

## **Oracle® Fusion Middleware**

Planning an Upgrade of Oracle Fusion Middleware

12c (12.2.1.2)

**E77898-03**

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Provides an overview of the upgrade planning process, as well as upgrade concepts and common Fusion Middleware upgrade tasks.

Oracle Fusion Middleware Planning an Upgrade of Oracle Fusion Middleware, 12c (12.2.1.2)

E77898-03

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# Preface

This preface contains the following sections:

[Audience](#)

[Conventions](#)

## Audience

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

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

## Conventions

The following text conventions are used in this document:

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



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# Planning an Upgrade to Oracle Fusion Middleware 12c (12.2.1.2)

Before you begin an upgrade, you must understand the limitations of the upgrade and how the upgrade will impact your production environment.

Use the following procedures to get a general understanding of how to plan for an upgrade to Oracle Fusion Middleware to 12c (12.2.1.2):

## [Upgrade Planning Roadmap](#)

Oracle strongly recommends that you have a well-designed upgrade plan before starting the upgrade process.

## [Introducing Oracle Fusion Middleware 12c to 11g Users](#)

Introduction to Oracle Fusion Middleware 12c concepts and terminology for existing Oracle Fusion Middleware 11g users.

## [About the Supported Upgrade Starting Points](#)

Your pre-upgrade environment must be at a supported version of Oracle Fusion Middleware before you can upgrade.

## [About the Basic 12c Upgrade Process Flow](#)

You should understand the high-level upgrade procedures and tools used to upgrade to the 12c Fusion Middleware Infrastructure.

## [About the Basic 12c Upgrade Procedures](#)

Understand the basics of how to upgrade an Oracle Fusion Middleware deployment to 12c. Consult your component-specific upgrade documentation for the procedures you will perform for your upgrade.

## [About the Standard Upgrade Topology for 12c](#)

The standard installation topology is provided as an example and is not the only upgrade topology supported for the product.

## [About Developing a Backup Strategy for Upgrade](#)

It is important to include in your upgrade plan a strategy for creating, storing and restoring a backup in case the upgrade fails.

## [About Developing an Upgrade Testing Strategy](#)

Performing pre-upgrade testing on a cloned environment provides important data that can be applied to your overall production upgrade plan. Part of your testing strategy must also include restoring a backup of your pre-upgrade environment.

## [About Using the Upgrade Assistant to Perform a Readiness Check Before an Upgrade](#)

#### [About Planning for System Downtime During an Upgrade](#)

Before you develop a successful upgrade strategy for your Fusion Middleware deployment, it is important to understand the impact of the upgrade on your production environments. Also, the factors that might impact the overall downtime during an upgrade, for example, size of your database and speed of system's infrastructure

#### [About In-Place versus Out-of-Place Upgrades](#)

Oracle recommends that you perform your upgrades in-place. Out-of-place upgrades can be executed, but the schemas will still be upgraded in-place

#### [About Your Certification, Compatibility, and Interoperability Requirements](#)

It is important to check the cross-product interoperability and compatibility, system requirements, and certification requirements before starting the upgrade procedure.

#### [About Component Upgrade Restrictions](#)

It is important that you understand which of your integrated components can be upgraded to the latest version of Oracle Fusion Middleware.

#### [About Domain Upgrade Restrictions](#)

Some domains cannot be upgraded to 12c because of known limitations and configuration changes from the previous Oracle Fusion Middleware releases.

#### [About Obtaining Product Distributions for Your Upgrade](#)

Product distributions can be obtained from either the Oracle Software Delivery Cloud or from Oracle Technology Network.

#### [About the Upgrade and Configuration Tools](#)

Oracle Fusion Middleware 12c provides a suite of installation, upgrade, and configuration tools that automate many upgrade-related tasks.

## 1.1 Upgrade Planning Roadmap

Oracle strongly recommends that you have a well-designed upgrade plan before starting the upgrade process.

### **Should I upgrade to Oracle Fusion Middleware 12c (12.2.1.2)?**

If this is a question you are currently asking yourself, then take a minute to review the planning steps described in these sections. Upgrades can be complicated and time-consuming when you are unprepared or unfamiliar with the requirements associated with this release of Oracle Fusion Middleware.

Using this planning guide is your first step in designing your upgrade path. The Oracle Help Center and Oracle Technology Network (OTN) have additional planning resources, such as upgrade videos and links to support communities that may also be useful in your upgrade planning.

The following table describes the tasks you may be required to complete during the planning phase of your upgrade. The order in which you execute your upgrade planning tasks may vary depending on your current environment. Use this checklist for the most important pre-upgrade considerations to review. It is important to note that some of the tasks may not apply to your environment.

**Table 1-1 Upgrade Planning Roadmap**

<b>Task</b>	<b>Description</b>	<b>Documentation</b>
Understand the differences between Oracle Fusion Middleware 11g and Release 12c.	Oracle Fusion Middleware 11g users should understand the conceptual and functional differences between 11g and Release 12c before starting the upgrade process.	<a href="#">Introducing Oracle Fusion Middleware 12c to 11g Users</a>
Review the process flow for upgrading to Oracle Fusion Middleware 12c.	The process flow map shows the primary tasks related to the upgrade process.	<a href="#">About the Basic 12c Upgrade Process Flow</a>
Understand the high-level process of upgrading your existing Oracle Fusion Middleware deployment.	Upgrade is a complex process and involves system downtime. Understanding the overall process can help you plan your upgrade.	<a href="#">About the Basic 12c Upgrade Procedures</a>
Develop a backup strategy that includes all system-critical files before you start the upgrade.	You need to determine which components, files, schemas to back up before you start the upgrade. If a failure occurs, you need to restore your environment back to the original pre-upgrade state.	<a href="#">About Developing a Backup Strategy for Upgrade</a>
Develop a testing strategy.	Moving from a test environment to a production environment can be especially difficult when upgrading. Creating an upgrade testing strategy before you begin the upgrade can prevent unnecessary downtime. For example, consider performing the upgrade on a cloned production environment before executing the actual upgrade.	<a href="#">About Developing an Upgrade Testing Strategy</a>
Plan for system downtime during the upgrade process.	The upgrade process involves an "in place" upgrade for most Oracle Fusion Middleware components. You need to prepare for the system to be down during this time. To test the backup and recovery in case of a failure and to plan the downtime for the upgrade, test the upgrade process and test the restore functionality. This can also help you to plan for the scenario if something goes wrong during upgrade and the system needs to be restored.	<a href="#">About Planning for System Downtime During an Upgrade</a> <a href="#">About In-Place versus Out-of-Place Upgrades</a>

**Table 1-1 (Cont.) Upgrade Planning Roadmap**

Task	Description	Documentation
Verify that you are running a supported hardware and software versions before you upgrade.	The hardware and software hosting your existing Oracle Fusion Middleware deployment must meet certain requirements before upgrading to this release of Oracle Fusion Middleware 12c. <b>CAUTION:</b> If you cannot meet the hardware or software requirements, do not attempt an upgrade.	<a href="#">About the Supported Upgrade Starting Points</a>
Verify that your database is supported.	The 12c domain requires an Oracle database to store the new schemas. The database version that hosts the schemas used in Fusion Middleware must be supported.	<a href="#">Upgrading and Preparing Your Oracle Databases for 12c</a>
Understand which of your 11g products and features can be upgraded.	You should understand which of your components can be upgraded to this release of Oracle Fusion Middleware 12c. If you plan to use 11g components with upgraded 12c components, you should understand how the upgrade could impact interoperability or compatibility.	Products and Features Available in Oracle Fusion Middleware 12c Products and Features Not Available in Oracle Fusion Middleware 12c
Consider the impact on deployed applications and components.	If you will continue to use Fusion Middleware 11g components in your upgraded 12c environment, you should review and understand any potential interoperability and compatibility issues.	<a href="#">About Your Certification, Compatibility, and Interoperability Requirements</a>
Understand the basic rules and any restrictions for your upgrade.	To prevent any potential problems with your upgrade, you should understand some basic rules and restrictions.	<a href="#">About Component Upgrade Restrictions</a> <a href="#">About Domain Upgrade Restrictions</a>
Understand where to go to get the latest product distributions and upgrade tools.	Before you begin the upgrade, visit the Oracle Help Center and the Oracle Technology Network and become familiar with the location of product documentation, videos, and other important planning resources.	<a href="#">About Obtaining Product Distributions for Your Upgrade</a> <a href="#">About the Upgrade and Configuration Tools</a>

## 1.2 Introducing Oracle Fusion Middleware 12c to 11g Users

Introduction to Oracle Fusion Middleware 12c concepts and terminology for existing Oracle Fusion Middleware 11g users.

Oracle Fusion Middleware 11g users need to understand the changes to existing 11g terms, as well as new terms and concepts introduced in 12c.

### Common Fusion Middleware Terminology Changes

Several key concepts and terms have been redefined in 12c. It is important that you understand the new terminology before you begin your upgrade. In addition, many terms have been deprecated.

### Upgrade and Patching Terminology Changes

The upgrade and patching definitions used in Fusion Middleware 11g have been redefined in Release 12c. Review the changes to the terms below to ensure you understand which path you should take to update your existing environment.

### Using the 12c Documentation Library Resources

Upgrade documentation is organized by tasks in the 12c documentation library. The task-specific pages provide direct links to common upgrade procedures and related documentation.

## 1.2.1 Common Fusion Middleware Terminology Changes

Several key concepts and terms have been redefined in 12c. It is important that you understand the new terminology before you begin your upgrade. In addition, many terms have been deprecated.

See New and Deprecated Terminology for 12c.

## 1.2.2 Upgrade and Patching Terminology Changes

The upgrade and patching definitions used in Fusion Middleware 11g have been redefined in Release 12c. Review the changes to the terms below to ensure you understand which path you should take to update your existing environment.

- A **major release** comprises new, innovative, standard-compliant features. A major release may introduce new certifications and language support, as well as a newer Database Required Support Files, JDBC driver, and JDK dependency. For example, upgrading from 11g to 12c is a major release, while upgrading from 12.1.3.0 to 12c (12.2.1.2) is a minor release.
- A **minor release** in 12c consists of a smaller set of significant new features in addition to bug fixes to existing functionality. After you upgrade to a minor release, all the existing product configurations are supported and new configuration options may become available.
- In Release 12c, an **upgrade** is performed to acquire new features, enhancements, and bug fixes for a supported Oracle Fusion Middleware 11g deployment. The following examples show supported upgrade paths:
  - Moving from 11.1.1.7.0 or 11.1.1.9.0 to 12.2.1.2
  - Moving from 12.1.3.0 to 12.2.1.2
  - Moving from 12.2.1.1 to 12.2.1.2
- In Release 12c, a Fusion Middleware **patch set** is released to address bugs. Patch set releases do not contain new features. Patch sets replace or add a new set of binaries to an existing installation.

*Patching with OPatch* describes the new patching terminology for Release 12c.

### 1.2.3 Using the 12c Documentation Library Resources

Upgrade documentation is organized by tasks in the 12c documentation library. The task-specific pages provide direct links to common upgrade procedures and related documentation.

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

- For installation information, see Fusion Middleware Installation Documentation.
- For upgrade information, see Fusion Middleware 12c Upgrade Documentation.
- For administration-related information, see Fusion Middleware 12c Administration Documentation.
- For release-related information, see Fusion Middleware 12c Release Notes.

## 1.3 About the Supported Upgrade Starting Points

Your pre-upgrade environment must be at a supported version of Oracle Fusion Middleware before you can upgrade.

An **upgrade starting point** is a specific version of Oracle Fusion Middleware that you must be running in order to upgrade to the latest version of Oracle Fusion Middleware. If you are not running a version of Oracle Fusion Middleware that is a supported upgrade starting point, then you must first upgrade to a supported starting point using documentation from a previous release.

#### [Supported Upgrade Starting Points for Oracle Fusion Middleware 12c \(12.2.1.2\)](#)

Review the supported releases for the Oracle Fusion Middleware components you want to upgrade.

#### [What If I'm Not Running the Supported Oracle Fusion Middleware Components?](#)

If you are not running the supported Oracle Fusion Middleware components, you must first upgrade any unsupported Fusion Middleware components within your environment to a supported upgrade starting point before you begin the 12c upgrade process.

### 1.3.1 Supported Upgrade Starting Points for Oracle Fusion Middleware 12c (12.2.1.2)

Review the supported releases for the Oracle Fusion Middleware components you want to upgrade.

All of your Oracle Fusion Middleware components, servers and databases must be certified versions. While the majority of Fusion Middleware components will have the same supported starting points, some components may differ. Always review the contents of your pre-upgrade domain to ensure you have versions supported for upgrade.

#### [Supported Oracle Fusion Middleware Releases](#)

#### [Supported Oracle WebLogic Releases](#)

#### [Verify That the JDK Is Certified for This Release of Oracle Fusion Middleware](#)

#### [Supported Oracle HTTP Server Releases](#)

#### [Supported Database Versions](#)

### 1.3.1.1 Supported Oracle Fusion Middleware Releases

You can upgrade to Oracle Fusion Middleware Release 12c from the following previous versions of Oracle Fusion Middleware:

- Oracle Fusion Middleware 12c Release 1 (12.2.1.0) or (12.2.1.1)

If you are upgrading from 12c 12.2.1.0 or 12.2.1.1, you must perform a full upgrade to move to 12c (12.2.1.2) . Do not attempt to update the existing 12.2.1.0 or 12.2.1.1 domain by installing the 12.2.1.2 distributions into the same Oracle home. Upgrading the domain to 12.2.1.2 is not a patch set installation.

- Oracle Fusion Middleware 12c Release 1 (12.1.3)
- Oracle Fusion Middleware 12c Release 1 (12.1.2)
- Oracle Fusion Middleware 11g Release 1 (11.1.1.9)
- Oracle Fusion Middleware 11g Release 1 (11.1.1.8)
- Oracle Fusion Middleware 11g Release 1 (11.1.1.7)

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**Note:**

Review your component-specific upgrade guides for more information about supported starting points for the components you wish to upgrade.

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### 1.3.1.2 Supported Oracle WebLogic Releases

When planning a WebLogic Server version upgrade, you should review the Fusion Middleware Supported Systems Configurations page on Oracle Technology Network (OTN) to ensure that your upgraded environment is supported by Oracle.

For more information, see the following:

- WebLogic Server Compatibility with Previous Releases
- Roadmap for Upgrading Your Application Environment

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

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

At the time this document was published, the certified JDK for 12c (12.2.1.2) was 1.8.0\_101.

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

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

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

that you use install the JDK in the following directory: `/home/oracle/products/jdk`.

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

#### 1.3.1.4 Supported Oracle HTTP Server Releases

You can upgrade your supported Oracle HTTP Server 11g release or 12c release to the latest release as a part of the Oracle HTTP Server product distribution. For more information about upgrading Oracle HTTP Server to Oracle Fusion Middleware Release 12c (12.2.1.2), refer to the following:

- Oracle HTTP Server Interoperability
- For upgrading HTTP Server, see *Upgrading Oracle HTTP Server*

#### 1.3.1.5 Supported Database Versions

If you are not using at least the minimum supported database version, you must upgrade your database to one of the supported versions before beginning a Fusion Middleware upgrade.

For information about the latest database versions supported by Oracle Fusion Middleware Release 12c (12.2.1.2), see [Upgrading and Preparing Your Oracle Databases for 12c](#).

### 1.3.2 What If I'm Not Running the Supported Oracle Fusion Middleware Components?

If you are not running the supported Oracle Fusion Middleware components, you must first upgrade any unsupported Fusion Middleware components within your environment to a supported upgrade starting point before you begin the 12c upgrade process.

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**Caution:** Do not attempt to use any unsupported Fusion Middleware 11g components in your upgraded environment.

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To determine if your supported 11g or 12c components have any compatibility issues in this release, see [About Your Certification, Compatibility, and Interoperability Requirements](#).

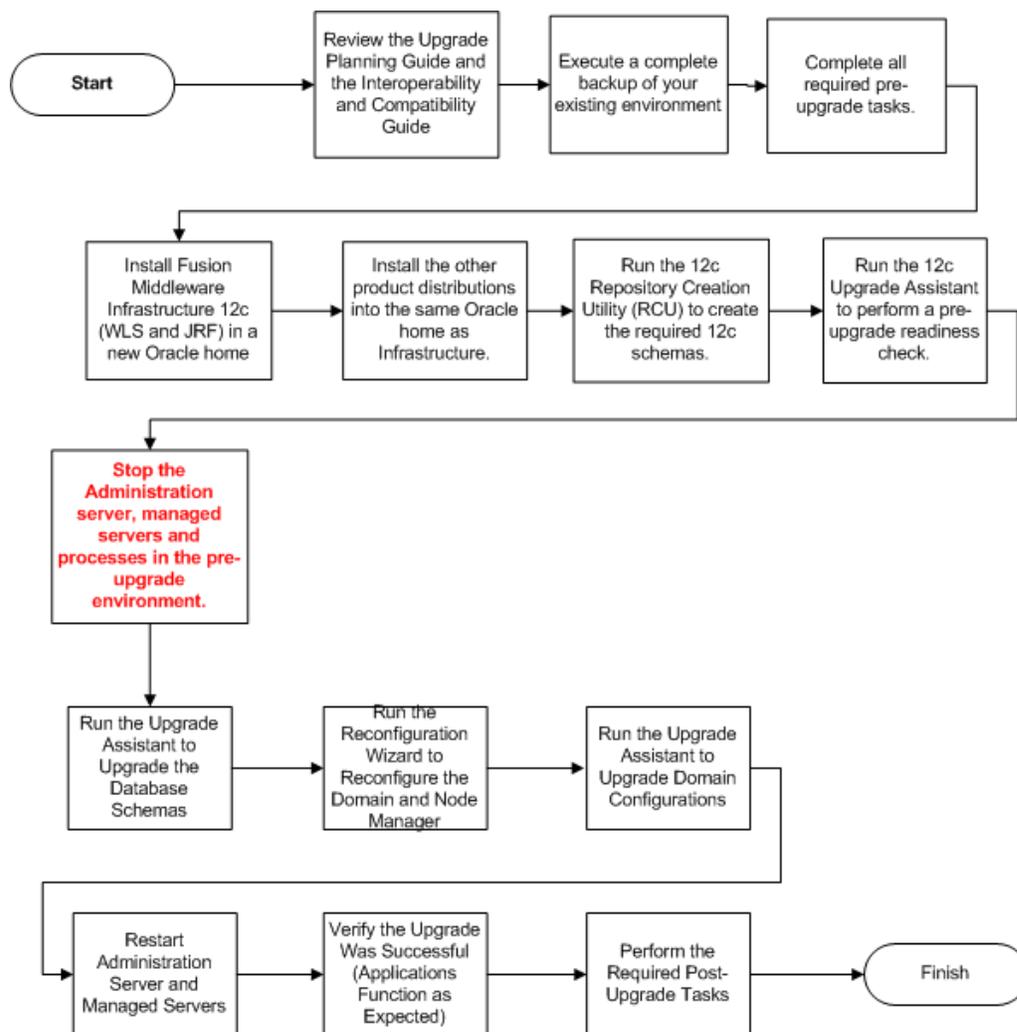
Patching and upgrade documentation for previous releases is available on the Oracle Technology Network (OTN):

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

## 1.4 About the Basic 12c Upgrade Process Flow

You should understand the high-level upgrade procedures and tools used to upgrade to the 12c Fusion Middleware Infrastructure.

**Note:** The flowchart is meant to illustrate a basic upgrade. The tasks you perform to complete your component-specific upgrade may vary from the example shown in this section. The component-specific upgrade documentation provides detailed information about the specific tasks that are required to upgrade the component.



## 1.5 About the Basic 12c Upgrade Procedures

Understand the basics of how to upgrade an Oracle Fusion Middleware deployment to 12c. Consult your component-specific upgrade documentation for the procedures you will perform for your upgrade.

A typical upgrade of Oracle Fusion Middleware 11g or previous 12c releases to this Oracle Fusion Middleware 12c release is described in this topic. There may be additional steps depending on the components that you are upgrading, but this gives you a general understanding of the upgrade process.

You can find the detailed upgrade procedures in the component-specific upgrade guides.

**Table 1-2 Understanding the Basic Upgrade Process**

Task	Tool Used
Create a complete backup copy of your existing deployment. Complete all of the required pre-upgrade tasks for your environment.	Pre-Upgrade Checklist in component upgrade guides
Install the product distributions in a new Oracle home.	Oracle Universal Installer (OUI)
Create new schemas for your Fusion Middleware components.	Repository Creation Utility (RCU)
Run a pre-upgrade readiness check to determine if your deployment is ready to be upgraded.	Upgrade Assistant (UA)
Upgrade the 11g or 12c (12.1.2,12.1.3 or 12.2.1.0, 12.2.1.1) database schemas for the components you will be upgrading.	Upgrade Assistant (UA)
Reconfigure the domain.	Reconfiguration Wizard
Upgrade component configurations.	Upgrade Assistant (UA)
Perform all required post-upgrade tasks.	Varies
Verify that the upgrade is successful. At a minimum, verify that the servers and node manager start and your applications functions as expected.	Varies

## 1.6 About the Standard Upgrade Topology for 12c

The standard installation topology is provided as an example and is not the only upgrade topology supported for the product.

Each Oracle Fusion Middleware Release 12c upgrade guide features a **standard upgrade topology**. Standard upgrade topologies are based on the **standard installation topology** described in the component-specific installation guides. Each install guide provides specific instructions for achieving the standard topology; if your needs differ, then refer to the supporting documentation.

The component-specific upgrade guides provides specific instructions for configuring an upgrade topology; if you choose to customize your selections during installation or configuration, references to supporting documentation will be provided to help you accomplish your tasks.

More information about standard topologies can be found in Using the Standard Installation Topology as a Starting Point.

## 1.7 About Developing a Backup Strategy for Upgrade

It is important to include in your upgrade plan a strategy for creating, storing and restoring a backup in case the upgrade fails.

Oracle recommends that you create a complete backup of your pre-upgrade environment before you begin an upgrade. While outside the scope of this document, you can learn more about Oracle Fusion Middleware backup and recovery strategies in these sections of *Administering Oracle Fusion Middleware*

- Introducing Backup and Recovery
- Backup and Recovery Recommendations for Oracle Fusion Middleware Components

## 1.8 About Developing an Upgrade Testing Strategy

Performing pre-upgrade testing on a cloned environment provides important data that can be applied to your overall production upgrade plan. Part of your testing strategy must also include restoring a backup of your pre-upgrade environment.

Some additional benefits include:

- 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 upgrade metadata and other artifacts
- Understand the database resource usage (such as temporary tablespace; PGA, etc).

## 1.9 About Using the Upgrade Assistant to Perform a Readiness Check Before an Upgrade

You can run the Upgrade Assistant in `-readiness` mode to detect issues before you perform actual upgrade. This can be done using the Upgrade Assistant Wizard or by using a response file to perform a silent upgrade. Performing a readiness check is optional, but Oracle highly recommends that you run one before each upgrade. Note, however, that the readiness check cannot be performed on standalone domains.

The Upgrade Assistant readiness check performs a **read-only**, pre-upgrade review of your existing Oracle Fusion Middleware schemas and Oracle WebLogic configurations.

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.

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**Note:**

Oracle recommends that you run the readiness checks during off-peak hours to prevent possible performance degradation.

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### Understanding the difference between the Examine Phase and a Readiness Check

The examine phase of the upgrade process is a separate operation from running a readiness check. Typically the readiness checks are more thorough than the checks performed during the Upgrade Assistant's examination phase. The readiness check is a read-only process performed before you start the actual upgrade, while the Examine phase occurs just before you click **Upgrade** in the Upgrade Assistant UI and identifies potential issues with the schemas and configuration data.

**CAUTION:** If you perform an upgrade and encounter issues that prevent a successful upgrade, you may have to revert to your backed-up, pre-upgrade environment and start the upgrade again. Running the readiness check can help identify some of these issues and prevent extended system downtime.

### Understanding the Readiness Report

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.

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, 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.

---

**Note:** You can also run the readiness check in `-response` mode to perform a silent readiness check using a response file.

---

## 1.10 About Planning for System Downtime During an Upgrade

Before you develop a successful upgrade strategy for your Fusion Middleware deployment, it is important to understand the impact of the upgrade on your production environments. Also, the factors that might impact the overall downtime during an upgrade, for example, size of your database and speed of system's infrastructure

Carefully consider the following when planning your downtime:

- The Upgrade Assistant requires that you shut down administration and managed servers for the entire duration of the upgrade.
- Run the pre-upgrade readiness check before you begin your actual upgrade to identify potential upgrade issues. If you encounter upgrade issues during the actual upgrade, then you must restart the upgrade process from the beginning. This includes recovering and redeploying from your backup files. You must consider this while planning and calculating the downtime.
- After upgrading the component schemas, the Reconfiguration Wizard is used to reconfigure the domain. After the domain is reconfigured, the Upgrade Assistant requires all servers and components to remain shut down during any configuration upgrades. In 12c, servers and components are down during the entire upgrade process.

## 1.11 About In-Place versus Out-of-Place Upgrades

Oracle recommends that you perform your upgrades in-place. Out-of-place upgrades can be executed, but the schemas will still be upgraded in-place

An **in-place** upgrade updates and overwrites the existing 11g or 12c files in your pre-upgrade environment. For example, upgrading schema and domain directories are performed in-place. During an **out-of-place upgrade**, however, the new binaries are installed in a new Oracle home directory and you maintain your pre-upgrade Oracle home directory. In either case, the schemas will always be upgraded in-place.

The upgrade to Oracle Fusion Middleware 12c includes upgrading both the midtier and schemas. You cannot perform a midtier-only or schema-only upgrade.

The following list describes how the upgrade is performed on each component:

- **Oracle Home Binaries - Upgraded Out-of-Place**

You install the Oracle Infrastructure (which includes WebLogic Server and JRF) and other 12c distribution binaries in a new Oracle home. The upgrade of binaries is considered Out-of-Place because the pre-upgrade binaries are not overwritten.

- **Starting Point (Source) Schemas - Upgraded In-Place**

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

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

The existing domain is upgraded in-place. During the upgrade you identify the location of the existing domain and the domain is reconfigured to point to the new 12c Oracle home directory.

---

---

**Note:** Oracle recommends that you perform your domain upgrades in-place. However, if an Out-of-Place domain upgrade is required, see *Performing an Out-of-Place Domain Directory Upgrade*. Schemas are still upgraded in-place.

---

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

After the reconfiguration of the existing domain, the Upgrade Assistant is used again to upgrade any remaining domain component configurations that require an upgrade in the new 12c Oracle home directory.

## 1.12 About Your Certification, Compatibility, and Interoperability Requirements

It is important to check the cross-product interoperability and compatibility, system requirements, and certification requirements before starting the upgrade procedure.

- For information on supported operating systems, databases, web servers, LDAP servers, adapters, IPv6, JDKs, and third-party products, see *Certification Matrix for 12c (12.2.1.2)*.
- For cross-product interoperability and compatibility, see *Understanding Interoperability and Compatibility*. This document contains important information regarding the ability of Oracle Fusion Middleware products to function with previous versions of other Oracle Fusion Middleware, Oracle, or third-party products.

## 1.13 About Component Upgrade Restrictions

It is important that you understand which of your integrated components can be upgraded to the latest version of Oracle Fusion Middleware.

Oracle strongly recommends that you practice the upgrade on a cloned production environment before you attempt to upgrade the production environment.

Additional upgrade considerations are documented in *Understanding Interoperability and Compatibility*.

## 1.14 About Domain Upgrade Restrictions

Some domains cannot be upgraded to 12c because of known limitations and configuration changes from the previous Oracle Fusion Middleware releases.

Do not attempt to upgrade a domain that is not supported. The upgrade will fail and you will have to recover from backup. For example, if you have in your existing domain a component at an unsupported version, then that domain cannot be upgraded to this release.

Other restrictions may apply. Oracle recommends that you review your component-specific upgrade guides and the release notes to ensure that your domains are not impacted by these restrictions.

## 1.15 About Obtaining Product Distributions for Your Upgrade

Product distributions can be obtained from either the Oracle Software Delivery Cloud or from Oracle Technology Network.

Oracle Fusion Middleware 12c software is available as a series of product distributions. A **distribution** is an archive with an installer that installs a pre-defined set of Oracle Fusion Middleware products and feature sets. **Feature sets** include the

products and services that are automatically installed when their corresponding product is selected.

For more information on distributions and feature sets, see *Understanding Distributions, Products, and Features*.

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.

## 1.16 About the Upgrade and Configuration Tools

Oracle Fusion Middleware 12c provides a suite of installation, upgrade, and configuration tools that automate many upgrade-related tasks.

The following tools are installed as part of the product distribution:

**Table 1-3 Installation, Upgrade and Configuration Tools**

Tool Name	Use this tool to...
Oracle Universal Installer (OUI)	Install the 12c product distributions and feature sets. Each major component has its own installation guide. These guides provide specific details about using the Universal Installer with the component.
Oracle Upgrade Assistant (UA)	Upgrade schemas, component configurations, and standalone system component configurations. Users upgrading from 11g should note that the separate Patch Set Assistant utility is no longer used for upgrading schemas. Each major component has its own upgrade guide. These guides provide specific details about using Upgrade Assistant with the component.
Repository Creation Utility (RCU)	Create schemas in your database. Depending on what you are upgrading, you may need to create schemas before you can run the Oracle Reconfiguration Wizard. The Repository Creation Utility is included in each 12c distribution, unlike Fusion Middleware 11g, which required a separate download and installation of RCU. There are new 12c schemas that may need to be created for all components before an upgrade. Consult your component-specific upgrade documentation for more information.
Oracle Configuration Wizard	Create the WebLogic domain. The Configuration Wizard simplifies the process of creating and extending a WebLogic Server domain. If you are upgrading a standalone system component, such as Oracle HTTP Server (OHS), do not use the Configuration Wizard to configure your domain. The Upgrade Assistant is used to create and configure the standalone domain.
Oracle Reconfiguration Wizard (New in 12c)	Reconfigure a domain that is using Oracle WebLogic Server. When you use the Reconfiguration Wizard to reconfigure a domain, the WLS core infrastructure and domain version are automatically updated.
OPatch	Apply patches in 12c. There are no patch set installers in 12c. The Oracle Universal Installer is used to install all major and minor releases.



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# Upgrading and Preparing Your Oracle Databases for 12c

It is important to understand the database requirements for upgrade. You may need to upgrade your database to a supported version prior to upgrade.

The following sections describe some of the tasks associated with preparing your Oracle database for an upgrade to 12c (12.2.1.2). For more information, see *Preparing to Upgrade an Oracle Database* in the *Oracle Database Upgrade Guide*.

---

**Note:**

When upgrading to 12c (12.2.1.2) your existing database must be used for the upgrade. Do not create a new database.

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### [About Finding the Latest Information About Upgrading Oracle Database](#)

Review and understand the database requirements before the upgrade. Many Oracle Fusion Middleware products require database schemas prior to domain configuration.

### [Applying the Latest Patch Set Updates and Any Required Patches](#)

It is important to understand the latest and recommended patches required to avoid any issues during the upgrade.

### [Backing Up the Schema Version Registry Table](#)

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

### [Verifying Your Database Objects Are Ready for Upgrade](#)

Before starting an upgrade, you should make sure that your supported database has no invalid objects and that the schemas you want to upgrade are at versions that are supported for upgrade.

## 2.1 About Finding the Latest Information About Upgrading Oracle Database

Review and understand the database requirements before the upgrade. Many Oracle Fusion Middleware products require database schemas prior to domain configuration.

Through its support website, Oracle provides late-breaking updates, discussions, and best practices about pre-upgrade requirements, upgrade processes, post-upgrade, compatibility, and interoperability.

Oracle also strongly recommends that you download and run the Pre-Upgrade Information Tool, which is available on My Oracle Support.

- My Oracle Support:

<http://support.oracle.com>

You can search in the library, or search on My Oracle Support for keywords, such as "Database Upgrade"

- Oracle Database Pre-Upgrade Utility (Document ID 884522.1) at My Oracle Support
- Oracle Database 12c Release 2 Upgrade Companion (Document ID 1670757.1) at My Oracle Support

To find a certified database for your operating system, see the certification document for your release on the *Oracle Fusion Middleware Supported System Configurations* page.

To make sure your database is properly configured for schema creation, see "Verifying Requirements for Oracle Repository Creation Utility" in the *Oracle Fusion Middleware System Requirements and Specifications* document.

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**Note:**

Only a certified database can be used for the standard installation topology. Do not attempt an upgrade if the database hosting the repository schemas is not supported.

---

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## 2.2 Applying the Latest Patch Set Updates and Any Required Patches

It is important to understand the latest and recommended patches required to avoid any issues during the upgrade.

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

For more information, see the Upgrade chapter of the Release Notes for your platform. For example, if you are using a Linux operating system, refer to "Patches Required to Address Specific Upgrade and Compatibility Requirements" in the *Oracle® Application Server Release Notes*.

For additional information about database patching requirements, see "Review System Requirements and Specifications" in the *Planning an Installation of Oracle Fusion Middleware*.

## 2.3 Backing Up the Schema Version Registry Table

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

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

---

---

**Note:** Performing these backups prior to performing a schema upgrade is a prerequisite for running the Upgrade Assistant. During the upgrade you will be required to acknowledge that backups have been performed.

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## 2.4 Verifying Your Database Objects Are Ready for Upgrade

Before starting an upgrade, you should make sure that your supported database has no invalid objects and that the schemas you want to upgrade are at versions that are supported for upgrade.

It is important to know whether or not your schemas are ready for upgrade because schemas are upgraded in place, which means that the existing database schemas are upgraded.

[Task 1: Verifying Schema Versions](#)

[Task 2: Checking for Invalid Database Objects](#)

### 2.4.1 Task 1: Verifying Schema Versions

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.

Before you run the Upgrade Assistant, make sure that you have verified that the schemas you want to upgrade are supported for an upgrade to this version of Oracle Fusion Middleware.

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 ;
```

If the number in the "VERSION" is at 11.1.1.7.0 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.

### 2.4.2 Task 2: Checking for Invalid Database Objects

If you are using an Oracle database, you should recompile database objects before running the Upgrade Assistant to check for invalid objects before the upgrade. Connect to the database as SYS and run the following from SQL\*Plus:

```
SELECT owner, object_name FROM all_objects WHERE status='INVALID' ;
```

Take note of any invalid objects and run the following query for more information. The existence of invalid database objects may prevent the upgrade from completing successfully.

```
oracle_home/software/rdbms/admin/utlpr.sql
```

To recompile just the objects that belong to a single Oracle Fusion Middleware schema, you can use the Oracle Database stored procedure `dbms_utility.compile_schema` as shown in the example below:

```
SQL> execute
dbms_utility.compile_schema('1213_IAU');
PL/SQL procedure successfully completed
```

---

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**Note:**

These procedures should be used again after running the Upgrade Assistant for verification.

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# Performing an Out-of-Place Domain Directory Upgrade

By default, Fusion Middleware upgrades are performed in-place, which overwrites the existing domain directory. However, you have the option of upgrading to 12c12c (12.2.1.2) using a different domain directory. This option is called an out-of-place upgrade and it allows you to keep your existing domain directory intact.

Perform these tasks to complete an out-of-place upgrade:

## [About Upgrading a Domain Directory Out of Place](#)

It is important to understand whether to perform in-place or out-of-place domain directory upgrade.

## [Performing an Out-of-Place Domain Directory Upgrade on the Same Host](#)

Understanding the procedure of performing an out-of-place domain directory upgrade on the same host.

## [Performing an Out-of-Place Domain Directory Upgrade on a Different Host](#)

Understanding the procedure to perform an out-of-place upgrade on a different host.

## [Deinstalling the 11g Applications \(Optional\)](#)

Procedure to deinstall the 11g applications and domain setup.

## A.1 About Upgrading a Domain Directory Out of Place

It is important to understand whether to perform in-place or out-of-place domain directory upgrade.

When upgrading from Oracle Fusion Middleware 11g or a previous 12c release to 12c (12.2.1.2), schemas and domain directory upgrades are performed "in-place" which updates the existing 11g or 12c files during the upgrade.

If you prefer to leave your existing domain directory intact, you can perform an out-of-place domain directory upgrade using a new domain directory on the same - or different - host using the steps described in this chapter.

---

**Caution:**

When performing an out-of-place domain directory upgrade to , it is important to note that the existing 11g or 12c (12.1.3.0.0, 12.2.1.0.0, 12.2.1.1.0, and 12.2.1.2.0) schemas will be upgraded in-place. Your pre-upgrade environment must be shut down during the out-of-place domain directory upgrade process.

---

## A.2 Performing an Out-of-Place Domain Directory Upgrade on the Same Host

Understanding the procedure of performing an out-of-place domain directory upgrade on the same host.

Perform the following tasks to complete the out-of-place domain directory upgrade on the same host at the existing domain:

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**Note:**

If you are upgrading domain that is on a different host, see [Performing an Out-of-Place Domain Directory Upgrade on a Different Host](#).

---

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**Note:**

The Fusion Middleware 12c certification matrix includes only 12.1 databases. Hence, the reference to 11 in these procedures is to the Fusion Middleware 11g schemas and not to the Oracle 11g database version.

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[Task 1: Stop all processes, including the Administration Server, Managed Servers, and Node Manager.](#)

[Task 2: Backup all files from the existing domain.](#)

[Task 3: Restore the 11g domain backup files to a new location.](#)

[Task 4: Install the 12c \(12.2.1.2\) distributions in a new Oracle Home.](#)

[Task 5: Upgrade the cloned environment using the standard upgrade procedures.](#)

[Task 6: Validate that the newly upgraded domain functions as expected.](#)

### A.2.1 Task 1: 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.

Do not stop the database before starting the upgrade.

#### [Stopping Servers and Processes](#)

Before running the Upgrade Assistant to upgrade your schemas and configurations, you must shut down all processes and servers, including the Administration server and any managed servers.

#### A.2.1.1 Stopping Servers and Processes

Before running the Upgrade Assistant to upgrade your schemas and configurations, you must shut down all processes and servers, including the Administration server and any managed servers.

An Oracle Fusion Middleware environment can consist of an Oracle WebLogic Server domain, an Administration Server, multiple managed servers, Java components,

system components such as Identity Management components, and a database used as a repository for metadata. The components may be dependent on each other so they must be stopped in the correct order.

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**Note:** The procedures in this section describe how to stop servers and processes using the WLST command-line utility or a script. You can also use the Oracle Fusion Middleware Control and the Oracle WebLogic Server Administration Console. See Starting and Stopping Administration and Managed Servers and Node Manager in *Administering Oracle Fusion Middleware*.

---

---

To stop your Fusion Middleware environment, follow the steps below.

### Step 1: Stop System Components

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

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

You can stop system components in any order.

### Step 2: Stop the Managed Servers

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

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

When prompted, enter your user name and password.

### Step 3: Stop Oracle Identity Management Components

Stop any Oracle Identity Management components, such as Oracle Internet Directory, that form part of your environment:

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

### Step 4: Stop the Administration Server

When you stop the Administration Server, you also stop the processes running in the Administration Server, including the WebLogic Server Administration Console and Fusion Middleware Control.

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

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

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

### Step 5: Stop Node Manager

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

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

## A.2.2 Task 2: Backup all files from the existing domain.

Make sure that you have created a complete backup of your entire pre-upgrade 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.

For more information on backing up your files, see "[Backing Up Your Environment](#)" in the *Oracle® Fusion Middleware Administrator's Guide*.

During the upgrade you must have "read" access to the files in the backup storage:

- 11g or previous 12c domain home
- The `/nodemanager` directory located in the `MW_HOME/wlserver_10.3/common/`

For more information, see "[Backing Up Your Environment](#)" in the *Oracle® Fusion Middleware Administrator's Guide*. Do not proceed with the upgrade until you have a complete backup.

## A.2.3 Task 3: Restore the 11g domain backup files to a new location.

Copy the files you backed up in [Task 2: Backup all files from the existing domain](#). to a new location using the same directory structure that was used for the existing environment. The directory structure you create for the upgrade must be identical to the structure used for the original environment.

You will point to this location in [Task 5: Upgrade the cloned environment using the standard upgrade procedures](#).

## A.2.4 Task 4: Install the 12c (12.2.1.2) distributions in a new Oracle Home.

You must obtain, install and configure the 12c (12.2.1.2) product distributions for the components you will be upgrading.

For detailed instructions, see *Planning an Installation of Oracle Fusion Middleware* and the component-specific installation guides for the component(s) you are installing.

## A.2.5 Task 5: Upgrade the cloned environment using the standard upgrade procedures.

Perform the upgrade on the domain you created in [Task 3: Restore the 11g domain backup files to a new location](#).

Each component has an upgrade guide that describes the procedures required to upgrade from your Oracle Fusion Middleware 11g or previous 12c infrastructure topology to the new 12c (12.2.1.2) topology. The guides are located in the Upgrade tab of the Oracle Fusion Middleware 12c (12.2.1) online library.

### Creating a Non-SYSDBA User to Run the Upgrade Assistant

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

### Using the Upgrade Assistant to Run a Pre-Upgrade Readiness Check

For most components, the Upgrade Assistant can be run in **-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.

#### A.2.5.1 Creating a Non-SYSDBA User to Run the Upgrade Assistant

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

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

---

**Notes:** If you created the non-SYSDBA user `FMW` in a previous release, you must drop and recreate this user before starting the upgrade. Running the Upgrade Assistant with an older `FMW` user may lead to a failed upgrade as new privileges may have been added. Oracle recommends that you drop and recreate the user instead of modifying the existing `FMW` user.

By default, the `v$xatrans$` table does not exist. You must run the `XAVIEW.SQL` script to create this table before creating the user. Moreover, the `grant select` privilege 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;
```

---

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_$ASM_DISKGROUP to FMW with grant option;
grant select on v$xsatrans$ 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;
grant select on dba_subscr_registrations to FMW with grant option;
grant manage scheduler to FMW;
```

---

---

**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.

---

---

### A.2.5.2 Using the Upgrade Assistant to Run a Pre-Upgrade Readiness Check

For most components, the Upgrade Assistant can be run in **-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.

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. Consider running the check during off-peak hours.

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

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. To start the Upgrade Assistant on UNIX operating systems:  

```
./ua -readiness
```
3. To start the Upgrade Assistant on Windows operating systems:  

```
ua.bat -readiness
```
4. Provide the required information in each of the Upgrade Assistant screens.

The screens you see will vary depending on the upgrade options you select. Consult your component-specific upgrade documentation for complete details.

### A.2.6 Task 6: Validate that the newly upgraded domain functions as expected.

Perform the usual administration tasks using the new domain and verify that the components work as expected.

You do not need to decommission the 11g Oracle home, however if you would like to remove it, see [Deinstalling the 11g Applications \(Optional\)](#).

## A.3 Performing an Out-of-Place Domain Directory Upgrade on a Different Host

Understanding the procedure to perform an out-of-place upgrade on a different host.

Perform these steps to complete an out-of-place upgrade on a different host.

The Fusion Middleware 12c certification matrix includes 12.1 databases, therefore, the reference to 11 in this chapter is to the Fusion Middleware 11g schemas and not to the Oracle 11g database version.

[Task 1: Stop all processes, including the Administration Server, Managed Servers, and Node Manager. \(Host A\)](#)

[Task 2: Backup all files from the host machine. \(Host A\)](#)

[Task 3: Set up the target machine \(Host B\) with the 11g host name and IP address.](#)

[Task 4: Restore the 11g domain backup from Host A to Host B.](#)

[Task 5: Install the product distributions in a new Oracle Home. \(Host B\)](#)

[Task 6: Upgrade the environment using the standard upgrade procedures. \(Host B\)](#)

[Task 7: Validate that the newly upgraded domain functions as expected.](#)

### A.3.1 Task 1: Stop all processes, including the Administration Server, Managed Servers, and Node Manager. (Host A)

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:

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

### A.3.2 Task 2: Backup all files from the host machine. (Host A)

Make sure that you have created a complete backup of your entire 11g 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.

For more information on backing up your files, see ["Backing Up Your Environment"](#) in the *Oracle® Fusion Middleware Administrator's Guide*.

During the upgrade you must have "read" access to the files in the backup storage:

- 11g Domain Home
- The /nodemanager directory located in the MW\_HOME/wlserver\_10.3/common/

### A.3.3 Task 3: Set up the target machine (Host B) with the 11g host name and IP address.

The host name and IP address of the target machine (Host B) must be made identical to the source host (Host A). This will 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.

### A.3.4 Task 4: Restore the 11g domain backup from Host A to Host B.

Restore the files you backed up in [Task 2: Backup all files from the host machine. \(Host A\)](#) using the same directory structure that was used in 11g. The directory structure on Host B must be identical to the structure used on Host A.

For detailed information about restoring your files to the target machine, see ["Recovering Your Environment"](#) in *Oracle® Fusion Middleware Administrator's Guide*.

### A.3.5 Task 5: Install the product distributions in a new Oracle Home. (Host B)

You must obtain, install and configure the product distributions for the components you will be upgrading.

For detailed instructions, see *Planning an Installation of Oracle Fusion Middleware* and the component-specific installation guides for the component(s) you are installing.

### A.3.6 Task 6: Upgrade the environment using the standard upgrade procedures. (Host B)

Each 12c (12.2.1) component has an upgrade guide that describes the procedures required to move from your 11g (11.1.1.6 or 11.1.1.7) or 12c (12.1.2 or 12.1.3) infrastructure topology to the new 12c (12.2.1) topology. The guides are located in the Upgrade tab of the Oracle Fusion Middleware 12c (12.2.1) online library.

The Node Manager upgrade procedure requires access to the original Node Manager files. Use the 11g Node Manger files that were backed up from the source machine as part of [Task 3: Set up the target machine \(Host B\) with the 11g host name and IP address.](#)

### A.3.7 Task 7: Validate that the newly upgraded domain functions as expected.

Perform the usual administration tasks using the new domain and verify that the components work as expected.

You do not need to decommission the 11g Oracle home, however if you would like to remove it, see [Deinstalling the 11g Applications \(Optional\)](#).

## A.4 Deinstalling the 11g Applications (Optional)

Procedure to deinstall the 11g applications and domain setup.

While not required, you can use these steps to deinstall the 11g application and domain setup after the upgrade. **Do not deinstall a domain that is still being referenced by a non-upgraded component.** If you are unsure, leave the domain intact.

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#### Note:

The commands mentioned in this section must be run from the 11g Oracle Home that you are removing and not from the new home that was created as part of the 12c upgrade process.

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1. Shutdown all the 11g servers and processes (including the Admin Server, Managed Servers and Node Manager). For more information see [Starting and Stopping Oracle WebLogic Server Administration and Managed Servers](#) in the *Oracle® Fusion Middleware Administrator's Guide*.
2. To remove the Oracle Home, start the Oracle Universal Installer in -deinstall mode.
 

```
(UNIX) ORACLE_HOME/oui/bin
./runInstaller.sh -deinstall
(Windows) ORACLE_HOME\oui\
binsetup.exe -deinstall
```
3. On the Deinstall screen, specify the 11g Oracle Home to deinstall. Click **Deinstall** to continue.
4. On the Warning screen, select whether or not you want the OUI to remove the Oracle Home directory. Click **Yes** to have OUI remove the software and Oracle Home. There is no undo.
5. To remove the 11g Oracle Common Home, start the Oracle Universal Installer in -deinstall mode from the following directory:
 

```
(UNIX) ORACLE_HOME/oracle_common/oui/bin
./runInstaller -deinstall -jreLoc JRE_LOCATION
(Windows) ORACLE_HOME\oracle_common\oui\
binsetup.exe -deinstall -jreLoc JRE_LOCATION
```
6. On the Deinstall screen, verify the Oracle Common Home that is about to be removed is the correct one and click **Deinstall** to continue.

7. On the Warning screen, select whether or not you want to remove the Oracle Common Home directory. Click **Yes** to remove the software and Oracle Common Home.
8. To remove the WebLogic Server, start the WebLogic Uninstall program from the following directory:
  - (UNIX) ORACLE\_HOME/utilw/uninstall  
./uninstall.sh
  - (Windows) ORACLE\_HOME\utils\uninstall  
uninstall.exe
9. Click **Next** to start the uninstall program.
10. Select the components to uninstall by selecting the check boxes next to the installed components. Note that by default, all installed components are selected.
11. After selecting the components to uninstall, click **Next** to complete the uninstall.