

# Oracle® Fusion Middleware

## Upgrading Oracle Traffic Director



12c (12.2.1.4.0)

E95411-04

May 2021

The Oracle logo, consisting of a solid red square with the word "ORACLE" in white, uppercase, sans-serif font centered within it.

ORACLE®

Oracle Fusion Middleware Upgrading Oracle Traffic Director, 12c (12.2.1.4.0)

E95411-04

Copyright © 2018, 2021, Oracle and/or its affiliates.

Primary Author: Oracle Corporation

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this is software or related documentation that is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, then the following notice is applicable:

U.S. GOVERNMENT END USERS: Oracle programs (including any operating system, integrated software, any programs embedded, installed or activated on delivered hardware, and modifications of such programs) and Oracle computer documentation or other Oracle data delivered to or accessed by U.S. Government end users are "commercial computer software" or "commercial computer software documentation" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, the use, reproduction, duplication, release, display, disclosure, modification, preparation of derivative works, and/or adaptation of i) Oracle programs (including any operating system, integrated software, any programs embedded, installed or activated on delivered hardware, and modifications of such programs), ii) Oracle computer documentation and/or iii) other Oracle data, is subject to the rights and limitations specified in the license contained in the applicable contract. The terms governing the U.S. Government's use of Oracle cloud services are defined by the applicable contract for such services. No other rights are granted to the U.S. Government.

This software or hardware is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications that may create a risk of personal injury. If you use this software or hardware in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure its safe use. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software or hardware in dangerous applications.

Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Inside are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Epyc, and the AMD logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

This software or hardware and documentation may provide access to or information about content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services unless otherwise set forth in an applicable agreement between you and Oracle. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services, except as set forth in an applicable agreement between you and Oracle.

# Contents

## Preface

---

Audience	vi
Documentation Accessibility	vi
Related Documents	vi
Conventions	vii

## Part I Getting Started

---

### 1 Introduction to Upgrading Oracle Traffic Director to 12c (12.2.1.4.0)

---

About the Starting Points for Oracle Traffic Director Upgrade	1-1
About Oracle Traffic Director Standard Topologies	1-2
About Upgrade Restrictions	1-3

### 2 Pre-Upgrade Requirements

---

Pre-Upgrade Checklist	2-1
Creating a Complete Backup	2-3
Backing Up the Schema Version Registry Table	2-3
Maintaining Customized Domain and Environment Settings	2-3
Verifying Certification and System Requirements	2-4
Verify Your Environment Meets Certification Requirements	2-5
Verify System Requirements and Specifications	2-5
Verify That the Database Hosting Oracle Fusion Middleware is Supported	2-5
Verify That the JDK Is Certified for This Release of Oracle Fusion Middleware	2-6
Updating Policy Files when Using Enhanced Encryption (AES 256)	2-6
Purging Unused Data	2-7
Creating an Edition on the Server for Edition-Based Redefinition	2-7
Creating a Non-SYSDBA User to Run the Upgrade Assistant	2-8
Identifying Existing Schemas Available for Upgrade	2-10

## Part II Upgrading Oracle Traffic Director from 11g Release

---

### 3 Upgrading Oracle Traffic Director from 11g Release

---

About Oracle Traffic Director Upgrade Process from 11g Release	3-1
Preparing to Upgrade Oracle Traffic Director 11g to the Latest 12c (12.2.1.4.0) Version	3-3
Installing the Product Distributions	3-5
Performing Pre-Upgrade Tasks on Oracle Traffic Director 11g Environment to be Upgraded	3-7
Stopping Servers and Processes	3-8
Stopping Oracle Traffic Director Instances in 11g Environment	3-9
Stopping Oracle Traffic Director 11g Instances Using the Administration Console	3-10
Stopping Oracle Traffic Director 11g Instances Using the CLI Mode	3-10
Starting the Upgrade Assistant for Oracle Traffic Director 11g Specific Upgrade	3-11
Upgrade Assistant Parameters Specific to Oracle Traffic Director	3-12
Upgrading Oracle Traffic Director 11g Component Configurations	3-14
Upgrading Oracle Traffic Director 11g in Graphical Mode	3-14
Upgrading Oracle Traffic Director 11g in Silent Mode	3-15
Verifying Oracle Traffic Director Component Configurations for a Successful Upgrade	3-18
Post-Upgrade Tasks	3-18
Starting Servers and Processes After an Upgrade for Oracle Traffic Director	3-19
Starting Servers and Processes	3-19

## Part III Upgrading Oracle Traffic Director from an Earlier or a Previous 12c Release

---

### 4 Upgrading Oracle Traffic Director from a Previous 12c Release

---

About Oracle Traffic Director Upgrade Process from an Earlier or a Previous 12c Release	4-1
Preparing to Upgrade Oracle Traffic Director from an Earlier or a Previous 12c to the Latest 12c	4-4
Installing the Product Distributions	4-5
Performing Pre-Upgrade Tasks on Oracle Traffic Director Domain to be Upgraded	4-7
Stopping Servers and Processes	4-8
Managing Oracle Traffic Director Instances in 12c Environment	4-9
Starting, Stopping, and Restarting 12c Oracle Traffic Director Instances Using Fusion Middleware Control	4-9

Starting, Stopping, and Restarting Oracle Traffic Director 12c Instances Using Oracle WebLogic Scripting Tool (WLST)	4-10
Reconfiguring the Existing Domain in Oracle Traffic Director	4-10
Reconfiguring the Existing Oracle Traffic Director Domain in Graphical Mode	4-11
Reconfiguring the Existing Oracle Traffic Director Domain Using Oracle WebLogic Scripting Tool	4-11
Starting the Upgrade Assistant for Oracle Traffic Director 12c Specific Upgrade	4-12
Upgrade Assistant Parameters Specific to Oracle Traffic Director	4-12
Upgrading a Collocated Domain	4-14
Upgrading Collocated Oracle Traffic Director in Graphical Mode	4-15
Upgrading Collocated Oracle Traffic Director in Silent Mode	4-16
Upgrading Remote Managed Domains	4-18
Installing Product Binaries	4-18
Packing the Upgraded Collocated Domain	4-18
Unpacking the Upgraded Collocated Domain on the Remote Nodes	4-19
Upgrading a Standalone Domain	4-19
Upgrading Standalone Oracle Traffic Director in Graphical Mode	4-20
Upgrading Standalone Oracle Traffic Director in Silent Mode	4-21
Verifying the Component Configurations for a Successful Upgrade	4-22
Post-Upgrade Tasks	4-23
Starting Servers and Processes	4-23
Starting Servers and Processes	4-24

## Part IV Troubleshooting and Advanced Configurations

---

### 5 Troubleshooting the Upgrade

---

Troubleshooting Upgrade Performance Errors	5-1
--	-----

### A Upgrading the JDK After Installing and Configuring an Oracle Fusion Middleware Product

---

About Updating the JDK Location After Installing an Oracle Fusion Middleware Product	A-1
Updating the JDK Location in an Existing Oracle Home	A-2
Updating the JDK Location in an Existing Domain Home	A-2

# Preface

This document describes how to upgrade an existing Oracle Traffic Director environment to 12c (12.2.1.4.0).

## Audience

Identify the target audience for your book and learn more about this document intended for.

This document is intended for system administrators who are responsible for installing, maintaining, and upgrading Oracle Traffic Director. It is assumed that readers have knowledge of the following:

- Oracle Fusion Middleware system administration and configuration.
- Configuration parameters and expected behavior of the system being upgraded.

## Documentation Accessibility

Get more information about Oracle's commitment to accessibility and support through My Oracle Support.

For information about Oracle's commitment to accessibility, see Oracle Accessibility Program website at <http://www.oracle.com>.

### Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support.

For details, see [My Oracle Support](#). If you are hearing impaired, see <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs>.

## Related Documents

Look for all the documents that you want to refer in Fusion Middleware from various documentation libraries.

For more information, see the following documents, which are available on the home page of [Fusion Middleware Documentation](#):

- For Oracle Fusion Middleware getting started related information, see [Fusion Middleware Getting Started](#).
- For Oracle Fusion Middleware installation related information, see [Fusion Middleware Installation Documentation](#).

- For Oracle Fusion Middleware upgrade related information, see [Fusion Middleware Upgrade Documentation](#).
- For Oracle Fusion Middleware administration-related information, see [Fusion Middleware Administration Documentation](#).
- For Oracle Fusion Middleware release-related information, see [Fusion Middleware Release Notes Documentation](#).

## Conventions

Learn about the conventions used in this document.

This document uses the following text conventions:

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.

# Part I

## Getting Started

This part of Upgrading Oracle Traffic Director introduces Oracle Traffic Director and provides steps you must perform to prepare for upgrading to the latest version of 12c (12.2.1.4.0).



# 1

## Introduction to Upgrading Oracle Traffic Director to 12c (12.2.1.4.0)

Before you begin an upgrade to Oracle Traffic Director 12c (12.2.1.4.0), make sure that you understand the standard upgrade topologies and upgrade paths for your domain.

Following the introductory information and preparation steps, the procedures in this guide are divided into two sections. It is important that you refer to the correct set of procedures for your domain.

- Upgrades from 11g, described in [Upgrading Oracle Traffic Director from 11g Release](#)
- Upgrades from a previous 12c release, described in [Upgrading Oracle Traffic Director from a Previous 12c Release](#)

### Note:

For general information about Fusion Middleware upgrade planning and other upgrade concepts and resources, see the following sections in *Planning an Upgrade of Oracle Fusion Middleware*.

- Planning an Upgrade to Oracle Fusion Middleware 12c
- Understanding In-Place Versus Out-of-Place Upgrades
- Understanding the Basic 12c Upgrade Tasks

See the following documents for more information on Oracle Traffic Director:

- Fusion Middleware Release Notes for Oracle Traffic Director
- Fusion Middleware Administering Oracle Traffic Director

The following topics describe the concepts related to upgrading Oracle Traffic Director:

## About the Starting Points for Oracle Traffic Director Upgrade

You can upgrade Oracle Traffic Director from 11g or from a previous 12c release. This guide provides information for upgrading from supported 11g and 12c releases.

 **Note:**

As of 12.2.1.4.0, Oracle Traffic Director is deprecated.

In the future, use Oracle HTTP Server or Kubernetes Load Balancer for equivalent functionality.

The upgrade procedures in this guide explain how to upgrade an existing Oracle Traffic Director 11g (11.1.1.9.0) or existing 12c (12.2.1.2 or 12.2.1.3) release version to the latest Oracle Fusion Middleware 12c (12.2.1.4.0) release version. If your domain contains other components that also need to be upgraded, links to supporting documentation are provided.

 **Important:**

To run your upgrade process, you must have an existing WebLogic Server domain. You cannot upgrade from your existing 11g to an Oracle Traffic Director standalone domain, as upgrading Oracle Traffic Director from 11g to 12c standalone is not supported.

## About Oracle Traffic Director Standard Topologies

The steps to upgrade Oracle Traffic Director to 12c (12.2.1.4.0) depend on the current production topology (either 11g or a previous 12c release).

As a result, it is difficult to provide exact upgrade instructions for every possible Oracle Traffic Director installation. Therefore, this upgrade documentation provides instructions for upgrading several typical Oracle Traffic Director topologies. These typical topologies are referred to as *standard upgrade topologies*.

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

 **Note:**

For your upgrade process and planning resources, see Preparing to Upgrade in *Planning an Upgrade of Oracle Fusion Middleware*.

 **Tip:**

For a list of Oracle Fusion Middleware documents available in HTML and PDF formats, see the documentation website: <https://docs.oracle.com/en/middleware/>.

## About Upgrade Restrictions

If you are using two or more Oracle Fusion Middleware products of the same or different versions in a single, supported, Oracle Fusion Middleware configuration, you must consider the interoperability and compatibility factors before planning the upgrade.

### Interoperability

In the context of Oracle Fusion Middleware products, interoperability is defined as the ability of two Oracle Fusion Middleware products or components of the same version (or release) to work together (interoperate) in a supported Oracle Fusion Middleware configuration. Specifically, interoperability applies when the first 4 digits of the release or version number are the same. For example, Oracle Fusion Middleware 12c (12.2.1.0) components are generally interoperable with other 12c (12.2.1.4.0) components.

### Compatibility

In the context of Oracle Fusion Middleware products, compatibility is defined as the ability of two Oracle Fusion Middleware components of different versions (or releases) to interoperate.

For a list of products and features available in Oracle Fusion Middleware Release 12.2.1.4.0, see *Products and Features Available in Oracle Fusion Middleware in Understanding Interoperability and Compatibility*.

When performing the upgrade of your hardware or software, verify that your Oracle Fusion Middleware software is certified to support the new operating system or computer hardware. For more information, refer to the following resources:

- Oracle Fusion Middleware Supported System Configurations
- Oracle® Fusion Middleware System Requirements and Specifications

# 2

## Pre-Upgrade Requirements

Before you begin to upgrade Oracle Traffic Director 12c (12.2.1.4.0), you must perform pre-upgrade tasks such as backing up, cloning your current environment, and verifying that your system meets certified requirements.

### Pre-Upgrade Checklist

The Pre-Upgrade Checklist identifies tasks that can be performed before you begin your upgrade to ensure that you have a successful upgrade and limited downtime.

Upgrades are performed while the servers are down. This checklist is meant to identify important — and often time-consuming — pre-upgrade tasks that you can perform before the upgrade to limit your downtime. The more preparation you can do before you begin the upgrade process, the less time you spend offline.

 **Note:**

The pre-upgrade procedures you perform depends on the configuration of your existing system, the components you are upgrading, and the environment that you want to create at the end of the upgrade and configuration process. Complete only those tasks that apply to your configurations or use cases.

This table describes the Pre-Upgrade Checklist. It lists all the required components and describes them in detail.

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

Task	Description
<b>Required</b> Create a complete backup of your existing environment.	Back up all system-critical files and databases that contain any schemas that are to be upgraded. If the upgrade fails, you must restore your pre-upgrade environment and begin the upgrade again. See <a href="#">Creating a Complete Backup</a> . <ul style="list-style-type: none"><li>• Make sure that your backup includes the schema version registry table. See <a href="#">Backing Up the Schema Version Registry Table</a>.</li><li>• If you have modified or customized any of the startup scripts or any of the configuration files in your existing domain (for example, setting a value for the cookie-path property), you need to copy them to the temporary directory location (outside of the existing domain) during the upgrade, and redeploy them after the upgrade.</li></ul>

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

Task	Description
<p><b>Optional</b> Clone your production environment to use as an upgrade testing platform.</p>	<p>In addition to creating a complete backup of your system files, Oracle strongly recommends that you clone your production environment. This environment can be used to test the upgrade.</p>
<p><b>Required</b> Verify that you install and upgrade your product on a supported hardware and software configuration. <b>CAUTION:</b> 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.</p>	<p>Verify that your hardware and software configurations (including operating systems) are supported by the latest certifications and requirements documents. Also make sure to use a supported JDK version before you install the product distributions. Oracle recommends that you verify this information right before you start the upgrade as the certification requirements are frequently updated. <b>Make sure that you have applied the latest patches to your components before you upgrade.</b> See <a href="#">Verifying Certification and System Requirements</a>.</p>
<p><b>Required for 32-bit Operating Systems Only</b> Migrate to a 64-bit operating system before you can upgrade.</p>	<p>This is required only if you are currently running an unsupported 32-bit operating system.</p>
<p><b>Optional</b> Update the security policy files if you are using enhanced encryption (AES 256).</p>	<p>Some of the security algorithms used in Fusion Middleware 12c require additional policy files for the JDK. If you plan to use enhanced encryption, such as AES 256, Oracle recommends that you apply the latest required policy files to the JDK before you upgrade. See <a href="#">Updating Policy Files when Using Enhanced Encryption (AES 256)</a>.</p>
<p><b>Optional</b> Purge any outdated or unused data before you upgrade.</p>	<p>To optimize performance, Oracle strongly recommends that you purge the data and objects that are not used in the upgraded environment. See <a href="#">Purging Unused Data</a>.</p>
<p><b>Required for Oracle Database Users Only</b> Before you upgrade an Edition-Based Redefinition (EBR) enabled schema, you must connect to the database server and create an edition on the database server for 12c (12.2.1.4.0).</p>	<p>If you are using an Edition-Based Redefinition (EBR) database, you must create the edition before you start the upgrade.</p>
<p><b>Optional</b> Create a Non-SYSDBA user to run the Upgrade Assistant.</p>	<p>Oracle recommends that you create the FMW user to run the Upgrade Assistant. The FMW user can run the Upgrade Assistant without any system administration privileges. See <a href="#">Creating a Non-SYSDBA User to Run the Upgrade Assistant</a>.</p>
<p><b>Optional</b> Identify the schemas that are currently in your domain before you begin.</p>	<p>It is important that you know the schemas that are in your pre-upgrade domain before you start the upgrade. You should know the schema owner names and passwords, as well as the versions of each schema.</p>

## Creating a Complete Backup

Before you start an upgrade, back up all system-critical files, including the databases that host your Oracle Fusion Middleware schemas.

The backup must include the `SYSTEM.SCHEMA_VERSION_REGISTRY$` table so that you can restore the contents back to its pre-upgrade state if the upgrade fails.

The Upgrade Assistant Prerequisites screen prompts you to acknowledge that backups have been performed before you proceed with the actual upgrade. However, note that the Upgrade Assistant does not verify that a backup has been created.

See:

- Backing Up Your Environment in *Administering Oracle Fusion Middleware*
- Upgrading and Preparing Your Oracle Databases for 12c (12.2.1.4.0) in *Planning an Upgrade of Oracle Fusion Middleware*

## Backing Up the Schema Version Registry Table

Your system backup must include the `SYSTEM.SCHEMA_VERSION_REGISTRY$` table or the `FMWREGISTRY.SCHEMA_VERSION_REGISTRY$` 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. Before you run the Upgrade Assistant, make sure you back up your existing database schemas and the schema version registry.

 **Note:**

Before you upgrade a schema using the Upgrade Assistant, you must perform a complete database backup. During the upgrade, you are required to acknowledge that backups have been performed.

## Maintaining Customized Domain and Environment Settings

If you have modified any domain-generated, server startup scripts, or configuration files in your pre-upgrade environment, it is important to note that these changes are overwritten during the installation, domain upgrade, and reconfiguration operations. Save your customized files to a shared library location so that you can continue to use them after the upgrade.

Every domain installation includes dynamically-generated domain and server startup scripts, such as `setDomainEnv`. These files are replaced by newer versions during the installation and upgrade process. To maintain your custom domain-level environment settings, Oracle recommends that you create a separate file to store the custom domain information before you upgrade, instead of modifying the scripts directly.

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 command-line options for running the servers, or specify additional environment variables. When using the `pack` and `unpack` commands, any custom settings that you add to this file are preserved during the domain upgrade operation and are carried over to the remote servers.

The following example illustrates 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 `EXISTING_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* in *Upgrading Oracle WebLogic Server*.

## Verifying Certification and System Requirements

Review the certification matrix and system requirements documents 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.

Whenever new certifications occur, they are added to the appropriate 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. See the Certification Matrix for 12c (12.2.1.4.0).

## 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.

Use the *Oracle Fusion Middleware System Requirements and Specifications* document to verify that the requirements of the certification are met. For example, if the Certification Matrix for 12c (12.2.1.4.0) indicates that your product is certified for installation on 64-Bit Oracle Linux 7, the System Requirements and Specifications document should be used to verify that your Oracle Linux 7 system has met the required minimum specifications such as 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 on the Oracle Technology Network (OTN).

 **Note:**

When you install the Oracle Fusion Middleware Release 12c software in preparation for upgrade, you should use the same user account that you used to install and configure the existing, pre-upgrade Oracle Fusion Middleware software. On UNIX operating systems, this ensures that the proper owner and group is applied to new Oracle Fusion Middleware 12c files and directories.

If you are running a 32-bit environment, you will need to perform an additional set of steps:

## 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 Oracle Fusion Middleware 12c.

Review the Fusion Middleware database requirements before starting the upgrade to ensure that the database hosting Oracle Fusion Middleware is supported and has sufficient space to perform an upgrade. See the Certification Matrix for 12c (12.2.1.4.0).





**Note:**

If your database version is no longer supported, you must upgrade to a supported version before starting an upgrade. See *Upgrading and Preparing Your Oracle Databases for 12c in Planning an Upgrade of Oracle Fusion Middleware*.

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

At the time this document was published, the certified JDK for 12c (12.2.1.4.0) was 1.8.0\_211.

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.

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*.

## Updating Policy Files when Using Enhanced Encryption (AES 256)

If you plan to use enhanced encryption, such as Advanced Encryption Standard (AES) 256, in your upgraded environment, Oracle recommends that you apply the latest required policy files to the JDK before you upgrade.

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.

Some of the security algorithms used in Fusion Middleware 12c (12.2.1.4.0) require additional policy files for the JDK. See [Java Cryptography Architecture Oracle Providers Documentation](#).

 **Note:**

If you attempt to use enhanced encryption without applying these policy files to the JDK before you begin the upgrade, the upgrade can fail and you must restore the entire pre-upgrade environment and start the upgrade from the beginning.

## Purging Unused Data

Purging unused data and maintaining a purging methodology before an upgrade can optimize the upgrade process.

Some components have automated purge scripts. 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.

## Creating an Edition on the Server for Edition-Based Redefinition

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 12c (12.2.1.4.0).

Edition-based redefinition enables you to upgrade an application's database objects while the application is in use, thus minimizing or eliminating downtime. This is accomplished by changing (redefining) database objects in a private environment known as an edition. Only when all the changes have been made and tested, 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 12c (12.2.1.4.0). The new edition for 12c (12.2.1.3.0) must be a child of your existing 12c or 12c (12.2.1.4.0) edition.

To create an edition on the database server, sign 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_4_0 as child of  
Oracle_FMW_12_2_1_3_0;
```

where Oracle\_FMW\_12\_2\_1\_3\_0 is an example of the edition name you specified in RCU 12.2.1.3 when the 12.2.1.3 schemas were created. Be sure to provide the actual name used when creating the edition.

The following message notifies you that the edition is created successfully:

```
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 command to manually set up the default edition name for the database, for example:

```
ALTER DATABASE DEFAULT EDITION = Oracle_FMW_12_2_1_4_0;
```

## 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 below must be granted to user `FMW` before starting the Upgrade Assistant.

### Notes:

The non-SYSDBA user `FMW` is created solely for the purpose of running the Upgrade Assistant. After this step is complete, drop the `FMW` user. Note that privileges required for running the Upgrade Assistant may change from release to release.

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 the `v$xatrans$` table is required only by Oracle Identity Governance. If you do not require Oracle Identity Governance 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, `password` is the password that you set for the `FMW` user. When granting privileges, make sure that you specify your actual password.

```
create user FMW identified by password;
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_TABLESPACE_USAGE_METRICS 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;

```

If you are upgrading Oracle Identity Manager (OIM) schema, ensure that the FMW user has the following additional privileges:

```

grant execute on SYS.DBMS_FLASHBACK to fmw with grant option;
grant execute on sys.DBMS_SHARED_POOL to fmw with grant option;
grant execute on SYS.DBMS_XMLGEN to FMW with grant option;
grant execute on SYS.DBMS_DB_VERSION to FMW with grant option;
grant execute on SYS.DBMS_SCHEDULER to FMW with grant option;

```

```

grant execute on SYS.DBMS_SQL to FMW with grant option;
grant execute on SYS.DBMS_UTILITY to FMW with grant option;
grant ctxapp to FMW with admin option;
grant execute on SYS.DBMS_FLASHBACK TO FMW with grant option;
grant create MATERIALIZED VIEW to FMW with admin option;
grant all on SCHEMA_VERSION_REGISTRY TO FMW with grant option;
grant create SYNONYM to FMW with admin option;
grant execute on CTXSYS.CTX_ADM to FMW with grant option;
grant execute on CTXSYS.CTX_CLS TO FMW with grant option;
grant execute on CTXSYS.CTX_DDL TO FMW with grant option;
grant execute on CTXSYS.CTX_DOC TO FMW with grant option;
grant execute on CTXSYS.CTX_OUTPUT TO FMW with grant option;
grant execute on CTXSYS.CTX_QUERY TO FMW with grant option;
grant execute on CTXSYS.CTX_REPORT TO FMW with grant option;
grant execute on CTXSYS.CTX_THES TO FMW with grant option;
grant execute on CTXSYS.CTX_ULEXER TO FMW with grant option;
grant create JOB to FMW with admin option;

```

## Identifying Existing Schemas Available for Upgrade

This optional task enables you to review the list of available schemas before you begin the upgrade by querying the schema version registry. The registry contains schema information such as version number, component name and ID, date of creation and modification, and custom prefix.

You can let the Upgrade Assistant upgrade all of the schemas in the domain, or you can select individual schemas to upgrade. To help decide, follow these steps to view a list of all the schemas that are available for an upgrade:

1. If you are using an Oracle database, connect to the database by using an account that has Oracle DBA privileges, and run the following from SQL\*Plus:

```

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;

```

2. Examine the report that is generated.

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

3. Note the schema prefix name that was used for your existing schemas. You will use the same prefix when you create new 12c schemas.

 **Notes:**

- If your existing schemas are not from a supported version, then you must upgrade them to a supported version before using the 12c (12.2.1.4.0) upgrade procedures. Refer to your pre-upgrade version documentation for more information.
- Some components, such as Oracle Enterprise Data Quality, Oracle GoldenGate Monitor, and Oracle GoldenGate Veridata, support an upgrade from versions other than the standard Oracle Fusion Middleware supported versions.
- If you used an OID-based policy store in 11g, make sure to create a new OPSS schema before you perform the upgrade. After the upgrade, the OPSS schema remains an LDAP-based store.
- You can only upgrade schemas for products that are available for upgrade in Oracle Fusion Middleware release 12c (12.2.1.4.0). Do not attempt to upgrade a domain that includes components that are not yet available for upgrade to 12c (12.2.1.4.0).

# Part II

## Upgrading Oracle Traffic Director from 11g Release

This part of Upgrading Oracle Traffic Director provides information about upgrading Oracle Traffic Director from any of the 11g release version to the latest version of 12c (12.2.1.4.0).

# 3

## Upgrading Oracle Traffic Director from 11g Release

You can upgrade Oracle Traffic Director from an earlier Oracle Fusion Middleware Release 11g version to the latest 12c (12.2.1.4.0) release version.

Oracle Fusion Middleware Upgrade Assistant supports an out-of-place upgrade to 12c (12.2.1.4.0) release from Oracle Traffic Director FMW 11g Release 1, Version: 11.1.1.9.0. This is the only supported 11g release.

 **Note:**

As of 12.2.1.4.0, Oracle Traffic Director is deprecated. In the future, use Oracle HTTP Server or Kubernetes Load Balancer for equivalent functionality.

The following topics describe how to upgrade Oracle Traffic Director to 12c (12.2.1.4.0) release:

### About Oracle Traffic Director Upgrade Process from 11g Release

Review the roadmap for an overview of the upgrade process for Oracle Traffic Director from 11g release.



The steps you take to upgrade your existing domain will vary depending on how your domain is configured and which components are being upgraded. Follow only those steps that are applicable to your deployment.

**Table 3-1 Tasks for Upgrading Oracle Traffic Director from 11g Release**

Task	Description
<b>Required</b> If you have not done so already, review the introductory topics in this guide and complete the required pre-upgrade tasks.	See: <ul style="list-style-type: none"><li>• <a href="#">Introduction to Upgrading Oracle Traffic Director to 12c (12.2.1.4.0)</a></li><li>• <a href="#">Pre-Upgrade Requirements</a></li><li>• <a href="#">Pre-Upgrade Checklist</a></li></ul>



**Table 3-1 (Cont.) Tasks for Upgrading Oracle Traffic Director from 11g Release**

Task	Description
<p><b>Required</b> Download and install the Oracle Fusion Middleware Infrastructure and Oracle Traffic Director 12c (12.2.1.4.0) distributions into a new Oracle home.</p>	<p>See <a href="#">Installing the Product Distributions</a>.</p> <div style="border: 1px solid green; padding: 10px; margin-top: 10px;"> <p> <b>Tip:</b></p> <p>See the following documents for more information on the installation and configuration of Oracle Fusion Middleware Infrastructure and Oracle Traffic Director:</p> <ul style="list-style-type: none"> <li>• <i>Installing and Configuring the Oracle Fusion Middleware Infrastructure</i></li> <li>• <i>Installing Oracle Traffic Director</i></li> </ul> </div>
<p><b>Required</b> Create an Oracle Traffic Director domain.</p>	<p>The 11g releases of Oracle Traffic Director do not install into a WebLogic Server domain. Since only an out of place upgrade is supported from these releases, you need to create a 12c (12.2.1.4.0) WebLogic Server domain extended with Oracle Traffic Director and dependent Java Required Files (JRF) templates before starting an upgrade.</p>
<p><b>Required</b> Shut down the 11g and 12c environment (stop all the Administration and Managed Servers).</p>	<div style="border: 1px solid orange; padding: 10px; margin-top: 10px;"> <p> <b>WARNING:</b></p> <p>Failure to shut down your servers during an upgrade may lead to data corruption.</p> </div> <p>See <a href="#">Stopping Servers and Processes</a> .</p>
<p><b>Required</b> Start the Upgrade Assistant to upgrade the component configurations.</p>	<p>The Upgrade Assistant is used to update the component configurations. Start the Upgrade Assistant to migrate the component configurations from 11g to 12c (12.2.1.4.0) Oracle Traffic Director domain. For 11g to 12c upgrades, see <a href="#">Upgrading Oracle Traffic Director 11g Component Configurations</a>.</p>
<p><b>Optional</b> Setup the remote managed nodes.</p>	<p>If your Oracle Traffic Director 11g installation is part of a failover setup with remote nodes managed by the administration server, you must recreate the similar topology as specified in <a href="#">Configuring Failover</a>.</p>

**Table 3-1 (Cont.) Tasks for Upgrading Oracle Traffic Director from 11g Release**

Task	Description
<b>Required</b> Create Oracle Traffic Director instances.	The Upgrade Assistant does not create Oracle Traffic Director instances. These instances must be created post upgrade by targeting Oracle Traffic Director configurations to machines, using Fusion Middleware Control UI or Oracle WebLogic Scripting Tool (WLST). See <a href="#">Post-Upgrade Tasks</a> .
<b>Required</b> Start all process and servers. Restart the servers and Oracle Traffic Director 12c (12.2.1.4.0) instance.	Once the upgrade process is complete, start all processes and servers including the Admin Server, Managed Servers and Oracle Traffic Director 12c (12.2.1.4.0) instances. See <a href="#">Starting Servers and Processes</a> .
<b>Required</b> Complete and verify the upgrade.	Perform the required post-upgrade configuration tasks (if needed), including starting the new Administration and Managed Servers and node manager to ensure there are no issues.

**! Important:**

Oracle recommends that you ensure all of the upgraded components are working as expected before deleting your backups.

See [Verifying The Component Configurations](#).

## Preparing to Upgrade Oracle Traffic Director 11g to the Latest 12c (12.2.1.4.0) Version

This section describes the steps to prepare the upgrade for 11g versions of Oracle Traffic Director to the latest 12c (12.2.1.4.0) version.

Before you upgrade to Oracle Traffic Director 12c (12.2.1.4.0), you must complete the following steps:

1. Ensure that **12c (12.2.1.4.0) binaries** are installed in a **new FMW\_HOME**.

**💡 Tip:**

See Installing Oracle Traffic Director in *Installing Oracle Traffic Director*

A valid WebLogic Server domain extended with Oracle Traffic Director and dependant JRF templates must also be created at the target location.

 **Tip:**

See Creating a Managed Domain in *Administering Oracle Traffic Director*.

2. Shutdown the target 12c (12.2.1.4.0) environment, before you run the Upgrade Assistant to upgrade your schemas and configurations.

You must shut down all of the pre-upgrade processes and servers, including the Administration Server and any Managed Servers and Node Manager.

 **Note:**

For more information on starting, stopping, and restarting your Oracle Traffic Director instances in:

- 11g environment, see [Stopping Oracle Traffic Director Instances in 11g Environment](#)
- 12c (12.2.1.4.0) environment, see [Managing Oracle Traffic Director Instances in 12c Environment](#).

 **Note:**

The following are the restrictions for Oracle Traffic Director upgrade activities:

- Upgrading across different platforms is not supported. For example, you cannot upgrade Oracle Traffic Director from a Linux to Solaris environment.
- Upgrading from an Oracle Traffic Director 11g to an Oracle Traffic Director 12c (12.2.1.4.0) standalone domain is not supported.

For more information on installing 12c (12.2.1.4.0) binaries in a new `FMW_HOME`, stopping Administration and Managed Servers, and Node Manager, see the following topic with more details on the procedure, processes, and servers.

## Installing the Product Distributions

Before beginning your upgrade, download Oracle Fusion Middleware Infrastructure and Oracle Traffic Director 12c (12.2.1.4.0) distributions on the target system and install them using Oracle Universal Installer.

 **Note:**

When Infrastructure is required for the upgrade, you must install the Oracle Fusion Middleware distribution first before you install other Fusion Middleware products.

The following install instructions are for the standard Oracle Fusion Middleware installation topology. Refer to the Oracle Traffic Director Installation Guide for more information about installing the other supported topologies.

To install 12c (12.2.1.4.0) distributions:

1. Sign in to the target system.
2. Download the following from [Oracle Technology Network](#) or [Oracle Software Delivery Cloud](#) to your target system:
  - Oracle Fusion Middleware Infrastructure  
(`fmw_12.2.1.4.0_infrastructure_generic.jar`)
  - Oracle Traffic Director (UNIX:  
`distribution_name_12.2.1.3.0_otd_linux64.bin`), (Windows:  
`distribution_name_12.2.1.3.0_otd_win64.exe`)
3. Change to the directory where you downloaded the 12c (12.2.1.4.0) product distribution.
4. Start the installation program for Oracle Fusion Middleware Infrastructure:
  - (UNIX) `JDK_HOME/bin/java -jar fmw_12.2.1.4.0_infrastructure.jar`
  - (Windows) `JDK_HOME\bin\java -jar fmw_12.2.1.4.0_infrastructure.jar`
5. On UNIX operating systems, the Installation Inventory Setup screen appears if this is the first time you are installing an Oracle product on this host.

Specify the location where you want to create your central inventory. Make sure that the operating system group name selected on this screen has write permissions to the central inventory location, and click **Next**.

 **Note:**

The Installation Inventory Setup screen does not appear on Windows operating systems.

6. On the Welcome screen, review the information to make sure that you have met all the prerequisites. Click **Next**.
7. On the Auto Updates screen, select an option:

- **Skip Auto Updates:** If you do not want your system to check for software updates at this time.
- **Select patches from directory:** To navigate to a local directory if you downloaded patch files.
- **Search My Oracle Support for Updates:** To automatically download software updates if you have a My Oracle Support account. You must enter Oracle Support credentials then click **Search**. To configure a proxy server for the installer to access My Oracle Support, click **Proxy Settings**. Click **Test Connection** to test the connection.

Click **Next**.

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

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

9. On the Installation Type screen, select the following:
  - a. For Infrastructure, select **Fusion Middleware Infrastructure**
  - b. For Oracle Traffic Director, select Oracle Traffic Director

Select the type of installation and consequently, the products and feature sets you want to install.

- Select **Standalone OTD** (Managed independently of WebLogic server) if you are installing Oracle Traffic Director in a Standalone domain or installing Oracle Traffic Director in a remote node of a collocated domain.
- Select **Collocated OTD** (Managed through WebLogic server) if you are installing Oracle Traffic Director in a WebLogic Server domain on the administration server node.

### Important:

You can only upgrade earlier versions of Oracle Traffic Director 12c in the standalone OTD. Upgrading Oracle Traffic Director from 11g to 12c standalone is not supported.

Click **Next**.

See Installing Oracle Traffic Director for more information.

10. The Prerequisite Checks screen analyzes the host computer to ensure that the specific operating system prerequisites have been met.

To view the list of tasks that are verified, select **View Successful Tasks**. To view log details, select **View Log**. If any prerequisite check fails, then an error message appears at the bottom of the screen. Fix the error and click **Rerun** to try again. To ignore the error or the warning message and continue with the installation, click **Skip** (not recommended).

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

If you want to save these options to a response file, click **Save Response File** and enter the response file location and name. The response file collects and stores

all the information that you have entered, and enables you to perform a silent installation (from the command line) at a later time.

Click **Install** to begin the installation.

12. On the Installation Progress screen, when the progress bar displays 100%, click **Finish** to dismiss the installer, or click **Next** to see a summary.
13. The Installation Complete screen displays the Installation Location and the Feature Sets that are installed. Review this information and click **Finish** to close the installer.
14. After you have installed Oracle Fusion Middleware Infrastructure, enter the following command to start the installer for your product distribution and repeat the steps above to navigate through the installer screens:

(UNIX) `./distribution_name_12.2.1.3.0_otd_linux64.bin`

(Windows) `distribution_name_12.2.1.3.0_otd_win64.exe`

## Performing Pre-Upgrade Tasks on Oracle Traffic Director 11g Environment to be Upgraded

You must perform the tasks as in this section, before you begin any upgrade from Oracle Traffic Director 11g specific environment to the latest 12c (12.2.1.4.0). These tasks ensure you have a successful upgrade and a limited amount of downtime.

Before you upgrade to the latest version of Oracle Traffic Director 12c (12.2.1.4.0), you must follow these steps:

1. Shutdown your running 11g environment.

### Note:

To stop Oracle Traffic Director instances in 11g environment, see [Stopping Oracle Traffic Director Instances in 11g Environment](#).

2. Verify and ensure Oracle Traffic Director 11g `INSTANCE_HOME` has read permissions for the user, running the Upgrade Assistant to access the configurations within 11g Administration Server config-store.
3. If Oracle Traffic Director 11g and Oracle Traffic Director 12c installations are on different hosts or machines (for example: 11g on OEL5 and 12c on OEL6), then the user must perform one of the following:
  - a. In the Upgrade Assistant, once you select 11g source as the source version for the upgrade, then you must specify the remote directory path for Oracle Traffic Director 11g instances.

### Tip:

See [Upgrading the Component Configurations](#) in *Installing Oracle Traffic Director*.

- b. Remotely copy `ORACLE_HOME` and `INSTANCE_HOME` directories from 11g host to 12c preserving the same path as it was on 11g host.

For example, on 12c host:

```
# scp -r <11g host>:/otd/oracle_home /otd/oracle_home
# scp -r <11g host>:/otd/instance_home /otd/instance_home
```

- c. Mount 11g `ORACLE_HOME` and `INSTANCE_HOME` paths on 12c host preserving the same path as it was on 11g host.

For example, on 12c host:

```
# mount <11g host>:/otd/oracle_home on /otd/oracle_home
# mount <11g host>:/otd/instance_home on /otd/instance_home
```

4. If you have configured `webgate` plug-in on Oracle Traffic Director instance, then you must ensure that the related changes are pulled into the corresponding Oracle Traffic Director configuration before you run the upgrade.

 **Tip:**

See [pull-config](#) in *Traffic Director Command-Line Reference 11g Release 1 (11.1.1.7)*.

## Stopping Servers and Processes

Before you run the Upgrade Assistant to upgrade your schemas and configurations, you must shut down all of the pre-upgrade 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.

 **Note:**

The procedures in this section describe how to stop the existing, pre-upgrade 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*.

To stop your pre-upgrade Fusion Middleware environment, navigate to the pre-upgrade domain and follow the steps below:

### Step 1: Stop System Components

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

- (UNIX) `EXISTING_DOMAIN_HOME/bin/stopComponent.sh component_name`
- (Windows) `EXISTING_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) `EXISTING_DOMAIN_HOME/bin/stopManagedWebLogic.sh managed_server_name admin_url`
- (Windows) `EXISTING_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:

- (UNIX) `EXISTING_DOMAIN_HOME/bin/stopComponent.sh component_name`
- (Windows) `EXISTING_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) `EXISTING_DOMAIN_HOME/bin/stopWebLogic.sh`
- (Windows) `EXISTING_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 setting the `nodemanager.properties` attribute `QuitEnabled` to `true` (the default is `false`), you can use WLST to connect to Node Manager and shut it down. See `stopNodeManager` in *WLST Command Reference for WebLogic Server*.

## Stopping Oracle Traffic Director Instances in 11g Environment

Learn more about how you can stop one or more Oracle Traffic Director 11g instances in multiple modes.

To stop your Oracle Traffic Director instances in 11g environment, you can either use the administration console or the CLI.

For more information on how you can stop one or more Oracle Traffic Director 11g instances in multiple modes, see the following topics:



## Stopping Oracle Traffic Director 11g Instances Using the Administration Console

Learn more about stopping one or more Oracle Traffic Director 11g instances in the graphical mode.

To stop Oracle Traffic Director 11g instances by using the Administration Console, you must perform the following:

1. Sign in to the Administration Console for Oracle Traffic Director.

### Tip:

For more details and procedures on the following topics, see *Oracle Traffic Director 11.1.1.9 Administrator's Guide*:

- To access the Administration Console, see [Accessing the Administration Console](#).
- To stop Oracle Traffic Director 11g Administration Server, using the Administration Console, see [Stopping and Restarting the Administration Server](#).

2. Click **Configurations** button at the upper left corner of the page.  
A list of the available configurations is displayed.
3. Select the configuration for which you want to start, stop, or restart instances.
4. In the navigation pane, select **Instances**.
5. Click **Start/Restart** or **Stop** as required, for the instance that you want to start, restart, or stop.

### Note:

If you want to:

- Start or restart all instances of the selected configuration, Click **Start/Restart Instances** in the Common Tasks pane.
- Stop all instances of the configuration, Click **Stop Instances**.

A message is displayed in the Console Messages pane confirming that the instances were stopped.

## Stopping Oracle Traffic Director 11g Instances Using the CLI Mode

Learn more about stopping one or more Oracle Traffic Director 11g instances in the command line mode.

To stop one or more Oracle Traffic Director 11g instances, run the following command:

**Table 3-2 Configuration Command for Oracle Traffic Director 11g Instances**

Action	Command
To Stop	stop-instance

**Tip:**

For more details and procedures on the above topics, see *Oracle Traffic Director 11.1.1.9 Administrator's Guide*:

- To invoke the CLI shell, see [Accessing the Command-Line Interface](#).
- To stop Oracle Traffic Director 11g Administration Server, using the Administration Console or CLI, see [Stopping and Restarting the Administration Server](#).

The following example is for your reference and requirement.

The command `stop` the instances of the configuration `soa` on the nodes `apps1.example.com` and `apps2.example.com` is as the following:

```
tadm> stop-instance --config=soa apps1.example.com apps2.example.com
```

**Note:**

Alternatively, you can use the following stop command from within the instance directory to stop the instances.

```
> $INSTANCE_HOME/net-config_name/bin/stopserv
```

## Starting the Upgrade Assistant for Oracle Traffic Director 11g Specific Upgrade

Run the Upgrade Assistant to migrate Oracle Traffic Director component configurations from 11g versions to 12c (12.2.1.4.0) domain.

Oracle recommends that you run the Upgrade Assistant as a non-SYSDBA user, completing the upgrade one domain at a time.



**Note:**

Before you start the Upgrade Assistant, make sure that the JVM character encoding is set to UTF-8 for the platform on which the Upgrade Assistant is running.

If the character encoding is not set to UTF-8, then you will not be able to download files containing Unicode characters in their names. This can cause the upgrade to fail.

**To start the Upgrade Assistant**

1. Go to the `oracle_common/upgrade/bin` directory:
  - (UNIX) `ORACLE_HOME/oracle_common/upgrade/bin`
  - (Windows) `ORACLE_HOME\oracle_common\upgrade\bin`
2. Start the Upgrade Assistant:
  - (UNIX) `./ua`
  - (Windows) `ua.bat`

For information about other parameters that you can specify on the command line, see the following topic.

## Upgrade Assistant Parameters Specific to Oracle Traffic Director

You can start the Upgrade Assistant, using the specific command line parameters for Oracle Traffic Director.

When you start the Upgrade Assistant from the command line, you can specify additional parameters. The [Table 3-3](#) shows the specific Command-Line Parameters for Oracle Traffic Director upgrade in Upgrade Assistant.

**Table 3-3 Upgrade Assistant Command-Line Parameters**

Parameter	Required or Optional	Description
<code>-readiness</code>	Not applicable	Performs the upgrade readiness check without performing an actual upgrade.  This option is not applicable for upgrade from OTD 11g as OTD does not install into a WebLogic domain in 11g.
<code>-threads</code>	Optional	Identifies the number of threads available for concurrent schema upgrades or readiness checks of the schemas.  The value must be a positive integer in the range 1 to 8. The default is 4.

Table 3-3 (Cont.) Upgrade Assistant Command-Line Parameters

Parameter	Required or Optional	Description
-response	Required for silent upgrades or silent readiness checks	Runs the Upgrade Assistant using inputs saved to a response file generated from the data that is entered when the Upgrade Assistant is run in GUI mode. Using this parameter runs the Upgrade Assistant in <i>silent mode</i> (without displaying Upgrade Assistant screens).
-examine	Optional	Performs the examine phase but does not perform an actual upgrade.  Do not specify this parameter if you have specified the -readiness parameter.
-logLevel <i>attribute</i>	Optional	Sets the logging level, specifying one of the following attributes: <ul style="list-style-type: none"><li>• TRACE</li><li>• NOTIFICATION</li><li>• WARNING</li><li>• ERROR</li><li>• INCIDENT_ERROR</li></ul> The default logging level is NOTIFICATION.  Consider setting the -logLevel TRACE attribute to so that more information is logged. This is useful when troubleshooting a failed upgrade. The Upgrade Assistant's log files can become very large if -logLevel TRACE is used.

Table 3-3 (Cont.) Upgrade Assistant Command-Line Parameters

Parameter	Required or Optional	Description
<code>-logDir location</code>	Optional	<p>Sets the default location of upgrade log files and temporary files. You must specify an existing, writable directory where the Upgrade Assistant will create log files and temporary files.</p> <p>The default locations are:</p> <p>(UNIX)</p> <pre>NEW_ORACLE_HOME/ oracle_common/upgrade/ logs NEW_ORACLE_HOME/ oracle_common/upgrade/ temp</pre> <p>(Windows)</p> <pre>NEW_ORACLE_HOME\oracle_c ommon\upgrade\logs NEW_ORACLE_HOME\oracle_c ommon\upgrade\temp</pre>
<code>-help</code>	Optional	Displays all of the command-line options.

## Upgrading Oracle Traffic Director 11g Component Configurations

When you run the Upgrade Assistant to upgrade the 11g versions of component configurations, consider the following points based on the Oracle Traffic Director domain.

The Upgrade Assistant must be run to migrate Oracle Traffic Director component configurations from 11g to the 12c (12.2.1.4.0) collocated domain.

You can run the Upgrade Assistant in the following modes:

### Upgrading Oracle Traffic Director 11g in Graphical Mode

To upgrade Oracle Traffic Director using the graphical mode, run the upgrade wizard.

Launch the upgrade assistance and follow the steps below:

1. The Welcome screen displays the pre-upgrade tasks that need to be performed. Ensure you perform these tasks and Click **Next** to continue.
2. In the Upgrade Type screen, select **All Configurations Used By a Domain** and provide the 12c (12.2.1.4.0) domain path in the **Domain Directory** field.

Click **Next** to continue.

3. In the Component List screen, the list of components that needs to be upgraded are displayed.

Click **Next** to continue.

4. In the Prerequisites screen, ensure you have met all the prerequisites as mentioned in the screen.

Select all the check boxes, then Click **Next** to continue.

5. In Oracle Traffic Director Upgrade Path screen, select the source version for the upgrade as **11g source**.

Select the check box **Remote directory**, if the directory containing the 11g instances resides in a different node.

Specify the directory containing **Oracle Traffic Director 11g** instances.

Then Click **Next** to continue.

6. **Optional:** Oracle Traffic Director 11g **SSL Token Pin** screen is displayed only if any of Oracle Traffic Director configurations are **SSL** enabled and if the **SSL tokens** are protected with a **token pin**.

Enter the pin for the SSL token in the **SSL Token Pin** field and a **Oracle Wallet Password** to be set for Oracle Traffic Director configuration in 12c.

Then Click **Next** to continue.

7. The Examine screen shows the status of the examination process, where it is checked if the components are ready to be upgraded.

Once the process is complete, then Click **Next** to continue.

8. The Upgrade Summary screen is displayed.

Click the **Save Response File...** button to create a response file.

A response file is a text file the Upgrade Assistant can write out that saves all of your inputs to the various screens.

This file can be used later as an input for Command Line upgrade bypassing the GUI.

Then Click **Upgrade** to continue.

9. The **Upgrade Progress** screen displays the upgrade progress.

Once the upgrade process is done, then Click **Next** to continue.

10. In the **Upgrade Success** screen, check the log file in case of any errors during the upgrade.

Then Click **Close** to complete the upgrade.

## Upgrading Oracle Traffic Director 11g in Silent Mode

You can upgrade your collocated Oracle Traffic Director in silent mode (command line mode).

To upgrade Oracle Traffic Director using silent mode, run the Upgrade Assistant command with the response file generated using the upgrade wizard.

## Syntax

After a successful upgrade, a success message is displayed on the console. Log file is available under the following path:

```
<12.2.1.4.0 oracle home>/oracle_common/upgrade/logs
```

## Command Line for Silent Upgrade (on UNIX)

```
<12.2.1.4.0 oracle home>/oracle_common/upgrade/bin/ua -response  
<response-file> -logLevel <Log-verbosity>
```



### Note:

The `SSL_TOKEN*` fields are applicable only if the 11g instance has SSL enabled configuration.

## Sample Response File

The following is a sample response file as an example for your requirement.

```
# This is a response file for the Fusion Middleware Upgrade Assistant.  
# Individual component upgrades are performed in the order they are  
described here.  
# Each upgrade is introduced by a section header containing the name of  
the component and name of the upgrade plugin.  
# The form of the section header is  
# [ComponentName.PluginName]  
  
# These names can be found in the Upgrade Descriptor files for the  
components.  
# Individual input lines consist of a name, an equal sign, and a value.  
# The name is in two parts separated by a period. The first part is the  
"name" attribute from the Descriptor File XML tag by which the plugin  
refers to the value.  
# The second part of the name identifies a field within that value.  
Some input types have only one field, while other types can have half a  
dozen.  
# Do not intermix input lines that apply to different XML tags.  
[GENERAL]  
  
# This is the file format version number. Do not change the next line.  
fileFormatVersion = 3  
  
# The next section contains information for accessing a WebLogic Server  
domain.  
[UAWLSINTERNAL.UAWLS]  
  
# The following number uniquely identifies this instance of an upgrade  
plugin.  
# Do not change it.  
pluginInstance = 1
```

```

# Specifies the WebLogic Server domain directory:
UASVR.path = /export/orahome/domains/otd_domain

# The next section contains the information for performing a mid-tier
upgrade on Oracle JRF, as described in the Upgrade Descriptor file
located at
# /export/orahome/oracle_common/plugins/upgrade/jrfua.xml
# Do not change the next line.
[JRF.JRF_CONFIG_PLUGIN]

# The following number uniquely identifies this instance of an upgrade
plugin. Do not change it.
pluginInstance = 1

# The next section contains the information for performing a mid-
tier upgrade on System Components Infrastructure, as described in the
Upgrade Descriptor file located at
# /export/orahome/oracle_common/plugins/upgrade/syscomp.xml
# Do not change the next line.
[CAM.SYSCOMP]

# The next section contains the information for performing a mid-
tier upgrade on Oracle Traffic Director, as described in the Upgrade
Descriptor file located at
# /export/orahome/otd/plugins/upgrade/otd-upgrade.xml
# Do not change the next line.
[OTD.CONFIG_UPGRADE]

# The following number uniquely identifies this instance of an upgrade
plugin. Do not change it.
pluginInstance = 12

# Specifies a choice from a collection of values,
# "Select the source version for the upgrade"
UPGRADE_CHOICE.choose = 11-12

# Specifies the choice for a yes/no option:
# "Remote directory"
REMOTE_INSTANCE_HOME.option = no

# Specifies a file or directory:
# "Enter the directory that contains Oracle Traffic Director 11g
instances (including admin-server)."
OTD_11_INSTANCE_HOME.path = /export/otd_11g_home/instances

# The SSL_TOKEN* fields below are applicable only if the 11g instance
has SSL enabled config.
# The table below lists the 11g Oracle Traffic Director configurations
whose SSL tokens are protected with a token pin. If you want to upgrade
these SSL certificates, then you must provide the SSL token pin as well
as an Oracle wallet password
# The below lines describe a Table input:
# Each non-comment line represents a cell in the table in the
form of

```



```

#      TABLE-NAME.COLUMN-NAME.ROW-NUMBER.DATATYPE-KEYWORD.
#      Simple strings have a "string" keyword suffix.
#      Boolean options have an "option" keyword suffix and yes/no
values.
#      Encrypted passwords have an "encryptedPassword" keyword suffix.
#      To specify a different password in cleartext, use the
"cleartextPassword" keyword instead.
SSL_TOKEN_TABLE.CONFIG_NAME.0.string = test
SSL_TOKEN_TABLE.SSL_TOKEN_PIN.0.encryptedPassword =
050C0F4F5030C0A319B1DE00BBC3AD79C7
SSL_TOKEN_TABLE.WALLET_PSWD.0.encryptedPassword =
057033B2E49C479BDC52E21ABA8FF28263DF8EB1DCCA2C93C5

```

## Verifying Oracle Traffic Director Component Configurations for a Successful Upgrade

After completing all the component configurations upgrade steps, verify whether it is successful by checking your upgraded configuration for Oracle Traffic Director domain.

This section describes the steps to verify the component configurations upgrade for Oracle Traffic Director domain.

### For Oracle Traffic Director 11g Configuration

- The version in `server.xml` of `config-store` is modified to 12c (12.2.1.4.0).
- The value of `ORACLE_HOME` in the scripts and in the `obj.conf` file are updated as the new `ORACLE_HOME` for local Oracle Traffic Director instances.

## Post-Upgrade Tasks

Follow the process to complete post-upgrade tasks for Oracle Traffic Director from 11g to the latest 12c (12.2.1.4.0) version.

Review the following list of post-upgrade tasks to be performed after using the Upgrade Assistant to upgrade to Oracle Traffic Director 12c (12.2.1.4.0):

- Oracle Traffic Director system component instances must be created post-upgrade, by targeting Oracle Traffic Director system component configurations to the machines using Fusion Middleware Control or Oracle WebLogic Scripting Tool (WLST).

### Tip:

See Managing Instances in *Administering Oracle Traffic Director*.

- Setting up failover is a deployment task.  
These steps are best handled outside the upgrade as post-upgrade steps.

 **Tip:**

For more information on deployment topology and configuring failover groups, see *Configuring Oracle Traffic Director for High Availability in Administering Oracle Traffic Director*.

- Any references in Oracle Traffic Director configuration files to the paths outside of `INSTANCE_HOME` and `ORACLE_HOME` may not be accessible post upgrade.

This must be configured manually.

## Starting Servers and Processes After an Upgrade for Oracle Traffic Director

After a successful Oracle Traffic Director upgrade from a 11g to the latest 12c (12.2.1.4.0) version, start all the processes and servers, including the Administration Server and any Managed Servers and system components.

The components may be dependent on each other and hence, they must be started in the correct order.

To start Oracle Traffic Director instances in 12c environment, see [Starting Servers and Processes](#).

For more information on starting Administration and Managed Servers and Node Manager, see the following topic with more details on the procedure, processes, and servers.

## Starting Servers and Processes

After a successful upgrade, restart all processes and servers, including the Administration Server and any Managed Servers.

The components may be dependent on each other so they must be started in the correct order.

 **Note:**

The procedures in this section describe how to start servers and process using the WLST command line 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 start your Fusion Middleware environment, follow the steps below:

### Step 1: Start the Administration Server

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

To start the Administration Server, use the `startWebLogic` script:

- (UNIX) `NEW_DOMAIN_HOME/bin/startWebLogic.sh`
- (Windows) `NEW_DOMAIN_HOME\bin\startWebLogic.cmd`

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

### Step 2: Start Node Manager

To start Node Manager, use the `startNodeManager` script:

- (UNIX) `NEW_DOMAIN_HOME/bin/startNodeManager.sh`
- (Windows) `NEW_DOMAIN_HOME\bin\startNodeManager.cmd`

### Step 3: Start Oracle Identity Management Components

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

- (UNIX) `NEW_DOMAIN_HOME/bin/startComponent.sh component_name`
- (Windows) `NEW_DOMAIN_HOME\bin\startComponent.cmd component_name`

### Step 4: Start the Managed Servers

To start a WebLogic Server Managed Server, use the `startManagedWebLogic` script:

- (UNIX) `NEW_DOMAIN_HOME/bin/startManagedWebLogic.sh managed_server_name admin_url`
- (Windows) `NEW_DOMAIN_HOME\bin\startManagedWebLogic.cmd managed_server_name admin_url`

When prompted, enter your user name and password.

#### Note:

The startup of a Managed Server will typically start the applications that are deployed to it. Therefore, it should not be necessary to manually start applications after the Managed Server startup.

### Step 5: Start System Components

To start system components, such as Oracle HTTP Server, use the `startComponent` script:

- (UNIX) `NEW_DOMAIN_HOME/bin/startComponent.sh component_name`
- (Windows) `NEW_DOMAIN_HOME\bin\startComponent.cmd component_name`

You can start system components in any order.

# Part III

## Upgrading Oracle Traffic Director from an Earlier or a Previous 12c Release

This part of Upgrading Oracle Traffic Director introduces Oracle Traffic Director and provides steps you must perform to prepare for upgrading to the latest version of 12c (12.2.1.4.0).

# 4

## Upgrading Oracle Traffic Director from a Previous 12c Release

You can upgrade Oracle Traffic Director from an earlier 12c release version to the latest 12c (12.2.1.4.0) release version.

Oracle Fusion Middleware Upgrade Assistant supports an in-place upgrade to 12c (12.2.1.4.0) for the following Oracle Traffic Director release versions:

- Oracle Traffic Director FMW 12c Release 2, Version: 12.2.1.2.0
- Oracle Traffic Director FMW 12c Release 2, Version: 12.2.1.3.0

 **Note:**

As of 12.2.1.4.0, Oracle Traffic Director is deprecated. In the future, use Oracle HTTP Server or Kubernetes Load Balancer for equivalent functionality.

The following topics describe how to upgrade Oracle Traffic Director to 12c (12.2.1.4.0):

### About Oracle Traffic Director Upgrade Process from an Earlier or a Previous 12c Release



Review the roadmap for an overview of the upgrade process for Oracle Traffic Director from a previous 12c release.

The steps you take to upgrade your existing domain will vary depending on how your domain is configured and which components are being upgraded. Follow only those steps that are applicable to your deployment.

**Table 4-1 Tasks for Upgrading Oracle Traffic Director from a Previous 12c Release**

Task	Description
<b>Required</b> If you have not done so already, review the introductory topics in this guide and complete the required pre-upgrade tasks.	See: <ul style="list-style-type: none"><li>• <a href="#">Introduction to Upgrading Oracle Traffic Director to 12c (12.2.1.4.0)</a></li><li>• <a href="#">Pre-Upgrade Requirements</a></li><li>• <a href="#">Pre-Upgrade Checklist</a></li></ul>

Table 4-1 (Cont.) Tasks for Upgrading Oracle Traffic Director from a Previous 12c Release

Task	Description
<p><b>Required</b> Download and install the Oracle Fusion Middleware Infrastructure and Oracle Traffic Director 12c (12.2.1.4.0) distributions into a new Oracle home.</p>	<p>See <a href="#">Installing the Product Distributions</a>.</p> <div data-bbox="976 394 1378 951" style="border: 1px solid green; padding: 10px; background-color: #e6f2e6;"> <p> <b>Tip:</b></p> <p>See the following documents for more information on the installation and configuration of Oracle Fusion Middleware Infrastructure and Oracle Traffic Director:</p> <ul style="list-style-type: none"> <li>• <i>Installing and Configuring the Oracle Fusion Middleware Infrastructure</i></li> <li>• <i>Installing Oracle Traffic Director</i></li> </ul> </div>
<p><b>Required</b> Shut down the source and target environments (stop all the Administration and Managed Servers).</p>	<div data-bbox="976 1024 1378 1266" style="border: 1px solid orange; padding: 10px; background-color: #fff9c4;"> <p> <b>WARNING:</b></p> <p>Failure to shut down your servers during an upgrade may lead to data corruption.</p> </div> <p>See <a href="#">Stopping Servers and Processes</a>.</p>
<p><b>Required</b> Reconfigure the existing domain.</p>	<p>Run the reconfiguration wizard targeting the existing domain to update WebLogic Server core infrastructure and the domain to 12c (12.2.1.4.0) version.</p>
<p><b>Required</b> Start the Upgrade Assistant to upgrade domain component configurations.</p>	<p>The Upgrade Assistant is used to update the domain's component configurations on the node that hosts the Administration Server.</p> <p>See <a href="#">Starting the Upgrade Assistant for Oracle Traffic Director 12c Specific Upgrade</a>.</p>

**Table 4-1 (Cont.) Tasks for Upgrading Oracle Traffic Director from a Previous 12c Release**




Task	Description
<p><b>Required</b> Create Oracle Traffic Director instances.</p>	<p>The Upgrade Assistant does not create Oracle Traffic Director instances. These instances must be created post upgrade by targeting Oracle Traffic Director configurations to machines, using Fusion Middleware Control UI or Oracle WebLogic Scripting Tool (WLST). See <a href="#">Post-Upgrade Tasks</a>.</p> <div data-bbox="1052 583 1458 793" style="border: 1px solid #0070C0; padding: 10px; margin-top: 10px;"> <p> <b>Note:</b> This is not applicable for upgrading standalone domain.</p> </div>
<p><b>Optional</b> Upgrade remote managed domains.</p>	<p>For the collocated domain managed remote nodes, we need to upgrade the managed domains on the remote nodes by packing the upgraded collocated domain and recopying the same on to the remote nodes.</p> <div data-bbox="1052 1020 1458 1230" style="border: 1px solid #0070C0; padding: 10px; margin-top: 10px;"> <p> <b>Note:</b> This is not applicable for upgrading standalone domain.</p> </div>
<p><b>Optional</b> Setup failover.</p>	<p>If your source Oracle Traffic Director installation is part of a failover setup with remote nodes managed by the administration server, you must recreate the similar topology as specified in <a href="#">Configuring Failover</a>.</p> <div data-bbox="1052 1430 1458 1640" style="border: 1px solid #0070C0; padding: 10px; margin-top: 10px;"> <p> <b>Note:</b> This is not applicable for upgrading standalone domain.</p> </div>
<p><b>Required</b> Start Upgrade Assistant to upgrade standalone system component configurations.</p>	<p>Upgrade Assistant updates the standalone agent's component configurations. See <a href="#">Starting the Upgrade Assistant for Oracle Traffic Director 12c Specific Upgrade</a>.</p>

Table 4-1 (Cont.) Tasks for Upgrading Oracle Traffic Director from a Previous 12c Release

Task	Description
<p><b>Required</b></p> <p>Start all process and servers.</p> <p>Restart the servers and Oracle Traffic Director 12c (12.2.1.4.0) instance.</p>	<p>When the upgrade process is complete, restart Oracle Traffic Director 12c (12.2.1.4.0) instance.</p> <p>Once the upgrade process is complete, start all processes and servers including the Admin Server, Managed Servers and Oracle Traffic Director instances.</p> <p>See <a href="#">Starting Servers and Processes</a>.</p>
<p><b>Required</b></p> <p>Complete and verify the upgrade.</p>	<p>Perform the required post-upgrade configuration tasks (if needed), including starting the new Administration and Managed Servers and node manager to ensure there are no issues.</p>

**! Important:**

Oracle recommends that you ensure all of the upgraded components are working as expected before deleting your backups.

See [Verifying the Component Configurations](#).

## Preparing to Upgrade Oracle Traffic Director from an Earlier or a Previous 12c to the Latest 12c

This section describes preparing the upgrade Oracle Traffic Director from an earlier or previous 12c version to the latest 12c (12.2.1.4.0) release version.

**! Important:**

Before you upgrade to Oracle Traffic Director 12c (12.2.1.4.0), you must ensure that 12c (12.2.1.4.0) binaries are installed in a **new FMW\_HOME**.

**Note:**

Upgrading across different platforms is not supported. For example, you cannot upgrade Oracle Traffic Director from a Linux to Solaris environment.

For more information on installing 12c (12.2.1.4.0) binaries in a new FMW\_HOME, see the following topic with more details on the procedure and processes.



## Installing the Product Distributions

Before beginning your upgrade, download Oracle Fusion Middleware Infrastructure and Oracle Traffic Director 12c (12.2.1.4.0) distributions on the target system and install them using Oracle Universal Installer.

### Note:

When Infrastructure is required for the upgrade, you must install the Oracle Fusion Middleware distribution first before you install other Fusion Middleware products.

The following install instructions are for the standard Oracle Fusion Middleware installation topology. Refer to the Oracle Traffic Director Installation Guide for more information about installing the other supported topologies.

To install 12c (12.2.1.4.0) distributions:

1. Sign in to the target system.
2. Download the following from [Oracle Technology Network](#) or [Oracle Software Delivery Cloud](#) to your target system:
  - Oracle Fusion Middleware Infrastructure  
(`fmw_12.2.1.4.0_infrastructure_generic.jar`)
  - Oracle Traffic Director (UNIX:  
`distribution_name_12.2.1.3.0_otd_linux64.bin`), (Windows:  
`distribution_name_12.2.1.3.0_otd_win64.exe`)
3. Change to the directory where you downloaded the 12c (12.2.1.4.0) product distribution.
4. Start the installation program for Oracle Fusion Middleware Infrastructure:
  - (UNIX) `JDK_HOME/bin/java -jar fmw_12.2.1.4.0_infrastructure.jar`
  - (Windows) `JDK_HOME\bin\java -jar fmw_12.2.1.4.0_infrastructure.jar`
5. On UNIX operating systems, the Installation Inventory Setup screen appears if this is the first time you are installing an Oracle product on this host.

Specify the location where you want to create your central inventory. Make sure that the operating system group name selected on this screen has write permissions to the central inventory location, and click **Next**.

### Note:

The Installation Inventory Setup screen does not appear on Windows operating systems.

6. On the Welcome screen, review the information to make sure that you have met all the prerequisites. Click **Next**.
7. On the Auto Updates screen, select an option:

- **Skip Auto Updates:** If you do not want your system to check for software updates at this time.
- **Select patches from directory:** To navigate to a local directory if you downloaded patch files.
- **Search My Oracle Support for Updates:** To automatically download software updates if you have a My Oracle Support account. You must enter Oracle Support credentials then click **Search**. To configure a proxy server for the installer to access My Oracle Support, click **Proxy Settings**. Click **Test Connection** to test the connection.

Click **Next**.

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

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

9. On the Installation Type screen, select the following:
  - a. For Infrastructure, select **Fusion Middleware Infrastructure**
  - b. For Oracle Traffic Director, select Oracle Traffic Director

Select the type of installation and consequently, the products and feature sets you want to install.

- Select **Standalone OTD** (Managed independently of WebLogic server) if you are installing Oracle Traffic Director in a Standalone domain or installing Oracle Traffic Director in a remote node of a collocated domain.
- Select **Collocated OTD** (Managed through WebLogic server) if you are installing Oracle Traffic Director in a WebLogic Server domain on the administration server node.

### Important:

You can only upgrade earlier versions of Oracle Traffic Director 12c in the standalone OTD. Upgrading Oracle Traffic Director from 11g to 12c standalone is not supported.

Click **Next**.

See Installing Oracle Traffic Director for more information.

10. The Prerequisite Checks screen analyzes the host computer to ensure that the specific operating system prerequisites have been met.

To view the list of tasks that are verified, select **View Successful Tasks**. To view log details, select **View Log**. If any prerequisite check fails, then an error message appears at the bottom of the screen. Fix the error and click **Rerun** to try again. To ignore the error or the warning message and continue with the installation, click **Skip** (not recommended).

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

If you want to save these options to a response file, click **Save Response File** and enter the response file location and name. The response file collects and stores

all the information that you have entered, and enables you to perform a silent installation (from the command line) at a later time.

Click **Install** to begin the installation.

12. On the Installation Progress screen, when the progress bar displays 100%, click **Finish** to dismiss the installer, or click **Next** to see a summary.
13. The Installation Complete screen displays the Installation Location and the Feature Sets that are installed. Review this information and click **Finish** to close the installer.
14. After you have installed Oracle Fusion Middleware Infrastructure, enter the following command to start the installer for your product distribution and repeat the steps above to navigate through the installer screens:

(UNIX) `./distribution_name_12.2.1.3.0_otd_linux64.bin`

(Windows) `distribution_name_12.2.1.3.0_otd_win64.exe`

## Performing Pre-Upgrade Tasks on Oracle Traffic Director Domain to be Upgraded

You must perform the tasks as in this section, before you begin any upgrade from an earlier or previous Oracle Traffic Director 12c domain to the latest 12c (12.2.1.4.0). These tasks ensure you have a successful upgrade and a limited amount of downtime.

Before you upgrade your earlier or previous Oracle Traffic Director 12c version to the latest Oracle Traffic Director 12c (12.2.1.4.0) environment, you must follow these steps:

1. If you have configured `webgate` plug-in on Oracle Traffic Director instance, then you must ensure that the related changes are pulled into the corresponding Oracle Traffic Director configuration before you run the upgrade.

 **Tip:**

See `pullComponentChanges` in *WebLogic Scripting Tool Command Reference for Oracle Traffic Director*.

2. Shut down all of the pre-upgrade processes and servers, including the Administration Server and any managed servers.

 **Tip:**

To stop Oracle Traffic Director instances in 12c environment, see [Managing Oracle Traffic Director Instances in 12c Environment](#).

For more information on stopping Administration and Managed Servers and Node Manager, see the following topic with more details on the procedure, processes, and servers.

## Stopping Servers and Processes

Before you run the Upgrade Assistant to upgrade your schemas and configurations, you must shut down all of the pre-upgrade 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.

### Note:

The procedures in this section describe how to stop the existing, pre-upgrade 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*.

To stop your pre-upgrade Fusion Middleware environment, navigate to the pre-upgrade domain and follow the steps below:

### Step 1: Stop System Components

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

- (UNIX) `EXISTING_DOMAIN_HOME/bin/stopComponent.sh component_name`
- (Windows) `EXISTING_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) `EXISTING_DOMAIN_HOME/bin/stopManagedWebLogic.sh managed_server_name admin_url`
- (Windows) `EXISTING_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:

- (UNIX) `EXISTING_DOMAIN_HOME/bin/stopComponent.sh component_name`
- (Windows) `EXISTING_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) `EXISTING_DOMAIN_HOME/bin/stopWebLogic.sh`
- (Windows) `EXISTING_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 setting the `nodemanager.properties` attribute `QuitEnabled` to `true` (the default is `false`), you can use WLST to connect to Node Manager and shut it down. See `stopNodeManager` in *WLST Command Reference for WebLogic Server*.

## Managing Oracle Traffic Director Instances in 12c Environment

Before you start upgrading your domain, you must stop all the instances of Oracle Traffic Director.

For more information on how you can configure in multiple modes, see the following topics:

## Starting, Stopping, and Restarting 12c Oracle Traffic Director Instances Using Fusion Middleware Control

Learn more about starting, stopping, or restarting one or more 12c Oracle Traffic Director instances in the graphical mode.

To start, stop, or restart 12c Oracle Traffic Director instances by using Fusion Middleware Control, you must perform the following:

1. Sign in to Fusion Middleware Control for Oracle Traffic Director.



#### Tip:

For more details, see *Displaying Fusion Middleware Control in Administering Oracle Traffic Director*.

2. Click **WebLogic Domain** button at the upper left corner of the page.
3. Select **Administration > OTD Configurations**.  
A list of the available configurations is displayed.
4. Select the configuration for which you want to start, stop, or restart instances.
5. Click **Oracle Traffic Director Configuration**, in the Common Tasks pane.

6. Select Administration > Instances.  
The Instances page is displayed.
7. Select on the list of instances available.  
Click **Start Instances**, or **Stop Instances**, or **Restart Instances** button, as required, for the instance that you want to start, stop, or restart.

## Starting, Stopping, and Restarting Oracle Traffic Director 12c Instances Using Oracle WebLogic Scripting Tool (WLST)

Learn more about starting, stopping, or restarting one or more Oracle Traffic Director 12c instances in the command line mode.

To start, stop, or restart one or more Oracle Traffic Director 12c instances, you must run the following commands:

**Table 4-2 Configuration Commands for 12c Oracle Traffic Director Instances**

Action	Commands
To Start	start
To Stop	shutdown
To Restart	softRestart

The following examples are for your reference and requirement.

The three commands `start`, `shutdown`, and `softRestart` the instance on the machine `otd_foo_machine1`.

```
start('otd_foo_machine1')

shutdown('otd_foo_machine1')

softRestart('otd_foo_machine1')
```

### Tip:

For more information on Oracle WebLogic Scripting Tool (WLST) commands mentioned in this section, see *WebLogic Scripting Tool Command Reference for Oracle Traffic Director*.

## Reconfiguring the Existing Domain in Oracle Traffic Director

Run the Reconfiguration Wizard to reconfigure your Oracle Traffic Director domain component configurations to 12c (12.2.1.4.0).

Follow the process to reconfigure the source Oracle Traffic Director domain on the machine that hosts the Administration Server or the Standalone Domain.

 **WARNING:**

Before you start your reconfiguration process for an existing collocated domain, you must ensure that the Administration Server is not running.

You can run the Reconfiguration Wizard in the following modes:

## Reconfiguring the Existing Oracle Traffic Director Domain in Graphical Mode

To reconfigure your existing Oracle Traffic Director domain using the graphical mode, run the Reconfiguration Wizard.

Navigate through the screens in the Reconfiguration Wizard to reconfigure your existing domain.

1. Launch `<12.2.1.4.0 oracle home>/oracle_common/common/bin/reconfig.sh` from 12.2.1.4.0 installation location.

While the steps described are for collocated domain, the screens are very similar for standalone domain as well.

In the Select Domain screen, provide the domain path of the previous 12c release in the *Existing Domain Location* field.

2. The setup progress screen is displayed.  
Click **Next** to continue.
3. The Reconfig Summary screen is displayed.  
Click **Next** to continue.
4. Click **Next** to continue in the Domain mode and the JDK screen.
5. The Advanced Configuration screen is displayed.  
Click **Next** to continue.
6. Click **Reconfig** on the Configuration Summary screen to continue.
7. The Reconfiguration Progress screen is displayed.  
Click **Next** to continue once the progress is completed and shows 100%.
8. Click **Close** in the End of Configuration screen to finish the Reconfiguration.

## Reconfiguring the Existing Oracle Traffic Director Domain Using Oracle WebLogic Scripting Tool

Learn about how you can reconfigure your existing Oracle Traffic Director domain in the command line mode.

You can also reconfigure the domain using Oracle WebLogic Scripting Tool in the offline mode using the `readDomainForUpgrade` command.

**Tip:**

For more information, see [Reconfiguring a WebLogic Domain Using WebLogic Scripting Tool](#).

## Starting the Upgrade Assistant for Oracle Traffic Director 12c Specific Upgrade

Run the Upgrade Assistant to upgrade product schemas, domain component configurations, or standalone system components to 12c (12.2.1.4.0). Oracle recommends that you run the Upgrade Assistant as a non-SYSDBA user, completing the upgrade for one domain at a time.

**Note:**

Before you start the Upgrade Assistant, make sure that the JVM character encoding is set to UTF-8 for the platform on which the Upgrade Assistant is running. If the character encoding is not set to UTF-8, then you will not be able to download files containing Unicode characters in their names. This can cause the upgrade to fail.

### To start the Upgrade Assistant

1. Go to the `oracle_common/upgrade/bin` directory:
  - (UNIX) `ORACLE_HOME/oracle_common/upgrade/bin`
  - (Windows) `ORACLE_HOME\oracle_common\upgrade\bin`
2. Start the Upgrade Assistant:
  - (UNIX) `./ua`
  - (Windows) `ua.bat`

For information about other parameters that you can specify on the command line, such as logging parameters, see the following topic.

## Upgrade Assistant Parameters Specific to Oracle Traffic Director

You can start the Upgrade Assistant, using the specific command line parameters for Oracle Traffic Director.

When you start the Upgrade Assistant from the command line, you can specify additional parameters. The [Table 3-3](#) shows the specific Command-Line Parameters for Oracle Traffic Director upgrade in Upgrade Assistant.



**Table 4-3 Upgrade Assistant Command-Line Parameters**

Parameter	Required or Optional	Description
-readiness	Required for readiness checks <b>Note:</b> Readiness checks cannot be performed on standalone installations (those not managed by the WebLogic Server).	Performs the upgrade readiness check without performing an actual upgrade. Schemas and configurations are checked. Do not use this parameter if you have specified the -examine parameter.
-threads	Optional	Identifies the number of threads available for concurrent schema upgrades or readiness checks of the schemas. The value must be a positive integer in the range 1 to 8. The default is 4.
-response	Required for silent upgrades or silent readiness checks	Runs the Upgrade Assistant using inputs saved to a response file generated from the data that is entered when the Upgrade Assistant is run in GUI mode. Using this parameter runs the Upgrade Assistant in <i>silent mode</i> (without displaying Upgrade Assistant screens).
-examine	Optional	Performs the examine phase but does not perform an actual upgrade. Do not specify this parameter if you have specified the -readiness parameter.
-logLevel <i>attribute</i>	Optional	Sets the logging level, specifying one of the following attributes: <ul style="list-style-type: none"> <li>• TRACE</li> <li>• NOTIFICATION</li> <li>• WARNING</li> <li>• ERROR</li> <li>• INCIDENT_ERROR</li> </ul> The default logging level is NOTIFICATION. Consider setting the -logLevel TRACE attribute to so that more information is logged. This is useful when troubleshooting a failed upgrade. The Upgrade Assistant's log files can become very large if -logLevel TRACE is used.

Table 4-3 (Cont.) Upgrade Assistant Command-Line Parameters

Parameter	Required or Optional	Description
<code>-logDir location</code>	Optional	<p>Sets the default location of upgrade log files and temporary files. You must specify an existing, writable directory where the Upgrade Assistant will create log files and temporary files.</p> <p>The default locations are:</p> <p>(UNIX)</p> <pre>NEW_ORACLE_HOME/ oracle_common/upgrade/ logs NEW_ORACLE_HOME/ oracle_common/upgrade/ temp</pre> <p>(Windows)</p> <pre>NEW_ORACLE_HOME\oracle_c ommon\upgrade\logs NEW_ORACLE_HOME\oracle_c ommon\upgrade\temp</pre>
<code>-help</code>	Optional	Displays all of the command-line options.

## Upgrading a Collocated Domain

Run the Upgrade Assistant to upgrade Oracle Traffic Director component configurations on the collocated domain. You can upgrade a collocated Oracle Traffic Director, from an earlier or a previous 12c domain to the latest 12c ( 12.2.1.3.0 ) version.

You can run the Upgrade Assistant in the following modes:

- [Upgrading Collocated Oracle Traffic Director in Graphical Mode](#)
- [Upgrading Collocated Oracle Traffic Director in Silent Mode](#)

### Note:

The Upgrade Assistant must only be running on the domain where Oracle Traffic Director is collocated with WebLogic Administration Server within an Oracle Fusion Middleware Infrastructure Oracle home.

For more information on upgrading remote nodes managed by the administration server, see [Upgrading Remote Managed Domains](#).

You can run the Upgrade Assistant in the following modes to upgrade a collocated domain:

## Upgrading Collocated Oracle Traffic Director in Graphical Mode

To upgrade your collocated Oracle Traffic Director using the graphical mode, run the upgrade wizard.

Launch the Upgrade Assistant and follow the steps below:

1. The Welcome screen displays the pre-upgrade tasks that need to be performed.  
Ensure you perform these tasks and Click **Next** to continue.
2. In the Upgrade Type screen, select **All Configurations Used By a Domain** and provide the path of the reconfigured domain of an earlier or a previous 12c release in the **Domain Directory** field.  
Click **Next** to continue.
3. In the Component List screen, the list of components that will be upgraded are displayed.  
Click **Next** to continue.
4. In the Prerequisites screen, make sure you have met all the prerequisites mentioned in the screen.  
Select all the check boxes.  
Then click **Next** to continue.
5. In the Oracle Traffic Director Upgrade Path screen, select the source version for the upgrade as **12c source**.
6. The Examine screen shows the status of the examination process where it is checked if the components are ready to be upgraded.  
Once the process is complete, Click **Next** to continue.
7. The Upgrade Summary screen is displayed.  
Click the **Save Response File..** button to create a response file.  
A response file is a text file the Upgrade Assistant can write out that saves all of your inputs to the various screens.  
This file can be used later as an input for Command Line upgrade bypassing the GUI.  
Click **Upgrade** to continue.
8. The Upgrade Progress screen displays the upgrade progress.  
Once upgrade is done, Click **Next** to continue.
9. In the Upgrade Success screen, check the log file in case of any errors during the upgrade.  
Click **Close** to complete the upgrade.

## Upgrading Collocated Oracle Traffic Director in Silent Mode

You can upgrade your collocated Oracle Traffic Director in silent mode (command line mode).

To upgrade collocated Oracle Traffic Director using silent mode, run the upgrade assistant command with the response file generated using the upgrade wizard.

- After a successful upgrade, a success message is displayed on the console.
- Log file for the upgrade will be saved in the following path:

```
<12.2.1.4.0 oracle home>/oracle_common/upgrade/logs
```

- Command Line for silent upgrade (on UNIX):

```
<12.2.1.4.0 oracle home>/oracle_common/upgrade/bin/ua  
-response <response-file>  
-logLevel <Log-verbosity>
```

### Syntax

After a successful upgrade, a success message is displayed on the console. Log file is available under the following path:

```
<12.2.1.4.0 oracle home>/oracle_common/upgrade/logs
```

### Command Line for Silent Upgrade (on UNIX)

```
<12.2.1.4.0 oracle home>/oracle_common/upgrade/bin/ua -response  
<response-file> -logLevel <Log-verbosity>
```

### Sample Response File

The following is a sample response file as an example for your requirement.

```
# This is a response file for the Fusion Middleware Upgrade Assistant.  
# Individual component upgrades are performed in the order they are  
# described here.  
# Each upgrade is introduced by a section header containing the name of  
# the  
# component and name of the upgrade plugin. The form of the section  
# header is  
# [ComponentName.PluginName]  
  
# These names can be found in the Upgrade Descriptor files for the  
# components.  
# Individual input lines consist of a name, an equal sign, and a value.  
# The name is in two parts separated by a period. The first part is the  
# "name" attribute from the Descriptor File XML tag by which the plugin  
# refers to the value.  
# The second part of the name identifies a field within that value.  
# Some input types have only one field, while other types can have half a  
# dozen.
```

```
# Do not intermix input lines that apply to different XML tags.

[GENERAL]
# This is the file format version number. Do not change the next line.
fileFormatVersion = 3

# The next section contains information for accessing a WebLogic Server
domain.
[UAWLSINTERNAL.UAWLS]

# The following number uniquely identifies this instance of an upgrade
plugin. Do not change it.
pluginInstance = 1

# Specifies the WebLogic Server domain directory:
UASVR.path = /export/orahome/domains/otd_domain

# The next section contains the information for performing a mid-tier
upgrade on Oracle JRF, as described in the Upgrade Descriptor file
located at
# /export/orahome/oracle_common/plugins/upgrade/jrfua.xml
# Do not change the next line.
[JRF.JRF_CONFIG_PLUGIN]

# The following number uniquely identifies this instance of an upgrade
plugin. Do not change it.
pluginInstance = 8

# The next section contains the information for performing a mid-
tier upgrade on System Components Infrastructure, as described in the
Upgrade Descriptor file located at
# /export/orahome/oracle_common/plugins/upgrade/syscomp.xml
# Do not change the next line.
[CAM.SYSCOMP]

# The following number uniquely identifies this instance of an upgrade
plugin. Do not change it.
pluginInstance = 4

# The next section contains the information for performing a mid-
tier upgrade on Oracle Traffic Director, as described in the Upgrade
Descriptor file located at
# /export/orahome/otd/plugins/upgrade/otd-upgrade.xml
# Do not change the next line.
[OTD.CONFIG_UPGRADE]

# The following number uniquely identifies this instance of an upgrade
plugin. Do not change it.
pluginInstance = 12

# Specifies a choice from a collection of values,
# "Select the source version for the upgrade"
UPGRADE_CHOICE.choose = 12-12

# Specifies the choice for a yes/no option:
```

```
# "Remote directory"  
REMOTE_INSTANCE_HOME.option = no
```

## Upgrading Remote Managed Domains

Follow the process as in this topic to upgrade Oracle Traffic Director remotely managed domains.

If the Administration server in the upgraded domain manages multiple remote domains, the following procedure must be followed to upgrade each of these.



### Note:

Note that domains managed by a remote Administration Server are not directly upgradable. Instead, the collocated domain on which the Administration Server is running must be packed and unpacked on the remote node.

Learn more about processes and steps on how you can upgrade remotely managed domains as in the following modes:

## Installing Product Binaries

You must install the product binaries to begin your Oracle Traffic Director upgrade in remote managed domains.

Install Oracle Traffic Director in standalone mode on each node that hosts remote managed domain.



### Tip:

For more information on installing Oracle Traffic Director in a standalone mode, see Installation Procedure in *Installing Oracle Traffic Director*.

## Packing the Upgraded Collocated Domain

Follow the steps to pack your upgraded collocated domain in Oracle Traffic Director upgrade.

Pack the upgraded domain in the node that hosts the Administration Server using the pack command.

- This command creates a template jar file that contains a subset of the domain that can be used to create an Oracle Traffic Director managed domain on the remote machine.
- Copy the template jar created by pack command to the node that needs to host remote managed domain or keep the jar in a file system location which can be accessed from that node.

### Syntax

```
<12.2.1.4.0 Oracle Home>/oracle_common/common/bin/pack.sh  
-domain=<full path to the domain that needs to be packed>  
-template=<full path to a template jar file to be created>  
-template_name=<description>  
-managed=true
```

### Sample Response File

The following is a sample response file as an example for your requirement.

```
<12.2.1.4.0 Oracle Home>/oracle_common/common/bin/pack.sh  
-domain=<domain home>  
-template=/share/files/upgraded_domain.jar  
-template_name=test_after_upgrade  
-managed=true
```

## Unpacking the Upgraded Collocated Domain on the Remote Nodes

Follow the steps to unpack your upgraded collocated domain in Oracle Traffic Director upgrade on the remote nodes.

To unpack your upgraded collocated domain, run the unpack command on the standalone node that needs to host remote managed domain.

### Syntax

```
<12.2.1.4.0 Oracle Home>/oracle_common/common/bin/unpack.sh  
-domain=<full path to the domain that needs to be created>  
-template=<full path to the template jar file created using pack>
```

### Sample Response File

The following is a sample response file as an example for your requirement.

```
<12.2.1.4.0 Oracle Home>/oracle_common/common/bin/unpack.sh  
-domain=<domain home>  
-template=/share/files/upgraded_domain.jar
```

## Upgrading a Standalone Domain

Run the Upgrade Assistant to upgrade Oracle Traffic Director component configurations on the standalone domain. You can upgrade a standalone Oracle Traffic Director, from an earlier or a previous 12c domain to the latest 12c (12.2.1.4.0) version.

You can run the Upgrade Assistant in the following modes:

## Upgrading Standalone Oracle Traffic Director in Graphical Mode

To upgrade your standalone Oracle Traffic Director using the graphical mode, run the upgrade wizard.

Launch the Upgrade Assistant and follow the steps below:

1. The Welcome screen displays the pre-upgrade tasks that need to be performed. Ensure you perform these tasks and Click **Next** to continue.

2. In the Upgrade Type screen, Select **Standalone System Component Configurations**.

In the Standalone Components screen, Select **Update an Existing Domain** and provide the path of the reconfigured standalone domain of previous 12c release in the **Domain Directory** field.

Click **Next** to continue.

 **Note:**

The **Create a new Domain** option is not supported in Oracle Traffic Director Standalone Domain.

3. In the Component List screen, the list of components that will be upgraded are displayed. Click **Next** to continue.
4. In the Prerequisites screen, ensure you have met all the prerequisites mentioned in the screen. Select all the check boxes, then Click **Next** to continue.
5. In Oracle Traffic Director Upgrade Path screen, Select the source version for the upgrade as **12c source**.
6. The Examine screen shows the status of the examination process where it is checked if the components are ready to be upgraded. Once the process is complete, Click **Next** to continue.
7. The Upgrade Summary screen is displayed. Click the **Save Response File...** button to create a response file. This file can be used as an input for Command Line upgrade. Click **Upgrade** to continue.
8. The Upgrade Progress screen displays the upgrade progress. Once the upgrade is completed, Click **Next** to continue.
9. In the Upgrade Success screen, check the log file in case of any errors during the upgrade. Click **Close** to complete this upgrade.



## Upgrading Standalone Oracle Traffic Director in Silent Mode

You can upgrade your standalone Oracle Traffic Director in silent mode (command line mode).

To upgrade standalone Oracle Traffic Director using silent mode, run the Upgrade Assistant command with the response file generated using the upgrade wizard.

### Syntax

After a successful upgrade, a success message is displayed on the console. Log file is available under the following path:

```
<12.2.1.4.0 oracle home>/oracle_common/upgrade/logs
```

### Command Line for Silent Upgrade (on UNIX)

```
<12.2.1.4.0 oracle home>/oracle_common/upgrade/bin/ua  
-response <response-file>  
-logLevel <Log-verbosity>
```

### Sample Response File

The following is a sample response file as an example for your requirement.

```
# This is a response file for the Fusion Middleware Upgrade Assistant.  
# Individual component upgrades are performed in the order they are  
# described here.  
# Each upgrade is introduced by a section header containing the name of  
# the component and name of the upgrade plugin. The form of the section  
# header is  
# [ComponentName.PluginName]  
  
# These names can be found in the Upgrade Descriptor files for the  
# components.  
# Individual input lines consist of a name, an equal sign, and a value.  
# The name is in two parts separated by a period. The first part is  
# the "name" attribute from the Descriptor File XML tag by which the  
# plugin refers to the value.  
# The second part of the name identifies a field within that value.  
# Some input types have only one field, while other types can have half a  
# dozen.  
# Do not intermix input lines that apply to different XML tags.  
  
[GENERAL]  
  
# This is the file format version number. Do not change the next line.  
fileFormatVersion = 3  
  
# The next section contains information for accessing a WebLogic Server  
# domain.  
[UAWLSINTERNAL.UAWLS]
```

```

# The following number uniquely identifies this instance of an upgrade
plugin. Do not change it.
pluginInstance = 1

# Specifies the WebLogic Server domain directory:
UASVR.path = /export/12212/orahome/otd_domain

# The next section contains the information for performing a mid-
tier upgrade on Oracle Traffic Director, as described in the Upgrade
Descriptor file located at
#   /export/12213/orahome/otd/plugins/upgrade/otd-upgrade.xml
# Do not change the next line.
[OTD.CONFIG_UPGRADE]

# The following number uniquely identifies this instance of an upgrade
plugin. Do not change it.
pluginInstance = 5

# The next section contains the information for performing a mid-tier
upgrade on System Components Infrastructure, as described in the Upgrade
Descriptor file located at
#   /export/12213/orahome/oracle_common/plugins/upgrade/syscomp.xml
# Do not change the next line.
[CAM.SYSCOMP]

# The following number uniquely identifies this instance of an upgrade
plugin. Do not change it.
pluginInstance = 2

# The next few lines describe an Oracle Instance:
# "Enter the location of one or more 11g Oracle instance directories
to be upgraded."
# Specifies whether source of the upgrade is 12c or not
INSTANCES.sourceIs12 = yes

```

## Verifying the Component Configurations for a Successful Upgrade

After completing all the component configurations upgrade steps, verify whether it is successful by checking your upgraded configuration for Oracle Traffic Director domain.

This section describes the steps to verify the component configurations upgrade for Oracle Traffic Director domain.

### For Oracle Traffic Director 12c Configuration:

- The version in `server.xml` is modified to 12c (12.2.1.4.0).
- The value of `ORACLE_HOME` in the scripts and in the `obj.conf` file are updated as the new `ORACLE_HOME` for local Oracle Traffic Director instances.

## Post-Upgrade Tasks

Follow the process to complete post-upgrade tasks for Oracle Traffic Director from an earlier/previous 12c to the latest 12c (12.2.1.4.0) version.

Review the following list of post-upgrade tasks to be performed after using the Upgrade Assistant to upgrade to Oracle Traffic Director 12c (12.2.1.4.0):

- Oracle Traffic Director instances must be created post-upgrade, by targeting Oracle Traffic Director configurations to the machines using Fusion Middleware Control or Oracle WebLogic Scripting Tool (WLST).

 **Tip:**

See Managing Instances in *Administering Oracle Traffic Director*.

- Setting up failover is a deployment task.

These steps are best handled outside the upgrade as post-upgrade steps.

 **Tip:**

For more information on deployment topology and configuring failover groups, see Configuring Oracle Traffic Director for High Availability in *Administering Oracle Traffic Director*.

- Any references in Oracle Traffic Director configuration files to the paths outside of `INSTANCE_HOME` and `ORACLE_HOME` may not be accessible post upgrade.

This must be configured manually.

## Starting Servers and Processes

After a successful upgrade from an earlier/previous 12c to the latest 12c (12.2.1.4.0) version, start all the processes and servers, including the Administration Server and any Managed Servers and system components.

The components may be dependent on each other and hence, they must be started in the correct order.

 **Tip:**

To start Oracle Traffic Director instances in 12c environment, see Managing Instances.

For more information on starting and stopping Administration and Managed Servers and Node Manager, see the following topic with complete details on the procedure and how to run all these processes and servers.

# Starting Servers and Processes

After a successful upgrade, restart all processes and servers, including the Administration Server and any Managed Servers.

The components may be dependent on each other so they must be started in the correct order.



## Note:

The procedures in this section describe how to start servers and process using the WLST command line 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 start your Fusion Middleware environment, follow the steps below:

### Step 1: Start the Administration Server

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

To start the Administration Server, use the `startWebLogic` script:

- (UNIX) `NEW_DOMAIN_HOME/bin/startWebLogic.sh`
- (Windows) `NEW_DOMAIN_HOME\bin\startWebLogic.cmd`

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

### Step 2: Start Node Manager

To start Node Manager, use the `startNodeManager` script:

- (UNIX) `NEW_DOMAIN_HOME/bin/startNodeManager.sh`
- (Windows) `NEW_DOMAIN_HOME\bin\startNodeManager.cmd`

### Step 3: Start Oracle Identity Management Components

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

- (UNIX) `NEW_DOMAIN_HOME/bin/startComponent.sh component_name`
- (Windows) `NEW_DOMAIN_HOME\bin\startComponent.cmd component_name`

### Step 4: Start the Managed Servers

To start a WebLogic Server Managed Server, use the `startManagedWebLogic` script:

- (UNIX) `NEW_DOMAIN_HOME/bin/startManagedWebLogic.sh managed_server_name admin_url`

- (Windows) `NEW_DOMAIN_HOME\bin\startManagedWebLogic.cmd`  
`managed_server_name admin_url`

When prompted, enter your user name and password.

 **Note:**

The startup of a Managed Server will typically start the applications that are deployed to it. Therefore, it should not be necessary to manually start applications after the Managed Server startup.

### Step 5: Start System Components

To start system components, such as Oracle HTTP Server, use the `startComponent` script:

- (UNIX) `NEW_DOMAIN_HOME/bin/startComponent.sh component_name`
- (Windows) `NEW_DOMAIN_HOME\bin\startComponent.cmd component_name`

You can start system components in any order.

# Part IV

## Troubleshooting and Advanced Configurations

This part of Upgrading Oracle Traffic Director provides information about troubleshooting upgrade issues and options for advanced upgrade configurations.

# 5

## Troubleshooting the Upgrade

If the upgrade process fails, you must close the Upgrade Assistant, correct the issue, and then restart the Upgrade Assistant.

If the upgrade process fails *after* the upgrade process has started, you must drop the cloned repository and start from a freshly cloned repository in addition to correcting the underlying issue. There is no way to restart the failed upgrade process.

 **Tip:**

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

For more options in troubleshooting, see:

## Troubleshooting Upgrade Performance Errors

Learn more about upgrade related performance errors and how to troubleshoot them.

The number of sessions present in a repository affects upgrade performance. Oracle recommends that you archive and purge your session logs to improve upgrade performance.

 **Tip:**

For more information, see the following:

- Purging the Log in *Administering Oracle Data Integrator*.
- Managing Logs in *Administering Oracle Traffic Director*.

# A

## Upgrading the JDK After Installing and Configuring an Oracle Fusion Middleware Product

This appendix describes some common procedures for upgrading the JDK after installing and configuring an Oracle Fusion Middleware product.

### About Updating the JDK Location After Installing an Oracle Fusion Middleware Product

The binaries and other metadata and utility scripts in the Oracle home and Domain home, such as RCU or Configuration Wizard, use a JDK version that was used while installing the software and continue to refer to the same version of the JDK. The JDK path is stored in a variable called `JAVA_HOME` which is centrally located in `.globalEnv.properties` file inside the `ORACLE_HOME/oui` directory.

The utility scripts such as `config.sh|cmd`, `launch.sh`, or `opatch` reside in the `ORACLE_HOME`, and when you invoke them, they refer to the `JAVA_HOME` variable located in `.globalEnv.properties` file. To point these scripts and utilities to the newer version of JDK, you must update the value of the `JAVA_HOME` variable in the `.globalEnv.properties` file by following the directions listed in [Updating the JDK Location in an Existing Oracle Home](#).

To make the scripts and files in your Domain home directory point to the newer version of the JDK, you can follow one of the following approaches:

- Specify the path to the newer JDK on the Domain Mode and JDK screen while running the Configuration Wizard.

For example, consider that you installed Oracle Fusion Middleware Infrastructure with the JDK version 8u191. So while configuring the WebLogic domain with the Configuration Assistant, you can select the path to the newer JDK on the Domain Mode and JDK screen of the Configuration Wizard. Example: `/scratch/jdk/jdk1.8.0_211`.

- Manually locate the files that have references to the JDK using `grep` (UNIX) or `findstr` (Windows) commands and update each reference. See [Updating the JDK Location in an Existing Oracle Home](#).

#### Note:

If you install the newer version of the JDK in the same location as the existing JDK by overwriting the files, then you don't need to take any action.



## Updating the JDK Location in an Existing Oracle Home

The `getProperty.sh|cmd` script displays the value of a variable, such as `JAVA_HOME`, from the `.globalEnv.properties` file. The `setProperty.sh|cmd` script is used to set the value of variables, such as `OLD_JAVA_HOME` or `JAVA_HOME` that contain the locations of old and new JDKs in the `.globalEnv.properties` file.

The `getProperty.sh|cmd` and `setProperty.sh|cmd` scripts are located in the following location:

(UNIX) `ORACLE_HOME/oui/bin`

(Windows) `ORACLE_HOME\oui\bin`

Where, `ORACLE_HOME` is the directory that contains the products using the current version of the JDK, such as `1.8.0_191`.

To update the JDK location in the `.globalEnv.properties` file:

1. Use the `getProperty.sh|cmd` script to display the path of the current JDK from the `JAVA_HOME` variable. For example:

(UNIX) `ORACLE_HOME/oui/bin/getProperty.sh JAVA_HOME`

(Windows) `ORACLE_HOME\oui\bin\getProperty.cmd JAVA_HOME`

`echo JAVA_HOME`

Where `JAVA_HOME` is the variable in the `.globalEnv.properties` file that contains the location of the JDK.

2. Back up the path of the current JDK to another variable such as `OLD_JAVA_HOME` in the `.globalEnv.properties` file by entering the following commands:

(UNIX) `ORACLE_HOME/oui/bin/setProperty.sh -name OLD_JAVA_HOME -value specify_the_path_of_current_JDK`

(Windows) `ORACLE_HOME\oui\bin\setProperty.cmd -name OLD_JAVA_HOME -value specify_the_path_of_current_JDK`

This command creates a new variable called `OLD_JAVA_HOME` in the `.globalEnv.properties` file, with a value that you have specified.

3. Set the new location of the JDK in the `JAVA_HOME` variable of the `.globalEnv.properties` file, by entering the following commands:

(UNIX) `ORACLE_HOME/oui/bin/setProperty.sh -name JAVA_HOME -value specify_the_location_of_new_JDK`

(Windows) `ORACLE_HOME\oui\bin\setProperty.cmd -name JAVA_HOME -value specify_the_location_of_new_JDK`

After you run this command, the `JAVA_HOME` variable in the `.globalEnv.properties` file now contains the path to the new JDK, such as `jdk1.8.0_211`.

## Updating the JDK Location in an Existing Domain Home

You must search the references to the current JDK, for example `1.8.0_191` manually, and replace those instances with the location of the new JDK.

You can use the `grep` (UNIX) or `findstr` (Windows) commands to search for the jdk-related references.

You'll likely be required to update the location of JDK in the following three files:

(UNIX) `DOMAIN_HOME/bin/setNMJavaHome.sh`

(Windows) `DOMAIN_HOME\bin\setNMJavaHome.cmd`

(UNIX) `DOMAIN_HOME/nodemanager/nodemanager.properties`

(Windows) `DOMAIN_HOME\nodemanager\nodemanager.properties`

(UNIX) `DOMAIN_HOME/bin/setDomainEnv.sh`

(Windows) `DOMAIN_HOME\bin\setDomainEnv.cmd`