

Oracle® Fusion Middleware

Installing Oracle Unified Directory



12c (12.2.1.3.0)

E97674-05

August 2020

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 Installing Oracle Unified Directory, 12c (12.2.1.3.0)

E97674-05

Copyright © 2017, 2020, Oracle and/or its affiliates.

Primary Author: Lawallambok Wahlang

Contributing Authors: Devanshi Mohan, Sandhya U.S

Contributors: Vajjanath Modi, Kuldeep Shah, Ashim Kumar, Anandaprakash Sivasubramanian, Vinay Kalra, Etienne Remillon

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	x
Documentation Accessibility	x
Related Documents	x
Conventions	xi

What's New in This Guide?

New Features in Release 12c (12.2.1.3.0)	xii
--	-----

1 Planning the Oracle Unified Directory Installation

1.1	Checking the System Requirements for Oracle Unified Directory	1-1
1.1.1	Viewing the Oracle Unified Directory Certification Matrix	1-1
1.1.2	Pre-Installation System Notes	1-2
1.1.3	Oracle Identity and Access Management Health Checker	1-2
1.2	Selecting an Oracle Unified Directory Server Role	1-2
1.2.1	About Oracle Unified Directory as a Directory Server	1-2
1.2.2	About Oracle Unified Directory as a Proxy Server	1-3
1.2.3	About Oracle Unified Directory as a Replication Gateway	1-3
1.3	Understanding the Oracle Unified Directory Installation Directories	1-3
1.3.1	Oracle Middleware Home Location	1-3
1.3.2	Oracle Home Directory	1-4
1.3.3	Oracle Common Directory	1-4
1.3.4	Oracle WebLogic Domain Directory	1-4
1.3.5	Oracle Unified Directory Installation Directory Structure	1-4

2 Installing the Oracle Unified Directory Software

2.1	Before You Install Oracle Unified Directory	2-1
2.2	Installing the Java Development Kit	2-2
2.3	Setting the JAVA_HOME Environment Variable	2-2
2.4	Setting the PATH Environment Variable	2-3

2.5	Obtaining Product Distributions	2-3
2.5.1	Downloading the Oracle Fusion Middleware Infrastructure Distribution	2-4
2.5.2	Downloading the Oracle Unified Directory Distribution from OSDC	2-4
2.5.3	Downloading the Oracle Unified Directory Distribution from OTN	2-5
2.6	Installing and Configuring OUD/OUDSM Domains	2-5
2.6.1	Installing the OUD/OUDSM Software	2-5
2.6.1.1	Installing Oracle Fusion Middleware Infrastructure	2-6
2.6.1.2	Installing Oracle Unified Directory	2-6
2.6.2	Configuring OUD and OUDSM in Separate Domains	2-8
2.6.2.1	Configuring a Domain for OUD Using the Configuration Wizard	2-8
2.6.2.2	Creating a Domain for OUDSM Using the WebLogic Scripting Tool	2-9
2.6.3	Configuring OUD and OUDSM in a Single Domain	2-10
2.6.3.1	Creating Database Schemas for the Infrastructure Domain Using the Repository Creation Utility	2-10
2.6.3.2	Configuring OUD/OUDSM Domain Using the Configuration Wizard	2-12
2.7	Starting the Administration Server	2-14
2.8	Starting the Node Manager	2-15
2.9	Performing an Oracle Unified Directory Silent Installation	2-16
2.10	Configuring Oracle Unified Directory with Oracle Directory Integration Platform	2-17

3 Setting Up Oracle Unified Directory as a Directory Server

3.1	Setting Up the Directory Server Using the Graphical User Interface (GUI)	3-1
3.2	Setting Up the Directory Server Using the Command-Line Interface (CLI)	3-6
3.3	Setting Up Replication During Installation	3-14
3.4	Setting Up the Directory Server Using the WebLogic Scripting Tool	3-15

4 Setting Up Oracle Unified Directory as a Proxy Server

4.1	Before You Set up the Oracle Unified Directory Proxy	4-1
4.2	Setting Up the Proxy Server Using the Graphical User Interface (GUI)	4-1
4.2.1	Presentation of the GUI Setup Wizard	4-2
4.2.2	Configuring Simple Load Balancing	4-2
4.2.3	Configuring Simple Distribution	4-6
4.2.4	Configuring Distribution with Load Balancing	4-10
4.2.5	Enterprise User Security (EUS) Configuration	4-15
4.3	Set Up the Proxy Using the Command-Line (CLI)	4-15
4.3.1	Setting Up the Proxy Using the CLI	4-16
4.4	Duplicating an Oracle Unified Directory Proxy Installation	4-17
4.4.1	Duplicating a Proxy Installation Using the GUI	4-17
4.4.2	Duplicating a Proxy Installation Using the Installation Log File	4-18

4.5	Manage Redundancy for Oracle Unified Directory	4-19
4.6	Setting Up the Proxy Server Using the WebLogic Scripting Tool	4-19

5 Setting Up Oracle Unified Directory as a Replication Gateway

5.1	Before You Set Up the Replication Gateway	5-1
5.2	Setting Up the Replication Gateway Using the Graphical User Interface (GUI)	5-2
5.3	Setting Up the Replication Gateway Using the Command-Line Interface (CLI)	5-7
5.4	Verifying the Replication Gateway Setup	5-8
5.5	Setting Up the Replication Gateway Using the WebLogic Scripting Tool	5-9

6 Updating the Oracle Unified Directory Software

6.1	Important Notes Before You Begin	6-1
6.2	Starting Points for an Oracle Unified Directory Update	6-2
6.3	Backing Up the Middleware Home	6-2
6.4	Considerations for Global Index Catalogs	6-3
6.5	Updating a Directory Service Without Service Interruption	6-3
6.5.1	Upgrading a Topology That Includes a Proxy Server	6-3
6.5.1.1	About Topology with the Replication Servers and Directory Servers on the Same Host	6-4
6.5.1.2	Upgrading a Topology with the Replication Servers and Directory Servers on the Same Host	6-4
6.5.1.3	About Topology with Replication Servers and Directory Servers on Different Hosts	6-5
6.5.1.4	Upgrading a Topology with Replication Servers and Directory Servers on Different Hosts	6-6
6.5.2	Upgrading a Topology That Does Not Include a Proxy Server	6-7
6.6	Upgrading an Existing Oracle Unified Directory Server Instance	6-8
6.6.1	Enabling Admin REST API for an Upgraded 12.2.1.3.0 OUD Instance	6-10
6.7	Verifying the Oracle Unified Directory Server Instance Upgrade	6-11
6.8	Enabling TNS Alias Support for EUS-enabled Configurations	6-12
6.9	Upgrading Oracle Unified Directory Services Manager	6-14
6.9.1	OUDSM Version Requirements	6-14
6.9.1.1	Updating Multiple Instances of OUDSM	6-15
6.9.2	Upgrading OUDSM from 11g to 12c	6-15
6.9.3	Upgrading OUDSM from 11g to 12c Using the Reconfiguration Wizard	6-16
6.9.4	Verifying the OUDSM Upgrade	6-20
6.9.5	Considerations for Upgrading Oracle WebLogic Server	6-21
6.9.6	Considerations for Upgrading Oracle Application Development Framework	6-21
6.10	What to Do If the Upgrade Process Fails	6-21

7 Configuring the JVM, Java, and Database Cache Options for Oracle Unified Directory

7.1	Configuring the JVM Using the dstune Utility	7-1
7.2	Configuring the Default JVM and Java Arguments	7-2
7.2.1	Using the Java Properties File	7-2
7.2.2	Configuring JVM Options	7-3
7.2.3	Specifying the Java Virtual Machine for a Specific Utility	7-5
7.2.4	Specifying the Java Arguments for a Specific Utility	7-5
7.3	Configuring the Java Run-Time Settings During the Server Setup	7-6
7.4	Database Cache Size	7-6
7.4.1	Setting Database Cache Using dsconfig	7-7
7.5	Setting the Database Cache Mode	7-7

8 Uninstalling Oracle Unified Directory

8.1	Uninstalling an Oracle Unified Directory Instance	8-1
8.1.1	Uninstalling a Directory Server Instance	8-1
8.1.1.1	Uninstalling a Directory Server Instance Using GUI Mode	8-1
8.1.1.2	Uninstalling a Directory Server Instance Using the CLI	8-2
8.1.1.3	Uninstalling a Directory Server Instance Using a Script	8-3
8.1.1.4	Deleting a Directory Server Instance Using WLST	8-3
8.1.2	Uninstalling a Proxy Server Instance	8-4
8.1.2.1	Uninstalling a Proxy Server Instance Using the GUI	8-4
8.1.2.2	Uninstalling a Proxy Server Instance Using the CLI	8-4
8.1.2.3	Uninstalling a Proxy Server Instance Using a Script	8-5
8.1.2.4	Deleting a Proxy Server Instance Using WLST	8-5
8.1.3	Uninstalling a Replication Gateway Instance	8-6
8.1.3.1	Uninstalling a Replication Gateway Instance Using the GUI	8-6
8.1.3.2	Uninstalling a Replication Gateway Instance Using the CLI	8-7
8.1.3.3	Uninstalling a Replication Gateway Instance Using a Script	8-8
8.1.3.4	Deleting a Replication Gateway Instance Using WLST	8-8
8.1.4	Removing the Oracle Unified Directory Software	8-8

9 Managing Oracle Unified Directory as a Windows Service

9.1	Managing the Oracle Unified Directory Server as a Windows Service	9-1
9.1.1	Configuring the Timeout Value when the Oracle Unified Directory Server Starts	9-1
9.2	Removing the Oracle Unified Directory Windows Service	9-2
9.2.1	Removing a Windows Service Using windows-service.bat	9-2

9.2.2 Removing the Oracle Unified Directory Service From the Windows Registry

9-2

List of Figures

6-1	Replicated Topology With Proxy Servers - RS and DS on the Same Host	6-4
6-2	Replicated Topology With Proxy Servers - RS and DS on Different Hosts	6-6
6-3	Replicated Oracle Unified Directory Topology Without Proxy Servers	6-7

List of Tables

6-1	Field Descriptions for Node Manager Screen	6-18
7-1	Properties in the java.properties File Relevant to Oracle Unified Directory	7-3
7-2	Java Options That Can Affect Oracle Unified Directory Server Performance	7-3

Preface

This guide describes how to install and deinstall the Oracle Unified Directory software and how to setup Oracle Unified Directory as a directory server instance, proxy server instance, or replication gateway. This guide also describes the installation requirements and the minimum configuration required to get started using a server.

This Preface includes the following sections:

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

Audience

This guide is intended for installers and system administrators and other users who want to install Oracle Unified Directory as a directory server, proxy server, or replication gateway.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc>.

Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info> or visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs> if you are hearing impaired.

Related Documents

You might want to refer to the following Oracle Unified Directory documentation:

- *Administering Oracle Unified Directory*
- *Developing Plug-Ins for Oracle Unified Directory*
- *Configuration Reference for Oracle Unified Directory*

Conventions

The following text conventions are used in this guide:

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

What's New in This Guide?

This preface introduces the new and changed features of Oracle Unified Directory since the previous release, and provides pointers to additional information.

See [New Features in Release 12c \(12.2.1.3.0\)](#).

New Features in Release 12c (12.2.1.3.0)

Oracle Unified Directory 12c (12.2.1.3.0) provides a concise summary of the new features in this release, which includes the following topics:

- [ODSM Rebranding](#)
- [Support for WLST Provisioning Commands](#)
- [Support for Oracle Fusion Middleware Configuration Wizard](#)
- [Support for Oracle Fusion Middleware Repository Creation Utility](#)
- [Support for Oracle Fusion Middleware Reconfiguration Wizard](#)
- [Support for the `upgrade-oud-instance` Script](#)
- [Support for TNS Alias in EUS-enabled Configurations](#)

ODSM Rebranding

Oracle Directory Services Manager (ODSM) is, now, re-branded as Oracle Unified Directory Services Manager (OUDSM).

Support for WLST Provisioning Commands

Oracle Unified Directory now supports WLST provisioning commands for configuring a WebLogic domain and for creating and deleting OUD instances.

You can execute the `createOUDSMDomain` command to create a compact domain for Oracle Unified Directory Services Manager. See [Creating a Domain for OUDSM Using the WebLogic Scripting Tool](#).

You can execute the `oud_createInstance` command to create an OUD instance. See [Setting Up the Directory Server Using the WebLogic Scripting Tool](#), [Setting Up the Proxy Server Using the WebLogic Scripting Tool](#), and [Setting Up the Replication Gateway Using the WebLogic Scripting Tool](#).

You can execute the `oud_deleteInstance` command to delete an OUD instance. See [Deleting a Directory Server Instance Using WLST](#), [Deleting a Proxy Server Instance Using WLST](#), and [Deleting a Replication Gateway Instance Using WLST](#).

Support for Oracle Fusion Middleware Configuration Wizard

Oracle Unified Directory now supports the Oracle Fusion Middleware Configuration Wizard to create or extend a WebLogic domain with OUD system component on the admin system.

See [Configuring OUD and OUDSM in a Single Domain](#).

Support for Oracle Fusion Middleware Repository Creation Utility

Oracle Unified Directory now supports the Oracle Fusion Middleware Repository Creation Utility to create database schemas and load in your database.

See [Creating Database Schemas for the Infrastructure Domain Using the Repository Creation Utility](#).

Support for Oracle Fusion Middleware Reconfiguration Wizard

Oracle Unified Directory now supports the Oracle Fusion Middleware Reconfiguration Wizard to reconfigure a WebLogic Server domain.

See [Upgrading OUDSM from 11g to 12c Using the Reconfiguration Wizard](#).

Support for the `upgrade-oud-instance` Script

Oracle Unified Directory supports the `upgrade-oud-instance` script. The script updates the install path of each instance to point to the new Oracle 12c Home and also updates the Java properties for each instance.

See [Upgrading an Existing Oracle Unified Directory Server Instance](#).

Support for TNS Alias in EUS-enabled Configurations

Oracle Unified Directory now supports for enabling TNS aliases in Oracle Unified Directory deployments with Oracle Enterprise User Security (EUS) configured.

See [Enabling TNS Alias Support for EUS-enabled Configurations](#).

1

Planning the Oracle Unified Directory Installation

You must check the system requirements, decide which mode of Oracle Unified Directory to set up, set the environment variables, and specify the installation directories before installing Oracle Unified Directory.

Topics:

- [Checking the System Requirements for Oracle Unified Directory](#)
- [Selecting an Oracle Unified Directory Server Role](#)
- [Understanding the Oracle Unified Directory Installation Directories](#)

1.1 Checking the System Requirements for Oracle Unified Directory

Before you install Oracle Unified Directory or any related products, check the certification matrix and system requirements to ensure that your environment meets the minimum requirements for the products you are installing.

The following documents are available on the Oracle Technology Network (OTN):

- The certification matrix contains information about supported installation types, platforms, operating systems, databases, JDKs, and third-party products.
- The process of patching an Oracle Fusion Middleware Identity and Access Management 11g (11.1.2.3.0) deployment starts with the Selection of Patching Method in *Patching Guide for Oracle Identity and Access Management*.

This topic includes the following sections:

- [Viewing the Oracle Unified Directory Certification Matrix](#)
- [Pre-Installation System Notes](#)
- [Oracle Identity and Access Management Health Checker](#)

1.1.1 Viewing the Oracle Unified Directory Certification Matrix

Oracle Fusion Middleware provides the system requirements and supported platforms for its components to view the certification matrix.

To view the certification matrix:

1. Access the [Oracle Fusion Middleware Supported System Configurations](#) page.
2. Scroll down to System Requirements and Supported Platforms for Oracle Identity and Access Management 12c (12.2.1.3.0).
3. Click the `xls` link to view the certification matrix.

1.1.2 Pre-Installation System Notes

Consider these requirements before installing Oracle Unified Directory.

- On Windows systems you must have administrator privileges to install the Oracle Unified Directory software.
- Before running the installer, set the `DISPLAY` environment variable on your system.
- On UNIX and Linux systems, installation as the root user is not supported.
- The Oracle Unified Directory software treats global, full local, and sparse zones as an independent physical system. Installing Oracle Unified Directory in any type of Solaris zone is therefore like installing on an independent system. Oracle Unified Directory does not share services or file locations with other zones.

1.1.3 Oracle Identity and Access Management Health Checker

The Health Checker is a tool that you can run to test various configurations in an Oracle Identity and Access Management environment. You can run the Health Checker at the post-configuration stage of an Oracle Unified Directory deployment.

The Health Checker retrieves data from your environment and compares this data with the Oracle recommended values for the various configuration settings. The Health Checker then generates a report that provides detailed information about each of the items that it checked.

For more information on how to run the Health Checker, see *Understanding the Oracle Identity and Access Environment Health Check Utility* in *Verifying Your Oracle Identity and Access Management Environment*.

This guide also provides manual checklists for deploying Oracle identity and Access Management components in production, including a checklist for Oracle Unified Directory.

1.2 Selecting an Oracle Unified Directory Server Role

You can use Oracle Unified Directory in several roles based on your requirements. You can set up Oracle Unified Directory as a directory server, proxy server, or replication gateway.

Oracle Unified Directory can function in the following three modes or roles:

- [About Oracle Unified Directory as a Directory Server](#)
- [About Oracle Unified Directory as a Proxy Server](#)
- [About Oracle Unified Directory as a Replication Gateway](#)

As a general rule, the use of the generic term *server* can apply to the directory server, proxy server, or replication gateway.

1.2.1 About Oracle Unified Directory as a Directory Server

When you set up Oracle Unified Directory as a directory server, the server acts as an LDAP directory server that contains directory data.

See [Setting Up Oracle Unified Directory as a Directory Server](#).

1.2.2 About Oracle Unified Directory as a Proxy Server

When you set up Oracle Unified Directory as an LDAP proxy server, the server acts as an interface between the client and a remote LDAP server containing the data. The proxy server manages the client requests through load balancing, data distribution, or both.

The proxy does not contain any data. The proxy can also manipulate the data sent by the client or received from the remote LDAP servers (for example, DN renaming, RDN changing, transformation, or Enterprise User Security).

When you use the Oracle Unified Directory proxy, your data is stored in one or more remote LDAP servers or data centers, which can be any LDAPv3-compliant directory server such as Oracle Unified Directory directory server or Oracle Directory Server Enterprise Edition.

See [Setting Up Oracle Unified Directory as a Proxy Server](#).

1.2.3 About Oracle Unified Directory as a Replication Gateway

When you set up Oracle Unified Directory as a replication gateway, the server acts as a gateway that enables replication between Oracle Directory Server Enterprise Edition and Oracle Unified Directory.

See [Setting Up Oracle Unified Directory as a Replication Gateway](#).

1.3 Understanding the Oracle Unified Directory Installation Directories

During the software installation, you are asked to specify several installation directories. It is helpful to have an understanding of those directories and what they contain when installation is complete.

These directories are created:

- [Oracle Middleware Home Location](#)
- [Oracle Home Directory](#)
- [Oracle Common Directory](#)
- [Oracle WebLogic Domain Directory](#)
- [Oracle Unified Directory Installation Directory Structure](#)

1.3.1 Oracle Middleware Home Location

Oracle Middleware home is the directory under which Oracle Unified Directory and Oracle Fusion Middleware Infrastructure are installed. Oracle Fusion Middleware Infrastructure must be installed if you plan to manage Oracle Unified Directory using Oracle Unified Directory Services Manager.



Note:

If you are planning to install Oracle Unified Directory and Fusion Middleware Infrastructure, you must install these two components using the same Middleware home directory.

1.3.2 Oracle Home Directory

An Oracle home contains installed files necessary to host a specific product. The Installer installs the files required to host the component, such as binaries and libraries, in the Oracle home directory.

It contains the Oracle Unified Directory setup files to set up individual instances. Also contains the default schema files for all server instances associated with that `OUF_ORACLE_HOME`.

An Oracle home resides within the directory structure of the Middleware home. Each Oracle home can be associated with multiple Oracle instances or Oracle WebLogic Server domains.

The default `OUF_ORACLE_HOME` directory is `oud`.

1.3.3 Oracle Common Directory

The installer creates this directory under the location you enter in the Oracle Middleware Home Location field. This directory contains the Application Development Framework.

The default directory is `oracle_common`.

1.3.4 Oracle WebLogic Domain Directory

A WebLogic domain includes a special WebLogic Server instance called the Administration Server, which is the central point from which you configure and manage all resources in the domain.

Usually, you configure a domain to include additional WebLogic Server instances called Managed Servers. You deploy Java components, such as Web applications, EJBs, and Web services, and other resources to the Managed Servers and use the Administration Server for configuration and management purposes only.

The directory structure of a domain is separate from the directory structure of the WebLogic Server home. It can reside anywhere; it need not be within the Middleware home directory. A domain is a peer of an Oracle instance.

By default, the Oracle Fusion Middleware Configuration Wizard creates a domain as subdirectory in a directory named `user_projects` under your Middleware Home directory (`MW_HOME`).

1.3.5 Oracle Unified Directory Installation Directory Structure

Review this topic for the directory structure of an Oracle Unified Directory installation on a single host using all of the default values.

In this example, *install-directory* can be any directory on your system. This directory is empty before you install Oracle Unified Directory.

```
install-directory/  
    cfgtoollogs  
    coherence  
    domain-registry.xml  
    em  
    inventory  
    OPatch  
    oracle_common  
    oraInst.loc  
    oud  
    oui  
    user_projects  
    wlsserver
```

 **Note:**

If you are planning to manage Oracle Unified Directory with Oracle Unified Directory Services Manager, you must also install Oracle WebLogic Server and Oracle ADF. You must specify the same Middleware home directory to install all three products.

2

Installing the Oracle Unified Directory Software

Oracle Unified Directory primarily supports two domain configurations. You can install Oracle Unified Directory either as a collocated configuration that is managed through a WebLogic server or as a standalone configuration.

Topics:

- [Before You Install Oracle Unified Directory](#)
- [Installing the Java Development Kit](#)
- [Setting the JAVA_HOME Environment Variable](#)
- [Setting the PATH Environment Variable](#)
- [Obtaining Product Distributions](#)
- [Installing and Configuring OUD/OUDSM Domains](#)
- [Starting the Administration Server](#)
- [Performing an Oracle Unified Directory Silent Installation](#)
- [Configuring Oracle Unified Directory with Oracle Directory Integration Platform](#)

2.1 Before You Install Oracle Unified Directory

You can manage Oracle Unified Directory either from the command line or by using the Oracle Unified Directory Services Manager (OUDSM) graphical user interface.

Oracle Unified Directory Services Manager (OUDSM) requires Oracle WebLogic Server and Oracle ADF, so if you plan to use OUDSM, you must install Oracle Unified Directory in a **Collocated Oracle Unified Directory Server (Managed through WebLogic server)** mode. When you configure Oracle Unified Directory in a WebLogic Server domain, the Oracle Unified Directory instances can be managed like any other elements of the WebLogic Server domain. To configure Oracle Unified Directory in a WebLogic Server domain, you must install the Oracle Unified Directory software in an existing Oracle Fusion Middleware Infrastructure Oracle home.

Note:

The version of OUDSM described in this document is 12c (12.2.1.3.0). You can use OUDSM 12c (12.2.1.3.0) to manage only Oracle Unified Directory 12c (12.2.1.3.0).

You can also install Oracle Unified Directory in a **Standalone Oracle Unified Directory Server (Managed independently of WebLogic server)** mode. A standalone Oracle Unified Directory is not managed by or registered to a WebLogic

Server domain. A standalone Oracle Unified Directory 12c (12.2.1.3.0) topology is installed and configured without the Oracle Fusion Middleware Infrastructure. You install the Oracle Unified Directory software in its own Oracle home and you configure the Oracle Unified Directory instance in its own standalone domain. You can use OUDSM installed in a different location or host to manage Oracle Unified Directory that is installed in a standalone mode.



Note:

The product templates for OUD and OUDSM are not interrelated; they are independent of each other. Hence, you can configure OUD and OUDSM independently in separate domains. So, it is possible to have OUD in collocated mode without OUDSM and also you can configure OUDSM alone in a domain without OUD.

You can upgrade Oracle Unified Directory from Oracle Unified Directory Release 11g to 12c (12.2.1.3.0). See [Updating the Oracle Unified Directory Software](#).

The installation process requires that you identify certain directories into which the software is installed. For a complete understanding of the installation directory structure, see [Understanding the Oracle Unified Directory Installation Directories](#).

2.2 Installing the Java Development Kit

The installation of Oracle Unified Directory 12c (12.2.1.3.0) requires Java Development Kit (JDK) 1.8.

The archive binary file (.tar.gz) can be installed by anyone (not only root users), in any location that you can write to. However, only the root user can install the JDK into the system location.

For the system requirements and instructions to install JDK, see [JDK Installation for Linux Platforms](#) and [JDK Installation for Microsoft Windows](#).

2.3 Setting the JAVA_HOME Environment Variable

After installing the Java Development Kit (JDK), you must set the `JAVA_HOME` environment variable to point to the Java installation directory.

The setup scripts will not work if the `JAVA_HOME` environment variable is not set or does not point to a supported Java installation (JDK 8).

For example, on UNIX or Linux systems, run a command similar to the following, depending on your shell:

```
JAVA_HOME=/usr/lang/JAVA/jdk1.8.0_121  
export JAVA_HOME
```

To set the `JAVA_HOME` environment variable on Windows systems:

1. Go to **Control Panel > System and Security > System > Advanced System Settings**.
2. Click the **Environment Variables** button.

3. In the section **System Variables**, find the `JAVA_HOME` environment variable and select it. Click **Edit**. If the `JAVA_HOME` environment variable does not exist, click **New**.
4. Do one of the following:
 - In the Edit System Variable window, enter path to a supported JDK installation as a **Variable value**.
 - In the New System Variable window, enter `JAVA_HOME` as a **Variable name**: and enter the path to a supported JDK installation as a **Variable value**.
5. Click **OK** to apply the changes.

2.4 Setting the PATH Environment Variable

After installing the Java Development Kit, you must set the `PATH` environment variable to point to the Java installation directory.

For example, on UNIX or Linux systems, run a command similar to the following, depending on your shell:

```
JAVA_HOME=/usr/lang/JAVA/jdk1.8.0_121
export JAVA_HOME
PATH=$JAVA_HOME/bin:$PATH
export PATH
```

For more information on how to set the `PATH` environment variable on Windows systems, see [How do I set or change the PATH system variable?](#).

2.5 Obtaining Product Distributions

Oracle provides multiple locations for downloading Oracle Unified Directory and the software it requires.

- [Downloading the Oracle Fusion Middleware Infrastructure Distribution](#)
- [Downloading the Oracle Unified Directory Distribution from OSDC](#)
- [Downloading the Oracle Unified Directory Distribution from OTN](#)

Note:

- If you are planning to manage Oracle Unified Directory using Oracle Unified Directory Services Manager, you must first install the Oracle Fusion Middleware Infrastructure.
- When you install Oracle Unified Directory and Oracle Fusion Middleware Infrastructure, you must specify the same Oracle Home directory. The examples in this chapter use `path-to-oracle-home/ORACLE_HOME` to represent the Oracle Home directory.

2.5.1 Downloading the Oracle Fusion Middleware Infrastructure Distribution

If you are planning to configure and manage Oracle Unified Directory with OUDSM, you must also install Oracle WebLogic Server and Oracle Application Development Framework. The Oracle Fusion Middleware Infrastructure includes several products and feature sets including Oracle WebLogic Server and Oracle ADF.

To download the Oracle Fusion Middleware Infrastructure distribution:

1. Download the Oracle Fusion Middleware Infrastructure distribution from the [Oracle ADF download page](#). In the Oracle ADF Downloads section, select **12.2.1.3** from the Application Development Runtime field. Click **Download File**.
2. When your browser asks to download the .zip file, save this file onto your system.
3. Extract the .zip file contents onto your system. The extracted file `fmw_12.2.1.3.0_infrastructure_generic.jar` runs the product installer and installs the software onto your system.

2.5.2 Downloading the Oracle Unified Directory Distribution from OSDC

Go to the Oracle Software Delivery Cloud (OSDC), to download the Oracle Unified Directory software.

To download Oracle Unified Directory from OSDC:

1. Download the production distribution for Oracle Unified Directory from the [Oracle Software Delivery Cloud](#).
2. If prompted, login with a username and password.
3. Enter `Oracle Unified Directory` in the type-ahead input field and click **Search**.
4. Select **Oracle Unified Directory 12.2.1.3.0** from the list of available platforms.
After you have made your selection, the software title will immediately be placed into your Selected Software cart where you can assign a platform for each individual Release.
5. Click your **Selected Software** cart.
6. Select the Platform/Language for Oracle Unified Directory 12.2.1.3.0 and click **Continue**.
7. Complete the Terms & Restrictions and Export License Agreement as instructed on the site and click **Continue**.
8. Click on the file name to download. Each file has a unique part number.
9. Browse to the directory where you want to save the file. Click **Save** to start the file download. A compressed ZIP file is downloaded.
10. Extract the contents of the ZIP file to a directory of your choice.

2.5.3 Downloading the Oracle Unified Directory Distribution from OTN

Go to the Oracle Technology Network (OTN), to download the Oracle Unified Directory software.

To download Oracle Unified Directory from OTN:

1. Download the production distribution for Oracle Unified Directory from the [Oracle Identity Management download page](#).
2. Click the **download page here** link under the heading **Oracle Identity Management 12c**.
3. Accept the OTN License Agreement.
4. Click the `.zip` file name to download the file individually and save to the directory where you want to save the file.
Each `.zip` file has a unique part number.
5. Extract the contents of the `.zip` file onto your system.

2.6 Installing and Configuring OUD/OUDSM Domains

You can either install and configure both OUD and OUDSM in a single domain or OUD and OUDSM independently in separate domains.

Topics:

- [Installing the OUD/OUDSM Software](#)
- [Configuring OUD and OUDSM in Separate Domains](#)
- [Configuring OUD and OUDSM in a Single Domain](#)

2.6.1 Installing the OUD/OUDSM Software

You can install OUD and OUDSM independently in separate domains or both in a single domain. This section describes how to install OUD and OUDSM.

- [Installing Oracle Fusion Middleware Infrastructure](#)
- [Installing Oracle Unified Directory](#)

Note:

If you choose to install Oracle Directory Integration Platform (DIP) 12c with OUD 12c as the Backend Directory Server, you can install and configure OUD (with OUDSM) in the same Oracle Home and the same domain as DIP 12c. In this case, you can skip these steps: [Installing Oracle Fusion Middleware Infrastructure](#) and [Creating Database Schemas for the Infrastructure Domain Using the Repository Creation Utility](#).

2.6.1.1 Installing Oracle Fusion Middleware Infrastructure

The installation of Oracle Fusion Middleware Infrastructure is a prerequisite if you are planning to configure and manage Oracle Unified Directory with Oracle Unified Directory Services Manager. Since OUDSM requires Oracle WebLogic Server and Oracle ADF, the installation of Oracle Fusion Middleware Infrastructure takes care of the installation of WebLogic Server, ADF, and other infrastructure components.

If you are planning to configure and manage Oracle Unified Directory with Oracle Unified Directory Services Manager, you must install Oracle Unified Directory in a **Collocated Oracle Unified Directory Server (Managed through WebLogic server)** mode.

To install Oracle Fusion Middleware Infrastructure:

1. Set up the `JAVA_HOME` and `PATH` environment variables pointing to the JDK8 install location.

See [Setting the JAVA_HOME Environment Variable](#) and [Setting the PATH Environment Variable](#).

2. Install Oracle Fusion Middleware Infrastructure.

See Installing the Infrastructure Software in *Installing and Configuring the Oracle Fusion Middleware Infrastructure*.

2.6.1.2 Installing Oracle Unified Directory

You can install Oracle Unified Directory in two ways depending on how you want to manage it. If you plan to manage OUD through WebLogic server or OUDSM, you must install OUD in collocated mode or a single domain. However, if you plan to manage OUD independently of WebLogic server, you must choose the standalone mode or separate domains.

To install Oracle Unified Directory:

1. Set up the `JAVA_HOME` and `PATH` environment variables pointing to the JDK8 install location.

See [Setting the JAVA_HOME Environment Variable](#) and [Setting the PATH Environment Variable](#).

2. Launch the installation program by invoking the `java` executable from the JDK directory on your system.

On UNIX operating systems:

```
$ $JAVA_HOME/bin/java -jar fmw_12.2.1.3.0_oud.jar
```

On Windows operating systems:

```
C:\Program Files\Java\jdk1.8.0_121\bin\java -jar fmw_12.2.1.3.0_oud.jar
```


 **Note:**

You must run the command prompt with Windows Administrator privileges. Open the command prompt and specify **Run as administrator**. When you open this window, the title bar reads Administrator: Command Prompt.

The Installation Inventory Setup screen opens.

3. Use the Installation Inventory Setup screen to specify the location of the Oracle central inventory directory. Click **OK**.

The Oracle Unified Directory 12c Installer Welcome screen opens.

4. Review the information on the Welcome screen that introduces you to the product installer. Click **Next**.
5. Use the Auto Updates screen to search for the latest software updates, including important security updates, through your My Oracle Support account.
 - Keep the default setting **Skip Auto Updates** if you do not want your system to check for software updates.
 - **Select patches from directory:** Select this option if you already downloaded the latest software updates and you want the installer to search a local directory for updates applicable to the products you are about to install. When you select this option, the installer displays an extra field that you can use to identify the local directory where your updates are located.
 - **Search My Oracle Support for Updates:** If you have a My Oracle Support account, then select this option to have the installer automatically search My Oracle Support for software updates that apply to the software products you are about to install.

Click **Next**.

6. Use the Installation Location screen to specify your Oracle home directory location and to view the products installed in that directory. Click **Next**.
7. Use the Installation Type screen to determine the type of installation you want to perform and consequently, which products and features are installed.
 - If you plan to manage OUD through WebLogic server or OU DSM, select **Collocated Oracle Unified Directory Server (Managed through WebLogic server)**.
 - If you plan to manage OUD independently of WebLogic server, select **Standalone Oracle Unified Directory Server (Managed independently of WebLogic server)**.

Click **Next**.

8. Verify that your system meets minimum requirements on the Prerequisite Checks screen. Click **Next**.
9. The Installation Summary screen contains a list of the feature sets you selected for installation, along with the approximate amount of disk space to be used by the feature sets once installation is complete. Click **Install**.
10. The Installation Progress screen shows the progress of the installation. When the progress bar reaches 100%, the installation is complete. Click **Next**.

11. This screen appears at the conclusion of the installation and provides a summary of the products and features that were installed. Click **Finish** to dismiss the installer.

2.6.2 Configuring OUD and OU DSM in Separate Domains

After the product installation is complete, you can start the process of domain creation. You can configure OUD and OU DSM in separate domains.



Note:

This is the Oracle preferred approach to set up domains for OUD and OU DSM. If you follow this approach, you can create a domain for OU DSM without depending on Oracle database.

- [Configuring a Domain for OUD Using the Configuration Wizard](#)
- [Creating a Domain for OU DSM Using the WebLogic Scripting Tool](#)

2.6.2.1 Configuring a Domain for OUD Using the Configuration Wizard

You can configure a domain for OUD either by creating a new domain or by extending an existing domain using the Fusion Middleware Configuration Wizard.

To either create a new domain or update an existing domain for OUD:

1. Start the Configuration Wizard from the `ORACLE_HOME/oracle_common/common/bin` directory.

On UNIX operating systems:

```
./config.sh
```

On Windows operating systems:

```
config.cmd
```

The Configuration Type screen is displayed.

2. On the Configuration Type screen, perform the following steps:
 - a. You can either create a new domain or extend an existing domain.
 - Select **Create a new domain** to create a new domain.
 - Select **Update an existing domain** to extend an existing domain.
 - b. Enter the full path for the domain or use the **Browse** button to navigate to the directory in which your domains are located.
 - c. Click **Next**.
3. On the Templates screen, make sure **Create Domain Using Product Templates** is selected, and then select the **Oracle Unified Directory - 12.2.1.3.0 [oud]** template. Click **Next**.
 - a. Ensure your selection is correct based on the configuration selected in Step 2.

- If you select **Create a new domain**, ensure **Create Domain Using Product Templates** is selected.
 - If you select **Update an existing domain**, ensure that **Update Domain Using Product Templates** is selected.
- b. Select the **Oracle Unified Directory - 12.2.1.3.0 [oud]** template.
 - c. Click **Next**.
4. On the JDK Selection screen, accept **Oracle Hotspot** as a default selection and click **Next**.
 5. On the System Components screen, ignore this screen and click **Next**.

 **Note:**

This screen provides an option to add a component. However, this functionality to add a component or an instance is not available in this release. This option will be supported in future releases.

6. Use the Node Manager screen to enter the node manager username and password.
Click **Next**.
7. Review each item on the Configuration Summary screen and verify that the information is correct.

To make any changes, go back to a screen by clicking the Back button or selecting the screen in the navigation pane. Domain creation or domain extension does not start until you click **Create** or **Update**.
8. The Configuration Success screen shows information about the domain you just configured.

Click **Finish** to dismiss the Configuration Wizard.

2.6.2.2 Creating a Domain for OUDSM Using the WebLogic Scripting Tool

You can create a domain for OUDSM without depending on the Oracle Database or the Repository Creation Utility (RCU) using the WLST command.

 **Note:**

This is the Oracle preferred approach to set up a domain for OUDSM. It is recommended not to extend this domain with any other products or components. In this approach, you do not have to run `config.sh`.

To set up the OUDSM domain using the WLST:

1. Launch the WLST:

On UNIX and Linux systems:

```
$ ORACLE_HOME/oracle_common/common/bin/wlst.sh
```

On Windows systems:

```
C:\> ORACLE_HOME\oracle_common\common\bin\wlst.cmd
```

ORACLE_HOME is the Oracle home directory you specified at installation.

2. Execute the `createOUDSMDomain` command to create a compact domain for Oracle Unified Directory Services Manager.

The `createOUDSMDomain` command includes the following parameters:

- `domainLocation` is the absolute location of the domain with domain name.
- `weblogicPort` is the WebLogic port.
- `weblogicSSLPort` is the WebLogic SSL port. This parameter is optional and not enabled if not passed.
- `weblogicUserName` is the WebLogic user name. This parameter is optional and if not passed default value is `weblogic`.
- `weblogicUserPassword` is the WebLogic admin user password.

```
createOUDSMDomain(domainLocation=<location>,weblogicPort=<value>,  
weblogicSSLPort=<value>,weblogicUserName=<name>,weblogicUserPassword=<password>  
)
```

Example:

```
createOUDSMDomain(domainLocation="/oracle/mw_oud12c/domains/  
oudsm",weblogicPort=7001,weblogicSSLPort=7002,weblogicUserPassword='password'  
)
```

2.6.3 Configuring OUD and OUDSM in a Single Domain

You can configure OUD and OUDSM in a single WebLogic domain if you have selected **Collocated Oracle Unified Directory Server (Managed through WebLogic server)** as the installation type.

You can also configure the WebLogic domain for OUDSM using the Fusion Middleware Configuration Wizard. Since the configuration wizard only supports Oracle Platform Security Services (OPSS) DB store, therefore, OUDSM relies on a DB-based OPSS security store for storing the administrator configurations securely.

Before running `config.sh` to set up OUDSM, you must first install and configure a certified database. To use a database repository for the OPSS security store, you must use the Repository Creation Utility (RCU) to create the required schema and to seed some initial data.

- [Creating Database Schemas for the Infrastructure Domain Using the Repository Creation Utility](#)
- [Configuring OUD/OUDSM Domain Using the Configuration Wizard](#)

2.6.3.1 Creating Database Schemas for the Infrastructure Domain Using the Repository Creation Utility

After Oracle Fusion Middleware Infrastructure is installed, start Repository Creation Utility (RCU) from the `ORACLE_HOME/oracle_common/bin` directory. The Repository

Creation Utility enables you to create database schemas that are required for Oracle Fusion Middleware products.

 **Note:**

This database schema creation procedure is required only if you are planning to install the Oracle Unified Directory Services Manager (OUDSM) by selecting the OUDSM template.

To create schemas using the Repository Creation Utility:

1. Before you create the database schemas, you must install and configure a certified database, and verify that the database is up and running.
See [About Database Requirements for an Oracle Fusion Middleware Installation in Planning an Installation of Oracle Fusion Middleware](#).

2. Start the Repository Creation Utility (RCU) from the `ORACLE_HOME/oracle_common/bin` directory.

On UNIX operating systems:

```
./rcu
```

On Windows operating systems:

```
rcu.bat
```

3. Click **Next** on the Welcome to Repository Creation Utility screen.
4. On the Create Repository screen, select **System Load and Product Load** as the schema creation method and click **Next**.
5. On the Database Connection Details screen, enter database connection details for RCU to connect to your database.
 - a. Click **Next** when you are finished entering the connection credentials for your database.
A dialog box appears indicating the progress of the installer establishing the connection with the specified database.
 - b. Click **OK** to dismiss this dialog box.
6. On the Select Components screen, enter a custom prefix you want to use for your schemas, and then select the **Oracle Platform Security Services** schema.

 **Note:**

If you select **Oracle Platform Security Services**, all dependent components will be automatically selected.

- a. Click **Next** when you are finished specifying your prefix and schema names and when you are finished selecting components.

A dialog box appears, indicating the progress of component prerequisite checking before the schemas are created.

- b. Click **OK** to dismiss this dialog box.
7. On the Schema Passwords screen, specify how you want to set the schema passwords on your database, then enter and confirm your passwords. Click **Next**.
8. Use the Map Tablespaces screen to configure the desired tablespace mapping for the schemas you want to create.
 - a. Click **Next** when you are finished with your tablespace information.
A dialog box appears, asking you to confirm the creation of tablespaces for any new schemas.
 - b. Click **OK** to continue. A dialog box appears, indicating the progress of the tablespace creation.
 - c. When the tablespaces are created, click **OK** to dismiss this window.
9. On the Summary screen, verify your information, and then click **Create** to begin schema creation.
10. Review the information on the Completion Summary screen, and then click **Close** to dismiss this screen.

The Completion Summary screen contains information about the log files that were created from this RCU operation. You can click the name of a particular log file to view the contents of that file.

2.6.3.2 Configuring OUD/OU DSM Domain Using the Configuration Wizard

You can configure a domain for OUD/OU DSM either by creating a new domain or by extending an existing domain using the Fusion Middleware Configuration Wizard.

Note:

If you are updating an existing domain to add OUD (for example, adding OUD to a DIP Domain), then the Configuration Wizard screens documented at steps 4 and 5 are not actually displayed and it skips straight to the Database Configuration Type page (step 6).

To create a new domain or extend an existing domain for OUD/OU DSM:

1. Start the Configuration Wizard from the `ORACLE_HOME/oracle_common/common/bin` directory.
On UNIX operating systems:

```
./config.sh
```


On Windows operating systems:

```
config.cmd
```


The Configuration Type screen is displayed.
2. On the Configuration Type screen, perform the following steps:
 - a. You can either create a new domain or extend an existing domain.
 - Select **Create a new domain** to create a new domain.

- Select **Update an existing domain** to extend an existing domain.
 - b. Enter the full path for the domain or use the **Browse** button to navigate to the directory in which your domains are located.
 - c. Click **Next**.
3. On the Templates screen, make sure **Create Domain Using Product Templates** is selected, and then select the following templates:
- a. Ensure your selection is correct based on the configuration selected in Step 2.
 - If you select **Create a new domain**, ensure that **Create Domain Using Product Templates** is selected.
 - If you select **Update an existing domain**, ensure that **Update Domain Using Product Templates** is selected.
 - b. Select the following templates:
 - **Oracle Unified Directory - 12.2.1.3.0 [oud]**
 - **Oracle Unified Directory Services Manager - 12.2.1.3.0 [oud]**When you select OUDSM, **Oracle JRF - 12.2.1.3.0 [oracle_common]** is automatically selected.
 - c. Click **Next**.
4. Use the Administrator Account screen to specify the user name and password for the default WebLogic Administrator account for the domain.
- The password must be at least eight characters and must contain at least one number or special character. Confirm the password and click **Next**.
- Make a note of these details as you will need them to start or restart the WebLogic domain in the following procedure.
5. Use the Domain Mode and JDK screen to specify the domain mode and Java Development Kit (JDK).
- a. Select Production in the Domain Mode field.

 **Note:**

If you select **Production** mode as the domain, the node manager has a random username and password assigned to it. Use the WebLogic Server Administration Console to reset the password.

- b. Accept **Oracle Hotspot** as a default JDK location.
 - c. Click **Next**.
6. On the Database Configuration type screen, select **RCU Data**. This option instructs the Configuration Wizard to connect to the database's Service Table (STB) schema to automatically retrieve schema information for schemas needed to configure the domain.
- After selecting RCU Data:
- a. Enter the name of the server hosting the database in the Host Name field.
 - b. Enter the database DBMS name, or service name if you selected a service type driver in the DBMS/Service field.

- c. Enter the port number on which the database listens.
 - d. Enter the username and password for connecting to the database's Service Table schema.
 - e. Click **Get RCU Configuration** to retrieve the schema information.
 - f. After successfully retrieving the schema information, click **Next** to continue.
7. Verify that the values populated on the JDBC Component Schema screen are correct for all schemas, and click **Next**.
 8. Use the JDBC Component Schema Test screen to test data source connections that you just configured.

A green check mark in the Status column indicates a successful test. If you encounter issues, see the error message in the Connection Result Log section of the screen, fix the problem, then test the connection again.

9. Use the Advanced Configuration screen to complete the domain configuration.

To complete domain configuration, select any of these options:

- **Administration Server:** Required to properly configure the Administration Server's listen address.
- **Node Manager:** Required to configure Node Manager.
- **Topology:** Required to configure the Managed Servers and cluster, and for configuring the system and targeting Managed Servers to the system.
- **Domain Frontend Host Capture:** Required to configure Domain Frontend Host.
- **Deployments and Services:** Required to target to servers or clusters.

Click **Next**.

10. Review each item on the Configuration Summary screen and verify that the information is correct.

To make any changes, go back to a screen by clicking the Back button or selecting the screen in the navigation pane. Domain creation or domain extension does not start until you click **Create** or **Update**.

11. The Configuration Success screen shows information about the domain you just configured.

Click **Finish** to dismiss the Configuration Wizard.

2.7 Starting the Administration Server

After the WebLogic domain configuration is complete, you can start the Administration Server to manage the domain. OUDSM also uses this WebLogic Admin Server, so once the Admin Server is up and running, OUDSM is also effectively running as well.

To start the Administration Server:

1. Run the script to start the Administration Server from the following location:

On UNIX operating systems:

```
$ domain-home/bin/startWebLogic.sh
```

On Windows operating systems:


```
domain_home\startWebLogic.cmd
```

 **Note:**

- The *domain-home* for starting the Administration Server depends on how you configure a domain for OUD and OUDSM.
 - If you configure OUD/OUDSM in separate domains, the *domain-home* is the OUDSM domain that you created in [Creating a Domain for OUDSM Using the WebLogic Scripting Tool](#).
 - If you configure both OUD and OUDSM in a single domain, the *domain-home* is the domain that you created in [Configuring OUD/OUDSM Domain Using the Configuration Wizard](#). The user name and password that are requested here correspond to those in Step 4 of the previous procedure.
- If you added OUDSM to the existing DIP Domain by choosing **Update an existing domain** as the Configuration Type, you must restart the existing Admin Server and Managed Server so that the OUDSM application is deployed and accessible.

2. Verify that the Administration Server is up and running by accessing the Oracle Unified Directory Services Manager through a browser. Access OUDSM through a browser, using the following URL:

```
http://hostname:7001/oudsm
```

where *hostname* is the name of the server on which WebLogic Server is installed. 7001 is the default administrative port for the WebLogic Administration Server.

 **Note:**

Ensure that the Administration Server is up and running before you access OUDSM. When the server successfully completes its startup process, it displays the following message:

```
<Notice> <WebLogicServer> <BEA-000360> <Server started in  
RUNNING mode>
```

2.8 Starting the Node Manager

You can use the command line interface to start the node manager.

1. Navigate to the following directory:

```
$ cd $DOMAIN_HOME/bin
```

2. Run the script to start the node manager:

```
./startNodeManager.sh
```

2.9 Performing an Oracle Unified Directory Silent Installation

Silent installation eliminates the need to monitor your product installation because no graphical output is displayed and no input by the user is required.

To perform an Oracle Unified Directory silent installation:

1. Create a response file (`install.rsp`) in the directory of your choice using a text editor such as `vi` or `emacs`. Response file provides information specific to the installation of Oracle Unified Directory.

```
[ENGINE]

#DO NOT CHANGE THIS.
Response File Version=1.0.0.0.0

[GENERIC]

#The oracle home location. This can be an existing Oracle Home or a new
Oracle Home
ORACLE_HOME=/home/Oracle/products/Oracle_Home

#Set this variable value to the Installation Type selected. Possible
values: Standalone Oracle Unified Directory Server (Managed independently
of WebLogic server), Collocated Oracle Unified Directory Server (Managed
through WebLogic server).
INSTALL_TYPE=Standalone Oracle Unified Directory Server (Managed
independently of WebLogic server)

#Provide the My Oracle Support Username. If you want to ignore Oracle
Configuration Manager configuration provide empty string for user name.
MYORACLESUPPORT_USERNAME=

#Provide the My Oracle Support Password
MYORACLESUPPORT_PASSWORD=<SECURE VALUE>

#Set this to true if you want to decline the security updates. Setting
this to true and providing empty string for My Oracle Support username will
ignore the Oracle Configuration Manager configuration
DECLINE_SECURITY_UPDATES=true

#Set this to true if My Oracle Support Password is specified
SECURITY_UPDATES_VIA_MYORACLESUPPORT=false

#Provide the Proxy Host
PROXY_HOST=

#Provide the Proxy Port
PROXY_PORT=

#Provide the Proxy Username
PROXY_USER=

#Provide the Proxy Password
PROXY_PWD=<SECURE VALUE>

#Type String (URL format) Indicates the OCM Repeater URL which should be of
the format [scheme[Http/Https]]://[repeater host]:[repeater port]
COLLECTOR_SUPPORTHUB_URL=
```

2. Create the `oraInst.loc` file in the directory of your choice using a text editor such as `vi` or `emacs`. The contents of the file consist of the following two lines:

```
inventory_loc=oui_inventory_directory
inst_group=oui_install_group
```

Replace `oui_inventory_directory` with the full path to the directory where you want the installer to create the inventory directory. Then, replace `oui_install_group` with the name of the group whose members have write permissions to this directory.

For example,

```
inventory_loc=/home/exampleuser/oraInst.loc
inst_group=dba
```

The Oracle inventory directory keeps track of all Oracle products installed on the computer. The inventory directory is stored in a file called `oraInst.loc`.

3. Run the following command to perform the silent installation:

```
java -jar distribution_name.jar -silent -responseFile file -invPtrLoc file
```

For example, to install the Oracle Unified Directory, run the following command:

```
/home/Oracle/jdk/jdk1.8.0_121/bin/java -jar fmw_12.2.1.3.0_oud_generic.jar -
silent -responseFile /home/exampleuser/response/install.rsp -invPtrLoc /home/
exampleuser/oraInst.loc
```

2.10 Configuring Oracle Unified Directory with Oracle Directory Integration Platform

Oracle Directory Integration Platform is a Java EE application that enables you to integrate your applications and directories, including third-party LDAP directories, with Oracle Unified Directory.

Oracle Directory Integration Platform includes services and interfaces that allow you to deploy synchronization solutions with other enterprise repositories. It can also be used to provide Oracle Unified Directory interoperability with third party metadirectory solutions.

For example, in an Oracle Fusion Middleware environment, where access to Oracle components relies on data stored in Oracle Unified Directory, you can still use Microsoft Active Directory as the central enterprise directory. Users of that directory can still access Oracle components because Oracle Directory Integration Platform can synchronize the data in Microsoft Active Directory with that in Oracle Unified Directory.

To configure Oracle Unified Directory, Oracle Unified Directory Services Manager, Oracle Directory Integration Platform, and Fusion Middleware Control in an Oracle WebLogic Server domain, see *Configuring Oracle Unified Directory in Administering Oracle Directory Integration Platform*.

3

Setting Up Oracle Unified Directory as a Directory Server

You can use either the graphical user interface (GUI) or the command-line interface (CLI) to set up an Oracle Unified Directory LDAP directory server instance.

Topics:

- [Setting Up the Directory Server Using the Graphical User Interface \(GUI\)](#)
- [Setting Up the Directory Server Using the Command-Line Interface \(CLI\)](#)
- [Setting Up Replication During Installation](#)
- [Setting Up the Directory Server Using the WebLogic Scripting Tool](#)

Before you set up an LDAP directory server instance, you must have already installed the software, as described in [Installing the Oracle Unified Directory Software](#).

3.1 Setting Up the Directory Server Using the Graphical User Interface (GUI)

You can use the graphical user interface to set up the directory server. The graphical user interface (GUI) install uses a Java-based graphical installer that enables you to set up the directory server, load it with data, and get it running in very little time.

The installer asks some basic questions about the server configuration and then gives you the choice of leaving your database empty, loading the server with data from your own LDIF or loading the server with automatically generated sample data. The installer also enables you to configure security and replication, and, optionally, to start the server when the configuration is complete.

To setup a directory server instance using the `oud-setup` graphical user interface (GUI):

1. When you have installed the software, change to the `ORACLE_HOME` subdirectory.

On UNIX and Linux systems:

```
$ cd OUD-base-location/ORACLE_HOME
```

On Windows systems:

```
C:\> cd OUD-base-location\ORACLE_HOME
```

2. Ensure that your `JAVA_HOME` environment variable is set to a supported JVM installation (JRE 8 or JDK 8).

3. Run the `oud-setup` command to configure the directory server installation.

On UNIX and Linux systems:

```
$ oud-setup
```

On Windows systems:

```
C:\OUD-base-location\ORACLE_HOME> oud-setup.bat
```

The utility launches the graphical installer and creates the Oracle Unified Directory instance in OUD-base-location/instance-dir.

The default instance directory name is `asinst_1`, with subsequent instances on the same server named `asinst_2`, `asinst_3`, and so on. To specify a different instance name, set the `INSTANCE_NAME` environment variable before you run the setup, for example:

```
$ export INSTANCE_NAME=my-oud-instance
```

The instance is created directly under OUD-base-location by default. To change the instance path, include the path relative to OUD-base-location when you set the `INSTANCE_NAME` variable. For example:

```
$ export INSTANCE_NAME=../../local/my-oud-instance
```

4. On the Welcome screen, click **Next**.

The **Server Administration Settings** screen is displayed.

5. Enter the following information:

- a. **Instance Path:** Enter the path or use the **Browse** button to navigate to the directory where the instance will be created.

- b. **Host Name:** Enter the directory server's host name or IP address.

The default is the local host name.

- c. Enter the port that will be used for administration traffic based on the protocols you selected.

Select one of the following protocols:

- **Enable Administration only with LDAP:** Enter the LDAP port that will be used for administration traffic.

The default LDAP administration port is 4444.

- **Enable Administration with LDAP and HTTP:** Enter the LDAP and HTTP ports that will be used for administration traffic.

The default administration ports are 4444 for LDAP and 8444 for HTTP.

- **Enable Administration only with HTTP:** Enter the HTTP port that will be used for administration traffic.

The default HTTP administration port is 8444.

- d. **Root User DN:** Enter the Root User DN, or keep the default, `cn=Directory Manager`.

- e. **Password:** Enter the root user bind password.

- f. **Password (confirm):** Retype the root user bind password.

- g. Click **Next**.

The **Ports** screen is displayed.

6. Specify the different ports and protocols that clients can use to access the data in the server.

 **Note:**

If you choose to enable a secure protocol, you must provide the certificate that the server will use to encrypt the communication.

- Enable **LDAP** and enter the port number on which the directory server listens for connections. The default secure port is 1389.
- Select **Enable StartTLS for LDAP** to specify that the LDAP connection handler should allow clients to use the StartTLS extended operation to initiate secure communication over an otherwise insecure connection.
- Enable **LDAPS** and enter the port number on which the directory server listens for connections. On UNIX and Linux systems, if you run the installer as a non-root user, the default secure port is 1636, if available.
- Enable **HTTP** and enter the port number on which the directory server listens for connections. The default secure port is 8080.

 **Note:**

The **HTTP** parameter is applicable from 12.2.1.4.0 release onward.

- Enable **HTTPS** and enter the port number on which the directory server listens for connections. The default secure port is 10443.

 **Note:**

The **HTTPS** parameter is applicable from 12.2.1.4.0 release onward.

- **Certificate:** Select one of the following radio buttons to obtain the certificate that the server should use for SSL, StartTLS, or both:

Generate Self-Signed Certificate generates a self-signed certificate that you can use to secure the communication. While this option is convenient for testing purposes, many clients will not trust the certificate by default, and you might need to configure it manually.

Use an Existing Certificate uses a certificate in an existing JKS keystore, a PKCS #12 file, or a PKCS #11 token. For more information about obtaining and managing certificates, see *Configuring Security Between Clients and Servers* in *Administering Oracle Unified Directory*.

For production servers, select **Use an Existing Certificate**, and then select the Keystore Type. Enter the Keystore Path, and Keystore PIN if necessary.

If more than one certificate is defined in the specified key store, you are asked to select one of the certificates from a drop down menu.

Click **Next**.

The **Topology Options** screen is displayed.

7. Select one of the following:
 - **This will be a stand-alone server.**

- **This server will be part of a replication topology.**

For instructions on setting up a replicated topology, see [Setting Up Replication During Installation](#).

Click **Next**.

The **Directory Data** screen is displayed.

8. Specify how to load data into your directory:

- **Directory Base DN:** Enter the base DN for your directory.

The default Base DN is `dc=example,dc=com`.

- **Directory Data:** Select one of the following data options:

Only Create Base Entry: Creates an entry with the base DN specified previously.

Leave Database Empty: Sets up a database but does not populate any entries.

Import Data from LDIF File: Imports LDIF data from the file specified in the Path field.

Import Automatically-Generated Sample Data: Generates the number of sample entries specified in the Number of User Entries field.

Click **Next**.

The **Oracle Components Integration** screen is displayed.

9. Select one of the following options. Some components appear in multiple options, with consecutive options adding additional components to the selection. The options are:

- **No specific integration:** Select this option if you want a standard installation. This is the default option.

- **Enable for DIP:** Select this option if you want this server instance to be enabled as a datastore for Oracle Directory Integration Platform (DIP) only.

- **Enable for EBS (E-Business Suite), Database Net Services and DIP:** Select this option if you want this server instance to be enabled as a datastore for Oracle E-Business Suite (EBS), Oracle Database Net Services, and Oracle Directory Integration Platform (DIP).

- **Enable for EUS (Enterprise User Security), EBS, Database Net Services and DIP:** Select this option if you want this server instance to be enabled as a datastore for Oracle Enterprise User Security (EUS), Oracle E-Business Suite (EBS), Oracle Database Net Services, and Oracle Directory Integration Platform (DIP).

To enable a server instance for EUS, you must also have enabled SSL access, as described in the Server Settings screen in Step 5 of this procedure.

The **Enable for Oracle Database Net Services** option causes this server to store the database connect identifiers.

When you enable a server instance for Oracle Enterprise User Security (EUS), Oracle E-Business Suite (EBS), or Oracle Database Net Services, the following naming contexts are created on the instance:

```
cn=oraclecontext
```

```
cn=oracleschemaversion
cn=subschemasubentry
cn=oraclecontext,baseDN
```

These naming contexts are not created if you select DIP.

Click **Next**.

The **Server Tuning** screen is displayed.

10. The **Server Tuning** screen enables you to tune Oracle Unified Directory server by selecting one of these options:

- Providing the specific memory to be dedicated to the server.
- Explicitly providing the run-time settings (JVM arguments) to be used by the server and the off-line tools (`import-ldif`, `export-ldif`, `verify-index`, and `rebuild-index`).

Select one of the following options:

- **Providing the Memory to be used for OUD:** Move the slider to select the memory you want to use for the server. The off-line tools will use the same heap size as you select for the server using this slider.

To fully dedicate the system, check **Dedicated Machine for OUD**.

To reset any changes to the default values, click **Reset to Default**.

 **Note:**

- The **Providing the Memory to be used for OUD** option is available only if you run the `oud-setup` script using a JVM with Java HotSpot (such as Oracle Java SE).
- To tune the server using the contents of an LDIF file, use the `dstune` utility after you run the `oud-setup` script. See *Using the dstune Utility* in *Administering Oracle Unified Directory*.

- **Providing Runtime Options:** Click **Change** to change any of the displayed values for the **Server Runtime Settings** or the **Offline Tools Runtime Settings**.

To reset any changes to the default values, click **Reset to Default**.

See also [Configuring the Java Run-Time Settings During the Server Setup](#).

Click **Next**.

The **Review** screen is displayed.

11. Review your configuration.

Select **Start Server when Configuration has Completed** to start the server after the directory server has been configured. On Windows systems, select **Start Server as a Windows service**, if desired.

To display the equivalent command-line installation, select **Show Equivalent Command-Line** from the drop down menu at the top of the panel. This option

displays the non-interactive commands that are run to set up the server with the specified configuration, and can be useful for scripting purposes.

12. Click **Finish**.
13. Click **Close**.
14. Test whether the directory server has been set up and started successfully by searching an entry in the directory. For example:

On UNIX and Linux systems:

```
instance-dir/OUDBin/ldapsearch -h localhost -p 1389 \
-D "cn=directory manager" -w my-password -b "dc=example,dc=com" \
"(objectclass=*)"
```

On Windows systems:

```
instance-dir\OUDBat\ldapsearch.bat -h localhost -p 1389 \
-D "cn=directory manager" -w my-password -b "dc=example,dc=com" \
"(objectclass=*)"
```

3.2 Setting Up the Directory Server Using the Command-Line Interface (CLI)

You can use the command-line interface to set up the directory server. You run the `oud-setup` script with the `--cli` option to set up a directory server instance using the command-line interface.

The command-line interface (CLI) install is either interactive or non-interactive. In a non-interactive installation, you can set up the server without user intervention. In interactive mode, you are prompted for the required information before the configuration begins.

To setup a directory server instance using the CLI:

1. When you have installed the software, change to the `ORACLE_HOME` subdirectory.

On UNIX and Linux systems:

```
$ cd OUD-base-location/ORACLE_HOME
```

On Windows systems:

```
C:\> cd OUD-base-location\ORACLE_HOME
```

2. Ensure that your `JAVA_HOME` environment variable is set to a supported JVM installation.
3. Enter the `oud-setup` command with the `--cli` option to launch the install in interactive mode.

```
$ ./oud-setup --cli
```

The output should look similar to this:

```
Oracle Unified Directory 12.2.1.3.0
Please wait while the setup program initializes...
```

```
Instance Path: [OUD-base-location/instance-dir]:
```

The utility launches the command-line installer and creates the Oracle Unified Directory instance in `OULD-base-location/instance-dir`.

The default instance directory name is `asinst_1`, with subsequent instances on the same server named `asinst_2`, `asinst_3`, and so on. To specify a different instance name, set the `INSTANCE_NAME` environment variable before you run the setup, for example:

```
$ export INSTANCE_NAME=my-oud-instance
```

 **Note:**

The instance is created directly under `OULD-base-location` by default. However, Oracle strongly recommends that you create your Oracle Unified Directory instance *outside* of the Oracle home directory.

To change the instance path, include the path relative to `OULD-base-location` when you set the `INSTANCE_NAME` variable. For example:

```
$ export INSTANCE_NAME=../../local/my-oud-instance
```

4. Enable the LDAP administration port, or press Enter or Return to accept the default.

```
Do you want to enable the LDAP administration port? Note that some of the
OUD
tools require this port to be enabled (yes / no) [yes]:
```

5. Enter the port number that will be used for Administration traffic, or press Enter or Return to accept the default.

```
On which port would you like the LDAP Administration Connector to accept
connections? [4444]:
```

The default administration port is 4444. See *Managing Administration Traffic to the Server* in *Administering Oracle Unified Directory*.

6. Enter `yes` to enable the HTTP administrator port, or press Enter or Return to accept the default.

```
Do you want to enable the HTTP administration port? (yes / no) [no]:
```

7. Enter the root user DN, or press Enter or Return to accept the default (`cn=Directory Manager`).

```
What would you like to use as the initial root user DN for the Directory
Server? [cn=Directory Manager]:
```

8. Provide a password for the root user and reenter the password to confirm it.

```
Please provide the password to use for the initial root user: *****
Please re-enter the password for confirmation: *****
```

9. Enable LDAP, or press Enter or Return to accept the default.

```
Do you want to enable LDAP? (yes / no) [yes]:
```

10. Enter the LDAP port number for your directory server, or press Enter or Return to accept the default.

```
On which port would you like the Directory Server to accept connections from
LDAP clients? [1389]:
```

- 11.** Enter `yes` to enable Start TLS, or press `Enter` or `Return` to accept the default.

Do you want to enable Start TLS on LDAP Port '1389'? (yes / no) [no]:

- 12.** Enter `yes` to enable HTTP, or press `Enter` or `Return` to accept the default.

Do you want to enable HTTP? (yes / no) [no]:

- 13.** Enter `yes` to enable LDAPS, or press `Enter` or `Return` to accept the default.

Do you want to enable LDAPS? (yes / no) [no]:

- 14.** Enter `yes` to enable HTTPS, or press `Enter` or `Return` to accept the default

Do you want to enable HTTPS? (yes / no) [no]:

- 15.** Press `Enter` or `Return` to create base DN's in the server, or enter `no` if you do not want to create base DN's.

Do you want to create base DN's in the server? (yes / no) [yes]:

- 16.** Enter the base DN for the directory data, or press `Enter` or `Return` to accept the default.

Provide the base DN for the directory data: [dc=example,dc=com]:

- 17.** Select an option to populate the database:

- Only create the base entry creates an entry with the base DN specified previously.
- Leave the database empty sets up a database but does not populate any entries.
- Import data from an LDIF file imports LDIF data from a file, specified in the following step.
- Load automatically-generated sample data generates the number of sample entries specified in the following step.

Options for populating the database:

- 1) Only create the base entry
- 2) Leave the database empty
- 3) Import data from an LDIF file
- 4) Load automatically-generated sample data

Enter choice [1]:

- 18.** Select one of the following options to integrate Oracle Unified Directory with Oracle components:

- 1) No integration
- 2) DIP (Directory Integration Platform)
- 3) Generic: Database Net Services, EBS and DIP
- 4) EUS (Enterprise User Security), Database Net Services, EBS and DIP

The same components appear in multiple options. These options enable the server instance to be enabled as a datastore for the specified components, as follows.

- 2) DIP: Oracle Directory Integration Platform (DIP) only.

- 3) Generic: Database Net Services, EBS and DIP: Oracle E-Business Suite (EBS), Oracle Database Net Services, and Oracle Directory Integration Platform (DIP).
- 4) EUS (Enterprise User Security), Database Net Services, EBS and DIP: Oracle Enterprise User Security (EUS), Oracle E-Business Suite (EBS), Oracle Database Net Services, and Oracle Directory Integration Platform (DIP).

To integrate the server with EUS, you must also have enabled SSL access, as described in Step 11.

When you enable a server instance for Oracle Enterprise User Security (EUS), Oracle E-Business Suite (EBS), or Oracle Database Net Services, the following naming contexts are created on the instance:

```
cn=oraclecontext
cn=oracleschemaversion
cn=subschemasubentry
cn=oraclecontext,baseDN
```

These naming contexts are not created for DIP.

Specify the Oracle components with which the server integrates. It is recommended to choose the option covering only your requirements.

- 1) No Integration
 - 2) DIP (Directory Integration Platform)
 - 3) Generic: Database Net Services, EBS and DIP
 - 4) EUS (Enterprise User Security), Database Net Services, EBS and DIP
- c) cancel

Enter choice [1]: 3

19. Enter an option depending on how you want to tune the Oracle Unified Directory server:

How do you want the OUD server to be tuned?

- 1) Use specific Java Virtual Machine arguments
- 2) Use the default Java Virtual Machine settings
- 3) Provide the Java heap size to be used by the server
- 4) Provide the percentage of system memory to be used by the server
- 5) Provide the size of system memory to be used by the server

Enter choice [1]: 2

 **Note:**

- Option 2 (default JVM settings) are based on the free memory of the system.
- Options 3, 4, and 5 are available only if you run the `oud-setup` script using a JVM with Java HotSpot (such as Oracle Java SE).

20. Enter an option depending on how you want to tune the off-line tools:

How do you want the off-line tools (import-ldif, export-ldif, verify-index and rebuild-index) to be tuned?

- 1) Use specific Java Virtual Machine arguments
- 2) Use the default Java Virtual Machine settings
- 3) Automatic Tuning
- 4) Provide the Java heap size to be used by the off-line tools

Enter choice [1]: 2

 **Note:**

Select the Automatic Tuning option, if you want the off-line tools to be tuned automatically each time they are launched, depending on the system resources.

- 21.** Press Enter or Return to accept the default to start the server after the configuration has completed.

Do you want to start the server when the configuration is completed? (yes / no) [yes]:

```
Setup Summary
=====
Instance Path:                /u01/app/oracle/config/oud_instances/
asinst_1/OUUD
LDAP Administration Port:     4444
Root User DN:                 cn=Directory Manager
LDAP Port:                    1389
Directory Data:               Create New Base DN dc=example,dc=com
                               Base DN Data: Only Create Base Entry
                               (dc=example,dc=com)
Integration with Oracle components: Generic: Database Net Services, EBS and
DIP
Server Runtime Settings:      Use the default Java Virtual Machine
                               settings
Off-line Tools Runtime Settings: Use the default Java Virtual Machine
                               settings
```

Start Server when the configuration is completed

Provide the base DN for the directory data: [dc=example,dc=com]:

- 22.** Enter 3 to display the equivalent non-interactive commands.

This option displays the commands that are run to set up the server with the specified configuration, and can be useful for scripting purposes.

What would you like to do?

- 1) Set up the server with the parameters above
- 2) Provide the setup parameters again
- 3) Print equivalent non-interactive command-line
- 4) Cancel and exit

Enter choice [1]: 3

Equivalent non-interactive command-line to setup server:

```

oud-setup \
  --cli \
  --instancePath /u01/app/oracle/config/oud_instances/asinst_1/OUUD \
  --adminConnectorPort 6444 \
  --httpAdminConnectorPort disabled \
  --rootUserDN cn=Directory\ Manager \
  --rootUserPasswordFile ***** \
  --ldapPort 3389 \
  --baseDN dc=example,dc=com \
  --addBaseEntry \
  --integration generic \
  --serverTuning jvm-default \
  --offlineToolsTuning jvm-default \
  --no-prompt \
  --noPropertiesFile

```

23. Press Enter or Return to accept the default to complete the configuration process.

What would you like to do?

- 1) Set up the server with the parameters above
- 2) Provide the setup parameters again
- 3) Print equivalent non-interactive command-line
- 4) Cancel and exit

Enter choice [1]:

```

Creating instance directory /u01/app/oracle/config/oud_instances/
asinst_1/OUUD ..... Done.
See /u01/app/oracle/config/oud_instances/asinst_1/OUUD/logs/oud-setup for a
detailed log
of this operation.

```

```

Configuring Directory Server ..... Done.
Creating Base Entry dc=example,dc=com ..... Done.
Preparing the server for Oracle integration ..... Done.
Starting Directory Server ..... Done.
Creating Net Services suffixes ..... Done.

```

To see basic server configuration status and configuration you can launch
/u01/app/oracle/config/oud_instances/asinst_1/OUUD/bin/status

24. Test whether the directory server has been set up and started successfully by searching an entry in the directory. For example:

```

instance-dir/OUUD/bin/ldapsearch -h localhost -p 1389 \
  -D "cn=directory manager" -w my-password -b "dc=example,dc=com" \
  "(objectclass=*)"

```

The output should look similar to this:

```

dn: dc=example,dc=com
dc: example
objectClass: top
objectClass: orclSubscriber
objectClass: domain

dn: cn=OracleContext,dc=example,dc=com
orclVersion: 90600
objectClass: orclContextAux82
objectClass: top
objectClass: orclContext

```

```

cn: OracleContext

dn: cn=Products,cn=OracleContext,dc=example,dc=com
objectClass: top
objectClass: orclContainer
cn: Products

dn: cn=OracleDBSecurityAdmins,cn=OracleContext,dc=example,dc=com
uniquemember: cn=Directory Manager
objectClass: groupofUniqueNames
objectClass: orclPrivilegeGroup
objectClass: top
cn: OracleDBSecurityAdmins

dn: cn=OracleDBCreators,cn=OracleContext,dc=example,dc=com
uniquemember: cn=Directory Manager
objectClass: groupofUniqueNames
objectClass: orclPrivilegeGroup
objectClass: top
cn: OracleDBCreators

dn: cn=OracleNetAdmins,cn=OracleContext,dc=example,dc=com
uniquemember: cn=Directory Manager
objectClass: groupofUniqueNames
objectClass: orclPrivilegeGroup
objectClass: top
cn: OracleNetAdmins

dn: cn=OracleDBSecurity,cn=Products,cn=OracleContext,dc=example,dc=com
orclVersion: 102000
cn: OracleDBSecurity
orclDBVersionCompatibility: 90000
objectClass: top
objectClass: orclContainer
objectClass: orclDBSecConfig
objectClass: orclDBSecConfig10i
orclDBOIDAuthentication: PASSWORD

dn:
cn=OracleDefaultDomain,cn=OracleDBSecurity,cn=Products,cn=OracleContext,dc=e
  xample,dc=com
orclDbAuthTypes: ALL
objectClass: groupofuniquenames
objectClass: orclDBEnterpriseDomain_82
objectClass: orclPrivilegeGroup
objectClass: top
objectClass: orclDBEnterpriseDomain
cn: OracleDefaultDomain

dn: cn=Groups,cn=OracleContext,dc=example,dc=com
objectClass: top
objectClass: orclContainer
cn: Groups

dn: cn=Common,cn=Products,cn=OracleContext,dc=example,dc=com
orclVersion: 90000
orclCommonGroupSearchBase: ou=groups,dc=example,dc=com
orclCommonKrbPrincipalAttribute: krbPrincipalName
orclCommonApplicationGuidAttribute: orclGlobalID
orclCommonNicknameAttribute: uid
orclCommonWindowsPrincipalAttribute: orclSAMAccountName

```

```

orclCommonUserCreateBase: ou=people,dc=example,dc=com
orclCommonNamingAttribute: uid
orclUserObjectClasses: top
orclUserObjectClasses: person
orclUserObjectClasses: inetorgperson
orclUserObjectClasses: organizationalperson
orclUserObjectClasses: orcluser
orclUserObjectClasses: orcluserv2
cn: Common
orclSubscriberSearchBase: dc=example,dc=com
orclSubscriberNickNameAttribute:: ZGMg
objectClass: top
objectClass: orclCommonAttributesV2
objectClass: orclCommonAttributes
objectClass: orclContainer
orclCommonDefaultUserCreateBase: ou=people,dc=example,dc=com
orclCommonDefaultGroupCreateBase: ou=groups,dc=example,dc=com
orclCommonGroupCreateBase: ou=groups,dc=example,dc=com
orclCommonUserSearchBase: ou=people,dc=example,dc=com

dn: cn=OracleContextAdmins,cn=Groups,cn=OracleContext,dc=example,dc=com
uniquemember: cn=Directory Manager
cn: OracleContextAdmins
description: Users who can administer all entities in this Oracle Context
objectClass: groupofUniqueNames
objectClass: orclPrivilegeGroup
objectClass: orclGroup
objectClass: top
displayname: Oracle Context Administrators

dn: cn=OracleUserSecurityAdmins,cn=Groups,cn=OracleContext,dc=example,dc=com
uniquemember: cn=Directory Manager
objectClass: groupofUniqueNames
objectClass: orclPrivilegeGroup
objectClass: top
cn: OracleUserSecurityAdmins

dn:
cn=OraclePasswordAccessibleDomains,cn=Groups,cn=OracleContext,dc=example,dc=
com
uniquemember: cn=OracleDBSecurityAdmins,cn=OracleContext,dc=example,dc=com
objectClass: groupofUniqueNames
objectClass: orclPrivilegeGroup
objectClass: top
cn: OraclePasswordAccessibleDomains

dn:
cn=OracleDomainAdmins,cn=OracleDefaultDomain,cn=OracleDBSecurity,cn=Products
,cn=OracleContext,dc=example,dc=com
uniquemember: cn=Directory Manager
objectClass: groupofUniqueNames
objectClass: orclPrivilegeGroup
objectClass: top
cn: OracleDomainAdmins

dn: cn=LabelSecurity,cn=Products,cn=OracleContext,dc=example,dc=com
orclVersion: 100000
objectClass: top
objectClass: orclContainer
cn: LabelSecurity

```



```
dn:  
cn=Policies,cn=LabelSecurity,cn=Products,cn=OracleContext,dc=example,dc=com  
objectClass: top  
objectClass: orclContainer  
cn: Policies  
  
dn:  
cn=PolicyCreators,cn=Policies,cn=LabelSecurity,cn=Products,cn=oraclecontext,  
dc=example,dc=com  
owner: cn=OracleContextAdmins,cn=Groups,cn=OracleContext,dc=example,dc=com  
objectClass: groupOfUniqueNames  
objectClass: orclACPGroup  
objectClass: top  
cn: PolicyCreators  
  
dn:  
cn=ProxyPermissions,cn=OracleDefaultDomain,cn=OracleDBSecurity,cn=Products,c  
n=OracleContext,dc=example,dc=com  
objectClass: top  
objectClass: orclContainer  
cn: ProxyPermissions
```

3.3 Setting Up Replication During Installation

You can set up replication as part of the installation, if you install the directory server using the graphical user interface. However, if you install the server using the command-line interface, you must set up replication using the `dsreplication` command after the server is installed.

See Understanding Data Replication With `dsreplication` in *Administering Oracle Unified Directory*.

1. For the first directory server in your replication topology, follow the instructions in [Setting Up the Directory Server Using the Graphical User Interface \(GUI\)](#).
2. On the Topologies screen, do the following:
 - Select **This server will be part of a replication topology**.
 - Enter the replication port number or accept the default port 8989.

The replication port must be an available port on the server, and must therefore be different for each directory server in a topology if all of them run on the same host.
 - Select **Configure as Secure** to use encrypted communication when connecting to the replication port on the first server.

Note the host name, and administration port, for this first directory server. You will need this information when you configure the second directory server.
3. Complete the configuration of the first server.
4. For the second directory server in your replication topology, follow the instructions in [Setting Up the Directory Server Using the Graphical User Interface \(GUI\)](#).
5. On the Topologies screen, do the following:
 - Select **This server will be part of a replication topology**.
 - Enter the replication port number for this directory server.

The replication port must be different from the replication port of the first directory server if both servers run on the same host.

- Select **There is already a server in the topology** and enter the following:
 - a. **Host Name:** Enter the Host Name for the first directory server.
 - b. **Port:** Enter the administration port for the first directory server.
 - c. **Admin User:** Enter the bind DN for the first directory user, or accept the default.
 - d. **Admin Password:** Enter the bind password for the Admin user.
- 6. On the Global Administrator screen, provide the following information:
 - The UID for the new global administrator.
 - The password for the new global administrator.
 - Confirm the password for the new global administrator.
- 7. On the Data Replication screen, select one of the following options, and click **Next**.
 - a. Create first instance of base DN to be replicated.
 - b. Create local instance of existing base DN's and configure replication. Click the base DN for the first directory server.
- 8. Review the configuration settings for the second server, and click **Finish**.
- 9. Repeat the above procedures to set up additional servers in the replication topology.

When you have defined the Global Administrator, the entry with the DN and the password that you provided in step 5c must be defined on all servers in the topology.

3.4 Setting Up the Directory Server Using the WebLogic Scripting Tool

You can use the WebLogic Scripting Tool (WLST) to set up the directory server. Execute the `oud_createInstance` with the `oud-setup` script to set up a directory server instance using the WLST.

To set up a directory instance using the WLST:

1. Set the `PRODUCT_HOME` and `DOMAIN_HOME` environment variables before launching WLST.

```
export PRODUCT_HOME=/scratch/user/middleware/oracle_home
export DOMAIN_HOME=/scratch/user/middleware/oracle_home/user_projects/
domains/base_domain
```

`PRODUCT_HOME` is similar to `ORACLE_HOME`. It points to the directory where a user provides at the time of product installation. However, `DOMAIN_HOME` points to the directory where domains that you configure are created.

2. Launch the WLST:

On UNIX and Linux systems:

```
$ ORACLE_HOME/oracle_common/common/bin/wlst.sh
```

On Windows systems:

```
C:\> ORACLE_HOME\oracle_common\common\bin\wlst.cmd
```

ORACLE_HOME is the Oracle home directory you specified at installation.

3. Execute the `oud_createInstance` command with script name `oud-setup` to create the OUD Server instance.

```
oud_createInstance(scriptName='oud-  
setup',instanceName='oud1',hostname='localhost',ldapPort=1389,rootUserDN='cn=  
Directory\ Manager',  
rootUserPasswordFile='/scratch/user/  
password.txt',baseDN='dc=example,dc=com',sampleData=5,adminConnectorPort=  
1444)
```

`scriptName` indicates the setup script based on the flavor of OUD. The value for this parameter can be any one of [`oud-setup`, `oud-proxy-setup`, `oud-replication-gateway-setup`].

`instanceName` indicates the name of the instance. For example, `oud1`.

 **Note:**

Arguments that cannot have a value like `noPropertiesFile` and so on, can also be used with the custom WLST commands. You must pass an empty value for these arguments. For example, `noPropertiesFile=''`.

See `oud-setup` in *Administering Oracle Unified Directory* for the rest of the parameters and their descriptions.

Output:

```
Oracle Unified Directory 12.2.1.3.0  
Please wait while the setup program initializes..  
Creating instance directory  
/scratch/user/middleware/oracle_home/user_projects/domains/base_domain/  
system_components/OU/oud1/  
.....Done.
```

See

```
/scratch/user/middleware/oracle_home/user_projects/domains/base_domain/  
system_components/OU/oud1/logs/oud-setup  
for a detailed log of this operation.
```

```
Configuring Directory Server ..... Done.
```

```
Importing Automatically-Generated Data (5 Entries) ..... Done.
```

```
To see basic server configuration status and configuration you can launch  
/scratch/user/middleware/oracle_home/user_projects/domains/base_domain/  
system_components/OU/oud1/bin/status  
Successfully created OUD instance
```

4

Setting Up Oracle Unified Directory as a Proxy Server

You can use the graphical user interface or the command-line utility to set up an Oracle Unified Directory proxy server instance.

Topics:

- [Before You Set up the Oracle Unified Directory Proxy](#)
- [Setting Up the Proxy Server Using the Graphical User Interface \(GUI\)](#)
- [Set Up the Proxy Using the Command-Line \(CLI\)](#)
- [Duplicating an Oracle Unified Directory Proxy Installation](#)
- [Manage Redundancy for Oracle Unified Directory](#)
- [Setting Up the Proxy Server Using the WebLogic Scripting Tool](#)

This chapter provides an overview of the supported Oracle Unified Directory proxy deployments. For example deployments using the proxy server, see *Understanding Deployments Using the Proxy Server* in *Administering Oracle Unified Directory*.

4.1 Before You Set up the Oracle Unified Directory Proxy

To set up the Oracle Unified Directory proxy, you must have one or more remote LDAPv3-compliant directory servers. Oracle Unified Directory proxy has been tested with Oracle Unified Directory and Oracle Directory Server Enterprise Edition 11g Release 1 (11.1.1).

Before you start to set up the proxy, determine the type of deployment architecture that you want to implement from the following list:

- Simple load balancing
- Simple distribution
- Distribution with load balancing
- Failover between data centers
- Distribution with failover between data centers

A global index catalog can be incorporated into any scenario that uses distribution. For information about creating a global index catalog, see *Configuring Global Indexes Using the Command Line* in *Administering Oracle Unified Directory*.

4.2 Setting Up the Proxy Server Using the Graphical User Interface (GUI)

The GUI setup is a Java-based graphical installer that enables you to configure all the elements required for specific Oracle Unified Directory proxy deployments.

You can use the GUI setup only once per instance. To modify an installation after you have run the GUI setup, use the `dsconfig` command.

The following topics present a step-by-step installation using the `oud-proxy-setup` graphical interface, including configuration examples for simple deployments:

- [Presentation of the GUI Setup Wizard](#)
- [Configuring Simple Load Balancing](#)
- [Configuring Simple Distribution](#)
- [Configuring Distribution with Load Balancing](#)
- [Enterprise User Security \(EUS\) Configuration](#)

Before you run the GUI setup, determine the best deployment architecture using the deployment scenarios described in Understanding Deployments Using the Proxy Server in *Administering Oracle Unified Directory*.

4.2.1 Presentation of the GUI Setup Wizard

The setup wizard has all the graphical user interface elements that enables the user to interact with the application while setting up Oracle Unified Directory as a proxy server.

The GUI setup wizard is organized as follows:

- The left hand pane lists the steps of the setup process. The deployment sub-steps change, according to the type of deployment that you select.
- The arrow in the left hand pane indicates the current step.
- The main area on the right is the action pane, where you define your deployment.
- At the bottom of the window you have the option to go back and forth (or quit) to modify and complete your installation.

The remaining tasks in this section walk you through the various types of proxy deployments that can be set up.

4.2.2 Configuring Simple Load Balancing

You can deploy a proxy server in a simple load balancing configuration to optimize performance by distributing incoming requests across multiple resources.

To configure simple load balancing:

1. When you have installed the software, change to the `ORACLE_HOME` subdirectory.

On UNIX and Linux systems:

```
$ cd OUD-base-location/ORACLE_HOME
```

On Windows systems:

```
C:\> cd OUD-base-location\ORACLE_HOME
```

2. Ensure that your `JAVA_HOME` environment variable is set to a supported JVM installation (at least Java 1.6).
3. Run the `oud-proxy-setup` command to configure the proxy server installation.

On UNIX and Linux systems:

```
$ oud-proxy-setup
```

On Windows systems:

```
C:\> oud-proxy-setup.bat
```

The utility launches the graphical installer and creates the Oracle Unified Directory proxy instance in *OULD-base-location/instance-dir*.

The default instance directory name is *asinst_1*, with subsequent instances on the same server named *asinst_2*, *asinst_3*, and so on. To specify a different instance name, set the *INSTANCE_NAME* environment variable before you run the setup, for example:

```
$ export INSTANCE_NAME=my-oud-proxy-instance
```

The instance is created directly under OUD-base-location by default. To change the instance path, include the path relative to OUD-base-location when you set the *INSTANCE_NAME* variable. For example:

```
$ export INSTANCE_NAME=../../local/my-oud-proxy-instance
```

4. On the Welcome panel, click **Next**.
5. On the Server Settings panel, enter the following information:
 - **Host Name:** Enter the proxy server's host name or IP address.
The default is the local host name.
 - **LDAP Listener Port:** Enter the LDAP port for the proxy server.
The default port that is proposed is the first available port that ends with 389. On UNIX and Linux systems, if you run the installer as a non-root user, the default is 1389, if available.
 - **LDAP Secure Access:** To configure SSL, StartTLS, or both, click **Configure**.
Complete the following information:
 - a. **SSL Access:** Select **Enable SSL** and enter a valid port for secure LDAP operations.
The default secure port that is proposed is the first available port that ends with 636. On UNIX and Linux systems, if you run the installer as a non-root user, the default is 1636, if available.
 - b. **StartTLS Access:** Select **Enable StartTLS** for LDAP.
 - c. **Certificate:** If you are in a testing environment, select **Generate Self-Signed Certificate**.
For production servers, select **Use an Existing Certificate**, and then select the Keystore Type. Enter the Keystore Path, and Keystore PIN if necessary.
 - d. Click **OK** to continue.
 - **Administration Port:** Enter the port that will be used for administration traffic.
The default administration port is 4444. See *Managing Administration Traffic to the Server* in *Administering Oracle Unified Directory*.
 - **Root User DN:** Enter the Root User DN, or keep the default, *cn=Directory Manager*.

- **Password:** Enter the root user bind password.
- **Password (confirm):** Reenter the root user bind password.

Click **Next**.

The **Deployment Options** screen is displayed.

6. Select **Use load balancing on a replicated data set** from the Configuration Option drop-down menu.

 **Note:**

If you select **Configure later**, only the server settings that you specified in the previous step are configured. You must then use the `dsconfig` command, or the Oracle Unified Directory Services Manager interface, to configure your deployment.

Click **Next**.

The **Back-End Servers** screen is displayed.

7. Select the remote LDAP servers that hold the corresponding replicated data.
 - a. If your remote LDAP servers are Oracle Unified Directory servers or Oracle Directory Server Enterprise Edition servers, click **Add Oracle Servers**.
 - For Oracle Unified Directory servers:

Select **Connect to a replicated Oracle Unified Directory server**.

Enter the host name, administration port, administration bind DN, and password for the remote Oracle Unified Directory server.

Click **Connect**.

Accept the certificate.

Check the servers that should be part of the load balanced topology.

When you have entered the details of one directory server in a replicated topology, the setup wizard displays all other replicated servers in that topology.

Click **OK**.
 - For Oracle Directory Server Enterprise Edition servers:

Select **Connect to a DSCC registry**.

Enter the DSCC host name, DSCC port, protocol, and the Directory Service Manager credentials for the DSCC registry.

Check the servers that should be part of the load balanced topology.

The setup wizard displays all the Oracle Directory Server Enterprise Edition server instances that are registered in the DSCC registry.

Click **OK**.
 - b. If your remote LDAP servers are not Oracle Unified Directory servers or Oracle Directory Server Enterprise Edition servers, click **Add Server**.
 - Enter the server name, port and security settings.

The security settings you set here will determine the security between the Oracle Unified Directory proxy and remote LDAP servers. See *Configuring Security Between Clients and Servers in Administering Oracle Unified Directory*.

- Click **Add**.
- Click **Close** when you have added all the remote LDAP servers for the load balanced topology.

Click **Next**.

The **Load Balancing Options** screen is displayed.

8. Choose a load balancing algorithm.

For information about the various load balancing algorithms, see *Configuring Load Balancing Using the Proxy in Administering Oracle Unified Directory*.

9. Set the load balancing algorithm properties or select Default Values.

When you have completed the installation, the properties can be modified. For more information about modifying load balancing properties, see *Configuring Load Balancing Using the Proxy in Administering Oracle Unified Directory*.

- a. For proportional, set the weight. Requests are distributed between the remote LDAP servers based on the weight indicated.

For example, if you leave the default value of 1, then all servers will receive the same number of requests.

- b. For failover, indicate the order in which the servers are used.

The server with a value of 0 is the highest priority server. The other servers are used only if there is a failure on the main server.

- c. For saturation, set the order in which the servers are used and the saturation threshold of each server.

Requests are sent to the server with the highest priority (1) until it reaches the threshold indicated. The saturation threshold is the rate at which the server is considered saturated, or full. Typically this limit should be set lower than 100%.

- d. For optimal, no additional configuration is required.

The active server is selected based on the saturation index, which is calculated automatically.

10. Enter the naming context, or suffix.

If the remote LDAP servers are online, the setup connects to them and displays the naming contexts that are available on the servers.

If no naming contexts are proposed, enter the DN of the naming context that you want to use, for example, `dc=example,dc=com`.

Click **Next**.

The **Runtime options** screen is displayed.

11. Click **Change** to configure any specific JVM settings, or click **Next** to run the server with the default JVM settings.

The **Review** screen is displayed.

12. Review the installation configuration.

If you need to make any modifications, use the **Previous** button.

13. To display the commands that will be launched for this installation, select Show Command from the drop down menu.

These commands are saved in a log file, in the logs folder. You can use these commands to run additional installations with similar deployment options later.

14. Click **Finish** to complete the installation.

When the installation is complete, you can use the `dsconfig` command to modify the installation. See *Managing the Server Configuration Using dsconfig* in *Administering Oracle Unified Directory*.

4.2.3 Configuring Simple Distribution

You can deploy a proxy server in a simple distribution topology to scale your directory by splitting your data across multiple servers.

To configure simple distribution:

1. When you have installed the software, change to the `ORACLE_HOME` subdirectory.

On UNIX and Linux systems:

```
$ cd OUD-base-location/ORACLE_HOME
```

On Windows systems:

```
C:\> cd OUD-base-location\ORACLE_HOME
```

2. Ensure that your `JAVA_HOME` environment variable is set to a supported JVM installation (at least Java 1.6).

3. Run the `oud-proxy-setup` command to configure the proxy server installation.

On UNIX and Linux systems:

```
$ oud-proxy-setup
```

On Windows systems:

```
C:\> oud-proxy-setup.bat
```

The utility launches the graphical installer and creates the Oracle Unified Directory proxy instance in `OUD-base-location/instance-dir`.

The default instance directory name is `asinst_1`, with subsequent instances on the same server named `asinst_2`, `asinst_3`, and so on. To specify a different instance name, set the `INSTANCE_NAME` environment variable before you run the setup, for example:

```
$ export INSTANCE_NAME=my-oud-proxy-instance
```

The instance is created directly under `OUD-base-location` by default. To change the instance path, include the path relative to `OUD-base-location` when you set the `INSTANCE_NAME` variable. For example:

```
$ export INSTANCE_NAME=../../local/my-oud-proxy-instance
```

4. On the Welcome panel, click **Next**.
5. On the Server Settings screen, enter the following information:

- **Host Name:** Enter the proxy server's host name or IP address.
The default is the local host name.
 - **LDAP Listener Port:** Enter the LDAP port for the proxy server.
The default port that is proposed is the first available port that ends with **389**. On UNIX and Linux systems, if you run the installer as a non-root user, the default is 1389, if available.
 - **LDAP Secure Access:** To configure SSL, StartTLS, or both, click **Configure**.
Complete the following information:
 - a. **SSL Access:** Select Enable SSL and enter a valid port for secure LDAP operations.
The default secure port that is proposed is the first available port that ends with 636. On UNIX and Linux systems, if you run the installer as a non-root user, the default is 1636, if available.
 - b. **StartTLS Access:** Click **Enable StartTLS for LDAP**.
 - c. **Certificate:** If you are in a testing environment, select **Generate Self-Signed Certificate**.
For production servers, click **Use an Existing Certificate**, and then click the **Keystore Type**. Enter the Keystore Path, and Keystore PIN if necessary.
 - d. Click **OK**.
 - **Administration Port:** Enter the port that will be used for administration traffic.
The default administration port is 4444. See Managing Administration Traffic to the Server in *Administering Oracle Unified Directory*.
 - **Root User DN:** Enter the Root User DN, or keep the default, `cn=Directory Manager`.
 - **Password:** Enter the root user bind password.
 - **Password (confirm):** Retype the root user bind password.
 - Click **Next**.
6. In the Deployment Options panel, select Use distribution on a partitioned data set from the Configuration Option drop-down menu.
If you select **Configure later**, only the server settings that you specified in the previous step are configured. You must then use the `dsconfig` command or the Oracle Unified Directory Services Manager interface to configure your deployment.
7. Drag the sliding arrow to specify the number of partitions on which the data is separated.
For the example distribution scenario, select two partitions.
Click **Next**.
8. Define how the data will be partitioned across the LDAP servers.
 - a. Select the Partitioning Algorithm from the drop-down list.
For information about the various partitioning algorithms and distribution using the proxy, see Overview of Load Balancing Using the Proxy in *Administering Oracle Unified Directory*.

- b. Enter the naming context.
For example, `dc=example,dc=com`.
 - c. Enter the distribution base DN.
For example, `ou=people`. The distribution base DN is the level after which the distribution requests apply.
 - d. If you have selected a Lexico or Numeric algorithm, enter the distribution attribute.
For example, `uid`.
9. Depending on the distribution algorithm, define the partition capacities, DN patterns, or boundaries for each partition.

If you use the Set Default button, the installation wizard sets defaults that might not correspond to your deployment. This feature can, however, be useful for testing purposes.

- a. For capacity, set the maximum number of entries for each partition.
For example, if you set maximum entries to 1000, only 1000 Add requests will be sent to the LDAP server associated with that partition. If you set maximum entries to 1000 for partition 1 and 2000 for partition 2, the proxy will send twice the number of requests to partition 2.

 **Note:**

If you select the capacity algorithm, you **must** create a global index, as described in the next step.

- b. For DN pattern, set the DN pattern string for each partition.
For example, `cn=[a].*` means that requests with a `uid` that starts with `a` will be sent to partition 1. See About DN Pattern String Syntax in *Administering Oracle Unified Directory*.
- c. For lexico, set the alphabetic boundaries for each partition.
For example, for partition 1, `From=A`, `To=K`. Then, `uids` with values between `A` and `K` will be sent to partition 1.
- d. For numeric, set numeric boundaries for each partition.
For example, for partition 1, `From=0`, `To=1000`. Then, `uids` between 0 and 1000 will be sent to partition 1.

 **Note:**

The upper boundary is exclusive. That is, if you set the upper boundary to 1000, only entries up to 999 will be distributed to that partition.

If you leave one of the boundaries blank, this will be considered as unlimited. In other words, if you set the lower boundary to 1000 and the upper boundary to blank, the partition will include everything after 1000.

Click **Next**.

10. Configure the global index.
 - a. Select **Enable Global Indexes**.

If you have selected a capacity algorithm, this option will already be selected because Global indexes are **mandatory** for the capacity algorithm.

- b. Add attributes to be indexed:
 - Select Index the DNs if you want the DNs included in the global index.
 - Select Index other attributes if you want attributes other than the DNs included.
 - Select attributes from the Available Attributes list and click Add to include those attributes in the global index.

All available attributes are listed. Choose only those attributes that contain unique values.

If necessary, use the `split-ldif` command to divide LDIF files into files containing the expected data for global indexes. See *Configuring Global Indexes Using the Command Line* in *Administering Oracle Unified Directory*.

The installation wizard creates a global index catalog, named `gi-catalog` by default, and populates the global index catalog with global indexes of the selected attributes. All global indexes are associated with the same global index catalog (`gi-catalog`). The installation wizard also creates a global index replication administrator with the same password as the directory manager.

See *Configuring Global Indexes Using the Command Line* in *Administering Oracle Unified Directory*.

11. For each partition, select the remote LDAP server that holds the corresponding partitioned data.



Note:

If you add two servers for one partition, you must configure load balancing between these servers. This use case is explained in the example [Configuring Distribution with Load Balancing](#).

- a. If your remote LDAP servers are Oracle Unified Directory servers or Oracle Directory Server Enterprise Edition servers, click Add Oracle Servers.

For Oracle Unified Directory servers:

- i. Select **Connect to a replicated Oracle Unified Directory server**.
 - ii. Enter the host name, administration port, administration bind DN, and password for the remote Oracle Unified Directory server.
 - iii. Click **Connect**.
 - iv. Accept the certificate.

Check the servers that should be part of the load balanced topology.

When you have entered the details of one directory server in a replicated topology, the setup wizard displays all other replicated servers in that topology.

- v. Click **OK**.

For Oracle Directory Server Enterprise Edition servers:

- i. Select **Connect to a DSCC registry**.
- ii. Enter the DSCC host name, DSCC port, protocol, and the Directory Service Manager credentials for the DSCC registry.
- iii. Check the servers that should be part of the load balanced topology.

The setup wizard displays all the Oracle Directory Server Enterprise Edition server instances that are registered in the DSCC registry.

- iv. Click **OK**.

- b. If your remote LDAP servers are not Oracle Unified Directory servers or Oracle Directory Server Enterprise Edition servers, click Add Server.

- i. Enter the server name, port and security settings.

The security settings that you set here determine the security between the Oracle Unified Directory proxy and remote LDAP servers. See *Configuring Security Between the Proxy and the Data Source in Administering Oracle Unified Directory*.

- ii. Click **Add**.

- iii. Click **Close** when you have added all the remote LDAP servers for the distributed topology.

- 12. On the Runtime options panel, click Change to configure any specific JVM setting, or click Next to run the server with the default JVM settings.

- 13. Review the installation configuration.

If you need to make any modifications, use the Previous button.

- 14. To display the commands that will be launched for this installation, select Show Command from the drop down menu.

These commands are saved in a log file, in the logs folder. You can use these commands to run additional installations with similar deployment options later.

- 15. Click **Finish** to complete the installation.

When the installation is complete, you can use the `dsconfig` command to modify the installation. See *Managing the Server Configuration Using dsconfig in Administering Oracle Unified Directory*.

4.2.4 Configuring Distribution with Load Balancing

You can deploy a proxy server in a distribution with load balancing configuration to split the data into partitions. You can also replicate the data on the remote LDAP servers.

To configure distribution with load balancing:

- 1. When you have installed the software, change to the `ORACLE_HOME` subdirectory.

On UNIX and Linux systems:

```
$ cd OUD-base-location/ORACLE_HOME
```

On Windows systems:

```
C:\> cd OUD-base-location\ORACLE_HOME
```

2. Ensure that your `JAVA_HOME` environment variable is set to a supported JVM installation (at least Java 1.6).
3. Run the `oud-proxy-setup` command to configure the proxy server installation.

On UNIX and Linux systems:

```
$ oud-proxy-setup
```

On Windows systems:

```
C:\> oud-proxy-setup.bat
```

The utility launches the graphical installer and creates the Oracle Unified Directory proxy instance in `OUD-base-location/instance-dir`.

The default instance directory name is `asinst_1`, with subsequent instances on the same server named `asinst_2`, `asinst_3`, and so on. To specify a different instance name, set the `INSTANCE_NAME` environment variable before you run the setup, for example:

```
$ export INSTANCE_NAME=my-oud-proxy-instance
```

The instance is created directly under `OUD-base-location` by default. To change the instance path, include the path relative to `OUD-base-location` when you set the `INSTANCE_NAME` variable. For example:

```
$ export INSTANCE_NAME=../../local/my-oud-proxy-instance
```

4. On the Welcome panel, click **Next**.
5. On the Server Settings panel, enter the following information:
 - **Host Name:** Enter the proxy server's host name or IP address.
The default is the local host name.
 - **LDAP Listener Port:** Enter the LDAP port for the proxy server.
The default port that is proposed is the first available port that ends with 389. On UNIX and Linux systems, if you run the installer as a non-root user, the default is 1389, if available.
 - **LDAP Secure Access:** To configure SSL, StartTLS, or both, click **Configure**.
Complete the following information:
 - a. **SSL Access:** Select Enable SSL and enter a valid port for secure LDAP operations.
The default secure port that is proposed is the first available port that ends with 636. On UNIX and Linux systems, if you run the installer as a non-root user, the default is 1636, if available.
 - b. **StartTLS Access:** Click **Enable StartTLS for LDAP**.
 - c. **Certificate:** If you are in a testing environment, select Generate Self-Signed Certificate.
For production servers, click **Use an Existing Certificate**, and then select the Keystore Type. Enter the Keystore Path, and Keystore PIN if necessary.

d. Click **OK**.

- **Administration Port:** Enter the port that will be used for administration traffic. The default administration port is 4444. See Managing Administration Traffic to the Server in *Administering Oracle Unified Directory*.
- **Root User DN:** Enter the Root User DN, or keep the default, `cn=Directory Manager`.
- **Password:** Enter the root user bind password.
- **Password (confirm):** Retype the root user bind password.

Click **Next** to continue.

The **Deployment Options** screen is displayed.

6. Select **Use distribution on a partitioned data set** from the Configuration Option drop-down menu.

If you select **Configure later**, only the server settings that you specified in the previous step are configured. You must then use the `dsconfig` command or the Oracle Unified Directory Services Manager interface to configure your deployment.

7. Drag the sliding arrow to specify the number of partitions on which the data is separated.

For the example distribution scenario, select two partitions.

Click **Next**.

8. Define how the data will be partitioned across the LDAP servers.

- a. Select the Partitioning Algorithm from the drop-down list.

For information about the various partitioning algorithms for the proxy, see Overview of Data Distribution Using the Proxy in *Administering Oracle Unified Directory*.

- b. Enter the naming context.

For example, `dc=example,dc=com`.

- c. Enter the distribution base DN.

For example, `ou=people`. The distribution base DN is the level after which the distribution requests apply.

- d. If you have selected a Lexico or Numeric algorithm, enter the distribution attribute.

For example, `uid`.

9. Depending on the distribution algorithm, define the partition capacities, DN patterns, or boundaries for each partition.

If you use the Set Default button, the installation wizard sets defaults, that might not correspond to your deployment. This feature can, however, be useful for testing purposes.

- a. For capacity, set the maximum number of entries for each partition.

For example, if you set maximum entries to 1000, only 1000 Add requests will be sent to the LDAP server associated with that partition. If you set maximum entries to 1000 for partition 1 and 2000 for partition 2, the proxy will send twice the number of requests to partition 2.

If you select the capacity algorithm, you must create a global index, as described in the next step.

- b. For DN pattern, set the DN pattern string for each partition.

For example, `cn=[a].*` means that requests with a `uid` that starts with `a` will be sent to partition 1. See About DN Pattern String Syntax in *Administering Oracle Unified Directory*.

- c. For lexico, set the alphabetic boundaries for each partition.

For example, for partition 1, `From=A`, `To=K`. Then, `uids` with values between A and K will be sent to partition 1.

- d. For numeric, set numeric boundaries for each partition.

For example, for partition 1, `From=0`, `To=1000`. Then, `uids` between 0 and 1000 will be sent to partition 1.

The upper boundary is exclusive. That is, if you set the upper boundary to 1000, only entries up to 999 will be distributed to that partition.

If you leave one of the boundaries blank, this will be considered as `unlimited`. In other words, if you set the lower boundary to 1000 and the upper boundary to blank, the partition will include everything after 1000.

Click **Next**.

- 10. Configure the global index.

- a. Select **Enable Global Indexes**.

If you have selected a capacity algorithm, this option will already be selected because Global indexes are **mandatory** for the capacity algorithm.

- b. Add attributes to be indexed:

- i. Select Index the DNs if you want the DNs included in the global index.
- ii. Select Index other attributes if you want attributes other than the DNs included.
- iii. Select attributes from the Available Attributes list and click Add to include those attributes in the global index.

All available attributes are listed. Choose only those attributes that contain unique values.

If necessary, use the `split-ldif` command to divide LDIF files into files containing the expected data for global indexes. See Creating a Global Index Catalog Containing Global Indexes in *Administering Oracle Unified Directory*.

The installation wizard creates a global index catalog, named `gi-catalog` by default, and populates the global index catalog with global indexes of the selected attributes. All global indexes are associated with the same global index catalog (`gi-catalog`). The installation wizard also creates a global index replication administrator with the same password as the directory manager.

See Configuring Global Indexes Using the Command Line in *Administering Oracle Unified Directory*.

- 11. For each partition, select the remote LDAP server that holds the corresponding partitioned data.

You must select at least two remote LDAP servers per partition to deploy distribution with load balancing.

- a. If your remote LDAP servers are Oracle Unified Directory servers or Oracle Directory Server Enterprise Edition servers, click Add Oracle Servers.

For Oracle Unified Directory servers:

- i. Select **Connect to a replicated Oracle Unified Directory server**.
- ii. Enter the host name, administration port, administration bind DN, and password for the remote Oracle Unified Directory server.
- iii. Click **Connect**.
- iv. Accept the certificate.
- v. Check the servers that should be part of the load balanced topology.

When you have entered the details of one directory server in a replicated topology, the setup wizard displays all other replicated servers in that topology.

- vi. Click **OK**.

For Oracle Directory Server Enterprise Edition servers:

- i. Select **Connect to a DSCC registry**.
- ii. Enter the DSCC host name, DSCC port, protocol, and the Directory Service Manager credentials for the DSCC registry.
- iii. Check the servers that should be part of the load balanced topology.

The setup wizard displays all the Oracle Directory Server Enterprise Edition server instances that are registered in the DSCC registry.

- iv. Click **OK**.

- b. If your remote LDAP servers are not Oracle Unified Directory servers or Oracle Directory Server Enterprise Edition servers, click Add Server.

- i. Enter the server name, port and security settings.

The security settings you set here will determine the security between the Oracle Unified Directory proxy and remote LDAP servers. See *Configuring Security Between the Proxy and the Data Source in Administering Oracle Unified Directory*.

- ii. Click **Add**.
- iii. Click **Close** when you have added all the remote LDAP servers for the distributed topology.

12. For each partition, set load balancing.

- a. Choose the load balancing algorithm.

For example, select **Proportional with default values**.

- b. Set the load balancing algorithm properties or select Default Values.

When you have completed the installation, the properties can be modified. See *Modifying Load Balancing Properties in Administering Oracle Unified Directory*.

- For proportional load balancing, set the weight. Requests are distributed between the remote LDAP servers based on the weight indicated.

For example, if you leave the default value of 1, all servers will receive the same number of requests.

- For failover, indicate the order in which the servers are used.

The server with a value of 1 will be the main server. The other servers will only be used if there is a failure on the server with a priority of 1.

- For saturation, set the order in which the servers are used and the saturation threshold of each server.

Requests are sent to the server with the highest priority (1) until it reaches the threshold indicated. The saturation threshold is the rate at which the server is considered saturated, or full. Typically this limit should be set lower than 100%.

- For optimal, no additional configuration is required.

The active server is selected based on the saturation index, which is calculated automatically.

13. On the Runtime options panel, click **Change** to configure any specific JVM setting, or click **Next** to run the server with the default JVM settings.

See [Configuring the Java Run-Time Settings During the Server Setup](#).

The **Review** screen is displayed.

14. Review the installation configuration.

If you need to make any modifications, use the **Previous** button.

15. To display the commands that will be launched for this installation, select **Show Command** from the drop down menu.

These commands are saved in a log file, in the logs folder. You can use these commands to run additional installations with similar deployment options later.

16. Click **Finish** to complete the installation.

When the installation is complete, you can use the `dsconfig` command to modify the installation. See [Managing the Server Configuration Using dsconfig](#) in *Administering Oracle Unified Directory*.

4.2.5 Enterprise User Security (EUS) Configuration

You can deploy a proxy server in an Enterprise User Security configuration to store the configuration details locally in the Oracle Unified Directory directory server and the enterprise users or group details in the remote external LDAP directory.

After you have installed the Oracle Unified Directory software, as described in [Installing the Oracle Unified Directory Software](#), you can configure the proxy instance to use Enterprise User Security (EUS).

For the configuration procedure, see [Configuring Oracle Unified Proxy to Work with an External LDAP Directory and Enterprise User Security](#) in *Administering Oracle Unified Directory*.

4.3 Set Up the Proxy Using the Command-Line (CLI)

The interactive command-line setup prompts you for the first steps of an Oracle Unified Directory proxy installation. For example, running the `oud-proxy-setup` or `oud-`

`proxy-setup.bat` script in command-line mode defines the proxy host name, proxy port, and security configuration.

To complete the deployment and to configure the proxy instance using `dsconfig` or Oracle Unified Directory Services Manager, see *Configuring Proxy, Distribution, and Virtualization Functionality* in *Administering Oracle Unified Directory*.

You can also use a common properties file to provide default values for options. For more information about using a properties file with server commands, see *Using a Properties File With Server Commands* in *Administering Oracle Unified Directory*.

4.3.1 Setting Up the Proxy Using the CLI

If you have previously used the graphical wizard to set up the proxy, you can copy the commands that are launched by the wizard before completing the installation. The commands displayed by the install wizard are a good starting point for scripting an installation.

See [Duplicating an Oracle Unified Directory Proxy Installation](#).

To set up a proxy using the CLI:

1. After you have installed the Oracle Unified Directory software, change to the `ORACLE_HOME` subdirectory.

On UNIX and Linux systems:

```
$ cd OUD-base-location/ORACLE_HOME
```

On Windows systems:

```
C:\> cd OUD-base-location\ORACLE_HOME
```

2. Ensure that your `JAVA_HOME` environment variable is set to a supported JVM installation (JDK 8 or JRE 8).
3. Enter the `oud-proxy-setup` command with the `--cli` option, specifying the server details as follows:

On UNIX and Linux systems:

```
$ oud-proxy-setup --cli -p 1389 --adminConnectorPort 4444 -D  
"cn=Directory Manager" -j pwd-file
```

On Windows systems:

```
C:\> oud-proxy-setup.bat -cli -p 1389 --adminConnectorPort 4444 -D  
"cn=Directory Manager" -j pwd-file
```

In these examples, `-p` specifies the proxy LDAP port used to send data between the client and the proxy, `--adminConnectorPort` specifies the proxy administration port, `-D` specifies the bind DN, and `-j` specifies the file containing the proxy LDAP bind password.

The `oud-proxy-setup` command launches the setup script and creates the Oracle Unified Directory proxy instance in `OUD-base-location/instance-dir`.

The default instance directory is `asinst_1`, with subsequent instances on the same server named `asinst_2`, `asinst_3`, and so on. To specify a different instance name, set the `INSTANCE_NAME` environment variable before you run the script. For example:

```
$ export INSTANCE_NAME=my-oud-proxy-instance
```

The instance is created directly under *OUD-base-location* by default. To change the instance path, include the path relative to *OUD-base-location* when you set the `INSTANCE_NAME` variable. For example:

```
$ export INSTANCE_NAME=../../local/my-oud-proxy-instance
```

Note:

To configure Enterprise User Security (EUS) in CLI mode, specify the following option when you run the setup script:

```
oud-proxy-setup --eusContext namingContext
```

For example:

```
$ oud-proxy-setup --eusContext dc=example,dc=com
```

4. To complete the proxy deployment, you must configure workflow elements, workflows, network group, and other required components.

These components depend on your deployment architecture. For examples based on supported use cases, see *Configuring Proxy, Distribution, and Virtualization Deployments* in *Administering Oracle Unified Directory*.

4.4 Duplicating an Oracle Unified Directory Proxy Installation

You must duplicate your Oracle Unified Directory proxy installation to set up a replicated Oracle Unified Directory proxy. You can either use the graphical user interface or the installation log file to duplicate a proxy installation.

- [Duplicating a Proxy Installation Using the GUI](#)
- [Duplicating a Proxy Installation Using the Installation Log File](#)

4.4.1 Duplicating a Proxy Installation Using the GUI

If you are using the graphical install wizard to set up Oracle Unified Directory proxy, you can copy the commands that are launched by the wizard before completing the installation. The commands displayed by the install wizard are a good starting point for scripting an installation.

To duplicate a proxy installation:

1. Using the graphical install wizard, define the proxy installation but do not click Finish.
2. On the Review page, select the Show Commands button from the top right.
3. Copy the commands that are displayed.
4. Paste them into a text file.

You can now complete your first installation by clicking Finish.

5. Edit the commands to modify the port, the host name, and the password.

Replace the generic *asinst* variable with the appropriate instance name, either by anticipating the instance name, or by setting the `INSTANCE_NAME` variable. You might also need to quote certain arguments, depending on your shell scripting language.

6. Save the updated file as a script.
7. On the system where you want to host the next Oracle Unified Directory proxy instance, install the Oracle Unified Directory software, as described in [Installing the Oracle Unified Directory Software](#).
8. Change to the `ORACLE_HOME` subdirectory.

On UNIX and Linux systems:

```
$ cd OUD-base-location/ORACLE_HOME
```

On Windows systems:

```
C:\> cd OUD-base-location\ORACLE_HOME
```

9. Run the script that you saved in Step 5.

4.4.2 Duplicating a Proxy Installation Using the Installation Log File

When you have completed a proxy installation, a log file named `oud-setup` saves the commands of the installation. You can use this file to duplicate an Oracle Unified Directory proxy instance.

To duplicate a proxy installation:

1. Change to the logs directory.

```
$ cd OUD-base-location/instance-name/OUd/logs
```
2. Open the file `oud-setup`.
3. Edit the commands to modify the port, the host name, and the password file of the new proxy instance.

Replace the generic *asinst* variable with the appropriate instance name, either by anticipating the instance name, or by setting the `INSTANCE_NAME` variable. You might also need to quote certain arguments, depending on your shell scripting language.

4. Save the updated file as a script.
5. On the system where you want to host the next Oracle Unified Directory proxy instance, install the Oracle Unified Directory software, as described in [Installing the Oracle Unified Directory Software](#).

6. Change to the `ORACLE_HOME` subdirectory.

On UNIX and Linux systems:

```
$ cd OUD-base-location/ORACLE_HOME
```

On Windows systems:

```
C:\> cd OUD-base-location\ORACLE_HOME
```

7. Run the script that you saved in Step 4.

4.5 Manage Redundancy for Oracle Unified Directory

You can make the proxy server redundant to avoid a single point of failure in your deployment. Use multiple replicated proxy server instances to ensure redundancy.

See Multiple Replicated Proxies in *Administering Oracle Unified Directory*.

4.6 Setting Up the Proxy Server Using the WebLogic Scripting Tool

You can use the WebLogic Scripting Tool (WLST) to set up the proxy server. Execute the `oud_createInstance` with the `oud-proxy-setup` script to set up a proxy instance using the WLST.

To set up a proxy instance using the WLST:

1. Set the `PRODUCT_HOME` and `DOMAIN_HOME` environment variables before launching WLST.

```
export PRODUCT_HOME=/scratch/user/middleware/oracle_home
export DOMAIN_HOME=/scratch/user/middleware/oracle_home/user_projects/
domains/base_domain
```

`PRODUCT_HOME` is similar to `ORACLE_HOME`. It points to the directory where a user provides at the time of product installation. However, `DOMAIN_HOME` points to the directory where domains that you configure are created.

2. Launch the WLST:

On UNIX and Linux systems:

```
$ ORACLE_HOME/oracle_common/common/bin/wlst.sh
```

On Windows systems:

```
C:\> ORACLE_HOME\oracle_common\common\bin\wlst.cmd
```

`ORACLE_HOME` is the Oracle home directory you specified at installation.

3. Execute the `oud_createInstance` command with script name `oud-proxy-setup` to create the OUD Server instance.

```
oud_createInstance(scriptName='oud-proxy-
setup',instanceName='oud_proxy',hostname='localhost',ldapPort=1393,
rootUserDN='cn=Directory\ Manager',rootUserPasswordFile='/scratch/
user/work/password.txt',adminConnectorPort=2444)
```

`scriptName` indicates the setup script based on the flavor of OUD. The value for this parameter can be any one from [`oud-setup`, `oud-proxy-setup`, `oud-replication-gateway-setup`].

`instanceName` indicates the name of the instance. For example, `oud_proxy`.

 **Note:**

Arguments that cannot have a value like `noPropertiesFile` and so on, can also be used with the custom WLST commands. You must pass an empty value for these arguments. For example, `noPropertiesFile=''`.

See `oud-proxy-setup` in *Administering Oracle Unified Directory* for the rest of the parameters and their descriptions.

Output:

```
Successfully wrote the updated Directory Server configuration
The server is now installed but not started. You can start the server using
the "start-ds" command
Successfully created OUD instance
```

5

Setting Up Oracle Unified Directory as a Replication Gateway

The replication gateway enables replication between Oracle Directory Server Enterprise Edition and Oracle Unified Directory. Its main purpose is to facilitate migration from an Oracle Directory Server Enterprise Edition deployment. You can use either the graphical user interface or the command-line utility to set up an Oracle Unified Directory replication gateway.

Topics:

- [Before You Set Up the Replication Gateway](#)
- [Setting Up the Replication Gateway Using the Graphical User Interface \(GUI\)](#)
- [Setting Up the Replication Gateway Using the Command-Line Interface \(CLI\)](#)
- [Verifying the Replication Gateway Setup](#)
- [Setting Up the Replication Gateway Using the WebLogic Scripting Tool](#)

5.1 Before You Set Up the Replication Gateway

Review these conditions before you set up a replication gateway instance.

Note the following:

- The Oracle Unified Directory servers in the topology must be configured so that inconsistencies between the Oracle Directory Server Enterprise Edition configuration and the Oracle Unified Directory configuration are taken into account.

Run the `ds2oud` command to configure the Oracle Unified Directory directory servers to coexist with Oracle Directory Server Enterprise Edition servers in a replicated topology. See [Replicating Between Oracle Directory Server Enterprise Edition and Oracle Unified Directory](#) in *Administering Oracle Unified Directory*.

- The Oracle Directory Server Enterprise Edition servers that will be connected to the replication gateway must be configured for replication and must be master replicas.

Replication *must* be enabled in Oracle Directory Server Enterprise Edition on the suffix that will be replicated. This is the case even if there is only one Oracle Directory Server Enterprise Edition server in the topology.

- The replication gateway setup attempts to contact the Oracle Unified Directory server and the Oracle Directory Server Enterprise Edition server. These servers must therefore be up and running.

5.2 Setting Up the Replication Gateway Using the Graphical User Interface (GUI)

The GUI setup uses a Java-based graphical installer that enables you to set up and configure the replication gateway.

To set up a replication gateway server instance using the graphical user interface:

1. When you have installed the software, change to the `OULD_ORACLE_HOME` subdirectory.

On UNIX and Linux systems:

```
$ cd OUD-base-location/OULD_ORACLE_HOME
```

On Windows systems:

```
C:\> cd OUD-base-location\OULD_ORACLE_HOME
```

2. Ensure that your `JAVA_HOME` environment variable is set to a supported JVM installation (at least Java 1.8).
3. Run the `oud-replication-gateway-setup` command to configure the replication gateway installation.

On UNIX and Linux systems:

```
$ oud-replication-gateway-setup
```

On Windows systems:

```
C:\> oud-replication-gateway-setup.bat
```

The utility launches the graphical installer and creates the replication gateway instance in `OULD-base-location/instance-dir`.

The default instance directory name is `asinst_1`, with subsequent instances on the same server named `asinst_2`, `asinst_3`, and so on. To specify a different instance name, set the `INSTANCE_NAME` environment variable before you run the setup, for example:

```
$ export INSTANCE_NAME=my-oud-instance
```

4. On the Welcome screen, click **Next**.

A confirmation message is displayed, requesting you to confirm that you have configured the Oracle Unified Directory directory servers to coexist with Oracle Directory Server Enterprise Edition servers in a replicated topology. If you have done this configuration, click **Yes**. If you have not, click **No**, exit the installer, and run the `ds2oud` command to perform the required configuration before you install the replication gateway.

See *Replicating Between Oracle Directory Server Enterprise Edition and Oracle Unified Directory* in *Administering Oracle Unified Directory*.

The **Replication Gateway Administration** screen is displayed.

5. Enter the following information:
 - **Host Name:** Enter the host name or IP address for this replication gateway instance.

The default is the local host name.

- **Administration Connector Port:** Enter the port that will be used for administration traffic.

The default administration port is 4444. See Managing Administration Traffic to the Server in *Administering Oracle Unified Directory*.

- **Root User DN:** Enter the Root User DN, or keep the default, `cn=Directory Manager`.
- **Password:** Enter the root user bind password.
- **Password (confirm):** Retype the root user bind password.

Click **Next**.

The **ODSEE Server Settings** screen is displayed.

6. Enter the following information:

- **Host Name:** Enter the ODSEE directory server's host name or IP address.

The default is the local host name.

- **Port:** Enter the LDAP port for the ODSEE directory server.
- **Bind DN:** Enter the Bind DN that will be used to access the Oracle Directory Server Enterprise Edition server, or keep the default, `cn=Directory Manager`.
- **Password:** Enter the bind password.
- If the Oracle Unified Directory servers are read-only servers, uncheck the first check box. Otherwise, leave it checked.
- To secure the traffic between the gateway and the Oracle Directory Server Enterprise Edition server:
 - a. Check the **Use SSL** between ODSEE and Replication Gateway check box.
 - b. Ensure that the port you specified above is the secure port of the Oracle Directory Server Enterprise Edition server.
 - c. Check the **Use Client Authentication** check box and click **Change** to configure the certificate.

If you have selected this check box, then it indicates that you want to use secured communication between Oracle Unified Directory and ODSEE (vice versa). For secure communication, the certificate based authentication mechanism used during replication from ODSEE to Oracle Unified Directory further depends on the SASL and certificate mapper configuration.

 **Note:**

Observe the following points from ODSEE configuration point of view. Make sure that the configuration has been done before proceeding with the replication gateway setup.

- Ensure that the certificate is exchanged properly if there are more than one ODSEE instances.
- Ensure replication agreements are enabled with the help of SSL port.
- Modify `certmap.conf` present in the `<ODSEE INST>/alise` with correct details according to your certificate.

This file indicates how certificate is mapped to the LDAP entry. Also modify "cn=replication manager, cn=replication, cn=config" and add binary format of the certificate.

Observe the following points from Oracle Unified Directory configuration point of view. Make sure that the following configuration is performed after the replication gateway setup is done.

- Setup the Replication gateway.
After gateway installation is done, follow the displayed post commands. Some of them are explained below.
- Export the replication gateway certificate and add it to the respective ODSEE instance which must be replicated.
- Modify DN "cn=replication manager, cn=replication, cn=config" with `usercertificate` attribute which contains the ODSEE instance certificate in binary form.

If you do not want certificate based authentication process, leave the check box unchecked and proceed with the gateway replication.

- To set up replication monitoring with registration into the ODSEE Directory Service Control Center Registry, provide the following information:
 - a. Check the **Enable DSCC monitoring between ODSEE and Replication Gateway** box.
 - b. **DSCC Directory Service Manager:** Enter the Directory Service Manager username.
 - c. **DSCC Directory Service Manager Password:** Enter the password for the Directory Service Manager.
 - d. **DSCC Registry Host Name:** Enter the host name or IP address for the DSCC Registry host.
 - e. **DSCC Registry Port:** Enter the port number for the DSCC Registry host.
- Click **Next**.

The **Review Replication Setting** screen is displayed.

7. Review the ODSEE replication setup and click **Next**.

The **Port for ODSEE Replication** screen is displayed.

8. Enter the port on the replication gateway instance that will be used for Oracle Directory Server Enterprise Edition replication updates.
9. Click **Next**.

The **Oracle Unified Directory Server Settings** screen is displayed.

10. Enter the following information:
 - **Host Name:** Enter the directory server's host name or IP address.
The default is the local host name.
 - **Administration Connector Port:** Enter the port that is used for administration traffic.
The default administration port is 4444. See Managing Administration Traffic to the Server in *Administering Oracle Unified Directory*.
 - **Global Administrator User ID:** Enter the name of the global administrator that has been defined to manage replication on the Oracle Unified Directory instance.
If no global administrator has been defined, enter the root user bind DN.
 - Enter the password of the Global Administrator.

Click **Next**.

11. Accept the certificates.
12. If the Oracle Unified Directory server was not previously configured for replication, perform the following steps:
 - Enter the replication port number for this directory server.
 - Provide a UID and password for the new global administrator.

13. Review the replication settings and click **Next**.

The **Replicated Base DNs** screen is displayed.

14. Select the suffixes that will be replicated between the Oracle Directory Server Enterprise Edition servers and the Oracle Unified Directory servers.
15. On the Review screen, verify the final topology and click **Finish** to complete the installation.

The Show Summary menu item in the drop down list displays a textual summary of the resulting topology.

The Show Topology menu item displays a graphical summary of the topology, and can be useful for obtaining a physical idea of the resulting topology.

The Show Equivalent Command Line menu item displays all of the commands that are executed in configuring the replication gateway. This item also provides information about the next steps that are required to start replication between the two servers. See Replicating Between Oracle Directory Server Enterprise Edition and Oracle Unified Directory in *Administering Oracle Unified Directory*.

16. Click **Finish** to complete the setup.

- Execute the following command in ODSEE server host for the replication to be successful.

```
dsadm export \  
    -f opens-export \  
    <DSEE Instance1> \  
    <Base DN> \  
    {exportedLDIFPath}
```

Where {exportedLDIFPath} is the path of the resulting LDIF file containing the replicated data.

- Execute the following commands in Oracle Unified Directory server for the replication to be successful.

- Execute `dsreplication pre-external-initialization` command.

```
asinst/OUU/bin/dsreplication pre-external-initialization \  
    --hostname <OUU hostname> \  
    --port <OUU Admin port> \  
    --adminUID <Provide Admin UID> \  
    --adminPasswordFile <Password file> \  
    --baseDN <Base DN> \  
    --trustAll \  
    --no-prompt \  
    --noPropertiesFile
```

- Execute `import-ldif` command. Copy the LDIF file generated in the first step in a directory accessible by the Oracle Unified Directory servers and run the following command for every Oracle Unified Directory server that contains data to be replicated:

```
asinst/OUU/bin/import-ldif \  
    --hostname <OUU Hostname> \  
    --port <OUU Admin port> \  
    --bindDN <Bind DN> \  
    --bindPasswordFile <Password file> \  
    --includeBranch <Base DN> \  
    --ldifFile {exportedLDIFPath} \  
    --clearBackend \  
    --trustAll \  
    --noPropertiesFile
```

- Execute `dsreplication post-external-initialization` command.

```
asinst/OUU/bin/dsreplication post-external-initialization \  
    --hostname <OUU Hostname> \  
    --port <OUU Admin Port> \  
    --adminUID <Provide Admin UID> \  
    --adminPasswordFile <Password file> \  
    --baseDN <Base DN> \  
    --trustAll \  
    --no-prompt \  
    --noPropertiesFile
```

5.3 Setting Up the Replication Gateway Using the Command-Line Interface (CLI)

The command-line setup is either interactive or non-interactive. The non-interactive setup enables you to configure the server without user intervention. The interactive setup prompts you for any required information before the configuration begins.

Note:

The command-line setup is complex and is recommended for scripting purposes only. Oracle recommends that you use the GUI to set up the replication gateway.

To set up the replication gateway using the command line:

```
$ oud-replication-gateway-setup --cli
```

In interactive command-line mode, you are prompted to provide the required configuration details, for example:

```
$ oud-replication-gateway-setup --cli
OUD Instance location successfully created - /local/OUД_BASE/Oracle_OUD1/./
asinst_4
The migration utility ds2oud must be run to configure the OUD servers before
setting up the replication gateway.
If you have executed ds2oud type 'yes' to continue, type 'no' otherwise. (yes
/ no) [yes]: yes

Oracle Unified Directory 11.1.2.1.0
Please wait while the replication gateway setup program initializes ..... Done.

=====
Replication gateway administration settings
=====

You must provide the fully-qualified name of the host where the replication
gateway will be installed. The ODSEE server and Oracle Unified Directory
servers in the replication topology must be able to access this host name
[server1]:

What would you like to use as the initial root user DN for the replication
gateway? [cn=Directory Manager]:
```

To facilitate scripting, you can also set up the replication gateway in non-interactive mode, by using the `--no-prompt` option. The following example shows a typical replication gateway setup in non-interactive mode:

```
$ oud-replication-gateway-setup --cli --hostname localhost \
--adminConnectorPort 4444 --replicationPortForLegacy 2389 \
--rootUserDN "cn=Directory Manager" --rootUserPasswordFile pwd-file \
--baseDN dc=example,dc=com --hostNameLegacy ODSEE-host \
--portLegacy 1389 --doNotUpdateTrustStoreWithLegacyCertsArg \
--bindDNLegacy "cn=Directory Manager" --bindPasswordFileLegacy pwd-file \
--hostNameNg OUD-host --portNg 4444 --adminUID admin \
```

```
--adminPasswordFile pwd-file --trustAll --no-prompt \  
--noPropertiesFile --doNotMonitorUsingDscclLegacy
```

The following example shows a typical replication gateway setup in non-interactive mode with registration into the ODSEE Directory Service Control Center Registry. This configuration is useful when you want to monitor replicated changes using the ODSEE monitoring interface.

```
$ oud-replication-gateway-setup --cli --hostname localhost \  
--adminConnectorPort 4444 --replicationPortForLegacy 2389 \  
--rootUserDN "cn=Directory Manager" --rootUserPasswordFile pwd-file \  
--baseDN dc=example,dc=com --hostNameLegacy ODSEE-host \  
--portLegacy 1389 --doNotUpdateTrustStoreWithLegacyCertsArg \  
--bindDNLegacy "cn=Directory Manager" --bindPasswordFileLegacy pwd-file \  
--hostNameNg OUD-host --portNg 4444 --adminUID admin \  
--adminPasswordFile pwd-file --trustAll --no-prompt --noPropertiesFile \  
--dscclHostLegacy gnb10492 --dscclPortLegacy 3998 --dscclAdminUidLegacy admin \  
--dscclPasswordFileLegacy pwd-file
```

See `oud-replication-gateway-setup` in *Administering Oracle Unified Directory*.

5.4 Verifying the Replication Gateway Setup

To verify that the replication gateway has been set up and is working correctly, add an entry on the Oracle Unified Directory server. Verify that the newly added entry has been successfully replicated to the Oracle Directory Server Enterprise Edition server.

The following example adds a user entry on the Oracle Unified Directory server:

```
$ ldapmodify -a -h oud-host -p 1389 -D "cn=directory manager" -j pwd-file  
dn: uid=bjensen,ou=People,dc=example,dc=com  
objectclass: top  
objectclass: person  
objectclass: organizationalPerson  
objectclass: inetorgPerson  
uid: bjensen  
givenName: Barbara  
sn: Jensen  
cn: Babs Jensen  
telephoneNumber: (408) 555-3922  
facsimileTelephoneNumber: (408) 555-4000  
mail: bjensen@example.com  
userPassword: secret
```

```
Processing ADD request for uid=bjensen,ou=People,dc=example,dc=com  
ADD operation successful for DN uid=bjensen,ou=People,dc=example,dc=com
```

The following example searches for that user entry on the Oracle Directory Server Enterprise Edition server:

```
$ ldapsearch -h odsee-host -p 1389 -D "cn=directory manager" -j pwd-file -b  
"ou=people,dc=example,dc=com" ("uid=bjensen")
```

```
version: 1  
dn: uid=bjensen, ou=People, dc=example,dc=com  
cn: Barbara Jensen  
cn: Babs Jensen  
sn: Jensen  
givenName: Barbara
```

```
objectClass: top
objectClass: person
objectClass: organizationalPerson
objectClass: inetOrgPerson
ou: Product Development
ou: People
l: Cupertino
uid: bjensen
mail: bjensen@example.com
telephoneNumber: +1 408 555 1862
facsimileTelephoneNumber: +1 408 555 1992
roomNumber: 0209
userPassword: {SSHA}rDLnCHlFRhyAcBM7GZpby0MrwfxzTlIEdG7WYA==
```

5.5 Setting Up the Replication Gateway Using the WebLogic Scripting Tool

You can use the WebLogic Scripting Tool (WLST) to set up the replication gateway server. Execute the `oud_createInstance` with the `oud-replication-gateway-setup` script to set up a replication gateway server instance using the WLST.

Before you set up a replication gateway instance, the following must be in place:

- The Oracle Unified Directory servers in the topology must be configured so that inconsistencies between the Oracle Directory Server Enterprise Edition configuration and the Oracle Unified Directory configuration are taken into account. See *Replicating Between Oracle Directory Server Enterprise Edition and Oracle Unified Directory* in *Administering Oracle Unified Directory*.

Run the `ds2oud` command to configure the Oracle Unified Directory directory servers to coexist with Oracle Directory Server Enterprise Edition servers in a replicated topology. See `ds2oud` in *Administering Oracle Unified Directory*.

- The Oracle Directory Server Enterprise Edition servers that will be connected to the replication gateway must be configured for replication and must be master replicas.

Replication must be enabled in Oracle Directory Server Enterprise Edition on the suffix that will be replicated. This is the case even if there is only one Oracle Directory Server Enterprise Edition server in the topology.

- The replication gateway setup attempts to contact the Oracle Unified Directory server and the Oracle Directory Server Enterprise Edition server. These servers must therefore be up and running.

To set up a replication gateway server instance using the WLST:

1. Set the `PRODUCT_HOME` and `DOMAIN_HOME` environment variables before launching WLST.

```
export PRODUCT_HOME=/scratch/user/middleware/oracle_home
export DOMAIN_HOME=/scratch/user/middleware/oracle_home/user_projects/
domains/base_domain
```

`PRODUCT_HOME` is similar to `ORACLE_HOME`. It points to the directory where a user provides at the time of product installation. However, `DOMAIN_HOME` points to the directory where domains that you configure are created.

2. Launch the WLST:

On UNIX and Linux systems:

```
$ ORACLE_HOME/oracle_common/common/bin/wlst.sh
```

On Windows systems:

```
C:\> ORACLE_HOME\oracle_common\common\bin\wlst.cmd
```

ORACLE_HOME is the Oracle home directory you specified at installation.

3. Execute the `oud_createInstance` command with script name `oud-replication-gateway-setup` to create the replication gateway instance.

```
oud_createInstance(scriptName='oud-replication-gateway-
setup',instanceName='oud_repl',hostname='localhost',
adminConnectorPort=7444,replicationPortForLegacy=2989,rootUserDN='cn=Director
y\ Manager',
rootUserPasswordFile='/scratch/user/work/
password.txt',baseDN='dc=example,dc=com',hostNameLegacy='localhost',portLegac
y=4389,
bindDNLegacy='cn=Directory\ Manager',bindPasswordFileLegacy='/scratch/user/
work/password.txt',
adminPasswordFile='/scratch/user/work/
password.txt',hostNameNg='localhost',portNg=4444,bindDNNg='cn=Directory\
Manager',
bindPasswordFileNg='/scratch/user/work/
password.txt',dsccHostLegacy='localhost',dsccPortLegacy=3998,dsccAdminUidLega
cy='admin',
dsccPasswordFileLegacy='/scratch/user/work/password.txt',trustAll='')
```

`scriptName` indicates the setup script based on the flavor of OUD. The value for this parameter can be any one from [`oud-setup`, `oud-proxy-setup`, `oud-replication-gateway-setup`].

`instanceName` indicates the name of the instance. For example, `oud_repl`.

 **Note:**

Arguments that cannot have a value like `trustAll`, `noPropertiesFile`, and so on, can also be used with the custom WLST commands. You must pass an empty value for these arguments. For example, `trustAll=''` or `noPropertiesFile=''`.

Gateway instance is created between Oracle Directory Server Enterprise Edition (ODSEE) and Oracle Unified Directory instances. Hence, you must also provide the Oracle Directory Server Enterprise Edition server options while creating a gateway instance.

See `oud-replication-gateway-setup` in *Administering Oracle Unified Directory* for the rest of the parameters and their descriptions.

Output:

```
Initializing basic replication gateway configuration ..... Done.
The replication gateway will be started now temporarily to be configured
Starting Replication Gateway ..... Done.
Updating Registration Information ..... Done.
Configuring Oracle Unified Directory server localhost:4444 ..... Done.
Initializing Registration Information ..... Done.
```

```
Configuring Replication Gateway ..... Done.  
Configuring ODSEE server localhost:4389 ..... Done.  
Stopping Replication Gateway ..... Done.
```

```
The replication gateway setup has completed successfully  
Successfully created OUD instance
```

6

Updating the Oracle Unified Directory Software

You can update an Oracle Unified Directory directory service to the latest version without a service interruption. It also describes how to update an individual directory server instance and provides considerations for Oracle Unified Directory Services Manager on Oracle Weblogic Server.

Topics:

- [Important Notes Before You Begin](#)
- [Starting Points for an Oracle Unified Directory Update](#)
- [Backing Up the Middleware Home](#)
- [Considerations for Global Index Catalogs](#)
- [Updating a Directory Service Without Service Interruption](#)
- [Upgrading an Existing Oracle Unified Directory Server Instance](#)
- [Verifying the Oracle Unified Directory Server Instance Upgrade](#)
- [Enabling TNS Alias Support for EUS-enabled Configurations](#)
- [Upgrading Oracle Unified Directory Services Manager](#)
- [What to Do If the Upgrade Process Fails](#)

6.1 Important Notes Before You Begin

Read the following notes before you start upgrading Oracle Unified Directory.

- Several key concepts and terms have been redefined in 12c. It is important that you understand the new terminology before you begin your upgrade. In addition, many terms have been deprecated. For more information, see [New and Deprecated Terminology for 12c](#) in *Understanding Oracle Fusion Middleware*.
- Understand the Oracle Fusion Middleware Infrastructure and Oracle Unified Directory installation directories in 12c.

For more information, see:

- [What Are the Key Oracle Fusion Middleware Directories?](#) in *Understanding Oracle Fusion Middleware*.
- [Understanding the Oracle Unified Directory Installation Directories](#)

6.2 Starting Points for an Oracle Unified Directory Update

Oracle supports Oracle Unified Directory 11g (11.1.2.3.0) as a starting point for updating Oracle Unified Directory.

 **Note:**

If your existing version of Oracle Unified Directory is 11g (11.1.2.2.x or earlier), you must first upgrade to Oracle Unified Directory 11g (11.1.2.3.0) before you can upgrade to 12c (12.2.1.3.0)

6.3 Backing Up the Middleware Home

Before you start an upgrade, back up the 11g Middleware home. If any step in the upgrade process fails, restore the environment to its original state using the backup files.

 **Note:**

Oracle recommends that you create a complete backup of your pre-upgrade environment before you begin an upgrade. Upgrades cannot be reversed. In most cases, if an error occurs, you must stop the upgrade and restore the entire environment from backup and begin the upgrade process from the beginning.

To perform a backup, complete the following steps:

1. Shut down all processes in the Middleware home. For example, shut down the Managed Servers, the Administration Server, and Oracle Unified Directory server instances running in the Middleware home.
2. Back up the Middleware home (`MW_HOME`) on all hosts. For example:

UNIX

```
tar -cf mw_home_backup_042013.tar MW_HOME/*
```

Windows

```
jar cf mw_home_backup_042013.jar MW_HOME\*
```

3. If your Oracle Unified Directory instance (`OUD_INSTANCE`) reside outside the Middleware home, then you must back up the instance directory. For example:

UNIX:

```
tar -cf oud_instance_backup_06052017.tar oud_instance/*
```

Windows:

```
jar cMf oud_instance_backup_06052017.jar oud_instance\*
```

6.4 Considerations for Global Index Catalogs

If you update Oracle Unified Directory to the current release, you must then reconfigure the global index catalogs using `gicadm`. You cannot update 11g Release 1 (11.1.1.5) or 11g Release 2 (11.1.2.0) global index catalogs that were previously configured using the `gicadm` command.

See Configuring Global Index Catalogs Using `gicadm` in *Administering Oracle Unified Directory*.

6.5 Updating a Directory Service Without Service Interruption

Updating a replicated Oracle Unified Directory topology involves updating the software for each server instance individually. The strategy for maintaining service during an update depends on the specifics of your deployment, but usually, you can update an entire topology without any interruption in service.

Because a particular directory server instance must be stopped during the update process, maintaining service during an update requires alternative servers that can handle client requests while a particular server is down.

If your deployment includes one or more proxy server instances that route client requests to the back-end servers, you can safely take down one directory server at a time and update that server instance. The proxy server will reroute client requests to ensure uninterrupted service. Upgrading the proxy server instance requires more than one proxy server instance with the same configuration.

If your deployment does not include a proxy server, you must configure your client applications to send requests to an alternative server while a specific directory server instance is being updated.

The following sections outline the steps to follow for each of these topologies:

- [Upgrading a Topology That Includes a Proxy Server](#)
- [Upgrading a Topology That Does Not Include a Proxy Server](#)

6.5.1 Upgrading a Topology That Includes a Proxy Server

Review these topics for the various topologies with the directory servers and replication servers either installed on the same host or different hosts.

Various topologies are possible as explained in the following topics:

- [About Topology with the Replication Servers and Directory Servers on the Same Host.](#)
- [Upgrading a Topology with the Replication Servers and Directory Servers on the Same Host](#)
- [About Topology with Replication Servers and Directory Servers on Different Hosts.](#)
- [Upgrading a Topology with Replication Servers and Directory Servers on Different Hosts](#)

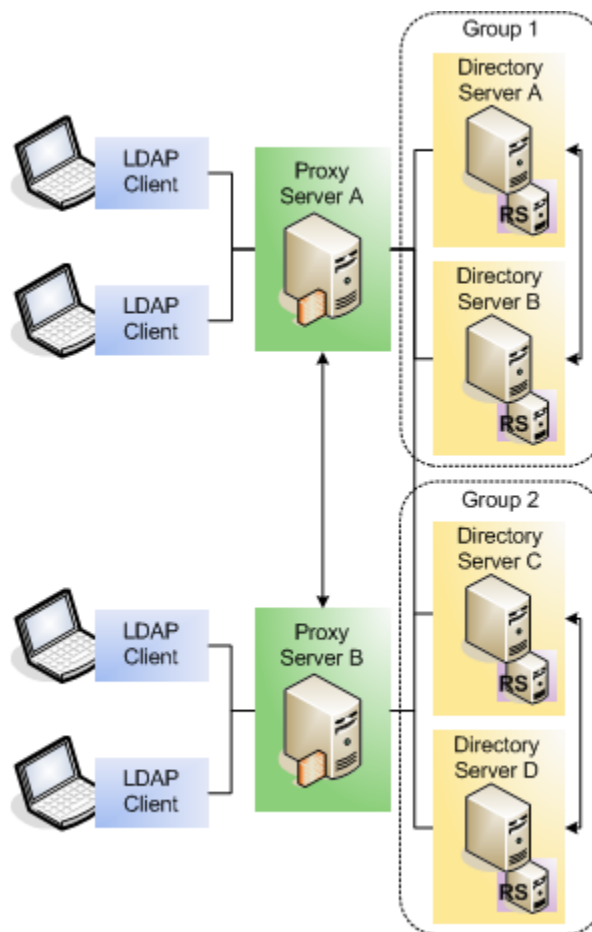
6.5.1.1 About Topology with the Replication Servers and Directory Servers on the Same Host

In this topology, the directory servers and replication servers are installed on the same host.

If a single host contains both a replication server and a directory server, and those servers are associated with the same `ORACLE_HOME` directory, the servers are stopped and updated at the same time.

In the following figure, Group 1 and Group 2 refer to configured replication groups. For more information about replication groups, see *About Replication Groups in Administering Oracle Unified Directory*.

Figure 6-1 Replicated Topology With Proxy Servers - RS and DS on the Same Host



6.5.1.2 Upgrading a Topology with the Replication Servers and Directory Servers on the Same Host

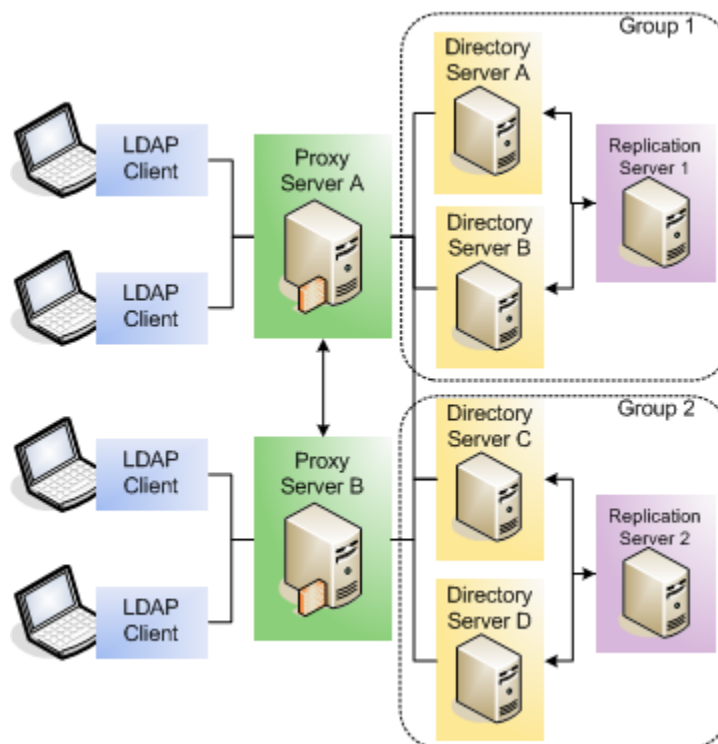
To update a topology with the directory servers and replication servers installed on the same host:

1. Change the configuration of proxy server A so that client requests are not routed to directory server A.
2. Stop directory server A. The replication server running on this host is stopped at the same time.
3. Update directory server A, following the steps in [Upgrading an Existing Oracle Unified Directory Server Instance](#).
4. Restart directory server A.
5. Test that your directory service is working properly before upgrading successive servers.
6. Repeat steps 1-5 for each directory server in that replication group.
7. Follow steps 1-6 for each replication group in the topology.
8. Stop proxy server A.
9. Update proxy server A, following the steps in [Upgrading an Existing Oracle Unified Directory Server Instance](#).
10. Restart proxy server A.
11. Repeat steps 8-10 for the remaining proxy servers in the topology.

6.5.1.3 About Topology with Replication Servers and Directory Servers on Different Hosts

In this topology, the directory servers and replication servers are installed on different hosts. In the following figure, Group 1 and Group 2 refer to configured replication groups. For more information about replication groups, see About Replication Groups in *Administering Oracle Unified Directory*.

Figure 6-2 Replicated Topology With Proxy Servers - RS and DS on Different Hosts



6.5.1.4 Upgrading a Topology with Replication Servers and Directory Servers on Different Hosts

To update a topology with the directory servers and replication servers installed on different hosts:

1. Change the configuration of proxy server A so that requests are not routed to directory server A.
2. Stop directory server A.
3. Update directory server A, following the steps in [Upgrading an Existing Oracle Unified Directory Server Instance](#).
4. Restart directory server A.
5. Test that your directory service is working properly before upgrading successive servers.
6. Repeat steps 1-5 for each directory server in that replication group.
7. Stop replication server 1.

The replication mechanism ensures that directory servers A and B now connect to replication server 2.

8. Update replication server 1, following the steps in [Upgrading an Existing Oracle Unified Directory Server Instance](#).
9. Restart replication server 1.

10. Follow steps 1-9 for each replication group in the topology.
11. Stop proxy server A.
12. Update proxy server A, following the steps in [Upgrading an Existing Oracle Unified Directory Server Instance](#).
13. Restart proxy server A.
14. Repeat steps 11-13 for the remaining proxy servers in the topology.

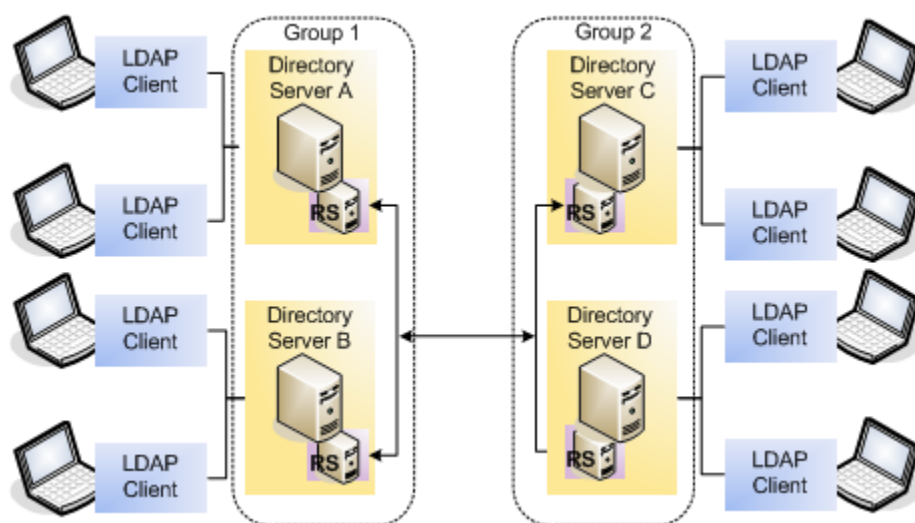
6.5.2 Upgrading a Topology That Does Not Include a Proxy Server

In a topology that does not include any proxy server instances, you must update your client applications so that they point to an alternative directory server each time you take a directory server down for an update.

The following diagram shows a replicated topology that does not include a proxy server. This topology assumes that the directory servers and replication servers are installed on the same `ORACLE_HOME` directory.

In this diagram, Group 1 and Group 2 refer to configured replication groups. See [About Replication Groups in *Administering Oracle Unified Directory*](#).

Figure 6-3 Replicated Oracle Unified Directory Topology Without Proxy Servers



To update a topology that does not include a proxy server:

1. Change your client application configuration so that applications do not access directory server A directly.
2. Stop directory server A. The replication server on this host is stopped and updated at the same time.
3. Update directory server A, following the steps in [Upgrading an Existing Oracle Unified Directory Server Instance](#).
4. Restart directory server A.
5. Test that your directory service is working properly before upgrading successive servers.

6. Change your client application configuration so that applications do not access directory server B directly.
7. Stop directory server B.
8. Update directory server B, following the steps in [Upgrading an Existing Oracle Unified Directory Server Instance](#).
9. Follow steps 1-8 for each replication group in the topology.

6.6 Upgrading an Existing Oracle Unified Directory Server Instance

You can upgrade all Oracle Unified Directory server instances that are associated with a specific `ORACLE_HOME` directory.

Note:

After upgrading to 12c, OUD instances that are created in 11g, will continue to be standalone instances and hence will not be part of the newly created 12c domain.

To upgrade an existing Oracle Unified Directory server instance:

1. Download the latest Oracle Unified Directory version from the Oracle Software Delivery Cloud.
See [Obtaining Product Distributions](#).
2. Stop any Oracle Unified Directory server instances that are associated with the `ORACLE_HOME` directory that you are upgrading.

On UNIX and Linux systems:

```
$ instance-dir/OUDBin/stop-ds
```

On Windows systems:

```
instance-dir\OUDBin\stop-ds.bat
```

Servers in the topology that are associated with a different `ORACLE_HOME` will not be updated and do not need to be stopped.

3. Follow the steps outlined in [Installing the OUD/OU DSM Software](#).

The OUD base location home and Oracle home directory (`ORACLE_HOME`) for 12c (12.2.1.3.0) must be placed in a different path as compared to its previous release. The existing Oracle Unified Directory instances are pointing to previous OUD home path. So when OUD instances are upgraded to 12c, instances must point to the new Oracle 12c home.

For more information about these directories, see [Understanding the Oracle Unified Directory Installation Directories](#).

4. Run the `upgrade-oud-instance` script from the Oracle 12c home.

On UNIX and Linux systems:

```
$ Oracle12cHome/oud/bin/upgrade-oud-instances --instancePath=oud-base-
location/11gINSTANCE_NAME
```

On Windows systems:

```
Oracle12cHome\oud\bat\upgrade-oud-instances.bat --instancePath=oud-base-
location/11gINSTANCE_NAME
```

 **Note:**

- You must set the JAVA_HOME environment variable to Java 8 before executing the script.
- The script updates the install path of each instance to point to the new Oracle 12c Home and also updates the java properties for each instance.
- The script takes the backup of the modified files (install.path, set-java-home, java.properties) in their respective directories.
- The list of instances that are successfully updated, are displayed in the console. However, those failed instances are available in the following logs.

On UNIX and Linux systems:

Main log: /tmp/preUpgradeActions-<timestamp>.log

Instance log: instance-dir/OUUD/logs/preUpgradeActions-<timestamp>.log

On Windows systems:

Main log: <Temp_dir>\preUpgradeActions-<timestamp>.log

Instance log: instance-dir\OUUD\logs\preUpgradeActions-<timestamp>.log

5. On Windows systems, manually copy the start-ds.bat file (located at 12c-install-dir\bat\start-ds.bat) and replace the start-ds.bat file (located at instance-dir\OUUD\bat\start-ds.bat) of the instances that must be upgraded.
6. Upgrade any Oracle Unified Directory server instances that are associated with the ORACLE_HOME directory:

On UNIX and Linux systems:

```
$ instance-dir/OUUD/bin/start-ds --upgrade
```

On Windows systems:

```
instance-dir\OUUD\bat\start-ds.bat --upgrade
```

▲ Caution:

If the server instance has large static groups or many total members in all static groups, updating the instance to 12c (12.2.1.3.0) can take some time. Therefore, avoid ending the update (such as using `Ctrl-C` to end the process) before it is finished. Ending the update early can leave the server instance in an undetermined state.

The output of the `start-ds --upgrade` command is logged in the `INSTANCE_PATH/logs/server.out` directory.

7. Restart the server instances that you stopped in Step 2.

On UNIX and Linux systems:

```
$ instance-dir/OUDBin/start-ds
```

On Windows systems:

```
instance-dir\OUDBin\start-ds.bat
```

✎ Note:

You can only use `stop-ds` and `start-ds` commands for stopping and starting OUD servers upgraded using this method. See *Stopping the Server Using stop-ds* and *Starting the Server Using start-ds* in *Administering Oracle Unified Directory*.

6.6.1 Enabling Admin REST API for an Upgraded 12.2.1.3.0 OUD Instance

You can enable the Admin REST API for an upgraded 12.2.1.3.0 OUD instance to expose the REST APIs for administering OUD instance.

After you upgrade OUD from 11.1.2.3.0 to 12.2.1.3.0, you need to enable the HTTP Administration Connector port and restart the OUD instance for performing the Admin REST API operations.

Configuring HTTP Administration Connector Port for an Existing OUD Instance

Run the `dsconfig` command-line utility with `set-administration-connector-prop` subcommand to update an existing OUD instance to expose the HTTP Administration Connector to support Admin REST APIs.

```
dsconfig set-administration-connector-prop \
--connector-name HTTP \
--set listen-port:1888 \
--set enabled:true \
--hostname localhost \
--port 1444 \
--portProtocol LDAP \
```

```
--trustAll \
--bindDN cn=Directory\ Manager \
--bindPasswordFile password.file \
--no-prompt
```

 **Note:**

After enabling the HTTP Administration Connector port, you must restart the OUD instance to use the OUD Admin REST interface.

6.7 Verifying the Oracle Unified Directory Server Instance Upgrade

After completing all the upgrade steps, verify that the upgrade was successful by checking that the Oracle Unified Directory Server version has been properly updated.

To verify the version of the Oracle Unified Directory Server instance, run the `start-ds` command.

```
cd $OUD_INSTANCE_HOME/OU/bin/start-ds -s | grep 'Oracle Unified
Directory'
```

The following shows an example of the result after running the command:

```
Oracle Unified Directory 12.2.1.3.0
Build ID: 20170727163142Z
JAVA Version: 1.8.0_251
JAVA Vendor: Oracle Corporation
JVM Version: 25.251-b08
JVM Vendor: Oracle Corporation
JAVA Home: /u01/oracle/products/dir12c/jdk/jre
Class Path: /u02/
private/oracle/config/instances/oud1/OU/classes:/u01/oracle/products/
dir12c/oud/winlib/classpath.jar:/u02/private/oracle/config/instances/
oud1/OU/lib/*.jar
JE Version: 7.0.7
Current Directory: /u01/app//imupg_files/oud12cPS3
Installation Directory: /u01/app/fmw/ORACLE_HOME/dir12c/oud
Instance Directory: /u01/app/fmw/ORACLE_HOME/config/instances/oud1/OU
Operating System: Linux 2.6.39-400.306.1.el6uek.x86_64 amd64
JVM Architecture: 64-bit
System Name: ldaphost1
Available Processors: 4
Max Available Memory: 5569642496
Currently Used Memory: 5569642496
Currently Free Memory: 5518099608
```

Verify that the upgraded version matches the latest version number for that Oracle Unified Directory Server.

6.8 Enabling TNS Alias Support for EUS-enabled Configurations

Oracle Unified Directory 12c provides support for Transparent Network Substrate (TNS) Aliases for deployments that have Oracle Enterprise User Security (EUS) configured.

When you upgrade OUD instances (directory server or proxy with EUS integration) from 11g to 12c, then you have the option to enable the TNS Aliasing capability. You must manually run the `dsconfig` command to set up the TNS Aliasing feature by adding the `eus-alias-resolution` workflow element into the global `cn=OracleContext` and also the `cn=OracleContext,<EUS Realm>` workflow chains.

In OUD 11g, the `EusContext` workflow has the following chain in its configuration:

```
NG: Network-Group
  WF: cn=oraclecontextworkflow1,<Realm>
    WFE: cn=eus-context-wel,cn=Workflow elements,cn=config (EusContext)
      WFE: cn=oraclecontext1,cn=Workflow elements,cn=config
        (DBLocalBackend)
```

While the global `OracleContext` workflow has the following chain in its configuration:

```
NG: Network-Group
  WF: cn=OracleContext,cn=Workflows,cn=config
    (cn=OracleContext,dc=example,dc=com)
    WFE: cn=OIDCompatibility,cn=Workflow elements,cn=config (DBLocalBackend)
```

After performing an upgrade, you must add the workflow element of type `eus-alias-resolution` into the preceding chains.

Note:

- Use *OUDSM* and `list-backends` to find the correct names of your workflow and workflow elements to be used in the configuration.
- Workflow and workflow element names are different for OUD as a Directory server and for OUD as a Directory Proxy Server.

To add the `eus-alias-resolution` workflow element into the chain using `dsconfig` command:

1. Create the `eus-alias-resolution` workflow element and point to the existing local back end `OracleContext1`.

```
./dsconfig create-workflow-element \
  --element-name EusAliasResolution0 \
  --type eus-alias-resolution \
  --set enabled:true \
  --set next-workflow-element:OracleContext1 \
  --hostName localhost \
  --port 1445 \
  --bindDN "cn=directory manager" \
```

```
--bindPasswordFile /oracle/kit/.pw \
--trustAll \
--noprompt
```

2. Point the EusContext workflow element to the eus-alias-resolution workflow element.

```
./dsconfig set-workflow-element-prop \
--element-name eus-context-wel \
--set next-workflow-element:EusAliasResolution0 \
--hostName localhost \
--port 1445 \
--bindDN "cn=directory manager" \
--bindPasswordFile /oracle/kit/.pw \
--trustAll \
-n
```

3. Test by creating an alias *alias1* for an existing registered database *db1*.

```
./ldapmodify -h localhost -p 1390 -D "cn=Directory Manager" -j /
oracle/kit/.pw
```

```
dn: cn=alias1,cn=OracleContext,dc=example,dc=com
changetype: add
objectClass: alias
objectClass: top
objectClass: orclNetServiceAlias
aliasedObjectName: cn=db1,cn=OracleContext,dc=example,dc=com
```

4. Test the TNS Alias resolution:

```
$ tnsping db1
$ tnsping alias1
```

5. If you want to place the TNS aliases in cn=OracleContext workflow, then you must add the eus-alias-resolution workflow element to that chain as well.

```
dsconfig create-workflow-element \
--element-name EusAliasResolution1 \
--type eus-alias-resolution \
--set enabled:true \
--set next-workflow-element:OIDCompatibility\
--hostName localhost \
--port 1445 \
--bindDN "cn=directory manager" \
--bindPasswordFile /oracle/kit/.pw \
--trustAll \
--noprompt
```

```
dsconfig set-workflow-prop \
--workflow-name OracleContext\
--set next-workflow-element:EusAliasResolution1 \
--hostName localhost \
--port 1445 \
--bindDN "cn=directory manager" \
--bindPasswordFile /oracle/kit/.pw \
--trustAll \
-n
```

6.9 Upgrading Oracle Unified Directory Services Manager

Consider these topics if you run Oracle Unified Directory Services Manager on Oracle WebLogic Server to manage Oracle Unified Directory.

Note:

If your Instance Home or Domain Home contains both OUD and OUDSM, you must review both [Upgrading an Existing Oracle Unified Directory Server Instance](#) and [Upgrading Oracle Unified Directory Services Manager](#).

- [OUDSM Version Requirements](#)
- [Upgrading OUDSM from 11g to 12c](#)
- [Upgrading OUDSM from 11g to 12c Using the Reconfiguration Wizard](#)
- [Verifying the OUDSM Upgrade](#)
- [Considerations for Upgrading Oracle WebLogic Server](#)
- [Considerations for Upgrading Oracle Application Development Framework](#)

6.9.1 OUDSM Version Requirements

The version of Oracle Unified Directory Services Manager (OUDSM) described in this guide is 12c (12.2.1.3.0). When you update the Oracle Unified Directory software to 12c (12.2.1.3.0), OUDSM is also updated to this same release.

Note:

OUDSM update to OUDSM 12c (12.2.1.3.0) is supported from Oracle Unified Directory 11g (11.1.2.2.0) and 11g (11.1.2.3.0).

Several requirements for using OUDSM with Oracle Unified Directory include:

- You can use OUDSM 12c (12.2.1.3.0) to manage only Oracle Unified Directory 12c (12.2.1.3.0).
- You cannot use OUDSM 12c (12.2.1.3.0) to manage previous versions of Oracle Unified Directory, Oracle Internet Directory, or Oracle Virtual Directory. Similarly, you cannot use versions of OUDSM shipped with Oracle Internet Directory or Oracle Virtual Directory to manage any versions of Oracle Unified Directory.

 **Note:**

After you update Oracle Unified Directory, you might encounter problems on Oracle WebLogic Server when you try to access the updated version of OUDSM. This problem usually occurs if you used your browser to access an earlier version of OUDSM. During an update operation, the OUDSM URL can change.

Therefore, to access the updated version of OUDSM, first clear your browser's cache and cookies.

6.9.1.1 Updating Multiple Instances of OUDSM

If you have multiple instances of OUDSM in your replication topology, consider the following requirements:

- If you update one OUDSM instance to 12c (12.2.1.3.0), you must update all OUDSM and replicated instances.
- If you update OUDSM to 12c (12.2.1.3.0), Oracle Unified Directory must be the same version. An updated OUDSM version is not supported with earlier versions of Oracle Unified Directory.

6.9.2 Upgrading OUDSM from 11g to 12c

Oracle Unified Directory Services Manager stores only the directory instance connection details and administrator configurations. The 12c (12.2.1.3.0) upgrade using the Fusion Middleware Reconfiguration Wizard does not support migration of Oracle Platform Security Services (OPSS) to a file-based store. You will not be able to migrate those stored OUDSM configurations from 11g OUDSM domain instance to 12c. You will have to manually add or copy those configurations in the newly created 12c OUDSM domain instances.

 **Note:**

If you are upgrading OUDSM from 11g to 12c, you must copy the stored configurations from 11g OUDSM domain instance and add them in 12c OUDSM domain instance. This is the Oracle preferred approach to upgrade OUDSM from 11g to 12c.

To upgrade OUDSM:

1. Install the collocated 12c (12.2.1.3.0) Oracle Unified Directory before upgrading your existing Oracle Unified Directory Services Manager 11g (11.1.2.2.0 or 11.1.2.3.0).
See [Installing the OUD/OUDSM Software](#).
2. Backup your existing environment.
3. Create a new domain in 12c using the WebLogic Scripting Tool.
See [Creating a Domain for OUDSM Using the WebLogic Scripting Tool](#).

4. Copy the connection details and administrator configurations files from 11g domain (if any) to the newly created domain in 12c.

```
cp -r $11gDOMAIN_HOME/config/fmwconfig/odsm $12cDOMAIN_HOME/config/fmwconfig/
```

6.9.3 Upgrading OUDSM from 11g to 12c Using the Reconfiguration Wizard

You can upgrade Oracle Unified Directory Services Manager from 11g to 12c using the Fusion Middleware Reconfiguration wizard. The valid starting points for this upgrade are 11g (11.1.2.2.0) and 11g (11.1.2.3.0).

Note:

The installation and configuration of a certified database is a prerequisite if you are upgrading using the reconfiguration wizard.

To upgrade OUDSM:

1. Install the collocated 12c (12.2.1.3.0) Oracle Unified Directory before upgrading your existing Oracle Unified Directory Services Manager 11g (11.1.2.2.0 or 11.1.2.3.0)

See [Installing the OUD/OUDSM Software](#).

2. Create the required schemas before upgrade.

If you are upgrading from Oracle Unified Directory Services Manager 11g, you must create the required 12c schemas before you begin the upgrade. The schema required for Oracle Unified Directory is Oracle Platform Security Services (OPSS). Selecting the Oracle Platform Security Services schema will automatically select the dependent schemas.

See [Creating Database Schemas for the Infrastructure Domain Using the Repository Creation Utility](#).

3. Create a backup of the domain directory:

- a. Shutdown the Administration Server for the ODSM 11g Domain:

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.

- b. Copy the source domain to a separate location to preserve the contents.

(Windows) `copy C:\domains\myoudsmdomain to C:\domains\myoudsmdomain_backup`

(UNIX) `cp -rf myoudsmdomain /domains/myoudsmdomain_backup`

- c. Verify that the backed up versions of the domain are complete.

If domain reconfiguration fails for any reason, you must copy all files and directories from the backup directory into the original domain directory to ensure that the domain is returned entirely to its original state before reconfiguration.

4. Run the Reconfiguration Wizard by entering the following command:

On UNIX and Linux systems:

```
$ Oracle12cHome/oracle_common/common/bin/reconfig.sh
```

On Windows systems:

```
Oracle12cHome\oracle_common\common\bin\reconfig.cmd
```

5. Use the Select Domain screen to specify the location of the domain you want to upgrade or click **Browse** to navigate and select the domain directory. Click **Next**.
6. The Reconfiguration Setup Progress screen shows the progress of the setup process. When complete, click **Next**.

During this process:

- The reconfiguration templates for your installed products, including Fusion Middleware products, are automatically applied. This updates various domain configuration files such as `config.xml`, `config-groups.xml`, and `security.xml` (among others).
 - Schemas, scripts, and other such files that support your Fusion Middleware products are updated.
 - The domain upgrade is validated.
7. On the Reconfig Summary screen, review the detailed information of the various reconfigured templates. Click **Next**.
 8. On the Domain Mode and JDK screen, select the JDK to use in the domain or click **Browse** to navigate to the JDK you want to use. Click **Next**.

 **Note:**

You cannot change the **Domain Mode** at this stage.

9. On the Database Configuration Type screen, select **RCU Data** to connect to the Server Table (`_STB`) schema.

Enter the database connection details using the RCU service table (`_STB`) schema credentials and click **Get RCU Configuration**.

The Reconfiguration Wizard uses this connection to automatically configure the data sources required for components in your domain.

 **Note:**

For new datasources where the schema was created for 12c by the RCU, the default connection data will be retrieved from the `_STB` schema. If no connection data for a given schema is found in the `_STB` schema, then the default connection data is used.

If the check is successful, click **Next**. If the check fails, reenter the connection details correctly and try again.

10. On the JDBC Component Schema screen, verify that the DBMS/Service and the Host name is correct for each component schema and click **Next**.
11. On the JDBC Component Schema Test screen, select all the component schemas and click **Test Selected Connections** to test the connection for each schema. The result of the test is indicated in the **Status** column.

When the check is complete, click **Next**.

12. The Node Manager screen is only displayed if the domain you are reconfiguring is currently using a per host Node Manager.

On the Node Manager screen, select the Node Manager configuration to use for the reconfigured domain. The resulting configuration depends on the combination of options you select for **Node Manager Type** and **Node Manager Configuration**.

Table 6-1 Field Descriptions for Node Manager Screen

Option	Description
Per Domain Default Location	If you select this option, the Node Manager home is redefined to <code>DOMAIN_NAME/nodemanager</code> and you cannot edit the Node Manager home.
Per Domain Custom Location	Select this option if you want the per domain Node Manager configuration files to be created in a specific location for this domain. Specify the directory in the Node Manager Home field, or click Browse to use the navigation tree to select the location. The specified directory must be empty. The <code>nodemanager.properties</code> and <code>nodemanager.domains</code> files are created in this directory.
Node Manager Home	If you selected the Per Domain Custom Location option, click Browse to navigate to the directory location that you want to use to store the per domain Node Manager configuration.
Manual Node Manager Setup	If you select this option, creation of the Node Manager configuration for the domain is skipped (all remaining fields cannot be modified), and to use Node Manager in the domain, you must manually configure Node Manager as described in <i>Completing the Node Manager Configuration</i> . The reconfigured domain will still use a per host Node Manager configuration. You should also select this option if your existing domain is not configured to use Node Manager and you do not want to use Node Manager in the reconfigured domain. For more information about Node Manager configuration, see <i>Administering Node Manager for Oracle WebLogic Server</i> .
Node Manager Configuration	Select one of the following two options. These fields are not available if you selected Manual Node Manager Setup .
Create New Configuration	A per domain Node Manager configuration will be automatically created for the reconfigured domain using default settings in <code>nodemanager.properties</code> . If necessary, you can modify <code>nodemanager.properties</code> after the domain has been successfully reconfigured.

Table 6-1 (Cont.) Field Descriptions for Node Manager Screen

Option	Description
Migrate Existing Configuration	The existing per host Node Manager configuration will be migrated to a per domain configuration for the reconfigured domain. This does not include environment-specific settings for ListenAddress, ListenPort, StartScriptName, JavaHome, and LogFile.
Node Manager Home	If you selected the Migrate Existing Configuration option, enter or browse to the Node Manager home directory that you want to migrate to the reconfigured domain.
Apply Oracle Recommended Defaults	<p>If you selected the Migrate Existing Configuration option, select this check box to use Oracle-recommended defaults in the <code>nodemanager.properties</code> file. Deselect this check box to continue using the settings in the <code>nodemanager.properties</code> file being migrated.</p> <p>Oracle-recommended properties with default values are as follows:</p> <pre> LogLimit=0 AuthenticationEnabled=true LogLevel=INFO DomainsFileEnabled=true NativeVersionEnabled=true LogToStderr=true SecureListener=true LogCount=1 StopScriptEnabled=false QuitEnabled=false LogAppend=true StateCheckInterval=500 CrashRecoveryEnabled=false StartScriptEnabled=true LogFormatter=weblogic.nodemanager.server.LogFormatter ListenBacklog=50 </pre>
Node Manager Credentials: Username, Password	Specify the username and password that you want to use to start Node Manager in the reconfigured domain.

- On the Advanced Configuration screen, you can select all categories for which you want to perform advanced configuration. For each category you select, the appropriate configuration screen is displayed to allow you to perform advanced configuration.

 **Note:**

The categories that are listed on the Advanced Configuration screen depend on the resources defined in the templates you selected for the domain.

For this upgrade, select none of the options and click **Next**.

- On the Configuration Summary screen, review the detailed configuration settings of the domain before continuing.

You can limit the items that are displayed in the right-most panel by selecting a filter option from the **View** drop-down list.

To change the configuration, click **Back** to return to the appropriate screen. To reconfigure the domain, click **Reconfig**.

 **Note:**

The location of the domain does not change when you reconfigure it.

15. The Reconfiguration Progress screen displays the progress of the reconfiguration process.

During this process:

- Domain information is extracted, saved, and updated.
- Schemas, scripts, and other such files that support your Fusion Middleware products are updated.

When the progress bar shows 100%, click **Next**.

16. The End of Configuration screen indicates whether the reconfiguration process completed successfully or failed. It also displays the location of the domain that was reconfigured and the Administration Server URL (including the listen port). If the reconfiguration is successful, it displays Oracle WebLogic Server Reconfiguration Succeeded.

If the reconfiguration process did not complete successfully, an error message is displayed indicates the reason. Take appropriate action to resolve the issue. If you cannot resolve the issue, contact My Oracle Support.

Note the Domain Location and the Admin Server URL for further operations.

6.9.4 Verifying the OUDSM Upgrade

You can verify the ODSM upgrade by accessing the OUDSM interface and checking the version number.

To verify that the ODSM upgrade was successful, perform the following steps:

1. Open a browser, and access OUDSM using the following URL format:
`http://host:port/oudsm`
where `host` is the name of the managed server on which OUDSM is running and `port` is the Managed Server port number of the Administration Server. The default admin port is 7001.
2. When the login page appears, navigate to the bottom right pane and click **About**.
The **About Oracle Unified Directory Services Manager** page is displayed.
3. Verify that the version number of the upgraded OUDSM version matches the latest version number.

6.9.5 Considerations for Upgrading Oracle WebLogic Server

Oracle Unified Directory Services Manager 12c (12.2.1.3.0) is compatible with Oracle WebLogic Server 12c (12.2.1.3.0).

To upgrade Oracle WebLogic Server from an earlier version such as 11g, see [Introduction](#) in *Upgrading Oracle WebLogic Server*.

6.9.6 Considerations for Upgrading Oracle Application Development Framework

Oracle Unified Directory Services Manager 12c (12.2.1.3.0) is compatible with Oracle Application Development Framework 12c (12.2.1.3.0).

To upgrade Oracle ADF from version 11g, see [Using Your 11g Application Deployments in Oracle Fusion Middleware 12c](#) in *Upgrading to the Oracle Fusion Middleware Infrastructure*.

6.10 What to Do If the Upgrade Process Fails

If any step in the upgrade process fails, then terminate the upgrade process and restore the environment to its original state using the backup files you created in [Backing Up the Middleware Home](#).

7

Configuring the JVM, Java, and Database Cache Options for Oracle Unified Directory

Oracle Unified Directory provides several command-line utilities to tune the server and to configure the various options for the Java Virtual Machine (JVM), Java, and database cache.

Topics:

- [Configuring the JVM Using the `dstune` Utility](#)
- [Configuring the Default JVM and Java Arguments](#)
- [Configuring the Java Run-Time Settings During the Server Setup](#)
- [Database Cache Size](#)
- [Setting the Database Cache Mode](#)

Note:

Beginning with 12c (12.2.1.3.0), Oracle Unified Directory requires JDK 8 or JRE 8.

7.1 Configuring the JVM Using the `dstune` Utility

The `dstune` command-line utility enables you to tune the Oracle Unified Directory server and tools (`import-ldif`, `export-ldif`, `rebuild-index`, and `verify-index`) using criteria such as the data that the directory contains or the amount of system memory to use.

The `dstune` utility provides these options:

- The `data-based` subcommand tunes the server based on the data that the database either already contains or will contain.
- The `mem-based` subcommand tunes the server and tools based on the heap size they will use.
- The `set-runtime-options` subcommand allows you either to use the JVM default values on the system or to directly provide JVM arguments to tune the server and tools.

 **Note:**

The `dstune` memory-based and data-based options are available only if you run a JVM that uses Java HotSpot, such as Java Platform, Standard Edition (Java SE).

For more information on the `dstune` syntax and tuning examples, see Tuning Java Virtual Machine Settings Using the `dstune` Utility in *Administering Oracle Unified Directory*.

7.2 Configuring the Default JVM and Java Arguments

Use the Java properties file to configure the Java Virtual Machine, Java options and Java arguments for Oracle Unified Directory server.

- [Using the Java Properties File](#)
- [Configuring JVM Options](#)
- [Specifying the Java Virtual Machine for a Specific Utility](#)
- [Specifying the Java Arguments for a Specific Utility](#)

7.2.1 Using the Java Properties File

The `java.properties` file contains the Java configuration properties. Oracle Unified Directory scripts and server commands use these Java configuration properties. This file is located in `instance-dir/OUJ/config/` on UNIX and Linux systems or `instance-dir\OUJ\config\` on Windows systems.

The properties in the `java.properties` file have these formats:

- `command-name.java-home=JVM-path`
- `command-name.java-args=JVM-arguments`

To use the configuration properties in the `java.properties` file:

1. Edit the properties in the file you want to set.

For example, you can set the Java properties to specify whether a command runs using the JVM in `-server` mode or `-client` mode.

Or, for certain commands, including `import-ldif`, `export-ldif`, `backup`, and `restore`, you can specify the Java arguments and a different JVM, if you prefer, depending on whether the command is run in online or offline mode.

2. Run the `dsjavaproperties` (or `dsjavaproperties.bat`) command, which uses the properties in the `java.properties` to update the Oracle Unified Directory scripts and commands, so that they use the specific JVM and JVM arguments specified in `java.properties`.

For examples, see [Specifying the Java Virtual Machine for a Specific Utility](#) and [Specifying the Java Arguments for a Specific Utility](#).

See also `dsjavaproperties` in *Administering Oracle Unified Directory*.

Table 7-1 shows the properties in the `java.properties` file that are relevant to Oracle Unified Directory.

Table 7-1 Properties in the `java.properties` File Relevant to Oracle Unified Directory

Property	Description
<code>overwrite-env-java-args</code>	If <code>true</code> , the system checks the <code>default.java-args</code> property in this properties file before checking the <code>OPENDS_JAVA_ARGS</code> environment variable. If <code>false</code> , the system checks the <code>OPENDS_JAVA_ARGS</code> environment variable first.
<code>default.java-home</code>	Sets the JVM that will be used for the directory server and all of its command-line utilities, unless a different JVM is specified for a particular utility.

7.2.2 Configuring JVM Options

Oracle Unified Directory provides several Java options that can impact the server's performance. Each option is applied for a specific condition and some of these options apply only to the Oracle JVM.

Table 7-2 summarizes the Java options that can impact the server's performance.

Table 7-2 Java Options That Can Affect Oracle Unified Directory Server Performance

Condition	Option	Description
For Server and Offline Import to use server grade JVM runtime optimizations	<code>-server</code>	Selects the server application run-time optimizations. The directory server will take longer to start, but it will be better optimized to produce higher throughput.
For 64-bit machines only	<code>-d64</code>	For 64-bit machines only. By default, the directory server selects a 32-bit JVM regardless of the architecture. Specify this option when a JVM greater than 4 GB heap is required and the architecture is 64-bit.

Table 7-2 (Cont.) Java Options That Can Affect Oracle Unified Directory Server Performance

Condition	Option	Description
For JVM Heap	<code>-Xms2G -Xmx2G</code>	<p>Selects the initial and maximum memory sizes available to the JVM, respectively. These values are used for the JVM heap, which reserves memory for the directory server and its database (DB) cache (or caches if more than one).</p> <p>Increasing the amount of memory available can improve performance, but increasing it to too high a value can have a detrimental effect in the form of longer pauses for full garbage collection runs. Therefore, the initial and maximum sizes should be set to the same value.</p> <p>As a general guideline, examine the size of the Oracle Berkeley Java Edition (JE) database folders (<code>instance-dir/OUJ/db/userRoot</code>). Based on the folders' combined size, determine how much memory you want to reserve for the database cache. After determining this value, tune the local DB back-end properties, <code>db-cache-percent</code> or <code>db-cache-size</code> and other JVM options appropriately.</p> <p>Be careful to allow additional memory for the server run time. For example, if you have a single database of 1 GB, which you want to store entirely in memory, then a 2 GB heap with 60% reserved for the database cache should be sufficient for efficient directory server performance.</p> <p>You can test this setup by preloading the database with the local database back end by using the <code>preload-time-limit</code> property.</p> <p>JVM heaps greater than 4 GB require a 64-bit JVM.</p>
For <code>jstatd</code> or other RMI-based applications	<code>DisableExplicitGC</code>	Prevents external applications from forcing expensive garbage collections. If you are using <code>jstatd</code> or other RMI-based applications to monitor Oracle Unified Directory, consider using this option to avoid unexpected pauses.
For heavy throughput environments	<code>-XX:NewSize=512M</code>	<p>In heavy throughput environments, you should consider using this option to increase the size of the JVM young generation.</p> <p>By default, the young generation is quite small, and high throughput scenarios can result in a large amount of generated garbage. This garbage collection, in turn, causes the JVM to inadvertently promote short-lived objects into the old generation.</p>
Server Only	<code>-XX:+UseConcMarkSweepGC</code>	Selects the CMS garbage collector. This garbage collector is set for <i>low pause time</i> . It will result in a Java application that has a lower average throughput, but much shorter CPU-intensive garbage collections. This option is required in environments that have response time constraints.
For GC Analysis and Tuning	<code>-XX:CMSInitiatingOccupancyFraction=70</code>	Selects the level at which the collection is started. The default value is 68%.
Offline Import Only	<code>-XX:+UseParallelOldGC</code>	Selects the parallel old generational garbage collector. This garbage collector is set for <i>high throughput</i> . It will maximize the average throughput of the <code>import-ldif</code> utility at the cost of an occasional stop-the-world garbage collection, which is not as critical to imports.

Table 7-2 (Cont.) Java Options That Can Affect Oracle Unified Directory Server Performance

Condition	Option	Description
For GC Analysis and Tuning	-XX:+PrintGCDetails	Prints the garbage collection details.
For GC Analysis and Tuning	-XX:+PrintGCTimeStamps	Prints the garbage collection time stamps to help with debugging.
Other Applications (for example, dsconfig)	-client	Selects client application run-time optimizations. The application will be faster to start and more responsive due to lower compilation overheads.
For very low initial JVM Heap size	-Xms8m	Selects a low initial JVM heap size for an application.

7.2.3 Specifying the Java Virtual Machine for a Specific Utility

Edit the Java home property in the `java.properties` file to set the Java Virtual Machine for a specific utility.

To set the JVM for a specific utility:

1. Edit the following property in the `java.properties` file.

```
command-name.java-home=jvm-location
```

For example, to configure a specific JDK 1.8 for the offline `import-ldif` command, set the property that starts with `import-ldif.offline`. For example:

```
import-ldif.offline.java-home=/usr/java/jdk1.8.0
```

2. Run the `dsjavaproperties` utility to apply the property value.

7.2.4 Specifying the Java Arguments for a Specific Utility

Edit the Java arguments property in the `java.properties` file to specify the Java Arguments for a specific utility.

To set the Java arguments for a specific utility:

1. Edit the following property in the `java.properties` file.

```
command-name.java-args=arguments
```

For example, to specify that a maximum heap size of 256 MB be used for the online `export`, set the property that starts with `export-ldif.online`. For example:

```
export-ldif.online.java-args=-Xms256m -Xmx256m
```

2. Run the `dsjavaproperties` utility to apply the property value.

7.3 Configuring the Java Run-Time Settings During the Server Setup

You can provide run-time options when you run the directory server setup script (`oud-setup` or `oud-setup.bat`).

- In GUI mode, on the **Providing Runtime Options** screen, click **Change** to change any of the displayed values for the **Server Runtime Settings** or the **Offline Tools Runtime Settings**.

See [Setting Up the Directory Server Using the Graphical User Interface \(GUI\)](#).

- In CLI mode, you can specify JVM arguments when you tune Oracle Unified Directory server and the off-line tools.

See [Setting Up the Directory Server Using the Command-Line Interface \(CLI\)](#).

7.4 Database Cache Size

The size of the database cache can affect the overall performance of Oracle Unified Directory server. You must determine your specific memory settings for the database cache depending on your hardware, the number and size of entries in your directory, and the performance requirements for your deployment.

For example, when importing data using the `import-ldif` utility, you can configure the directory server to avoid (or minimize) potential database cache eviction problems. Ideally, you should set the database cache to a value that allows the entire database to fit into the cache.

The size of the required heap depends on the number of entries and their size. For example, if you are importing 200,000 entries of 10 KB each, you might specify two GB for the JVM heap size, and then allocate at least one GB for the directory server run-time environment and the rest for the database cache.

You can set the database cache by configuring the `db-cache-percent` or the `db-cache-size` properties using either the `dsconfig` command-line utility or Oracle Unified Directory Services Manager.

The `db-cache-percent` and the `db-cache-size` properties represent the maximum size that the server can use for the database cache. If the database is smaller than the size set by either of these properties, only the size of the database is allocated to the JVM heap.



Note:

The `db-cache-size` property has precedence over the `db-cache-percent` property, if both properties have values. Therefore, to set the `db-cache-percent` property, the `db-cache-size` property must be set to 0 MB (the default).

See [Setting Database Cache Using dsconfig](#).

7.4.1 Setting Database Cache Using dsconfig

Use the database cache percentage property of the `dsconfig` command to allocate memory to the database cache.

To set the database cache using `dsconfig`:

1. Change to the directory where `dsconfig` is located.

On UNIX and Linux systems:

```
$ cd instance-dir/OUDB/bin
```

On Windows systems:

```
C:\> cd instance-dir\OUDB\bat
```

2. Run the `dsconfig` command to set the `db-cache-percent` property. For example:

```
$ dsconfig set-workflow-element-prop \  
--element-name userRoot --set db-cache-percent:50 \  
--hostname hostname --port port-number \  
-X -D "cn=Directory Manager" -j /tmp/password -n
```

This example sets the `db-cache-percent` to 50 percent. Thus, for a 2 GB memory allocation, 1 GB of memory will be allocated to the database cache and the rest to the JVM.

7.5 Setting the Database Cache Mode

The database cache mode (`db-cache-mode` property) controls the caching of records in the database cache. You can use the database cache to store Java Edition (JE) nodes (upper, inner and leaf nodes). When a record is stored or retrieved, the database cache mode determines how long the record is subsequently retained in the cache, relative to other records in the cache.

The default database cache mode retains all types of nodes in the cache. The default mode is recommended for most deployments. However, you might consider changing the mode if your performance expectations are not being met or if the memory available to run Oracle Unified Directory cannot hold all entries in the database cache.

Other database cache modes to consider are:

- `evict-ln` mode evicts leaf nodes from the database cache once they are used. Use this mode only if the default mode does not meet your performance expectations and the memory allocated to Oracle Unified Directory is lower than your database size. Using this mode reduces the memory pressure for Java garbage collection and the elapsed processing time (`etime`) for outliers.
- `evict-bin` mode evicts bottom inner nodes from the database cache once they are used. Before using this mode, Oracle recommends trying the `evict-ln` mode. Use this mode in staging deployments only if the memory allocated to Oracle Unified Directory is significantly smaller than the database size and you cannot otherwise meet your performance expectations.

For other values that you can specify for the database cache mode, see *DB Local Backend Workflow Element in Configuration Reference for Oracle Unified Directory*.

To set the database cache mode, use the `dsconfig` command-line utility. For example to set the mode to `evict-ln`:

```
$ dsconfig set-workflow-element-prop \  
  --element-name userRoot \  
  --set db-cache-mode:evict-ln \  
  --hostname localhost --port 4444 \  
  -X -D "cn=Directory Manager" -j password-file -n
```

See also *Managing the Database Cache* in *Administering Oracle Unified Directory*.

8

Uninstalling Oracle Unified Directory

You can uninstall Oracle Unified Directory server instances you have configured and completely remove the software from your system.

To completely remove the Oracle Unified Directory software from your system, you must follow the procedures in the following sections in order:

- [Uninstalling an Oracle Unified Directory Instance](#)

8.1 Uninstalling an Oracle Unified Directory Instance

Follow these procedures to uninstall the server instance for a directory server, a proxy server, and a replication gateway server.

You can remove a server instance using one of the following modes:

- Graphical user interface (GUI) mode.
- Interactive command-line mode.
- Script.
- WebLogic Scripting Tool (WLST)

See `uninstall` in *Administering Oracle Unified Directory*.

8.1.1 Uninstalling a Directory Server Instance

You can use a graphical user interface, a command-line utility or a script to uninstall a directory server instance.

- [Uninstalling a Directory Server Instance Using GUI Mode](#)
- [Uninstalling a Directory Server Instance Using the CLI](#)
- [Uninstalling a Directory Server Instance Using a Script](#)
- [Deleting a Directory Server Instance Using WLST](#)

8.1.1.1 Uninstalling a Directory Server Instance Using GUI Mode

GUI mode is the default and recommended uninstall option. The GUI provides an easy interface for removing a directory server instance.

1. Launch the graphical uninstaller, as follows:

On UNIX and Linux systems:

```
$ instance-dir/OUd/uninstall
```

On Windows systems:

```
C:\> instance-dir\OUd\uninstall.bat
```


2. Deselect any components that you do not want to remove and click **Uninstall**.
By default, all components are selected for removal.
3. If the server is part of a replication topology, click **Yes** to continue the deinstallation.
The uninstaller starts the server (if it is not already running) and asks you for your Global Administrator login to remove the references to this server in the other replicating directory servers.
4. If the server is a standalone server and is running, a dialog box is displayed, asking to shut down the server before continuing with the deinstall.
Click **Yes** to have the uninstaller stop the server for you and continue with the uninstallation.
5. Review the logs to confirm the file or directory removals. UNIX and Linux logs the entries at `/var/tmp`, Linux at `/tmp`, and Windows in the location defined by the `TEMP` user environment variable.
Log files are listed as `oud-uninstall-IDNumber.log`, where *IDNumber* is a system-generated number for your log.
6. For Windows systems, check the Windows registry for any remaining keys ending with Oracle Unified Directory. For example:

```
SYSTEM\\CurrentControlSet\\Services\\EventLog\\Application\\Oracle Unified  
Directory
```

8.1.1.2 Uninstalling a Directory Server Instance Using the CLI

You can remove an Oracle Unified Directory instance in interactive, command-line mode by typing `uninstall --cli`. In interactive mode, you are prompted for any required input.

1. Launch the CLI uninstaller, as follows:
On UNIX and Linux systems:

```
$ instance-dir/ODU/uninstall --cli
```


On Windows systems:

```
C:\> instance-dir\ODU\uninstall.bat --cli
```
2. Select the components to be removed.
 - a. To remove all components, press Enter or Return to accept the default.
 - b. To remove specific components and retain others, type 2.
When `uninstall` prompts you to select the components to be deleted, press Enter or Return to accept the defaults.
3. If the server is part of a replication topology, type Yes or press Enter or Return to continue the uninstallation.
The uninstaller starts the server (if it is not already running) and requests your Global Administrator login to remove the references to this server in the other replicating directory servers.
4. If your directory server is a standalone server and is running, the `uninstall` prompts you to stop the server and remove all files.

Press Enter or Return to accept the default (Yes).

5. To quit the uninstaller without removing files, type `q`.

The uninstall quits the process and logs the entry.

UNIX and Linux logs the entry at `/var/tmp`, Linux at `/tmp`, and Windows at the location defined by the `TEMP` user environment variable.

6. Check that all files and directories have been removed. If they have not been removed, manually remove them.
7. For Windows systems, check the Windows registry for any remaining keys ending with Oracle Unified Directory.

For example:

```
SYSTEM\\CurrentControlSet\\Services\\EventLog\\Application\\Oracle Unified Directory
```

8.1.1.3 Uninstalling a Directory Server Instance Using a Script

The `uninstall` command provides two options, `--quiet` and `--no-prompt`, for simple scripting. Most directory administrators have their preferred scripting language for automating their system tasks. The directory server provides script-friendly options with its command-line utilities to facilitate quick coding.

1. Create an uninstallation script and add the following `uninstall` command.

Make sure to type the command on a single line.

```
instance-dir/ODU/uninstall --cli \  
--remove-all --no-prompt --forceOnError --quiet
```

2. Run the script.
3. Check for remaining directories in the logs, and if any directories or files remain, manually delete them.

8.1.1.4 Deleting a Directory Server Instance Using WLST

You can delete a directory server instance by using the WLST command `oud_deleteInstance`.

To delete a directory server instance by using WLST:

1. Connect to WLST as described in [Setting Up the Directory Server Using the WebLogic Scripting Tool](#).
2. At the command prompt, enter:

```
oud_deleteInstance(instanceName='instanceName')
```

For example, to delete a directory server instance named `oud1` use the following command:

```
oud_deleteInstance(instanceName='oud1')
```

You cannot delete any directory server instance in either an UNKNOWN or a RUNNING state.

8.1.2 Uninstalling a Proxy Server Instance

You can use a graphical user interface, a command-line utility, or a script to uninstall a proxy server instance.

- [Uninstalling a Proxy Server Instance Using the GUI](#)
- [Uninstalling a Proxy Server Instance Using the CLI](#)
- [Uninstalling a Proxy Server Instance Using a Script](#)
- [Deleting a Proxy Server Instance Using WLST](#)

8.1.2.1 Uninstalling a Proxy Server Instance Using the GUI

GUI mode is the default and recommended uninstall option. The GUI provides an easy interface for removing a proxy server instance.

1. Launch the graphical uninstaller, as follows:

On UNIX and Linux systems:

```
$ instance-dir/ODD/uninstall
```

On Windows systems:

```
C:\> instance-dir\ODD\uninstall.bat
```

2. Deselect any components that you do not want to remove and click Uninstall.

By default, all components are selected for removal.

3. If the server is running, a dialog box is displayed, asking to shut down the server before continuing with the uninstall.

Click **Yes** to have the uninstaller stop the server for you and continue with the uninstallation.

4. Review the logs to confirm the file or directory removals. UNIX and Linux logs the entries at `/var/tmp`, Linux at `/tmp`, and Windows in the location defined by the `TEMP` user environment variable.

Log files are listed as `oud-uninstall-IDNumber.log`, where *IDNumber* is a system-generated number for your log.

5. For Windows systems, check the Windows registry for any remaining keys ending with Oracle Unified Directory. For example:

```
SYSTEM\CurrentControlSet\Services\EventLog\Application\Oracle Unified Directory
```

8.1.2.2 Uninstalling a Proxy Server Instance Using the CLI

You can remove a proxy instance in interactive, command-line mode by typing `uninstall --cli`. In interactive mode, you are prompted for any required input.

1. Launch the CLI uninstaller, as follows:

On UNIX and Linux systems:

```
$ instance-dir/ODD/uninstall --cli
```

On Windows systems:

```
C:\> instance-dir\OUD\uninstall.bat --cli
```

2. Select the components to be removed.
 - a. To remove all components, press Enter or Return to accept the default.
 - b. To remove specific components and retain others, type 2.

When `uninstall` prompts you to select the components to be deleted, press Enter or Return to accept the defaults.

3. If your proxy server is running, the `uninstall` prompts you to stop the server and remove all files.

Press Enter or Return to accept the default (yes).

4. To quit the uninstaller without removing files, type q.

The `uninstall` quits the process and logs the entry.

UNIX and Linux logs the entry at `/var/tmp`, Linux at `/tmp`, and Windows at the location defined by the `TEMP` user environment variable.

5. Check that all files and directories have been removed. If they have not been removed, manually remove them.
6. For Windows systems, check the Windows registry for any remaining keys ending with Oracle Unified Directory.

For example:

```
SYSTEM\CurrentControlSet\Services\EventLog\Application\Oracle Unified  
Directory
```

8.1.2.3 Uninstalling a Proxy Server Instance Using a Script

The `uninstall` command provides two options, `--quiet` and `--no-prompt`, for simple scripting. Most directory administrators have their preferred scripting language for automating their system tasks. Oracle Unified Directory provides script-friendly options with its command-line utilities to facilitate quick coding.

1. Create an uninstallation script and add the following `uninstall` command.

Make sure to type the command on a single line.

```
instance-dir/OUD/uninstall --cli \  
--remove-all --no-prompt --forceOnError --quiet
```

2. Run the script.
3. Check for remaining directories in the logs, and if any directories or files remain, manually delete them.

8.1.2.4 Deleting a Proxy Server Instance Using WLST

You can delete a proxy server instance by using the WLST command `oud_deleteInstance`.

To delete a proxy server instance by using WLST:

1. Connect to WLST as described in [Setting Up the Proxy Server Using the WebLogic Scripting Tool](#).

2. At the command prompt, enter:

```
oud_deleteInstance(instanceName='instanceName')
```

For example, to delete a proxy server instance named `oud_proxy` use the following command:

```
oud_deleteInstance(instanceName='oud_proxy')
```

You cannot delete any proxy server instance in either an UNKNOWN or a RUNNING state.

8.1.3 Uninstalling a Replication Gateway Instance

You can use a graphical user interface, a command-line utility, or a script to uninstall a replication gateway server instance.

This section covers the following topics:

- [Uninstalling a Replication Gateway Instance Using the GUI](#)
- [Uninstalling a Replication Gateway Instance Using the CLI](#)
- [Uninstalling a Replication Gateway Instance Using a Script](#)
- [Deleting a Replication Gateway Instance Using WLST](#)



Note:

Should the replication gateway uninstallation fail, for any reason, references to the gateway might remain in the ODSEE server configuration. In this case, remove the following from the ODSEE server configuration manually:

- The replication manager entry that is created automatically when the gateway is installed.
- The replication agreement(s) to the gateway.

8.1.3.1 Uninstalling a Replication Gateway Instance Using the GUI

GUI mode is the default and recommended uninstall option. The GUI provides an easy interface for removing a replication gateway instance.

1. Launch the graphical uninstaller, as follows:

On UNIX and Linux systems:

```
$ instance-dir/ODD/uninstall
```

On Windows systems:

```
C:\> instance-dir\ODD\uninstall.bat
```

2. On the Oracle Unified Directory Server Settings screen, enter the following information:

- The host name on which the replication gateway server instance is installed.

- The UID of the Global Administrator used to connect to the Oracle Unified Directory servers.
- The password of the Global Administrator.

Click **Next**.

3. On the ODSEE Server settings screen, enter the following information:
 - The bind DN and password of the user configured to connect to the ODSEE server.
 - The DSCC Directory Server Manager Password

Click **Next**.

4. On the Confirm Replication Gateway Uninstall screen, click **Finish**.
5. Review the logs to confirm the file or directory removals. UNIX and Linux logs the entries at `/var/tmp`, Linux at `/tmp`, and Windows in the location defined by the `TEMP` user environment variable.

Log files are listed as `oud-uninstall-IDNumber.log`, where *IDNumber* is a system-generated number for your log.

6. For Windows systems, check the Windows registry for any remaining keys ending with Oracle Unified Directory. For example:

```
SYSTEM\\CurrentControlSet\\Services\\EventLog\\Application\\Oracle Unified
Directory
```

8.1.3.2 Uninstalling a Replication Gateway Instance Using the CLI

You can remove a replication gateway instance in interactive, command-line mode by typing `uninstall --cli`. In interactive mode, you are prompted for any required input.

Before you start the uninstall, you must have the bind credentials for:

- the Global Administrator used to connect to the OUD server instances
- the administrative user who connects to the ODSEE server instance

The following example provides these credentials at the command-line.

1. Launch the CLI uninstaller, as follows:

On UNIX and Linux systems:

```
$ instance-dir/ODU/uninstall --cli -h server1.example.com \
--adminUID admin --adminPasswordFile pwd-filename \
--bindDNLegacy "cn=Directory Manager" --bindPasswordFileLegacy pwd-
filename \
--dscPasswordFileLegacy pwd-file
```

On Windows systems:

```
C:\> instance-dir\ODU\uninstall.bat --cli -h server1.example.com \
--adminUID admin --adminPasswordFile pwd-filename \
--bindDNLegacy "cn=Directory Manager" --bindPasswordFileLegacy pwd-
filename \
--dscPasswordFileLegacy pwd-file
```

2. Type 1 to uninstall the gateway.

3. For Windows systems, check the Windows registry for any remaining keys ending with Oracle Unified Directory.

For example:

```
SYSTEM\\CurrentControlSet\\Services\\EventLog\\Application\\Oracle Unified  
Directory
```

8.1.3.3 Uninstalling a Replication Gateway Instance Using a Script

The `uninstall` command provides two options, `--quiet` and `--no-prompt`, for simple scripting. Most directory administrators have their preferred scripting language for automating their system tasks. Oracle Unified Directory provides script-friendly options with its command-line utilities to facilitate quick coding.

1. Create an deinstallation script and add the following `uninstall` command.

You must type the command on a single line.

```
instance-dir/ODU/uninstall --cli -h hostname \  
--adminUID admin --adminPasswordFile pwd-filename \  
--bindDNLegacy bindDN --bindPasswordFileLegacy pwd-filename \  
--dsccPasswordFileLegacy pwd-filename --remove-all --no-prompt \  
--forceOnError --quiet
```

2. Run the script.
3. Check for remaining directories in the logs, and if any directories or files remain, manually delete them.

8.1.3.4 Deleting a Replication Gateway Instance Using WLST

You can delete a replication gateway instance by using the WLST command `oud_deleteInstance`.

To delete a replication gateway instance by using WLST:

1. Connect to WLST as described in [Setting Up the Replication Gateway Using the WebLogic Scripting Tool](#).
2. At the command prompt, enter:

```
oud_deleteInstance(instanceName='instanceName')
```

For example, to delete a replication gateway instance named `oud_replication_gateway` use the following command:

```
oud_deleteInstance(instanceName='oud_replication_gateway')
```

You cannot delete any replication gateway instance in either an UNKNOWN or a RUNNING state.

8.1.4 Removing the Oracle Unified Directory Software

You can run the `deinstall.sh` script (UNIX) or the `deinstall.cmd` command (Windows) to remove the Oracle Unified Directory software from your system.

To uninstall the Oracle Unified Directory software:

1. Change to the following directory:

On UNIX or Linux systems:

```
$ cd $ORACLE_HOME/oui/bin
```

On Windows systems, change to:

```
C:\> ORACLE_HOME\oui\bin
```

2. Enter the following command:

On UNIX or Linux systems:

```
./deinstall.sh
```

On Windows systems:

```
deinstall.cmd
```

3. On the Welcome screen, click **Next**.
4. On the Deinstall Oracle Home screen, verify the location of what is being uninstalled and click **Deinstall**.
You are prompted to check that no Application Server is associated with the ORACLE_HOME that you are about to deinstall.
5. A Warning screen that indicates the directories that will be uninstalled is displayed. Click **Yes** to continue with the deinstallation.
6. On the Deinstallation Complete screen, click **Finish**.

The ORACLE_HOME directory and all of its contents are removed.

9

Managing Oracle Unified Directory as a Windows Service

You can enable or disable the Oracle Unified Directory server as a Microsoft Windows service.

Topics:

- [Managing the Oracle Unified Directory Server as a Windows Service](#)
- [Removing the Oracle Unified Directory Windows Service](#)

9.1 Managing the Oracle Unified Directory Server as a Windows Service

Use the `windows-service` command to enable or disable the Oracle Unified Directory server as a Windows service.

To enable the server as a Windows service, use the following command:

```
C:\> instance-dir\OUD\bat\windows-service.bat -e
```

To disable the server as a Windows service, use the following command:

```
C:\> instance-dir\OUD\bat\windows-service.bat -d
```

See `windows-service` in *Administering Oracle Unified Directory*.

Note:

You can also specify that the Oracle Unified Directory server should run as a Windows service, if you use the GUI installation. On the installation Review panel, select Run the server as a Windows Service.

See also [Configuring the Timeout Value when the Oracle Unified Directory Server Starts](#).

9.1.1 Configuring the Timeout Value when the Oracle Unified Directory Server Starts

If the system is heavily loaded when it boots, the process that starts the server might time out while waiting for the server to start. By default, the server attempts to start 100 times, with an interval of 5 seconds between attempts.

You can configure the number of attempts that the server makes to start by setting the value of the `OUD_WINDOWS_SERVICE_START_NTRIES` system environment variable.

9.2 Removing the Oracle Unified Directory Windows Service

The uninstall process should cleanly uninstall and remove Oracle Unified Directory from your system. However, for Windows platforms, there might be times when the uninstall fails to remove files due to an active Windows service.

You can remove the remaining Windows service in two ways:

- [Removing a Windows Service Using `windows-service.bat`](#)
- [Removing the Oracle Unified Directory Service From the Windows Registry](#)

9.2.1 Removing a Windows Service Using `windows-service.bat`

You can use the `windows-service.bat` command to clean up any existing Windows services. This command is located in `instance-dir\OUD\bat`.

To clean up any existing Windows services:

1. Use the `windows-service.bat` command with the `--cleanupService` option.

Type the `serviceName` that you want to remove.

```
C:\> instance-dir\OUD\bat\windows-service.bat --cleanupService serviceName
```

2. Restart Windows to complete the cleanup.

Note:

This command removes Oracle Unified Directory services only. The command will not clean up another product's services.

9.2.2 Removing the Oracle Unified Directory Service From the Windows Registry

You can manually remove any remaining Windows service entries from the Windows registry.

Caution:

Make sure that you know what you are doing when removing entries in your Windows registry. You can permanently damage your operating system.

1. Run the Task Manager, click the Processes tab, and ensure that `opens_service.exe` is not running.

If it is, select the process and click the End Process button at the bottom right of the Task Manager dialog.

2. Run `regedit` and go down the registry tree following this path.

My Computer->HKEY_LOCAL_MACHINE->SYSTEM->CurrentControlSet->Services->Oracle Unified Directory

If you installed more than one instance of Oracle Unified Directory, the added services are named Oracle Unified Directory-2, Oracle Unified Directory-3, and so on.

Check that the service that you about to remove points to the correct instance.

3. Delete the entry from the Registry.
4. Search the registry for LEGACY_OUD control sets that might be saved in other control sets.

Search the following:

```
HKEY_LOCAL_MACHINE->SYSTEM->ControlSetxyz->Enum->Root->LEGACY_ORACLE_UNIFIED_DIRECTORY-w
```

where *w* is the number of Oracle Unified Directory instances that you have registered as a service and *xyz* is the number of configuration profiles saved on the system. This entry is typically found in ControlSet001, but it can be located elsewhere.

Depending on your profile, your system configuration, and the control set you are trying to edit, the registry entries might be protected from deletion. In this case, you might need Administrator privileges to perform this operation, or the system control set might be refreshed the next time Windows starts successfully, thus confirming that the current configuration is valid.

5. Delete the instance directory to ensure that you have completely uninstalled Oracle Unified Directory.
6. Restart Windows.

The Windows service should be removed.