifications
: It is important to verify that the system requirements such as disk space, available memory, specific platform packages and patches, and other operating system-specific items are met.

Verify that the database hosting Oracle Fusion Middleware is supported
: You must have a supported Oracle database configured with the required schemas before you run Fusion Middleware 12*c*.

Verify that the JDK is certified for this release of Oracle Fusion Middleware.
: Before you can install any Oracle Fusion Middleware product using a generic installer, you must download and install a supported JDK on your system.

## 2.3.1 Verify Your Environment Meets Certification Requirements

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

Whenever new certifications occur, they are added to the proper certification document right away. New certifications can occur at any time, and for this reason the certification documents are kept outside of the documentation libraries and are available on Oracle Technology Network. For more information, see Certification Matrix for 12*c* (12.2.1).

## 2.3.2 Verify System Requirements and Specifications

It is important to verify that the system requirements such as disk space, available memory, specific platform packages and patches, and other operating system-specific items are met.

The Oracle Fusion Middleware System Requirements and Specifications document should be used to verify that the requirements of the certification are met. For example, if the certification document indicates that your product is certified for installation on 64-Bit Oracle Linux 7, this document should be used to verify that your Oracle Linux 7 system has met the required minimum specifications, like disk space, available memory, specific platform packages and patches, and other operating system-specific items. This document is updated as needed and resides outside of the documentation libraries. The latest version is available on Oracle Technology Network.

For a complete description of the system requirements for installing and upgrading to Oracle Fusion Middleware 12*c*, see Review System Requirements and Specifications.

**Note:** When you install the Oracle Fusion Middleware Release 12*c* software in preparation for upgrade, you should use the same user account that you used to install and configure the Oracle Fusion Middleware 11*g* software. On UNIX operating systems, this will ensure that the proper owner and group is applied to new Oracle Fusion Middleware 12*c* files and directories

### 2.3.3 Verify that the database hosting Oracle Fusion Middleware is supported

You must have a supported Oracle database configured with the required schemas before you run Fusion Middleware 12*c*.

It is assumed that you understand the Oracle Database requirements when upgrading and ensure that the database hosting Oracle Fusion Middleware is supported and has sufficient space to perform an upgrade.

### 2.3.4 Verify that the JDK is certified for this release of Oracle Fusion Middleware.

Before you can install any Oracle Fusion Middleware product using a generic installer, you must download and install a supported JDK on your system.

Make sure that the JDK is installed outside of the Oracle home. The Oracle Universal Installer validates that the designated Oracle home directory is empty, and the install does not progress until an empty directory is specified. If you install JDK under Oracle home, you may experience issues in future operations. Therefore, Oracle recommends that you use install the JDK in the `/home/oracle/products/jdk` directory. You can then use the `java -jar` command to run the installer JAR file.

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

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

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

## 2.4 Migrating from a 32-Bit to a 64-Bit Operating System

Most Oracle Fusion Middleware 12c components require a 64-Bit operating system. If you are running a 32-bit environment, then you must migrate your 32-bit environment to a 64-bit software environment before you upgrade.

**Note:** When checking the certification, system requirements, and interoperability information, be sure to check specifically for any 32-bit or 64-bit system requirements. It is important for you to download software specifically designed for the 32-bit or 64-bit environment, explicitly.

Make sure to validate the migration to ensure all your Oracle Fusion Middleware 11*g* software is working properly on the 64-bit machine, and only then perform the upgrade to Oracle Fusion Middleware 12*c*.

In these tasks, **host** refers to the 32-bit source machine and **target** refers to the new 64-bit target machine.

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

Upgrading an operating system typically involves the following:

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

Procure the Hardware that Supports your Upgrade's 64-bit Software Requirement

Make sure that you have supported target hardware in place before you begin the upgrade process.

Stop all processes, including the Administration Server, Managed Servers, and Node Manager

You must stop all processes, including the Administration Server, Managed Servers, and Node Manager, if they are started on the host.

Back up all Files from the 32-bit Host Machine

Make sure that you have created a complete backup of your entire 11*g* deployment before you begin the upgrade process. These files can be used if there is an issue during the migration and you have to restart the process.

Set up the Target 64-bit Machine with the 11g Host Name and IP Address

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

Restore the 11g Backup from 32-bit Host to 64-bit Host

Restore the files you backed up in Task 3 using the same directory structure that was used in 11*g*. The directory structure on the target machine must be identical to the structure of the host machine.

Install the 12c Product Distribution(s) on the Target Machine

Oracle recommends an Out-of-Place approach for upgrade. Therefore, you must install the 12*c* product distributions in a new Oracle home on the target machine.

Upgrade the Target 64-bit Environment Using the Standard Upgrade Procedure

After installing the product on the target machine, you must upgrade each component individually using an upgrade utility specified in the

component-specific upgrade guide and complete any post-upgrade tasks.

### 2.4.1 Procure the Hardware that Supports your Upgrade's 64-bit Software Requirement

Make sure that you have supported target hardware in place before you begin the upgrade process.

### 2.4.2 Stop all processes, including the Administration Server, Managed Servers, and Node Manager

You must stop all processes, including the Administration Server, Managed Servers, and Node Manager, if they are started on the host.

For example, to stop the Administration Server, enter the following command:

```
DOMAIN_HOME/bin/stopWebLogic.sh username password [admin_url]
```

### 2.4.3 Back up all Files from the 32-bit Host Machine

Make sure that you have created a complete backup of your entire 11*g* deployment before you begin the upgrade process. These files can be used if there is an issue during the migration and you have to restart the process.

**Note:** If the upgrade from 32-bit to 64-bit takes place on the same machine, there is a risk of corrupting the source environment if the upgrade fails.

For more information on backing up your 11*g* files, see Backing Up Your Environment in *Oracle® Fusion Middleware Administrator's Guide*.

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

- 11*g* Domain Home
- 11*g* `/nodemanager` directory located in `MW_HOME/wlserver_10.3/common/`

Some of the backup and recovery procedures described in Backing Up Your Environment in *Oracle® Fusion Middleware Administrator's Guide* are product-specific. Do not proceed with the upgrade until you have a complete backup.

### 2.4.4 Set up the Target 64-bit Machine with the 11*g* Host Name and IP Address

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

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

### 2.4.5 Restore the 11*g* Backup from 32-bit Host to 64-bit Host

Restore the files you backed up in Task 3 using the same directory structure that was used in 11*g*. The directory structure on the target machine must be identical to the structure of the host machine.

For detailed information about restoring your 11*g* files to the 64-bit target machine, see Recovering Your Environment in *Oracle® Fusion Middleware Administrator's Guide*.

### 2.4.6 Install the 12*c* Product Distribution(s) on the Target Machine

Oracle recommends an Out-of-Place approach for upgrade. Therefore, you must install the 12*c* product distributions in a new Oracle home on the target machine.

For detailed instructions on how to obtain 12*c* distributions, identify an installation user, and understand the directory structure for installation and configuration, see *Planning an Installation of Oracle Fusion Middleware*. Refer to the component-specific installation guides for the component(s) you are installing.

### 2.4.7 Upgrade the Target 64-bit Environment Using the Standard Upgrade Procedure

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

For a complete upgrade procedure, see the component-specific upgrade guide for the component(s) you are upgrading.

---

**Note:** The Node Manager upgrade procedure requires access to the original Node Manager files. Use the 11*g* Node Manger files that were backed up from the 32–bit source machine as part of Back up all Files from the 32-bit Host Machine.

---

## 2.5 Purging Unused Data

Purging unused data before an upgrade can optimize the upgrade process. Automated purge scripts are available for some components and can run before an upgrade to purge unused and obsolete data.

**For Oracle Data Integrator (ODI) Components**

Purge the execution logs to avoid exporting and importing excessive data as part of work repository export/import in the next step. See Purging the Logs

**For SOA Suite Components**

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

---

**Note:** If a large amount of data needs to be purged, consider partitioning tables or employing other data optimization strategies. Using scripts to remove large amounts of data may impact performance.

---

See Developing a Purging and Partitioning Methodology and Developing a Database Growth Management Strategy

## 2.6 Creating the Required Schemas Before Upgrade

Before you upgrade, you may be required to create new schemas for your 12*c* deployment. To determine which additional schemas need to be created for 12*c*,

compare the component schemas you have in your existing environment to the schemas required for your upgrade.

Refer to the component-specific upgrade guides in order to identify the schemas that are required for your components. The Upgrade Assistant identifies all of the schemas that are available for an upgrade, and includes all the schemas in the upgrade. It also allows you to select the schemas that should be upgraded. For more information about , see Identifying Schemas that Can be Upgraded with the Upgrade Assistant.

**If you are upgrading from 11*g*, note the following:**

- In 12*c*, there is a new schema that must be created before you can upgrade from 11*g*. The new **Service Table** schema (*prefix*_STB) stores basic schema configuration information that can be accessed and used by other Oracle Fusion Middleware components during the domain creation. For more information, see Understanding the Service Table Schema.

  **Note:** If you have not created the Service Table schema, you might encounter the error message `UPGAST-00328 : The schema version registry table does not exist on this database. If that happens is it necessary to create the service table schema in order to run Upgrade Assistant.`

- An OPSS schema is also required for 12*c* if your 11*g* environment is not already using an OPSS schema.
- The audit schema includes two additional schemas which also need to be created before running 12*c*. When upgrading audit services (_IAU), make sure that you select _IAU_APPEND and _IAU_VIEWER in addition to _IAU.

## 2.7 Reassociating File-based Policy Stores to Database-based Policy Stores (Required)

Oracle Fusion Middleware 12*c* uses database-based policy stores. A database-based policy store is recommended for a production environment. If you are using a file-based or OID-based policy store, you must reassociate the store to a database-based store prior to upgrade.

To reassociate file-based policy stores to database-based policy store, you must create an OPSS schema in the database and also create a data source in the WebLogic server.

If you are already using database-based policy store, then you do not have to perform these tasks.

Creating 11g OPSS and IAU Schemas

To use a database repository for the Oracle Platform Security Services (OPSS) security store, you must create the required schema and seed some initial data using the Oracle Fusion Middleware Repository Creation Utility (RCU). This setup is also required before reassociating the OPSS security store to a DB-based security store.

Reassociating the 11g Policy Store with the Database-Based Policy Store and OPSS Schema

The OPSS security store is the repository of system and application-specific policies, credentials, keys, and audit services. OPSS delegates the identity store service to the identity providers that are configured in the

WebLogic server. Out-of-the-box, the OPSS security store is file-based. You must reassociate it to a database-based security store.

Validating that the Policy Store Reassociation is Successful

Reassociation modifies the domain configuration file: *DOMAIN_HOME*/config/fmwconfig/jps-config.xml. It deletes any configuration for the old store provider, inserts a configuration for the new store provider, and moves the policy and credential information from the source to the destination store.

## 2.7.1 Creating 11*g* OPSS and IAU Schemas

To use a database repository for the Oracle Platform Security Services (OPSS) security store, you must create the required schema and seed some initial data using the Oracle Fusion Middleware Repository Creation Utility (RCU). This setup is also required before reassociating the OPSS security store to a DB-based security store.

Create new 11*g* Oracle Platform Security Services (OPSS) and Audit Schemas (IAU) schemas in a supported Database using the 11*g* Repository Creation Utility.

For more information about creating 11*g* schemas, see Obtaining and Running Repository Creation Utility in the 11*g* version of the *Oracle Fusion Middleware Repository Creation Utility User's Guide*.

## 2.7.2 Reassociating the 11*g* Policy Store with the Database-Based Policy Store and OPSS Schema

The OPSS security store is the repository of system and application-specific policies, credentials, keys, and audit services. OPSS delegates the identity store service to the identity providers that are configured in the WebLogic server. Out-of-the-box, the OPSS security store is file-based. You must reassociate it to a database-based security store.

For complete information about reassociating the 11*g* OPSS schema with database-based repository, see Reassociating the OPSS Security Store.

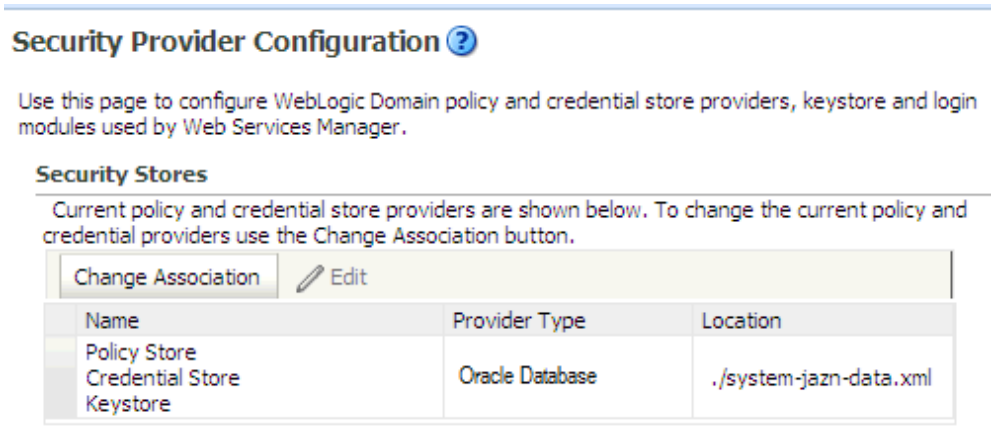
## 2.7.3 Validating that the Policy Store Reassociation is Successful

Reassociation modifies the domain configuration file: *DOMAIN_HOME*/config/fmwconfig/jps-config.xml. It deletes any configuration for the old store provider, inserts a configuration for the new store provider, and moves the policy and credential information from the source to the destination store.

### Validating the Policy Store Reassociation using the Enterprise Manager Fusion Middleware Control

To verify that the policy store reassociation is successful:

1. Log in to Enterprise Manager Fusion Middleware Control.
2. Navigate to **Domain** > **Security** > **Security Provider Configuration**.
3. Click **Audit Service** > **Configure**.
4. Verify that the Provider Type is set to **Oracle Database**. If the Provider Type displays **File**, the reassociation is unsuccessful.




### Validating the Policy Store Reassociation by Viewing the jps-config.xml File

Alternatively, you can check the jps-config.xml file. The credstore.db, policystore.db, and the keystore.db service instances refer to the database via the props.db.1 property.

After the reassociation, the jps-config.xml file must display:

```
<jpsContext name="default"
<serviceInstanceRef ref="credstore.db"/>
<serviceInstanceRef ref="keystore.db"/>
<serviceInstanceRef ref="policystore.db"/>
<serviceInstanceRef ref="audit"/>
<serviceInstanceRef ref="idstore.ldap"/>
<serviceInstanceRef ref="trust"/>
<serviceInstanceRef ref="pdp.service"/>
</jpsContext>

<serviceInstance provider="policystore.provider" name="policystore.db"
 <property value="DB_ORACLE" name="policystore.type"/>
 <propertySetRef ref="props.db.1"/>
</serviceInstance>

<propertySet name="props.db.1">
  <property value="cn=soa_domain" name="oracle.security.jps.farm.name"/>
  <property value="cn=jpsroot" name="oracle.security.jps.ldap.root.name"/>
  <property value="jdbc/opss" name="datasource.jndi.name"/>
</propertySet>
```

## 2.8 Creating the 12*c* OPSS Schema for an OID-based Security Store

The only supported LDAP-based OPSS security store is **Oracle Internet Directory** (OID). An LDAP-based policy store is typically used in production environments. If you are using an OID-based security store in 11*g*, you must create the new 12*c* schemas using the Repository Creation Utility (RCU).

You do not need to reassociate an OID-based security store before upgrade. While the Upgrade Assistant is running, select the OPSS schema. The Upgrade Assistant upgrades the OID-based security store automatically.

**Note:**

The 12*c* OPSS database schema is required so that you can reference the 12*c* schema during the reconfiguration of the domain. Your domain continues to use the OID-based security store after the upgrade is complete.

## 2.9 Upgrading Security Stores to the Latest Version

Upgrading to the latest version of the OPSS security store enable you to use enhanced features and fixes. OPSS security store is a part of Oracle Fusion Middleware product installation and therefore, you can use the Upgrade Assistant directly to upgrade the OPSS schema.

Before upgrading the OPSS security store, it is important to create a back up so that it can be recovered in case the upgrade fails. For details about backing up the security store, see Backing Up and Recovering the OPSS Security Store.

*schema_name*

To check the version of the OPSS schema present on your system, run the following query on the database:

```
SELECT VERSION, STATUS, UPGRADED
FROM SCHEMA_VERSION_REGISTRY
WHERE OWNER='schema_name';
```

where, *schema_name* is the name of the OPSS schema. For example, DEV_OPSS.

To upgrade an OPSS schema using the Upgrade Assistant:

1. Start Upgrade Assistant by entering the following command:

   ```
   cd oracle_common/upgrade/bin
   ```

   ```
   ./ua
   ```

2. On the left pane, select **Schemas** and click **Next**.
3. On the Schemas page, choose **Schemas** and click **Next**.
4. On the Available Components page, check **Oracle Platform Security Services** and click **Next**.
5. On the **Prerequisites** page, verify that all the listed prerequisites are met. Then check all boxes, and click **Next**.
6. Enter the correct IAU and OPSS schema details carefully.
7. On the left pane, click **Upgrade Summary**. The Upgrade Summary page displays the schemas to be upgraded.
8. Click **Upgrade**. The Upgrade Progress page displays the upgrading progress and the final status.

   After the upgrade is complete, click **Finish** to dismiss the installer.

   If you have already created a domain, then you can follow the procedure available in the topic: Upgrading Schemas with Upgrade Assistant.

## 2.10 Creating a Non-SYSDBA User

Oracle recommends that you create a non-SYSDBA user to run the Upgrade Assistant. The user created using this procedure has the privileges required to complete the upgrade.

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

---

**Note:** The v$xatrans$ table does not exist by default. You must run the XAVIEW.SQL script to create this table before creating the user. Moreover, grant on v$xatrans$ table is required only for Oracle Identity Manager. If you do not require Oracle Identity Manager for configuration or if you do not have the v$xatrans$ table, then remove the following line from the script:

```
grant select on v$xatrans$ to FMW with grant option;
```

---

---

**Note:** If you are upgrading an ORASDPM schema that was created using RCU 11g (11.1.1.1.4 or earlier), and you subsequently upgraded ORASDPM to 11*g* (11.1.1.6 or later), the FMW user will need to grant the CREATE TABLE privilege to user <*prefix*>_ORASDPM before upgrading to 12c (12.2.1).

```
grant CREATE TABLE to <prefix>_ORASDPM;
```

Where <*prefix*> is the name given to the schema when it was created.

---

In the example below, `welcome1` is the password. Make sure that you specify your actual password when granting privileges.

```
create user FMW identified by welcome1;
grant dba to FMW;
grant execute on DBMS_LOB to FMW with grant option;
grant execute on DBMS_OUTPUT to FMW with grant option;
grant execute on DBMS_STATS to FMW with grant option;
grant execute on sys.dbms_aqadm to FMW with grant option;
grant execute on sys.dbms_aqin to FMW with grant option;
grant execute on sys.dbms_aqjms to FMW with grant option;
grant execute on sys.dbms_aq to FMW with grant option;
grant execute on utl_file to FMW with grant option;
grant execute on dbms_lock to FMW with grant option;
grant select on sys.V_$INSTANCE to FMW with grant option;
grant select on sys.GV_$INSTANCE to FMW with grant option;
grant select on sys.V_$SESSION to FMW with grant option;
grant select on sys.GV_$SESSION to FMW with grant option;
grant select on dba_scheduler_jobs to FMW with grant option;
grant select on dba_scheduler_job_run_details to FMW with grant option;
```

```
grant select on dba_scheduler_running_jobs to FMW with grant option;
grant select on dba_aq_agents to FMW with grant option;
grant execute on sys.DBMS_SHARED_POOL to FMW with grant option;
grant select on dba_2pc_pending to FMW with grant option;
grant select on dba_pending_transactions to FMW with grant option;
grant execute on DBMS_FLASHBACK to FMW with grant option;
grant execute on dbms_crypto to FMW with grant option;
grant execute on DBMS_REPUTIL to FMW with grant option;
grant execute on dbms_job to FMW with grant option;
grant select on pending_trans$ to FMW with grant option;
grant select on dba_scheduler_job_classes to fmw with grant option;
grant select on SYS.DBA_DATA_FILES to FMW with grant option;
grant select on SYS.V_$ASM_DISKGROUP to FMW with grant option;
grant select on v$xatrans$ to FMW with grant option;
grant execute on sys.dbms_system to FMW with grant option;
grant execute on DBMS_SCHEDULER to FMW with grant option;
grant select on dba_data_files to FMW with grant option;
grant execute on UTL_RAW to FMW with grant option;
grant execute on DBMS_XMLDOM to FMW with grant option;
grant execute on DBMS_APPLICATION_INFO to FMW with grant option;
grant execute on DBMS_UTILITY to FMW with grant option;
grant execute on DBMS_SESSION to FMW with grant option;
grant execute on DBMS_METADATA to FMW with grant option;
grant execute on DBMS_XMLGEN to FMW with grant option;
grant execute on DBMS_DATAPUMP to FMW with grant option;
grant execute on DBMS_MVIEW to FMW with grant option;
grant select on ALL_ENCRYPTED_COLUMNS to FMW with grant option;
grant select on dba_queue_subscribers to FMW with grant option;
grant execute on SYS.DBMS_ASSERT to FMW with grant option;
```

**Note:**

**Oracle Database 11.2.0.3 Database Users ONLY:** You must apply **Oracle Patch 13036331** before you begin the upgrade. Go to My Oracle Support to download the patch.

If you do not apply this patch, then you will have to grant additional privileges for some schemas.

## 2.11 Using Enhanced Encryption (AES 256)

The Java platform defines a set of APIs spanning major security areas, including cryptography, public key infrastructure, authentication, secure communication, and access control. These APIs allow developers to easily integrate security mechanisms into their application code If you plan to use enhanced encryption (such as AES 256), Oracle recommends that you apply these policy files to the JDK before you upgrade.

Some of the security algorithms used in Fusion Middleware 12*c* require additional policy files for the JDK. For more information, see Java Cryptography Architecture Oracle Providers Documentation.

If you do not apply these policy files to the JDK before you begin the upgrade, the upgrade can fail and you need to restore the entire pre-upgrade environment and start the upgrade from the beginning.

## 2.12 Creating an Edition on the Server for Edition-Based Redefinition (Optional)

Before upgrading an Edition-Based Redefinition (EBR) enabled schema, you must connect to the database server and create an edition on the database server for 12*c*.

Edition-based redefinition enables you to upgrade an application's database objects while the application is in use, thus minimizing or eliminating down time. This is accomplished by changing (redefining) database objects in a private environment known as an edition. Only when all changes have been made and tested do you make the new version of the application available to users.

> **Note:** This task must be completed by an Oracle Database user with DBA privileges.

Before upgrading an Edition-Based Redefinition (EBR) enabled schema, you must connect to the database server and create an edition on the database server for 12*c*. The new edition for 12*c* must be a child of your existing 11*g* or 12*c* edition.

To create an edition on the database server, log in as an SYS user (or another Oracle user that has DBA privileges) and enter the following command:

```
create edition Oracle_FMW_12_2_1 as child of
Oracle_FMW_11_1_1_7_0;
```

Where, `Oracle_FMW_11_1_1_7_0` is an example of the edition name you specified in RCU 11.1.1.7 when the 11.1.1.7 schemas were created. Be sure to provide the actual name used when creating the edition.

If the edition is created successfully, you get the following message:

```
Edition created.
```

During the upgrade, you are prompted to launch the Reconfiguration Wizard to reconfigure your existing domain. Before running the Reconfiguration Wizard, you must specify the database default edition. Use the following SQL to manually setup the default edition name for the database, for example:

```
ALTER DATABASE DEFAULT EDITION = Oracle_FMW_12_2_1;
```

## 2.13 Downloading and Installing the 12*c* Oracle Fusion Middleware Product Distributions

Oracle Fusion Middleware product distributions are available for download on Oracle Technology Network (OTN) and Oracle Software Delivery Cloud.

For more information on which site you should visit to obtain your distribution, see the *Oracle Fusion Middleware Download, Installation, and Configuration Readme Files* page.

After you have downloaded all the necessary software, you can proceed to install and configure your software.

To get started with your installations, refer to the Install, Patch, and Upgrade common tasks page in the Oracle Fusion Middleware 12*c* (12.2.1) Documentation Library on OTN.

**Note:** You must install the Fusion Middleware Infrastructure distribution before installing the component-specific distributions.

## 2.14 Maintaining Custom Domain Environment Settings

Every domain includes dynamically generated domain and server startup scripts, such as `setDomainEnv`. Oracle recommends that you do not modify these startup scripts, as any changes made to them are overwritten during subsequent domain upgrade and reconfiguration operations.

To maintain your custom domain-level environment settings, creating a separate file to store the custom domain information before you upgrade.

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

Following is an example of startup customizations in a `setUserOverrides` file:

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

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

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

**Note:**

If you are unable to create the `setUserOverrides` script before an upgrade, you need to reapply your settings as described in Re-apply Customizations to Startup Scripts.

## 2.15 Running a Pre-Upgrade Readiness Check

The Upgrade Assistant can be run in the **-readiness** mode to perform a read-only, pre-upgrade check on your domain. If issues are detected, you can correct them before starting the actual upgrade.

**Note:** You can run the readiness check while the system is online. Depending on the comprehensiveness of the checks, the readiness checks can take more time to complete.

To perform a readiness check on your pre-upgrade environment, launch the Upgrade Assistant in `-readiness` mode:

1. On a UNIX system, change directory to *`ORACLE_HOME`*`/oracle_common/upgrade/bin`. on Unix operating systems or *`ORACLE_HOME`*`\oracle_common\upgrade\bin` on Windows operating systems.
2. Enter the following command to start the Upgrade Assistant.

   On UNIX operating systems:

   ```
   ./ua -readiness
   ```

   On Windows operating systems:

   ```
   ua.bat -readiness
   ```

   Provide the required information in each of the Upgrade Assistant screens. The screens you see will vary depending on the upgrade options you select. The sections below describe the upgrade options and the information you will need to provide.

## 2.16 Locating the Component-Specific Upgrade Documentation

The component specific upgrade documentation provides upgrade procedure and information for every individual component including Oracle WebLogic Server, Oracle Fusion Middleware Infrastructure, Oracle HTTP Server, Oracle SOA Suite and Oracle Business Process Management, Oracle Webcenter, User Messaging Service, and Oracle Data Integrator.

The following table helps you determine which upgrade-specific tasks you will need to complete for your 12*c* upgrade:

***Table 2-2 Component-Specific Upgrade Documentation***

| Product Area | If you are upgrading... | Use this upgrade document... |
|---|---|---|
| Oracle WebLogic Server - Standalone | An Oracle WebLogic Server that is not being managed by or registered to an existing Fusion Middleware 11*g* domain. | *Upgrading Oracle WebLogic Server* |
| Custom Oracle Application Developer Framework Applications with Oracle WebLogic Server (referred to as Infrastructure in 12*c*) | A managed 11*g* WebLogic Server domain that has been deployed with a set of custom Oracle Application Developer Framework applications. | *Upgrading to the Oracle Fusion Middleware Infrastructure* |
| Oracle HTTP Server - Managed or Standalone | An Oracle HTTP Server that is configured to work with a WebLogic domain for management functions is a managed server.<br>An Oracle HTTP Server that is not managed by or registered to an Oracle WebLogic domain is a standalone server. | *Upgrading Oracle HTTP Server* |

***Table 2-2 (Cont.) Component-Specific Upgrade Documentation***

| Product Area | If you are upgrading... | Use this upgrade document... |
|---|---|---|
| Oracle SOA Suite and BPM | SOA Suite components including: Business Process Management (BPM), Oracle Service Bus (OSB), Enterprise Security Services (ESS), Managed File Transfer (MFT), Business Activity Monitoring (BAM), and workflow instance data. | *Upgrading Oracle SOA Suite and Business Process Management* |
| User Messaging Service | User Messaging Service. | *Administering Oracle User Messaging Service* |
| Oracle Data Integrator | Data Integrator. | *Upgrading Oracle Data Integrator* |
| Oracle WebCenter | WebCenter suite components including Content, Portal and Sites. | *Upgrading Oracle WebCenter* |
| Oracle Business Intelligence | Oracle Business Intelligence including BI Enterprise Edition, BI Publisher, and Essbase. | *Upgrading Oracle Business Intelligence* |
| Oracle Forms | Oracle Forms. | *Upgrading Oracle Forms* |

# 3

# Upgrading to the 12*c* Infrastructure from the 11*g* Release

The topics in this section describe the end-to-end procedure for upgrading an Oracle Fusion Middleware 11*g* Application Developer installation to Oracle Fusion Middleware 12*c* (12.2.1) Infrastructure.

Completing the Pre-Upgrade Tasks for Infrastructure (Required)
: It is important to complete all the standard Oracle Fusion Middleware pre-upgrade tasks associated with your environment before upgrading from Oracle Fusion Middleware 11*g* Application Developer installation to Oracle Fusion Middleware 12*c* Infrastructure. Most pre-upgrade tasks are required for all Fusion Middleware components, while some are specific to Infrastructure.

Installing Oracle Fusion Middleware Infrastructure on APPHOST
: Install the Infrastructure distribution components in a new Oracle home on the same host on which you have installed 11*g*.

Installing Oracle HTTP Server
: If your domain includes Oracle HTTP Server instances that are associated with the domain, you must install Oracle HTTP Server on the machines where Oracle HTTP Server instances and the Administration Server are running.

Stopping Servers and Processes
: Before running the Upgrade Assistant, shut down all Oracle Fusion Middleware Managed Servers, Administration Servers, and system components (such as OHS) that may be using the schemas or configurations you want to update. Failure to do so may result in an incomplete or failed upgrade.

Using the Schema Version Registry to Identify Existing 11g Schemas
: When the schemas are created in your database, RCU creates and maintains a table called `schema_version_registry`. This table contains schema information such as version number, component name and ID, date of creation and modification, and custom prefix. When you run the Upgrade Assistant. it identifies schemas for which an upgrade is available. You can upgrade multiple schemas in a single session of running the Upgrade Assistant.

Creating the Required Schemas Before You Upgrade
Before you upgrade, you must install one or more schemas in a supported database.

About Upgrading Schemas using the Upgrade Assistant
The Upgrade Assistant provides two options for upgrading schemas: **Individually Selected Schemas** and **All Schemas Used By a Domain**.

Identifying Schemas that Can be Upgraded with the Upgrade Assistant
The Upgrade Assistant identifies and includes all the schemas that are available for an upgrade. You can also select the schemas you want to upgrade. If you want to review the list of available schemas before you begin the upgrade, query the schema version registry.

Starting the Upgrade Assistant
The Upgrade Assistant is used to upgrade schemas, component configurations and standalone system components.

Upgrading Schemas with the Upgrade Assistant
If you run the Upgrade Assistant from an Oracle home that contains components with any schemas, then the **Schemas** upgrade option is shown. The Upgrade Assistant only lists the components that are candidates for schema upgrade. You can select the schemas you want to upgrade from the component list.

Upgrade Assistant Screens

Reconfiguring the Domain using the Reconfiguration Wizard
The Reconfiguration Wizard reconfigures the domain while retaining the location of the domain. Use the Reconfiguration Wizard to upgrade your domain to the latest version.

Upgrading the Domain Component Configurations Using the Upgrade Assistant
Follow the instructions in this section to upgrade any additional domain component configurations, such as OWSM policy metadata structure and adapter configurations, using the Upgrade Assistant.

Troubleshooting the Infrastructure Upgrade
If the Infrastructure upgrade fails, troubleshoot the cause using the log file and guidelines in this topic.

Performing the Post-Upgrade Tasks
After you upgrade Oracle Fusion Middleware 11*g* Application Developer to Oracle Fusion Middleware 12*c* Infrastructure, you must complete the post-upgrade tasks.

## 3.1 Completing the Pre-Upgrade Tasks for Infrastructure (Required)

It is important to complete all the standard Oracle Fusion Middleware pre-upgrade tasks associated with your environment before upgrading from Oracle Fusion Middleware 11*g* Application Developer installation to Oracle Fusion Middleware 12*c* Infrastructure. Most pre-upgrade tasks are required for all Fusion Middleware components, while some are specific to Infrastructure.

**Caution:**

In addition to completing the pre-upgrade tasks required for Infrastructure, you must also complete all of the applicable pre-upgrade tasks described in Pre-Upgrade Checklist.

**You must back up your existing environment**. If the upgrade fails for any reason, you will have to restart the upgrade process from the source backup.

For more information, see Backup and Recovery Strategies for Upgrade in *Planning an Upgrade of Oracle Fusion Middleware*.

For Infrastructure-specific pre-upgrade tasks, see the following:

Maintaining Your Custom setDomainEnv Settings (Optional)
: Every domain includes dynamically generated domain and server startup scripts, such as `setDomainEnv`. Oracle recommends that you do not modify these startup scripts, as any changes you make to them will be overwritten during subsequent domain upgrade operations.

Using No-Auth SSL Mode in OID Security Store
: The SSL protocol provides transport layer security with authenticity, integrity, and confidentiality, for a connection between a client and server. The SSL authentication mode is controlled by the attribute `orclsslauthentication` in the instance-specific configuration entry. By default, Oracle Internet Directory (OID) uses SSL No Authentication Mode (`orclsslauthentication`=1).

Removing the Server Instance Scope from OWSM Policy Sets
: The Server Instance Scope in policy sets was not recommended in 11*g* (11.1.1.7.0) and is not supported in 12*c*. However, if you have policy sets that use the Server Instance Scope, they are disabled during the upgrade to 12*c*. Therefore, you must remove the Server Instance Scope from all the 11*g* policy sets before upgrading to 12*c*.

Cloning Predefined Documents and Migrating OWSM Policy Attachments
: When upgrading, it is important to note that any predefined documents that have not been customized for your environment are replaced with read-only versions, and new, predefined, read-only documents are added. However, any existing predefined documents that have been customized and any user-created custom policies in the repository are not overwritten.

### 3.1.1 Maintaining Your Custom setDomainEnv Settings (Optional)

Every domain includes dynamically generated domain and server startup scripts, such as `setDomainEnv`. Oracle recommends that you do not modify these startup scripts,

as any changes you make to them will be overwritten during subsequent domain upgrade operations.

---

**Caution:**

Changes made to the `setDomainEnv` script - or any other startup script - before an upgrade are overwritten by the new, regenerated scripts during the domain reconfiguration process. Create a separate file to store your customized domain settings before you upgrade.

---

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

Following is an example of startup customizations in a `setUserOverrides` file:

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

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

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

---

**Note:**

If you are unable to create the `setUserOverrides` script before an upgrade, you need to reapply your settings as described in Re-apply Customizations to Startup Scripts.

---

## 3.1.2 Using No-Auth SSL Mode in OID Security Store

The SSL protocol provides transport layer security with authenticity, integrity, and confidentiality, for a connection between a client and server. The SSL authentication mode is controlled by the attribute `orclsslauthentication` in the instance-specific configuration entry. By default, Oracle Internet Directory (OID) uses SSL No Authentication Mode (`orclsslauthentication`=1).

If you are upgrading to 12*c* Infrastructure, and using OID as the security policy store with Oracle WebLogic Server, then you may need to modify the default SSL mode. In Oracle Internet Directory 11*g*, SSL interoperability mode is enabled by default. But Oracle Internet Directory is fully compliant with the JDK's SSL, provided SSL interoperability mode is disabled.

The default use of No-Auth SSL mode in Oracle Internet Directory (OID) is discouraged for production environments due to the susceptibility to Man-in-the-Middle (MITM) attacks.

However, if No-Auth SSL is required, and WebLogic Server is the client, the following system properties must be applied to the weblogic.properties file before you upgrade:

- -Dweblogic.security.SSL.AllowAnonymousCipher=true
- -Dweblogic.security.SSL.ignoreHostnameVerification=true

**Note:**

Setting these properties can make the WebLogic Server susceptible to MITM attacks, since anonymous cipher suites are enabled, and the client connections are without Hostname Verification checking.

Oracle strongly recommends that you to use either server or client/server SSL authentication when using OID with WebLogic Server 12*c*.

### 3.1.3 Removing the Server Instance Scope from OWSM Policy Sets

The Server Instance Scope in policy sets was not recommended in 11*g* (11.1.1.7.0) and is not supported in 12*c*. However, if you have policy sets that use the Server Instance Scope, they are disabled during the upgrade to 12*c*. Therefore, you must remove the Server Instance Scope from all the 11*g* policy sets before upgrading to 12*c*.

For instructions, see Editing a Policy Set in *Security and Administrator's Guide for Web Services* in the Oracle Fusion Middleware 11*g* Release 1 (11.1.1.7.0) documentation library.

### 3.1.4 Cloning Predefined Documents and Migrating OWSM Policy Attachments

When upgrading, it is important to note that any predefined documents that have not been customized for your environment are replaced with read-only versions, and new, predefined, read-only documents are added. However, any existing predefined documents that have been customized and any user-created custom policies in the repository are not overwritten.

To ensure that you always get all of the latest policies, Oracle recommends that you clone any predefined documents that you have modified and migrate any policy attachments. For details, see Upgrading the OWSM Repository in *Securing Web Services and Managing Policies with Oracle Web Services Manager*.

## 3.2 Installing Oracle Fusion Middleware Infrastructure on APPHOST

Install the Infrastructure distribution components in a new Oracle home on the same host on which you have installed 11*g*.

**Note:**

Do not use the Configuration Wizard to configure Oracle Fusion Middleware Infrastructure 12*c*.

Follow the instructions described in Table 3-1 to install Oracle Fusion Middleware Infrastructure.

***Table 3-1 Oracle Fusion Middleware Infrastructure Installation Roadmap***

| Task | Description | More Information |
|---|---|---|
| Prepare your system for the 12*c* install. | Before you install Infrastructure 12*c*, verify that the minimum system and network requirements are met. | Roadmap for Verifying Your System Environment in *Installing and Configuring the Oracle Fusion Middleware Infrastructure*. |
| Obtain the Infrastructure distribution. | Obtain the Oracle Fusion Middleware Infrastructure distribution (`wls_jrf_generic.jar`). | Understanding and Obtaining the Oracle Fusion Middleware Infrastructure Distribution in *Installing and Configuring the Oracle Fusion Middleware Infrastructure*. |
| Start the Infrastructure 12*c* installer. | Start the Infrastructure installer from the location where you downloaded it. | Starting the Installation Program in *Installing and Configuring the Oracle Fusion Middleware Infrastructure*. |
| Navigate the installer screens. | Use the installer to install Infrastructure 12*c*. | Navigating the Installation Screens in *Installing and Configuring the Oracle Fusion Middleware Infrastructure*. |

## 3.3 Installing Oracle HTTP Server

If your domain includes Oracle HTTP Server instances that are associated with the domain, you must install Oracle HTTP Server on the machines where Oracle HTTP Server instances and the Administration Server are running.

For more information about installing Oracle HTTP Server, see Installing the Oracle HTTP Server Software in *Installing and Configuring Oracle HTTP Server*. Do not configure Oracle HTTP Server during the installation. You need to configure the HTTP server during the upgrade reconfiguration process.

**Note:**

If your pre-upgrade environment includes one of the following configurations, see *Upgrading Oracle HTTP Server* . These configurations require specialized upgrade procedures that are not part of the Infrastructure upgrade.

- You have a standalone Oracle HTTP Server
- plan to upgrade your Oracle HTTP Server at another time (not with the Infrastructure upgrade)
- You have Oracle HTTP Server on multiple nodes

## 3.4 Stopping Servers and Processes

Before running the Upgrade Assistant, shut down all Oracle Fusion Middleware Managed Servers, Administration Servers, and system components (such as OHS) that

may be using the schemas or configurations you want to update. Failure to do so may result in an incomplete or failed upgrade.

If you are running the Node Manager, you should also stop the Node Manager. You can do this by closing the console window in which the Node Manager is running, or by using the `stopNodeManager` WLST command.

For instructions to stop an Oracle Fusion Middleware environment, see Stopping an Oracle Fusion Middleware Environment in *Administering Oracle Fusion Middleware*.

## 3.5 Using the Schema Version Registry to Identify Existing 11*g* Schemas

When the schemas are created in your database, RCU creates and maintains a table called `schema_version_registry`. This table contains schema information such as version number, component name and ID, date of creation and modification, and custom prefix. When you run the Upgrade Assistant. it identifies schemas for which an upgrade is available. You can upgrade multiple schemas in a single session of running the Upgrade Assistant.

To determine which of your 11*g* or 12*c* schemas can be upgraded to 12.2.1, see Identifying Schemas that Can be Upgraded with the Upgrade Assistant in *Upgrading with the Upgrade Assistant*.

## 3.6 Creating the Required Schemas Before You Upgrade

Before you upgrade, you must install one or more schemas in a supported database.

Determining Which Schemas to Create
: You must create the required schemas depending upon whether your 11*g* schemas were file-based or database-based.

Creating the Required Schemas with the Repository Creation Utility (RCU)
: The Repository Creation Utility (RCU) enables you to create the required schemas in a database and also manage the corresponding tablespaces.

### 3.6.1 Determining Which Schemas to Create

You must create the required schemas depending upon whether your 11*g* schemas were file-based or database-based.

Consider the following scenarios:

- If you did not use a database in 11*g*, then you must install and configure a supported database, and also create one or more of the database schemas as described in Database Schema Requirement for Infrastructure 12*c*.
- If you were already using a database to host the schemas for your Application Developer 11*g* domain, then use the schema version registry to list the Oracle Fusion Middleware 11*g* schemas that are already available in your database, as described in Using the Schema Version Registry to Identify Existing 11*g* Schemas.

  You need not create the schemas listed in the Schema Version Registry manually. Instead, you can later use the Upgrade Assistant to upgrade the 11*g* schemas during the upgrade process.

  However, you must still create the required schemas, as described in Database Schema Requirement for Infrastructure 12*c*.

**Note:**

As of release 12*c*, the Service Table (_STB) schema is required for all Infrastructure installations. The Service Table schema must be upgraded each time the infrastructure is upgraded. You cannot use an older version schema with a new Infrastructure installation.

### 3.6.2 Creating the Required Schemas with the Repository Creation Utility (RCU)

The Repository Creation Utility (RCU) enables you to create the required schemas in a database and also manage the corresponding tablespaces.

**Note:**

When you create the new schemas, be sure to use a unique schema prefix. This prefix enables you to differentiate between any schemas previously installed or upgraded in the database, as opposed to those that you have created specifically for Oracle Fusion Middleware 12*c*.

To create schemas using the RCU:

1. Set the *JAVA_HOME* variable and add *`JAVA_HOME`*`/bin` to `$PATH`, if you have not done so already..
2. Navigate to the *`ORACLE_HOME`*`/oracle_common/bin` directory on your system.
3. Start RCU:

   On Unix system, enter:

   ```
   ./rcu
   ```

   On Windows system, enter:

   ```
   .\rcu.bat
   ```

4. Complete the schema creation by navigating the RCU screens.

   For more information, see Navigating the RCU Screens to Create the Schemas in *Installing and Configuring the Oracle Fusion Middleware Infrastructure*.

**Note:** Edition-based redefinition (EBR) enables you to support multiple versions of a database schema on the same database and at the same time. For more information on creating an edition on the server for redefinition, see Creating an Edition on the Server for Editions-Based Redefinition in *Planning an Upgrade of Oracle Fusion Middleware*.

## 3.7 About Upgrading Schemas using the Upgrade Assistant

The Upgrade Assistant provides two options for upgrading schemas: **Individually Selected Schemas** and **All Schemas Used By a Domain**.

#### Individually Selected Schemas

This option enables you to choose which component schemas to upgrade. Select this option when you have component schemas within the domain that you do not want to upgrade.

For example, if you want to make a trial run of Upgrade Assistant by creating schemas with RCU that are outside the domain, and then use Upgrade Assistant to upgrade them.

#### All Schemas Used By a Domain

This option allows the Upgrade Assistant to detect all of the available schemas within the specified domain and include them in the upgrade.

## 3.8 Identifying Schemas that Can be Upgraded with the Upgrade Assistant

The Upgrade Assistant identifies and includes all the schemas that are available for an upgrade. You can also select the schemas you want to upgrade. If you want to review the list of available schemas before you begin the upgrade, query the schema version registry.

> **Tip:**
>
> Compare the information you collect from the schema version registry and the corresponding schemas to determine whether there are schemas in your domain that are not available for an upgrade yet.

If you are using an Oracle database, connect to the database as a user having Oracle DBA privileges, and run the following from SQL*Plus to get the current version numbers:

```
SET LINE 120
COLUMN MRC_NAME FORMAT A14
COLUMN COMP_ID FORMAT A20
COLUMN VERSION FORMAT A12
COLUMN STATUS FORMAT A9
COLUMN UPGRADED FORMAT A8
SELECT MRC_NAME, COMP_ID, OWNER, VERSION, STATUS, UPGRADED FROM
SCHEMA_VERSION_REGISTRY ORDER BY MRC_NAME, COMP_ID ;
```

The following report is generated when saved to a SQL script, for example `version.sql`.

If the number in the "VERSION" is at 11.1.1.6.0 or higher, and the STATUS column is 'VALID', then the schema is supported for upgrade.

If an upgrade is not needed for a schema, the `schema_version_registry` table retains the schemas at their pre-upgrade version after the 12.2.1 upgrade.

#### Notes about the schemas that need to be upgraded

- For **most** components, the only schema version starting points that are valid for upgrading are 11*g* Release 1 (11.1.1.6, 1.1.1.7, 11.1.1.8, or 11.1.1.9) or 12*c* (12.1.2 or 12.1.3). If your schemas are not at a supported version, then you must upgrade them before using the 12*c* (12.2.1) upgrade procedures.

Some components, such as Oracle Enterprise Data Quality and Oracle Golden Gate Veridata, support an upgrade from versions other than the standard Oracle Fusion Middleware supported versions.

Refer to your component-specific installation and upgrade documentation for additional information about the schemas that are required for your upgrade.

- If you used a file-based policy store in 11*g*, then you must reassociate the file-based policy store with a database-based security store before running the Upgrade Assistant.

  For more information see Reassociating a File-Based Policy Store Before Upgrade.

- If you used an OID-based policy store in 11*g*, make sure that you have created new 12*c* OPSS schemas before upgrade.

- If you are upgrading an ORASDPM schema that was created using RCU 11g (11.1.1.1.4 or earlier), and you subsequently upgraded ORASDPM to 11*g* (11.1.1.6 or later), the FMW user will need to grant the CREATE TABLE privilege to user <*prefix*>_ORASDPM before upgrading to 12c (12.2.1).

  ```
  grant CREATE TABLE to &lt;prefix>_ORASDPM;
  ```

  Where <*prefix*> is the name given to the schema when it was created.

- You can only upgrade schemas for products that are available for upgrade in the Oracle Fusion Middleware 12*c* (12.2.1) release. **Do not attempt to upgrade a domain that includes components that are not yet available for upgrade to 12*c* (12.2.1)** .

## 3.9 Starting the Upgrade Assistant

The Upgrade Assistant is used to upgrade schemas, component configurations and standalone system components.

Oracle recommends that you successfully complete the upgrade of schemas and component configurations for a single domain before beginning the upgrade of another domain.

> **Note:** The Upgrade Assistant should be run by a non-SYSDBA user whenever possible. The steps to create a non-SYSDBA user are described in Creating a Non-SYSDBA User.

To start the Upgrade Assistant:

1. On the Unix operating system, change directory to *`ORACLE_HOME`*`/oracle_common/upgrade/bin`.

   On the Windows operating system, change directory to *`ORACLE_HOME`*`\oracle_common\upgrade\bin`.

2. Enter the following command to start the Upgrade Assistant:

   On UNIX operating systems:

   ```
   ./ua
   ```

   On Windows operating systems:

   ```
   ua.bat
   ```

Provide the required information in each of the Upgrade Assistant screens. The screens that you see vary depending on the type of upgrade you select.

## 3.10 Upgrading Schemas with the Upgrade Assistant

If you run the Upgrade Assistant from an Oracle home that contains components with any schemas, then the **Schemas** upgrade option is shown. The Upgrade Assistant only lists the components that are candidates for schema upgrade. You can select the schemas you want to upgrade from the component list.

Table 4-1 shows the screens that are displayed when you run the Upgrade Assistant to upgrade schemas and they vary depending on the options you select.

***Table 3-2 Upgrading Schemas: Navigating the Upgrade Assistant Screens***

| Screen Title | When does the screen appear? | Description |
|---|---|---|
| Welcome | Always. | This screen provides an overview of the Upgrade Assistant and some information about important pre-upgrade tasks. |
| Schemas | Always. | Select the schema upgrade operation that you want to perform on this screen. The options on the screens change depending on what you select from the following:<br>• **Individually Selected Schemas**<br>• **All Schemas Used by a Domain** |
| Available Components | When you select **Individually Selected Schemas**. | This screen provides a list of installed Oracle Fusion Middleware components that have schemas that can be upgraded. When you select a component, the schemas and any dependencies are automatically selected. |
| All Schemas Component List | When you select **All Schemas Used by a Domain**. | This screen is read-only, and it displays all the components and schemas found in the specific domain directory that are included in the upgrade. |
| Prerequisites | Always. | This screen requires you to acknowledge that all prerequisites have been met before you continue with the upgrade. Check the boxes before you continue. |

***Table 3-2 (Cont.) Upgrading Schemas: Navigating the Upgrade Assistant Screens***

| Screen Title | When does the screen appear? | Description |
|---|---|---|
| Schema Credentials Screen | Always. | Enter the information required to connect to the selected schema and the database that hosts the schema on this screen.<br>The screen name changes based on the type of schema selected ("MDS Schema", for example).<br>Since the component ID or schema name is changed for UCSUMS schema as of release 12.1.2, the Upgrade Assistant does not automatically recognize the possible schemas and display them in a drop-down list. You must manually enter the name in a text field. The name can be either *prefix*_ORASDPM or *prefix*_UMS, depending on the starting point for the upgrade. |
| Examine | Always. | This screen displays the status of the Upgrade Assistant as it examines each component, verifying that the component is ready for upgrade.<br>**Note:** Issues detected during the Examination phase can be fixed without restoring from backup. |
| Upgrade Summary | Always. | Review a summary of the options you have selected and to start the upgrade process on this screen. |
| Upgrade Progress | Always. | This screen displays the status of the upgrade process. |

***Table 3-2 (Cont.) Upgrading Schemas: Navigating the Upgrade Assistant Screens***

| Screen Title | When does the screen appear? | Description |
|---|---|---|
| Upgrade Success | When the upgrade is successful. | The upgrade is successful. The Post-Upgrade Actions window describes the manual tasks you must perform to make the component function in the new installation. |

***Table 3-2 (Cont.) Upgrading Schemas: Navigating the Upgrade Assistant Screens***

| Screen Title | When does the screen appear? | Description |
|---|---|---|
| Upgrade Failure | When the upgrade fails. | The upgrade failed for the specified component(s). You must restart the Upgrade Assistant.<br>The Upgrade Assistant logs are available at *ORACLE_HOME*`/oracle_common/upgrade/logs`.<br>**Note:** If the upgrade fails you must restore your pre-upgrade environment from backup, fix the issues and then restart the Upgrade Assistant. You cannot fix the issues and restart the Upgrade Assistant because the files are modified during this operation. |

**For SOA Suite and BPM Upgrades Only:**

The upgrade of active and closed SOA instance data to 12*c* (12.2.1) happens automatically as part of the SOA schema upgrade process with the Upgrade Assistant. For more information, see Administering and Monitoring the Upgrade of SOA Instance Data.

## 3.11 Upgrade Assistant Screens

This section describes all of the Upgrade Assistant screens.

**Note:**

The screens you will see while using the Oracle Fusion Middleware Upgrade Assistant vary depending upon the type of Oracle Fusion Middleware software you are upgrading. Not all screens will be shown to you.

Welcome

Schemas

All Schemas Used by Domain

All Configurations Used by a Domain

Standalone Components

Available Components

All Schemas Component List

WebLogic Server Component List

Prerequisites

Edition-Based Redefinition (EBR) Database Upgrade

Schema Credentials Screen

Instance Directories

Node Manager

User Messaging Service Configuration

Examine

Examine Failure

Upgrade Summary

Upgrade Progress

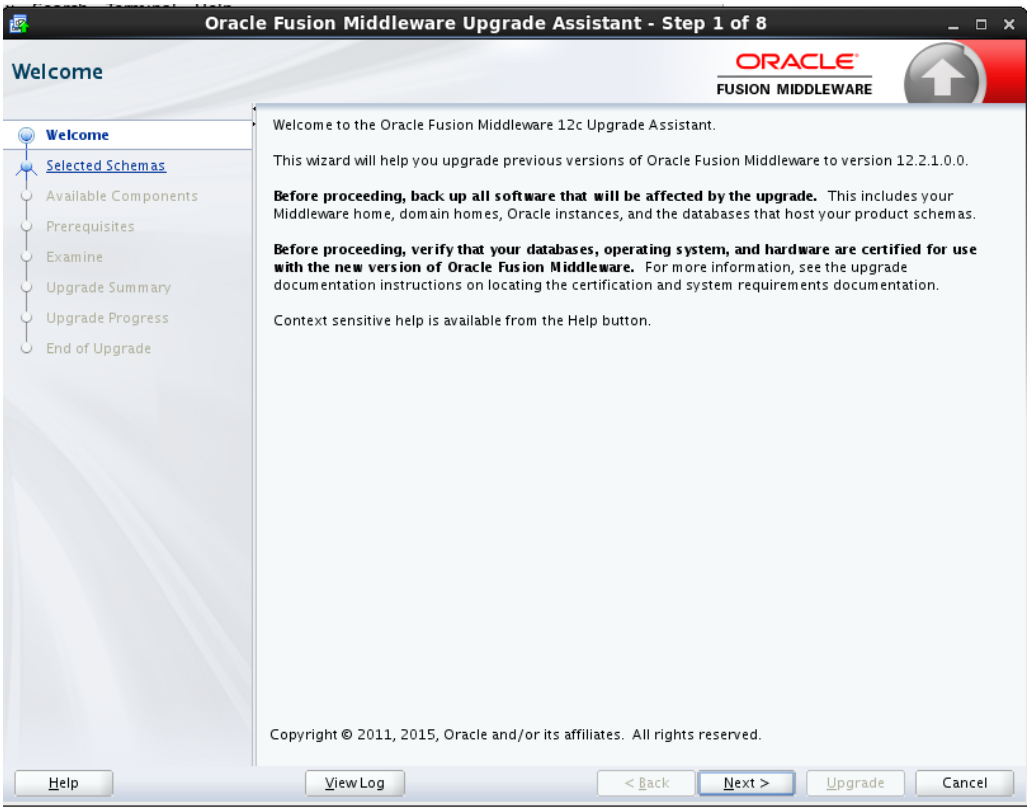
Upgrade Success

Upgrade Failure

Cancel Upgrade

## 3.11.1 Welcome

The Oracle Fusion Middleware Upgrade Assistant is used to upgrade component schemas, component configurations, and standalone system component configurations from Fusion Middleware 11*g* and 12*c* releases to the latest Fusion Middleware 12*c* release.

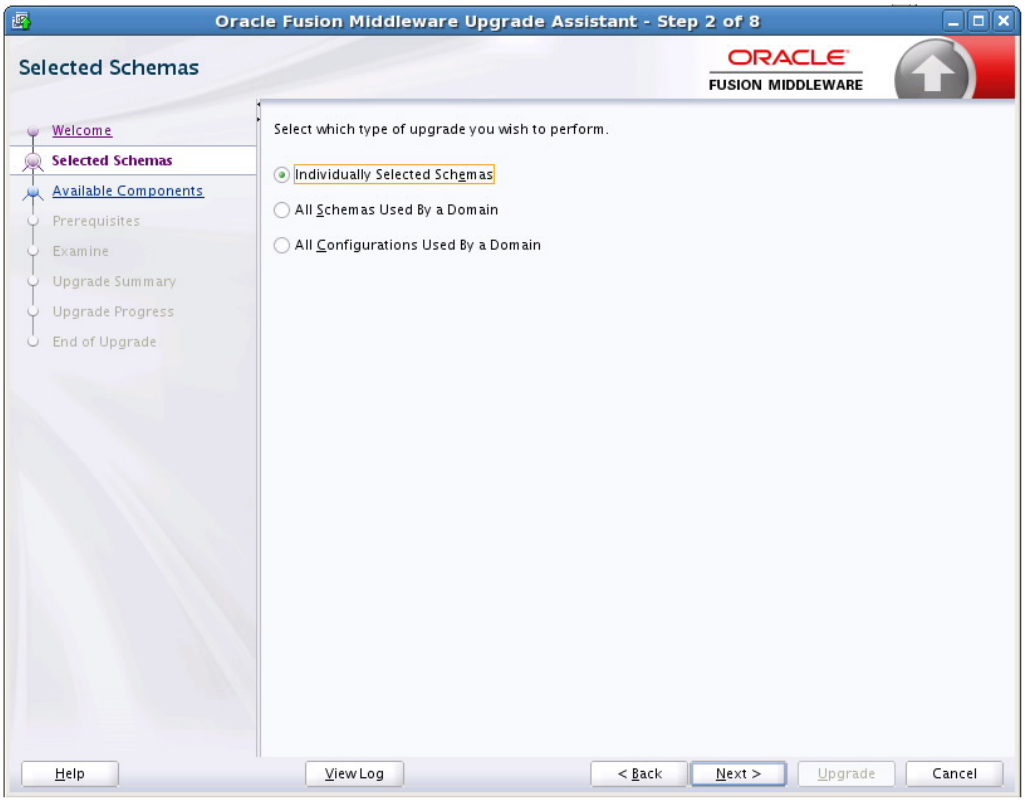



## 3.11.2 Schemas

Select **Individually Selected Schemas** to upgrade selected schemas for your installed components. The Upgrade Assistant will identify components that are candidates for a schema upgrade and then you can select which schemas to include in the upgrade

**CAUTION**: Upgrade only those schemas that will be used to support your 12.2.1.0.0 components. Do not upgrade schemas that are currently being used to support 11g or 12*c* components that are not included in the Oracle Fusion Middleware 12.2.1 release.

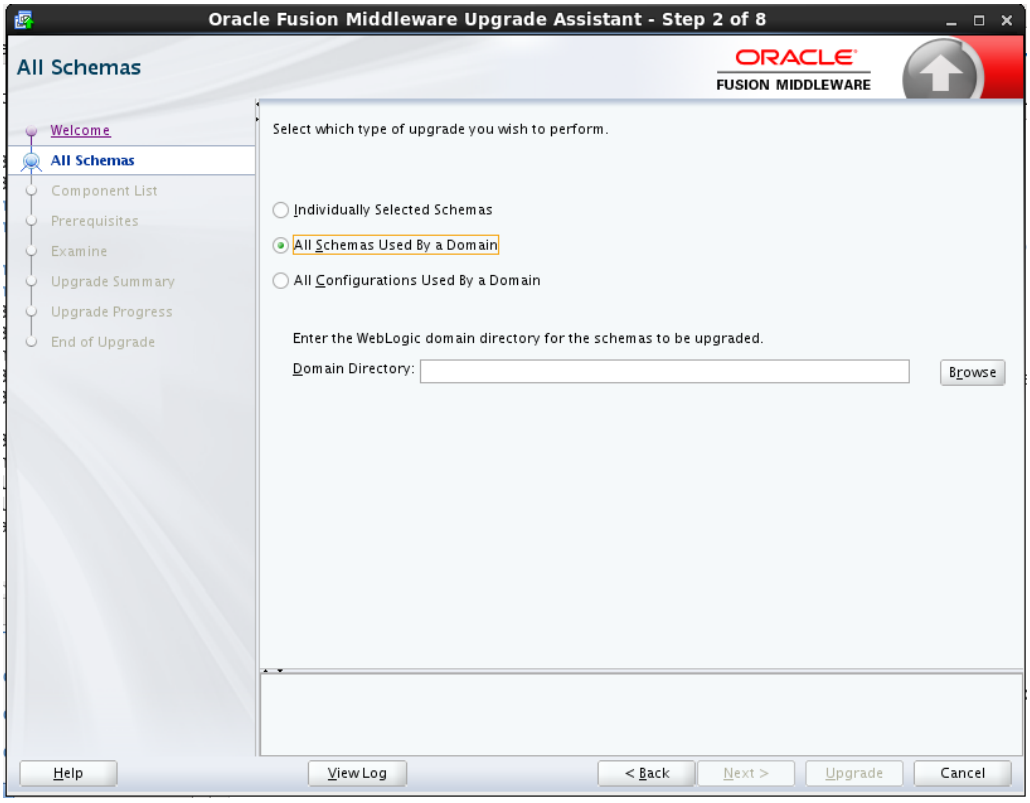
*Figure 3-1 Individually Selected Schemas*




## 3.11.3 All Schemas Used by Domain

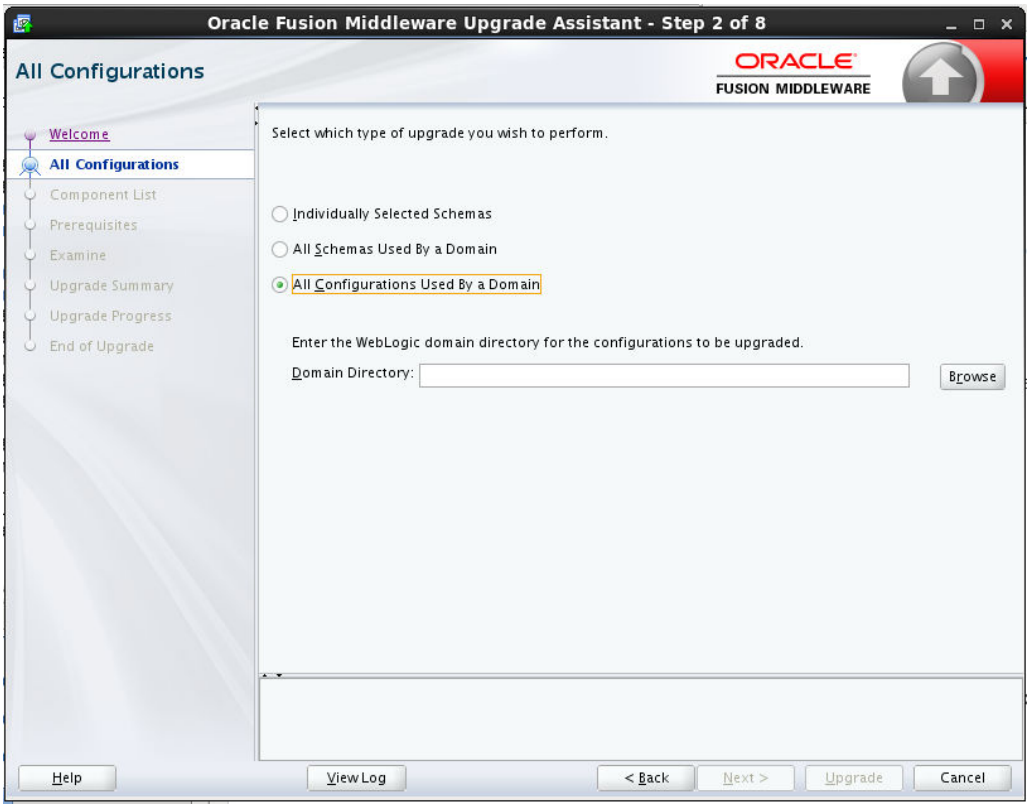
As of release 12.2.1, the Oracle Fusion Middleware Upgrade Assistant (UA) provides an option for upgrading all schemas used by a specified domain (sometimes referred to as Domain Assisted Schema Upgrade or DASU). When you select **All Schemas Used By a Domain**, the Upgrade Assistant discovers and selects all components that have schemas available to upgrade. In addition, where possible, the Upgrade Assistant pre-populates the connection information on schema input screens.

Also, you must browse and provide the 11*g* domain in the **Domain Directory** field.



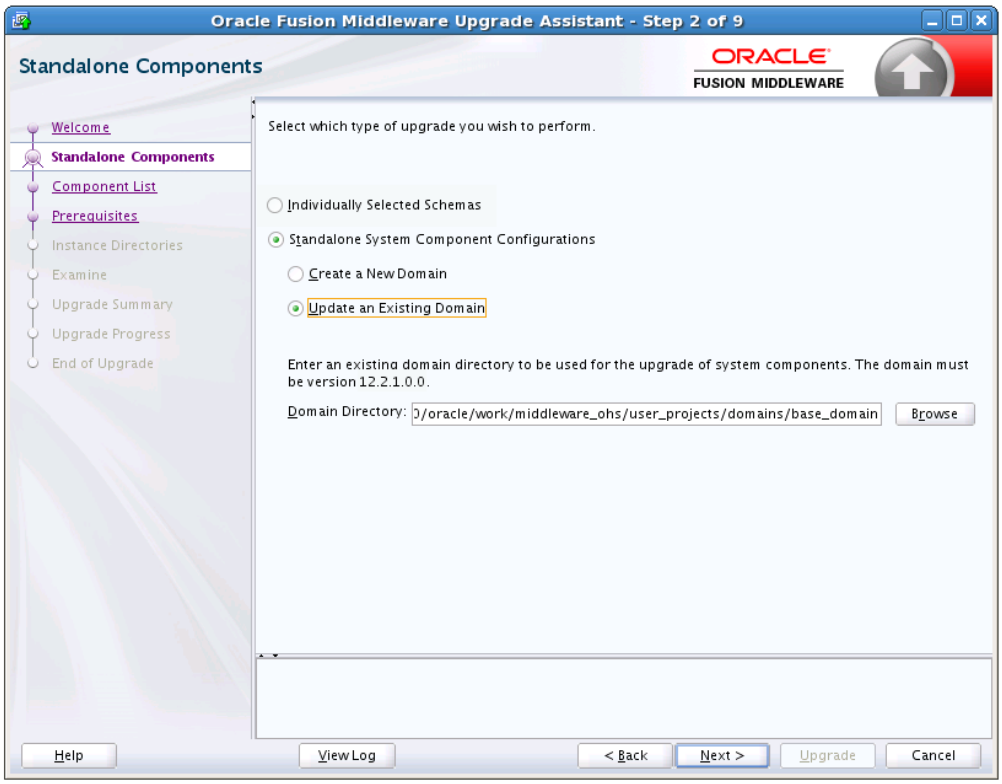

## 3.11.4 All Configurations Used by a Domain

Select the **All Configurations Used by a Domain** option to upgrade component configurations for a managed WebLogic Server domain. Click **Browse** and use the navigation tree to select a valid domain directory. A domain directory contains a `config` directory, which contains a `config.xml` file.




## 3.11.5 Standalone Components

Select the **Standalone System Component Configurations** option when you will be upgrading a standalone system component, such as Oracle HTTP Server (OHS).




You will be prompted to select one of the following:

| Option | Description |
|---|---|
| Create a New Domain | Standalone system components will have a separate standalone domain in 12*c*. A standalone domain is a container for system components, such as Oracle HTTP Server. It has a directory structure similar to an Oracle WebLogic domain, but it does not contain an Administration Server or Managed Servers. It can contain one or more instances of system components of the same type, such as Oracle HTTP Server, or a mix of types.<br>Management tools, such as the Configuration Wizard, pack and unpack, WLST, and Node Manager can operate on standalone domains. |
| Update an Existing Domain | Once a standalone domain has been created for a system component, you can select this option to extend that domain for another standalone system component. This option is also used when upgrading from 12.1.2 or 12.1.3.<br>You must provide the location of the existing 12c domain. |

## 3.11.6 Available Components

If you selected the **Individually Selected Schemas** option in the previous screen to select individual schemas to be upgraded - instead of upgrading all schemas used by the domain - this screen displays the components with schemas that can be upgraded. If you select a component that requires another schema, the Upgrade Assistant will automatically select those schemas for you.

*Figure 3-2 List of Components with Schemas Available for Upgrade*

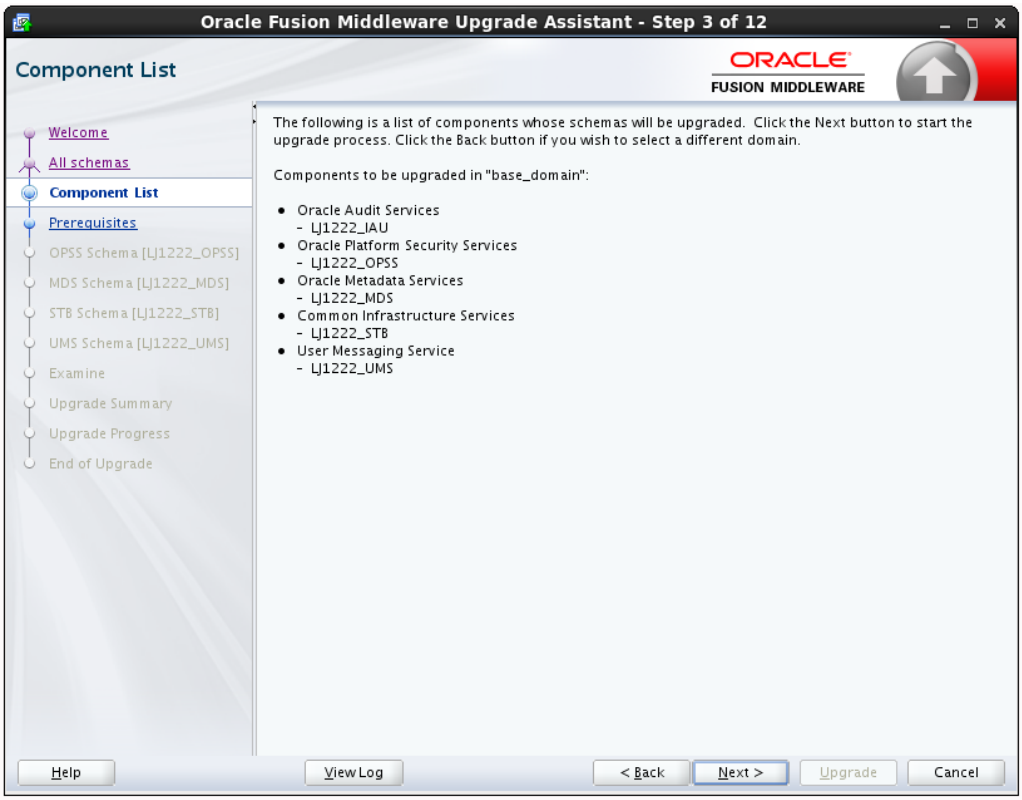
## 3.11.7 All Schemas Component List

If you selected **All Schemas Used by the Domain**, then this screen provides a list of schemas that will be included in the WebLogic domain upgrade. The names of the components are provided along with the schemas located within the domain.

Review the list carefully to verify that the correct schemas will be upgraded. If you do not see the components or schemas you want to upgrade, you may have selected the wrong domain. Use the **Back** button to specify a different domain.

If there are components or schemas listed that you do not want included, navigate back to the All Schemas screen and select **Individually Selected Schemas** instead of **All Schemas Used by the Domain**. The **Individually Selected Schemas** option allows you to select only those schemas you want included in the upgrade.

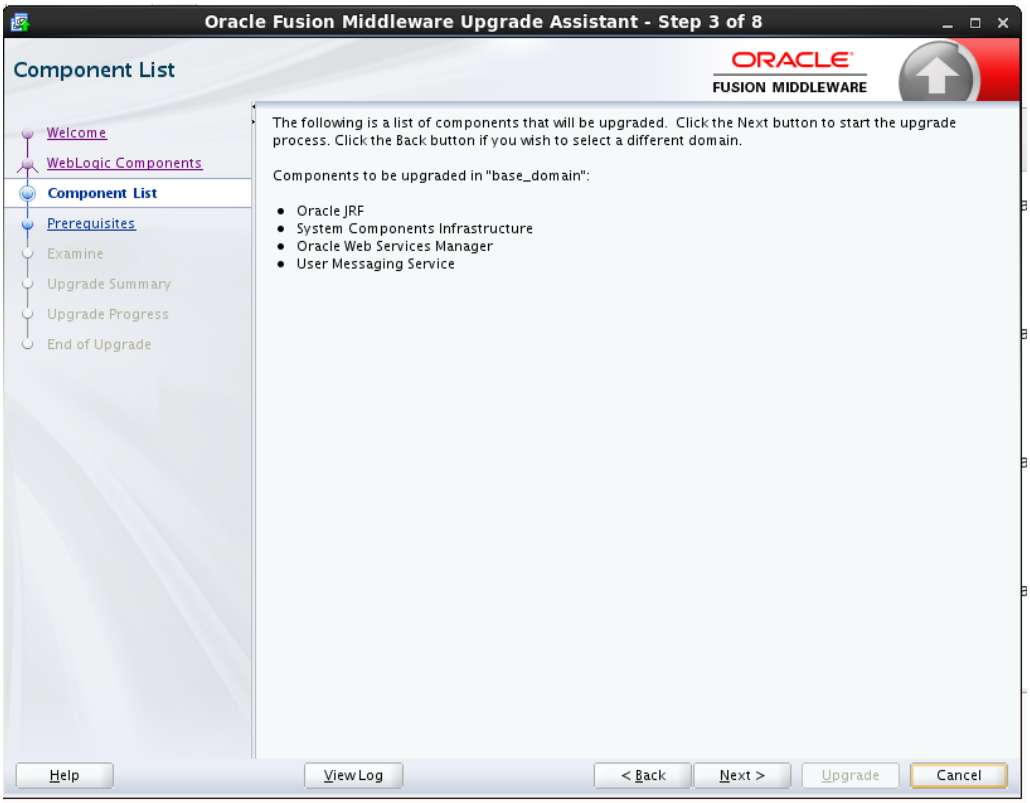
*Figure 3-3 Component List for All Schema Used by the Domain Upgrade*




## 3.11.8 WebLogic Server Component List

When **All Configurations Used by a Domain** is selected for upgrade, the domain's components are listed on this read-only screen. Review the list of components before you proceed.

*Figure 3-4 Component List for WebLogic Component Configurations*



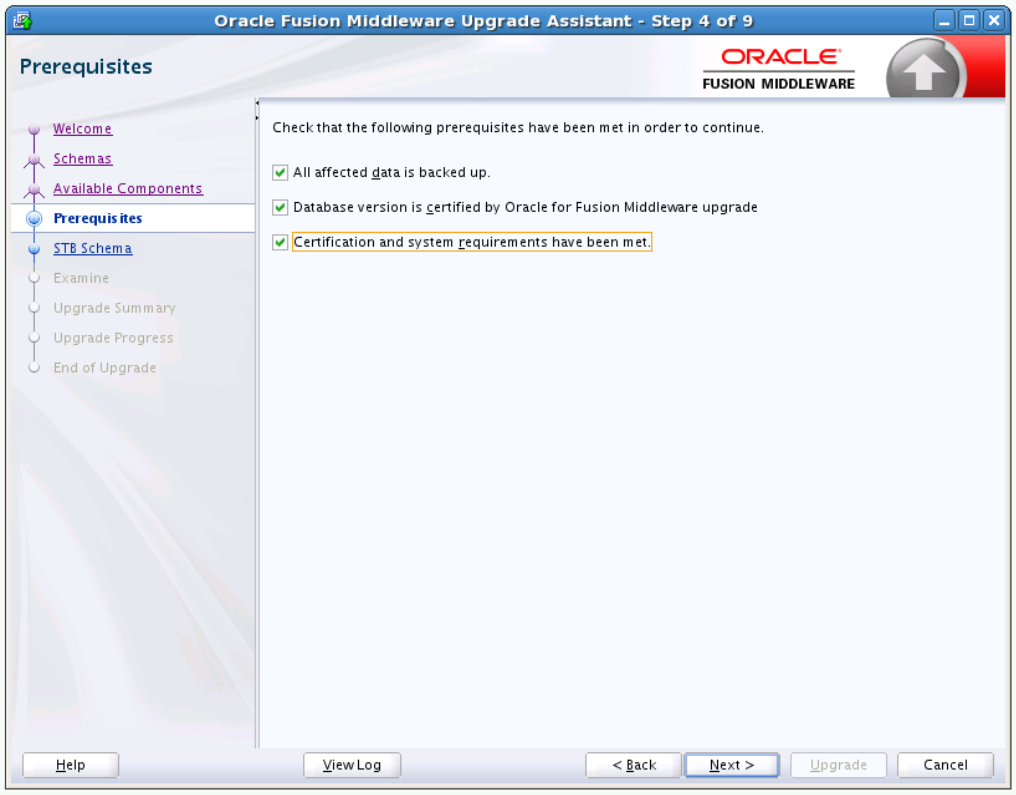

## 3.11.9 Prerequisites

This screen requires you to acknowledge that all prerequisites have been met before you continue with the upgrade. You must check the boxes before you can continue.

**Warning:**

The Upgrade Assistant will not verify that the prerequisites have been met.

*Figure 3-5 Prerequisites*

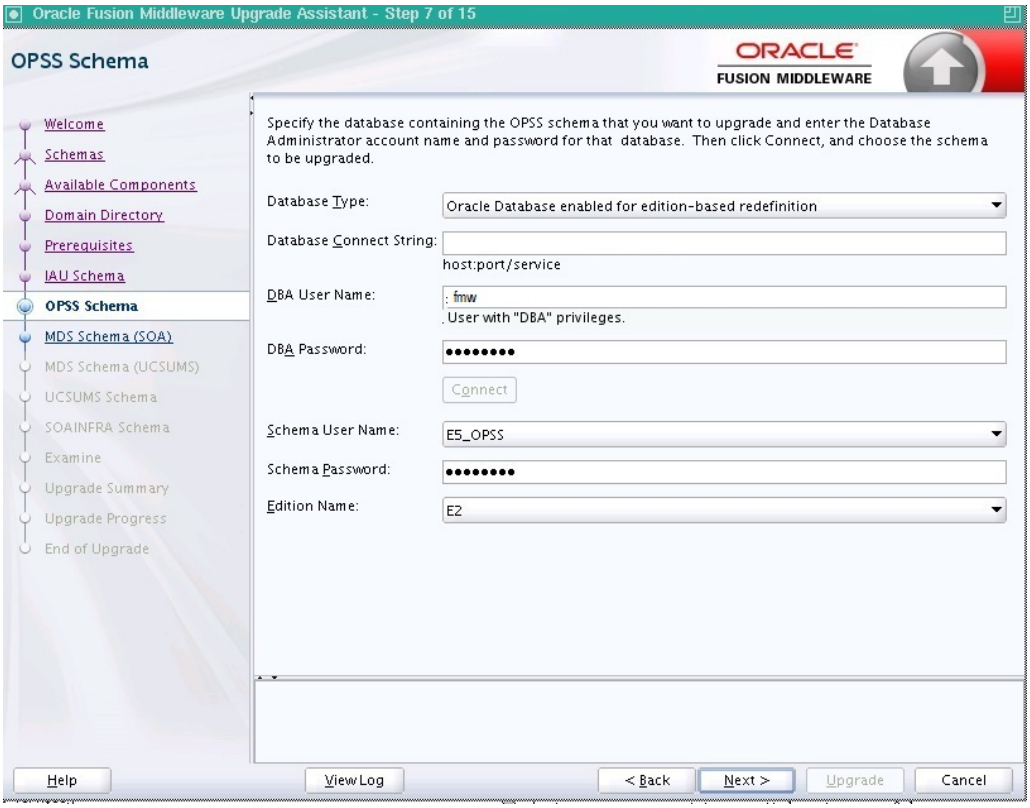



## 3.11.10 Edition-Based Redefinition (EBR) Database Upgrade

Use this screen to select the child edition from edition drop down list for edition-based redefinition databases. You must create the child edition before starting the upgrade.

For more information on creating an edition on the server for edition-based redefinition, see "Creating an Edition on the Server for Edition-Based Redefinition" in *Planning an Upgrade of Oracle Fusion Middleware*.

***Figure 3-6 EBR Database Upgrade***




## 3.11.11 Schema Credentials Screen

Use this screen to enter information required to connect to the selected schema and the database that hosts the schema. If the schema that is to be upgraded was created by RCU in a prior Fusion Middleware release then you will see a drop-down menu listing the possible schema names as shown below. Click **Connect** to connect to the database then select the schema to be upgraded.

**NOTE**: Most schemas will have this information pre-populated. If, however, the Upgrade Assistant is unable to detect the connection details, then they must be entered manually as shown below.

***Figure 3-7 Select Schemas - Dropdown Menu***

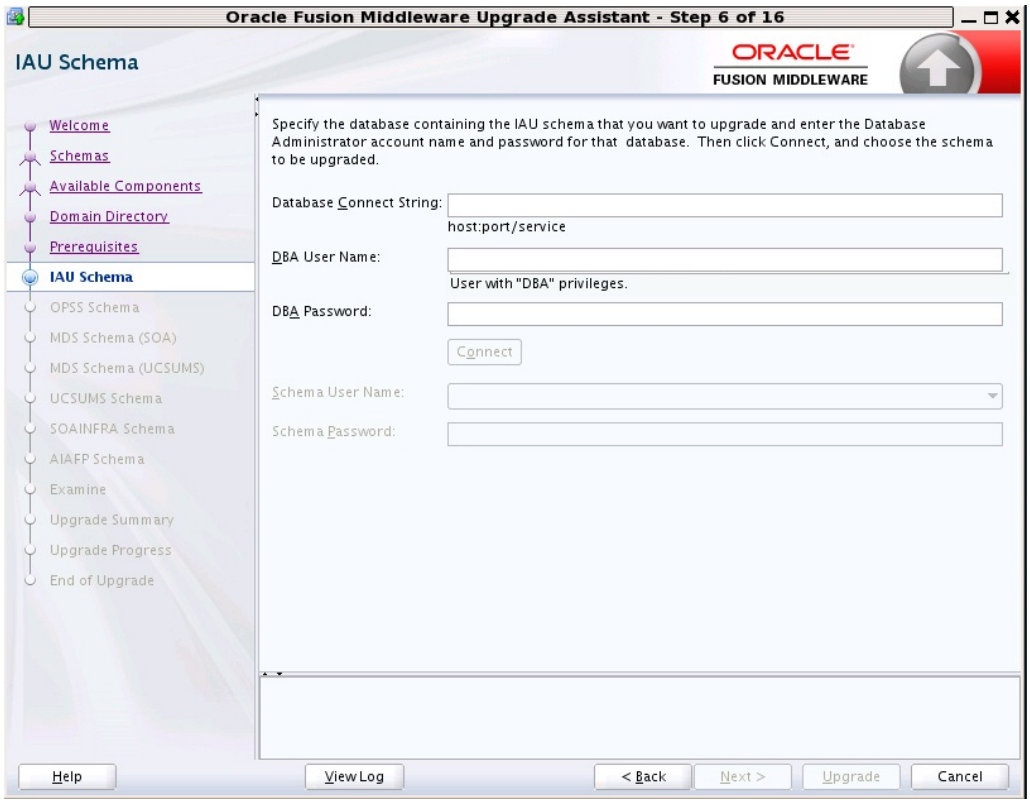
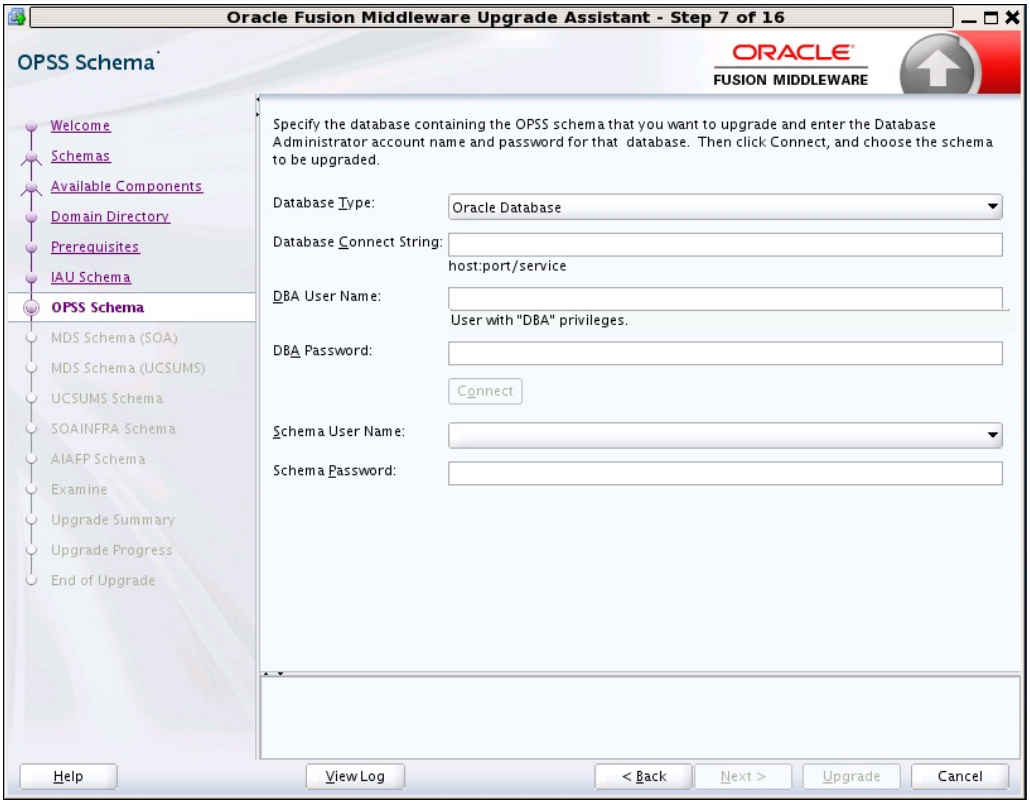



***Figure 3-8 Manually Entered Schema Data***




The following table describes the elements that appear on this screen.

| Element | Description |
|---|---|
| Database Type | Select the database type from the drop-down menu. The types of databases available in the menu varies, depending on the schema you are about to upgrade.<br>The database type chosen for upgrade must be identical to the database type that was selected when RCU originally created the schema.<br>If you select Oracle Edition-Based Redefinition (EBR) as the database type, the schema that you are upgrading also must have been created by RCU using the EBR database type. In particular, Upgrade Assistant never converts schemas from one database type to another. |
| Database Connect String | Enter the location of the database.<br>For example, if you are selecting an Oracle database, the following URL format could be used:<br>*host:port/db_service_name*<br>If you are using a Microsoft SQL Server or IBM DB2 database, then select the database type from the drop-down menu, and review the text below the field, which provides the syntax required for each database type.<br>NOTE: The Upgrade Assistant accepts other valid forms of connection strings. For example, the Oracle Database TNS style connection string may also be used. |
| DBA User Name | Enter the database user name used to connect to the database.<br>NOTE: The DBA user must have sufficient privileges to run the Upgrade Assistant, but the user does NOT have to have SYS/SYSDBA privileges. A non-sysdba user can now be used.<br>On certain database platforms user names are case sensitive, and the DBA user name might consist of lower case letters. The Upgrade Assistant connects to the name the user enters and does not convert the user name to upper case. |
| DBA Password | Enter the password associated with the specified DBA database user. |
| Schema User Name | Select the schema user name from the drop-down list or enter the user name of the schema, for example, **DEV_MDS**.<br>Note that all Oracle Fusion Middleware schema names consist solely of upper case characters on all database platforms. Also, all schema names are stored as upper case in the `schema_version_registry` table. If you type lower case letters in the Schema User Name field, the Upgrade Assistant converts the name to upper case.<br>For WebLogic Server domain, UMS, and Veridata schemas you need to manually enter the 11*g* schema user name and password. |
| Schema Password | Enter the password associated with the specified schema user name. |

| Element | Description |
|---|---|
| Edition Name | When Oracle Database enabled for edition-based redefinition is selected as the database type, you must specify the existing edition name.<br>**NOTE**: Before upgrading an EBR-enabled schema from Fusion Middleware 11g release or from a previous 12*c* release, you must first connect to the database server and create an edition on the database server for 12c (12.2.1). The new edition for 12.2.1 must be a child of your 11.1.1.6.0, 11.1.1.7.0, 12.1.2, or 12.1.3 edition.<br>For more information on creating an edition on the server for edition-based redefinition, see "Creating an Edition on the Server for Edition-Based Redefinition" in *Planning an Upgrade of Oracle Fusion Middleware*. |

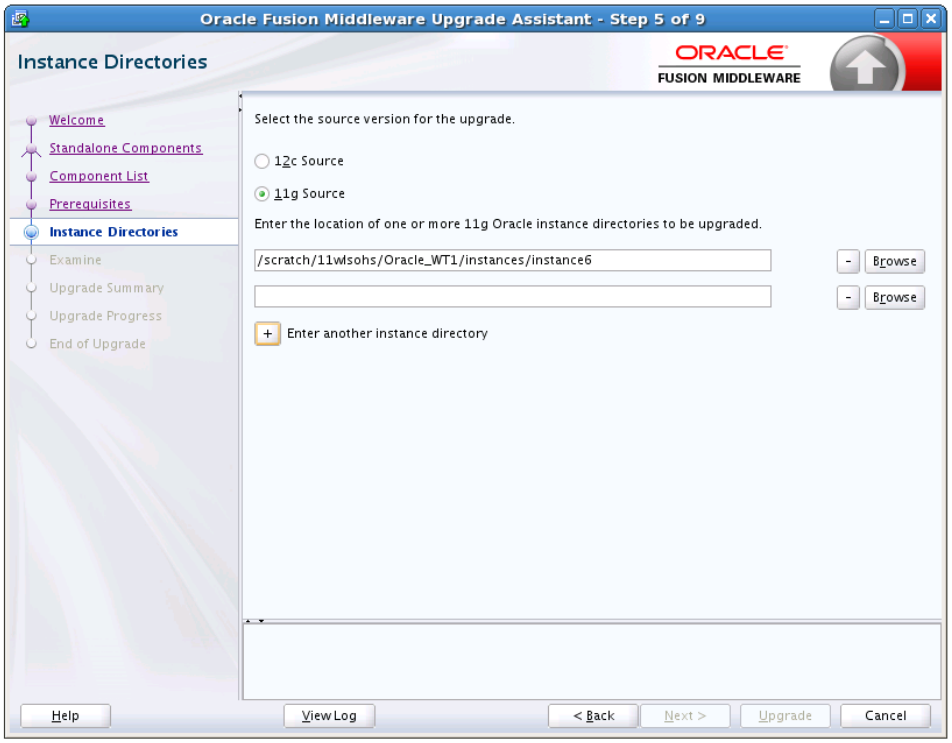
## 3.11.12 Instance Directories

When upgrading system components, such as OHS, you must provide the directory locations of the 11g instances that will be used as a starting point for creating new 12c component instances.

Use the **Add** button to include more than one instance, if needed.

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

***Figure 3-9 Instance Directories***



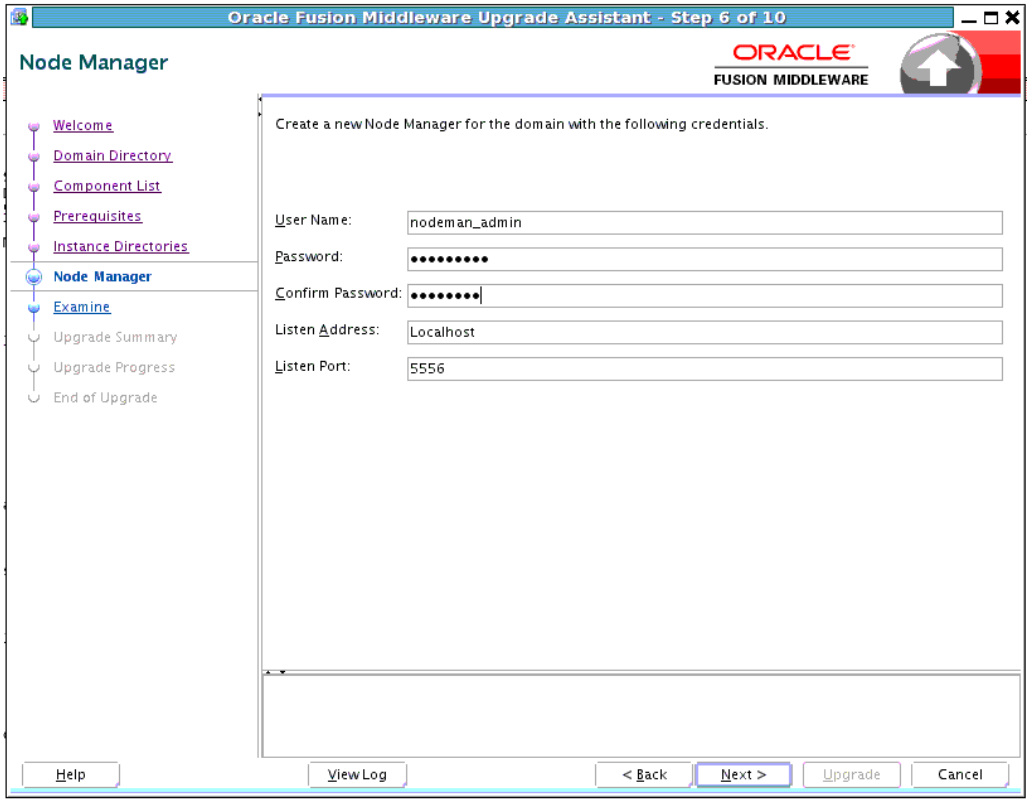
## 3.11.13 Node Manager

Use this screen to specify the credentials of the Node Manager that will be used to create a domain during the upgrade of standalone system components.

Note that the fields displayed in the screenshot may not appear during your upgrade. The conditions that trigger the fields to display are described in the table below.

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

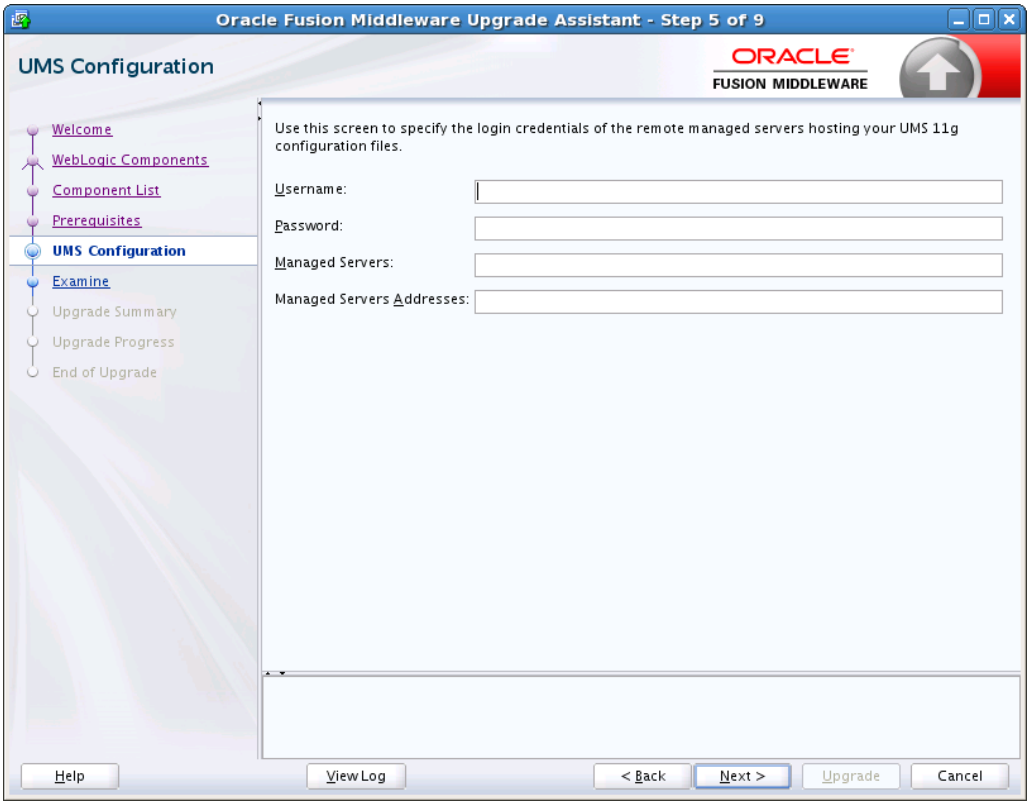
***Figure 3-10 Node Manager***




| Element | Description |
|---|---|
| User Name | The user name used to access Node Manager. |
| Password | The password used to access Node Manager. You will need to re-enter the password for confirmation. |
| Listen Address | Enter the DNS name or IP address upon which Node Manager listens in the Listen Address field. |
| Listen Port | The listening port number of Node Manager. |

## 3.11.14 User Messaging Service Configuration

*Figure 3-11 User Messaging Service Configuration*




Use this screen to specify the login credentials of the remote managed servers hosting your UMS 11g configuration files. The Upgrade Assistant automatically copies remote configuration files if all necessary prerequisites are met and the required login information is provided as described in the table below.

If the UMS configuration files are not locally accessible on the machine where the upgrade is being executed, then you must manually enter the login credentials for each managed server (**ums_server1**,**ums_server2** for example).

In some cases, the configuration files must be copied to the machine where the upgrade is being executed (in most cases to the AdminServer machine). The Upgrade Assistant will attempt to copy the files, but if it cannot locate them, then you will have to manually copy them to the Admin Server.

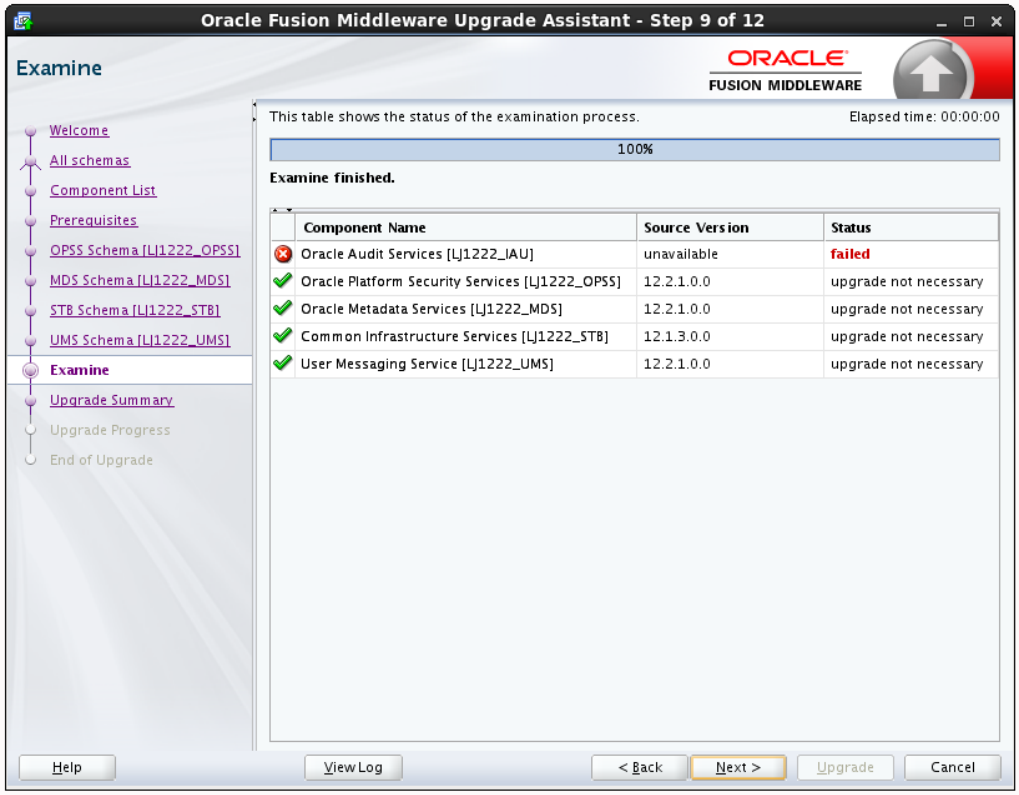
For more information, see "Copying UMS Configuration Files" in *Upgrading to the Oracle Fusion Middleware Infrastructure*.

You will only need to copy the files manually if you receive a message stating that the Upgrade Assistant is not able to copy the configuration files. Once you have copied the files, you can restart the Upgrade Assistant and proceed with the upgrade.

| Element | Description |
|---|---|
| Username | Provide the **Operating System user** who installed the product. This user will be used to fetch the remote configuration files.<br>**NOTE**: This user must have permission to connect via `ssh` to the nodes where the remote managed servers are installed.<br>The Username field is shown if:<br>• no configuration files are found for the managed server on the local machine hosting the admin server or on a shared disk<br>• there are more managed servers in the 12c domain where UMS is targeted. |
| Password | Provide the password associated with this user. |
| Managed Servers | If the Upgrade Assistant was unable to automatically detect the managed servers, then you must provide a comma separated list containing the names of the remote managed servers that contain the configuration files.<br>For example:<br>**ums_server1**,**ums_server2** |
| Managed Servers Addresses | Provide a comma separated list containing the complete hostnames or IP addresses for the nodes where the remote managed servers are running. The order of this list has to correspond with the list of managed server names provided above.<br>For example:<br>`fusionHost1.example.com`,`fusionHost2.example.com`<br>where:<br>`fusionHost1.example.com` hosts **ums_server1** and `fusionHost2.example.com` hosts **ums_server2** |

## 3.11.15 Examine

*Figure 3-12 Examine*




The Upgrade Assistant examines each component to be sure it meets a minimum set of criteria before you begin the upgrade process.

This screen displays the status of the Upgrade Assistant as it examines each component, verifying that the component is ready for upgrade.

The Upgrade Assistant examines each component to be sure it meets a minimum set of criteria before you begin the upgrade process.

Upgrade Assistant displays the schema **Source Version** of the schema on this screen if the information is listed in the schema version registry table. If the schema was not created using RCU, or the source version cannot be found, the source version will display `unavailable`.

---

**Note: Issues detected during the Examination phase may be resolved and the Upgrade Assistant can be started again.** Once the Upgrade phase has started, however, you will need to restore your pre-upgrade environment from backup before starting the Upgrade Assistant again.

---

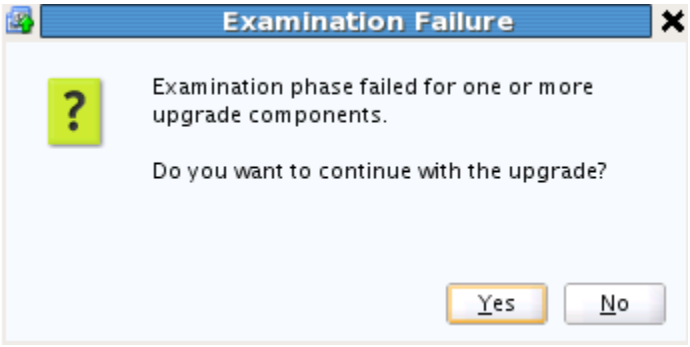
The description of the **Status** indicators for the components is listed in the following table:

| Status | Description |
|---|---|
| in progress... | The Upgrade Assistant is examining the upgrade items for the component. |
| pending... | The component will be examined when the Upgrade Assistant finishes the preceding component. |
| failed | Upgrade items were missing or did not meet upgrade criteria. The Upgrade Assistant cannot upgrade the component until the issues have been resolved. Click **View Log** to troubleshoot the errors and then restart the Upgrade Assistant. |
| succeeded | Upgrade items were found and are valid for upgrade. |

Canceling the examination process has no effect on the schemas or configuration data; the only consequence is that the information the Upgrade Assistant has collected must be collected again in a future upgrade session.

## 3.11.16 Examine Failure

***Figure 3-13 Examine Failure***




This dialog box appears when one of more of your components failed the examination phase and you selected to continue with the upgrade. If there was an examination failure, you should consider canceling the upgrade (click **No**) and review the log files.Since the upgrade has not yet started, you can resolve the issues detected during the examination phase and restart the Upgrade Assistant without restoring from backup.

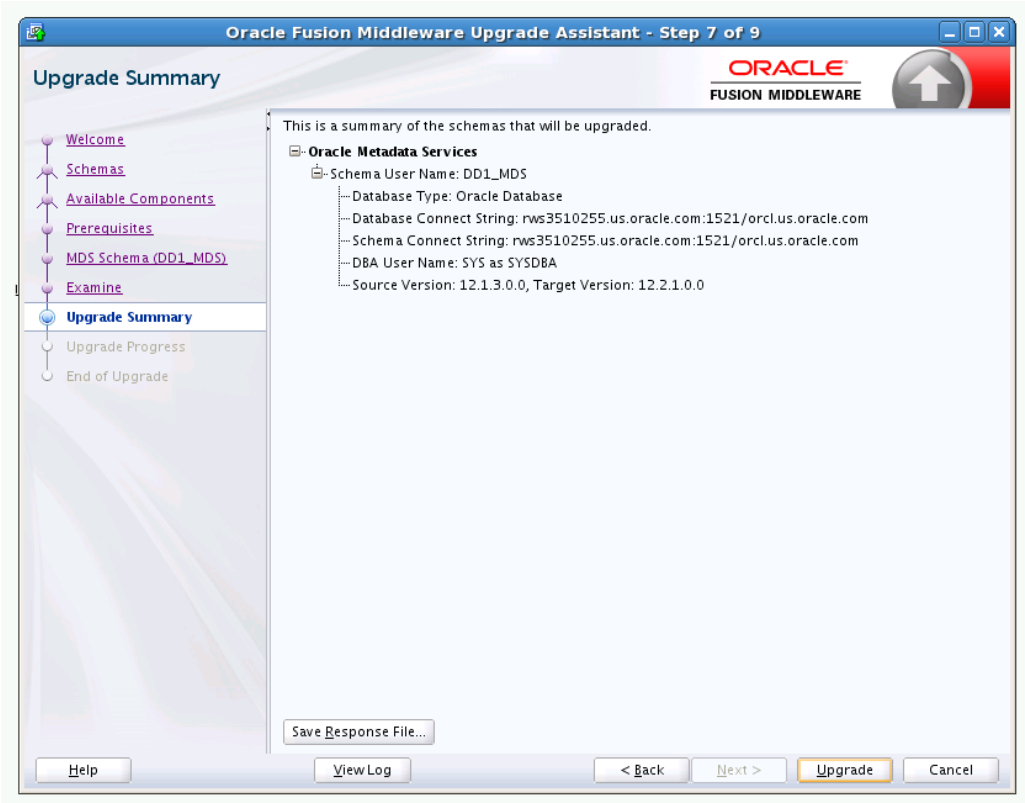
**UMS Upgrades Only:**

During the configuration upgrade you can get this error during the **examination phase**. For User Messaging Service, the way to recover is to copy the UMS config files manually and restart the Upgrade Assistant.

If you can get an error during the **upgrade phase** , the way to recover is to restore backups and copy the config files manually and restart the Upgrade Assistant.

## 3.11.17 Upgrade Summary

*Figure 3-14 Upgrade Summary*




**Reviewing the Upgrade Summary**

Expand and collapse the tree to show or hide details about the data provided in the wizard screens, such as schema details, Oracle WebLogic Server connection details, and Oracle WebLogic domain directory information.

The Summary screen also displays the **Source Version** of the schema being upgraded and the resulting **Target Version** post upgrade. Make sure that both versions are correct before proceeding with the upgrade.

**Starting the Upgrade Process**

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

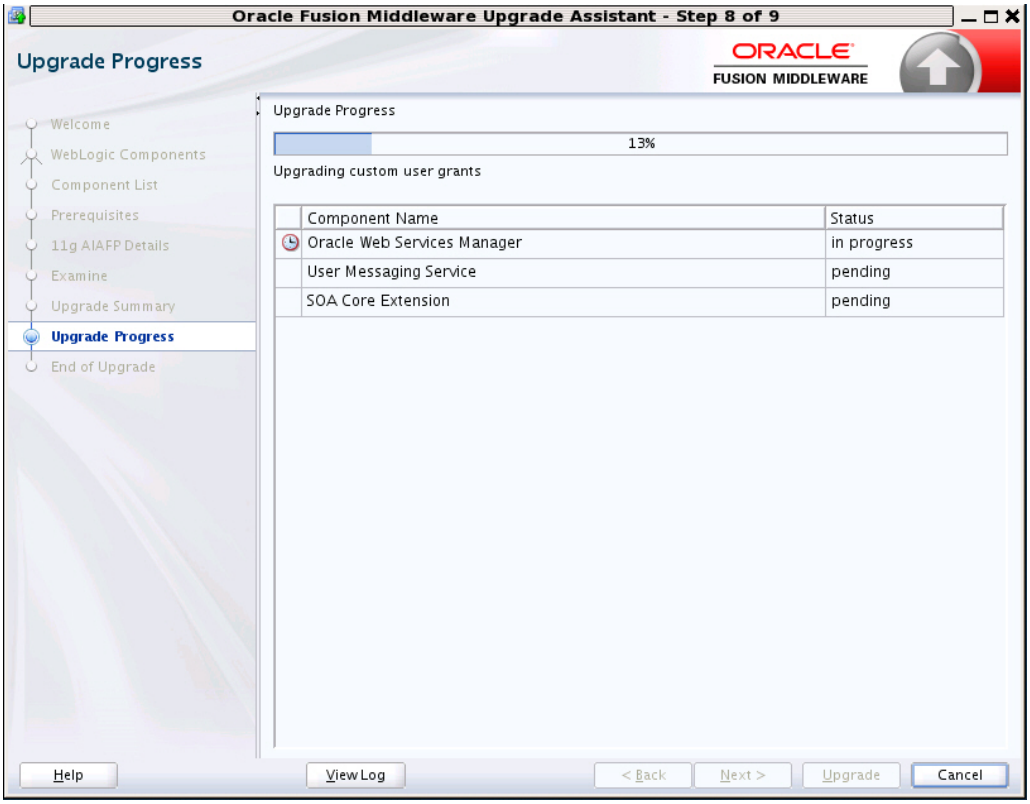
If you are upgrading a schema, verify that you have a backup of the database that hosts the schema.

**Save Response File**

The **Save Response File** option creates a file that can be used as input to the Upgrade Assistant. The response file collects all the information that you have entered through the Upgrade Assistant's graphical user interface screens, and enables you to perform a silent upgrade at a later time. The silent upgrade performs exactly the same function that the Upgrade Assistant wizard performs, but you do not have to manually enter the data again.

## 3.11.18 Upgrade Progress

*Figure 3-15 Upgrade Progress*




This screen shows the status of the current upgrade process and the projected **Target Version** of the component after a successful upgrade.

Note that the progress bar is NOT a measure of time remaining for the upgrade. The progress bar is a moving graphical display of completed upgrade steps for each component being upgraded. In some cases, the progress bar does not move at a steady pace. It might move very quickly over a certain portion of the progress bar, and move very slowly, or even appear to freeze, for another component that is performing a long-running database operation. That does not mean that the upgrade progress is stalled, it simply indicates that a long-running operation is being performed. Different upgrade operations, especially during a schema upgrade, will operate at different paces.

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

The status of each component upgrade is indicated by one of the following messages that can appear next to the component name. The following table describes each status message.

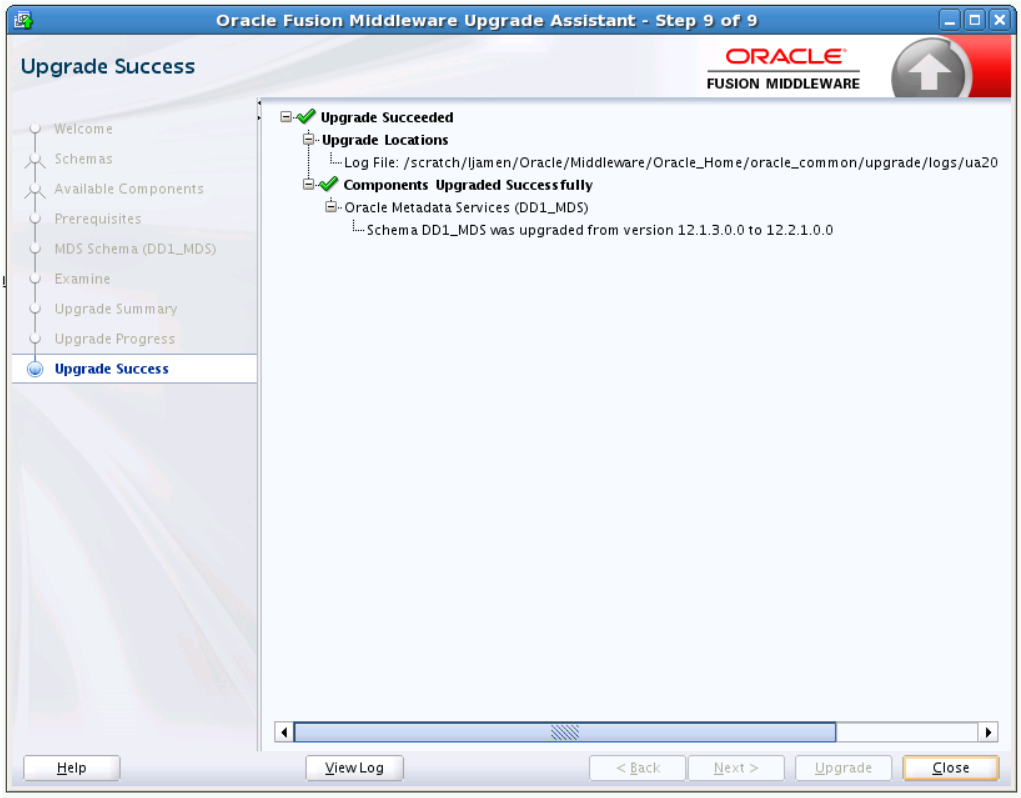
| Status | Description |
|---|---|
| in progress... | The Upgrade Assistant is upgrading the component's upgrade items. |

| Status | Description |
|---|---|
| pending... | The component will be upgraded when the Upgrade Assistant finishes the preceding component. |
| upgrade not necessary | The component was upgraded previously by the Upgrade Assistant or the component was just installed and is already at the latest version. No action will be taken on this component. |
| skipped | The component is dependent on another component which has a status of "failed". When the status is "skipped" no upgrade is attempted for that component. |
| failed | Upgrade items were missing or did not meet upgrade criteria. The component cannot be upgraded. Click View Log to troubleshoot the errors. |
| succeeded | Upgrade items were upgraded successfully. |

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

## 3.11.19 Upgrade Success

***Figure 3-16 Upgrade Success***




The upgrade was successful. The Post-Upgrade Actions window describes the manual tasks you must perform to make the component function in the new installation. This is an optional window that will only show up if a component has post-upgrade steps.

In addition, be sure to do the following:

- View the `postupgrade.txt` file in the Oracle home:

  On Unix systems:

  ```
  ORACLE_HOME/oracle_common/upgrade/logs
  ```

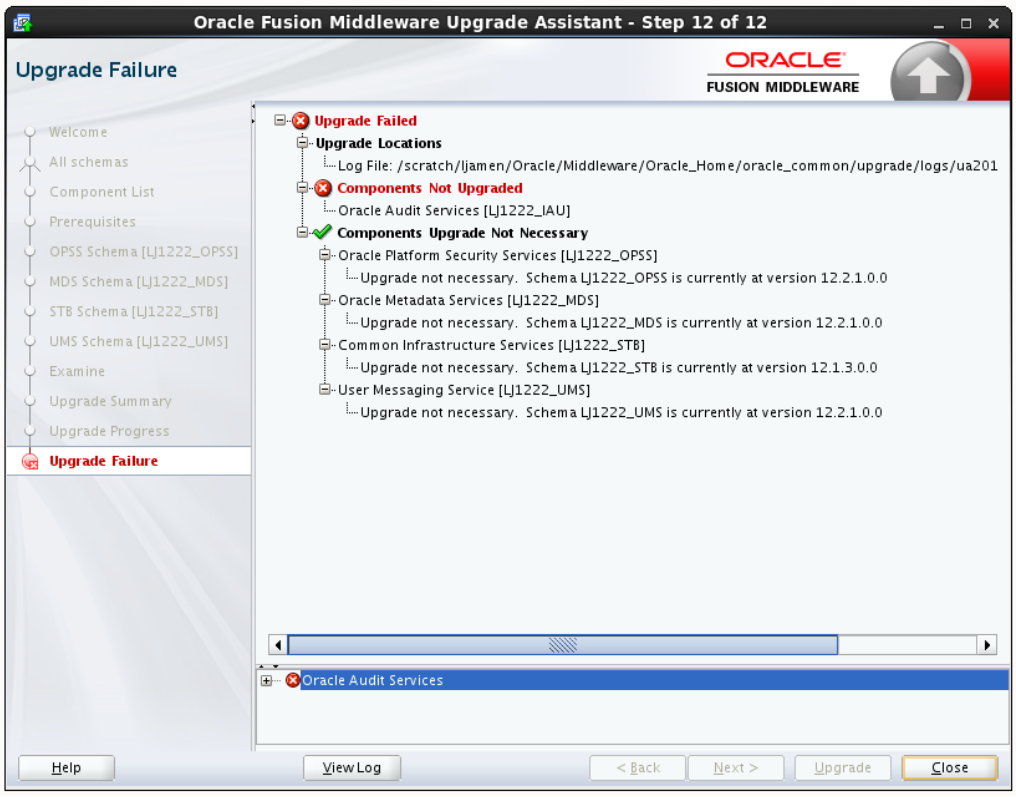
  On Windows systems:

  ```
  ORACLE_HOME\oracle_common\upgrade\logs
  ```

- Review the upgrade topics specific to your Oracle Fusion Middleware environment for any additional post-upgrade tasks.

## 3.11.20 Upgrade Failure

***Figure 3-17 Upgrade Failure***




The upgrade of one or more components has failed. The component cannot be upgraded at this time. Click **View Log** to troubleshoot the errors.

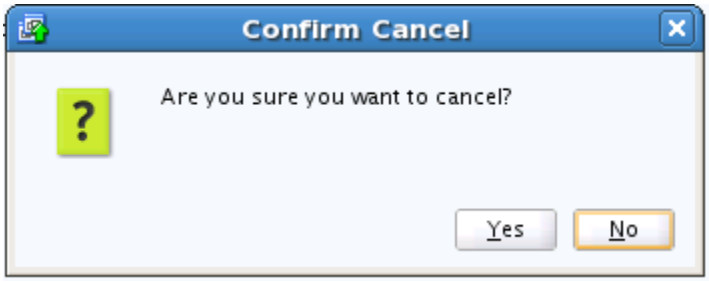
You will have to fix the issues in the pre-upgrade environment before starting the Upgrade Assistant again. Restore your pre-upgrade environment from backup (making sure to keep the original backup files in a separate location), fix the issues, and restart the Upgrade Assistant.

### 3.11.21 Cancel Upgrade

*Figure 3-18 Cancel Upgrade*

You get the above Confirm Cancel screen when you click **Cancel** while the upgrade plugin is actively running (that is, you are on the Upgrade page and the progress bar is less than 100%).

*Figure 3-19 Cancel Upgrade*




You get the above Confirm Cancel screen on clicking **Cancel** when no upgrade plugins are actively running.

**Important Note:** If you cancel a schema upgrade, you must restore a backup of the database that hosts the schema and its environment (the pre-upgrade directory structure).

## 3.12 Reconfiguring the Domain using the Reconfiguration Wizard

The Reconfiguration Wizard reconfigures the domain while retaining the location of the domain. Use the Reconfiguration Wizard to upgrade your domain to the latest version.

Navigate to the following 12*c* directory to launch the Reconfiguration Wizard:

On the UNIX operating system:

*ORACLE_HOME*`/oracle_common/common/bin/reconfig.sh`

On the Windows operating system:

*ORACLE_HOME*`\oracle_common\common\bin\reconfig.cmd`

To start the Reconfiguration Wizard, see Starting the Reconfiguration Wizard.

*Table 3-3 Reconfiguration Wizard Screens*

***Table 3-3 (Cont.) Reconfiguration Wizard Screens***

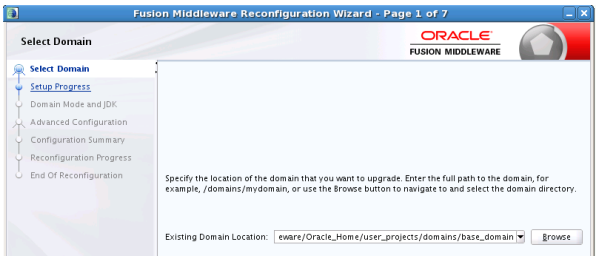
| Reconfiguration Wizard Screen | Description and Action Required |
|---|---|
| Select Domain | Enter the absolute path to the existing 12*c* domain directory, or click **Browse** to navigate to and select the domain directory.<br><br>  <br> |
| Reconfiguration Setup Progress | Shows the progress of the application of reconfiguration templates. |
| Domain Mode and JDK | Domain mode cannot be changed. This setting is imported from the mode specified when the domain was created using the Configuration Wizard.<br><br>**Note:** Oracle recommends that you run a trial upgrade on a development domain first before upgrading a production domain. Any upgrade issues or errors should be resolved before upgrading the production environment.<br><br>Select the JDK to use in the domain or click **Browse** to navigate to the JDK you want to use.<br><br>Note that Oracle Fusion Middleware 12*c* requires Java SE 8. For more information, see Verifying Certification and System Requirements in *Planning an Installation of Oracle Fusion Middleware*. |

***Table 3-3 (Cont.) Reconfiguration Wizard Screens***

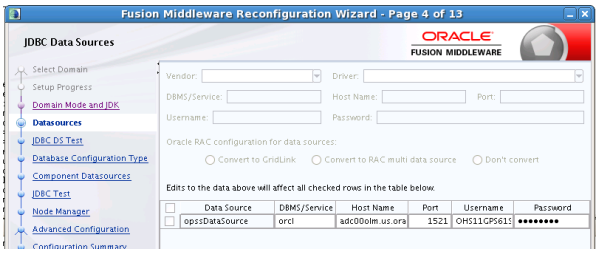
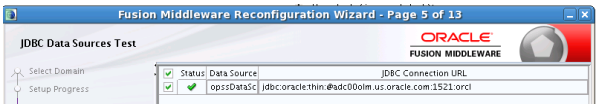
| Reconfiguration Wizard Screen | Description and Action Required |
|---|---|
| JDBC Data Sources | Use this screen to review the configuration of the JDBC data sources defined in your domain source. You should see the OPSS data source automatically configured in this screen.<br><br>  <br><br><br>For information about the fields on this page, click **Help**, or refer to JDBC Data Sources in *Upgrading Oracle WebLogic Server*. |
| JDBC Data Sources Test | Test the data source connections you configured on the JDBC Data Sources screen.<br><br>  <br><br><br>For information about the fields on this page, click **Help**, or refer to JDBC Data Sources Test in *Upgrading Oracle WebLogic Server*. |

***Table 3-3 (Cont.) Reconfiguration Wizard Screens***

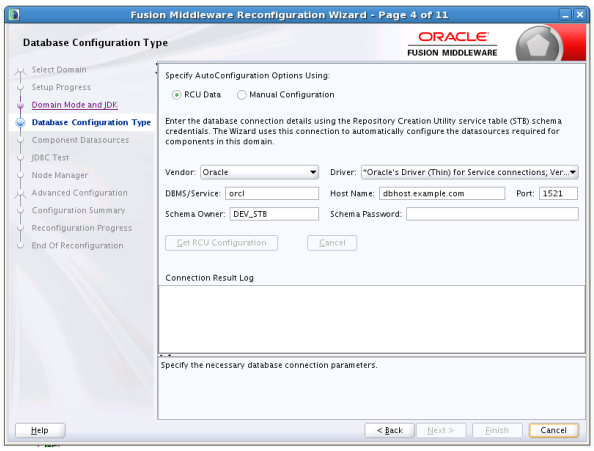
| Reconfiguration Wizard Screen | Description and Action Required |
|---|---|
| Database Configuration Type | If you have provided the data source connection details in the previous screen, the database connection details automatically populate.<br>If the information was not provided on this screen, select **RCU Data** and provide the database credentials to retrieve the schema information for all schemas that are included in the domain. If you select this option, the fields on this screen are activated. Fill in each field, using the connection information that you specified for the STB component in the Repository Creation Utility (RCU).<br>When you have provided the connection information, click **Get RCU Configuration** to retrieve the schema information.<br>  <br>For more information, click **Help**, or refer to Database Configuration Type in *Upgrading Oracle WebLogic Server*. |

***Table 3-3 (Cont.) Reconfiguration Wizard Screens***

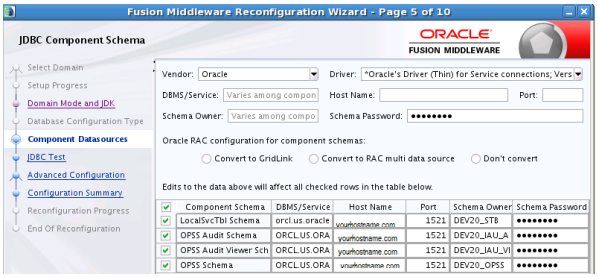
| Reconfiguration Wizard Screen | Description and Action Required |
|---|---|
| JDBC Component Schema | By default, the schema information is displayed if you have selected **Get RCU Data** on the previous screen and the schema owner is the same for all schemas.<br>If you need to make changes to the data source settings for any of the schemas listed on the screen, select the check box adjacent to each schema name. The changes you make in the fields at the top of the screen updates the schema (or schemas) you have selected below. Make sure that you select only those schemas you want to modify.<br>  <br>**Note:** For information about the fields on this page, click **Help**, or refer to JDBC Component Schema in *Upgrading Oracle WebLogic Server*. |
| JDBC Component Schema Test | Test the configurations that you specified for the data sources in the previous screen. Select the check boxes adjacent to the names of the schemas to test, and click **Test Selected Connections**.<br>The result of the test is indicated in the **Status** column. Click **Next** when the test is successful for all the schemas. |

*Table 3-3 (Cont.) Reconfiguration Wizard Screens*

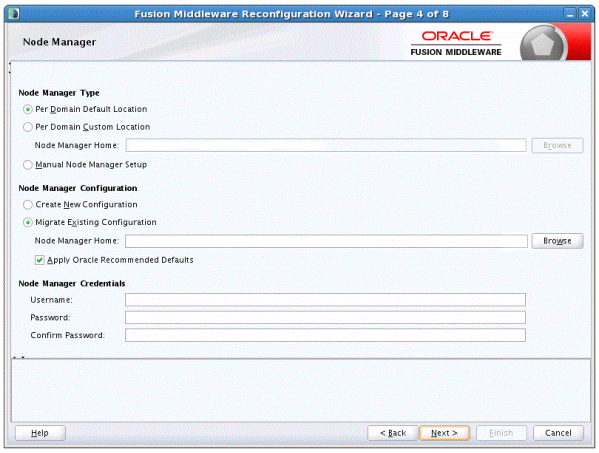
| Reconfiguration Wizard Screen | Description and Action Required |
|---|---|
| Node Manager | This screen is displayed only if the domain you are reconfiguring is currently using a **Per Domain Default Location** Node Manager.<br>Select **Migrate Existing Configuration** and provide the location of the per domain default location.<br>Enable **Apply Oracle Recommended Defaults**.<br>Provide **Node Manager Credentials**. This is a new User that is being created to administer the Node Manager. The password is required during start-up, for any components now handled by the Node Manager (including the OHS).<br>**Note:** When upgrading a domain and changing from a per-host Node Manager configuration to a per-domain Node Manager configuration, if you are using custom scripts to start and stop the WebLogic Server environment, you must manually update the scripts to change the Node Manager home location to the new domain-based location.<br>For more information on configuring the Node Manager, see Default Node Manager Configuration in *Administering Node Manager for Oracle WebLogic Server*.<br>  |

***Table 3-3 (Cont.) Reconfiguration Wizard Screens***

| Reconfiguration Wizard Screen | Description and Action Required |
|---|---|
| Advanced Configuration | Select all categories (if any) for which you want to perform advanced configuration. For each category you select, the appropriate configuration screen is displayed to allow you to perform advanced configuration. If you do not select any items on this screen, the Configuration Summary screen is displayed next.<br> <br><br>**Note:** If Node Manager is available and you do not select it, you must manually configure Node Manager as described in Completing the Node Manager Configuration in *Upgrading Oracle WebLogic Server*.<br>The Node Manager advanced option is available only if you are reconfiguring a domain that is currently using a per-host Node Manager configuration. It enables you to switch to a per-domain Node Manager or continue using the existing per-host Node Manager. |
| Managed Servers | Use this screen to review the settings for an existing Managed Server(s), if any. |
| Clusters | Use this screen to review the settings for an existing Cluster(s), if any. |
| Coherence Clusters | This screen is displayed only if you included Coherence in the WebLogic Server installation. It lists the Coherence cluster that is automatically added to the domain. |

***Table 3-3 (Cont.) Reconfiguration Wizard Screens***

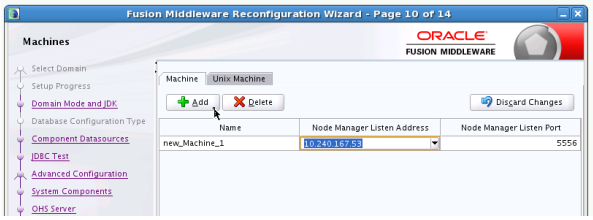
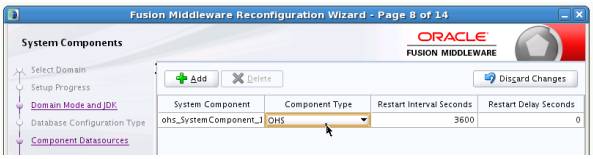
| Reconfiguration Wizard Screen | Description and Action Required |
|---|---|
| Machines | In a WebLogic domain, the machine definitions identify physical units of hardware and are associated with the WebLogic Server instances or system components (such as OHS servers) that they host.<br>Use this screen to review the Host/Port settings of the existing Node Manager details that are included in the reconfiguration as part of the upgrade.<br>Make sure that an actual Listen Address is provided. **Do not use Local Host**.<br>  |
| System Components | Use this screen to review the current settings for the existing OHS component that is being Reconfigured as part of the co-located upgrade process. To prevent upgrade errors, do not make any changes to the OHS setting on this screen. You can also use this screen to add or delete system components.<br>  |

***Table 3-3 (Cont.) Reconfiguration Wizard Screens***

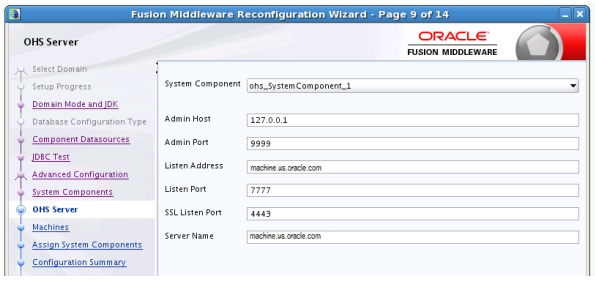
| Reconfiguration Wizard Screen | Description and Action Required |
|---|---|
| OHS Server | Use this screen to confirm that the Reconfiguration Wizard is picking up the correct Port details (that come from their Source Installation) for each OHS in the domain.<br><br>**Note:** If you are reconfiguring a domain that includes more than one OHS instance, the System Component toggle option appears at the at the top of this screen. Select this option to flip between the different instances, in order to update their configuration details during reconfiguration.<br><br>Though the OHS servers can have the same Host details, each one must be assigned unique Port details. If they do not already show different Port Details on this screen, these details must be edited to make them different.<br><br>  |

***Table 3-3 (Cont.) Reconfiguration Wizard Screens***

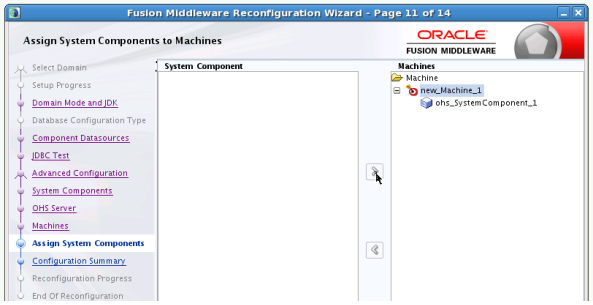
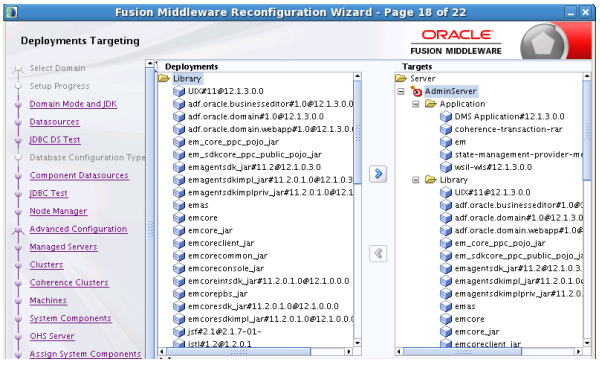
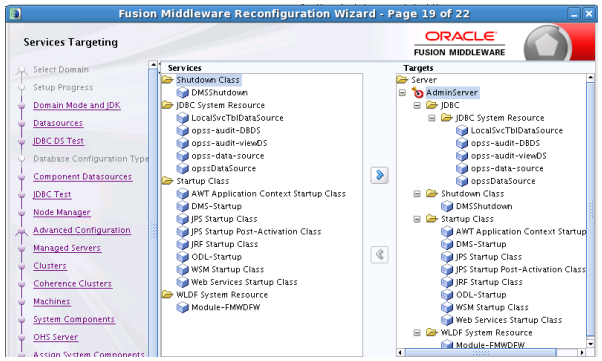
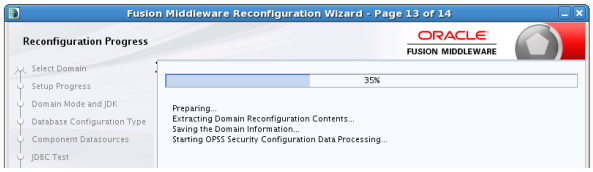
| Reconfiguration Wizard Screen | Description and Action Required |
|---|---|
| Assign System Components to Machines | Use this screen to review the assignment of system components to machines that you defined.<br><br>**Note:** This screen show the OHS component being assigned to the Node Manager. This reconfigures the OHS Instance to assign it to the 12*c* Node Manager, which is required to Start/Stop the OHS instances.<br><br>  |
| Deployments Targeting | Applications associated with the product for which you are configuring the domain are targeted automatically to the Managed Server created for that product or to the cluster to which that Managed Server is assigned. In this screen, you can target applications to additional servers and clusters.<br><br>Use this screen to review the deployment targeting in the domain.<br><br>  |

***Table 3-3 (Cont.) Reconfiguration Wizard Screens***

| Reconfiguration Wizard Screen | Description and Action Required |
|---|---|
| Services Targeting | Services that are associated with the product for which you are configuring the domain are targeted automatically, to the Managed Server created for that product or to the cluster to which that Managed Server is assigned. In this screen, you can target services to additional servers and clusters.<br>Use this screen to review the service targeting in the domain.<br>  |
| Configuration Summary | Review the detailed configuration settings of the domain before continuing. You can limit the items that are displayed in the right-most panel by selecting a filter option from the View drop-down list.<br>Click **Reconfig** to reconfigure the domain, or click **Back** if you wish to change the configurations. |
| Reconfiguration Progress | Review the reconfiguration progress. Click **Next** when the process is complete.<br>  |
| Reconfiguration Success | Review the final status of the reconfiguration process. Click **Finish** to exit the Reconfiguration Wizard. |

## 3.13 Upgrading the Domain Component Configurations Using the Upgrade Assistant

Follow the instructions in this section to upgrade any additional domain component configurations, such as OWSM policy metadata structure and adapter configurations, using the Upgrade Assistant.

- Task 1: Starting the Upgrade Assistant
- Task 2: Upgrading Component Configurations

Task 1: Starting the Upgrade Assistant
The Upgrade Assistant is used to upgrade schemas, component configurations and standalone system components.

Task 2: Upgrading Component Configurations
If you are running the Upgrade Assistant from an Oracle home that contains managed WebLogic domain components, then `All Configurations Used by a Domain` upgrade option is available. You can select the schemas you want to upgrade from the component list.

## 3.13.1 Task 1: Starting the Upgrade Assistant

The Upgrade Assistant is used to upgrade schemas, component configurations and standalone system components.

Start the Upgrade Assistant on the host where Administration Server is running:

1. On the Unix operating system, change directory to *`ORACLE_HOME`*`/oracle_common/upgrade/bin`.

   On the Windows operating system, change directory to *`ORACLE_HOME`*`\oracle_common\upgrade\bin`.

2. Enter the following command to start the Upgrade Assistant.

   (UNIX) `./ua`

   (Windows) `.\ua.bat`

## 3.13.2 Task 2: Upgrading Component Configurations

If you are running the Upgrade Assistant from an Oracle home that contains managed WebLogic domain components, then `All Configurations Used by a Domain` upgrade option is available. You can select the schemas you want to upgrade from the component list.

The Upgrade Assistant displays a sequence of screens listed in Table 4-3 when upgrading WebLogic Component Configurations. Perform the respective action(s) for each of the screens.

***Table 3-4 Upgrade Assistant Screens: Upgrading Component Configurations***

| Screen | Description and Action Required |
|---|---|
| Welcome | This screen provides an overview of the Upgrade Assistant and some information about important pre-upgrade tasks.<br>Click **Next** to continue. |
| All Configurations | Select **All Configurations Used by a Domain** to upgrade component configurations for a managed WebLogic Server domain. Click **Browse** and use the navigation tree to select a valid domain directory. A domain directory contains a config directory, which contains a config.xml file.<br>Click **Next**. |

***Table 3-4 (Cont.) Upgrade Assistant Screens: Upgrading Component Configurations***

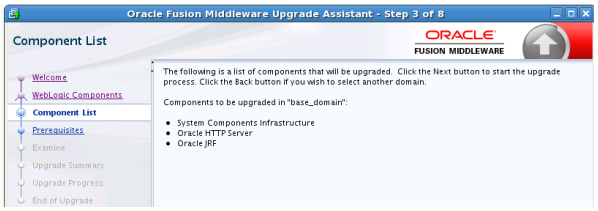
| Screen | Description and Action Required |
|---|---|
| WebLogic Server Component List | This screen provides a list of components that are included in the WebLogic domain's component configuration upgrade. The name of the domain is provided along with the list of components located within the domain.<br>Review the list of components before you proceed. |
| Prerequisites | Check if the prerequisites for component configurations upgrade are met. Check the boxes to continue. |
| UMS Configuration | Use this screen to specify the login credentials of the remote managed servers hosting your UMS 11*g* configuration files. The Upgrade Assistant automatically copies remote configuration files if all necessary prerequisites are met and the required login information is provided.<br>**Note:** If the Upgrade Assistant is unable to locate the managed servers or the configuration files, you will have to manually copy the files and then restart the Upgrade Assistant. For more information, see Error while Copying User Messaging Service (UMS) Configuration Files. |
| Examine | Review the status of the Upgrade Assistant as it examines each component, verifying that the component is ready for upgrade.<br>  |
| Upgrade Summary | Review the summary of the options that you have selected for schema upgrade.<br>Click **Upgrade** to upgrade the schemas, or click **Back** if you wish to change the configurations. |

*Table 3-4 (Cont.) Upgrade Assistant Screens: Upgrading Component Configurations*

| Screen | Description and Action Required |
|---|---|
| Upgrade Progress | This screen shows you the progress of the upgrade.<br>The Upgrade Progress status bar represents the number of upgrade processes that have been completed. It is NOT meant to identify time remaining.<br>Allow the Upgrade Assistant enough time to perform the upgrade. Do not cancel the upgrade operation unless absolutely necessary.<br>Click **Next** when the upgrade is complete. |
| Upgrade Success | Click **Close** if the Upgrade was successful. |
| Upgrade Failure | If the upgrade failed or if you canceled the upgrade before it completed successfully, review the log files, restore the backed up environment, and restart the Upgrade Assistant. Click **View Log** to troubleshoot the errors. |

## 3.14 Troubleshooting the Infrastructure Upgrade

If the Infrastructure upgrade fails, troubleshoot the cause using the log file and guidelines in this topic.

**Caution:**

As with most Fusion Middleware errors, errors that are detected in the Examine phase can be fixed and the Upgrade Assistant can continue to run. Errors that occur during the Upgrade phase, however, must be corrected using the restored backup files and the upgrade process must be started from the beginning. Do not attempt to rerun an upgrade that errors during the Upgrade phase. The environment should be considered unstable and will need to be restored to its pre-upgrade state.

For more information, see General Troubleshooting Guidelines in *Upgrading with the Upgrade Assistant*.

Error while Reconfiguring the Domain using Reconfiguration Wizard

Authentication Failure — JSchException: Auth Fail

When Running the Upgrade Assistant to upgrade Weblogic Component Configurations, if you provide incorrect login credentials for a UMS server, you an exception in the Upgrade Assistant log files as shown in this topic.

Error while Copying User Messaging Service (UMS) Configuration Files

If the Upgrade Assistant fails to automatically copy the UMS configuration files, you must stop the upgrade and manually copy the configuration files before attempting to upgrade UMS. This process is required only if the Upgrade Assistant fails to automatically copy the

configuration files or if you prefer to copy the configuration files manually.

### 3.14.1 Error while Reconfiguring the Domain using Reconfiguration Wizard

If an error occurs while reconfiguring your domain, refer to the Important Notes About the Domain Upgrade Process in *Upgrading Oracle WebLogic Server*.

### 3.14.2 Authentication Failure — JSchException: Auth Fail

When Running the Upgrade Assistant to upgrade Weblogic Component Configurations, if you provide incorrect login credentials for a UMS server, you an exception in the Upgrade Assistant log files as shown in this topic.

```
[upgrade.UCSUMS.UCSUMS_CONFIGURATION_PLUGIN] [tid: 110] [ecid:
88ab893d-a523-4a83-b5a6-f7b1cf8cb029-00000001,0] [[
com.jcraft.jsch.JSchException: Auth fail
```

The resolution to this error depends on when the error occurred:

If this error occurred during the **Examine phase** (before Upgrade phase): Verify that the username and password you entered are valid for all managed servers and directories and that the username provided has privileges for ssh. Once you have corrected the error, retry the connection.

If this error occurred during the **Upgrade phase**, your upgrade operation did not succeed and you need to restore your files from backup and start the upgrade again. Make sure that you use the correct server login credentials when prompted.

---

**Caution:** Errors that occur during the Upgrade phase are non-reentrant, meaning you cannot simply correct the error and continue through the upgrade. Once you click Upgrade, if an error occurs then the environment must be restored from backup before you start the upgrade process again.

---

### 3.14.3 Error while Copying User Messaging Service (UMS) Configuration Files

If the Upgrade Assistant fails to automatically copy the UMS configuration files, you must stop the upgrade and manually copy the configuration files before attempting to upgrade UMS. This process is required only if the Upgrade Assistant fails to automatically copy the configuration files or if you prefer to copy the configuration files manually.

This section describes the location of the UMS configuration files that are copied from the remote managed server nodes to the Admin server while upgrading UMS from 11*g* to 12*c*. Note that the Upgrade Assistant can automatically copy the remote configuration files, if all necessary prerequisites are met and the required login information is provided. For more information about using Upgrade Assistant to copy configuration files, see *Oracle Fusion Middleware Upgrading with the Upgrade Assistant*.

However, if the Upgrade Assistant cannot locate your files, then you must copy the configuration files from the remote managed server to the same location on the Administration server running the upgrade. The configuration files that must be copied include the UMS server configuration files (appconfig.xml), driver configuration files (driverconfig.xml), and the user preferences files (businessterms.xml). These files are located in the /applications folder for each managed server, as shown in Table 3-5.

After manually copying the configuration files from the managed server to the Administration server, you must start the Upgrade Assistant again using the procedures from Upgrading the Domain Component Configurations Using the Upgrade Assistant

***Table 3-5 Configuration File locations***

| Configuration file | Location |
|---|---|
| UMS Server (`appconfig.xml`) | *DOMAIN_HOME*`/config/fmwconfig/servers/`*MANAGED_SERVER_NAME*`/applications/usermessagingserver/configuration/appconfig.xml` |
| Driver Configuration (`driverconfig.xml`) | *DOMAIN_HOME*`/config/fmwconfig/servers/`*MANAGED_SERVER_NAME*`/applications/usermessagingdriver-`*DRIVER_NAME*`/configuration/driverconfig.xml` |
| User Preferences (`businessterms.xml`) | `<`*DOMAIN_HOME*`/config/fmwconfig/servers/`*MANAGED_SERVER_NAME*`/applications/usermessagingserver/configuration/businessterms.xml` |

**Note:**

If there are multiple drivers deployed in a domain, then you must ensure that configuration files for all drivers are copied. This can be achieved by replacing the *DRIVER_NAME* with as many drivers deployed in that domain.

## 3.15 Performing the Post-Upgrade Tasks

After you upgrade Oracle Fusion Middleware 11*g* Application Developer to Oracle Fusion Middleware 12*c* Infrastructure, you must complete the post-upgrade tasks.

For post-upgrade tasks, see Tasks to Perform After Upgrade.

# 4

# Upgrading the 12*c* Infrastructure from a Previous 12*c* Release

This chapter describes the process of upgrading to the Oracle Infrastructure 12*c* (12.2.1) from a previous Oracle Infrastructure 12*c* release.

**Caution:**

The tasks described in this chapter apply only when you are upgrading from an existing Infrastructure 12*c* release to the Infrastructure 12*c* (12.2.1) release. If you are upgrading an 11*g* environment to 12*c* (12.2.1), use the procedures documented in Upgrading to the 12*c* Infrastructure from the 11*g* Release.


Performing the Required Pre-Upgrade Tasks
Complete the pre-upgrade tasks mentioned in this topic.

About Upgrading Schemas using the Upgrade Assistant
The Upgrade Assistant provides two options for upgrading schemas: **Individually Selected Schemas** and **All Schemas Used By a Domain**.

Identifying Schemas that Can be Upgraded with the Upgrade Assistant
The Upgrade Assistant identifies and includes all the schemas that are available for an upgrade. You can also select the schemas you want to upgrade. If you want to review the list of available schemas before you begin the upgrade, query the schema version registry.

Starting the Upgrade Assistant
The Upgrade Assistant is used to upgrade schemas, component configurations and standalone system components.

Upgrading Schemas with the Upgrade Assistant
If you run the Upgrade Assistant from an Oracle home that contains components with any schemas, then the **Schemas** upgrade option is shown. The Upgrade Assistant only lists the components that are candidates for schema upgrade. You can select the schemas you want to upgrade from the component list.

Upgrade Assistant Screens

Reconfiguring the Domain using the Reconfiguration Wizard
: The Reconfiguration Wizard reconfigures the domain while retaining the location of the domain. Use the Reconfiguration Wizard to upgrade your domain to the latest version.

Upgrading the Domain Component Configurations Using the Upgrade Assistant
: Follow the instructions in this section to upgrade any additional domain component configurations, such as OWSM policy metadata structure and adapter configurations, using the Upgrade Assistant.

## 4.1 Performing the Required Pre-Upgrade Tasks

Complete the pre-upgrade tasks mentioned in this topic.

The following list describes the pre-upgrade steps you should complete before you upgrade your existing 12*c* Infrastructure:

- Completing the Pre-Upgrade Tasks for Infrastructure (Required)

  Before any upgrade, be sure that you have created a complete backup of your current environment. If there is a problem with the upgrade, you may need to restore your environment and restart the upgrade process.

- Installing Oracle Fusion Middleware Infrastructure on APPHOST

  You will need to install the 12*c* Infrastructure distribution before starting the upgrade.

- Installing Oracle HTTP Server

  If your 12*c* domain includes Oracle HTTP Server instances that are associated with the domain, you must upgrade to Oracle HTTP Server 12*c*.

- Stopping Servers and Processes

  The 12*c* upgrade is conducted completely offline. Make sure that all of the 12*c* servers and processes are stopped before starting the upgrade.

## 4.2 About Upgrading Schemas using the Upgrade Assistant

The Upgrade Assistant provides two options for upgrading schemas: **Individually Selected Schemas** and **All Schemas Used By a Domain**.

#### Individually Selected Schemas

This option enables you to choose which component schemas to upgrade. Select this option when you have component schemas within the domain that you do not want to upgrade.

For example, if you want to make a trial run of Upgrade Assistant by creating schemas with RCU that are outside the domain, and then use Upgrade Assistant to upgrade them.

#### All Schemas Used By a Domain

This option allows the Upgrade Assistant to detect all of the available schemas within the specified domain and include them in the upgrade.

## 4.3 Identifying Schemas that Can be Upgraded with the Upgrade Assistant

The Upgrade Assistant identifies and includes all the schemas that are available for an upgrade. You can also select the schemas you want to upgrade. If you want to review the list of available schemas before you begin the upgrade, query the schema version registry.

> **Tip:**
>
> Compare the information you collect from the schema version registry and the corresponding schemas to determine whether there are schemas in your domain that are not available for an upgrade yet.

If you are using an Oracle database, connect to the database as a user having Oracle DBA privileges, and run the following from SQL*Plus to get the current version numbers:

```
SET LINE 120
COLUMN MRC_NAME FORMAT A14
COLUMN COMP_ID FORMAT A20
COLUMN VERSION FORMAT A12
COLUMN STATUS FORMAT A9
COLUMN UPGRADED FORMAT A8
SELECT MRC_NAME, COMP_ID, OWNER, VERSION, STATUS, UPGRADED FROM
SCHEMA_VERSION_REGISTRY ORDER BY MRC_NAME, COMP_ID ;
```

The following report is generated when saved to a SQL script, for example `version.sql`.

If the number in the "VERSION" is at 11.1.1.6.0 or higher, and the STATUS column is 'VALID', then the schema is supported for upgrade.

If an upgrade is not needed for a schema, the `schema_version_registry` table retains the schemas at their pre-upgrade version after the 12.2.1 upgrade.

#### Notes about the schemas that need to be upgraded

- For **most** components, the only schema version starting points that are valid for upgrading are 11*g* Release 1 (11.1.1.6, 1.1.1.7, 11.1.1.8, or 11.1.1.9) or 12*c* (12.1.2 or 12.1.3). If your schemas are not at a supported version, then you must upgrade them before using the 12*c* (12.2.1) upgrade procedures.

  Some components, such as Oracle Enterprise Data Quality and Oracle Golden Gate Veridata, support an upgrade from versions other than the standard Oracle Fusion Middleware supported versions.

  Refer to your component-specific installation and upgrade documentation for additional information about the schemas that are required for your upgrade.

- If you used a file-based policy store in 11*g*, then you must reassociate the file-based policy store with a database-based security store before running the Upgrade Assistant.

  For more information see Reassociating a File-Based Policy Store Before Upgrade.

- If you used an OID-based policy store in 11*g*, make sure that you have created new 12*c* OPSS schemas before upgrade.
- If you are upgrading an ORASDPM schema that was created using RCU 11g (11.1.1.1.4 or earlier), and you subsequently upgraded ORASDPM to 11*g* (11.1.1.6 or later), the FMW user will need to grant the CREATE TABLE privilege to user <*prefix*>_ORASDPM before upgrading to 12c (12.2.1).

  ```
  grant CREATE TABLE to &lt;prefix>_ORASDPM;
  ```

  Where <*prefix*> is the name given to the schema when it was created.
- You can only upgrade schemas for products that are available for upgrade in the Oracle Fusion Middleware 12*c* (12.2.1) release. **Do not attempt to upgrade a domain that includes components that are not yet available for upgrade to 12*c* (12.2.1)** .

## 4.4 Starting the Upgrade Assistant

The Upgrade Assistant is used to upgrade schemas, component configurations and standalone system components.

Oracle recommends that you successfully complete the upgrade of schemas and component configurations for a single domain before beginning the upgrade of another domain.

> **Note:** The Upgrade Assistant should be run by a non-SYSDBA user whenever possible. The steps to create a non-SYSDBA user are described in Creating a Non-SYSDBA User.

To start the Upgrade Assistant:

1. On the Unix operating system, change directory to *`ORACLE_HOME`*`/oracle_common/upgrade/bin`.

   On the Windows operating system, change directory to *`ORACLE_HOME`*`\oracle_common\upgrade\bin`.
2. Enter the following command to start the Upgrade Assistant:

   On UNIX operating systems:

   ```
   ./ua
   ```

   On Windows operating systems:

   ```
   ua.bat
   ```

   Provide the required information in each of the Upgrade Assistant screens. The screens that you see vary depending on the type of upgrade you select.

## 4.5 Upgrading Schemas with the Upgrade Assistant

If you run the Upgrade Assistant from an Oracle home that contains components with any schemas, then the **Schemas** upgrade option is shown. The Upgrade Assistant only lists the components that are candidates for schema upgrade. You can select the schemas you want to upgrade from the component list.

Table 4-1 shows the screens that are displayed when you run the Upgrade Assistant to upgrade schemas and they vary depending on the options you select.

***Table 4-1 Upgrading Schemas: Navigating the Upgrade Assistant Screens***

| Screen Title | When does the screen appear? | Description |
|---|---|---|
| Welcome | Always. | This screen provides an overview of the Upgrade Assistant and some information about important pre-upgrade tasks. |
| Schemas | Always. | Select the schema upgrade operation that you want to perform on this screen. The options on the screens change depending on what you select from the following:<br>• **Individually Selected Schemas**<br>• **All Schemas Used by a Domain** |
| Available Components | When you select **Individually Selected Schemas**. | This screen provides a list of installed Oracle Fusion Middleware components that have schemas that can be upgraded. When you select a component, the schemas and any dependencies are automatically selected. |
| All Schemas Component List | When you select **All Schemas Used by a Domain**. | This screen is read-only, and it displays all the components and schemas found in the specific domain directory that are included in the upgrade. |
| Prerequisites | Always. | This screen requires you to acknowledge that all prerequisites have been met before you continue with the upgrade. Check the boxes before you continue. |

***Table 4-1 (Cont.) Upgrading Schemas: Navigating the Upgrade Assistant Screens***

| Screen Title | When does the screen appear? | Description |
|---|---|---|
| Schema Credentials Screen | Always. | Enter the information required to connect to the selected schema and the database that hosts the schema on this screen.<br>The screen name changes based on the type of schema selected ("MDS Schema", for example).<br>Since the component ID or schema name is changed for UCSUMS schema as of release 12.1.2, the Upgrade Assistant does not automatically recognize the possible schemas and display them in a drop-down list. You must manually enter the name in a text field. The name can be either *prefix*_ORASDPM or *prefix*_UMS, depending on the starting point for the upgrade. |
| Examine | Always. | This screen displays the status of the Upgrade Assistant as it examines each component, verifying that the component is ready for upgrade.<br>**Note:** Issues detected during the Examination phase can be fixed without restoring from backup. |
| Upgrade Summary | Always. | Review a summary of the options you have selected and to start the upgrade process on this screen. |
| Upgrade Progress | Always. | This screen displays the status of the upgrade process. |

***Table 4-1 (Cont.) Upgrading Schemas: Navigating the Upgrade Assistant Screens***

| Screen Title | When does the screen appear? | Description |
|---|---|---|
| Upgrade Success | When the upgrade is successful. | The upgrade is successful. The Post-Upgrade Actions window describes the manual tasks you must perform to make the component function in the new installation. |

***Table 4-1 (Cont.) Upgrading Schemas: Navigating the Upgrade Assistant Screens***

| Screen Title | When does the screen appear? | Description |
|---|---|---|
| Upgrade Failure | When the upgrade fails. | The upgrade failed for the specified component(s). You must restart the Upgrade Assistant.<br>The Upgrade Assistant logs are available at *ORACLE_HOME*/oracle_common/upgrade/logs.<br>**Note:** If the upgrade fails you must restore your pre-upgrade environment from backup, fix the issues and then restart the Upgrade Assistant. You cannot fix the issues and restart the Upgrade Assistant because the files are modified during this operation. |

**For SOA Suite and BPM Upgrades Only:**

The upgrade of active and closed SOA instance data to 12*c* (12.2.1) happens automatically as part of the SOA schema upgrade process with the Upgrade Assistant. For more information, see Administering and Monitoring the Upgrade of SOA Instance Data.

## 4.6 Upgrade Assistant Screens

This section describes all of the Upgrade Assistant screens.

---

**Note:**

The screens you will see while using the Oracle Fusion Middleware Upgrade Assistant vary depending upon the type of Oracle Fusion Middleware software you are upgrading. Not all screens will be shown to you.

---

Welcome

Schemas

All Schemas Used by Domain

All Configurations Used by a Domain

Standalone Components

Available Components

All Schemas Component List

WebLogic Server Component List

Prerequisites

Edition-Based Redefinition (EBR) Database Upgrade

Schema Credentials Screen

Instance Directories

Node Manager

User Messaging Service Configuration

Examine

Examine Failure

Upgrade Summary

Upgrade Progress

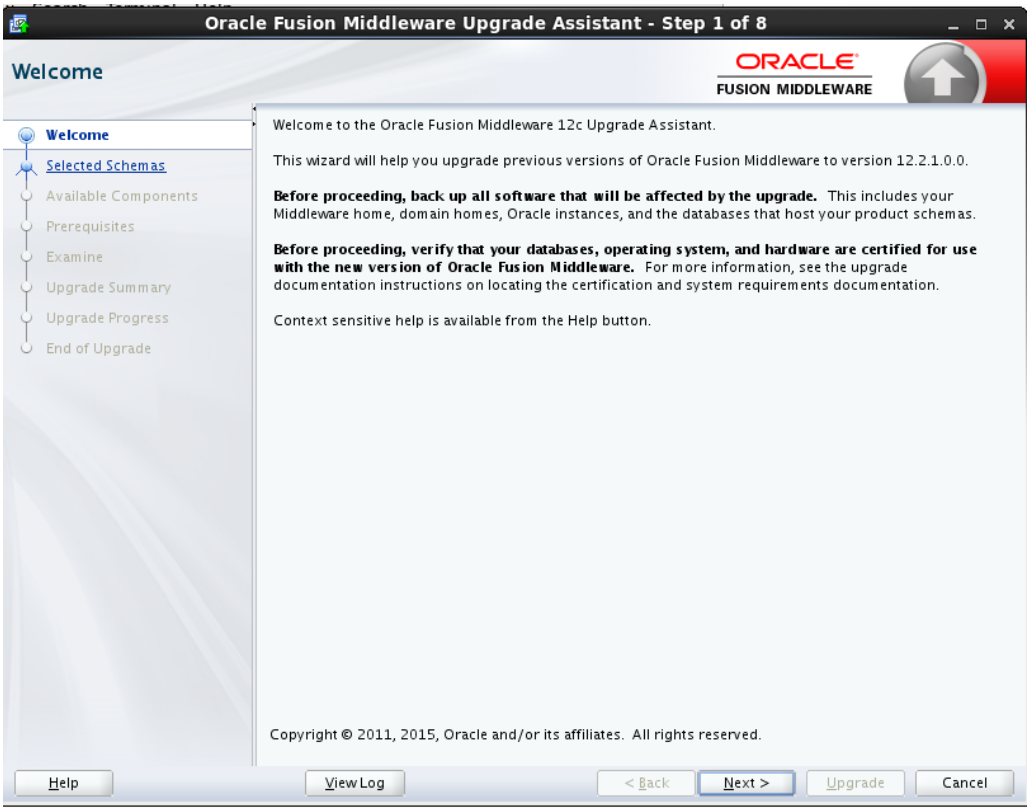
Upgrade Success

Upgrade Failure

Cancel Upgrade

## 4.6.1 Welcome

The Oracle Fusion Middleware Upgrade Assistant is used to upgrade component schemas, component configurations, and standalone system component configurations from Fusion Middleware 11*g* and 12*c* releases to the latest Fusion Middleware 12*c* release.

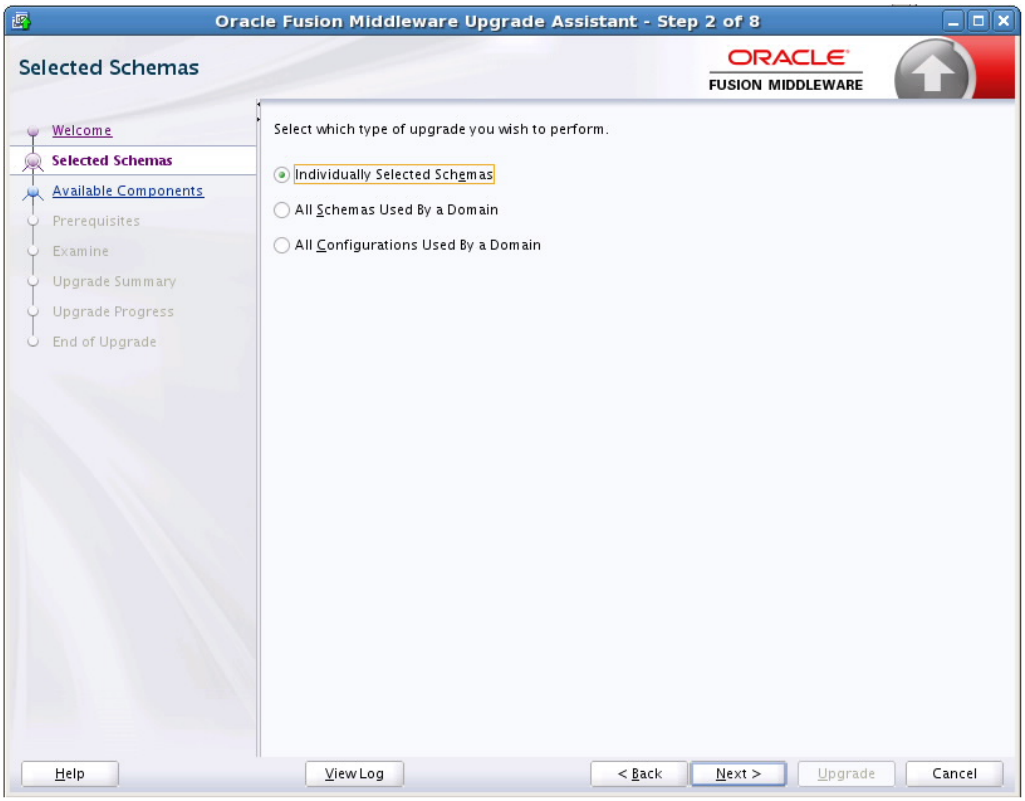



## 4.6.2 Schemas

Select **Individually Selected Schemas** to upgrade selected schemas for your installed components. The Upgrade Assistant will identify components that are candidates for a schema upgrade and then you can select which schemas to include in the upgrade

**CAUTION**: Upgrade only those schemas that will be used to support your 12.2.1.0.0 components. Do not upgrade schemas that are currently being used to support 11g or 12*c* components that are not included in the Oracle Fusion Middleware 12.2.1 release.

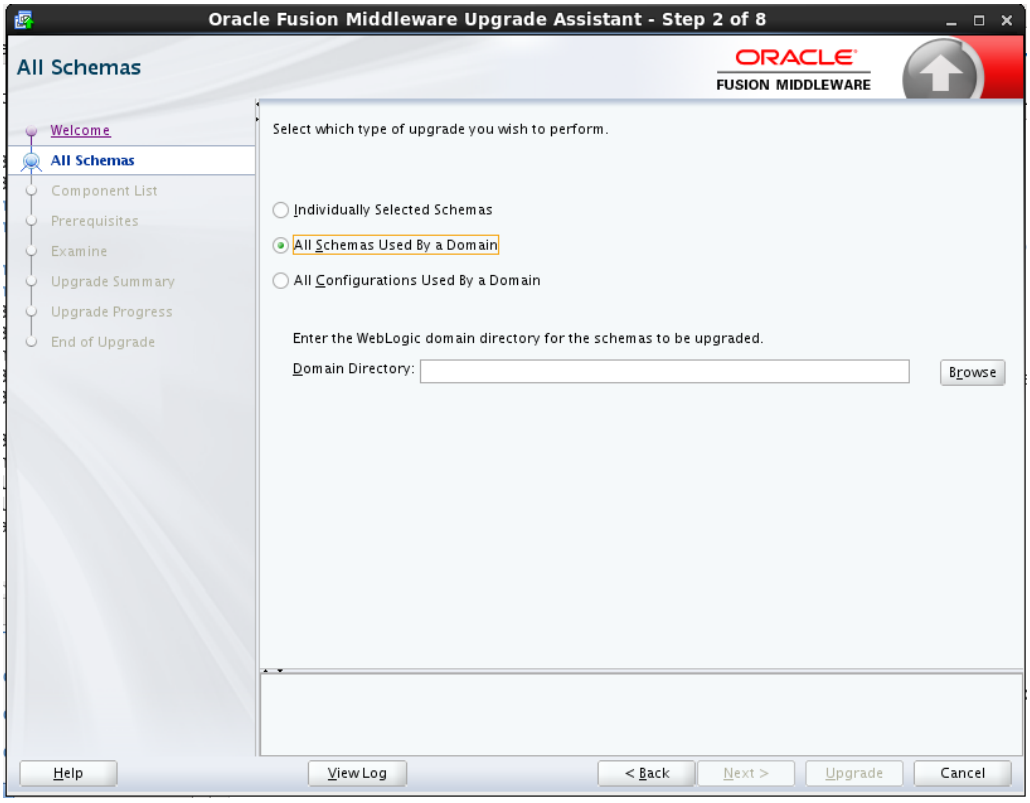
***Figure 4-1 Individually Selected Schemas***




## 4.6.3 All Schemas Used by Domain

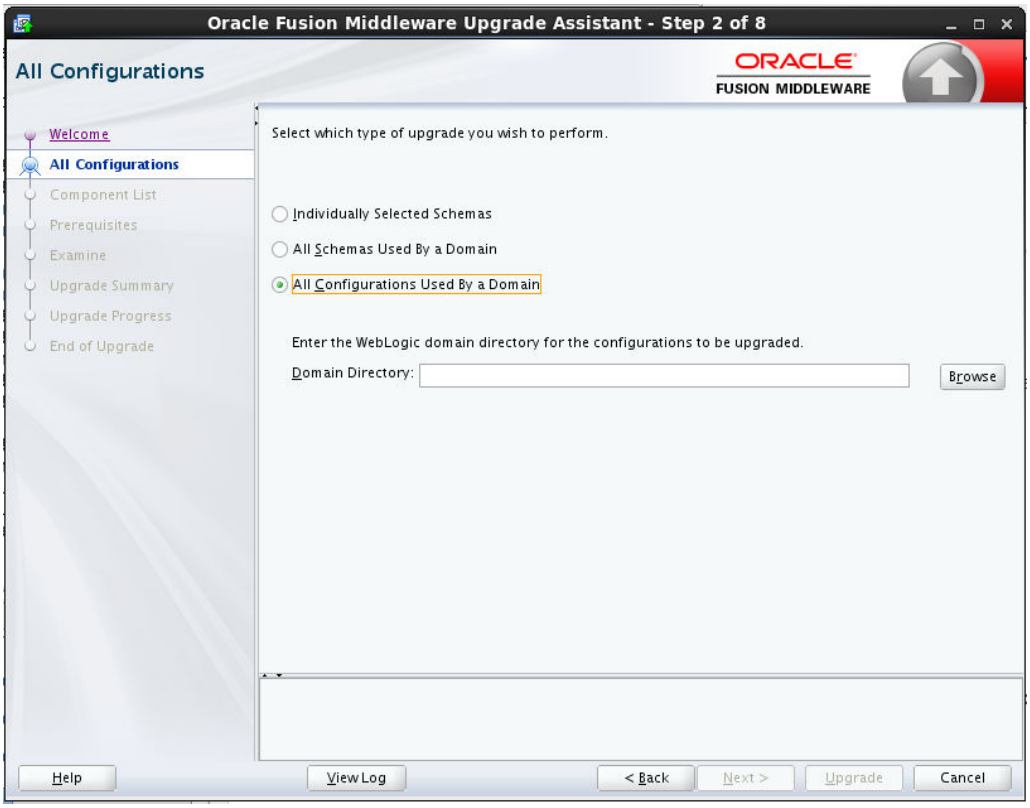
As of release 12.2.1, the Oracle Fusion Middleware Upgrade Assistant (UA) provides an option for upgrading all schemas used by a specified domain (sometimes referred to as Domain Assisted Schema Upgrade or DASU). When you select **All Schemas Used By a Domain**, the Upgrade Assistant discovers and selects all components that have schemas available to upgrade. In addition, where possible, the Upgrade Assistant pre-populates the connection information on schema input screens.

Also, you must browse and provide the 11*g* domain in the **Domain Directory** field.



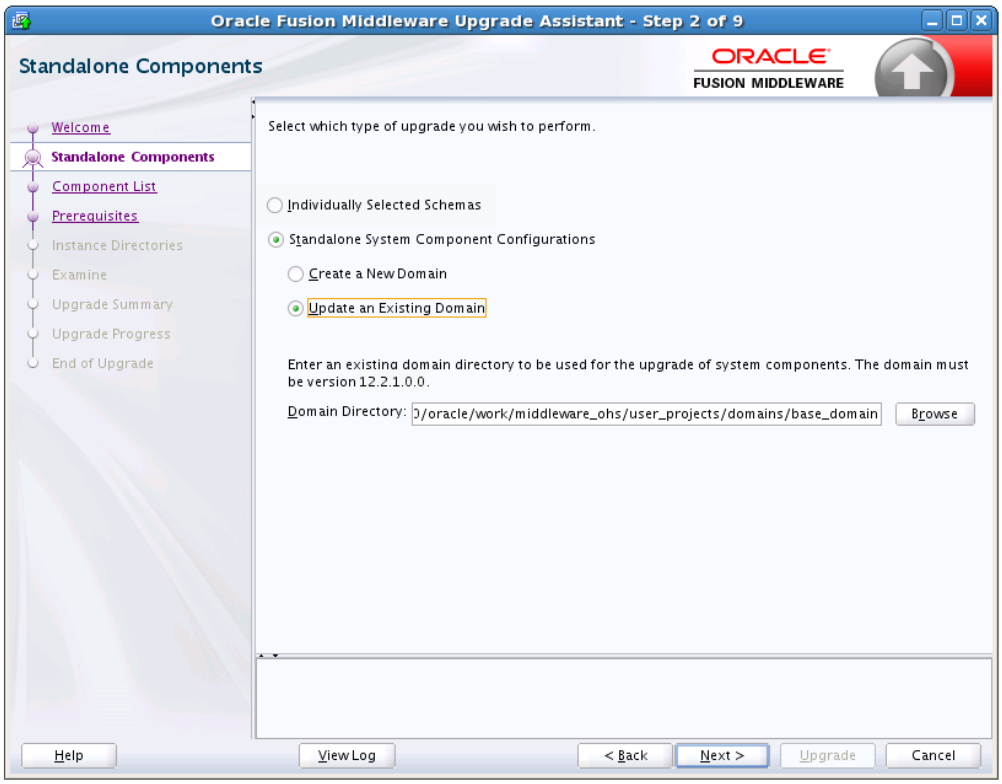

## 4.6.4 All Configurations Used by a Domain

Select the **All Configurations Used by a Domain** option to upgrade component configurations for a managed WebLogic Server domain. Click **Browse** and use the navigation tree to select a valid domain directory. A domain directory contains a `config` directory, which contains a `config.xml` file.




## 4.6.5 Standalone Components

Select the **Standalone System Component Configurations** option when you will be upgrading a standalone system component, such as Oracle HTTP Server (OHS).




You will be prompted to select one of the following:

| Option | Description |
|---|---|
| Create a New Domain | Standalone system components will have a separate standalone domain in 12*c*. A standalone domain is a container for system components, such as Oracle HTTP Server. It has a directory structure similar to an Oracle WebLogic domain, but it does not contain an Administration Server or Managed Servers. It can contain one or more instances of system components of the same type, such as Oracle HTTP Server, or a mix of types.<br>Management tools, such as the Configuration Wizard, pack and unpack, WLST, and Node Manager can operate on standalone domains. |
| Update an Existing Domain | Once a standalone domain has been created for a system component, you can select this option to extend that domain for another standalone system component. This option is also used when upgrading from 12.1.2 or 12.1.3.<br>You must provide the location of the existing 12c domain. |

## 4.6.6 Available Components

If you selected the **Individually Selected Schemas** option in the previous screen to select individual schemas to be upgraded - instead of upgrading all schemas used by the domain - this screen displays the components with schemas that can be upgraded. If you select a component that requires another schema, the Upgrade Assistant will automatically select those schemas for you.

*Figure 4-2 List of Components with Schemas Available for Upgrade*

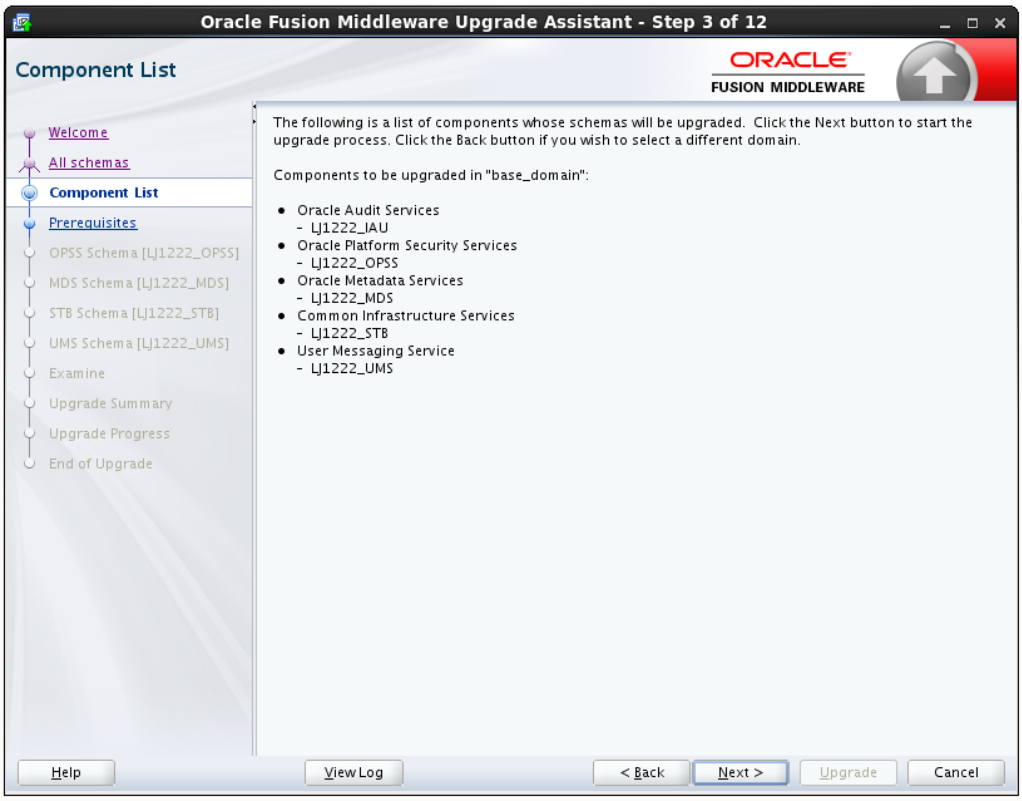
## 4.6.7 All Schemas Component List

If you selected **All Schemas Used by the Domain**, then this screen provides a list of schemas that will be included in the WebLogic domain upgrade. The names of the components are provided along with the schemas located within the domain.

Review the list carefully to verify that the correct schemas will be upgraded. If you do not see the components or schemas you want to upgrade, you may have selected the wrong domain. Use the **Back** button to specify a different domain.

If there are components or schemas listed that you do not want included, navigate back to the All Schemas screen and select **Individually Selected Schemas** instead of **All Schemas Used by the Domain**. The **Individually Selected Schemas** option allows you to select only those schemas you want included in the upgrade.

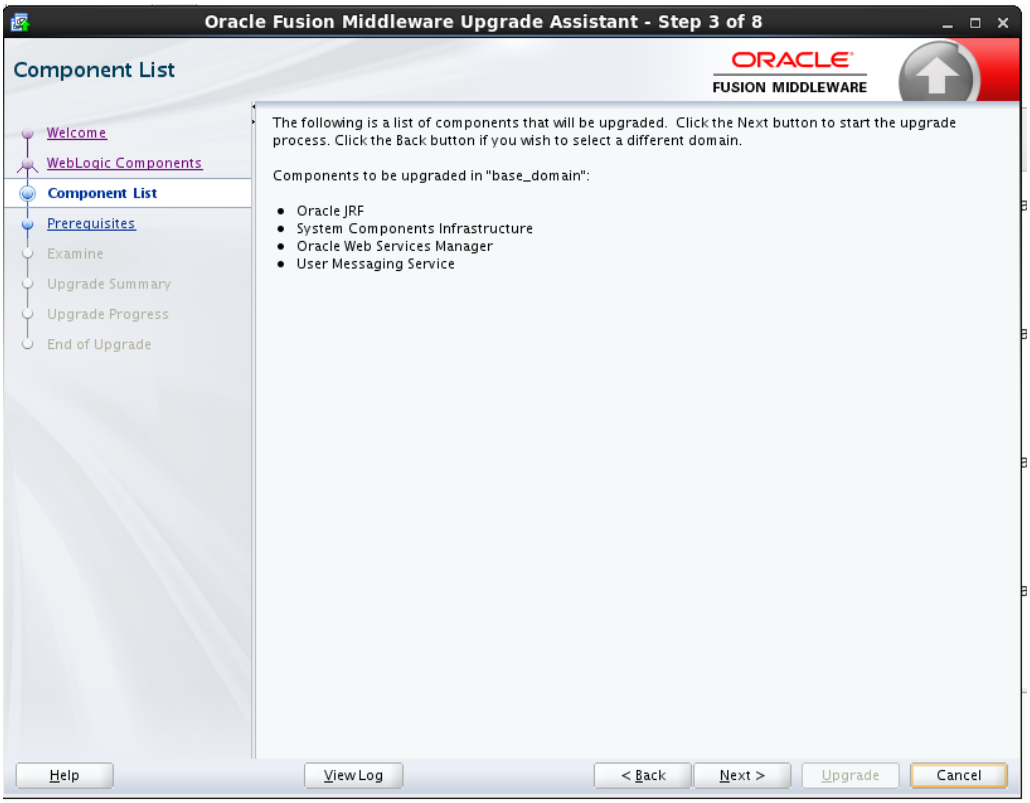
*Figure 4-3 Component List for All Schema Used by the Domain Upgrade*




## 4.6.8 WebLogic Server Component List

When **All Configurations Used by a Domain** is selected for upgrade, the domain's components are listed on this read-only screen. Review the list of components before you proceed.

*Figure 4-4 Component List for WebLogic Component Configurations*



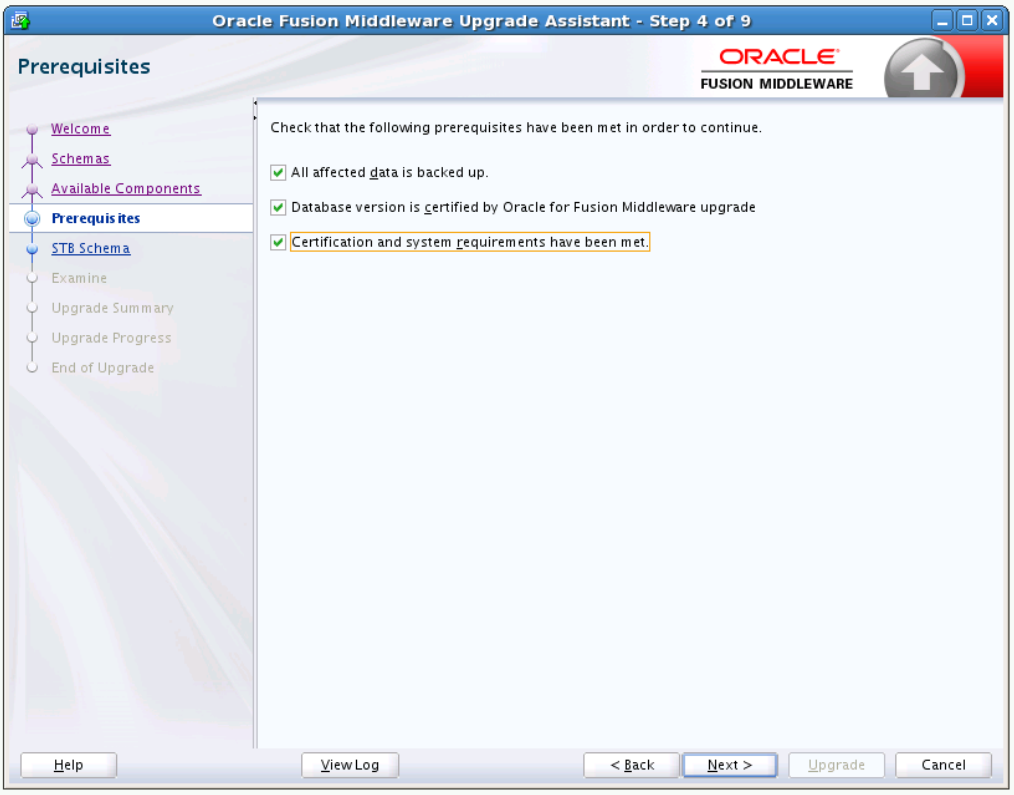

## 4.6.9 Prerequisites

This screen requires you to acknowledge that all prerequisites have been met before you continue with the upgrade. You must check the boxes before you can continue.

**Warning:**

The Upgrade Assistant will not verify that the prerequisites have been met.

*Figure 4-5 Prerequisites*

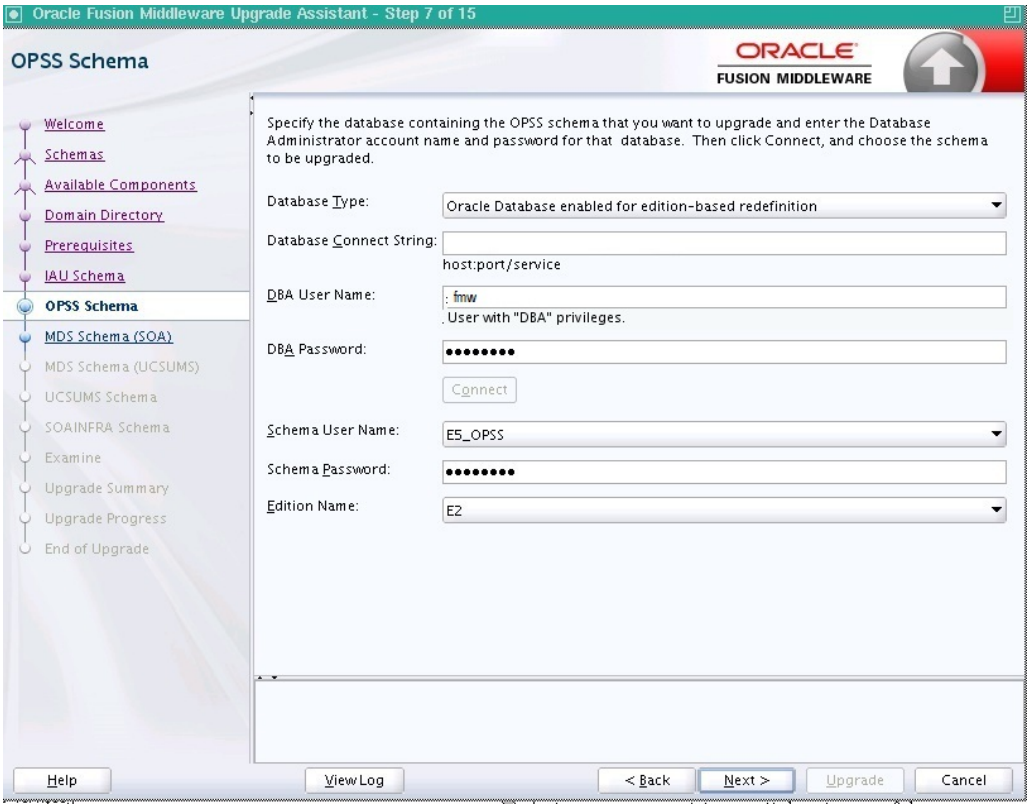



## 4.6.10 Edition-Based Redefinition (EBR) Database Upgrade

Use this screen to select the child edition from edition drop down list for edition-based redefinition databases. You must create the child edition before starting the upgrade.

For more information on creating an edition on the server for edition-based redefinition, see "Creating an Edition on the Server for Edition-Based Redefinition" in *Planning an Upgrade of Oracle Fusion Middleware*.

***Figure 4-6 EBR Database Upgrade***




## 4.6.11 Schema Credentials Screen

Use this screen to enter information required to connect to the selected schema and the database that hosts the schema. If the schema that is to be upgraded was created by RCU in a prior Fusion Middleware release then you will see a drop-down menu listing the possible schema names as shown below. Click **Connect** to connect to the database then select the schema to be upgraded.

**NOTE**: Most schemas will have this information pre-populated. If, however, the Upgrade Assistant is unable to detect the connection details, then they must be entered manually as shown below.

*Figure 4-7 Select Schemas - Dropdown Menu*

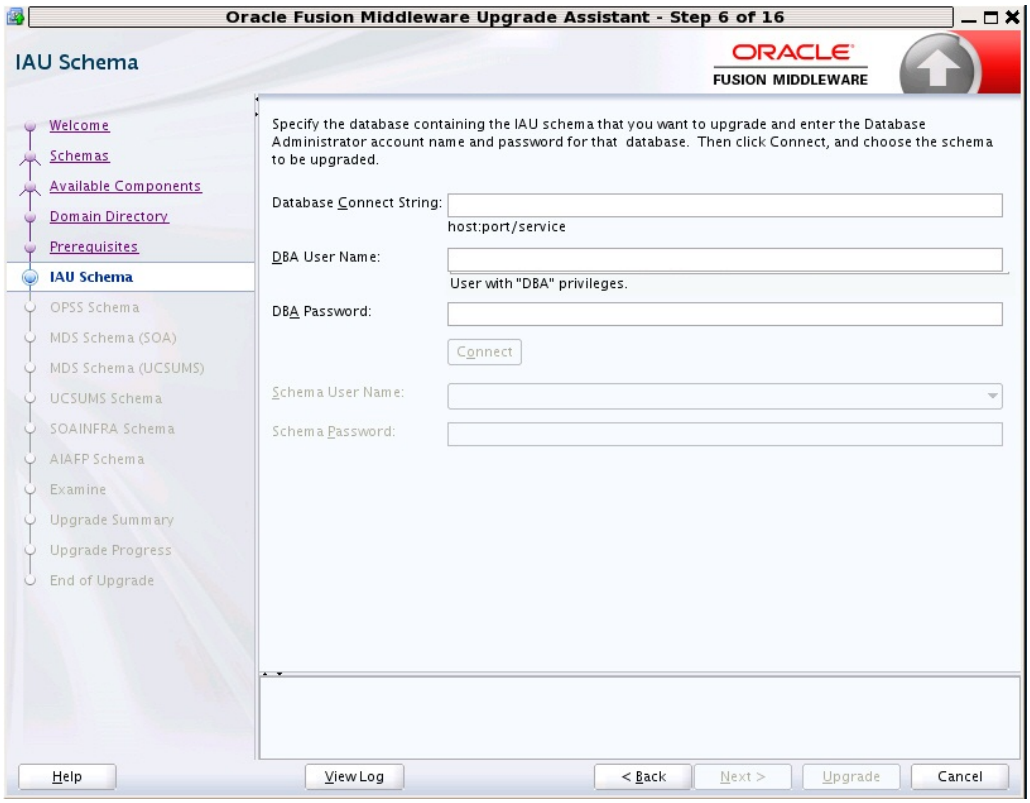
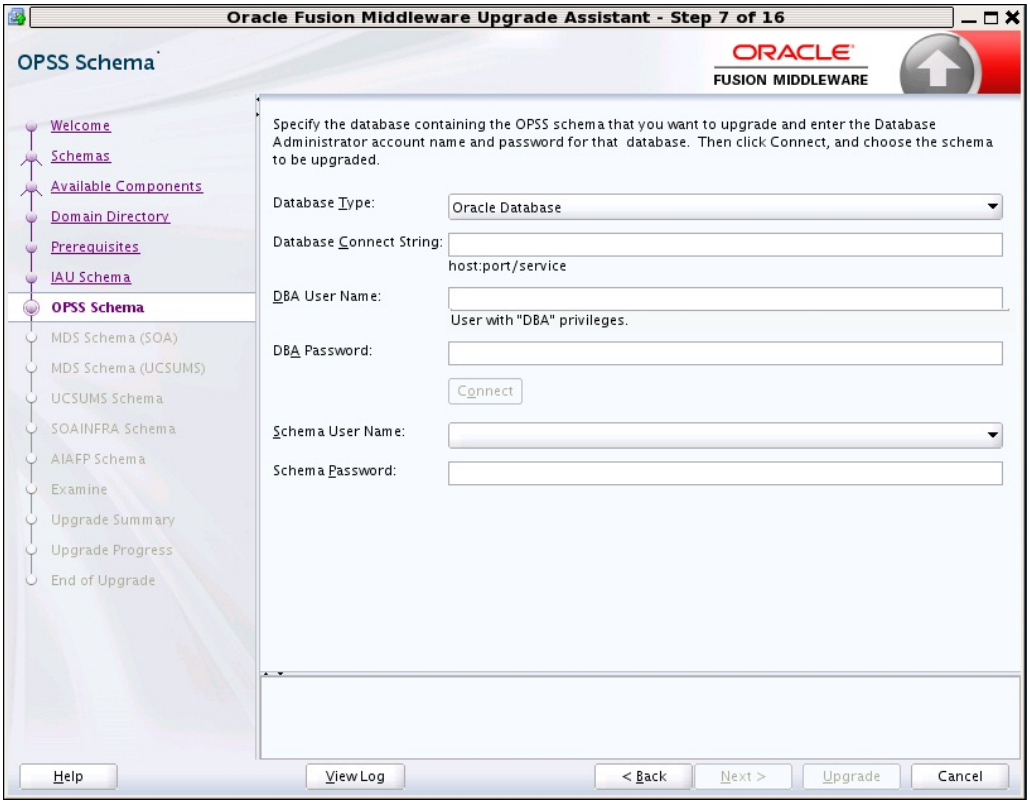



*Figure 4-8 Manually Entered Schema Data*




The following table describes the elements that appear on this screen.

| Element | Description |
|---|---|
| Database Type | Select the database type from the drop-down menu. The types of databases available in the menu varies, depending on the schema you are about to upgrade.<br>The database type chosen for upgrade must be identical to the database type that was selected when RCU originally created the schema.<br>If you select Oracle Edition-Based Redefinition (EBR) as the database type, the schema that you are upgrading also must have been created by RCU using the EBR database type. In particular, Upgrade Assistant never converts schemas from one database type to another. |
| Database Connect String | Enter the location of the database.<br>For example, if you are selecting an Oracle database, the following URL format could be used:<br>*host:port/db_service_name*<br>If you are using a Microsoft SQL Server or IBM DB2 database, then select the database type from the drop-down menu, and review the text below the field, which provides the syntax required for each database type.<br>NOTE: The Upgrade Assistant accepts other valid forms of connection strings. For example, the Oracle Database TNS style connection string may also be used. |
| DBA User Name | Enter the database user name used to connect to the database.<br>NOTE: The DBA user must have sufficient privileges to run the Upgrade Assistant, but the user does NOT have to have SYS/SYSDBA privileges. A non-sysdba user can now be used.<br>On certain database platforms user names are case sensitive, and the DBA user name might consist of lower case letters. The Upgrade Assistant connects to the name the user enters and does not convert the user name to upper case. |
| DBA Password | Enter the password associated with the specified DBA database user. |
| Schema User Name | Select the schema user name from the drop-down list or enter the user name of the schema, for example, **DEV_MDS**.<br>Note that all Oracle Fusion Middleware schema names consist solely of upper case characters on all database platforms. Also, all schema names are stored as upper case in the `schema_version_registry` table. If you type lower case letters in the Schema User Name field, the Upgrade Assistant converts the name to upper case.<br>For WebLogic Server domain, UMS, and Veridata schemas you need to manually enter the 11*g* schema user name and password. |
| Schema Password | Enter the password associated with the specified schema user name. |

| Element | Description |
|---|---|
| Edition Name | When Oracle Database enabled for edition-based redefinition is selected as the database type, you must specify the existing edition name.<br>**NOTE**: Before upgrading an EBR-enabled schema from Fusion Middleware 11g release or from a previous 12*c* release, you must first connect to the database server and create an edition on the database server for 12c (12.2.1). The new edition for 12.2.1 must be a child of your 11.1.1.6.0, 11.1.1.7.0, 12.1.2, or 12.1.3 edition.<br>For more information on creating an edition on the server for edition-based redefinition, see "Creating an Edition on the Server for Edition-Based Redefinition" in *Planning an Upgrade of Oracle Fusion Middleware*. |

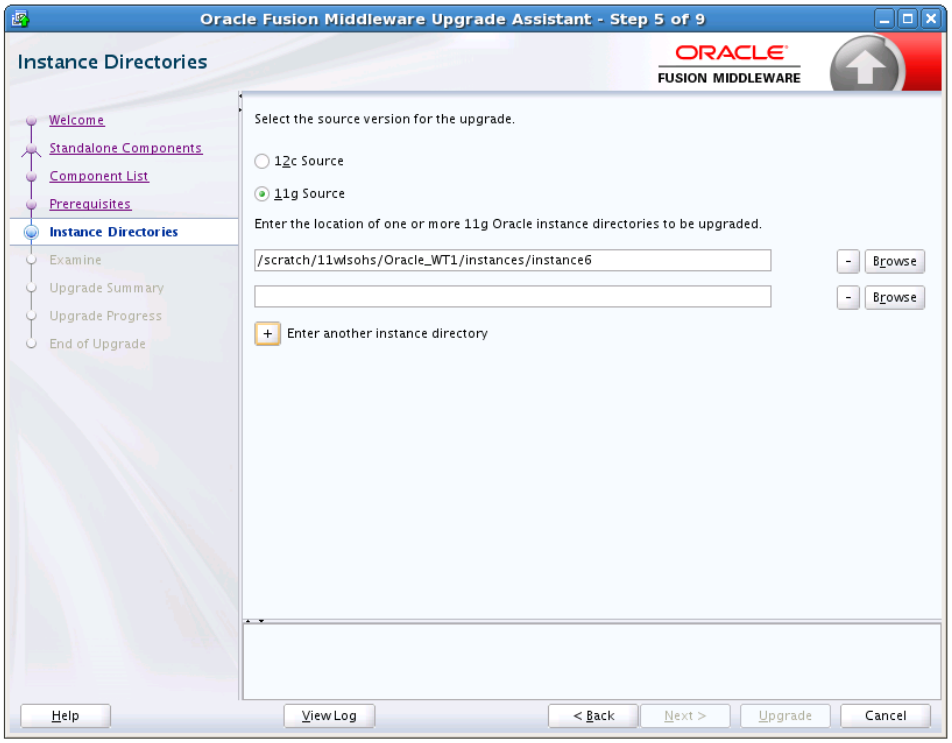
## 4.6.12 Instance Directories

When upgrading system components, such as OHS, you must provide the directory locations of the 11g instances that will be used as a starting point for creating new 12c component instances.

Use the **Add** button to include more than one instance, if needed.

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

***Figure 4-9 Instance Directories***



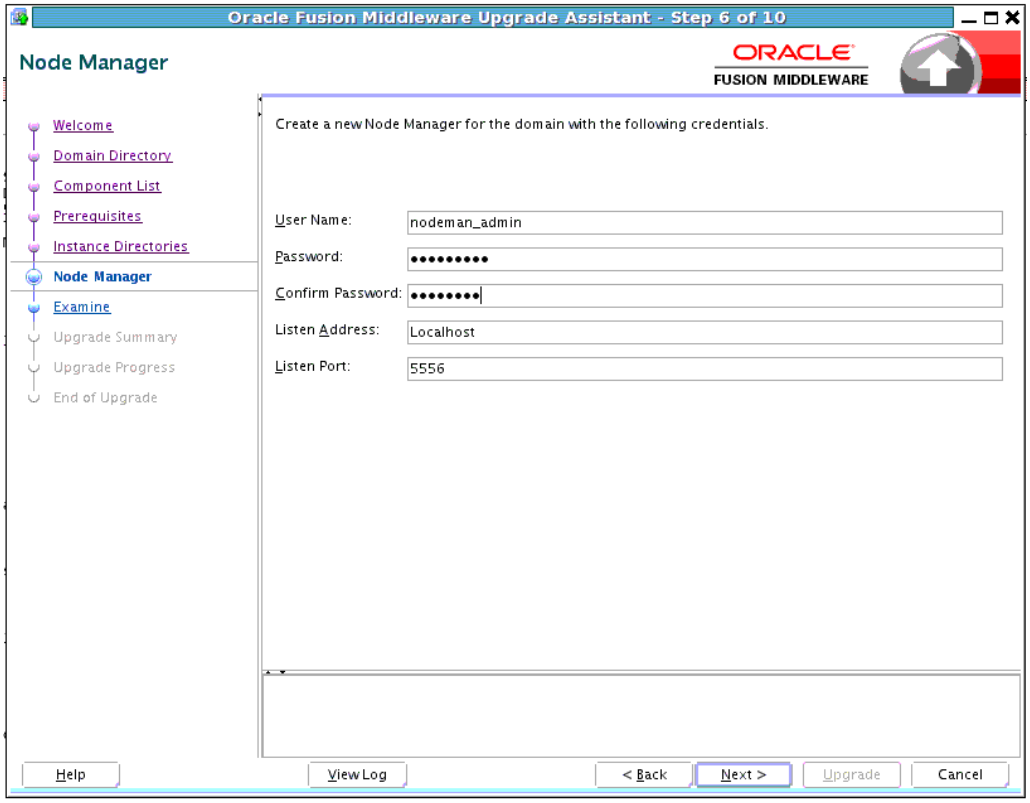
## 4.6.13 Node Manager

Use this screen to specify the credentials of the Node Manager that will be used to create a domain during the upgrade of standalone system components.

Note that the fields displayed in the screenshot may not appear during your upgrade. The conditions that trigger the fields to display are described in the table below.

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

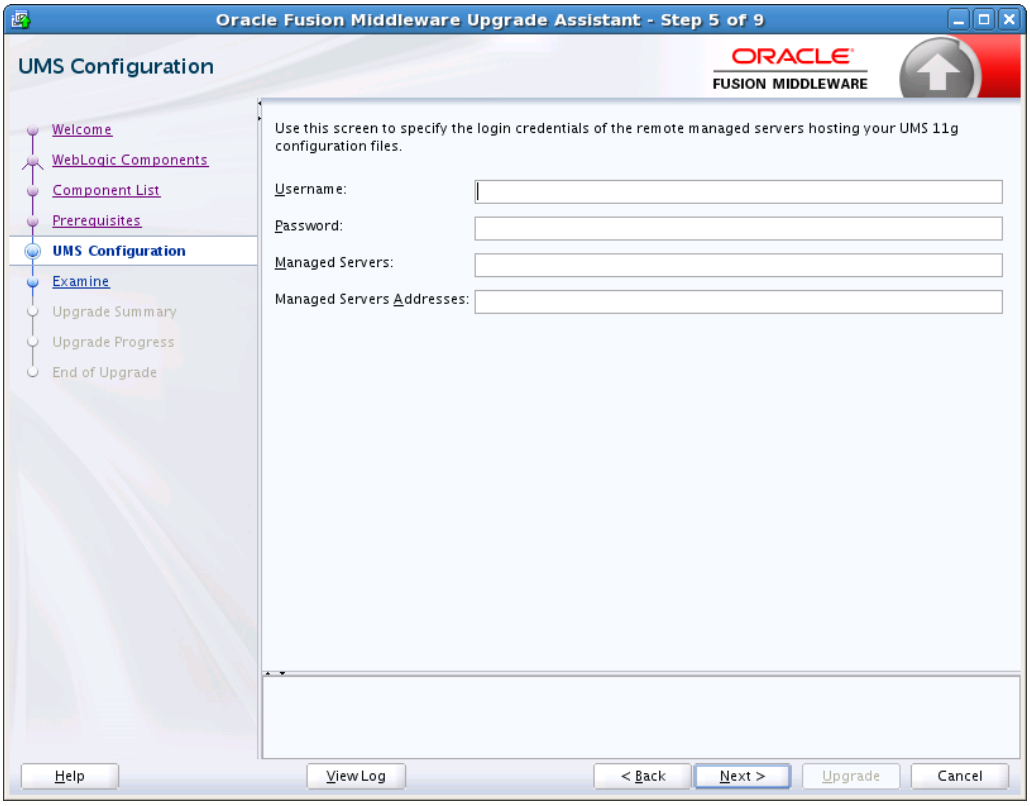
***Figure 4-10 Node Manager***




| Element | Description |
|---|---|
| User Name | The user name used to access Node Manager. |
| Password | The password used to access Node Manager. You will need to re-enter the password for confirmation. |
| Listen Address | Enter the DNS name or IP address upon which Node Manager listens in the Listen Address field. |
| Listen Port | The listening port number of Node Manager. |

## 4.6.14 User Messaging Service Configuration

*Figure 4-11 User Messaging Service Configuration*




Use this screen to specify the login credentials of the remote managed servers hosting your UMS 11g configuration files. The Upgrade Assistant automatically copies remote configuration files if all necessary prerequisites are met and the required login information is provided as described in the table below.

If the UMS configuration files are not locally accessible on the machine where the upgrade is being executed, then you must manually enter the login credentials for each managed server (**ums_server1**,**ums_server2** for example).

In some cases, the configuration files must be copied to the machine where the upgrade is being executed (in most cases to the AdminServer machine). The Upgrade Assistant will attempt to copy the files, but if it cannot locate them, then you will have to manually copy them to the Admin Server.

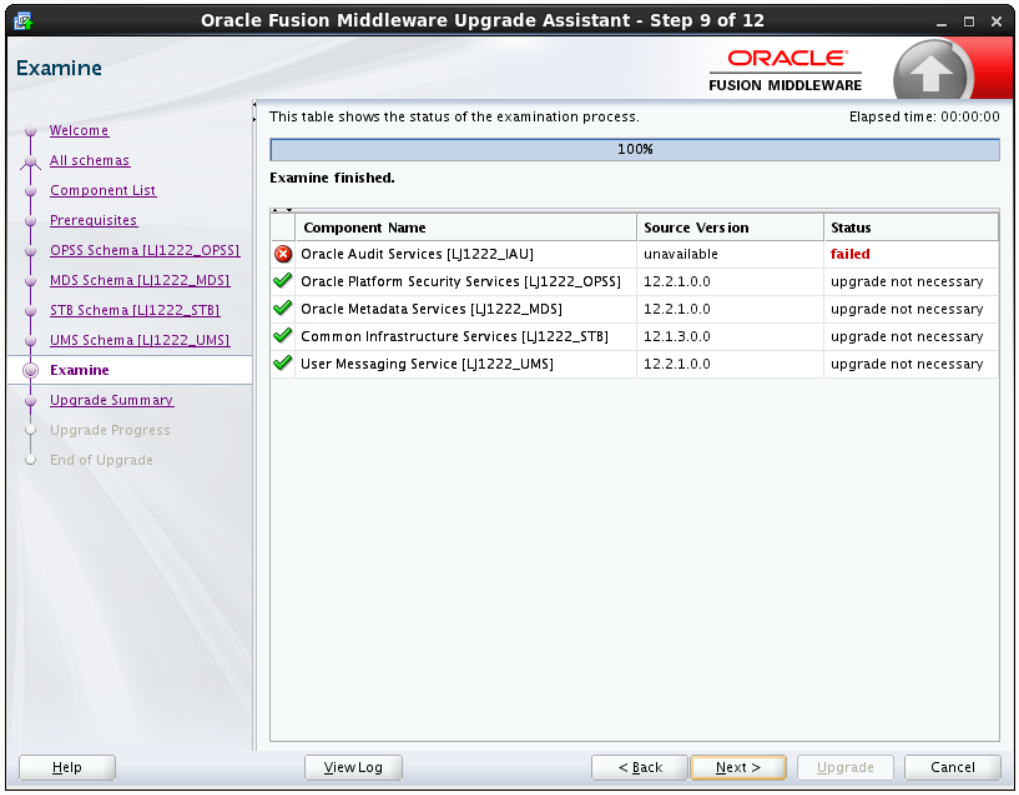
For more information, see "Copying UMS Configuration Files" in *Upgrading to the Oracle Fusion Middleware Infrastructure*.

You will only need to copy the files manually if you receive a message stating that the Upgrade Assistant is not able to copy the configuration files. Once you have copied the files, you can restart the Upgrade Assistant and proceed with the upgrade.

| Element | Description |
|---|---|
| Username | Provide the **Operating System user** who installed the product. This user will be used to fetch the remote configuration files.<br>**NOTE**: This user must have permission to connect via `ssh` to the nodes where the remote managed servers are installed.<br>The Username field is shown if:<br>• no configuration files are found for the managed server on the local machine hosting the admin server or on a shared disk<br>• there are more managed servers in the 12c domain where UMS is targeted. |
| Password | Provide the password associated with this user. |
| Managed Servers | If the Upgrade Assistant was unable to automatically detect the managed servers, then you must provide a comma separated list containing the names of the remote managed servers that contain the configuration files.<br>For example:<br>**ums_server1**,**ums_server2** |
| Managed Servers Addresses | Provide a comma separated list containing the complete hostnames or IP addresses for the nodes where the remote managed servers are running. The order of this list has to correspond with the list of managed server names provided above.<br>For example:<br>`fusionHost1.example.com`,`fusionHost2.example.com`<br>where:<br>`fusionHost1.example.com` hosts **ums_server1** and `fusionHost2.example.com` hosts **ums_server2** |

## 4.6.15 Examine

*Figure 4-12 Examine*




The Upgrade Assistant examines each component to be sure it meets a minimum set of criteria before you begin the upgrade process.

This screen displays the status of the Upgrade Assistant as it examines each component, verifying that the component is ready for upgrade.

The Upgrade Assistant examines each component to be sure it meets a minimum set of criteria before you begin the upgrade process.

Upgrade Assistant displays the schema **Source Version** of the schema on this screen if the information is listed in the schema version registry table. If the schema was not created using RCU, or the source version cannot be found, the source version will display `unavailable`.

---

**Note: Issues detected during the Examination phase may be resolved and the Upgrade Assistant can be started again.** Once the Upgrade phase has started, however, you will need to restore your pre-upgrade environment from backup before starting the Upgrade Assistant again.

---

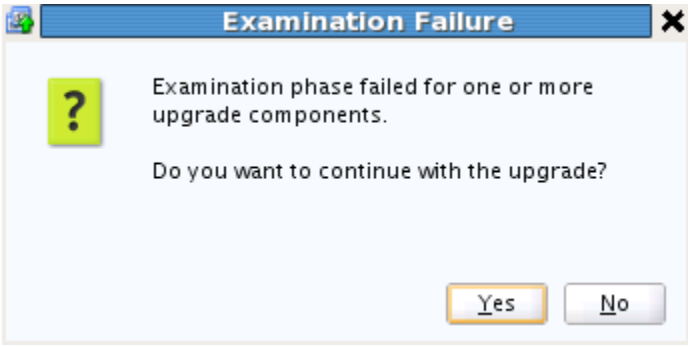
The description of the **Status** indicators for the components is listed in the following table:

| Status | Description |
|---|---|
| in progress... | The Upgrade Assistant is examining the upgrade items for the component. |
| pending... | The component will be examined when the Upgrade Assistant finishes the preceding component. |
| failed | Upgrade items were missing or did not meet upgrade criteria. The Upgrade Assistant cannot upgrade the component until the issues have been resolved. Click **View Log** to troubleshoot the errors and then restart the Upgrade Assistant. |
| succeeded | Upgrade items were found and are valid for upgrade. |

Canceling the examination process has no effect on the schemas or configuration data; the only consequence is that the information the Upgrade Assistant has collected must be collected again in a future upgrade session.

## 4.6.16 Examine Failure

***Figure 4-13 Examine Failure***




This dialog box appears when one of more of your components failed the examination phase and you selected to continue with the upgrade. If there was an examination failure, you should consider canceling the upgrade (click **No**) and review the log files.Since the upgrade has not yet started, you can resolve the issues detected during the examination phase and restart the Upgrade Assistant without restoring from backup.

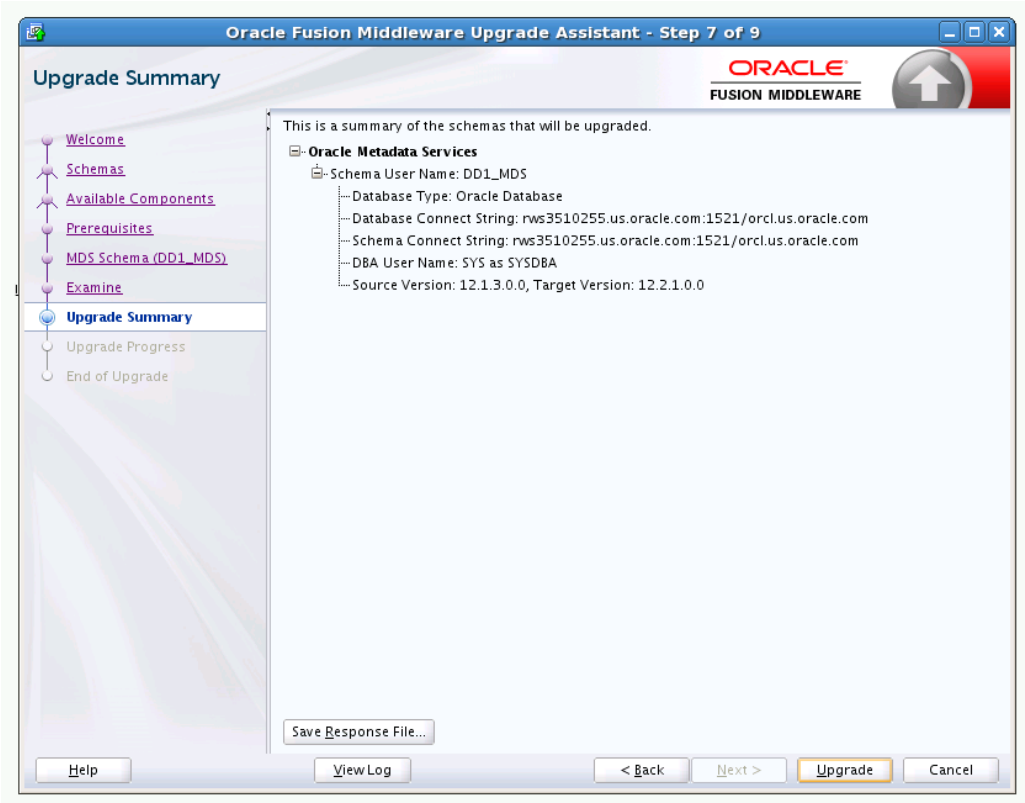
**UMS Upgrades Only:**

During the configuration upgrade you can get this error during the **examination phase**. For User Messaging Service, the way to recover is to copy the UMS config files manually and restart the Upgrade Assistant.

If you can get an error during the **upgrade phase** , the way to recover is to restore backups and copy the config files manually and restart the Upgrade Assistant.

## 4.6.17 Upgrade Summary

*Figure 4-14 Upgrade Summary*




**Reviewing the Upgrade Summary**

Expand and collapse the tree to show or hide details about the data provided in the wizard screens, such as schema details, Oracle WebLogic Server connection details, and Oracle WebLogic domain directory information.

The Summary screen also displays the **Source Version** of the schema being upgraded and the resulting **Target Version** post upgrade. Make sure that both versions are correct before proceeding with the upgrade.

**Starting the Upgrade Process**

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

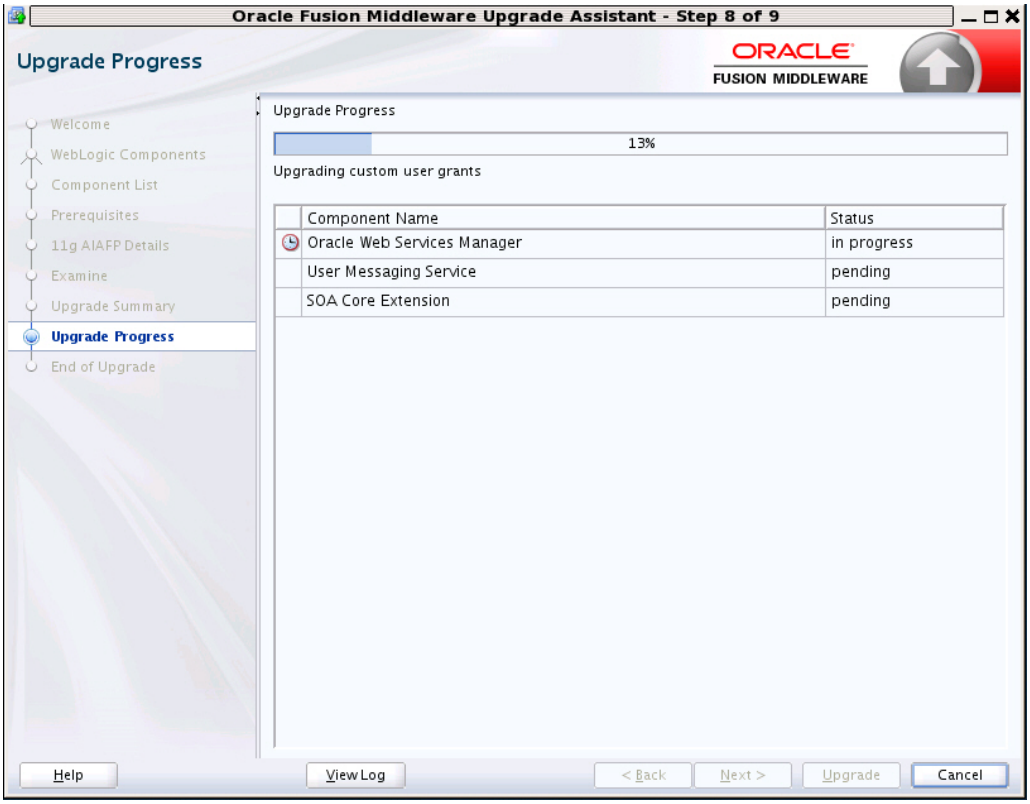
If you are upgrading a schema, verify that you have a backup of the database that hosts the schema.

**Save Response File**

The **Save Response File** option creates a file that can be used as input to the Upgrade Assistant. The response file collects all the information that you have entered through the Upgrade Assistant's graphical user interface screens, and enables you to perform a silent upgrade at a later time. The silent upgrade performs exactly the same function that the Upgrade Assistant wizard performs, but you do not have to manually enter the data again.

## 4.6.18 Upgrade Progress

*Figure 4-15 Upgrade Progress*




This screen shows the status of the current upgrade process and the projected **Target Version** of the component after a successful upgrade.

Note that the progress bar is NOT a measure of time remaining for the upgrade. The progress bar is a moving graphical display of completed upgrade steps for each component being upgraded. In some cases, the progress bar does not move at a steady pace. It might move very quickly over a certain portion of the progress bar, and move very slowly, or even appear to freeze, for another component that is performing a long-running database operation. That does not mean that the upgrade progress is stalled, it simply indicates that a long-running operation is being performed. Different upgrade operations, especially during a schema upgrade, will operate at different paces.

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

The status of each component upgrade is indicated by one of the following messages that can appear next to the component name. The following table describes each status message.

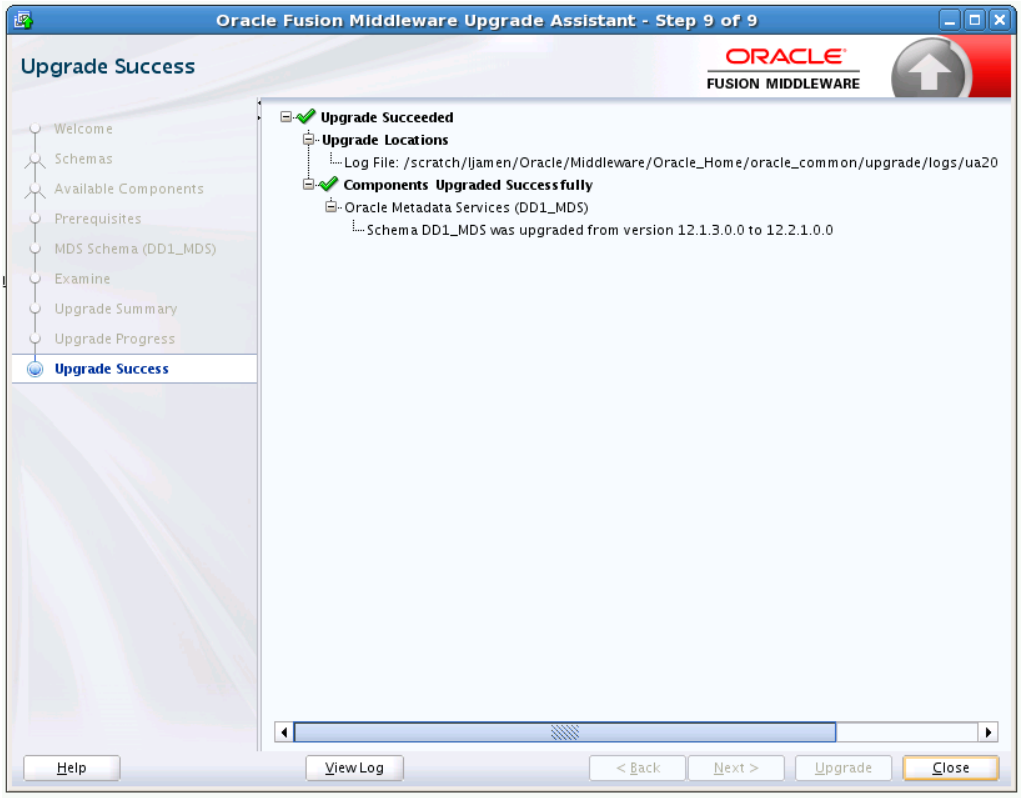
| Status | Description |
|---|---|
| in progress... | The Upgrade Assistant is upgrading the component's upgrade items. |

| Status | Description |
|---|---|
| pending... | The component will be upgraded when the Upgrade Assistant finishes the preceding component. |
| upgrade not necessary | The component was upgraded previously by the Upgrade Assistant or the component was just installed and is already at the latest version. No action will be taken on this component. |
| skipped | The component is dependent on another component which has a status of "failed". When the status is "skipped" no upgrade is attempted for that component. |
| failed | Upgrade items were missing or did not meet upgrade criteria. The component cannot be upgraded. Click View Log to troubleshoot the errors. |
| succeeded | Upgrade items were upgraded successfully. |

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

## 4.6.19 Upgrade Success

***Figure 4-16 Upgrade Success***




The upgrade was successful. The Post-Upgrade Actions window describes the manual tasks you must perform to make the component function in the new installation. This is an optional window that will only show up if a component has post-upgrade steps.

In addition, be sure to do the following:

- View the `postupgrade.txt` file in the Oracle home:

  On Unix systems:

  ```
  ORACLE_HOME/oracle_common/upgrade/logs
  ```

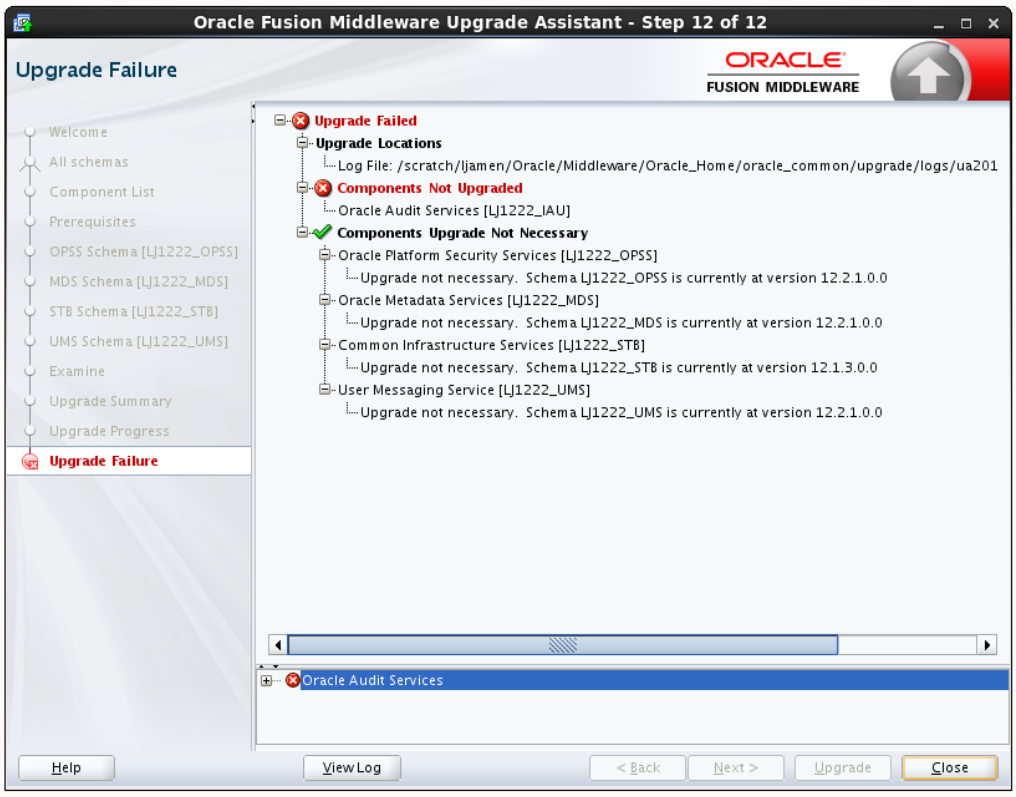
  On Windows systems:

  ```
  ORACLE_HOME\oracle_common\upgrade\logs
  ```

- Review the upgrade topics specific to your Oracle Fusion Middleware environment for any additional post-upgrade tasks.

## 4.6.20 Upgrade Failure

***Figure 4-17 Upgrade Failure***




The upgrade of one or more components has failed. The component cannot be upgraded at this time. Click **View Log** to troubleshoot the errors.

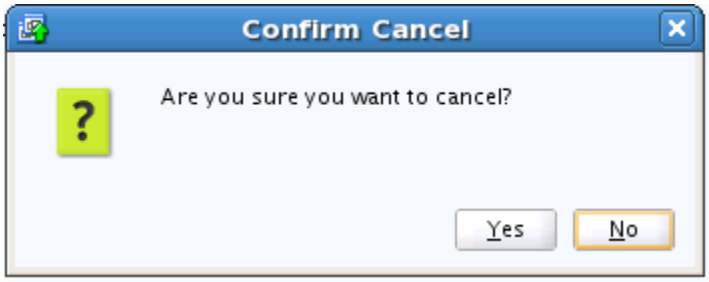
You will have to fix the issues in the pre-upgrade environment before starting the Upgrade Assistant again. Restore your pre-upgrade environment from backup (making sure to keep the original backup files in a separate location), fix the issues, and restart the Upgrade Assistant.

### 4.6.21 Cancel Upgrade

*Figure 4-18 Cancel Upgrade*

You get the above Confirm Cancel screen when you click **Cancel** while the upgrade plugin is actively running (that is, you are on the Upgrade page and the progress bar is less than 100%).

*Figure 4-19 Cancel Upgrade*




You get the above Confirm Cancel screen on clicking **Cancel** when no upgrade plugins are actively running.

**Important Note:** If you cancel a schema upgrade, you must restore a backup of the database that hosts the schema and its environment (the pre-upgrade directory structure).

## 4.7 Reconfiguring the Domain using the Reconfiguration Wizard

The Reconfiguration Wizard reconfigures the domain while retaining the location of the domain. Use the Reconfiguration Wizard to upgrade your domain to the latest version.

Navigate to the following 12*c* directory to launch the Reconfiguration Wizard:

On the UNIX operating system:

*ORACLE_HOME*`/oracle_common/common/bin/reconfig.sh`

On the Windows operating system:

*ORACLE_HOME*`\oracle_common\common\bin\reconfig.cmd`

To start the Reconfiguration Wizard, see Starting the Reconfiguration Wizard.

*Table 4-2 Reconfiguration Wizard Screens*

***Table 4-2 (Cont.) Reconfiguration Wizard Screens***

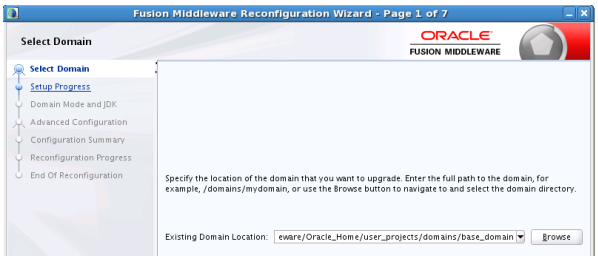
| Reconfiguration Wizard Screen | Description and Action Required |
|---|---|
| Select Domain | Enter the absolute path to the existing 12*c* domain directory, or click **Browse** to navigate to and select the domain directory.<br>  |
| Reconfiguration Setup Progress | Shows the progress of the application of reconfiguration templates. |
| Domain Mode and JDK | Domain mode cannot be changed. This setting is imported from the mode specified when the domain was created using the Configuration Wizard.<br>**Note:** Oracle recommends that you run a trial upgrade on a development domain first before upgrading a production domain. Any upgrade issues or errors should be resolved before upgrading the production environment.<br>Select the JDK to use in the domain or click **Browse** to navigate to the JDK you want to use.<br>Note that Oracle Fusion Middleware 12*c* requires Java SE 8. For more information, see Verifying Certification and System Requirements in *Planning an Installation of Oracle Fusion Middleware*. |

***Table 4-2 (Cont.) Reconfiguration Wizard Screens***

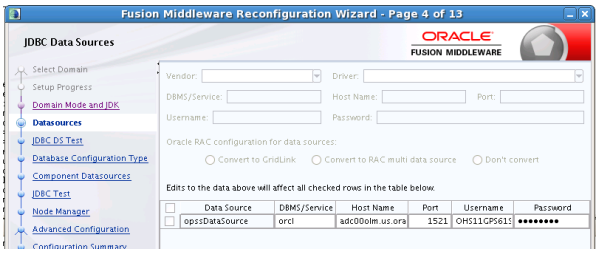
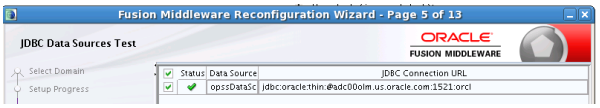
| Reconfiguration Wizard Screen | Description and Action Required |
|---|---|
| JDBC Data Sources | Use this screen to review the configuration of the JDBC data sources defined in your domain source. You should see the OPSS data source automatically configured in this screen.<br><br>  <br><br>For information about the fields on this page, click **Help**, or refer to JDBC Data Sources in *Upgrading Oracle WebLogic Server*. |
| JDBC Data Sources Test | Test the data source connections you configured on the JDBC Data Sources screen.<br><br>  <br><br>For information about the fields on this page, click **Help**, or refer to JDBC Data Sources Test in *Upgrading Oracle WebLogic Server*. |

***Table 4-2 (Cont.) Reconfiguration Wizard Screens***

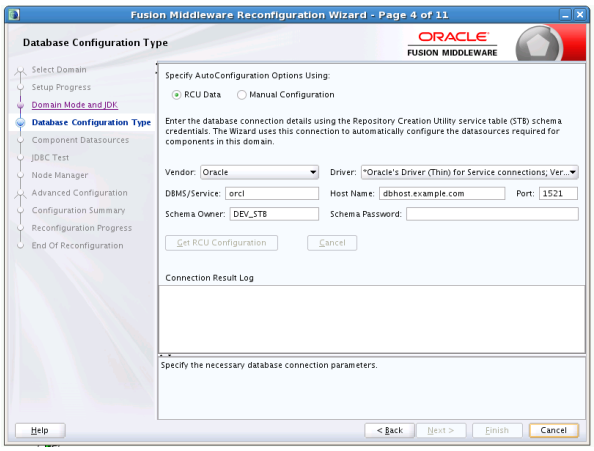
| Reconfiguration Wizard Screen | Description and Action Required |
|---|---|
| Database Configuration Type | If you have provided the data source connection details in the previous screen, the database connection details automatically populate.<br>If the information was not provided on this screen, select **RCU Data** and provide the database credentials to retrieve the schema information for all schemas that are included in the domain. If you select this option, the fields on this screen are activated. Fill in each field, using the connection information that you specified for the STB component in the Repository Creation Utility (RCU).<br>When you have provided the connection information, click **Get RCU Configuration** to retrieve the schema information.<br>  <br>For more information, click **Help**, or refer to Database Configuration Type in *Upgrading Oracle WebLogic Server*. |

***Table 4-2 (Cont.) Reconfiguration Wizard Screens***

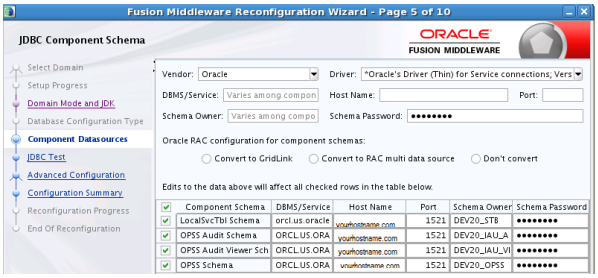
| Reconfiguration Wizard Screen | Description and Action Required |
|---|---|
| JDBC Component Schema | By default, the schema information is displayed if you have selected **Get RCU Data** on the previous screen and the schema owner is the same for all schemas.<br>If you need to make changes to the data source settings for any of the schemas listed on the screen, select the check box adjacent to each schema name. The changes you make in the fields at the top of the screen updates the schema (or schemas) you have selected below. Make sure that you select only those schemas you want to modify.<br>  <br>**Note:** For information about the fields on this page, click **Help**, or refer to JDBC Component Schema in *Upgrading Oracle WebLogic Server*. |
| JDBC Component Schema Test | Test the configurations that you specified for the data sources in the previous screen. Select the check boxes adjacent to the names of the schemas to test, and click **Test Selected Connections**.<br>The result of the test is indicated in the **Status** column. Click **Next** when the test is successful for all the schemas. |

*Table 4-2 (Cont.) Reconfiguration Wizard Screens*

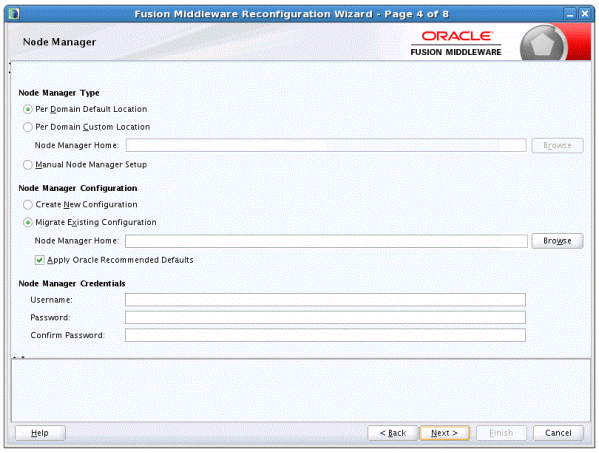
| Reconfiguration Wizard Screen | Description and Action Required |
|---|---|
| Node Manager | This screen is displayed only if the domain you are reconfiguring is currently using a **Per Domain Default Location** Node Manager.<br>Select **Migrate Existing Configuration** and provide the location of the per domain default location.<br>Enable **Apply Oracle Recommended Defaults**.<br>Provide **Node Manager Credentials**. This is a new User that is being created to administer the Node Manager. The password is required during start-up, for any components now handled by the Node Manager (including the OHS).<br>**Note:** When upgrading a domain and changing from a per-host Node Manager configuration to a per-domain Node Manager configuration, if you are using custom scripts to start and stop the WebLogic Server environment, you must manually update the scripts to change the Node Manager home location to the new domain-based location.<br>For more information on configuring the Node Manager, see Default Node Manager Configuration in *Administering Node Manager for Oracle WebLogic Server*.<br>  |

***Table 4-2 (Cont.) Reconfiguration Wizard Screens***

| Reconfiguration Wizard Screen | Description and Action Required |
|---|---|
| Advanced Configuration | Select all categories (if any) for which you want to perform advanced configuration. For each category you select, the appropriate configuration screen is displayed to allow you to perform advanced configuration. If you do not select any items on this screen, the Configuration Summary screen is displayed next.<br> <br><br>**Note:** If Node Manager is available and you do not select it, you must manually configure Node Manager as described in Completing the Node Manager Configuration in *Upgrading Oracle WebLogic Server*.<br>The Node Manager advanced option is available only if you are reconfiguring a domain that is currently using a per-host Node Manager configuration. It enables you to switch to a per-domain Node Manager or continue using the existing per-host Node Manager. |
| Managed Servers | Use this screen to review the settings for an existing Managed Server(s), if any. |
| Clusters | Use this screen to review the settings for an existing Cluster(s), if any. |
| Coherence Clusters | This screen is displayed only if you included Coherence in the WebLogic Server installation. It lists the Coherence cluster that is automatically added to the domain. |

***Table 4-2 (Cont.) Reconfiguration Wizard Screens***

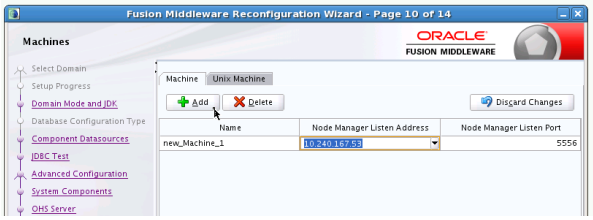
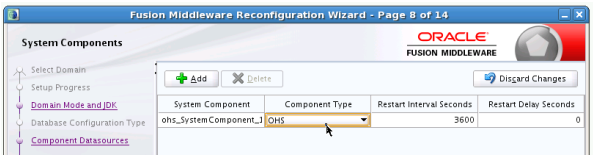
| Reconfiguration Wizard Screen | Description and Action Required |
|---|---|
| Machines | In a WebLogic domain, the machine definitions identify physical units of hardware and are associated with the WebLogic Server instances or system components (such as OHS servers) that they host.<br>Use this screen to review the Host/Port settings of the existing Node Manager details that are included in the reconfiguration as part of the upgrade.<br>Make sure that an actual Listen Address is provided. **Do not use Local Host**.<br>  |
| System Components | Use this screen to review the current settings for the existing OHS component that is being Reconfigured as part of the co-located upgrade process. To prevent upgrade errors, do not make any changes to the OHS setting on this screen. You can also use this screen to add or delete system components.<br>  |

***Table 4-2 (Cont.) Reconfiguration Wizard Screens***

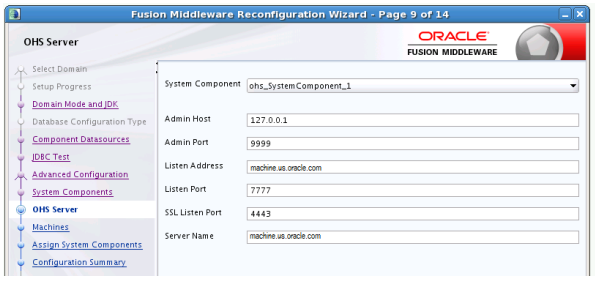
| Reconfiguration Wizard Screen | Description and Action Required |
|---|---|
| OHS Server | Use this screen to confirm that the Reconfiguration Wizard is picking up the correct Port details (that come from their Source Installation) for each OHS in the domain.<br><br>**Note:** If you are reconfiguring a domain that includes more than one OHS instance, the System Component toggle option appears at the at the top of this screen. Select this option to flip between the different instances, in order to update their configuration details during reconfiguration.<br><br>Though the OHS servers can have the same Host details, each one must be assigned unique Port details. If they do not already show different Port Details on this screen, these details must be edited to make them different.<br><br>  |

***Table 4-2 (Cont.) Reconfiguration Wizard Screens***

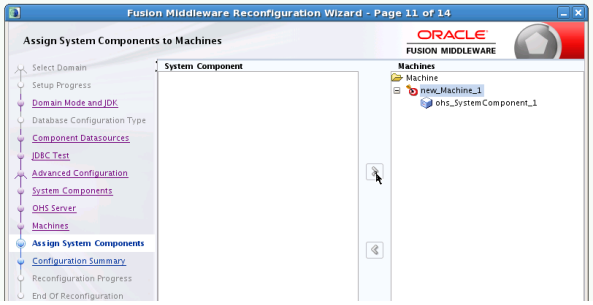
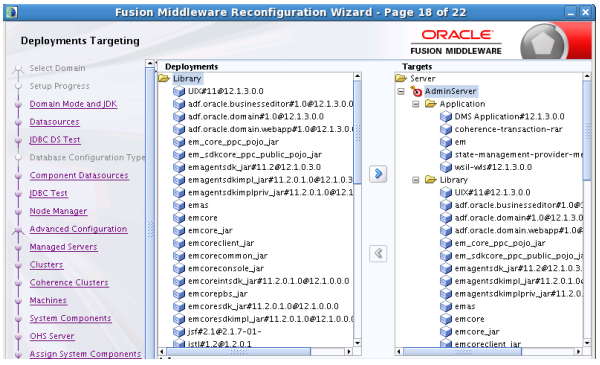
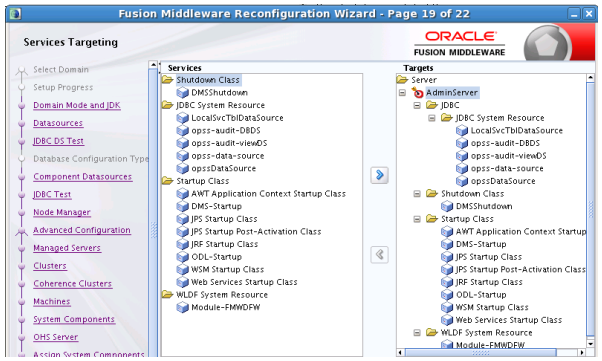
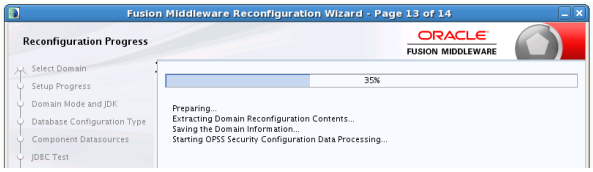
| Reconfiguration Wizard Screen | Description and Action Required |
|---|---|
| Assign System Components to Machines | Use this screen to review the assignment of system components to machines that you defined.<br><br>**Note:** This screen show the OHS component being assigned to the Node Manager. This reconfigures the OHS Instance to assign it to the 12*c* Node Manager, which is required to Start/Stop the OHS instances.<br><br>  |
| Deployments Targeting | Applications associated with the product for which you are configuring the domain are targeted automatically to the Managed Server created for that product or to the cluster to which that Managed Server is assigned. In this screen, you can target applications to additional servers and clusters.<br><br>Use this screen to review the deployment targeting in the domain.<br><br>  |

***Table 4-2 (Cont.) Reconfiguration Wizard Screens***

| Reconfiguration Wizard Screen | Description and Action Required |
|---|---|
| Services Targeting | Services that are associated with the product for which you are configuring the domain are targeted automatically, to the Managed Server created for that product or to the cluster to which that Managed Server is assigned. In this screen, you can target services to additional servers and clusters.<br>Use this screen to review the service targeting in the domain.<br>  |
| Configuration Summary | Review the detailed configuration settings of the domain before continuing. You can limit the items that are displayed in the right-most panel by selecting a filter option from the View drop-down list.<br>Click **Reconfig** to reconfigure the domain, or click **Back** if you wish to change the configurations. |
| Reconfiguration Progress | Review the reconfiguration progress. Click **Next** when the process is complete.<br>  |
| Reconfiguration Success | Review the final status of the reconfiguration process. Click **Finish** to exit the Reconfiguration Wizard. |

## 4.8 Upgrading the Domain Component Configurations Using the Upgrade Assistant

Follow the instructions in this section to upgrade any additional domain component configurations, such as OWSM policy metadata structure and adapter configurations, using the Upgrade Assistant.

- Task 1: Starting the Upgrade Assistant
- Task 2: Upgrading Component Configurations

Task 1: Starting the Upgrade Assistant
The Upgrade Assistant is used to upgrade schemas, component configurations and standalone system components.

Task 2: Upgrading Component Configurations
If you are running the Upgrade Assistant from an Oracle home that contains managed WebLogic domain components, then `All Configurations Used by a Domain` upgrade option is available. You can select the schemas you want to upgrade from the component list.

## 4.8.1 Task 1: Starting the Upgrade Assistant

The Upgrade Assistant is used to upgrade schemas, component configurations and standalone system components.

Start the Upgrade Assistant on the host where Administration Server is running:

1. On the Unix operating system, change directory to *`ORACLE_HOME`*`/oracle_common/upgrade/bin`.

   On the Windows operating system, change directory to *`ORACLE_HOME`*`\oracle_common\upgrade\bin`.

2. Enter the following command to start the Upgrade Assistant.

   (UNIX) `./ua`

   (Windows) `.\ua.bat`

## 4.8.2 Task 2: Upgrading Component Configurations

If you are running the Upgrade Assistant from an Oracle home that contains managed WebLogic domain components, then `All Configurations Used by a Domain` upgrade option is available. You can select the schemas you want to upgrade from the component list.

The Upgrade Assistant displays a sequence of screens listed in Table 4-3 when upgrading WebLogic Component Configurations. Perform the respective action(s) for each of the screens.

***Table 4-3 Upgrade Assistant Screens: Upgrading Component Configurations***

| Screen | Description and Action Required |
|---|---|
| Welcome | This screen provides an overview of the Upgrade Assistant and some information about important pre-upgrade tasks.<br>Click **Next** to continue. |
| All Configurations | Select **All Configurations Used by a Domain** to upgrade component configurations for a managed WebLogic Server domain. Click **Browse** and use the navigation tree to select a valid domain directory. A domain directory contains a config directory, which contains a config.xml file.<br>Click **Next**. |

***Table 4-3 (Cont.) Upgrade Assistant Screens: Upgrading Component Configurations***

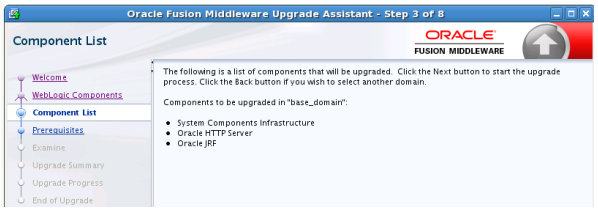
| Screen | Description and Action Required |
|---|---|
| WebLogic Server Component List | This screen provides a list of components that are included in the WebLogic domain's component configuration upgrade. The name of the domain is provided along with the list of components located within the domain.<br>Review the list of components before you proceed. |
| Prerequisites | Check if the prerequisites for component configurations upgrade are met. Check the boxes to continue. |
| UMS Configuration | Use this screen to specify the login credentials of the remote managed servers hosting your UMS 11*g* configuration files. The Upgrade Assistant automatically copies remote configuration files if all necessary prerequisites are met and the required login information is provided.<br>**Note:** If the Upgrade Assistant is unable to locate the managed servers or the configuration files, you will have to manually copy the files and then restart the Upgrade Assistant. For more information, see Error while Copying User Messaging Service (UMS) Configuration Files. |
| Examine | Review the status of the Upgrade Assistant as it examines each component, verifying that the component is ready for upgrade.<br>  |
| Upgrade Summary | Review the summary of the options that you have selected for schema upgrade.<br>Click **Upgrade** to upgrade the schemas, or click **Back** if you wish to change the configurations. |

***Table 4-3 (Cont.) Upgrade Assistant Screens: Upgrading Component Configurations***

| Screen | Description and Action Required |
|---|---|
| Upgrade Progress | This screen shows you the progress of the upgrade.<br>The Upgrade Progress status bar represents the number of upgrade processes that have been completed. It is NOT meant to identify time remaining.<br>Allow the Upgrade Assistant enough time to perform the upgrade. Do not cancel the upgrade operation unless absolutely necessary.<br>Click **Next** when the upgrade is complete. |
| Upgrade Success | Click **Close** if the Upgrade was successful. |
| Upgrade Failure | If the upgrade failed or if you canceled the upgrade before it completed successfully, review the log files, restore the backed up environment, and restart the Upgrade Assistant. Click **View Log** to troubleshoot the errors. |

# 5

# Tasks to Perform After Upgrade

The topics in this section describe the tasks you might have to perform after upgrading to Oracle Fusion Middleware 12*c* Infrastructure. Perform only those steps that apply to your upgraded environment.

Using the Upgrade Validation Checklist
: After the upgrade, make sure that you can successfully complete the basic administration tasks, such as verifying whether you are able to start the Node Manager, Administration Server, Webtier, Administration Console, and the Enterprise Manager.

Starting and Stopping Servers in the Correct Order
: Oracle recommends you to start and stop the servers in a particular order to avoid issues with the deployment.

Verifying the Domain-specific-Component Configurations Upgrade
: To verify that the domain-specific-component configurations upgrade was successful, log in to the Administration console and the Fusion Middleware Control and verify that the version numbers for each component is 12.2.1.

Reapplying Custom Configuration Settings to setDomainEnv
: To complete the upgrade of your application environment to 12*c* it might be necessary to reapply any custom configuration settings to startup scripts, such as `setDomainEnv`. During the upgrade, the scripts are overwritten with new 12*c* versions. You must manually reapply the custom configuration settings you had made in previous releases.

Configuring an Oracle Fusion Middleware 12c Audit Data Store
: If you were using a file-based audit store in your 11*g* deployment, then after the upgrade to Oracle Fusion Middleware 12*c*, you should enable the loading of audit data to a database-based Audit Data Store.

Maintaining the Security Status of Older Java EE Web Service Applications
: The introduction of global policy attachment support for Java EE web services and clients in 12*c* may impact the backwards compatibility of existing Java EE web services and clients (12.1.2 and earlier). If a Java EE web service or client endpoint that depends on the absence of a policy falls within the scope of a global policy attachment, the presence of the globally-attached policy can alter the security behavior of that endpoint.

Documentation Resources for Managing your Oracle Fusion Middleware 12c Software
: This topic provides a list of common administration tasks you likely want to perform after upgrading to Infrastructure 12*c* and associated documentation resources.

Using Your 11g Application Deployments in Oracle Fusion Middleware 12c
: After you upgrade to Oracle Fusion Middleware 12*c*, the custom Java and Application Development Framework (ADF) you previously deployed on Oracle Fusion Middleware 11*g* work as they did in Oracle Fusion Middleware 11*g*. However, there are some new features and capabilities available in ADF 12*c* and in JDeveloper 12*c*.

## 5.1 Using the Upgrade Validation Checklist

After the upgrade, make sure that you can successfully complete the basic administration tasks, such as verifying whether you are able to start the Node Manager, Administration Server, Webtier, Administration Console, and the Enterprise Manager.

---

**Note:**

The order in which you start the following servers is important and failure to start (or stop) them in the correct order can cause issues with the deployment.

For more information, see Starting and Stopping Servers in the Correct Order.

---

1. Verify that you are able to start the Node Managers.
2. Verify that you are able to start the Administration Server and any Managed Servers (if included) from the original Domain Home `bin` directory. Windows operating system users may find it useful to start the servers from a new command prompt (and not the one used to launch the 12*c* Upgrade Assistant).

   ---

   **Note:** OHS does not need a Managed Server for it's own configuration.

   ---

3. Verify that you are able to start the Webtier (OHS server).
4. Verify that you are able to access the Administration console and Enterprise Manager using the following URLs:

   Administration console: `http://machinename.my_company_com:administration_port`

   Enterprise Manager: `http://machinename.my_company_com:administration_port/em`

## 5.2 Starting and Stopping Servers in the Correct Order

Oracle recommends you to start and stop the servers in a particular order to avoid issues with the deployment.

After the Infrastructure upgrade, start all of the Administration and Managed servers for your environment and make sure that they are functioning as expected.

**Note:**

Procedures for starting and stopping Oracle Fusion Middleware, including the Administration Server, Managed Servers, and components are provided in Starting and Stopping Oracle Fusion Middleware in *Administering Oracle Fusion Middleware*.

**Start servers in the following order:**

1. Node Managers
2. Administration Server
3. Webtier (including the Oracle HTTP Server)
4. Oracle Web Services Manager (OWSM) Managed Server (if installed)
5. Service-Oriented Architecture (SOA) Managed Server (if installed)
6. Oracle Service Bus (OSB) Managed Server (if installed)
7. Business Activity Monitoring (BAM) Managed Server (if installed)

**Stop servers in the following order:**

1. Business Activity Monitoring (BAM) Managed Server (if installed)
2. Oracle Service Bus (OSB) Managed Server (if installed)
3. Service-Oriented Architecture (SOA) Managed Server (if installed)
4. Oracle Web Services Manager (OWSM) Managed Server (if installed)
5. Webtier (including the Oracle HTTP Server)
6. Admin Server
7. Node Managers

For more information on stopping servers, see Starting and Stopping Oracle Fusion Middleware in *Administering Oracle Fusion Middleware*.

Starting the Node Manager
: Node Manager is a Java utility that runs as separate process from WebLogic Server and allows you to perform common operations for a Managed Server, regardless of its location with respect to its Administration Server.

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

Starting the Webtier (Oracle HTTP Server)
: Oracle HTTP Server is the Web server component for Oracle Fusion Middleware. It provides a listener for Oracle WebLogic Server and the

framework for hosting static pages, dynamic pages, and applications over the Web.

### 5.2.1 Starting the Node Manager

Node Manager is a Java utility that runs as separate process from WebLogic Server and allows you to perform common operations for a Managed Server, regardless of its location with respect to its Administration Server.

---

**Note:**

To use a per-host Node Manager configuration, ensure that –`Dohs.product.home=<MW_HOME>` is set for `JAVA_OPTIONS` in the appropriate Node Manager script. Run the command `NodeManager.cmd|sh` if you are not using the Node Manager service. Run the command `installNodeMgrSvc.cmd` if you are using the Node Manager service.

The Host and Port used should match those used with your Upgraded setup. For more information on how to edit the Host/Port values in the file to install the Node Manager Service with the correct details, see Configuring Java Node Manager in *Oracle Fusion Middleware Node Manager Administrator's Guide for Oracle WebLogic Server*

---

To start the Node Manager:

1. Change directory to *`DOMAIN_HOME`*`/bin`
2. On the Unix operating system, enter the following command: `nohup ./startNodeManager.sh > nm.out&`

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

   On the Windows operating systems, enter the following command: `startNodeManager.cmd`

### 5.2.2 Starting the Administration Server

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

To start an Administration Server:

1. On Unix operating system, change directory to *`DOMAIN_HOME`*`/bin`

   On the Windows operating system, change directory to *`DOMAIN_HOME`*`\bin`
2. On the Unix operating system, enter the following command: `./startWebLogic.sh`

   On the Windows operating system, enter the following command: `startWebLogic.cmd`

To verify that your domain is reconfigured successfully, log in to the Administration console using the following URL, and verify that the version number displayed on the console is 12.2.1:

http://*administration_server_host*:*administration_server_port*/console

### 5.2.3 Starting the Webtier (Oracle HTTP Server)

Oracle HTTP Server is the Web server component for Oracle Fusion Middleware. It provides a listener for Oracle WebLogic Server and the framework for hosting static pages, dynamic pages, and applications over the Web.

To start Oracle HTTP Server:

1. Change directory to: *`DOMAIN_HOME`*`/bin`.
2. On the Unix operating system, enter the following command:
   `startComponent.sh` *`ohs_name`*

   On the Windows operating system, enter the following command:
   `startComponent.cmd` *`ohs_name`*

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

## 5.3 Verifying the Domain-specific-Component Configurations Upgrade

To verify that the domain-specific-component configurations upgrade was successful, log in to the Administration console and the Fusion Middleware Control and verify that the version numbers for each component is 12.2.1.

To log into the Administration Console, go to: `http://`*`administration_server_host`*`:`*`administration_server_port`*`/console`

To log into the Fusion Middleware Control, go to: `http://`*`administration_server_host`*`:`*`administration_server_port`*`/em`

---

**Note:**

After upgrade, make sure you run the administration tools from the new 12*c* Oracle home and not from the previous Oracle home.

During the upgrade process, some OWSM documents, including policy sets and predefined documents such as policies and assertion templates, may need to be upgraded. If a policy set or a predefined document is upgraded, its version number is incremented by **1**.

---

## 5.4 Reapplying Custom Configuration Settings to setDomainEnv

To complete the upgrade of your application environment to 12*c* it might be necessary to reapply any custom configuration settings to startup scripts, such as `setDomainEnv`. During the upgrade, the scripts are overwritten with new 12*c* versions. You must manually reapply the custom configuration settings you had made in previous releases.

For more information, see Re-apply Customizations to Startup Scripts.

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**Note:**

To prevent losing your custom configuration settings in a future upgrade, see Maintaining Your Custom setDomainEnv Settings (Optional).

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## 5.5 Configuring an Oracle Fusion Middleware 12c Audit Data Store

If you were using a file-based audit store in your 11*g* deployment, then after the upgrade to Oracle Fusion Middleware 12*c*, you should enable the loading of audit data to a database-based Audit Data Store.

As a part of the overall upgrade process, you should have created the IAU schema in the database where your other Oracle Fusion Middleware schemas reside. For more information about using the Audit Data Store, see Configuring and Managing Auditing in *Fusion Middleware Application Security Guide*.

## 5.6 Maintaining the Security Status of Older Java EE Web Service Applications

The introduction of global policy attachment support for Java EE web services and clients in 12*c* may impact the backwards compatibility of existing Java EE web services and clients (12.1.2 and earlier). If a Java EE web service or client endpoint that depends on the absence of a policy falls within the scope of a global policy attachment, the presence of the globally-attached policy can alter the security behavior of that endpoint.

---

**Note:**

In Fusion Middleware 12.1.2 and earlier, global policy attachments defined for SOAP Web Service and SOAP Web Service Client subject types were applicable to Oracle Infrastructure web services and clients only, and were ignored by Java EE web services and clients. After upgrading to 12*c* (12.2.1), the global policy attachments defined for these subject types apply to Java EE web services and clients, as well, and may alter the security behavior of existing Java EE web services and clients.

---

To maintain backwards compatibility, you can disable the global policy attachments for specific endpoints by attaching an OWSM no behavior policy to the service or client, such as `no_authentication_service_policy`, `no_authorization_service_policy`, or `no_messageprotection_service_policy`. For more information, see Disabling a Globally Attached Policy in *Securing Web Services and Managing Policies with Oracle Web Services Manager*.

---

**Note:**

You can use the WebLogic `Wssp1.5-No-Op.xml` no behavior policy. However, since WebLogic security policies can only be attached to web service clients programmatically, it requires code change. For more information, see Disabling a Globally Attached Policy in *Securing WebLogic Web Services for Oracle WebLogic Server*

---

## 5.7 Documentation Resources for Managing your Oracle Fusion Middleware 12*c* Software

This topic provides a list of common administration tasks you likely want to perform after upgrading to Infrastructure 12*c* and associated documentation resources.

Table 5-1 lists some common administration tasks you will likely want to perform after upgrading to Infrastructure 12*c*.

***Table 5-1 Basic Administration Tasks***

| Task | Description | More Information |
|---|---|---|
| Getting familiar with Fusion Middleware administration tools | Get familiar with the various tools available which you can use to manage your environment. | Overview of Oracle Fusion Middleware Administration Tools in *Administering Oracle Fusion Middleware*. |
| Starting and stopping products and servers | Learn how to start and stop Oracle Fusion Middleware, including the Administration Server, Managed Servers, and components. | Starting and Stopping Oracle Fusion Middleware in *Administering Oracle Fusion Middleware*. |
| Configuring Secure Sockets Layer (SSL) | Learn how to set up secure communications among between Oracle Fusion Middleware components using SSL. | Configuring SSL in Oracle Fusion Middleware in *Administering Oracle Fusion Middleware*. |
| Monitoring Oracle Fusion Middleware | Learn how to keep track of the status of Oracle Fusion Middleware components. | Monitoring Oracle Fusion Middleware in *Administering Oracle Fusion Middleware*. |
| Understanding Backup and Recovery Procedures | Learn the recommended backup and recovery procedures for Oracle Fusion Middleware. | Introducing Backup and Recovery in *Administering Oracle Fusion Middleware*. |

## 5.8 Using Your 11*g* Application Deployments in Oracle Fusion Middleware 12*c*

After you upgrade to Oracle Fusion Middleware 12*c*, the custom Java and Application Development Framework (ADF) you previously deployed on Oracle Fusion Middleware 11*g* work as they did in Oracle Fusion Middleware 11*g*. However, there are some new features and capabilities available in ADF 12*c* and in JDeveloper 12*c*.

The following sections provide some additional information about how you can migrate your applications to JDeveloper 12*c*:

- About Oracle Application Development Framework (ADF) 12*c*
- About Oracle JDeveloper 12*c*

About Oracle Application Development Framework (ADF) 12c
Oracle ADF is an end-to-end Java EE framework that simplifies application development by providing out-of-the-box infrastructure services and a visual and declarative development experience.

About Oracle JDeveloper 12c
Oracle JDeveloper is an integrated development environment that simplifies the development of Java-based applications addressing every step of the application lifecycle. JDeveloper offers complete end-to-end development for Oracle's platform and applications.

## 5.8.1 About Oracle Application Development Framework (ADF) 12*c*

Oracle ADF is an end-to-end Java EE framework that simplifies application development by providing out-of-the-box infrastructure services and a visual and declarative development experience.

Information about Oracle ADF can be found in the following Oracle Fusion Middleware 12*c* documentation library:

- *Understanding Oracle Application Development Framework*
- Oracle Application Development Framework (ADF) Common tasks page

## 5.8.2 About Oracle JDeveloper 12*c*

Oracle JDeveloper is an integrated development environment that simplifies the development of Java-based applications addressing every step of the application lifecycle. JDeveloper offers complete end-to-end development for Oracle's platform and applications.

Installing Oracle JDeveloper 12c
Oracle JDeveloper provides an embedded version of Oracle WebLogic Server that can be used to locally test your applications.

Migrating Applications Using Oracle JDeveloper 12c
After you install Oracle JDeveloper 12*c*, you can open your custom application projects in Oracle JDeveloper 12*c* and automatically migrate them to Oracle JDeveloper 12*c*.

About Migrating Asynchronous Web Services with Oracle JDeveloper 12c
If your application contains Application Development Framework Business Components (ADF BC) asynchronous Web Services, ensure that you rebuild it using Oracle JDeveloper or the `ojdeploy` command line tool to generate the required deployment descriptors in your deployment archive.

### 5.8.2.1 Installing Oracle JDeveloper 12*c*

Oracle JDeveloper provides an embedded version of Oracle WebLogic Server that can be used to locally test your applications.

To install Oracle JDeveloper 12*c*, see *Installing Oracle JDeveloper*.

For more information about using JDeveloper to test your applications, see Deploying and Testing Applications Developed in Oracle JDeveloper in *Installing Oracle JDeveloper*.

#### 5.8.2.2 Migrating Applications Using Oracle JDeveloper 12*c*

After you install Oracle JDeveloper 12*c*, you can open your custom application projects in Oracle JDeveloper 12*c* and automatically migrate them to Oracle JDeveloper 12*c*.

For more information, see Migrating to Oracle JDeveloper 12.2.1 From a Previous Version in *Installing Oracle JDeveloper*.

#### 5.8.2.3 About Migrating Asynchronous Web Services with Oracle JDeveloper 12*c*

If your application contains Application Development Framework Business Components (ADF BC) asynchronous Web Services, ensure that you rebuild it using Oracle JDeveloper or the `ojdeploy` command line tool to generate the required deployment descriptors in your deployment archive.

For more information about developing asynchronous Web Services, see Developing Asynchronous Web Services in *Developing Oracle Infrastructure Web Services*.

# A

# Running a Pre-Upgrade Readiness Check

## A.1 Starting the Upgrade Assistant with Optional Arguments

This topic describes how to run the Oracle Fusion Middleware Upgrade Assistant. You can run the Upgrade Assistant either in the Graphical User Interface (GUI) mode or in the response file mode.

You can use the optional command-line interface arguments, documented in this topic, to upgrade your Oracle Fusion Middleware components to the latest version. In addition, a response file can be generated to automate some of the upgrade tasks.

This topic contains the following sections:


Starting the Upgrade Assistant with Additional Parameters (Optional)

Starting the Upgrade Assistant in Response File Mode
Silent or “hands free” upgrades can be performed using a response file. The response file can only be created after you have provided the information in the Upgrade Assistant screens.


### A.1.1 Starting the Upgrade Assistant with Additional Parameters (Optional)

Table A-1 lists the command-line parameters you can use while running the Upgrade Assistant in the GUI mode. The following example shows the usage of these parameters on your respective operating system:

**On UNIX operating systems:**

Change directory to *ORACLE_HOME*`/oracle_common/upgrade/bin`

Enter the command: `./ua -help`

**On Windows operating systems:**

Change directory to *ORACLE_HOME*`\oracle_common\upgrade\bin`

Enter the command: `ua.bat -help`

> **Note:** If you get an Xlib error when starting the Oracle Upgrade Assistant such as "Failed to connect to server", "Connection refused by server", or "Can't open display", then you must set the DISPLAY environment variable and restart the Upgrade Assistant as described in Setting the DISPLAY Environment Variable.

***Table A-1 Upgrade Assistant GUI Command Line Parameters***

***Table A-1 (Cont.) Upgrade Assistant GUI Command Line Parameters***

| Parameter | Required or Optional Parameter? | Description |
|---|---|---|
| `-logLevel` | Optional. | Logging level. Select one of the following:<br>• TRACE<br>• NOTIFICATION<br>• WARNING<br>• ERROR<br>• INCIDENT_ERROR<br>The default logging level is NOTIFICATION.<br><br>**Note:** When troubleshooting, consider setting the `-logLevel` to `TRACE` so that more information will be logged. If additional information is not needed, change the logLevel as the Upgrade Assistant's log files can become very large when `-logLevel TRACE` is used.<br><br>**Note:** TRACE message |

***Table A-1 (Cont.) Upgrade Assistant GUI Command Line Parameters***

| Parameter | Required or Optional Parameter? | Description |
|---|---|---|
| `-logDir` | Optional.<br><br>**Note:** If you have installed the Upgrade Assistant in a read-only directory, you must specify this parameter to ensure the log directory is writable. If the log directory is read-only, the Upgrade Assistant will fail. | Change the default location of upgrade log files and temporary files. You must specify an existing, writable directory where Upgrade Assistant will create log files and temporary files.<br>On UNIX operating systems, the default locations are:<br>*ORACLE_HOME*`/oracle_common/upgrade/logs`<br>*ORACLE_HOME*`/oracle_common/upgrade/temp`<br>On Windows operating systems, the default locations are:<br>*ORACLE_HOME*`\oracle_common\upgrade\logs`<br>*ORACLE_HOME*`\oracle_common\upgrade\temp` |
| `-threads` | Optional | Identify the number of threads available for concurrent schema upgrades or readiness checks of the schemas.<br>The value must be a positive integer in the range 1 to 8. Default is 4 threads. |

***Table A-1 (Cont.) Upgrade Assistant GUI Command Line Parameters***

| Parameter | Required or Optional Parameter? | Description |
|---|---|---|
| `-readiness` | Required for Readiness Check | Performs the upgrade readiness check without performing any actual examines or upgrades.<br>Schemas and configuration are checked.<br>**Note:** -readiness option may not appear on the command line with -examine option.<br>For more information, see Performing the Readiness Check |
| `-help` | Optional. | Prints all the command-line options to the console. |

Starting the Upgrade Assistant with Optional Arguments

## A.1.2 Starting the Upgrade Assistant in Response File Mode

Silent or "hands free" upgrades can be performed using a response file. The response file can only be created after you have provided the information in the Upgrade Assistant screens.

The following topics describe how you can upgrade the supported Oracle Fusion Middleware components using a response file. The response file collects all the information that you have entered through the Upgrade Assistant's graphical user interface screens, and performs exactly the same function that the Upgrade Assistant wizard performs.

Starting the Upgrade Assistant with Optional Arguments

Creating an Upgrade Response File

Using the Response File to Upgrade Fusion Middleware

### A.1.2.1 Creating an Upgrade Response File

The **Save Response File** option on the Upgrade Summary screen creates a file that uses the information you have already provided in the Upgrade Assistant screens. The response file enables you to use the saved information instead of manually entering data through the Upgrade Assistant wizard screens.

Once you select the **Save Response File** option, you will be prompted for a name and location where you want to create this response file. After it is created, you can use it exactly as-is to replicate the upgrade options on other systems, or modify it as needed.

For more information, see Using the Response File to Upgrade Fusion Middleware.

Starting the Upgrade Assistant in Response File Mode
: Silent or "hands free" upgrades can be performed using a response file. The response file can only be created after you have provided the information in the Upgrade Assistant screens.

### A.1.2.2 Using the Response File to Upgrade Fusion Middleware

To perform upgrades using a response file from the command-line interface (CLI), use the following command:

**On Unix operating systems:**

Change directory to *ORACLE_HOME*/oracle_common/upgrade/bin

Execute the following:

```
./ua -response <response_file> [-examine] [-logLevel
<log_level>] [-logDir <log_directory>] [-threads <number>]
```

**On Windows operating systems:**

Change directory to *ORACLE_HOME*\oracle_common\upgrade\bin

Execute the following:

```
ua.bat -response <response_file> [-examine] [-logLevel
<log_level>] [-logDir <log_directory>] [-threads <number>]
```

***Table A-2 Upgrade Assistant Response File Mode Command Line Parameters***

***Table A-2 (Cont.) Upgrade Assistant Response File Mode Command Line Parameters***

| Parameter | Required or Optional Parameter? | Description |
|---|---|---|
| `-readiness` | Required for Readiness Check | Performs the upgrade readiness check without performing any actual examines or upgrades.<br>Schemas and configuration are checked.<br>**Note:** Do not specify this parameter if you have specified the `-examine` parameter.<br>For more information, see Performing the Readiness Check |
| `-threads` | Optional | Identify the number of threads available for concurrent schema upgrades or readiness checks of the schemas.<br>The value must be a positive integer in the range 1 to 8. Default is 4 threads. |
| `-response` | Required. | File containing inputs required to perform an upgrade. This file can be generated from inputs entered when the Upgrade Assistant is run in graphical mode. |

***Table A-2 (Cont.) Upgrade Assistant Response File Mode Command Line Parameters***

| Parameter | Required or Optional Parameter? | Description |
|---|---|---|
| `-examine` | Optional. | If this option is present, Upgrade Assistant performs the examine phase but DOES NOT perform any actual upgrades.<br><br>**Note:** Do not specify this parameter if you have specified the `-readiness` parameter. |

***Table A-2 (Cont.) Upgrade Assistant Response File Mode Command Line Parameters***

| Parameter | Required or Optional Parameter? | Description |
|---|---|---|
| `-logLevel` | Optional. | Logging level. Select one of the following:<br>• TRACE<br>• NOTIFICATION<br>• WARNING<br>• ERROR<br>• INCIDENT_ERROR<br>The default logging level is NOTIFICATION.<br><br>**Note:** Consider setting the `-logLevel` to `TRACE` so that more information will be logged. This will be useful when troubleshooting a failed upgrade. The Upgrade Assistant's log files can become very large if `-logLevel TRACE` is used. |

*Table A-2 (Cont.) Upgrade Assistant Response File Mode Command Line Parameters*

| Parameter | Required or Optional Parameter? | Description |
|---|---|---|
| `-logDir` | Optional. | Change the default location of upgrade log files and temporary files. You must specify an existing, writable directory where Upgrade Assistant will create log files and temporary files.<br>On UNIX operating systems, the default locations are:<br>*ORACLE_HOME*`/oracle_common/upgrade/logs`<br>*ORACLE_HOME*`/oracle_common/upgrade/temp`<br>On Windows operating systems, the default locations are:<br>*ORACLE_HOME*`\oracle_common\upgrade\logs`<br>*ORACLE_HOME*`\oracle_common\upgrade\temp` |
| `-help` | Optional. | View all of the command line options. |

Starting the Upgrade Assistant in Response File Mode

Silent or "hands free" upgrades can be performed using a response file. The response file can only be created after you have provided the information in the Upgrade Assistant screens.

## A.2 Running a Pre-Upgrade Readiness Check

You can run the Upgrade Assistant in -readiness mode to detect issues before you perform the actual upgrade. This can be done using the GUI or with silent upgrades using the response files.

The Upgrade Assistant readiness check performs a **read-only**, pre-upgrade review of your existing Oracle Fusion Middleware schemas and Oracle WebLogic configurations.

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

For more information, see the Sample Readiness Report..

**Note:** Alternatively, you can run the readiness check in -response mode to perform a silent readiness check using a response file. For more information on using a response file with the Upgrade Assistant, see Starting the Upgrade Assistant in Response File Mode.

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

Readiness checks can be run any number of times before any actual upgrades are attempted. However, do not run the readiness check after an upgrade has been performed, as the report will not provide valid results.

**Note:**

Oracle recommends that you run the readiness checks during off-peak hours to prevent possible performance degradation.

Starting the Upgrade Assistant in Readiness Mode

Performing the Readiness Check

Understanding the Readiness Report

## A.2.1 Starting the Upgrade Assistant in Readiness Mode

To perform a readiness check on your pre-upgrade environment, you will launch the Upgrade Assistant in `-readiness` mode as shown below:

1. Change directory to *`ORACLE_HOME`*`/oracle_common/upgrade/bin` on Unix operating systems or *`ORACLE_HOME`*`\oracle_common\upgrade\bin` on Windows operating systems.
2. Enter the following command to start the Upgrade Assistant.

   On UNIX operating systems:

   ```
   ./ua -readiness
   ```

   On Windows operating systems:

   ```
   ua.bat -readiness
   ```

   Provide the required information in each of the Upgrade Assistant screens. The screens you see will vary depending on the upgrade options you select. The sections below describe the upgrade options and the information you will need to provide.

Running a Pre-Upgrade Readiness Check

## A.2.2 Performing the Readiness Check

When the Upgrade Assistant is started in `-readiness` mode, the following screens appear.

Alternatively, you can run the readiness check using a response file. For more information on using a response file with the Upgrade Assistant, see Starting the Upgrade Assistant in Response File Mode.

Note that these screens are a subset of the screens you will see.

***Table A-3 Upgrade Assistant Screens: Readiness Check***

| Screen | When Screen Appears | Description |
|---|---|---|
| Welcome | Always. | This screen provides an overview of the readiness check. |
| Readiness Check Type:<br>• Individually Selected Schemas<br>• Domain Based | Always. | Readiness checks are only performed on schemas or component configurations that are at a supported upgrade starting point. There are two options to choose from. These options are described below:<br>• Readiness Check Type: Individually Selected Schemas<br>Use the **Individually Selected Schemas** option to be able to select the schemas you want to review prior to upgrade.<br>• Readiness Check Type: Domain Based<br>Use the **Domain Based** option to let the Upgrade Assistant perform a readiness check per domain. |
| Available Components | When **Individually Selected Schemas** option is selected. | This screen lists the available components for which the schemas will be selected. If you select something here, readiness check will be performed on that component's schema. |
| All Schemas Component List | Any time a schema readiness check is done. | This screen is shown any time a schema readiness check is done. This could be when you select **Individually Selected Schemas** or **Domain Based** with the **Include checks for all schemas** option. |
| Schema Credentials | Always. | Use this screen to enter information required to connect to the selected schema and the database that hosts the schema. If the schema that is to be upgraded was created by RCU in a prior Fusion Middleware release then you will see a drop-down menu listing the possible schema names. |

***Table A-3 (Cont.) Upgrade Assistant Screens: Readiness Check***

| Screen | When Screen Appears | Description |
|---|---|---|
| Readiness Summary | Always. | This screen provides a high-level overview of the readiness checks to be performed based on your selections.<br>Click **Save Response File** if you plan to run the Upgrade Assistant again in —response (or silent) mode. |
| Readiness Check | Always. | This screen displays the current status of the readiness check. Depending on what you have selected to check, the process can take several minutes.<br>For a detailed report, click **View Readiness Report**. This button appears only after all the readiness checks are complete.<br>**Caution:** To prevent performance degradation, consider running the readiness check during off-peak hours. |
| Readiness Success | If the readiness check completes successfully. | You can now review the complete report.<br>If the readiness check encounters an issue or error, review the log file to identify the issues, correct the issues, and then restart the readiness check. |

Running a Pre-Upgrade Readiness Check

## A.2.3 Understanding the Readiness Report

Now that you have completed the readiness checks for your domain, review the report to determine what actions - if any - need to be taken before the completion of a successful upgrade.

Each Readiness Report contains the following information:

| Report Information | Description | Required Action |
|---|---|---|
| Overall Readiness Status: SUCCESS or FAILURE | The top of the report indicates whether the Upgrade readiness check passed or completed with one or more errors. | If the report completed with one or more errors, search for FAIL and correct the failing issues before attempting to upgrade. You can re-run the readiness check as many times as necessary before an upgrade. |
| Timestamp | This is the date and time that the report was generated. | No action required. |
| Log file location | This is the directory location of the generated log file. | No action required. |
| Readiness Report location | This is the directory location of the generated readiness report. | No action required. |
| Names of components that were checked | The names and versions of the components included in the check and status. | If your domain includes components that cannot be upgraded to this release, such as SOA Core Extension, then do not attempt an upgrade. |
| Names of schemas that were checked | The names and current versions of the schemas included in the check and status. | Review the version numbers of your schemas. If your domain includes schemas that cannot be upgraded to this release, then do not attempt an upgrade. |
| Status: FAIL | The individual readiness check test detected an issue. | Do not upgrade until all FAILED issues have been resolved. |
| Status: PASS | The readiness check test detected no issues. | If your readiness check report shows only the PASS status, then you can upgrade your environment. Note, however, that the Readiness Check cannot detect issues with externals such as hardware or connectivity during an upgrade. You should always monitor the progress of your upgrade. |

Here is a sample Readiness Report file. Your report may or may not include all of these checks.

```
Upgrade readiness check completed with one or more errors.

This readiness check report was created on Tue Oct 30 11:15:52 EDT 2015
Log file is located at: /scratch/yourname/oracle/work/middleware_latest/
oracle_common/upgrade/logs/ua2015-10-30-11-14-06AM.log
Readiness Check Report File: /scratch/yourname/oracle/work/middleware_latest/
oracle_common/upgrade/logs/readiness2015-10-30-11-15-52AM.txt

Starting readiness check of components.

Oracle Metadata Services
   Starting readiness check of Oracle Metadata Services.
     Schema User Name: DEV11_MDS
     Database Type: Oracle Database
     Database Connect String: machinename@yourcompany.com
```

```
     VERSION Schema DEV11_MDS is currently at version 12.1.2.0.0.  Readiness checks
will now be performed.
   Starting schema test:  TEST_REQUIRED_TABLES  Test that the schema contains all
the required tables
   Completed schema test: TEST_REQUIRED_TABLES --> Test that the schema contains all
the required tables +++ PASS
   Starting schema test:  TEST_REQUIRED_PROCEDURES  Test that the schema contains
all the required stored procedures
     EXCEPTION     Schema is missing a required procedure: GETREPOSITORYFEATURES
   Completed schema test: TEST_REQUIRED_PROCEDURES --> Test that the schema contains
all the required stored procedures +++ FAIL
   Starting schema test:  TEST_REQUIRED_VIEWS  Test that the schema contains all the
required database views
   Completed schema test: TEST_REQUIRED_VIEWS --> Test that the schema contains all
the required database views +++ PASS
   Starting index test for table MDS_ATTRIBUTES:  TEST_REQUIRED_INDEXES --> Test
that the table contains all the required indexes
   Completed index test for table MDS_ATTRIBUTES: TEST_REQUIRED_INDEXES --> Test
that the table contains all the required indexes +++ PASS
   Starting index test for table MDS_COMPONENTS:  TEST_REQUIRED_INDEXES --> Test
that the table contains all the required indexes
   Completed index test for table MDS_COMPONENTS: TEST_REQUIRED_INDEXES --> Test
that the table contains all the required indexes +++ PASS
   Starting index test for table MDS_DEPENDENCIES:  TEST_REQUIRED_INDEXES --> Test
that the table contains all the required indexes
   Completed index test for table MDS_DEPENDENCIES: TEST_REQUIRED_INDEXES --> Test
that the table contains all the required indexes +++ PASS
   Starting index test for table MDS_DEPL_LINEAGES:  TEST_REQUIRED_INDEXES --> Test
that the table contains all the required indexes
   Completed index test for table MDS_DEPL_LINEAGES: TEST_REQUIRED_INDEXES --> Test
that the table contains all the required indexes +++ PASS
   Starting index test for table MDS_LABELS:  TEST_REQUIRED_INDEXES --> Test that
the table contains all the required indexes
   Completed index test for table MDS_LABELS: TEST_REQUIRED_INDEXES --> Test that
the table contains all the required indexes +++ PASS
   Starting index test for table MDS_LARGE_ATTRIBUTES:  TEST_REQUIRED_INDEXES -->
Test that the table contains all the required indexes
   Completed index test for table MDS_LARGE_ATTRIBUTES: TEST_REQUIRED_INDEXES -->
Test that the table contains all the required indexes +++ PASS
   Starting index test for table MDS_METADATA_DOCS:  TEST_REQUIRED_INDEXES --> Test
that the table contains all the required indexes
   Completed index test for table MDS_METADATA_DOCS: TEST_REQUIRED_INDEXES --> Test
that the table contains all the required indexes +++ PASS
   Starting index test for table MDS_NAMESPACES:  TEST_REQUIRED_INDEXES --> Test
that the table contains all the required indexes
   Completed index test for table MDS_NAMESPACES: TEST_REQUIRED_INDEXES --> Test
that the table contains all the required indexes +++ PASS
   Starting index test for table MDS_PARTITIONS:  TEST_REQUIRED_INDEXES --> Test
that the table contains all the required indexes
   Completed index test for table MDS_PARTITIONS: TEST_REQUIRED_INDEXES --> Test
that the table contains all the required indexes +++ PASS
   Starting index test for table MDS_PATHS:  TEST_REQUIRED_INDEXES --> Test that the
table contains all the required indexes
   Completed index test for table MDS_PATHS: TEST_REQUIRED_INDEXES --> Test that the
table contains all the required indexes +++ PASS
   Starting index test for table MDS_PURGE_PATHS:  TEST_REQUIRED_INDEXES --> Test
that the table contains all the required indexes
   Completed index test for table MDS_PURGE_PATHS: TEST_REQUIRED_INDEXES --> Test
that the table contains all the required indexes +++ PASS
   Starting index test for table MDS_SANDBOXES:  TEST_REQUIRED_INDEXES --> Test that
the table contains all the required indexes
```

```
   Completed index test for table MDS_SANDBOXES: TEST_REQUIRED_INDEXES --> Test that
the table contains all the required indexes +++ PASS
   Starting index test for table MDS_STREAMED_DOCS:  TEST_REQUIRED_INDEXES --> Test
that the table contains all the required indexes
   Completed index test for table MDS_STREAMED_DOCS: TEST_REQUIRED_INDEXES --> Test
that the table contains all the required indexes +++ PASS
   Starting index test for table MDS_TRANSACTIONS:  TEST_REQUIRED_INDEXES --> Test
that the table contains all the required indexes
   Completed index test for table MDS_TRANSACTIONS: TEST_REQUIRED_INDEXES --> Test
that the table contains all the required indexes +++ PASS
   Starting index test for table MDS_TXN_LOCKS:  TEST_REQUIRED_INDEXES --> Test that
the table contains all the required indexes
   Completed index test for table MDS_TXN_LOCKS: TEST_REQUIRED_INDEXES --> Test that
the table contains all the required indexes +++ PASS
   Starting schema test:  TEST_REQUIRED_TRIGGERS  Test that the schema has all the
required triggers
   Completed schema test: TEST_REQUIRED_TRIGGERS --> Test that the schema has all
the required triggers +++ PASS
   Starting schema test:  TEST_MISSING_COLUMNS  Test that tables and views are not
missing any required columns
   Completed schema test: TEST_MISSING_COLUMNS --> Test that tables and views are
not missing any required columns +++ PASS
   Starting schema test:  TEST_UNEXPECTED_TABLES  Test that the schema does not
contain any unexpected tables
   Completed schema test: TEST_UNEXPECTED_TABLES --> Test that the schema does not
contain any unexpected tables +++ PASS
   Starting schema test:  TEST_UNEXPECTED_PROCEDURES  Test that the schema does not
contain any unexpected stored procedures
   Completed schema test: TEST_UNEXPECTED_PROCEDURES --> Test that the schema does
not contain any unexpected stored procedures +++ PASS
   Starting schema test:  TEST_UNEXPECTED_VIEWS  Test that the schema does not
contain any unexpected views
   Completed schema test: TEST_UNEXPECTED_VIEWS --> Test that the schema does not
contain any unexpected views +++ PASS
   Starting index test for table MDS_ATTRIBUTES:  TEST_UNEXPECTED_INDEXES --> Test
that the table does not contain any unexpected indexes
   Completed index test for table MDS_ATTRIBUTES: TEST_UNEXPECTED_INDEXES --> Test
that the table does not contain any unexpected indexes +++ PASS
   Starting index test for table MDS_COMPONENTS:  TEST_UNEXPECTED_INDEXES --> Test
that the table does not contain any unexpected indexes
   Completed index test for table MDS_COMPONENTS: TEST_UNEXPECTED_INDEXES --> Test
that the table does not contain any unexpected indexes +++ PASS
   Starting index test for table MDS_DEPENDENCIES:  TEST_UNEXPECTED_INDEXES --> Test
that the table does not contain any unexpected indexes
   Completed index test for table MDS_DEPENDENCIES: TEST_UNEXPECTED_INDEXES --> Test
that the table does not contain any unexpected indexes +++ PASS
   Starting index test for table MDS_DEPL_LINEAGES:  TEST_UNEXPECTED_INDEXES -->
Test that the table does not contain any unexpected indexes
   Completed index test for table MDS_DEPL_LINEAGES: TEST_UNEXPECTED_INDEXES -->
Test that the table does not contain any unexpected indexes +++ PASS
   Starting index test for table MDS_LABELS:  TEST_UNEXPECTED_INDEXES --> Test that
the table does not contain any unexpected indexes
   Completed index test for table MDS_LABELS: TEST_UNEXPECTED_INDEXES --> Test that
the table does not contain any unexpected indexes +++ PASS
   Starting index test for table MDS_LARGE_ATTRIBUTES:  TEST_UNEXPECTED_INDEXES -->
Test that the table does not contain any unexpected indexes
   Completed index test for table MDS_LARGE_ATTRIBUTES: TEST_UNEXPECTED_INDEXES -->
Test that the table does not contain any unexpected indexes +++ PASS
   Starting index test for table MDS_METADATA_DOCS:  TEST_UNEXPECTED_INDEXES -->
Test that the table does not contain any unexpected indexes
   Completed index test for table MDS_METADATA_DOCS: TEST_UNEXPECTED_INDEXES -->
```

```
Test that the table does not contain any unexpected indexes +++ PASS
   Starting index test for table MDS_NAMESPACES:  TEST_UNEXPECTED_INDEXES --> Test
that the table does not contain any unexpected indexes
   Completed index test for table MDS_NAMESPACES: TEST_UNEXPECTED_INDEXES --> Test
that the table does not contain any unexpected indexes +++ PASS
   Starting index test for table MDS_PARTITIONS:  TEST_UNEXPECTED_INDEXES --> Test
that the table does not contain any unexpected indexes
   Completed index test for table MDS_PARTITIONS: TEST_UNEXPECTED_INDEXES --> Test
that the table does not contain any unexpected indexes +++ PASS
   Starting index test for table MDS_PATHS:  TEST_UNEXPECTED_INDEXES --> Test that
the table does not contain any unexpected indexes
   Completed index test for table MDS_PATHS: TEST_UNEXPECTED_INDEXES --> Test that
the table does not contain any unexpected indexes +++ PASS
   Starting index test for table MDS_PURGE_PATHS:  TEST_UNEXPECTED_INDEXES --> Test
that the table does not contain any unexpected indexes
   Completed index test for table MDS_PURGE_PATHS: TEST_UNEXPECTED_INDEXES --> Test
that the table does not contain any unexpected indexes +++ PASS
   Starting index test for table MDS_SANDBOXES:  TEST_UNEXPECTED_INDEXES --> Test
that the table does not contain any unexpected indexes
   Completed index test for table MDS_SANDBOXES: TEST_UNEXPECTED_INDEXES --> Test
that the table does not contain any unexpected indexes +++ PASS
   Starting index test for table MDS_STREAMED_DOCS:  TEST_UNEXPECTED_INDEXES -->
Test that the table does not contain any unexpected indexes
   Completed index test for table MDS_STREAMED_DOCS: TEST_UNEXPECTED_INDEXES -->
Test that the table does not contain any unexpected indexes +++ PASS
   Starting index test for table MDS_TRANSACTIONS:  TEST_UNEXPECTED_INDEXES --> Test
that the table does not contain any unexpected indexes
   Completed index test for table MDS_TRANSACTIONS: TEST_UNEXPECTED_INDEXES --> Test
that the table does not contain any unexpected indexes +++ PASS
   Starting index test for table MDS_TXN_LOCKS:  TEST_UNEXPECTED_INDEXES --> Test
that the table does not contain any unexpected indexes
   Completed index test for table MDS_TXN_LOCKS: TEST_UNEXPECTED_INDEXES --> Test
that the table does not contain any unexpected indexes +++ PASS
   Starting schema test:  TEST_UNEXPECTED_TRIGGERS  Test that the schema does not
contain any unexpected triggers
   Completed schema test: TEST_UNEXPECTED_TRIGGERS --> Test that the schema does not
contain any unexpected triggers +++ PASS
   Starting schema test:  TEST_UNEXPECTED_COLUMNS  Test that tables and views do not
contain any unexpected columns
   Completed schema test: TEST_UNEXPECTED_COLUMNS --> Test that tables and views do
not contain any unexpected columns +++ PASS
   Starting datatype test for table MDS_ATTRIBUTES:  TEST_COLUMN_DATATYPES_V2 -->
Test that all table columns have the proper datatypes
   Completed datatype test for table MDS_ATTRIBUTES: TEST_COLUMN_DATATYPES_V2 -->
Test that all table columns have the proper datatypes +++ PASS
   Starting datatype test for table MDS_COMPONENTS:  TEST_COLUMN_DATATYPES_V2 -->
Test that all table columns have the proper datatypes
   Completed datatype test for table MDS_COMPONENTS: TEST_COLUMN_DATATYPES_V2 -->
Test that all table columns have the proper datatypes +++ PASS
   Starting datatype test for table MDS_DEPENDENCIES:  TEST_COLUMN_DATATYPES_V2 -->
Test that all table columns have the proper datatypes
   Completed datatype test for table MDS_DEPENDENCIES: TEST_COLUMN_DATATYPES_V2 -->
Test that all table columns have the proper datatypes +++ PASS
   Starting datatype test for table MDS_DEPL_LINEAGES:  TEST_COLUMN_DATATYPES_V2 -->
Test that all table columns have the proper datatypes
   Completed datatype test for table MDS_DEPL_LINEAGES: TEST_COLUMN_DATATYPES_V2 -->
Test that all table columns have the proper datatypes +++ PASS
   Starting datatype test for table MDS_LABELS:  TEST_COLUMN_DATATYPES_V2 --> Test
that all table columns have the proper datatypes
   Completed datatype test for table MDS_LABELS: TEST_COLUMN_DATATYPES_V2 --> Test
that all table columns have the proper datatypes +++ PASS
```

```
   Starting datatype test for table MDS_LARGE_ATTRIBUTES:  TEST_COLUMN_DATATYPES_V2
--> Test that all table columns have the proper datatypes
   Completed datatype test for table MDS_LARGE_ATTRIBUTES: TEST_COLUMN_DATATYPES_V2
--> Test that all table columns have the proper datatypes +++ PASS
   Starting datatype test for table MDS_METADATA_DOCS:  TEST_COLUMN_DATATYPES_V2 -->
Test that all table columns have the proper datatypes
   Completed datatype test for table MDS_METADATA_DOCS: TEST_COLUMN_DATATYPES_V2 -->
Test that all table columns have the proper datatypes +++ PASS
   Starting datatype test for table MDS_NAMESPACES:  TEST_COLUMN_DATATYPES_V2 -->
Test that all table columns have the proper datatypes
   Completed datatype test for table MDS_NAMESPACES: TEST_COLUMN_DATATYPES_V2 -->
Test that all table columns have the proper datatypes +++ PASS
   Starting datatype test for table MDS_PARTITIONS:  TEST_COLUMN_DATATYPES_V2 -->
Test that all table columns have the proper datatypes
   Completed datatype test for table MDS_PARTITIONS: TEST_COLUMN_DATATYPES_V2 -->
Test that all table columns have the proper datatypes +++ PASS
   Starting datatype test for table MDS_PATHS:  TEST_COLUMN_DATATYPES_V2 --> Test
that all table columns have the proper datatypes
   Completed datatype test for table MDS_PATHS: TEST_COLUMN_DATATYPES_V2 --> Test
that all table columns have the proper datatypes +++ PASS
   Starting datatype test for table MDS_PURGE_PATHS:  TEST_COLUMN_DATATYPES_V2 -->
Test that all table columns have the proper datatypes
   Completed datatype test for table MDS_PURGE_PATHS: TEST_COLUMN_DATATYPES_V2 -->
Test that all table columns have the proper datatypes +++ PASS
   Starting datatype test for table MDS_SANDBOXES:  TEST_COLUMN_DATATYPES_V2 -->
Test that all table columns have the proper datatypes
   Completed datatype test for table MDS_SANDBOXES: TEST_COLUMN_DATATYPES_V2 -->
Test that all table columns have the proper datatypes +++ PASS
   Starting datatype test for table MDS_STREAMED_DOCS:  TEST_COLUMN_DATATYPES_V2 -->
Test that all table columns have the proper datatypes
   Completed datatype test for table MDS_STREAMED_DOCS: TEST_COLUMN_DATATYPES_V2 -->
Test that all table columns have the proper datatypes +++ PASS
   Starting datatype test for table MDS_TRANSACTIONS:  TEST_COLUMN_DATATYPES_V2 -->
Test that all table columns have the proper datatypes
   Completed datatype test for table MDS_TRANSACTIONS: TEST_COLUMN_DATATYPES_V2 -->
Test that all table columns have the proper datatypes +++ PASS
   Starting datatype test for table MDS_TXN_LOCKS:  TEST_COLUMN_DATATYPES_V2 -->
Test that all table columns have the proper datatypes
   Completed datatype test for table MDS_TXN_LOCKS: TEST_COLUMN_DATATYPES_V2 -->
Test that all table columns have the proper datatypes +++ PASS
   Starting permissions test for table MDS_ATTRIBUTES:  TEST_TABLE_GRANTS --> Test
that tables have the proper GRANT permissions
   Completed permissions test for table MDS_ATTRIBUTES: TEST_TABLE_GRANTS --> Test
that tables have the proper GRANT permissions +++ PASS
   Starting permissions test for table MDS_COMPONENTS:  TEST_TABLE_GRANTS --> Test
that tables have the proper GRANT permissions
   Completed permissions test for table MDS_COMPONENTS: TEST_TABLE_GRANTS --> Test
that tables have the proper GRANT permissions +++ PASS
   Starting permissions test for table MDS_DEPENDENCIES:  TEST_TABLE_GRANTS --> Test
that tables have the proper GRANT permissions
   Completed permissions test for table MDS_DEPENDENCIES: TEST_TABLE_GRANTS --> Test
that tables have the proper GRANT permissions +++ PASS
   Starting permissions test for table MDS_DEPL_LINEAGES:  TEST_TABLE_GRANTS -->
Test that tables have the proper GRANT permissions
   Completed permissions test for table MDS_DEPL_LINEAGES: TEST_TABLE_GRANTS -->
Test that tables have the proper GRANT permissions +++ PASS
   Starting permissions test for table MDS_LABELS:  TEST_TABLE_GRANTS --> Test that
tables have the proper GRANT permissions
   Completed permissions test for table MDS_LABELS: TEST_TABLE_GRANTS --> Test that
tables have the proper GRANT permissions +++ PASS
   Starting permissions test for table MDS_LARGE_ATTRIBUTES:  TEST_TABLE_GRANTS -->
```

```
Test that tables have the proper GRANT permissions
   Completed permissions test for table MDS_LARGE_ATTRIBUTES: TEST_TABLE_GRANTS -->
Test that tables have the proper GRANT permissions +++ PASS
   Starting permissions test for table MDS_METADATA_DOCS:  TEST_TABLE_GRANTS -->
Test that tables have the proper GRANT permissions
   Completed permissions test for table MDS_METADATA_DOCS: TEST_TABLE_GRANTS -->
Test that tables have the proper GRANT permissions +++ PASS
   Starting permissions test for table MDS_NAMESPACES:  TEST_TABLE_GRANTS --> Test
that tables have the proper GRANT permissions
   Completed permissions test for table MDS_NAMESPACES: TEST_TABLE_GRANTS --> Test
that tables have the proper GRANT permissions +++ PASS
   Starting permissions test for table MDS_PARTITIONS:  TEST_TABLE_GRANTS --> Test
that tables have the proper GRANT permissions
   Completed permissions test for table MDS_PARTITIONS: TEST_TABLE_GRANTS --> Test
that tables have the proper GRANT permissions +++ PASS
   Starting permissions test for table MDS_PATHS:  TEST_TABLE_GRANTS --> Test that
tables have the proper GRANT permissions
   Completed permissions test for table MDS_PATHS: TEST_TABLE_GRANTS --> Test that
tables have the proper GRANT permissions +++ PASS
   Starting permissions test for table MDS_PURGE_PATHS:  TEST_TABLE_GRANTS --> Test
that tables have the proper GRANT permissions
   Completed permissions test for table MDS_PURGE_PATHS: TEST_TABLE_GRANTS --> Test
that tables have the proper GRANT permissions +++ PASS
   Starting permissions test for table MDS_SANDBOXES:  TEST_TABLE_GRANTS --> Test
that tables have the proper GRANT permissions
   Completed permissions test for table MDS_SANDBOXES: TEST_TABLE_GRANTS --> Test
that tables have the proper GRANT permissions +++ PASS
   Starting permissions test for table MDS_STREAMED_DOCS:  TEST_TABLE_GRANTS -->
Test that tables have the proper GRANT permissions
   Completed permissions test for table MDS_STREAMED_DOCS: TEST_TABLE_GRANTS -->
Test that tables have the proper GRANT permissions +++ PASS
   Starting permissions test for table MDS_TRANSACTIONS:  TEST_TABLE_GRANTS --> Test
that tables have the proper GRANT permissions
   Completed permissions test for table MDS_TRANSACTIONS: TEST_TABLE_GRANTS --> Test
that tables have the proper GRANT permissions +++ PASS
   Starting permissions test for table MDS_TXN_LOCKS:  TEST_TABLE_GRANTS --> Test
that tables have the proper GRANT permissions
   Completed permissions test for table MDS_TXN_LOCKS: TEST_TABLE_GRANTS --> Test
that tables have the proper GRANT permissions +++ PASS
   Starting permissions test:  TEST_DBA_TABLE_GRANTS  Test that DBA user has
privilege to view all user tables
   Completed permissions test: TEST_DBA_TABLE_GRANTS --> Test that DBA user has
privilege to view all user tables +++ PASS
   Starting schema test:  TEST_ENOUGH_TABLESPACE  Test that the schema tablespaces
automatically extend if full
   Completed schema test: TEST_ENOUGH_TABLESPACE --> Test that the schema
tablespaces automatically extend if full +++ PASS
   Starting schema test:  TEST_USER_TABLESPACE_QUOTA  Test that tablespace quota for
this user is sufficient to perform the upgrade
   Completed schema test: TEST_USER_TABLESPACE_QUOTA --> Test that tablespace quota
for this user is sufficient to perform the upgrade +++ PASS
   Starting schema test:  TEST_ONLINE_TABLESPACE  Test that schema tablespaces are
online
   Completed schema test: TEST_ONLINE_TABLESPACE --> Test that schema tablespaces
are online +++ PASS
   Starting schema test:  TEST_DATABASE_VERSION  Test that the database server
version number is supported for upgrade
     INFO   Database product version: Oracle Database 11g Enterprise Edition Release
11.2.0.3.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options
   Completed schema test: TEST_DATABASE_VERSION --> Test that the database server
```

```
version number is supported for upgrade +++ PASS
   Finished readiness check of Oracle Metadata Services with status: FAILURE.

Common Infrastructure Services
   Starting readiness check of Common Infrastructure Services.
     Schema User Name: DEV1212_STB
     Database Type: Oracle Database
     Database Connect String: machinename@yourcompany.com
     VERSION Schema STB is currently at version 12.1.2.0.0.  Readiness checks will
now be performed.
   Starting schema test:  TEST_REQUIRED_TABLES  Test that the schema contains all
the required tables
   Completed schema test: TEST_REQUIRED_TABLES --> Test that the schema contains all
the required tables +++ PASS
   Completed schema test: TEST_REQUIRED_TABLES --> Test that the schema contains all
the required tables +++ PASS
   Starting schema test:  TEST_UNEXPECTED_TABLES  Test that the schema does not
contain any unexpected tables
   Completed schema test: TEST_UNEXPECTED_TABLES --> Test that the schema does not
contain any unexpected tables +++ PASS
   Starting schema test:  TEST_REQUIRED_VIEWS  Test that the schema contains all the
required database views
   Completed schema test: TEST_REQUIRED_VIEWS --> Test that the schema contains all
the required database views +++ PASS
   Starting schema test:  TEST_MISSING_COLUMNS  Test that tables and views are not
missing any required columns
   Completed schema test: TEST_MISSING_COLUMNS --> Test that tables and views are
not missing any required columns +++ PASS
   Starting schema test:  TEST_UNEXPECTED_COLUMNS  Test that tables and views do not
contain any unexpected columns
   Completed schema test: TEST_UNEXPECTED_COLUMNS --> Test that tables and views do
not contain any unexpected columns +++ PASS
   Starting schema test:  TEST_UNEXPECTED_PROCEDURES  Test that the schema does not
contain any unexpected stored procedures
   Completed schema test: TEST_UNEXPECTED_PROCEDURES --> Test that the schema does
not contain any unexpected stored procedures +++ PASS
   Starting permissions test:  TEST_DBA_TABLE_GRANTS  Test that DBA user has
privilege to view all user tables
   Starting permissions test:  TEST_DBA_TABLE_GRANTS  Test that DBA user has
privilege to view all user tables
   Completed permissions test: TEST_DBA_TABLE_GRANTS --> Test that DBA user has
privilege to view all user tables +++ PASS
   Completed permissions test: TEST_DBA_TABLE_GRANTS --> Test that DBA user has
privilege to view all user tables +++ PASS
   Starting permissions test for table COMPONENT_SCHEMA_INFO:  TEST_TABLE_GRANTS -->
Test that tables have the proper GRANT permissions
   Completed permissions test for table TEST_TABLE_GRANTS: Test that tables have the
proper GRANT permissions --> PASS +++ {3}
   Starting permissions test for table SERVICETABLE:  TEST_TABLE_GRANTS --> Test
that tables have the proper GRANT permissions
   Completed permissions test for table TEST_TABLE_GRANTS: Test that tables have the
proper GRANT permissions --> PASS +++ {3}
   Starting datatype test for table COMPONENT_SCHEMA_INFO:  TEST_COLUMN_DATATYPES_V2
--> Test that all table columns have the proper datatypes
   Completed datatype test for table COMPONENT_SCHEMA_INFO: TEST_COLUMN_DATATYPES_V2
--> Test that all table columns have the proper datatypes +++ PASS
   Starting datatype test for table SERVICETABLE:  TEST_COLUMN_DATATYPES_V2 --> Test
that all table columns have the proper datatypes
   Completed datatype test for table SERVICETABLE: TEST_COLUMN_DATATYPES_V2 --> Test
that all table columns have the proper datatypes +++ PASS
   Starting index test for table COMPONENT_SCHEMA_INFO:  TEST_REQUIRED_INDEXES -->
```

```
Test that the table contains all the required indexes
   Completed index test for table COMPONENT_SCHEMA_INFO: TEST_REQUIRED_INDEXES -->
Test that the table contains all the required indexes +++ PASS
   Starting index test for table COMPONENT_SCHEMA_INFO:  TEST_UNEXPECTED_INDEXES -->
Test that the table does not contain any unexpected indexes
   Completed index test for table COMPONENT_SCHEMA_INFO: TEST_UNEXPECTED_INDEXES -->
Test that the table does not contain any unexpected indexes +++ PASS
   Starting index test for table SERVICETABLE:  TEST_REQUIRED_INDEXES --> Test that
the table contains all the required indexes
   Completed index test for table SERVICETABLE: TEST_REQUIRED_INDEXES --> Test that
the table contains all the required indexes +++ PASS
   Starting index test for table SERVICETABLE:  TEST_UNEXPECTED_INDEXES --> Test
that the table does not contain any unexpected indexes
   Completed index test for table SERVICETABLE: TEST_UNEXPECTED_INDEXES --> Test
that the table does not contain any unexpected indexes +++ PASS
   Starting schema test:  TEST_UNEXPECTED_TRIGGERS  Test that the schema does not
contain any unexpected triggers
   Completed schema test: TEST_UNEXPECTED_TRIGGERS --> Test that the schema does not
contain any unexpected triggers +++ PASS
   Starting schema test:  TEST_ENOUGH_TABLESPACE  Test that the schema tablespaces
automatically extend if full
   Starting schema test:  TEST_ENOUGH_TABLESPACE  Test that the schema tablespaces
automatically extend if full
   Completed schema test: TEST_ENOUGH_TABLESPACE --> Test that the schema
tablespaces automatically extend if full +++ PASS
   Completed schema test: TEST_ENOUGH_TABLESPACE --> Test that the schema
tablespaces automatically extend if full +++ PASS
   Starting schema test:  TEST_ONLINE_TABLESPACE  Test that schema tablespaces are
online
   Starting schema test:  TEST_ONLINE_TABLESPACE  Test that schema tablespaces are
online
   Completed schema test: TEST_ONLINE_TABLESPACE --> Test that schema tablespaces
are online +++ PASS
   Completed schema test: TEST_ONLINE_TABLESPACE --> Test that schema tablespaces
are online +++ PASS
   Starting schema test:  TEST_USER_TABLESPACE_QUOTA  Test that tablespace quota for
this user is sufficient to perform the upgrade
   Starting schema test:  TEST_USER_TABLESPACE_QUOTA  Test that tablespace quota for
this user is sufficient to perform the upgrade
   Completed schema test: TEST_USER_TABLESPACE_QUOTA --> Test that tablespace quota
for this user is sufficient to perform the upgrade +++ PASS
   Completed schema test: TEST_USER_TABLESPACE_QUOTA --> Test that tablespace quota
for this user is sufficient to perform the upgrade +++ PASS
   Starting schema test:  TEST_DATABASE_VERSION  Test that the database server
version number is supported for upgrade
   Starting schema test:  TEST_DATABASE_VERSION  Test that the database server
version number is supported for upgrade
     INFO   Database product version: Oracle Database 11g Enterprise Edition Release
11.2.0.3.0 - 64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options
   Completed schema test: TEST_DATABASE_VERSION --> Test that the database server
version number is supported for upgrade +++ PASS
   Completed schema test: TEST_DATABASE_VERSION --> Test that the database server
version number is supported for upgrade +++ PASS
   Finished readiness check of Common Infrastructure Services with status: SUCCESS.

Finished readiness check of components.
```

Running a Pre-Upgrade Readiness Check

## A.3 Readiness Check Screens

This section describes the screens that are presented when running the Upgrade Assistant in -readiness mode.

The Upgrade Assistant can be run in `-readiness` mode before you perform the actual upgrade to detect any potential problems with the pre-upgrade environment.

For more information, see Running a Pre-Upgrade Readiness Check .

Welcome

Readiness Check Type: Individually Selected Schemas

Readiness Check Type: Domain Based

The **Domain Based** option is used to check all of the upgrade-eligible schemas and/or component configurations used by the domain. The Upgrade Assistant detects all of the schemas for you. You can check schemas and component configurations at the same time. Or, if you prefer, you can select one or the other. In either case, you must specify the **Domain Directory** that is to be reviewed.

Available Components

This screen appears if you select **Individually Selected Schemas** in the Schemas screen.

Schema Credentials

Readiness Summary

Readiness Check

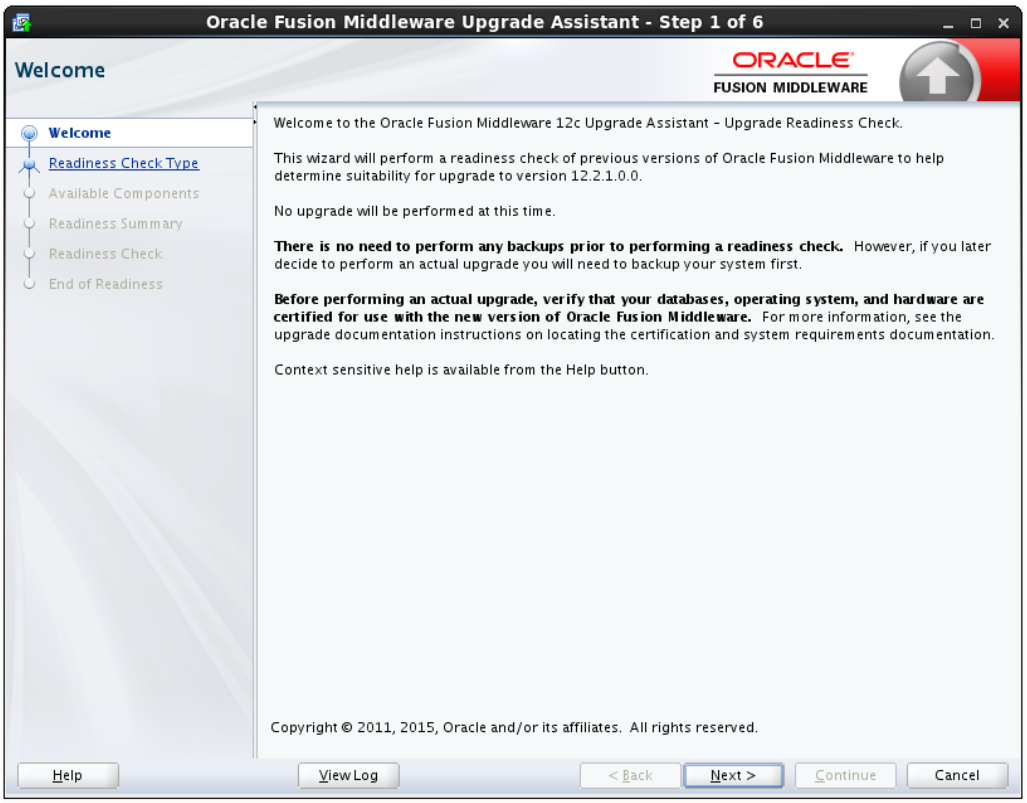
Log Viewer

Readiness Success

Sample Readiness Report

## A.3.1 Welcome

*Figure A-1 Readiness Welcome*




The Upgrade Assistant Readiness Check performs a read-only, pre-upgrade review of your existing Oracle Fusion Middleware schemas and Oracle WebLogic component configurations.

The Readiness Check provides a formatted, time-stamped Readiness Report so you can address any issues before you attempt the actual upgrade. If no issues are detected, you can begin the upgrade process.

The Upgrade Assistant Readiness Check can be run with your existing 11g or 12c domain online or offline.

---

**Note:** While readiness check ships with 12.2.1, it only checks supported pre-upgrade environments.

---

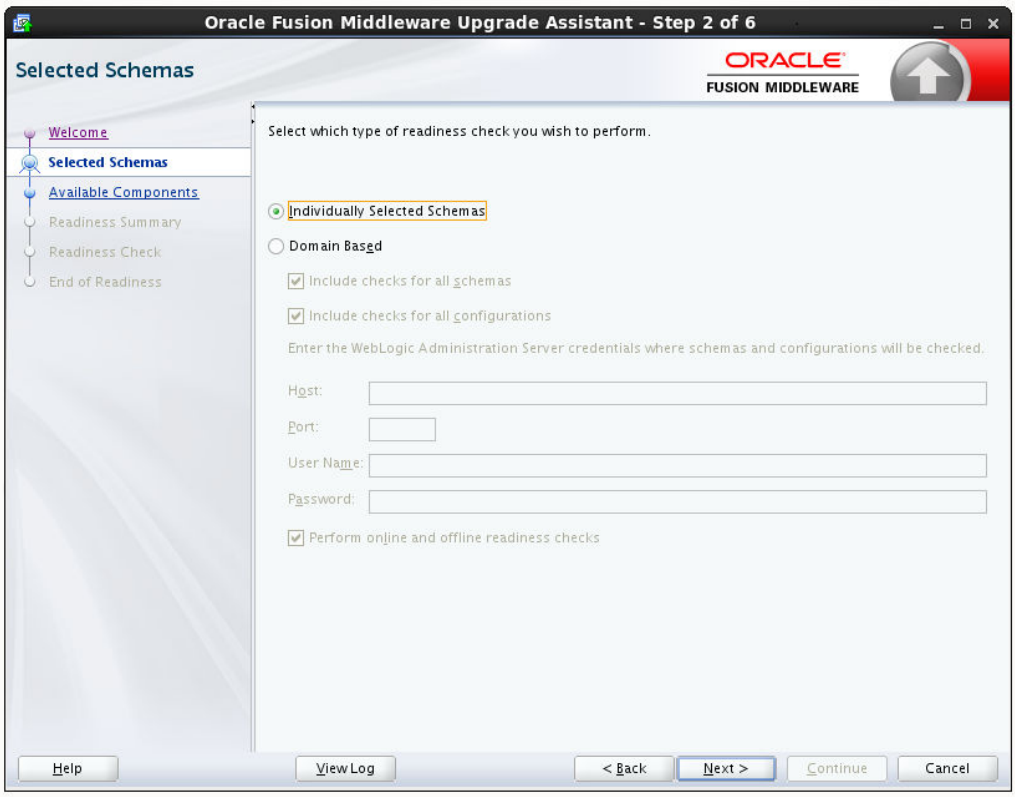
The Readiness Check can be run any number of times before the actual upgrade is performed. However, do not run after the Readiness Check after an upgrade has been performed, as the report will not provide valid results.

Oracle recommends that you read this report thoroughly before performing an upgrade.

Readiness Check Screens

## A.3.2 Readiness Check Type: Individually Selected Schemas

*Figure A-2 Individually Selected Schemas*




You have two options when running the readiness check:

- **Individually Selected Schemas**
- **Domain Based**

Select the **Individually Selected Schemas** option to limit the check to specific schemas. Click **Next** and you will be required to supply the schema credentials.

Readiness checks are performed on the schemas that you connect to. The readiness check report tells you whether a schems is supported for an upgrade, or where an upgrade is needed.

Readiness Check Screens

## A.3.3 Readiness Check Type: Domain Based

The **Domain Based** option is used to check all of the upgrade-eligible schemas and/or component configurations used by the domain. The Upgrade Assistant detects all of the schemas for you. You can check schemas and component configurations at the same time. Or, if you prefer, you can select one or the other. In either case, you must specify the **Domain Directory** that is to be reviewed.

You have several options when checking the WebLogic Server domain.

You can select one - or more - of the following options each time you run the Domain Based Readiness Check:

- **Include checks for all schemas**

  Select this option to enable the Upgrade Assistant to discover and review all components that have a schema available to upgrade.

- **Include checks for all configurations**

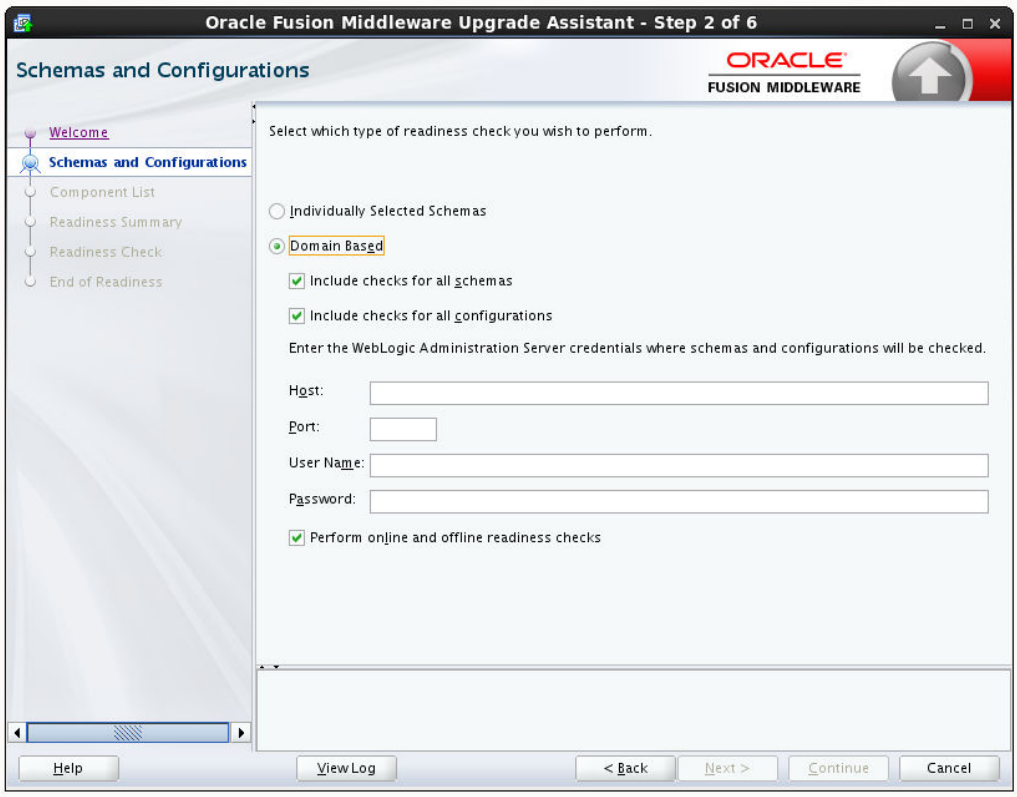
  Select this option to review component configurations for a managed WebLogic Server domain.

- **Perform online and offline readiness checks**.

  Select this option to perform additional online readiness checks . This option will require your domain to be online. You must provide the domain's host name, port, user name, and password that you plan to check.

  If you do not select this option your domain can be offline. You must provide the domain location that you plan to check.

***Figure A-3 WebLogic Server Readiness Check Options***

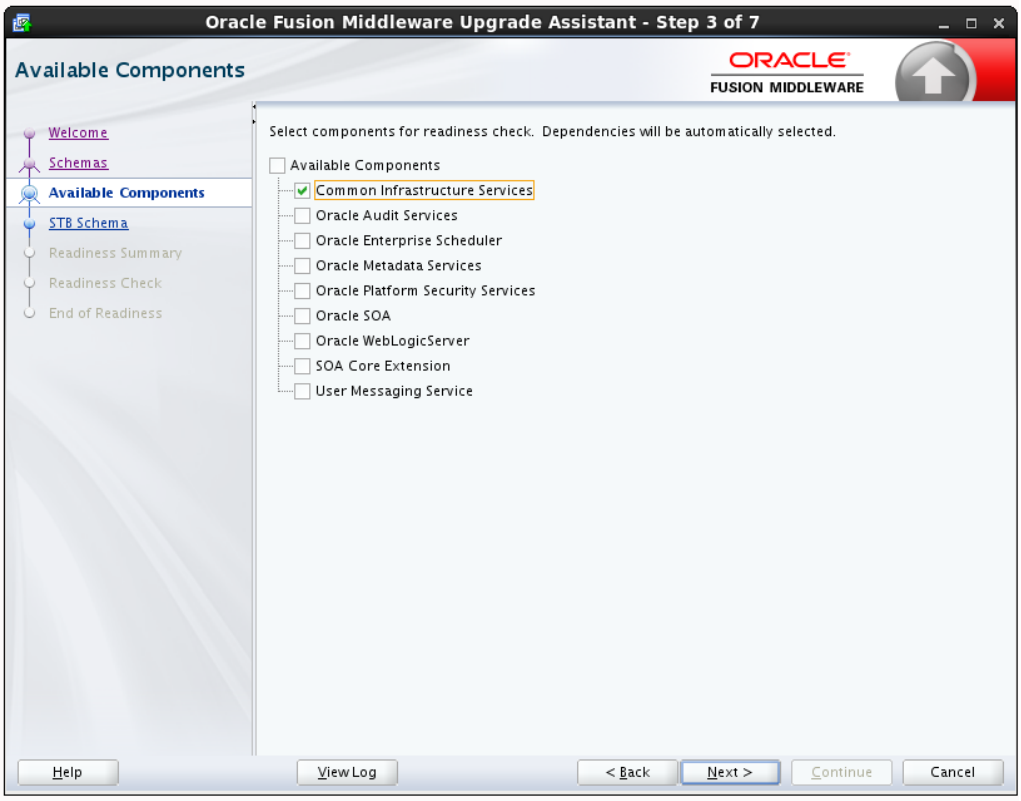



Readiness Check Screens

## A.3.4 Available Components

This screen appears if you select **Individually Selected Schemas** in the Schemas screen.

***Figure A-4 Available Components***




If you chose **Individually Selected Schemas** this screen lists the available components for which the schemas will be selected. If you select something here, readiness check will be performed on that component's schema. You must select one or more components from the list to perform readiness check on them.

Readiness Check Screens

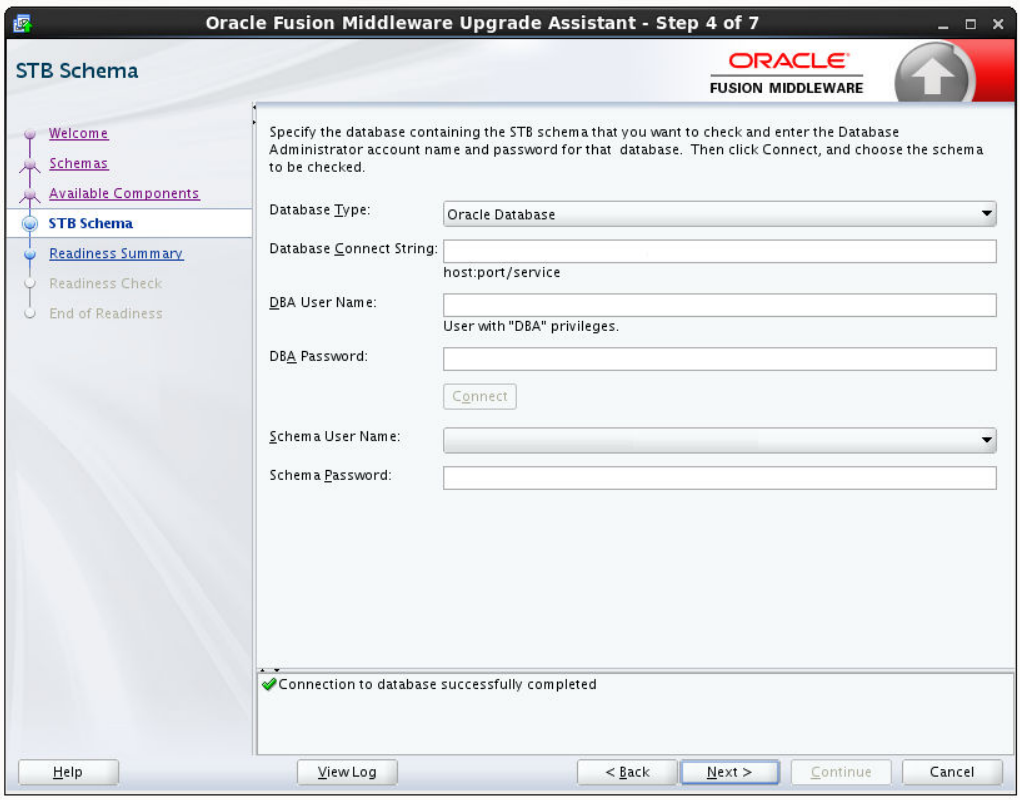
## A.3.5 Schema Credentials

Use this screen to enter information required to connect to the selected schema and the database that hosts the schema. If the schema that is to be reviewed was created by RCU in a prior Fusion Middleware release then you will see a drop-down menu listing the possible schema names as shown below.

Click **Connect** to connect to the database then select the schema to be reviewed. NOTE: Most schemas will have this information pre-populated. If, however, the Upgrade Assistant is unable to detect the connection details, then they must be entered manually as shown below.

If multiple components are selected, then the Schema Credential screens appear in dependency order.

*Figure A-5 Schema Credentials*



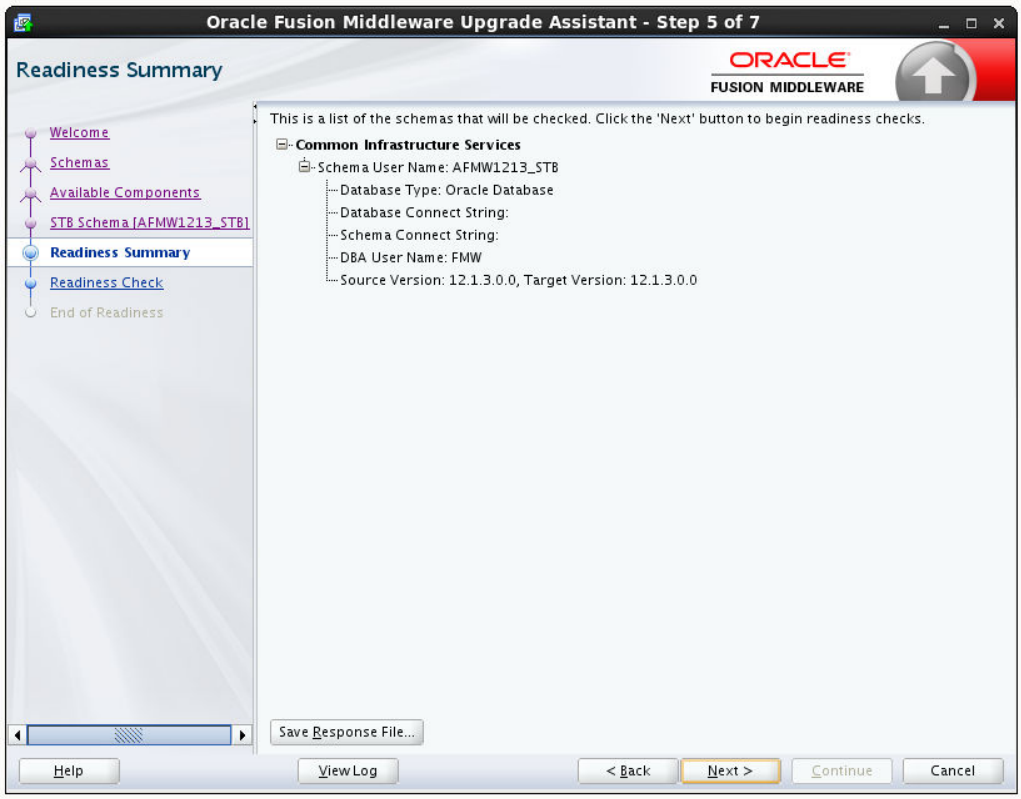

Readiness Check Screens

## A.3.6 Readiness Summary

This screen provides a high-level overview of the readiness checks performed based on your selections.

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

*Figure A-6 Readiness Summary*



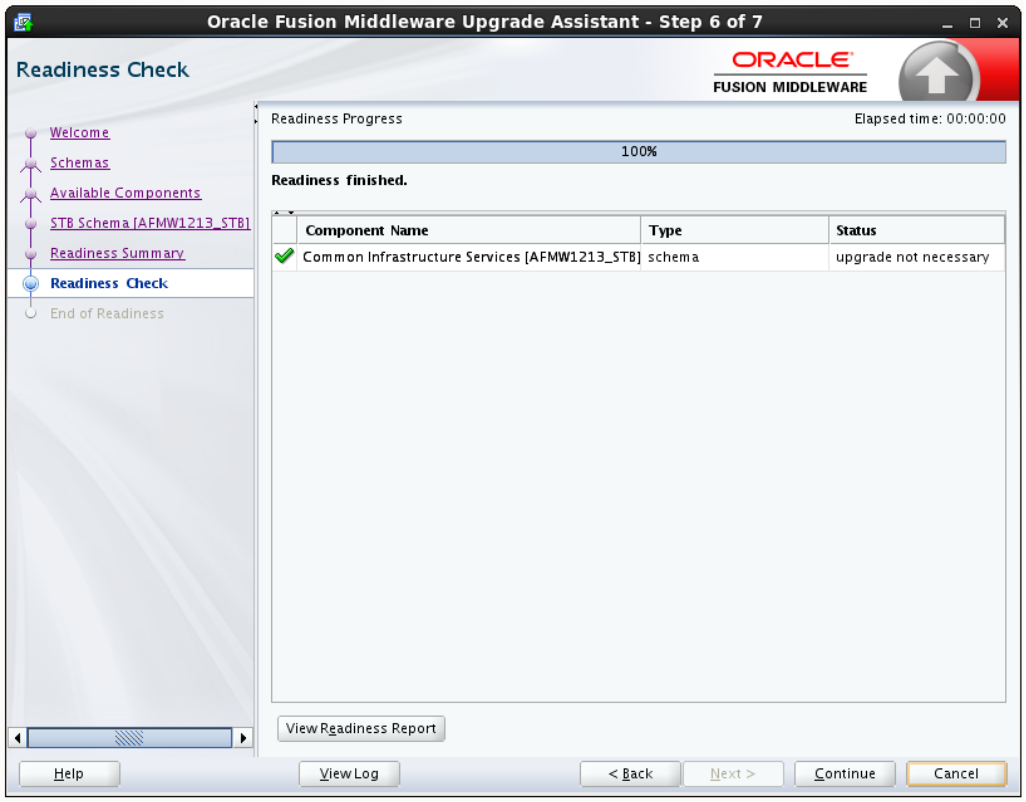

Readiness Check Screens

## A.3.7 Readiness Check

This screen shows the overall progress and completion details of the running readiness check. If you are checking multiple components, then each gets component will have its own progress bar and will be checked in parallel. Once completed, click **View Readiness Report** to see the full text report.

**CAUTION**: If you are running the readiness check on your online production environment, Oracle recommends that you perform the check during off-peak hours to prevent performance degradation.

*Figure A-7 Readiness Check Complete*



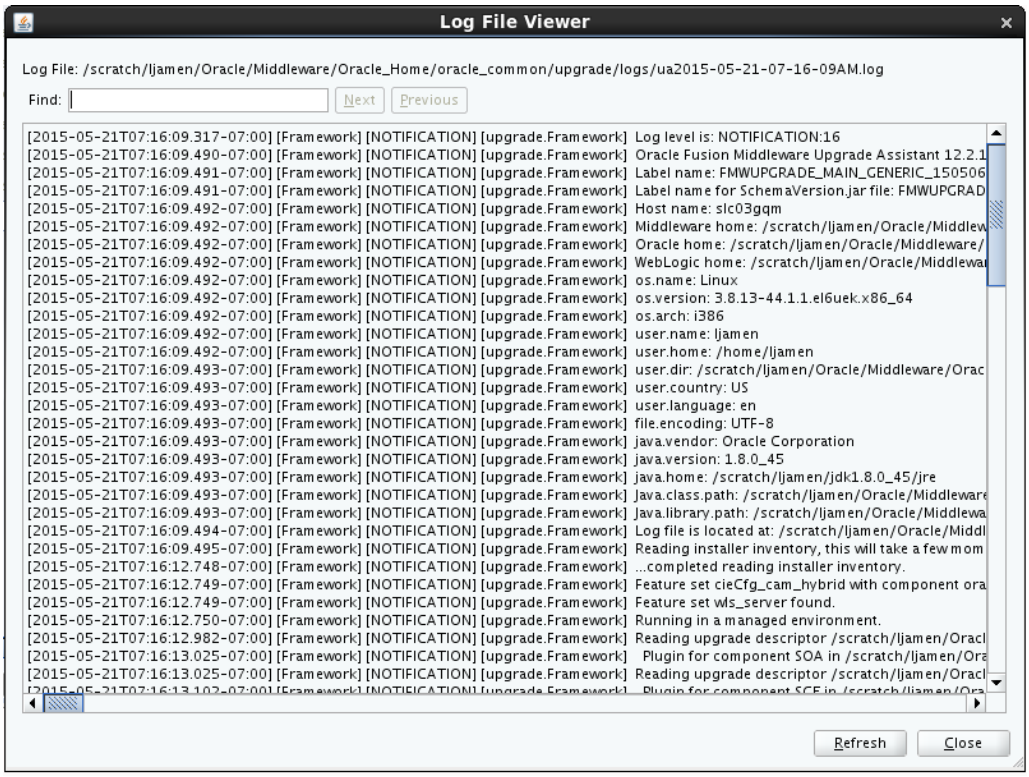

Readiness Check Screens

## A.3.8 Log Viewer

Click **View Log** from any of the screens to see the latest logged information.

The log file is managed by the command line options you set. See Starting the Upgrade Assistant with Additional Parameters (Optional) for more information.

***Figure A-8 Sample Log File***



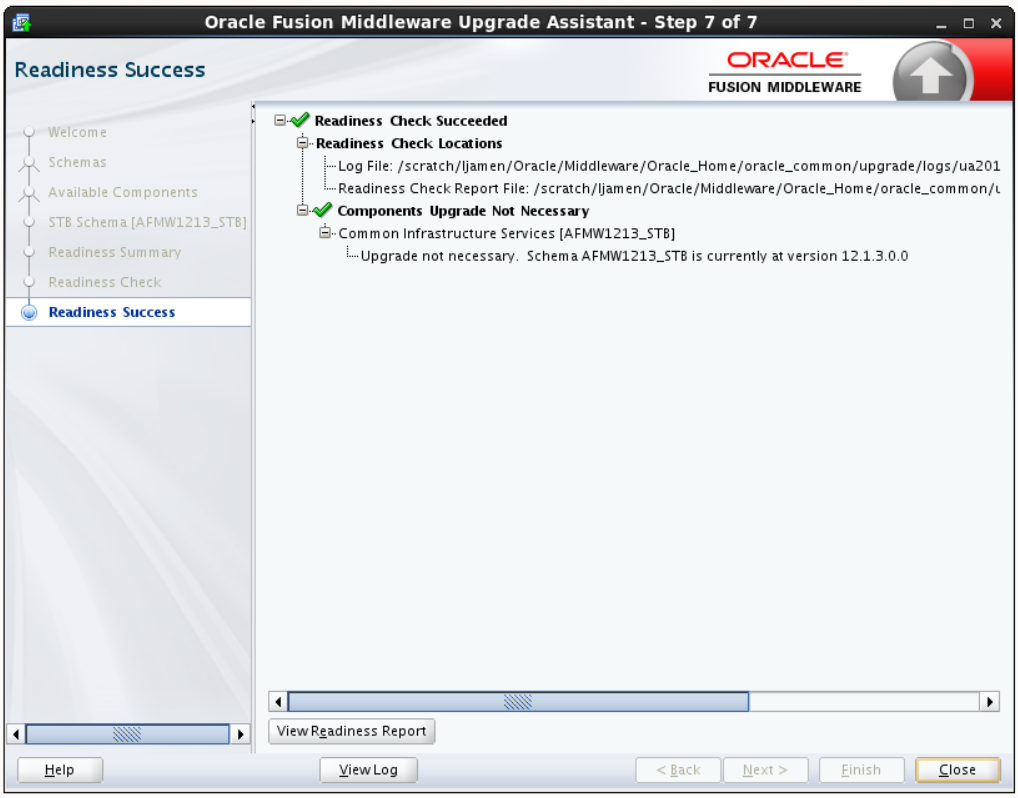

Readiness Check Screens

## A.3.9 Readiness Success

Readiness success indicates that the readiness review was successfully completed.

Even with a successful completion of the review, you should still click **View Readiness Report** and review the Readiness Report before you perform the actual upgrade.

*Figure A-9 End of Readiness: Readiness Success*



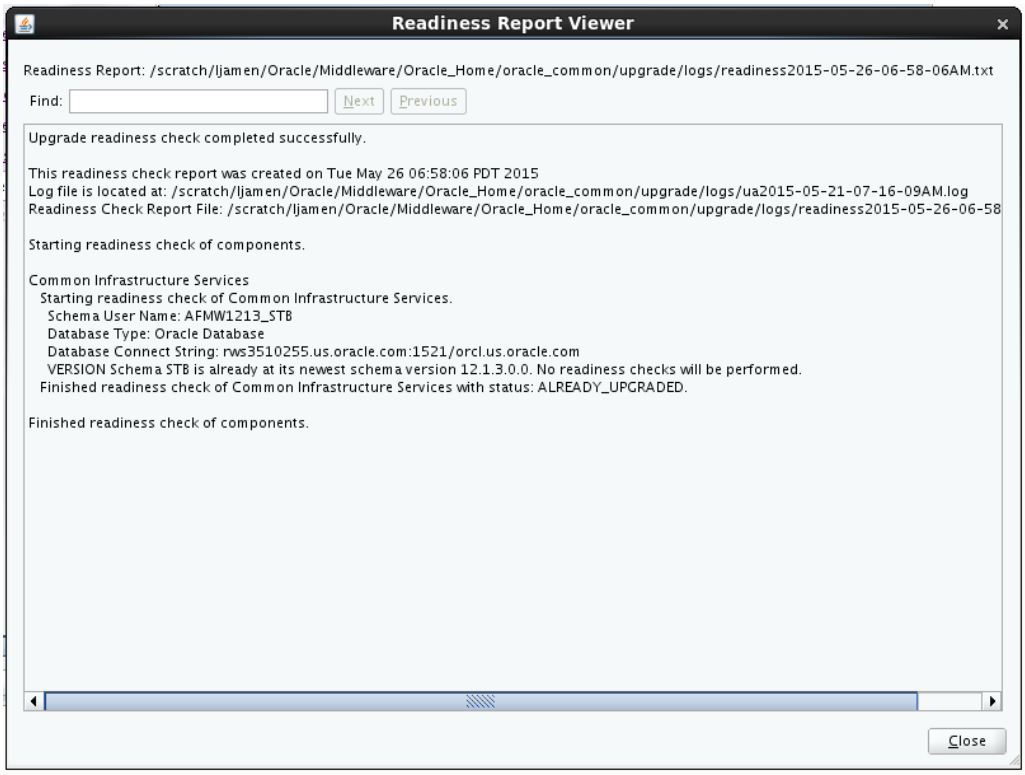

Readiness Check Screens

## A.3.10 Sample Readiness Report

A formatted Readiness Report is prepared for you after running the check. Make sure that you review the report and correct any issues before you start the actual upgrade. Use the Find option to search for a particular word within the report (such as a schema name or command, for example.)

The report also indicates where the completed Readiness Check Report file is located.

***Figure A-10 Readiness Report Viewer***




Readiness Check Screens

## A.4 Setting the DISPLAY Environment Variable

When running Upgrade Assistant in GUI mode, you must set the DISPLAY variable properly or you may receive errors such as:

**Xlib: connection to ":1.0" refused by server**

**Xlib: No protocol specified**

**Cause**: These errors indicate that the `DISPLAY` variable is not set up properly to allow a GUI to be displayed to the screen.

**Action**: Set the `DISPLAY` environment variable to the system name or IP address of your local workstation, and re-run Upgrade Assistant.

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

## A.5 Starting the Reconfiguration Wizard

The Reconfiguration Wizard (`reconfig.sh|cmd`) is available in the *`ORACLE_HOME`*`\oracle_common\common\bin` directory.

To start the Reconfiguration Wizard in graphical mode:

1. Log in to the system on which the domain resides.
2. Open command shell (on UNIX operating systems) or open command prompt window (on Windows operating systems).

3. **Edition Based Database Users Only**: If you have configured your schemas with Edition-Based Reassociation, you must manually supply a default edition name before running the Reconfiguration Wizard.

   To set the default edition, enter the following SQL command:

   ```
   ALTER DATABASE DEFAULT EDITION = edition_name;
   ```

   Where, *edition_name* is the name of the default database edition.

4. On the Unix operating system, change directory to: *ORACLE_HOME*`\oracle_common\common\bin`

   On the Windows operating system, change directory to: *ORACLE_HOME*`/oracle_common/common/bin`

   Replace the *ORACLE_HOME* with the actual path to Oracle home which you provided while installing the product.

5. To create a log file for the domain reconfiguration session, enter the following command:

   On the Unix operating system: `./reconfig.sh -log=`*log_file*

   On the Windows operating system: `reconfig.cmd -log=`*log_file*

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

---

**Note:** When you run the `reconfig.cmd` or `reconfig.sh` command and see the following error message:

`*sys-package-mgr*: can't create package cache dir`
, this indicates that the default cache directory is not valid.

You can change the cache directory by setting the environment variable *CONFIG_JVM_ARGS*. For example:

*CONFIG_JVM_ARGS*`=-Dpython.cachedir=`*valid_directory*

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