Oracle® Communications
Unified Inventory Management
Installation Guide
Release 7.4
E88052-03

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Preface

This guide provides instructions for installing Oracle Communications Unified Inventory Management (UIM).

Audience

This document is for system administrators, database administrators, and developers who install and configure UIM. The person installing the software should be familiar with the following topics:

- Operating system commands
- Database configuration
- Oracle WebLogic Server
- Network management

Before reading this guide, you should have familiarity with UIM. See UIM Concepts.

UIM requires Oracle Database and Oracle WebLogic Server. See the documentation for these products for installation and configuration instructions.

Related Documentation

For more information, see the following documents in the Oracle Communications Unified Inventory Management documentation set:

- UIM System Administrator's Guide: Describes administrative tasks such as working with cartridges and cartridge packs, maintaining security, managing the database, configuring Oracle Map Viewer, and troubleshooting.

- UIM Security Guide: Provides guidelines and recommendations for setting up UIM in a secure configuration.

- UIM Concepts: Provides an overview of important concepts and an introduction to using both UIM and Design Studio.

- UIM Developer's Guide: Explains how to customize and extend many aspects of UIM, including the data model, life-cycle management, topology, security, rulesets, user interface, and localization.

- UIM Web Services Developer's Guide: Describes the UIM Service Fulfillment Web Service operations and how to use them, and describes how to create custom Web services.
- **UIM API Overview**: Provides detailed information and code examples of numerous APIs presented within the context of a generic service fulfillment scenario, and within the context of a channelized connectivity enablement scenario.

- **UIM Information Model Reference**: Describes the UIM information model entities and data attributes, and explains patterns that are common across all entities. This document is available on the Oracle Software Delivery Cloud as part of the Oracle Communications Unified Inventory Management Developer Documentation package.

- **Oracle Communications Information Model Reference**: Describes the Oracle Communications information model entities and data attributes, and explains patterns that are common across all entities. The information described in this reference is common across all Oracle Communications products. This document is available on the Oracle Software Delivery Cloud as part of the Oracle Communications Unified Inventory Management Developer Documentation package.

- **UIM Cartridge Guide**: Provides information about how you use cartridges and cartridge packs with UIM. Describes the content of the base cartridges.

- **UIM NFV Orchestration Implementation Guide**: Provides information about the NFV Orchestration functional module and includes how to install, use, and extend this functionality. This guide also provides reference information for the NFV Orchestration RESTful APIs.

For step-by-step instructions for performing tasks, log in to each application to see the following:


- UIM Help: Provides step-by-step instructions for tasks you perform in UIM.

### Documentation Accessibility


### 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](http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info) or visit [http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs](http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs) if you are hearing impaired.

### Documentation Revision History

The following table lists the revision history for this document:

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>E88052-01</td>
<td>December 2017</td>
<td>Initial Release.</td>
</tr>
<tr>
<td>E88052-02</td>
<td>November 2018</td>
<td>Updated the following chapters:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Chapter 2, &quot;Unified Inventory Management System Requirements&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Chapter 9, &quot;Upgrading Unified Inventory Management&quot;</td>
</tr>
</tbody>
</table>
This chapter provides an overview of the installation process of Oracle Communications Unified Inventory Management (UIM).

Overview of the UIM Installation Procedure

Installing UIM involves a number of steps that you or others must complete:

1. Review system requirements. See "Unified Inventory Management System Requirements".
2. Install Oracle Database and configure it for UIM. See "Installing and Configuring the Oracle Database".
3. Install Oracle WebLogic Server and configure it for UIM. See "Installing and Configuring Oracle WebLogic Server".
4. Install UIM. See "Installing Unified Inventory Management".
5. Perform post-installation configuration tasks. See "Unified Inventory Management Post-Installation Tasks".
6. Verify the installation. See "Verifying the Unified Inventory Management Installation".
7. Upgrade UIM. See "Upgrading Unified Inventory Management".
8. (Optional) Troubleshooting UIM. See "Troubleshooting the Unified Inventory Management Installation".
9. Install UIM patches. See "Installing UIM Patches".
10. (Optional) Configure Oracle Maps. See "Configuring Oracle Maps".
11. (Optional) Uninstall UIM. See "Uninstalling Unified Inventory Management".

Installation Options

There are many options you can choose during installation. This section describes the options that have the largest impact on the installation process.

Interactive Install and Silent Install

"Installing Unified Inventory Management" describes the following ways you can install UIM:
Ensuring a Successful UIM Installation

UIM installation should be performed only by qualified personnel. You must be familiar with the following before you begin the installation:

- UNIX operating system
- Oracle WebLogic Server administration
- Oracle Database administration

Additionally, you should have experience installing Java-related packages.

Follow these guidelines:

- Pay close attention to the system requirements. Before you begin installing the application, ensure your system has the required base software. In addition, ensure that you know all of the required configuration values, such as host names and port numbers.
- Make a note of any new configuration values as you create them. You will be required to enter configuration values later in the procedure.
- As you install each component, verify that it installed successfully before continuing the installation process.
- Monitor the installation log files, to verify the installation events. See "Checking the Installation Logs" for information on the installation log files.

Directory Placeholders Used in This Guide

Table 1–1 lists the placeholders that are used in this guide to refer to directories related to the UIM application.

<table>
<thead>
<tr>
<th>Placeholder</th>
<th>Directory Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UIM_Home</td>
<td>The directory in which the UIM software is installed. This directory contains various installation-related files.</td>
</tr>
<tr>
<td>MW_Home</td>
<td>The directory in which the Oracle Fusion Middleware products are installed. This directory contains the base directory for the WebLogic Server, a utilities directory, and other files and directories.</td>
</tr>
<tr>
<td>WL_Home</td>
<td>The directory in which the WebLogic Server is installed. It is located in the MW_Home directory.</td>
</tr>
<tr>
<td>Domain_Home</td>
<td>The directory containing the configuration for the domain into which UIM is installed. The default location is MW_Home/user_projects/domains/domain_name, where domain_name is the name of the WebLogic server domain for UIM.</td>
</tr>
</tbody>
</table>
Unified Inventory Management System Requirements

This chapter describes the hardware, operating system, software, server, and database requirements for installing Oracle Communications Unified Inventory Management (UIM).

**Software Requirements**

UIM consists of a base application that is installed on an Oracle WebLogic server domain. It connects with an Oracle database to store all relevant information, and can connect to a report publishing tool if you require reports to be published. You must install and connect all required software with UIM for optimal performance.

**Supported Operating Systems**

Table 2–1 lists operating systems that support the UIM server. Use the My Oracle Support Certifications tab to access the latest software platform support information. See knowledge article 1491004.1 or the My Oracle Support Help on the My Oracle Support website for additional information:

https://support.oracle.com

<table>
<thead>
<tr>
<th>Product</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oracle Linux on x86 (64-bit)</td>
<td>Linux 6.6 or later (with the latest available updates)</td>
</tr>
<tr>
<td></td>
<td>Linux 7.1 or later (with the latest available updates)</td>
</tr>
<tr>
<td>Red Hat Enterprise Linux on x86 (64-bit)</td>
<td>Linux 6.6 or later (with the latest available updates)</td>
</tr>
<tr>
<td></td>
<td>Linux 7.1 or later (with the latest available updates)</td>
</tr>
<tr>
<td>Oracle Solaris on SPARC (64-bit)</td>
<td>11.2 or later</td>
</tr>
<tr>
<td>IBM AIX on POWER Hardware (64-bit)</td>
<td>7.1 Technology Level (TL)</td>
</tr>
<tr>
<td>HP-UX Itanium</td>
<td>11i v3 (11.31)</td>
</tr>
</tbody>
</table>

**Note:** UIM is not certified to run on Windows; however, you can install UIM on Windows x64 (Windows 7 or 10) for development, demonstration, or test environments.
**Required Software**

Table 2–2 lists software required on the server for installing and running UIM.

### Table 2–2  Required Server-Side Software

<table>
<thead>
<tr>
<th>Product</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oracle WebLogic Server Enterprise Edition (included with the Oracle Fusion Middleware WebLogic Server and Coherence distribution in the Oracle Fusion Middleware software)</td>
<td>12c (12.2.1.3.0)</td>
</tr>
<tr>
<td>Oracle Fusion Middleware Application</td>
<td>12c (12.2.1.3.0)</td>
</tr>
<tr>
<td>Development Runtime, including Enterprise Manager and Repository Creation Utility (included with the Oracle Fusion Middleware Infrastructure distribution in the Oracle Fusion Middleware software)</td>
<td></td>
</tr>
<tr>
<td>Oracle Application Development Framework Patch</td>
<td>27075612</td>
</tr>
<tr>
<td>Oracle Java SE Development Kit (JDK) for Linux or Solaris</td>
<td>Java 8 with latest critical patch update</td>
</tr>
<tr>
<td>IBM Java SE Runtime Environment for IBM AIX</td>
<td>Java 8 with latest critical patch update</td>
</tr>
<tr>
<td>Java SE Runtime Environment for HP-UX</td>
<td>Java 8 with latest critical patch update</td>
</tr>
<tr>
<td>AspectJ</td>
<td>AspectJ 1.8.10</td>
</tr>
<tr>
<td>Oracle Database Enterprise Edition</td>
<td>12c Release 2 (12.2.0.1)</td>
</tr>
<tr>
<td></td>
<td>Includes support for multitenant container database (CDB) and pluggable database (PDB)</td>
</tr>
</tbody>
</table>

The UIM Installer checks for all required software and displays errors if it detects any missing or unavailable components, or if there are any connectivity related issues.

**Note:** The required patches can be found using the following website:

https://support.oracle.com

and searching under the product *Oracle Communications Unified Inventory Management*.

Table 2–3 lists software required to access the UIM UI.

### Table 2–3  Required Client-Side Software

<table>
<thead>
<tr>
<th>Product</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td>Microsoft Windows 7 and Microsoft Windows 10</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> UIM does not support the touch screen feature in Windows 10.</td>
</tr>
<tr>
<td>Java Runtime Environment (JRE)</td>
<td>Java 8 with latest critical patch update</td>
</tr>
</tbody>
</table>
Design Studio is required for developing cartridges that extend UIM. Install Design Studio on a computer with network access to the UIM server.

For Oracle Communications Design Studio plug-in installation information, see Design Studio Installation Guide.

**Supported Software**

Table 2-4 lists additional software that is supported by UIM. You optionally install these supported software items as needed for your requirements.

<table>
<thead>
<tr>
<th>Product</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web Browser</td>
<td>Microsoft Internet Explorer (IE) 11</td>
</tr>
<tr>
<td></td>
<td>Microsoft Edge 40 or later</td>
</tr>
<tr>
<td></td>
<td>Mozilla Firefox 45.x</td>
</tr>
<tr>
<td></td>
<td>Chrome 51</td>
</tr>
<tr>
<td>Oracle Communications Design Studio</td>
<td>See Design Studio Compatibility Matrix (included in the Design Studio documentation) for Design Studio compatibility information.</td>
</tr>
<tr>
<td>Oracle Fusion Middleware JDeveloper Studio Generic</td>
<td>12c (12.2.1.3)</td>
</tr>
</tbody>
</table>

Supported software is installed and licensed separately from UIM.

**Hardware Sizing Guidelines**

Table 2-5 provides hardware sizing guidelines for UIM.

---

**Note:** The information in this section is meant as a guideline only. The values in this section are approximate. Accurate sizing for a production system requires a detailed analysis of the proposed business requirements.

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**Note:** For information on hardware sizing requirements for HP-UX Itanium, contact Oracle Support.
Information Requirements

During UIM installation, you are required to enter configuration values such as host names and port numbers. You define some of these configuration values when you install and configure the Oracle database and WebLogic Server.

If you have already installed Oracle Communications products, the installer reads the values from the existing Oracle Communications products and uses them as default values. If no Oracle Communications products are installed, the installer uses the default values shown in the following tables.

**Note:** The UIM installer supports Internet Protocol version 6 (IPv6) addresses. You can install and deploy UIM on servers that support IPv6 addresses.

<table>
<thead>
<tr>
<th>Deployment Size</th>
<th>Small</th>
<th>Medium</th>
<th>Large</th>
</tr>
</thead>
<tbody>
<tr>
<td>Services/day</td>
<td>&lt;= 600,000</td>
<td>&lt;= 1,500,000</td>
<td>&lt;= 3,000,000</td>
</tr>
<tr>
<td># of Subscribers Base (in Millions)</td>
<td>20</td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>SPARC/Solaris Platform - Application Server</td>
<td>CPU: Two T4 core @ 2.85 GHz - 32 threads</td>
<td>CPU: Eight T4 cores @ 2.85 GHz - 64 threads</td>
<td>CPU: Sixteen T4 cores @ 2.85 GHz - 128 threads</td>
</tr>
<tr>
<td></td>
<td>RAM: 16 GB</td>
<td>RAM: 48 GB</td>
<td>RAM: 96 GB</td>
</tr>
<tr>
<td></td>
<td>HDD: 2 X 300 GB (RAID1)</td>
<td>HDD: 2 X 300 GB (RAID1)</td>
<td>HDD: 2 X 300 GB (RAID1)</td>
</tr>
<tr>
<td>SPARC/Solaris Platform - Database Server</td>
<td>CPU: One T4 core @ 2.85 GHz - 8 threads</td>
<td>CPU: Four T4 cores @ 2.85 GHz - 32 threads</td>
<td>CPU: Eight T4 cores @ 2.85 GHz - 64 threads</td>
</tr>
<tr>
<td></td>
<td>RAM: 8 GB</td>
<td>RAM: 32 GB</td>
<td>RAM: 64 GB</td>
</tr>
<tr>
<td></td>
<td>HDD: 2 X 300 GB (RAID1)</td>
<td>HDD: 2 X 300 GB (RAID1)</td>
<td>HDD: 2 X 300 GB (RAID1)</td>
</tr>
<tr>
<td></td>
<td>Storage: 750 GB (RAID 1+0)</td>
<td>Storage: 1.5TB GB (RAID 1+0)</td>
<td>Storage: 3 TB (RAID 1+0)</td>
</tr>
<tr>
<td>x86-64/Linux Platform - Application Server</td>
<td>CPU: Four core - Intel E7/5600 family @ 2.66 GHz or higher - 8 threads</td>
<td>CPU: Sixteen core - Intel E7/5600 family @ 2.66 GHz or higher - 32 threads</td>
<td>CPU: Thirty two core - Intel E7/5600 family @ 2.66 GHz or higher - 64 threads</td>
</tr>
<tr>
<td></td>
<td>RAM: 16 GB</td>
<td>RAM: 48 GB</td>
<td>RAM: 96 GB</td>
</tr>
<tr>
<td></td>
<td>HDD: 2 X 300 GB (RAID1)</td>
<td>HDD: 2 X 300 GB (RAID1)</td>
<td>HDD: 2 X 300 GB (RAID1)</td>
</tr>
<tr>
<td></td>
<td>Storage: 750 GB (RAID 1+0)</td>
<td>Storage: 1.5 TB (RAID 1+0)</td>
<td>Storage: 3 TB (RAID 1+0)</td>
</tr>
<tr>
<td>x86-64/Linux Platform - Database Server</td>
<td>CPU: Two core - Intel E7/5600 family @ 2.66 GHz or higher - 4 threads</td>
<td>CPU: Eight core - Intel E7/5600 family @ 2.66 GHz or higher - 16 threads</td>
<td>CPU: Sixteen core - Intel E7/5600 family @ 2.66 GHz or higher - 32 threads</td>
</tr>
<tr>
<td></td>
<td>RAM: 8 GB</td>
<td>RAM: 32 GB</td>
<td>RAM: 64 GB</td>
</tr>
<tr>
<td></td>
<td>HDD: 2 X 300 GB (RAID1)</td>
<td>HDD: 2 X 300 GB (RAID1)</td>
<td>HDD: 2 X 300 GB (RAID1)</td>
</tr>
<tr>
<td></td>
<td>Storage: 750 GB (RAID 1+0)</td>
<td>Storage: 1.5 TB (RAID 1+0)</td>
<td>Storage: 3 TB (RAID 1+0)</td>
</tr>
</tbody>
</table>

**Note:** Based on the GSM 3GPP cartridge pack, one service invokes five Web service operations against UIM.

DB Storage is listed without retention calculations. Storage requirements will increase with number of subscriber population and retention period requirements.
Each chapter contains tables for the configuration values.
Information Requirements
This chapter describes the process of installing the Oracle Database and configuring the Oracle database for Oracle Communications Unified Inventory Management (UIM).

Installing Oracle Database

The Oracle Universal Installer checks for a database to connect to during the installation process. Ensure that a database is running before you start installing UIM. If you already have a database running, you must create a tablespace for UIM.

Download and install Oracle Database for this version of UIM. See "Required Software" for the appropriate version of Oracle Database to install.

For information on installing Oracle Database, see the Oracle Database installation documentation.

---

**Note:** UIM uses Oracle Locator, which must be installed prior to the UIM installation. When you install Oracle Database, Oracle MultiMedia is installed; and when Oracle MultiMedia is installed, Oracle Locator is installed.

You can also install Oracle MultiMedia manually if necessary. For more information, see Oracle MultiMedia User’s Guide at:

http://docs.oracle.com/database/122/IMURG/toc.htm

---

Configuring Oracle Database

The Oracle database must be configured for UIM. Specifically, this section covers the following:

- Database Connection Information
- Setting the Database Parameters
- Setting the Database Time Zone
- Creating and Configuring Your Tablespaces
- Creating the Database (MetaData) Schema for UIM
- Installing and Configuring Oracle Database Real Application Clusters
- Tuning the Database
- Enabling and Configuring Server Affinity
**Database Connection Information**

Table 3–1 lists database connection details that you are required to provide during the Oracle Database installation.

<table>
<thead>
<tr>
<th>Information Type</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hostname</td>
<td>Host name of the server where you install the Oracle database.</td>
<td>This option has no default value.</td>
</tr>
<tr>
<td>Port number</td>
<td>The number assigned to this specific port. Port numbers are usually predefined and you can accept the provided default value.</td>
<td>1521</td>
</tr>
<tr>
<td>User name</td>
<td>Your database user name. You define the user name when you install the database.</td>
<td>sys</td>
</tr>
<tr>
<td>Password</td>
<td>The password to connect to the database as the user for which you provided the user name. You define this password along with the user name during database installation.</td>
<td>This option has no default value.</td>
</tr>
<tr>
<td>Service Name</td>
<td>The name of the database service or instance to remotely connect to the database.</td>
<td>orcl</td>
</tr>
</tbody>
</table>

**Setting the Database Parameters**

If you are installing Oracle Database on a UNIX system, set the following parameters:

- 8-bit ASCII character set
- NLS_LANG=AMERICAN_AMERICA.WE8ISO8859P1 (for English)
  
  or

  NLS_LANG=AL32UTF8 (for any other language)

**Setting the Database Time Zone**

The Oracle database must have the correct time zone setting because UIM uses the datatype TIMESTAMP WITH LOCAL TIME ZONE in its database schema.

See Oracle Database Globalization Support Guide for information and instructions on setting the time zone.

**Note:** After UIM is installed, the database time zone cannot be changed. Ensure the time zone is correctly set before installing UIM.

**Note:** The Database server and the Application server must be in the same time zone.

**Creating and Configuring Your Tablespaces**

You must set up your tablespaces before installing UIM. For a minimum installation, there are at least two tablespaces, one permanent and one temporary.

The permanent tablespace stores UIM data, and the temporary tablespace is used by Oracle as a workspace while processing UIM commands. For a minimum installation,
place the UIM data in one permanent tablespace. Tablespaces should be created by an experienced Oracle DBA. For assistance, contact Oracle.

In a high-throughput system, create each tablespace or set of data files on a different physical disk. Place the Oracle redo log files on a separate physical disk. You should not have any other load on this disk.

In a production system, use a RAID device for physical storage.

This example shows how to create your permanent tablespace:

```sql
create tablespace large_data
  datafile '/u01/oradata/UIM/data_001M01_01.dbf' size 2200M
  extent management local
  uniform size 1M;
```

This example shows how to create your temporary tablespace:

```sql
create temporary tablespace large_temp
  tempfile '/u01/oradata/UIM/temp_001M01_01.dbf' size 1600M
  extent management local
  uniform size 1M;
```

**Note:** If you are using Chinese UTF8 characters, the block size for the tablespaces must be configured larger than 2 KB.

---

### Creating the Database (MetaData) Schema for UIM

The MetaData schema is an Oracle Fusion Middleware component that is required by UIM. You create the schema using the Oracle Fusion Middleware Repository Creation Utility (RCU). RCU enables you to create and drop database schemas that are required for Fusion Middleware products.

**Note:** A new schema must be created for all new UIM installations. Upgrade installations will use the schema created during the installation of that UIM instance.

The RCU can run on the Linux (32 bit) and Microsoft Windows platforms. A Linux or Windows system can be used to remotely access and configure the database.

RCU for Linux or Microsoft Windows is available with the Oracle Fusion Middleware Infrastructure distribution.

**Note:** For information about how to install this software and obtain RCU, see Oracle Fusion Middleware Installing and Configuring the Oracle Fusion Middleware Infrastructure at:

http://docs.oracle.com/middleware/12213/lcm/INFIN/toc.htm

For information on creating the MetaData schema, see the Oracle Fusion Middleware Repository Creation Utility User’s Guide.
**Schema User Name Information**

Table 3–2 lists schema user details that you are required to provide during schema installation.

<table>
<thead>
<tr>
<th>Information Type</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schema User Name</td>
<td>Your schema user name that you will use to access the UIM schema.</td>
<td>This option has no default value.</td>
</tr>
<tr>
<td>Schema User Password</td>
<td>The password to access the UIM schema for the schema user you defined.</td>
<td>This option has no default value.</td>
</tr>
</tbody>
</table>

**Caution:** If you attempt to create a common user or role, and the following Oracle Database error message is returned:

ORA-65096: invalid common user or role name

refer to "Problem: RCU Creation Fails Due to Invalid Common User or Role Name".

To create the schema for UIM using RCU:

1. Export the environment variables by running one of the following commands:
   ```
   export JAVA_HOME=$JDK_HOME
   
or
   export ORACLE_HOME=$mw_home
   ```

2. Run the following command:
   ```
   . /MW_Home/oracle_common/bin/rcu
   ```
   The Welcome screen of the Repository Creation Utility appears.

3. Click **Next**.
   The Create Repository screen appears.

4. Select **Create Repository, System Load and Product Load**, and click **Next**.
   The Database Connection Details screen appears.

5. Do the following:
   a. From the **Database Type** list, select **Oracle Database**.
   b. In the **Host Name** field, enter the database system host name or IP address.
   c. In the **Port** field, enter the port number for the system hosting the database.
   d. In the **Service Name** field, enter the service name.
   e. In the **Username** field, enter the user name for the database user.

   **Note:** This user account must have the following privileges: CATALOG, CONNECT, Create User, Create Session, Grant Any Privilege, Grant Any Role, Select Any Table, Select any Dictionary.
f. In the Password field, enter the password for the database user.

g. From the Role list, select SYSDBA.

h. Click Next.

   The Checking Global Prerequisites screen appears, displaying the progress of establishing the connection with the specified database.

i. Click OK.

   The Select Components screen appears.

6. On the Select Components screen, do the following:

   a. Select Create new prefix and enter the prefix value.

      The prefix is any appropriate name for your schema. RCU adds a suffix to this name.

   b. Expand Oracle AS Repository Components.

   c. Expand AS Common Schemas and select Metadata Services, Audit Services, Audit Services Append, Audit Services Viewer, and Oracle Platform Security Services.

   d. Click Next.

      The Checking Component Prerequisites screen appears, displaying the progress of the component prerequisites check before the schemas are created.

   e. Click OK.

      The Schema Passwords screen appears.

7. Select Use same password for all schemas.

   Caution: You must use the same user name and password when providing UIM schema user information during UIM installation.

8. In the Password field, enter the password for the schema.

9. In the Confirm Password field, enter the password for the schema again and click Next.

   The Map Tablespaces screen appears.

10. Review the entries on the Map Tablespaces screen and click Next.

    (Optional) To create new tablespaces or modify existing tablespaces, click Manage Tablespaces.

    The RCU Confirmation screen appears.
11. Click OK.

The Creating Tablespaces progress screen appears, displaying details of the creation and validation of the tablespaces.

12. Click OK.

The Summary screen appears. Review and verify the information you have provided.

13. Click Create.

The Completion Summary screen appears, displaying details of the newly created repository.

14. Click Close.

15. Tune the authorization properties on the OPSS schema. Set the -Djps.subject.cache.key Java system property to 5.

See Oracle Fusion Middleware Performance and Tuning Guide for more information.

Installing and Configuring Oracle Database Real Application Clusters

If your network data requires multiple databases for storage purposes, Oracle recommends Oracle Real Application Clusters for high availability and scalability. Refer to the Oracle Real Application Clusters documentation on the Oracle Help Center.

Database Connection Information for Real Application Clusters Database

Table 3–3 lists database connection details for an Oracle Real Application Clusters (Oracle RAC) database that you are required to provide during the Oracle RAC installation.

<table>
<thead>
<tr>
<th>Information Type</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAC Database Connection String</td>
<td>The information string that is used to connect to the Oracle RAC database.</td>
<td>This option has no default value.</td>
</tr>
<tr>
<td>User name</td>
<td>Your database user name. You define the user name when you install the database.</td>
<td>sys</td>
</tr>
<tr>
<td>Password</td>
<td>The password to connect to the database as the user for which you provided the user name. You define this password along with the user name during database installation.</td>
<td>This option has no default value.</td>
</tr>
</tbody>
</table>

Tuning the Database

Table 3–4 and Table 3–5 provide recommended database parameters for tuning your database for the UIM installation. These are the minimum requirements for UIM.
Server affinity is a performance feature that ensures all database operations performed on data on an Oracle RAC cluster are directed to the same Oracle RAC instance. When server affinity is enabled and configured, the target Oracle RAC instance is determined by data. For example, a business interaction ID; in this scenario, server affinity ensures all operations that operate on a business interaction ID are routed to the same Oracle RAC node, reducing global cache transfers.

Server affinity is also known as data affinity.

**Table 3–4 Database Creation Parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Recommended Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SGA+PGA</td>
<td>At least 4 GB in total. Oracle recommends that you use as much memory as you have available in the system, and also use Automatic Memory Management.</td>
</tr>
<tr>
<td>Processes</td>
<td>2000</td>
</tr>
<tr>
<td>Connection mode</td>
<td>Dedicated server</td>
</tr>
<tr>
<td>Redo log file size</td>
<td>1024 MB minimum</td>
</tr>
</tbody>
</table>

**Table 3–5 Database Initialization Parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Recommended Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>db_file_multiblock_read_count</td>
<td>16</td>
</tr>
<tr>
<td>distributed_lock_timeout</td>
<td>1800</td>
</tr>
<tr>
<td>dml_locks</td>
<td>9700</td>
</tr>
<tr>
<td>job_queue_processes</td>
<td>10</td>
</tr>
<tr>
<td>log_buffer</td>
<td>31457280</td>
</tr>
<tr>
<td>open_cursors</td>
<td>5000</td>
</tr>
<tr>
<td>parallel_max_servers</td>
<td>640</td>
</tr>
<tr>
<td>plsql_code_type</td>
<td>NATIVE</td>
</tr>
</tbody>
</table>

**Enabling and Configuring Server Affinity**

Server affinity is a performance feature that ensures all database operations performed on data on an Oracle RAC cluster are directed to the same Oracle RAC instance. When server affinity is enabled and configured, the target Oracle RAC instance is determined by data. For example, a business interaction ID; in this scenario, server affinity ensures all operations that operate on a business interaction ID are routed to the same Oracle RAC node, reducing global cache transfers.

Server affinity is also known as data affinity.

**Note:** By default, UIM uses extended architecture (XA) affinity. Server affinity differs from XA affinity in that XA affinity ensures all database operations performed on an Oracle RAC cluster within the context of a transaction are directed to the same Oracle RAC instance. In XA affinity, the affinity context is established based on the global transaction id, whereas in server affinity the affinity context is established based on the data.

In UIM, server affinity is based on EclipseLink partitioning. See the EclipseLink documentation for more information on EclipseLink partitioning:

http://wiki.eclipse.org/EclipseLink/Examples/JPA/Partitioning

To enable and configure server affinity:
1. Update the following property value in the `UIM_Home/config/affinity-config.properties` file to `true`:

   `uim.affinity.configuration.enabled=true`

2. In the WebLogic Server Administration Console, create JDBC Multi Data Sources pointing to each node in the Oracle RAC cluster. For example, if there are two nodes in the Oracle RAC cluster, define two Multi Data Sources by doing the following:

   a. Create two generic data sources pointing to both nodes in the Oracle RAC.
      For example:
      - `InventoryTxAffinityNode1`
        with JNDI name `jdbc/InventoryTxAffinityNode1`
      - `InventoryTxAffinityNode2`
        with JNDI name `jdbc/InventoryTxAffinityNode2`

   b. Create a Multi Data Source with JNDI name `jdbc/InventoryTxNode1DataSource`.

   c. Add `InventoryTxAffinityNode1` to the Multi Data Source, and select the Algorithm Type of `Failover`.
      This defines `InventoryTxAffinityNode1` as a data source pointing to Node1 while Node1 is up, and which fails over to Node2 if Node1 is down.

   d. Add `InventoryTxAffinityNode2` to the Multi Data Source, and select the Algorithm Type of `Failover`.
      This defines `InventoryTxAffinityNode2` as a data source pointing to Node2 while Node2 is up, and which fails over to Node1 if Node2 is down.

   e. Create a Multi Data Source with JNDI name `jdbc/InventoryTxNode2DataSource`.

   f. Add `InventoryTxAffinityNode2` to the Multi Data Source, and select the Algorithm Type of `Failover`.
      This defines `InventoryTxAffinityNode2` as a data source pointing to Node2 while Node2 is up, and which fails over to Node1 if Node2 is down.

   g. Add `InventoryTxAffinityNode1` to the Multi Data Source, and select the Algorithm Type of `Failover`.
      This defines `InventoryTxAffinityNode1` as a data source pointing to Node1 while Node1 is up, and which fails over to Node2 if Node1 is down.

Figure 3–1 shows the server affinity example that step 2 describes. In the figure, the solid arrows indicate the primary path, and the dotted arrows indicate the secondary path.
3. Repeat step 2 for each node that is available. Ensure that every node in the Oracle RAC has a Multi Data Source that is primary.

4. In the `UIM_Home/config/affinity-config.properties` file, configure the data sources that you created by specifying the following (provide name and JNDI name):

   uim.affinity.connectionpool.name.1 = node1
   uim.affinity.connectionpool.node1.datasource = jdbc/InventoryTxNode1DataSource
   uim.affinity.connectionpool.name.2 = node2
   uim.affinity.connectionpool.node2.datasource = jdbc/InventoryTxNode2DataSource

   Note: If a new node is added, this list must be updated to include the new node, and the WebLogic Server must be restarted.

5. The affinity policy that is provided with the UIM installation is based on ID. If this does not meet your requirements, you can define an affinity policy that does meet your requirements in the `UIM_Home/config/affinity-config.properties` file.

   Table 3–6 lists and describes the properties that define an affinity policy.
### Table 3–6  Affinity Policy Property Names and Descriptions

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Property Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>uim.affinity.policy.name</td>
<td>Name of the affinity policy. The name of your affinity policy, <code>policyName</code>, is then used in the remaining property names.</td>
</tr>
<tr>
<td>uim.affinity.policyName.algorithm</td>
<td>Determines the Java class that implements this algorithm. The default value should be <code>oracle.communications.inventory.api.framework.persistence.affinity.ExtendedHashPartitioningPolicy</code>.</td>
</tr>
<tr>
<td>uim.affinity.policyName.key</td>
<td>The context ID, which determines the Oracle RAC node.</td>
</tr>
<tr>
<td>uim.affinity.policyName.connectionpools</td>
<td>List of connection pools the affinity policy uses.</td>
</tr>
<tr>
<td>uim.affinity.policyName.entity.list</td>
<td>List of entities to which the affinity policy is applied.</td>
</tr>
</tbody>
</table>
Oracle Communications Unified Inventory Management (UIM) is installed and run on Oracle WebLogic Server. This chapter describes procedures relating to installing the WebLogic Administration Server and configuring it for UIM.

**About Java Requirements**

WebLogic Server is a Java application and needs a Java environment in which to run. When WebLogic Server is installed on IBM AIX, Oracle recommends installing IBM Java.

When WebLogic Server is installed on Linux x86 or Solaris, Oracle recommends that you use the Oracle Java Development Kit (JDK).

**Installing IBM Java**

Download the Java SDK from the IBM website.

For information on installing IBM Java, see the IBM Java installation documentation.

**Installing the Oracle JDK**

Use a 64-bit Java Runtime Environment (JRE) on a 64-bit operating system (OS) for a successful UIM installation. The JRE is contained in the JDK.

Download JDK for the required platform from the Oracle Technology Network website:

http://www.oracle.com/technology

For information on installing the JDK, see the JDK installation documentation.

**Downloading and Installing Oracle WebLogic Server**

Oracle WebLogic Server is available as a component of the Oracle Communications Unified Inventory Management software. Oracle Communications Unified Inventory Management includes WebLogic Server, JDeveloper, and other software. See Table 2–2, "Required Server-Side Software" for the appropriate versions.

Download Oracle WebLogic Server from the Oracle software delivery website.

https://edelivery.oracle.com/
Installing Oracle Application Development Runtime

**Note:** The Oracle WebLogic Server software is available in a 32-bit version, for each supported platform, and in a generic 64-bit version, supported across all the platforms.

For information about installing Oracle WebLogic Server, see the Oracle WebLogic Server documentation.

**Tip:** You can launch the Oracle WebLogic Server installation from a command line by entering the following:

```bash
JAVA_HOME/bin/java -jar fmw_fmwVersion_wls.jar
```

where `fmwVersion` is the Fusion Middleware release version number.

### Installing Patches

After you install Oracle WebLogic Server, you must install any applicable patches. Download the patches from the My Oracle Support website:

[https://support.oracle.com](https://support.oracle.com)

You apply patches using the OPatch tool. For information about downloading and applying patches, see *Oracle Fusion Middleware Install, Patch and Upgrade* at this website:

[https://docs.oracle.com/middleware/12213/cross/upgrade.htm](https://docs.oracle.com/middleware/12213/cross/upgrade.htm)

For additional information about using the OPatch tool, refer to this document:

[https://docs.oracle.com/middleware/12213/lcm/OPATC/OPATC.pdf](https://docs.oracle.com/middleware/12213/lcm/OPATC/OPATC.pdf)

### Installing Oracle Application Development Runtime

Download Oracle Application Development Runtime from the UIM software on the Oracle software delivery website:

[https://edelivery.oracle.com](https://edelivery.oracle.com)

This software is used to create and manage applications used by UIM.

For installing Oracle Application Development Runtime, see the Oracle Fusion Middleware documentation on the Oracle Help Center.

**Note:** The Oracle Fusion Middleware Application Developer Installer installs both Oracle Application Development Runtime and Oracle Enterprise Manager.

Install Application Developer with the same credentials used to install WebLogic Server.

See *Table 2-2, "Required Server-Side Software"* for Oracle Application Development Runtime patch information.

For more information on the Application Development Framework, see *Oracle Fusion Middleware Understanding Oracle Application Development Framework*.
Installing Optional Software Supported by UIM

Download and install the supported software items as needed for your requirements. See “Supported Software” for the full list of optional software items that are supported by UIM and their required software versions.

**Oracle BI Publisher**

Use BI Publisher to use the reporting templates included with UIM. Optionally download the BI Publisher software from the following website:


Install the BI Publisher software using the information found in the section “Install BI Publisher” on the Oracle Business Intelligence Publisher website:

http://docs.oracle.com/middleware/12213/bip/index.html

**MapViewer**

Use MapViewer to view a network geographically in the UIM Map View page. Optionally download the MapViewer software from the Oracle software delivery website:

https://edelivery.oracle.com

Creating a WebLogic Domain for a Single Server Installation

This section provides instructions on installing UIM on a single server. A single server arrangement is used for a small UIM deployment.

**WebLogic Server Connection Information**

**Table 4–1** lists WebLogic Server connection details that you are required to provide during the WebLogic Server installation.

<table>
<thead>
<tr>
<th>Information Type</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host Name</td>
<td>The host name for this WebLogic Server instance.</td>
<td>current_hostname</td>
</tr>
<tr>
<td>Port Number</td>
<td>The number assigned to this specific port. Port numbers are usually predefined and you can accept the provided default value.</td>
<td>7001</td>
</tr>
<tr>
<td>User Name</td>
<td>Your WebLogic Server user name. You define this name when you install WebLogic Server.</td>
<td>weblogic</td>
</tr>
<tr>
<td>Password</td>
<td>The password to connect to WebLogic Server as the user for which you provided the user name. You define this password along with the user name during the WebLogic Server installation.</td>
<td>This option has no default value.</td>
</tr>
</tbody>
</table>

Creating the Standalone WebLogic Domain

To create a standalone WebLogic domain:

1. Navigate to the following directory:

   `MW_Home/wlserver/common/bin`
2. Enter the following command:

    ./config.sh

    The Configuration Type screen of the Fusion Middleware Configuration Wizard appears.

3. Select the Create a new domain option and in the Domain Location field, enter the full path for the domain or click Browse to navigate to the directory in which your domains are located, and then click Next.

    The Templates screen appears.

4. Select the Create Domain Using Product Templates option and from the provided list, select the following products:

    - Basic WebLogic Server Domain (This product is selected by default and you cannot deselect it.)
    - Oracle Enterprise Manager - 12.2.1.3.0 [em]
    - Oracle JRF - 12.2.1.3.0 [oracle_common]
    - WebLogic Coherence Cluster Extension - 12.2.1.3.0 [wlserver]
    - Oracle MapViewer - 12.2.1.3.0 [oracle_common] (This product is only available if you chose to install MapViewer.)

    **Note:** The selection of the WebLogic Coherence Cluster Extension template for this step does not imply or require the use of the Oracle Coherence product.

5. Click Next.

    The Application Location screen appears.

6. In the Domain name field, enter a domain name.

7. In the Domain location field, enter the path and directory for the domain files. For example, enter the value:

    MW_Home/user_projects/domains/base_domains

8. In the Application location field, enter the path and directory for the application files. For example, enter the value:

    MW_Home/user_projects/applications/application_name

9. Click Next.

    The Administrator Account screen appears.

10. In the Name field, enter the administrator user name.

11. In the Password field, enter the administrator user password. The password must be a minimum of 8 alphanumeric characters, and must contain at least one number or special character.

    In the Confirm Password field, reenter your password.

12. Click Next.

    The Domain Mode and JDK screen appears.

13. In the Domain Mode section, select the Production option.
In the JDK section, select the required JDK (Oracle JDK 1.8.0_<patch> where <patch> is the latest critical update) by doing the following:

- Select **Available JDKs** and select a JDK from the list provided.

  or

- Select **Other JDK** and browse to the location of another JDK. Ensure that this JDK is supported. See Table 2–2, "Required Server-Side Software" for details.

14. Click **Next**.

The Database Configuration Type screen appears.

15. Select the **RCU Data** option and enter the connection information that you specified for the Service Table (STB) schema component in the Repository Creation Utility (RCU):

   a. In the **Vendor** field, select the vendor name for the component schema.

   b. In the **DBMS/Service** field, enter the database management system or service name for the component schema.

   c. In the **Driver** field, select the driver used by the component schema.

   d. In the **Host Name** field, enter the host name/IP address for the component schema.

   e. In the **Port** field, enter the port number used by the schema component.

   f. In the **Schema Owner** field, enter the owner name for the schema component.

   g. In the **Schema Password** field, enter the password for the schema component.

   h. Click **Get RCU Configuration**, which retrieves the schema information.

   i. After the schema information is retrieved successfully, click **Next**.

The Component Datasources screen appears.

16. Do one of the following:

   - For single-instance database: Verify the values in the fields and click **Next**, the JDBC Test screen appears. Continue with step 17.

   - For Oracle Real Application Clusters (RAC) database: Select the **Convert to RAC multi data source** check box and click **Next**.

   The Oracle RAC Multi Data Source Component Schema screen appears.

   a. From the **Driver** list, select **Oracle's Driver (Thin) for RAC Service-Instance connections; Versions:10 and later**.

   b. In the **Service Name** field, enter the service name for the RAC database.

   c. In the **Username** field, enter the owner name of the schema component.

   d. In the **Password** field, enter the password for the schema component.

   e. In the **Host Name** field, enter the host name/IP address of the machine configured for RAC database.

   f. In the **Instance Name** field, enter the SID of the host.
g. In the **Port** field, enter the configured port of the host.

h. Add additional hosts by clicking **Add Host** and repeat steps e through g for each new host added.

i. Click **Next**.
   
The JDBC Test screen appears, which enables you to test the configurations for the schemas.

17. Select the check boxes beside the schemas you want to test and click **Test Selected Connections**.

18. Verify that all the JDBC component connections pass the validation test and click **Next**.
   
The Advanced Configuration screen appears.

19. Select the following:
   
   - **Administration Server**

20. Click **Next**.
   
The Administration Server screen appears.

21. Do the following:

   a. In the **Server Name** field, enter the Administration Server name.
   
   This single server serves as the UIM domain Administration Server.

   b. In the **Listen Address** field, select a DNS or an IP address.

   c. In the **Listen Port** field, accept the default.

   d. Select the **Enable SSL** check box to enable SSL.
   
   It is not a requirement to either enable or disable SSL.
   
   If you decide to enable SSL, ensure that you configure SSL for WebLogic Server using correct cipher suites.
   
   For more information, see “Configuring SSL in Oracle Fusion Middleware” in
   *Fusion Middleware Administering Oracle Fusion Middleware* at:
   
   [http://docs.oracle.com/middleware/1221/core/ASADM/sslconfig.htm#ASADM1800](http://docs.oracle.com/middleware/1221/core/ASADM/sslconfig.htm#ASADM1800)

   e. In the **SSL Listen Port** field, enter a port that is not used by another domain.
   
   This field is enabled only if you selected the **Enable SSL** check box.

   f. In the **Server Groups** list, select the **MAPVIEWER-MAN-SVR** and **JRF-MAN-SVR** groups.
   
   The **Server Groups** list may not display both the groups if you did not install MapViewer.

   g. Click **Next**.
   
The Configuration Summary screen appears.

**Note:** Use listener addresses that are equal to a resolvable DNS host or IP address. Do not use *localhost* or **127.0.0.1**. Those addresses interfere with clustered servers.
22. Review the summary to verify the contents of your domain.
   (Optional) Click Previous to return to prior screens to modify their content.

23. Click Create to create the domain.

24. To finish the domain creation process, click Done, after the domain is created successfully.
   See Oracle Fusion Middleware documentation for more information.

25. To set memory requirements, see "Setting Memory Requirements for UIM".

26. Start the WebLogic server. See "Starting the WebLogic Server".

For more information on WebLogic domains, see Oracle WebCenter Content documentation.

You can now manually start the Administration Server, and log in to the WebLogic Server Administration Console.

Starting the WebLogic Server

To start the WebLogic server:

1. Open a command window.

2. Navigate to the Domain_Home directory, and enter the following command:
   ```
   ./startWebLogic.sh
   ```
   The script starts the WebLogic server.

3. Verify that the server started:
   a. In a Web browser, enter:
      ```
      http://ServerName:Port/console
      ```
      where ServerName is the name of the Administration Server machine and Port is the Administration Server port number.
   b. Enter the WebLogic server administration user name and password.
   c. In the Domain Structure tree, expand Environment, and click Servers.
      The Summary of Servers screen appears.
   d. View the State of the AdminServer and see RUNNING.
      If the State is not RUNNING, you may need to wait a short period and refresh the page.

4. Look at the bottom of the Administration server command window.
   The command window should contain the following lines:
   ```
   Server state changed to RUNNING
   Server started in RUNNING mode
   ```

Setting Memory Requirements for UIM

In UNIX, AIX, and Solaris environments, you must set appropriate memory requirement values in the WebLogic server to be able to install UIM. Not allotting enough memory space for the WebLogic domain can cause errors during installation.
Setting Memory Requirements for UIM in UNIX Environments

The example shows the entries in the `setDomainEnv.sh` file for setting the memory requirement values for UIM:

```
1. In the `Domain_Home/bin` directory, open the `setDomainEnv.sh` file.
2. Set the memory arguments for your JVM as follows:

   WLS_MEM_ARGS_64BIT="-Xms4g -Xmx4g"

   Note: Oracle recommends that you set the heap size for the Young Generation (-Xmn) to a value between 25% and 33%. Start with a value of 33%, and then gradually decrease it to 25% if the heap size of the Old Generation continues to run out of space.

3. Change the following entries from this:

   MEM_ARGS_64BIT="$(CUSTOM_MEM_ARGS_64BIT)"
   MEM_ARGS_32BIT="$(CUSTOM_MEM_ARGS_32BIT)"

   to this:

   MEM_ARGS_64BIT="$(WLS_MEM_ARGS_64BIT)"
   MEM_ARGS_32BIT="$(WLS_MEM_ARGS_32BIT)"
```

Setting Memory Requirements for UIM in AIX Environments

The example shows the entries in the `startWebLogic.sh` file for setting the User memory argument values for UIM:

```
1. In the `Domain_Home/bin` directory, open the `startWebLogic.sh` file.
2. Set the user memory arguments as follows:

   USER_MEM_ARGS="-Xms1024m -Xmx3000m -Xmn850m"
   export USER_MEM_ARGS
```

Setting Memory Requirements for UIM in Solaris Environments

The example shows the entries in the `setUIMEnv.sh` file for setting the User memory argument values for UIM:

```
1. In the `Domain_Home/bin` directory, open the `setUIMEnv.sh` file.
2. Set the user memory arguments as follows:

   USER_MEM_ARGS="-Xms1024m -Xmx2560m -Xmn850m -Xrs
   -XX:+HeapDumpOnOutOfMemoryError -XX:+UseConcMarkSweepGC
   -XX:+CMSClassUnloadingEnabled"
   export USER_MEM_ARGS
```
Creating a WebLogic Domain for a Server Cluster Installation

A server cluster arrangement is used for load balancing, scalability, and failover. A clustered server installation (also called an Administration Server with cluster-managed servers installation) is one in which one or more WebLogic server instances are managed by a separate Administration Server. In this arrangement, clustering the Managed Servers in WebLogic allows the servers to work together as one unit, rather than as several independent processing units. This is the configuration Oracle recommends because it provides protection if a server fails.

When working with a cluster, deploy the Cartridge Management Web Services (CMWS) and UIM adapters on the machine where the Administration server is running.

Installation Scenario

This installation scenario includes two clustered Managed Servers (uim01 and uim02) that are separate from the Administration Server, an Administration server, and a hardware load balancer, used for load balancing. Managed Servers are instances of WebLogic used to host enterprise applications; in this case, UIM.

Note: For more information on configuring the load balancer, see UIM System Administrator’s Guide.

This example uses a shared disk storage environment.

For cluster deployments, it is mandatory that the UIM_Home directory and the DOMAIN_Home/bin folder be placed in a shared disk location. The advantages of using shared disk storage include easier UIM installation, maintenance, and cartridge deployment. In addition, using shared disk storage allows the Administration Server and all of the managed servers in the cluster to use the same instance of WebLogic. The machines on which the servers reside must have access to the shared storage.

UIM does not support session replication, but it does support server failover.

Server Cluster Example

See Table 4–2 and Table 4–3 for information on setting up the cluster arrangement.

<table>
<thead>
<tr>
<th>Information Type</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>WL_Home</td>
<td>Home/</td>
</tr>
<tr>
<td>Domain_Home</td>
<td>WL_Home/user_projects/domains/cluster01</td>
</tr>
<tr>
<td>Domain login</td>
<td>weblogic</td>
</tr>
<tr>
<td>Domain password</td>
<td>uimcluster</td>
</tr>
<tr>
<td>Cluster DNS</td>
<td>UIMClusterDNS (includes the uim01 and uim02 listening IP addresses.)</td>
</tr>
</tbody>
</table>
Creating a WebLogic Domain for a Server Cluster Installation

Table 4–3  Servers in a Sample Cluster

<table>
<thead>
<tr>
<th>Information Type</th>
<th>Administration Server</th>
<th>Cluster-Managed Server #1</th>
<th>Cluster-Managed Server #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>WebLogic server</td>
<td>uimAdmin</td>
<td>uim01</td>
<td>uim02</td>
</tr>
<tr>
<td>Listening port</td>
<td>XX.XX.XX.XX:8063</td>
<td>XX.XX.XX.XX:8065</td>
<td>XX.XX.XX.XX:8066</td>
</tr>
<tr>
<td>Machine</td>
<td>UIM1</td>
<td>UIM2</td>
<td>UIM3</td>
</tr>
</tbody>
</table>

Figure 4–1 shows the servers in a sample server cluster.

Figure 4–1  Servers in a Sample Cluster

Server Cluster Prerequisites
The prerequisites for setting up a server cluster are:

- Oracle WebLogic administration experience.
- A hardware load balancer. Refer to the server load balancer configuration for details.
- A DNS entry containing all of the cluster-managed servers’ listening addresses, serves as the UIM cluster address.
- A machine hosting multiple cluster-managed servers. The machine must be multi-homed.
Creating a WebLogic Domain for a Server Cluster Installation

Overview of Steps for Setting Up a Server Cluster

Installing an Oracle WebLogic Server cluster arrangement involves:

- Installing Oracle WebLogic Server in a Clustered Environment
- Creating a Domain
- Starting the WebLogic Server
- Starting the Cluster Servers
- Configuring the WebLogic Server StuckThreadMaxTime Value
- Configuring the WebLogic Server Proxy Timeout Value

Installing Oracle WebLogic Server in a Clustered Environment
Install WebLogic Server on the shared disk storage by following the procedures in "Downloading and Installing Oracle WebLogic Server".

Creating a Domain
To create a domain:

1. Navigate to the WL_Home/common/bin directory and run the following command:

   ./config.sh

   The Configuration Type screen of the Fusion Middleware Configuration Wizard appears.

2. Select the Create a new domain option and in the Domain Location field, enter the full path for the domain or click Browse to navigate to the directory in which your domains are located, and then click Next.

   The Templates screen appears.

3. Select the Create Domain Using Product Templates option and from the provided list, select the following products:

   - Basic WebLogic Server Domain (This product is selected by default and you cannot deselect it.)
   - Oracle Enterprise Manager - 12.2.1.3.0 [em]
   - Oracle JRF - 12.2.1.3.0 [oracle_common]
   - WebLogic Coherence Cluster Extension - 12.2.1.3.0 [wlserver]
Oracle MapViewer - 12.2.1.3.0 [oracle_common] (This product is only available if you chose to install MapViewer.)

---

**Note:** The selection of the WebLogic Coherence Cluster Extension template for this step does not imply or require the use of the Oracle Coherence product.

---

4. Click **Next**.

   The Application Location screen appears.

5. Do the following:
   a. In the **Domain name** field, enter an appropriate domain name as per your requirements or standards.
   b. In the **Domain location** field, enter the path and directory where the domain files will be created. For example, enter the value: `WLServer_Home/user_projects/domains/base_domains`.
   c. In the **Application location** field, enter the path and directory for the application files. For example, enter the value: `WLServer_Home/user_projects/domains/application_name`
   d. Click **Next**.

   The Administrator Account screen appears.

6. In the **Name** field, enter the administrator user name.

7. In the **Password** field, enter the administrator user password. The password must be a minimum of 8 alphanumeric characters, and must contain at least one number or special character.

   In the **Confirm Password** field, reenter your password.

8. Click **Next**.

   The Domain Mode and JDK screen appears.

9. In the Domain Mode section, select the **Production** option.

   In the JDK section, select the required JDK (Oracle JDK 1.8.0 \_patch where patch is the latest critical update) by doing the following:
   - Select **Available JDKs** and select a JDK from the list provided.
   - or
   - Select **Other JDK** and browse to the location of another JDK. Ensure that this JDK is supported. See Table 2–2, "Required Server-Side Software" for details.

10. Click **Next**.

   The Database Configuration Type screen appears.

11. Select the **RCU Data** option and enter the connection information that you specified for the Service Table (STB) schema component in the Repository Creation Utility (RCU):
    a. In the **Vendor** field, select the vendor name for the component schema.
    b. In the **DBMS/Service** field, enter the database management system or service name for the component schema.
c. In the **Driver** field, select the driver used by the component schema.

d. In the **Host Name** field, enter the host name/IP address for the component schema.

e. In the **Port** field, enter the port number used by the schema component.

f. In the **Schema Owner** field, enter the owner name for the schema component.

---

**Note:** The default schema owner name is `prefix_STB`, where `prefix` is the prefix that you defined in RCU for the Service Table schema.

---

g. In the **Schema Password** field, enter the password for the schema component.

h. Click **Get RCU Configuration**, which retrieves the schema information.

i. After the schema information is retrieved successfully, click **Next**.

The Component Datasources screen appears.

---

12. Do one of the following:

- For single-instance database: Verify the values in the fields and click **Next**, the JDBC Test screen appears. Continue with step 13.

- For Oracle Real Application Clusters (RAC) database: Select the **Convert to RAC multi data source** check box and click **Next**.

The Oracle RAC Multi Data Source Component Schema screen appears.

a. From the **Driver** list, select **Oracle's Driver (Thin) for RAC Service-Instance connections; Versions:10 and later**.

b. In the **Service Name** field, enter the service name for the RAC database.

c. In the **Username** field, enter the owner name of the schema component.

d. In the **Password** field, enter the password for the schema component.

e. In the **Host Name** field, enter the host name/IP address of the machine configured for RAC database.

f. In the **Instance Name** field, enter the SID of the host.

g. In the **Port** field, enter the configured port of the host.

h. Add additional hosts by clicking **Add Host** and repeat steps e through g for each new host added.

i. Click **Next**.

The JDBC Test screen appears, which enables you to test the configurations for the schemas.

13. Select the check boxes beside the schemas you want to test and click **Test Selected Connections**.

14. Verify that all the JDBC component connections pass the validation test and click **Next**.

The Advanced Configuration screen appears.

15. Select the following:

- **Administration Server**

- **Topology**
■ Deployments and Services

Note: Oracle recommends that production environments for UIM use a minimum of an Administration Server and one or more Managed Servers or Clusters. Lab environments can be installed on an Administration Server only, if desired.

If you select only Administration Server, the Domain Creation wizard does not display some dialog boxes pertaining to managed servers or clusters.

16. Click Next.

The Administration Server screen appears.

17. Do the following:
   a. In the Server Name field, enter your Administration Server name.
   b. In the Listen Address field, select a DNS or an IP address.

   Note: Use listener addresses that are equal to a resolvable DNS host or IP address. Do not use localhost or 127.0.0.1. Those addresses interfere with clustered servers.

   c. In the Listen Port field, accept the default.
   d. Select Enable SSL if you are enabling SSL.

      It is not a requirement to either enable or disable SSL.

      If you decide to enable SSL, ensure that you configure SSL for WebLogic Server using correct cipher suites.

      For more information, see “Cipher Suites” in Fusion Middleware Securing Oracle WebLogic Server at:

      http://docs.oracle.com/middleware/1212/core/ASADM/sslconfig.htm

   e. In the SSL Listen Port field, enter a port that is not used by another domain.

      This field is enabled only if you selected the Enable SSL check box.

   f. In the Server Groups list, accept the provided default value.
   
   g. Click Next.

   The Managed Servers screen appears.

18. Do the following:
   a. Click Add to add a managed server to the cluster.
   b. In the Server Name field, enter a name for the managed server.
   c. In the Listen Address field, enter the host, or IP address of the machine where the managed server is running.

   Note: Use listener addresses that are equal to a resolvable DNS host or IP address. Do not use localhost or 127.0.0.1. Those addresses interfere with clustered servers.
d. In the **Listen Port** field, enter the number of the port where the managed server will listen for incoming messages.

e. Select **Enable SSL** as required.

f. In the **SSL Listen Port** field, enter the appropriate value only if SSL is selected.

g. In the **Server Groups** list, select the MAPVIEWER-MAN-SVR and JRF-MAN-SVR groups.

The **Server Groups** list may not display both the groups if you did not install MapViewer.

h. (Optional) Click **Add** to add more managed servers as required on your UIM deployment.

i. Click **Next**.

The Clusters screen appears.

19. Do the following:

a. Click **Add** to start configuring the cluster.

b. In the **Cluster Name** field, enter the name for the cluster.

c. In the **Cluster Address** field, provide the cluster address information.

The cluster address contains each managed server along with the managed server’s port separated by a comma. Separate the managed server and the port number by a colon.

d. Click **Next**.

The Server Template screen appears.

20. Click **Next**.

The Dynamic Servers screen appears.

21. Click **Next**.

The Assign Servers to Clusters screen appears.

22. Assign the servers to the cluster by moving the managed servers in the left pane to the required cluster in the right pane.

23. Click **Next**.

The HTTP Proxy Applications screen appears.

24. (Optional) Select **Create HTTP Proxy** for any proxy servers in the list.

   Click **Next**.

   The Coherence Clusters screen appears, displaying the Coherence cluster that is automatically added to the domain.

   This screen appears only if you included Coherence in the WebLogic Server installation.

25. Do the following:

a. In the **Name** field, accept the default cluster name or type a new name for the Coherence cluster.

b. In the **Coherence Listen Port** field, enter the port number to use as the Coherence cluster listen port.

26. Click **Next**.
The Machines screen appears. Use this screen to change the configuration information for the machines. A machine is the logical expression of the system that hosts one or more WebLogic Server instances. The Administration Server and the Node Manager application use the machine definition to start remote servers.

27. (Optional) Add the machines by doing one of the following:
   - Select the **Machine** tab, and do the following:
     a. Click **Add** to create the first machine.
     b. In the **Name** field, enter a name for the machine.
     c. In the **Node Manager Listen Address** field, enter the host, or IP address of the node manager.
     d. In the **Node Manager Listen Port** field, enter the port number for the node manager.
     e. **(Optional)** Create further machines as required on your UIM deployment.
     f. Click **Next**.
   - The Deployments Targeting screen appears.
   - Select the **Unix Machine** tab, and do the following:
     a. Click **Add** to create the first UNIX machine.
     b. If required, select **Enable Post Bind GID**. The default state is unselected.
     c. In the **Post Bind GID** field, enter a value or select the default.
     d. If required, select **Enable Post Bind UID**. The default state is unselected.
     e. In the **Post Bind UID** field, enter a value or select the default.
     f. In the **Node Manager Listen Address** field, enter the host, or IP address of the node manager.
     g. In the **Node Manager Listen Port** field, enter the port number of the node manager.
     h. **(Optional)** Create further machines or UNIX machines as required on your UIM deployment.
     i. Click **Next**.
   - The Assign Servers to Machines screen appears.

28. Assign the servers to the machines by moving the servers in the left pane to the required machine in the right pane.

29. Click **Next**.
   - The Virtual Targets screen appears.

30. Click **Next**.
   - The Partition screen appears.

31. Click **Next**.
   - The Deployments Targeting screen appears.

32. Under **Targets**, select the Administration Server; under **Deployments**, select all the applications; and then click the right arrow, which moves the applications to the Administration Server for deployment.
Creating a WebLogic Domain for a Server Cluster Installation

33. Repeat step 32 to target applications for deployment on the cluster.

34. Click Next.
   The Services Targeting screen appears.

35. Under Targets, select the Administration Server, under Services, select all the services; and then click the right arrow, which moves the services to the Administration Server.

36. Repeat step 35 to target services (libraries) to the cluster.

37. Click Next.
   The Configuration Summary screen appears.

38. Review the summary to verify the contents of your domain and click Create to create the domain.
   The Configuration Progress screen appears, which displays the progress of the domain creation process.
   After the domain is created successfully, the Configuration Success screen appears.

39. Click Finish.
   See Oracle Fusion Middleware documentation for more information.

40. To set memory requirements, see "Setting Memory Requirements for UIM".

41. Start the WebLogic server. See "Starting the WebLogic Server".
   You can now log in to the WebLogic Server Administration Console and start the Administration Server manually.

   **Note:** Create domains for remote machine in the same manner, in the respective machines.

Starting the WebLogic Server
You start the WebLogic server in a clustered environment in the same way that you start the WebLogic server in single server environment. See "Starting the WebLogic Server".

Starting the Cluster Servers
Depending on whether you have configured the node manager, you can start the UIM cluster servers one of two ways:

- If you have not configured the node manager, you must start the cluster servers through a command prompt on the first cluster server.
  See "Starting the Cluster Servers from the First Cluster Server".

Caution: Do not deploy Enterprise Manager to the managed servers in the WebLogic domain for a server cluster installation. Only deploy Enterprise Manager on the Administration Server.

Refer to Chapter 8, "Troubleshooting the Unified Inventory Management Installation" under the section "Problem: Deploying Enterprise Manager Error on Managed Servers" for more information on the error you encounter if this occurs.

Note: Create domains for remote machine in the same manner, in the respective machines.
If you have configured the node manager, you can start the cluster servers through the WebLogic Server Administration Console. See "Starting the Cluster Servers from the WebLogic Server".

### Starting the Cluster Servers from the First Cluster Server

To start the cluster servers from the first cluster server:

1. Log in to the first cluster server machine.
2. Navigate to the `Domain_Home/bin` directory.
3. Start the cluster server by running the following command from the machine where the managed server is defined:
   ```
   ./startManagedWebLogic.sh cluster_server_name admin_server_URL
   ```
4. Repeat steps 1 through 3 for each cluster server.
5. Verify that the server started:
   a. Log in to the WebLogic Server Administration Console.
   b. In the Domain Structure tree, expand **Environment**, and click **Servers**.
      The Summary of Servers page appears.
   c. View the **State** of the cluster servers and see RUNNING.
      If the State is not RUNNING, you may need to wait a short period and refresh the page.

### Starting the Cluster Servers from the WebLogic Server

To start the cluster servers from the WebLogic server:

1. Log in to the WebLogic Server Administration Console.
2. In the Domain Structure tree, expand **Environment**, and click **Servers**.
   The Summary of Servers page appears.
3. Click the link for the managed server.
   The Settings for the selected server page appears.
4. Click the **Server Start** tab.
5. In **Class Path**, enter the following. (These are the classpaths defined in the `setUIMEnv.sh` and `startUIM.sh` files, which you must also define for the node manager.)
   ```
   UIM_Home/lib/aspectjrt.jar:
   UIM_Home/lib/aspectjtools.jar
   ```
   where `UIM_Home` is the UIM directory under domain. For example, `/opt/Weblogic/user_projects/domains/UIM_REL/UIM`.
   And where `MODULES_HOME` is the modules directory under Middleware. For example, `/opt/Weblogic/modules`.
6. In **Arguments**, enter the following. (These are the arguments defined in the `setUIMEnv.sh` and `startUIM.sh` files, which you must also define for the node manager.)
   ```
   -Duim.home=UIM_Home
   -Dweblogic.log.Log4jLoggingEnabled_uim=true
   ```
Creating a WebLogic Domain for a Server Cluster Installation

Installing and Configuring Oracle WebLogic Server

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-Dlog4j.configuration_uim= loggingconfig.xml
-Duim.logging.watchdog.timer=5000
-Djava.io.tmpdir=UIM_Home/tmp
-Dweblogic.management.discover.retries=6
-javaagent:UIM_Home/lib/aspectjweaver.jar -Daj.weaving.verbose=false
-XX:-UseSSE42Intrinsics
-Dsun.lang.ClassLoader.allowArraySyntax=true
-DUSE_JAAS=false -Djps.policystore.hybrid.mode=false
-Djps.combiner.optimize.lazyeval=true -Djps.combiner.optimize=true
-Djps.authz=ACC
-DUIMMaster=ManagedServer

where UIM_Home is the UIM directory under domain. For example, /opt/Weblogic/user_projects/domains/UIM_Rel/UIM.

And where ManagedServer is the managed server name. For example, ManagedServer1.

7. Click Save.

Configuring the WebLogic Server StuckThreadMaxTime Value

During the installation of Oracle WebLogic Server and UIM in a clustered environment, if the execute thread takes more time than the Stuck Thread Max Time: declared in WebLogic, a Stuck Thread Max Time: error is displayed.

Stuck Thread Max Time: is a configurable property in WebLogic for performance tuning. It is defined as “The number of seconds that a thread must be continually working before this server considers the thread stuck”. The minimum value is 0 seconds; the default value is 600 seconds.

Consider setting Stuck Thread Max Time: from its default 600 seconds to a larger value such as 3600 seconds.

Use the WebLogic Server Administration Console to change this value:

1. Log in to the WebLogic Server Administration Console.
2. In the left section, under Domain Structure, expand Environment.
3. Click Servers, and then click the link for each managed server.
4. For each managed server, click the Configuration tab and then click the Tuning tab.
5. Increase the value of Stuck Thread Max Time to 3600.
6. Restart your domain. Your changes will take effect only after a restart.

Configuring the WebLogic Server Proxy Timeout Value

When you install UIM in a clustered environment using WebLogic HttpClusterServlet, long-running transactions time out from the proxy, which logs you out of UIM. To avoid this situation, configure the WebLogic Server proxy timeout value.

To configure the WebLogic Server proxy timeout value:

2. Add the following parameter to the web.xml file:

   <init-param>
   <param-name>WLIOTimeoutSecs</param-name>
   <param-value>1800</param-value>
Configuring the WebLogic Server to Not Use KSS Demo Identity and Trust Keystores

By default, the Administration server is configured to use the demonstration identity and trust keystores. Oracle recommends that you not use the demonstration keystores in a production environment.

To configure the WebLogic server to not use the KSS demonstration identity and trust keystores:

1. Log in to the WebLogic Server Administration Console using the Administrator credentials.
   The WebLogic Administration Console is displayed.
2. Click Lock & Edit.
3. In the left pane, click the name of the domain where you want to install UIM.
4. Select Security, and then Advanced.
5. Deselect the Use KSS For Demo check box.
6. Click Save.
7. Restart the Administration server.

Installing and Configuring Additional Software

You can perform the following steps to enhance UIM performance:

- Installing and Configuring an Authentication Provider
- Configuring WebLogic Server for the Authentication Provider
- Configuring Custom Authentication Providers

Installing and Configuring an Authentication Provider

The WebLogic Server includes an embedded LDAP store that acts as the default security provider data store for the Default Authentication, Authorization, Credential Mapping, and Role Mapping providers. You manage the embedded LDAP store using the WebLogic Server Administration Console. The Oracle Universal Installer uses this embedded LDAP server by default as the security provider. During installation, you can change the setting to use third-party security providers with WebLogic Server. See Oracle Fusion Middleware Securing Oracle WebLogic Server for information on the embedded LDAP server.

You can use an external LDAP store or security provider if your requirements are greater and you need more security options than are provided by the embedded LDAP server.

Oracle recommends Oracle Internet Directory as an external LDAP store.
You require the following information to configure the Oracle Internet Directory:

- A static IP address
  You require a static IP address in order to install the Oracle Identity Management suite.
- Oracle Database
- WebLogic Server
- Application Development Runtime
- Identity Management
- Fusion Middleware

For information on installing and configuring Oracle Internet Directory, see Oracle Fusion Middleware Installation Guide for Oracle Identity Management.

Configuring WebLogic Server for the Authentication Provider

To enable the WebLogic Server to work with an external LDAP store, or Oracle Internet Directory:

1. Log in to the WebLogic Server Administration Console.
   The Summary of Security Realms screen appears.
3. Select the realm YourRealmName, for which you need to set the Oracle Internet Directory as the external LDAP store.
   The Settings For YourRealmName screen appears.
4. Click the Providers tab, and then click the Authentication tab.
5. Click New.
   The Create a New Authentication Provider screen appears.
6. In the Name field, enter the name of the authenticator.
7. From the Type list, select OracleInternetDirectoryAuthenticator.
8. Click OK.
   The Settings For YourRealmName screen appears, showing the newly created authentication name in the Authentication tab.
9. Click the link for the authentication name.
   The Settings for AuthenticatorName screen appears.
10. In the Control Flag list, select SUFFICIENT.
11. Click Save.
12. Click the Provider Specific tab.
13. Under the Connection section, in the following fields, enter the relevant values:

Note: The use of Oracle Internet Directory requires a separate license. Contact your Oracle representative for information on acquiring a license.
Installing and Configuring Additional Software

- Host
- Port
- Principal
- Credentials
- Confirm Credentials

14. Under the Users section, in the following fields, enter the relevant values:
   - User Base DN
     Ensure that you provide the following value:
     
     `cn=Users,dc=idc,dc=oracle,dc=com`
   - All User Filter
   - User From Name Filter
   - User Search Scope
   - User Name Attribute
   - User Object Class

15. Under the Groups section, in the following fields, enter the relevant values:
   - Group Base DN
     Ensure that you provide the following value:
     
     `cn=Groups,dc=idc,dc=oracle,dc=com`
   - All Groups Filter
   - Group From Name Filter
   - Group Search Scope
   - Group Membership Searching
   - Max Group Membership Search Level

16. Click **Save**.

17. Restart the WebLogic server.

18. Log in to the WebLogic Server Administration Console.

19. Navigate to the Settings For YourRealmName screen, and click **Reorder**.

   The Reorder Authentication Providers screen appears.

20. Use the Up and Down arrows to reorder the listed Authentication Providers, and click **OK**.

**Configuring Custom Authentication Providers**

You can configure custom authentication providers for your external security provider. In which case, you are required to manually create users and groups before starting UIM installation.

Create the following group and user in the new authentication provider store:

- Group: **uim-users**
- User: **uimuser**
(uimuser is a member of the uim-users group.)

**Note:** Ensure that you create the groups and users in the default security realm.
This chapter describes how to install Oracle Communications Unified Inventory Management (UIM).

About the UIM Installer

You install UIM using the Oracle Universal Installer. This UI-based installer installs the core application and configures connections with the components, based on the connection details you provide. You can install UIM by using interactive install or silent install.

- **Interactive install**: Use interactive install when you want to interact with the installer UI during installation, such as installing a UIM production environment. See "Installing UIM by Using Interactive Install".
- **Silent install**: Use silent install when you are installing UIM using the same configuration repeatedly, such as installing multiple UIM test environments. Silent install does not use the installer UI. Rather, it is a scripted installation that runs in the background. See "Installing UIM by Using Silent Install".

Installing UIM by Using Interactive Install

This section describes the procedure for installing UIM using interactive install.

**Prerequisite**

- Configure the WebLogic Server to not use the demonstration identity and trust keystores. See "Configuring the WebLogic Server to Not Use KSS Demo Identity and Trust Keystores" for more information.

To install UIM by using interactive install:

---

**Important**: In the event that the installation fails for some reason, you are required to create a new WebLogic domain and a new database user before you begin installation again.

For upgrade scenarios, retry the installation and if the installation fails again contact My Oracle Support.

See "Installing and Configuring Oracle WebLogic Server".

---
1. Download the latest version of the JRE, which is contained in the JDK. See "Installing the Oracle JDK" for more information.

2. Create a temporary directory (temp_dir).

3. Download the software pack for your operating system from the Oracle software delivery website and save it to temp_dir:

   
   ```
   unzip UnifiedInventoryManagement-Release-OS.zip
   
   where Release is the version of UIM, and OS is your operating system.
   
   The uim/Disk1/install/ folder structure is created.
   
   Note: For Solaris and Linux x86 installations, the UIM installation will fail due to an Out of Memory error. To fix this issue perform the following:
   
   1. Navigate to the oraparam.ini file, located in the uim/Disk1/install/ folder.
   2. Open the file and locate the JRE_MEMORY_OPTIONS parameter.
   3. Change the default value for the JRE_MEMORY_OPTIONS parameter to the following:

   ```
   JRE_MEMORY_OPTIONS="-d64 -mx256m -XX:MaxPermSize=512m"
   ```

   Note: The installer can also be run by specifying the install user group and Oracle Inventory directory location.

   ```
   ./runInstaller.sh -invPtrLoc ~/orainst.loc
   
   where orainst.loc contains:
   
   inst_group=uimcluster
   inventory_loc=/share/uimcluster/oraInventory
   ```

5. Run the Oracle Universal Installer executable file runInstaller using the following command:

   ```
   ./runInstaller -jreloc jre_Path
   
   Where jre_Path is the JRE location.
   ```

6. Click Next.

   The Select Installation Type screen appears.
7. Select the type of UIM installation you require, and click **Next**.
   - If you select **Complete**, this option installs all the components. The **Specify Home Details** screen appears.
     Skip to step 9.
   - If you select **Custom**, this option allows you to specify which components to install. This option is used for UIM upgrades. The **Available Product Components** screen appears.
     Continue with step 8.

8. In the **Available Product Components** screen, select the components you want to install, and click **Next**.

9. In the **Specify Home Details** screen, do the following:
   a. In the **Name** field, enter an appropriate name for the folder that will contain all of the installation files.
   b. In the **Path** field, enter the path to the folder where you want to install UIM.
   c. Click **Next**.

The **WebLogic Administration Server Connection Information** screen appears.

10. Do the following:
    a. In the **Host Name** field, enter the Listen address of the Administration server (IP address or the host name of the host machine).
    b. In the **Port Number** field, enter the Administration server port number.
    c. In the **User Name** field, enter user name with which you connected to the Administration server.

    **Note:** This user should belong to the WebLogic Server Administrator’s group.

    d. In the **Password** field, enter the password for the user name that you provided in the **User Name** field.
    e. Select or deselect the **Use SSL** check box based on your business need.
    f. In the **KeyStore Location** field, enter the keystore location if the **Use SSL** check box is selected.
    g. Click **Next**.
The WebLogic Server/Cluster Selection screen appears.

11. Select the option for the server, or cluster, where you want to deploy UIM, and click Next.

The Database Type Selection screen appears.

**Note:** If you select a managed server, ensure that the managed server and the node manager are running.

12. Select the option for the database type to be used and click Next.

- If you select Standard Oracle 12c Enterprise Database, the MDS Schema information screen appears. Proceed to step 15.
- If you select Oracle 12c Real Application Clusters Database, the RAC DB for MDS screen appears. Proceed to step 13.

13. Enter the Oracle RAC DB for MDS Schema information, by doing the following:
   a. In the **RAC Database Connection String** field, enter the MDS schema information to connect to the Oracle RAC database.
      
      For example:
      
      ```
      HOST_NAME1:PORT1:SERVICE_NAME;
      HOST_NAME2:PORT2:SERVICE_NAME
      ```
      
      **Caution:** You must use the same user name and password provided when the UIM MDS schema was created.

   b. In the **User Name** field, enter the `prefix_MDS` schema user name.
   c. In the **Password** field, enter the password for the user name that you provided in the **User Name** field.
   d. Click Next.

The Oracle RAC Database Nodes Connection Information screen appears.

14. Enter the Oracle RAC Database Nodes Connection information, by doing the following:
   a. In the **RAC Database Connection String** field, enter the connection details to connect to the Oracle RAC database.
      
      For example:
      
      ```
      HOST_NAME1:PORT1:SERVICE_NAME;
      HOST_NAME2:PORT2:SERVICE_NAME
      ```

   b. In the **User Name** field, enter the user name for the Oracle RAC database server.

**Note:** The user must have the following privileges: CATALOG, CONNECT, Create User, Create Session, Grant Any Privilege, Grant Any Role, Select Any Table, Select any Dictionary, CREATE MATERIALIZED VIEW, QUERY REWRITE, RESOURCE, UNLIMITED TABLESPACE.
c. In the **Password** field, enter the password for the user name that you provided in the **User Name** field.

d. Click **Next**.

The UIM Administrator user creation (Optional) screen appears.

Proceed to step 22.

15. Enter the MDS Schema information by doing the following:

   a. In the **Host Name** field, enter the IP address or host name of the machine where the database server is installed.

   b. In the **Port Number** field, enter the port number with which the installer will connect to the database server.

   c. In the **User Name** field, enter the user name for the MDS schema.

   d. In the **Password** field, enter the password for the user name that you provided in the **User Name** field.

   e. In the **Service Name** field, enter the service name for that uniquely identifies your database on the system.

   f. Click **Next**.

The Database Connection Information screen appears.

16. Enter the Database Connection information by doing the following:

   a. In the **Host Name** field, enter the IP address or host name of the machine where the database server is installed.

   b. In the **Port Number** field, enter the port number with which the installer will connect to the database server.

   c. In the **User Name** field, enter the user name for the database server.

   d. In the **Password** field, enter the password for the user name that you provided in the **User Name** field.

   e. In the **Service Name** field, enter the service name for that uniquely identifies your database on the system.

   f. Click **Next**.

The UIM database schema creation screen appears.

17. Select whether or not to create the UIM database schema and click **Next**.
18. Enter the UIM database schema information, by doing the following:
   a. In the **User Name** field, enter the user name for the Unified Inventory Management schema.
   b. In the **Password** field, enter the password for the user name that you provided in the **User Name** field.
   c. In the **System Tablespace** field, enter the name for the permanent tablespace.
   d. In the **Temp Tablespace** field, enter the name for the temporary tablespace.
   e. Click **Next**.

   The Security Provider Selection screen appears.

19. Select the security provider you want to use and click **Next**.
   - If you select the default WebLogic security provider (**Embedded_LDAP**) option, the CMWS User Information screen appears. Continue with step 21.
   - If you select the external security provider option (**External_LDAP**), the External Security Provider Connection Information screen appears. Continue with step 20.

20. Enter the External Security Provider information, by doing the following:
   a. In the **LDAP Server Host Name** field, enter the host name for the external LDAP server.
   b. In the **LDAP Server Port Number** field, enter the port number for the external LDAP server.
   c. In the **LDAP Server User Name** field, enter the user name for the external LDAP server.
   d. In the **LDAP Server Password** field, enter the password for the external LDAP server.
   e. In the **User Base DN** field, enter the user base DN.
   f. In the **Group Base DN** field, enter the group base DN.
   g. In the **Use SSL?** field, clear the check box if you do not want to use SSL.
      This option is checked by default. If you accept the default, ensure that your server is SSL-enabled. The SSL port would have been configured when creating the domain.
   h. In the **KeyStore Location** field, enter the location for the keystore.
i. Click Next.

The CMWS User Information screen appears.

21. Enter the CMWS User information, by doing the following:
   a. In the User Name field, enter the user name for the CMWS user.
   b. In the Password field, enter the password for the user name that you provided in the User Name field.
   c. In the Confirm Password field, enter the password again.
   d. Click Next.

The UIM Administrator user creation (Optional) screen appears.

22. Do the following:
   a. In the User Name field, enter the user name for the UIM user.
      This user accesses and uses Unified Inventory Management.
   b. In the Password field, define a password for the UIM user.
      In the Confirm Password field, enter the password again, to confirm it.
   c. Click Next.

The Do you want to create the UIM file store or JDBC store? screen appears.

23. Select the type of store to create, and click Next.

   Note: The UIM user password can be a maximum of 12 letters long, and should contain at least one numeric value and one capital letter.
   For example, Weblogic123.
   Also, the user name must not be part of the password.

   In the Confirm Password field, enter the password again, to confirm it.

24. Select whether or not to enable SSL, and click Next.

   Note: If File Store is selected, a file store (inv_jms_store) is created at the Domain_Home/UIM location.

The SSL enable Information screen appears.

25. (Optional if MapViewer was installed) In the URL field, enter the URL for MapViewer.

26. Click Next.

The Summary screen appears.

27. Review the selections you have made in the preceding screens, and click Install.

The Install screen appears.

28. You can view the installation progress.
On successful installation of Unified Inventory Management, the End of Installation screen appears.

**Note:** Record the URL that is displayed in the End of Installation screen, to access UIM.

29. Install and configure the AspectJ libraries, which are not included in the UIM installation. To do this:

   a. Download the `aspectj-1.8.10.jar` library from the following website:
      
      
   b. Extract the `aspectj-1.8.10.jar` file to a temporary folder (aspectj-1.8.10), by entering the following command:
      
      ```
      java -jar aspectj-1.8.10.jar
      ```
      
      **Note:** Ensure that the AspectJ files (`aspectjweaver.jar`, `aspectjrt.jar`, and `aspectjtools.jar`) have execute permissions.
      
   c. Copy the `aspectjweaver.jar` file from the `aspectj-1.8.10/lib` folder to the `UIM_Home/lib` folder.
      
      **Note:** The following step is required if dynamic extensibility (for custom extension points) is to be used.
      
   d. Copy the `aspectjrt.jar` and `aspectjtools.jar` files from the `aspectj-1.8.10/lib` folder to the `UIM_Home/lib` folder.

30. Perform the UIM post-installation tasks. See "Unified Inventory Management Post-Installation Tasks" for more information.

31. Restart the Administration server by using the following command from within the `Domain_Home/bin` directory:

      ```
      ./startWebLogic.sh
      ```

      **Note:** For clustered deployments, you need to edit the `setDomainEnv.sh` file and set the `WLS_JDBC_REMOTE_ENABLED` parameter to true. The `setDomainEnv.sh` file is located in the `Domain_Home/bin` directory.

      The following is an example of the parameter:
      
      ```
      WLS_JDBC_REMOTE_ENABLED=-Dweblogic.jdbc.remoteEnabled=true
      ```
      
32. Start the managed server by using the following command:

      ```
      ./startUIM.sh Managed_Server_Name Admin_URL
      ```

      For information on verifying the successful installation of UIM, see "Verifying the Unified Inventory Management Installation".
Installing UIM by Using Silent Install

Use silent install when you are installing UIM using the same configuration repeatedly. Silent install does not use the installer UI, instead it uses a response file that must be setup with the configuration values required for your specific installation. Silent install runs in the background and is not visible to the user.

About the Response File

The installer uses a response file, which contains a pre-defined set of values, such as server connection details. The following two response file templates come as part of the UIM installation package:

- **oracle.communications.uim.Complete.rsp**
  Use this file template if you are doing a complete installation.

- **oracle.communications.uim.Custom.rsp**
  Use this file template if you are doing a custom installation.

The response file templates contain all the fields that the installer requires values for to connect to various servers during the silent, unattended installation.

When you untar the UIM package, the response file templates are saved in the **Response** folder at the following location:

**uim/Disk1/stage/Response**

Populate the response file with the required server and connection values for the installer to use during installation, before you begin the silent installation. The provided response file is a template with pre-defined places where you fill in the required values of the required type. Shown here is sample section of a response file:

```plaintext
#Name       : DATABASE_TYPE
#Datatype   : String
#Description: Enter the database type whether Clustered or Non-Clustered DB. The value should be string containing database type.
#Example: DATABASE_TYPE="&Standard Oracle 12c Enterprise Database" (for Non-RAC database) or DATABASE_TYPE="Oracle 12c &Real Application Clusters Database" (for RAC database)
#---------------------------------------------------------------
DATABASE_TYPE=
#---------------------------------------------------------------

#Name       : MANAGED_SERVER_NAME
#Datatype   : String
#Description: Name of the managed server.
#Example: MANAGED_SERVER_NAME="Managed_Server_1"
#---------------------------------------------------------------
MANAGED_SERVER_NAME=
#---------------------------------------------------------------

#Name       : RAC_DB_COUNT
#Datatype   : String
#Description: Number of hosts in the Oracle RAC database.
#Example: RAC_DB_COUNT="2"
#---------------------------------------------------------------
RAC_DB_COUNT=
#---------------------------------------------------------------

#Name       : MDS_RAC_DB_COUNT
#Datatype   : String
#Description: Number of hosts in the Oracle RAC database.
```
#Example: MDS_RAC_DB_COUNT="2"
#---------------------------------------------------------------
MDS_RAC_DB_COUNT=

In this section of the response file sample, you would provide values for the following:

DATABASE_TYPE=
MANAGED_SERVER_NAME=
RAC_DB_COUNT=
MDS_RAC_DB_COUNT=
#---------------------------------------------------------------

Similarly, provide values for all variables described in the response file.

Populating the Response File
To populate the response file manually:

1. Navigate to the following directory:
   
   uim/Disk1/stage/Response

2. Open the appropriate .rsp template and make a copy for your current requirement.

3. Enter the required input values in the provided locations.

Starting Silent Install
Before you begin installing UIM by using silent install, ensure that you have provided all required input values in the response file template.

To install UIM by using silent install:

1. Use the following command, where path is the response file location, to start the installation:
   
   ./runInstaller -responseFile path -silent -jreloc jre_Path -waitforcompletion

   Where path is the response file location and jre_Path is the JRE location. You optionally add the waitforcompletion option if you want the installer to stay in the foreground.

   The installation will run silently in the background.

2. When the installation completes, manually shut down all of the servers.

3. Install and configure the AspectJ libraries, which are not included in the UIM installation. To do this:
   
   a. Download the aspectj-1.8.10.jar library from the following website:

      https://eclipse.org/aspectj/downloads.php

   b. Manually extract the aspectj-1.8.10.jar file to a temporary folder (aspectj-1.8.10), by entering the following command:

      java -jar aspectj-1.8.10.jar

   Note: Ensure that the AspectJ files (aspectjweaver.jar, aspectjrt.jar, and aspectjtools.jar) have execute permissions.
c. Copy the `aspectjweaver.jar` file from the `aspectj-1.8.10/lib` folder to the `UIM_Home/lib` folder.

**Note:** The following step is required if dynamic extensibility (for custom extension points) is to be used.

d. Copy the `aspectjrt.jar` and `aspectjtools.jar` files from the `aspectj-1.8.10/lib` folder to the `UIM_Home/lib` folder.

4. Perform the UIM post-installation tasks. See "Unified Inventory Management Post-Installation Tasks" for more information.

5. Restart the Administration server by using the following command from within the `Domain_Home/bin` directory:
   ```
   ./startWebLogic.sh
   ```

6. Restart the managed servers by using the following command:
   ```
   ./startUIM.sh Managed_Server_Name Admin_URL
   ```

7. After the installation is complete, open the following file to get the URL to access UIM:
   ```
   Oracle_Home/install/readme.txt
   ```
   For example: `./opt/uim/OracleCommunications/install/readme.txt`

8. Copy and paste the URL in a Web browser and press Enter to access UIM.
   You can now access the UIM application.

   For information on verifying the successful installation of UIM, see "Verifying the Unified Inventory Management Installation".
Unified Inventory Management Post-Installation Tasks

This chapter provides instructions for Oracle Communications Unified Inventory Management (UIM) post-installation tasks.

Configuring a Trusted Certificate for UIM

Oracle WebLogic Server provides a default certificate that automatically configures the Secure Sockets Layer (SSL) settings in your Web browser. To use another certificate, you must manually reconfigure SSL.

**Note:** UIM uses a default certificate provided by Oracle WebLogic Server. As a result, when you connect to the UIM UI for the first time, the Web browser displays a warning page with a message indicating that the security certificate presented is not issued by a trusted certificate authority.

This is expected behavior. Accept this untrusted certificate to continue to connect to the UIM UI.

For information about configuring SSL for UIM, see *UIM System Administrator’s Guide*.

Deploying UIM Cartridges

Oracle recommends that you deploy all of the base cartridges into UIM. Base cartridges are located in the `UIM_Home/cartridges/base` directory. For information on base cartridges, see *UIM Cartridge Guide*.

**Important:** The `ora_uim_mds_cartproj.zip` and `ora_uim_model_cartproj.zip` cartridges are located in this same directory, but these two cartridges should not be deployed into UIM.

You can deploy cartridges interactively from Oracle Communications Design Studio. You can automate cartridge deployment by using the Design Studio Cartridge Management Tool. Or, you can deploy cartridges using the UIM Cartridge Deployer Tool.

See the *UIM Cartridge Guide* for information about deploying cartridges and cartridge packs.
Connecting the UIM Web Service Interface to a Remote Application

Oracle recommends that you create a SAF agent between the UIM WebLogic server and a remote application server. Oracle recommends this SAF agent for the Web Service interfaces to ensure reliable communication.

Figure 6–1 illustrates an example SAF configuration between the Web Service interface on UIM and a Web Service client on a remote application, in this case, the Oracle Order Service and Management (OSM) application.

**Figure 6–1  SAF Agent Configuration Between UIM and a Remote Application (OSM)**

In this example, an OSM SAF agent sends requests to the UIM request queue, and UIM returns responses through the UIM SAF agent to the OSM reply-to queue.

For detailed instructions for creating SAF queues and topics between UIM and OSM, see Knowledge Article 1431235.1 - Configuring WebLogic Resources for OSM Integration With ASAP And UIM On Different Domains on the My Oracle Support website:

[https://support.oracle.com](https://support.oracle.com)

This article is applicable to any remote application that uses a WebLogic JMS server to send and receive Web Service messages.

---

**Note:** When working in a Development Environment, with several cartridge deployments, you might see `NullPointerException` and `ORA-01653` errors. See Knowledge Article 1506444.1 - `NullPointerException` and ‘ORA-01653: unable to extend table DEV_MDS.MDS_COMPONENTS’ Errors When Deploying UIM Cartridges to resolve the errors.
Configuring Ehcache for the Cluster

UIM uses Ehcache as a caching mechanism. Ehcache boosts performance by caching:

■ Specification entities
■ Compiled version of Drools and Groovy rules
■ Transition states

This section provides instructions for configuring the ehcache.xml file for the clustered server.

The configuration tasks include:

■ Enabling Ehcache for the Cluster
■ Enabling Ehcache Manual Discovery
■ Enabling Ehcache for JGroups

Enabling Ehcache for the Cluster

To enable ehcache for the cluster, do the following:

1. Ensure you are logged in to the shared disk storage through a command window.
2. Make a backup copy of the ehcache.xml file and rename it to ehcache.xml.cluster.
3. Open the ehcache.xml.cluster file in a text editor.
4. Scroll down to the cacheManagerPeerProviderFactory entry.
5. Change the value of the port entry to any unused port number.
6. Save and close the file.

Enabling Ehcache Manual Discovery

Use the following checklist to verify that manual discovery is the correct setting to use, for peer discovery:

■ By default, the peer discovery setting for ehcache is automatic (which employs multi-casting). Multi-cast is known to be unreliable, has bandwidth overload issues and is unsecure. If you feel multi-casting is not the right setting for your environment, perform the steps to enable the ehcache manual discovery setting for the cluster.

■ The cacheManagerPeerListenerFactory port defined in the ehcache.xml file shouldn’t conflict with any other process running on the same port. Use the netstat command or lsof command to find out which ports are available.

■ When the ehcache manual discovery setting is enabled, instead of automatic discovery, the port numbers in the rmi URLS setting should be same as the cacheManagerPeerListenerFactory port defined in the ehcache.xml file.

■ In case of single node cluster (i.e different managed servers on the same node), before starting each managed server the cacheManagerPeerListenerFactory port should be modified so that each managed server gets started with a unique cacheManagerPeerListenerFactory port to listen to and avoiding any port binding exceptions.

To enable the ehcache manual discovery setting, do the following:

1. Ensure you are logged in to the shared disk storage through a command window.
Configuring Ehcache for the Cluster

2. Open the `ehcache.xml` file in a text editor.

3. Scroll down to the `cacheManagerPeerProviderFactory` entry.

4. Comment out the `cacheManagerPeerProviderFactory` entry.

   Example of automatic discovery entry:
   ```xml
   <cacheManagerPeerProviderFactory
       class="net.sf.ehcache.distribution.RMICacheManagerPeerProviderFactory"
       properties="peerDiscovery=automatic, multicastGroupAddress=230.0.0.1, multicastGroupPort=4446"/>
   ```

5. Add the following entry to the file:

   Example of manual discovery entry:
   ```xml
   <cacheManagerPeerProviderFactory
       class="net.sf.ehcache.distribution.RMICacheManagerPeerProviderFactory"
   ```

   **Note:** Use the `netstat` command or `lsof` command to find an available port.

6. Change the value of the `port` entry to any unused port number.

7. Save and close the file.

Enabling Ehcache for JGroups

JGroups is a group communication toolkit and has a flexible protocol stack. JGroups extends unicast messaging to provide reliability. If you use JGroups as a replication mechanism, you must download the JGroups related JAR files and make the library additions to the UIM classpath.

To enable the Ehcache for JGroups (UDP + Unicasting), do the following:

1. Ensure you are logged in to the shared disk storage through a command window.

2. Open the `ehcache.xml` file in a text editor.

3. Scroll down to the `cacheManagerPeerProviderFactory` entry.

4. Comment out the `cacheManagerPeerProviderFactory` entry which uses the "RMICacheManagerPeerProviderFactory", which by default makes the transport mechanism as multicast.

   Example of automatic discovery entry:
   ```xml
   <!-- <cacheManagerPeerProviderFactory
       class="net.sf.ehcache.distribution.RMICacheManagerPeerProviderFactory"
       properties="peerDiscovery=automatic, multicastGroupAddress=230.0.0.1, multicastGroupPort=4446"/> -->
   ```

5. Add the following entry to the file:

   Example of manual discovery entry:
   ```xml
   <cacheManagerPeerProviderFactory
       class="net.sf.ehcache.distribution.jgroups.JGroupsCacheManagerPeerProviderFactory"
       properties="connect=UDP(ip_mcast=false; mcast_addr=224.0.0.35;"
   ```

**Note:** The protocol stack with UDP and PING as the bottom protocols uses IP multicasting by default to send messages to all members (UDP) and for discovery of the initial members (PING). However, if multicasting cannot be used, the UDP and PING protocols can be configured to send multiple unicast messages instead of one multicast message (UDP) and to access a well-known server (GossipRouter) for initial membership information (PING).

To configure UDP to use multiple unicast messages to send a group message instead of using IP multicasting, the `ip_mcast` property has to be set to `false`.

To configure PING to access a GossipRouter instead of using IP multicast the following properties have to be set:

- **gossip_host**: The name of the host on which GossipRouter is started.
- **gossip_port**: The port on which GossipRouter is listening.
- **gossip_refresh**: The number of milliseconds to wait before refreshing the address entry of the GossipRouter.

Before any members are started, the GossipRouter has to be started and the administration server is the ideal candidate to be the GossipRouter.

6. Save and close the file.

7. Start the Gossip router, by using the following command:

```
java org.jgroups.stack.GossipRouter -port gossip_port -bindaddress gossip_host
```

**Note:** The GossipRouter is essentially a lookup service for groups and members. It is a process that runs on a well-known host and port and accepts GET (group) and REGISTER(group, member) requests. The REGISTER request registers a member’s address and group with the GossipRouter. The GET request retrieves all member addresses given a group name. Each member has to periodically (gossip_refresh) re-register their address with the GossipRouter, otherwise the entry for that member will be removed (accommodating for crashed members).

The property `ip_mcast` is set to false in UDP and the gossip properties in PING define the GossipRouter to be on the local host at port 5555 with a refresh rate of 15 seconds. If PING is parameterized with the GossipRouter’s address and port, then gossiping is enabled, otherwise it is disabled. If only one parameter is given, gossiping will be disabled. Make sure to run the GossipRouter before starting any members, otherwise the members will not find each other and each member will form its own group.
8. Configure the caches in the ehcache.xml file to use JGroupCacheReplicatorFactory. For example:

```xml
<cache
    maxElementsInMemory="10000"
    eternal="true"
    timeToIdleSeconds="0"
    timeToLiveSeconds="0"
    overflowToDisk="false"
    memoryStoreEvictionPolicy="LRU">
    <cacheEventListenerFactory
        class="net.sf.ehcache.distribution.RMICacheReplicatorFactory"
        properties="replicateAsynchronously=false, replicatePuts=true, replicateUpdates=true, replicateUpdatesViaCopy=true, replicateRemovals=true"/>
</cache>
```

Routing Traffic Between Proxy and Cluster

For more information, see *Fusion Middleware Administering Clusters for Oracle WebLogic Server* at:

http://docs.oracle.com/middleware/12213/wls/CLUST/toc.htm

Configuring Mail Sessions

To enable the notification functionality in UIM, you must configure JavaMail for the UIM WebLogic server. For more information about notifications, see *UIM Developer’s Guide*. Refer to Oracle Fusion Middleware Documentation for Administration Console Online Help for configuring the mail session at the website:

https://docs.oracle.com/cd/E57014_01/wls/WLACH/taskhelp/mail/
CreateMailSessions.html

Table 6–1 describes the important configuration properties in the mail session.

<table>
<thead>
<tr>
<th>Property</th>
<th>Value description</th>
</tr>
</thead>
<tbody>
<tr>
<td>JNDI Name</td>
<td>This is the unique JNDI name that modules use to access this mail session. For example, you can set the JNDI name to “mail/InventoryMailSession.”</td>
</tr>
<tr>
<td>JavaMail SSL enable</td>
<td>Indicate if SSL is enabled. For example, you can set “mail.smtp.ssl.enable=true.”</td>
</tr>
<tr>
<td>JavaMail port</td>
<td>Indicates the port for a specific protocol for the mail session. For example, you can set “mail.smtp.port=465.”</td>
</tr>
<tr>
<td>JavaMail host</td>
<td>Indicates the mail host for a specific protocol. For example, you can set “<a href="mailto:mail.smtp.host@mail.mydom.com">mail.smtp.host@mail.mydom.com</a>.”</td>
</tr>
</tbody>
</table>

Defining the Map Data Source

To configure MapViewer for UIM, you must define a map data source. See "Defining the Map Data Source" for more information.
7

Verifying the Unified Inventory Management Installation

This chapter describes how to verify that Oracle Communications Unified Inventory Management (UIM) is installed correctly.

Checking the Installation Logs

You can verify the UIM installation by viewing the installation logs. The installation logs can be found at CentralInventorylocation/logs. You can use the following log files to monitor installation and post-installation events:

- installActionsTimeStamp.log
- oraInstallTimeStamp.err
- dbScriptsTimeStamp.log
- silentInstallTimeStamp.log (for Silent Mode installation)

Checking the State of Installed Components

You can verify that UIM is installed by checking the state of all installed components. To check the state of all installed components:

1. Log in to the WebLogic Administration Server Console.
2. In the left section, under Domain Structure, click Deployments.
   The Summary of Deployments page appears.
3. Ensure that all of the managed servers are running.
4. If UIM is installed successfully, the following deployments appear in the Active state:
   - cartridge_management_ws
   - DMS Application
   - em
   - FMW Welcome Page Application
   - oracle.communications.inventory
   - oracle.communications.inventory.cartridgeadapter
   - oracle.communications.inventory.javadoc
Logging In to Unified Inventory Management

You can verify that UIM is installed by logging in to the UIM application.

To log in to UIM:

1. Open a Web browser. See Table 2–3, "Required Client-Side Software" for supported Web browsers.
2. Enter the URL as provided by the installer at the end of the installation.
3. Press the Enter key.
   The Unified Inventory Management login page appears.
4. Do the following:
   a. In the User Name field, enter the UIM user name.
   b. In the Password field, enter the password for the UIM user name.

   Note: Use the same UIM user name and password that you provided when you installed UIM.

The Unified Inventory Management home page appears, verifying that UIM is installed successfully.
Troubleshooting the Unified Inventory Management Installation

This chapter describes how to troubleshoot the Oracle Communications Unified Inventory Management (UIM) installation.

Reporting Problems

Before calling Oracle Support, perform the following:

- Problems can often be fixed by shutting down UIM and restarting the computer that it runs on. See *UIM System Administrator’s Guide* for more information.
- If that does not solve the problem, the first troubleshooting step is to look at the error log for the application or process that reported the problem.
- Prepare and gather the following pertinent information:
  - A clear and concise description of the problem, including when it began to occur.
  - Relevant portions of the relevant log files.
  - Relevant configuration files.
  - Recent changes in your system, even if you do not think they are relevant.
  - List of all UIM components and patches installed on your system.

When you are ready, report the problem to Oracle Support.

Problem: Installer Fails to Update Application KEYSTORE Table

If the installer fails to update the application KEYSTORE table, the installer is interrupted and the following error message appears:

Unable to update application key store 'AppKeyStore', please check log files for more details. Refer UIM documentation for executing this step manually.

Solution

Click the Continue button to complete the installation. Manually update the application KEYSTORE table when the installation is complete.

To manually update the application KEYSTORE table:

1. Navigate to *Oracle_Home/POMSClient*.
2. Execute the following command:
Problem: Installer Fails to Update Application INFORMATION Table

If the installer fails to update the application INFORMATION table, the installer is interrupted and the following error message appears:

Unable to update application details 'ApplicationInfo', please check log files for more details. Refer UIM documentation for executing this step manually.

Solution

Click the Continue button to complete the installation. Manually update the application INFORMATION table when the installation is complete.

To manually update the application INFORMATION table:

1. Navigate to Oracle_Home/POMSClient.
2. Execute the following command:

```
Java_HOME/bin/java -javaagent:lib/eclipselink.jar -cp POMSClient.jar
oui.j2ee.poms.client.UpdateInfoTable DB_HostName DB_Port DB_ServiceName
UIM_Schema_UserName UIM_Schema_Password
```

where:

- `DB_HostName` is the database host name
- `DB_Port` is the database port number
- `DB_ServiceName` is the database service name or system ID
- `UIM_Schema_UserName` is a valid UIM database user name for the schema
- `UIM_Schema_Password` is the password for the UIM schema user name
- `UIM_Version` is the version of UIM being installed

3. Connect to the application INFORMATION table and verify the following:

- That the NAME column has a value of `UIM`.
- That the VERSION column has the correct version of UIM.
- That the STATUS column has a value of `SUCCESS`.
Problem: Unable to Create the UIM Administrator User Except During Installation

If the UIM Administrator user is not created during installation, then the user will not be able to login to the UIM user interface or the UIM Web services.

Solution
To create the UIM Administrator user, after the UIM installation has been completed, perform the following:

1. Log in to the WebLogic Administration Server Console.
2. In the left section, under Change Center, click Lock & Edit.
3. In the left section, under Domain Structure, click **SecurityRealms**. The Summary of Security Realms page appears.
4. Click **myrealm**. The Settings for myrealm page appears.
5. Click the **Users and Groups** tab.
6. Click the **Groups** tab, click **New** and enter the following group properties:
   - Group name
   - Group description
   - Provider (select from the list)
7. Create the new group, click **OK**.
8. Click the **Users** tab, click **New** and enter the following user properties:
   - User name
   - User description
   - Provider (select from the dropdown list)
   - User password
9. Create the new user, click **OK**.
10. Click **Release Configuration**.
11. Log in to the Enterprise Manager console.
12. In the left section, expand **WebLogic Domain** and select the domain name.
13. Right-click the domain name, select **Security**, and then select **Application Roles**. The Application Roles page appears.
14. In the **Application Stripe** field, select **oracle.communications.inventory** from the dropdown list, and then click the search icon. A list of role names will appear.
15. Select the **uimuser** role and click **Edit**. The Edit Application Role: uimuser page appears.
16. In the Members section, click **Add**. The Add Principal dialog box appears.
17. In the **Type** field, select **Group** from the dropdown list and then click the search icon.
18. Select the group created in steps 6 and 7, then click **OK**.
19. Click **OK** to save and close the Edit Application Role: uimuser page.

**Problem: Unable to Run SQL Script**

If the number of processes is not set high enough to accommodate your installation, the installer is interrupted and the following error message appears:

Unable to run SQL Script.

If you click **Retry**, the same error message appears.
If you click **Continue**, errors regarding JMS connections and JDBC connections not being found are encountered.

After the installation completes, you may notice that several database resources in the WebLogic domain were not created. In this situation, the UIM installer log reflects the following:

```java
Exception Name: oui.j2ee.core.exception.JOUIUnabletoConnectException
Exception String: Error: Unable to run SQL Script.
SQL Exception: Error Code = 17002, SQL State = null,
Oracle DB Message = Io exception: Connection refused
(DESCRIPTION=(TMP=)(VSNNUM=186647296)(ERR=12516)(ERROR_STACK=
(ERROR=(CODE=12516)(EMFI=4)))).
Exception signaled in a connect operation.
Please check installer log files for more details.
Exception Severity: 1
```

And the UIM installer error log reflects the following:

```java
INFO: Creating SQL script execution log file at [ /scratch/share/domains/
clusterUim723b240/UIM/scripts/llr_log.txt]
Sep 4, 2016 2:29:12 PM oui.j2ee.core.common.JDBCComponent
getEncryptedConnectionImpl
SEVERE: SQL Exception: Error Code = 17002, SQL State = null, Oracle DB Message =
Io exception: Connection refused
(DESCRIPTION=(TMP=)(VSNNUM=186647296)(ERR=12516)(ERROR_STACK=
(ERROR=(CODE=12516)(EMFI=4)))).
```

This problem is encountered when your total number of processes exceeds the specified number of processes. The problem can occur when running multiple managed servers, which multiplies the number of database connections used. For example, if you have 3 persistent stores per managed server, and you have 20 managed servers, 60 processes are consumed just for the persistent stores.

**Solution**

Change the number of processes to a higher number. The default number of processes is 150 and Oracle recommends that this value be set to 2000 when installing the database, as described in "Tuning the Database".

To change the number of processes:

1. Open a command prompt and login to SQL*Plus.
2. Execute the following command to determine the current number of processes:

   ```sql
   show parameter process;
   ```

   The output shows the following:

<table>
<thead>
<tr>
<th>NAME</th>
<th>TYPE</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>aq_tm_processes</td>
<td>integer</td>
<td>1</td>
</tr>
<tr>
<td>cell_offload_processing</td>
<td>boolean</td>
<td>true</td>
</tr>
<tr>
<td>db_writer_processes</td>
<td>integer</td>
<td>1</td>
</tr>
<tr>
<td>gcs_server_processes</td>
<td>integer</td>
<td>0</td>
</tr>
<tr>
<td>globaltxn_processes</td>
<td>integer</td>
<td>1</td>
</tr>
</tbody>
</table>
Problem: Timers are Not Started

If the timers are not started for any reason, you need to manually restart them.

Solution
To restart the timers:
1. Log in to the WebLogic Server Administration Console.
2. On the Home page, under Domain Structure, click the Deployments link.
   The Summary of Deployments page appears.
3. Expand oracle.communications.inventory.
4. Expand EJBs.
5. Click the TimerBean link.
   The Settings for TimerBean page appears.
6. Click the Control tab.
7. Select a timer and click Activate Timers.
   This restarts the selected timer.

Problem: Deploying Enterprise Manager Error on Managed Servers
This problem occurs if you create a WebLogic domain for a server cluster installation and deploy the Enterprise Manager to the managed servers. In this scenario the following NullPointerException error can occur:

<9ce3222e-dd29-4da5-b4a8-73602be2e080-00000003> <1482848744159> <BEA-101165>
<Could not load user defined filter in web.xml: 
oracle.sysman.eml.app.EMTargetAuthFilter. 
java.lang.NullPointerException 
at oracle.sysman.eml.app.EMTargetAuthFilter.init(EMTargetAuthFilter.java:119) 
at weblogic.servlet.internal.FilterManager$FilterInitAction.run 
(FilterManager.java:374)

Solution
Do not deploy Enterprise Manager to the managed servers in a WebLogic domain. Only deploy Enterprise Manager on the Admin Server.

Problem: Errors Observed in Managed Server Logs When Redeploying Cartridges During UIM Upgrade

When redeploying cartridges during UIM upgrade, you observe the following errors in the managed server logs:

[jE: 2017-10-20 14:00:54.023--ServerSession(810796743)--Exception [EclipseLink-22106] (Eclipse Persistence Services - 2.6.5.v20170607-b3d05bd): org.eclipse.persistence.exceptions.RemoteCommandManagerException
Exception Description: Could not create external JMS connection with Topic UIMCacheTopic and Topic Factory UIMPomsTopicConnectionFactory. Also, check your context properties are set correctly.
Internal Exception: Exception [EclipseLink-22101] (Eclipse Persistence Services - 2.6.5.v20170607-b3d05bd): org.eclipse.persistence.exceptions_REMOTE_COMMAND_MANAGER_EXCEPTION
Exception Description: Could not obtain JNDI context, check your properties are set correctly.

Solution
Do the following:
1. Delete the stage, tmp, and cache directories from the following location:
   Domain_Home/servers/ManagedServers
2. Redeploy the cartridges.

Problem: Errors Observed After Domain Upgrade

After upgrading the domain, you observe the following errors:

weblogic.application.library.LibraryDeploymentException: [J2EE:160145]Failed to deploy library Extension-Name: jax-rs, Specification-Version: 2, Implementation-Version: 2.22.4.0, because of conflicting library Manifest values, and library information registered with the server: [Implementation-Version: 2.22.4.0 vs. 2.22.1.0]. Check the library MANIFEST.MF file and correct version information there to match server settings, or undeploy the misconfigured library.
at
Problem: Errors Observed During UIM Installation

When installing UIM, you observe the following errors:

Error: Unable to execute command. DB Tool utility execution failed. Internal error occurred. Please check installer log files for more details.
SEVERE: Error: Unable to check user privilege in Oracle database. Privilege check failed : The DB user does not have required privileges. Please check whether the user has the following privileges ''CREATE USER','CREATE SESSION','GRANT ANY PRIVILEGE','GRANT ANY ROLE','SELECT ANY TABLE','SELECT ANY DICTIONARY''.
Exception signaled in a SQL operation. Please check installer log files for more details.
Exception in thread "main" java.sql.SQLException: ORA-28040: No matching authentication protocol
at oracle.jdbc.driver.T4CTTIoer.processError(T4CTTIoer.java:439)
at oracle.jdbc.driver.T4CTTIoer.processError(T4CTTIoer.java:388)
at oracle.jdbc.driver.T4CTTIoer.processError(T4CTTIoer.java:381)

Solution
Do the following:

1. Add the following properties in the ORACLE_HOME/network/admin/sqlnet.ora file:

   SQLNET.ALLOWED_LOGON_VERSION_SERVER=8
   SQLNET.ALLOWED_LOGON_VERSION_CLIENT=8

2. Restart the database.
This chapter explains how to upgrade your existing system to the latest release of Oracle Communications Unified Inventory Management (UIM).

**About Upgrading UIM**

In this chapter, the release you are upgrading from is called the *old* release. The release you are upgrading to is called the *new* release.

Upgrading to a new release of UIM consists of the following tasks:

- Planning the upgrade
- Performing the pre-upgrade tasks
- Upgrading UIM
- Performing the post-upgrade tasks

**Supported Upgrade Paths**

This release of UIM supports the following direct upgrade paths:

- From release 7.2.x to release 7.4.x
- From release 7.3.x to release 7.4.x

**Note:** If you are currently at UIM 7.1.x or earlier, you must first upgrade to UIM 7.2.x, and then upgrade to UIM 7.4.x.

**Planning Your Upgrade**

Before you plan your upgrade, do the following:

- Read the Release Notes for the UIM version to which you are upgrading, specifically, the “Known Issues” section.
- Read the What’s New for the UIM version to which you are upgrading, to know about the new features introduced in that release.

Depending on the components affected by the upgrade, your upgrade team may include the following:

- A database administrator, to manage the database upgrade and tune the database.
- A system integrator, to handle new and existing customizations.
Testing the Upgrade in a Test Environment

Oracle recommends running the upgrade procedure on a test system with a copy of your production data before upgrading your production system. Test the upgrade by doing the following:

- Successfully completing all the pre-upgrade, upgrade, and post-upgrade tasks.
- Comparing the default behavior between the old and the new releases.
- Recreating any custom configurations and extensions.
- Confirming that all new behavior and functionality works.
- Ensuring that the database tables are properly installed.
- Ensuring that the database data is correct.
- Starting the WebLogic Server domain.
- Ensuring that users and user permissions are correct.
- Ensuring that productized and custom cartridges build and deploy properly.
- Logging into UIM and verifying the version number of installed components.

Upgrade Impacts

This section explains any important system changes introduced by an upgrade. New features and new functionality are described in UIM Release Notes.

When upgrading to a new release of UIM, you may need to address the following upgrade impacts:
Upgrade Impacts

- Database Software Changes
- Database Schema Changes
- Fusion Middleware Changes
- Java Development Kit Changes
- Application Component Changes
- API Changes
- Design Studio Changes
- Cartridge Changes

Database Software Changes
This section applies to all supported upgrade paths.

You must upgrade both the server and client to the required Oracle Database Software version. See "Software Requirements" for more information.

Database Schema Changes
This section applies to all supported upgrade paths.

The new version of UIM requires an updated database schema. Regardless of the UIM release from which you are upgrading, and regardless of whether you opt to upgrade the Oracle Database software, you must update the database schema.

The schema changes between releases are described in the Comparison Between 7.X.X and 7.X.X+1.xls file, which is available in the config folder after you extract the ora_uim_dbtools.jar file. See "Upgrade the UIM database schema by performing the following steps:" for more information.

Fusion Middleware Changes
You must upgrade your version of Fusion Middleware, which includes WebLogic server and ADF Runtime. Apply all applicable patches.

See "Software Requirements" for version information regarding Oracle Fusion Middleware Application Development Runtime (and applicable patches) and Repository Creation Utility.

Java Development Kit Changes
This section applies to all supported upgrade paths.

This version of UIM requires an updated version of the Java Development Kit (JDK). Regardless of the UIM release from which you are upgrading, you must update the JDK version. See "Software Requirements" for version information regarding Sun Hotspot (JDK) for Linux or Solaris.

Application Component Changes
The Oracle Application Installer updates all the UIM components.
API Changes

Review the UIM_Home/doc/ora_uim_delta.war file when upgrading UIM to determine if any of the upgrades affect your current extensions. The ora_uim_delta.war file contains information regarding changes between releases.

Design Studio Changes

You must upgrade your version of Oracle Communications Design Studio. See "Software Requirements" for version information regarding Design Studio.

Design Studio can be set up before or after you upgrade UIM. See the Design Studio installation documentation for more information. Rather than upgrading Design Studio, install the new version and keep the old version until after you have finished upgrading UIM.

Cartridge Changes

After the upgrade is complete, cartridges must be migrated to the new release of UIM using the Design Studio Cartridge Migration Tool. It is possible that migrated cartridges contain minor compilation errors that prevent them from building and deploying. If a cartridge fails to build, open it in Design Studio and correct any compilation errors.

Upgrading UIM

This section details the upgrade procedures to upgrade UIM:

- From release 7.2.x (except 7.2.0) to release 7.4.x (where 7.2.x is 7.2.2, 7.2.3, 7.2.4, or 7.2.5) by doing the following tasks:
  - Pre-Upgrade Tasks for Release 7.2.x
  - Upgrading UIM
  - Post-Upgrade Tasks
- From release 7.3.x to release 7.4.x (where 7.3.x is 7.3.0, 7.3.1, 7.3.2, 7.3.3, 7.3.4, or 7.3.5) by doing the following tasks:
  - Pre-Upgrade Tasks for Release 7.3.x
  - Upgrading UIM
  - Post-Upgrade Tasks

Pre-Upgrade Tasks for Release 7.2.x

Pre-upgrade tasks must be performed while the UIM WebLogic server is inactive. These pre-upgrade tasks apply if your old version of UIM is version 7.2.x (except 7.2.0); for example, 7.2.2, 7.2.3, 7.2.4, or 7.2.5.

Perform the following pre-upgrade tasks:

2. Back up the UIM WebLogic Server domain. See the WebLogic Server documentation for more information.
3. If the old version of your UIM user interface was customized, back up the changes.

**Caution:** UIM does not maintain backward compatibility for the user interface. If the old version of your UIM user interface was customized and you do not back up the changes, you will lose them. (You will re-apply the changes when performing the post-upgrade tasks.)


When creating the OPSS schema, ensure that on the Select Components screen, you select **Select an Existing Prefix**, and then from the list, select the prefix that you used to create the MDS schema during the previous installation.


5. Create datasources for OPSS (**jdbc/opssDataSource**) and for Audit Services (**jdbc/AuditDB**) by doing the following:
   a. Log in to the WebLogic server Administration Console using the Administrator credentials.
   b. Click **Lock & Edit**.
   c. In the **Domain Structure** tree, expand **Services** and then click **Data Sources**.
      The Summary of JDBC Data Sources page appears.
   d. Click **New** and select **Generic Data Source**.
      The JDBC Data Sources Properties page appears.
   e. In the **Name** and **JNDI Name** fields, enter the required information; from the **Database Type** list, select an option, and then click **Next**.
   f. From the **Database Driver** list, select **Oracle's Driver (Thin) for Instance connections; Versions 9.0.1 and later**.

**Note:** For information about creating multi data sources for Oracle Real Application Clusters (RAC) database, see the following website:

http://www.oracle.com/webfolder/technetwork/tutorials/obe/fmw/wls/11g/WLS_11g_RAC_multi/WLS_RAC_MULTI.htm

   g. Click **Next**.
      The Transaction Options Page appears.
h. Deselect the **Supports Global Transactions** check box and click **Next**.

The Connection Properties page appears.

i. In the **Database Name**, **Host Name**, **Port**, **Database User Name**, **Password**, and **Confirm Password** fields, enter the database details of the OPSS schema, and then click **Next**.

The Test Database Connection page appears.

j. Review the connection parameters and click **Test Configuration**.

If you receive database connection errors, ensure that you have specified the JDBC URL in the following format:

```
jdbc:oracle:thin:@//DB_HostName:DB_Port/DB_ServiceName
```

where:

- **DB_HostName** is the database host name
- **DB_Port** is the database port number
- **DB_ServiceName** is the database service name or system ID

k. If the test is successful, click **Next**.

The Select Targets page appears.

l. Select the servers or clusters on which you want to deploy the data source and click **Finish**.

The Summary of JDBC Data Sources page appears.

m. Verify that the newly created data source is listed under the **Data Sources** table.

n. In the Change Center of the Administration Console, click **Activate Changes**, which activates these changes.

See the Oracle WebLogic Server documentation for more information.

6. From **MW_Home/oracle_common/common/bin**, run the reassociateSecurityStore script in online mode:

```
./wlst.sh
connect()
reassociateSecurityStore(domain='<domain_name>',datasourcename='jdbc/opssDataSource', servertype="DB_ORACLE",jpsroot='cn=jdbcRootNode')
```

7. From **MW_Home/oracle_common/common/bin**, run the setAuditRepository script:

```
setAuditRepository(switchToDB='true',dataSourceName='jdbc/AuditDB',interval='16')
```

8. Run **getAuditRepository()** and verify the following output:

```
JNDI Name: jdbc/AuditDB
Interval: 16
Repository Type: DB
```

9. Stop the UIM Domain Servers.

10. Upgrade Oracle Fusion Middleware, which also includes ADF Runtime and RCU.

    See “**Software Requirements**” for version information regarding Oracle Fusion Middleware and any applicable patches.
11. Upgrade the UIM MDS Schema:
   a. Navigate to `MW_HOME/oracle_common/upgrade/bin/ua`
      where `MW_HOME` is the directory in which Oracle Fusion Middleware is
      installed.
      This directory contains the Upgrade Assistant (UA) tool, which you use to
      upgrade the schema.
   b. Launch the UA tool to upgrade the schema.
      The Welcome screen appears.
   c. Click Next.
      The Schemas screen appears.
   d. Select Individually Selected Schemas, and select the domain directory for the
      upgrade and click Next.
      The Components List screen appears.
      Select the following schemas:
      Oracle Audit Services
      Oracle Platform Security Services
      Oracle Metadata Services
   e. Click Next.
      The Prerequisites screen appears.
   f. Confirm that the database backup is complete by selecting the All affected
      data is backed up, Database version is certified by Oracle for Fusion
      Middleware upgrade, Certification and system requirements have been met, and
      Oracle Platform and Security Services repository is not a file based
      store check boxes, and click Next.
      The IAU Schema screen appears.
   g. From the Database Type list, select the database type.
   h. In Connect String, enter the `hostname:portnumber/SID` string.

\[\text{Note:} \quad \text{For a clustered environment, the } hostname:portnumber/SID
\text{ must specify the primary Oracle RAC node.}\]

i. In DBA User Name, enter the database administrator user name.
j. In DBA Password, enter the password for the administrator user.
k. Click Connect.
   If the provided details are valid, the Schema User Name and Schema
   Password fields become enabled.
l. From the Schema User Name list, select the IAU schema.
m. In Schema Password, enter the database password, and click Next.
   The OPSS Schema screen appears.
   n. Verify the details of the OPSS schema and click Next.
      The MDS Schema screen appears.
o. Verify the details of the MDS schema and click **Next**.

---

**Note:** For a clustered environment, the *hostname:portnumber/SID* must specify the primary Oracle RAC node.

---

The Examine screen appears.

p. Click **Next**.

The Upgrade Summary screen appears.

q. Verify the details of the services to be upgraded and click **Upgrade**.

The Upgrading Components screen appears. You can monitor the progress of the upgrade from this screen.

r. After the upgrade completes, click **Next**.

The Upgrade Success screen appears.

s. Verify that the upgrade was successful and click **Close**.

12. Create the Common Infrastructure Services (STB) and WebLogic Services (WLS) schemas using the Fusion Middleware RCU, which you open using the following command:

```
./MW_Home/oracle_common/bin/rcu
```

See *Oracle Fusion Middleware Repository Creation Utility User’s Guide* for more information.

13. Before upgrading the domain, perform a backup by copying the directories that contain Fusion Middleware files. You can do this by archiving and compressing the source Oracle home and the Administration Server domain. Do the following:

a. Shut down all processes in the Oracle home. For example, shut down the Managed Servers, the Administration Server, and any system components.

b. Back up the Oracle home (ORACLE_HOME) on all hosts. For example:

   (UNIX) `tar -cf oracle_home_backup_062015.tar ORACLE_HOME/*`
   (Windows) `jar cMf oracle_home_backup_0462015.jar ORACLE_HOME/*`

c. Back up the Administration Server domain separately. This backs up Java components and any system components in the domain.

   (UNIX) `tar -cf domain_home_backup_062015.tar DOMAIN_HOME/*`
   (Windows) `jar cMf domain_home_backup_062015.jar DOMAIN_HOME/*`

14. Reconfigure the WebLogic domains using the Fusion Middleware Reconfiguration Wizard, which you open using the following command:

```
./MW_Home/oracle_common/common/bin/reconfig.sh
```

a. On the Select Domain screen, from the **Existing Domain Location** list, select the UIM domain that you want to upgrade and click **Next**.

   The Reconfiguration Setup Progress screen appears, displaying the progress of the reconfiguration setup process.

b. Click **Next**.

   The Domain Mode and JDK screen appears.
The domain mode cannot be changed during reconfiguration. It is inherited from the original domain.

c. Select the JDK option and browse to the folder (JAVA_HOME) where the JDK is installed and click Next.

Ensure that you have installed the correct version of the JDK. See "Software Requirements" for more information.

The Database Configuration Type screen appears.

d. Select the RCU Data option, complete the required fields, and then click Get RCU Configuration, which retrieves the schema information.

You select the RCU Data option to connect to the database to retrieve schema information for all schemas that are included in the domain.

e. Click Next.

f. Navigate through the different screens by clicking Next on each screen and specify your settings as necessary.

g. On the Node Manager screen, under the Node Manager Type area, select Manual Node Manager Setup and click Next.

The Advanced Configuration screen appears.

h. Select the categories for which you want to perform advanced configuration and click Next.

For each category you select, the appropriate configuration screen is displayed to allow you to perform advanced configuration.

i. In the Managed Servers screen, for managed servers and proxy server, in the Server Groups list, select the MAPVIEWER-MAN-SVR and JRF-MAN-SVR groups.

The Server Groups list may not display both the groups if you did not install MapViewer.

j. Navigate through the different screens by clicking Next on each screen and specify your settings as necessary.

k. On the Deployments Targeting screen, under Targets, select the oracle.communications.inventory application and then click the left arrow, which moves the application to the Deployments section.

l. On the Deployments Targeting screen, under Deployments, select Library, and then under Targets, select the server or cluster, and then click the right arrow, which moves all the libraries to the targeted server or cluster for deployment.

m. Click Next.

The Services Targeting screen appears.

n. Under Services, select all the services, and then under Targets, select the server or cluster, and then click the right arrow, which moves the services to the targeted server or cluster for deployment.

o. Click Next until the Configuration Summary screen appears.

p. Review the detailed configuration settings of the domain and click Reconfig.

The Reconfiguration Progress screen appears, which displays the progress of the reconfiguration process.
After the reconfiguration process completes, the Reconfiguration Success screen appears.

q. Click Finish.

See Oracle Fusion Middleware documentation for more information.

15. Upgrade the WebLogic domain configurations by doing the following:

a. Navigate to the $MW_Home/oracle_common/upgrade/bin/ua directory.

This directory contains the Fusion Middleware Upgrade Assistant 12c, which you use to upgrade the WebLogic domain configurations.

b. Launch the Fusion Middleware Upgrade Assistant.

The Welcome screen appears.

c. Click Next.

d. Select WebLogic Component Configurations, and in the Domain Directory field, select the WebLogic domain directory you want to upgrade, and then click Next.

The Prerequisites screen appears.

e. Confirm that the database backup is complete by selecting the All affected data is backed up, Database version is certified by Oracle for Fusion Middleware upgrade, and Certification and system requirements have been met check boxes, and click Next.

f. Navigate through the different screens by clicking Next on each screen and specifying your settings as necessary.

g. On the Upgrade Success screen, verify that the upgrade was successful and click Close.

See Oracle Fusion Middleware documentation for more information.

16. If UIM is installed in a WebLogic cluster domain, open the $WL_DOMAIN/config/config.xml file and change the JD persistent store and UIM persistent store targets to managed server migratables.

See "Installing and Configuring Oracle WebLogic Server" for more information.

17. Start the UIM Administration Server. If this is a clustered server environment, start the cluster member servers.

18. Ensure that all the deployed applications are active, otherwise you will need to manually update each application and then make each application active.

19. Upgrade the Oracle Database software. See "Database Software Changes" for more information.

See the Oracle Database documentation for information on upgrading the database software to a newer version.

20. Apply any required Oracle Database patches.

See "Software Requirements" for more information on the Oracle Database patches.

See the Oracle Database documentation for information on applying patches to the database.

21. Upgrade the UIM database schema by performing the following steps:
Upgrading Unified Inventory Management

WARNING: Data can change when you upgrade the UIM database schema.

a. Create two temporary directories, temp_dir and temp_dir_schema.

b. Download the UIM software for your operating system from the Oracle software delivery website and save it to temp_dir.

c. From the ZIP file, extract the ora_uim_dbtools.jar file into temp_dir_schema.
   The ora_uim_dbtools.jar file is located in the root of the downloaded ZIP file.

d. In temp_dir_schema, open the ora_uim_dbtools.jar file and extract the contents into temp_dir_schema.

Note: For dbtools to work, you must have both the ora_uim_dbtools.jar file itself, and its extracted contents, in the temp_dir_schema directory.

e. Open the temp_dir_schema/config/databases.xml file in an editor, where will you see the following:

   <db:database name="SID">
      <db:driver>oracle.jdbc.driver.OracleDriver</db:driver>
      <db:connectionUrlString>
         jdbc:oracle:thin:@DBHostName:port:SID
      </db:connectionUrlString>
      <db:schemaComparison fromSchema="UIM_701" toSchema="UIM_710">
         fromFile="\filepath\dist\scripts\create.sql" toFile="\filepath\dist\scripts\create.sql">
      </db:schemaComparison>
   </db:database>

   Modify the <db:database> element name attribute value (SID in the above XML) to be the SID value of the database you are upgrading.

   Modify the <db:connectionUrlString> element value (DBHostName:port:SID in the above XML) to be the database you are upgrading.

Note: For a clustered environment, the DBHostName:port:SID must specify the primary Oracle RAC node.

For a pluggable database (PDB), specify <db:connectionUrlString> in the following format:

   jdbc:oracle:thin:@DBHostName:port/SID

f. Grant the execute permission for the runDB.sh script.

g. Run the DB upgrade with the following command:

   runDB.sh DBTOOLS_PATH JAVA_HOME upgrade

   where DBTOOLS_PATH is the directory location of the ora_uimdbtools.jar file, and where JAVA_HOME is the directory location of your Java installation (up to the jdk/bin directory).

For example:
/.runDB.sh /home/uimdev/download/dbupgrade/temp_dir_schema
/usr/jdk1.8.0_patch/bin upgrade

where patch is the version of your JDK. You will be prompted to enter the
database SID, and the UIM DB userid and password for the DB you want to
migrate.

You will also be prompted to enter upgrade to confirm that an upgrade is to
be performed on the database.

**Note:** The database contains tables that record if a script has been run against the database and if the script can be re-run. If the script
has been previously run and it has been identified as Not re-runnable,
the message Update has already run displays next to the script name in
the DbVersionController.log file.

The following is an example of the DbVersionController.log file:

1/9/17 1:19:22 AM PST: log file = /scratch/NSRM_QA/Builds/UIM/735/logs/
DbVersionController.log
1/9/17 1:19:22 AM PST:
1/9/17 1:19:24 AM PST: Applying Framework Update: sqlfrmrk - Success
1/9/17 1:19:24 AM PST: Applying Framework Update: sqlfrmrk1 - Success
1/9/17 1:19:24 AM PST: Applying Framework Update: sqlfrmrk2 - Success
1/9/17 1:19:24 AM PST:
1/9/17 1:19:24 AM PST: B19271096 - Start
1/9/17 1:19:28 AM PST: B19271096 - 3388 Milliseconds
1/9/17 1:19:28 AM PST: B19271096 - Ended Successfully
.
.
.
1/9/17 1:19:33 AM PST: Successfully completed migration scripts for release
7.3.0.0.0.
1/9/17 1:19:33 AM PST: B21264052 - Start
1/9/17 1:19:33 AM PST: B21264052 - 37 Milliseconds
1/9/17 1:19:33 AM PST: B21264052 - Ended Successfully
.
.
.
1/9/17 1:19:34 AM PST: Successfully completed migration scripts for release
7.3.1.0.0.
.
.
.
1/9/17 1:26:00 AM PST: Successfully completed migration scripts for release
7.3.3.0.0.
.
.
.
1/9/17 1:26:01 AM PST: Successfully completed migration scripts for release
7.3.4.0.0.
1/9/17 1:26:01 AM PST: DbVersionController Completed Monday, January 9,
2017 1:26:01 AM PST

View the DbVersionController.log file to verify that all the scripts were
successful or have already been run.
22. If the domain names or managed server names for the old WebLogic domain and the new WebLogic domain are different, then delete the records from the UIM database schema tables named `WL_LLRR_servername`.

For example, if there were two managed servers (`uim_ms1` and `uim_ms2`) from the previous UIM release, you would need to delete the records from the following tables:

`WL_LLRR_UIM_MS1` and `WL_LLRR_UIM_MS2`

23. Restart the WebLogic server.

24. If MapViewer is installed, delete the older version of MapViewer currently deployed in the domain:

   a. Log in to the WebLogic Server Administration Console, and click on Lock & Edit button.


   c. Click the Control tab (within Deployments), and select the check box for the `oracle.communications.inventory.mapviewer` application and click Stop, and then select Force Stop Now. A confirmation message appears.

   d. Click Yes.

   e. Click the Configuration tab, and select the check box for the `oracle.communications.inventory.mapviewer` application and click Delete. A confirmation message appears.

   f. Click Yes.

   g. In the Change Center area of the Administration Console, click Activate Changes, which activates these changes.

25. Stop the UIM domain servers.

26. (Optional) Install the new version of MapViewer if you are choosing to use this software feature.

27. (Optional) If you decide to use the new version of MapViewer, update the existing WebLogic domain for MapViewer using the Fusion Middleware Configuration Wizard, with the following command:

   ```
   ./MW_Home/oracle_common/common/bin/config.sh
   ```

   a. On the Select Domain screen, select the **update an existing domain** option and from the Existing Domain Location list, select the UIM domain that you want to upgrade and click **Next**. The Domain Template screen appears.

   b. Select **Oracle MapViewer - 12.2.1.3.0 [oracle_common]**.

   c. Click **Next**.

   d. Navigate through different screens by clicking **Next** on each screen and specify your setting as necessary.

   e. In the Advance Configuration screen, select **Deployments and Services**. Click **Next**.
The Deployments Targeting screen appears.

f. Under **Targets**, ensure that the `oracle.communication.inventory` deployment is not present in AdminServer. If it is present, select the `oracle.communications.inventory` application in AdminServer, and then click the left arrow, which moves the application to the **Deployments** section.

g. Under **Deployments**, select the MapViewer application and then with the right arrow, target the MapViewer application to both Cluster and the AdminServer.

The Services Targeting screen appears.

h. Click **Next**.

i. On the Configuration Summary screen, click **Update** to finish the upgrade.

j. Start the UIM domain servers.

You can now access the newly deployed MapViewer 12c application at the following URL (if you installed MapViewer):

http://ServerName:Port/mapviewer/

where:

- **ServerName** is the application server used by UIM.
- **Port** is the port used by UIM.

**Note:** If you do not delete the older version of MapViewer before deploying the new version, and then restart the UIM domain server, the new MapViewer is started by default and the status of the older version changes to Failed.

28. For SSL installations, configure the WebLogic Server to not use KSS Demo Identity and Trust Keystores by doing the following:

a. Log in to the WebLogic Server Administration Console using the Administrator credentials.

The WebLogic Administration Console is displayed.

b. Click **Lock & Edit**.

c. In the left pane, click the name of the domain where you want to install UIM.

d. Select **Security**, and then **Advanced**.

e. Deselect the **Use KSS For Demo** check box.

f. Click **Save**.

g. Restart the Administration server.

29. Install and configure the AspectJ libraries by doing the following:

a. Download the `aspectj-1.8.10.jar` library from the following website:


b. Extract the `aspectj-1.8.10.jar` file to a temporary folder (aspectj-1.8.10), by entering the following command:

   java -jar aspectj-1.8.10.jar
Upgrading Unified Inventory Management

Pre-Upgrade Tasks for Release 7.3.x

Pre-upgrade tasks must be performed while the UIM WebLogic server is inactive.

These pre-upgrade tasks apply if your old version of UIM is version 7.3.x. Perform the following pre-upgrade tasks:

2. Back up the UIM WebLogic Server domain. See the WebLogic Server documentation for more information.

Note: Verify that the file/folder being backed up meets the file size or pathname length requirements for the backup utility being used. For example, the maximum pathname length for the tar application is 256 characters.

3. If the old version of your UIM user interface was customized, back up the changes.

Caution: UIM does not maintain backward compatibility for the user interface. If the old version of your UIM user interface was customized and you do not back up the changes, you will lose them. (You will re-apply the changes when performing the post-upgrade tasks.)

4. Before upgrading the domain, perform a backup by copying the directories that contain Fusion Middleware files. You can do this by archiving and compressing the source Oracle home and the Administration Server domain. Do the following:
   a. Shut down all processes in the Oracle home. For example, shut down the Managed Servers, the Administration Server, and any system components.
   b. Back up the Oracle home (ORACLE_HOME) on all hosts. For example:

   (UNIX) tar -cf oracle_home_backup_062015.tar ORACLE_HOME/*
(Windows) jar cMf oracle_home_backup_0462015.jar ORACLE_HOME/*

c. Back up the Administration Server domain separately. This backs up Java components and any system components in the domain.

(UNIX) tar -cf domain_home_backup_062015.tar DOMAIN_HOME/*
(Windows) jar cMf domain_home_backup_062015.jar DOMAIN_HOME/*

5. Upgrade Oracle Fusion Middleware. MapViewer is an optional software that you need to install or upgrade separately.

6. Stop the UIM domain servers.

7. Upgrade the UIM MDS Schema:
   a. Navigate to MW_HOME/oracle_common/upgrade/bin/ua
      where MW_HOME is the directory in which Oracle Fusion Middleware is installed.
      This directory contains the Upgrade Assistant (UA) tool, which you use to upgrade the schema.
   b. Launch the UA tool to upgrade the schema.
      The Welcome screen appears.
   c. Click Next.
      The Upgrade Type screen appears.
   d. Select Individually Selected Schemas, and click Next.
      The Available Components screen appears, which enables you to select components to upgrade. Select the components that are present in the WebLogic domain:
      Oracle Audit Services
      Oracle Platform Security Services
      Oracle Metadata Services
      Common Infrastructure Services
   e. Click Next.
      The Domain directory screen appears.
   f. Select the domain directory for upgrade, and click Next.
      The Prerequisites screen appears.
   g. Confirm that the database backup is complete by selecting the All affected servers are down, All affected data is backed up, Database version is certified by Oracle for Fusion Middleware upgrade, and Certification and system requirements have been met check boxes, and click Next.
      The IAU Schema screen appears.

**Note:** The schemas (IAU, STB, OPSS, and MDS) may appear in different sequence after step 7g.

h. From the Database Type list, select the database type.

i. In Connect String, enter the hostname:portnumber/SID string.
Note: For a clustered environment, the hostname:portnumber/SID must specify the primary Oracle RAC node.

j. In DBA User Name, enter the database administrator user name.

k. In DBA Password, enter the password for the administrator user.

l. Click Connect.
   
   If the provided details are valid, the Schema User Name and Schema Password fields become enabled.

m. From the Schema User Name list, select the IAU schema for the current WebLogic domain.

n. In Schema Password, enter the database password, and click Next.
   
   The OPSS Schema screen appears.

o. Verify the details of the OPSS schema and click Next.
   
   The MDS Schema screen appears.

p. Verify the details of the MDS schema and click Next.
   
   The STB Schema screen appears.

q. Verify the details of the STB schema and click Next.
   
   The Examine screen appears.

r. Click Next.
   
   The Upgrade Summary screen appears.

s. Verify the details of the services to be upgraded and click Upgrade.
   
   The Upgrading Components screen appears. You can monitor the progress of the upgrade from this screen.

t. After the upgrade completes, click Next.
   
   The Upgrade Success screen appears.

u. Verify that the upgrade was successful and click Close.

8. Create the WebLogic Services (WLS) schema using the Fusion Middleware RCU, which you open using the following command:

   `./MW_Home/oracle_common/bin/rcu`


9. Reconfigure the WebLogic domains using the Fusion Middleware Reconfiguration Wizard, which you open using the following command:

   `./MW_Home/oracle_common/common/bin/reconfig.sh`

   a. On the Select Domain screen, from the Existing Domain Location list, select the UIM domain that you want to upgrade and click Next.
      
      The Reconfiguration Setup Progress screen appears, displaying the progress of the reconfiguration setup process.

   b. Click Next.
The Domain Mode and JDK screen appears.

The domain mode cannot be changed during reconfiguration. It is inherited from the original domain.

c. Select the JDK option and browse to the folder (JAVA_HOME) where the JDK is installed and click **Next**.

Ensure that you have installed the correct version of the JDK. See "Software Requirements" for more information.

The Database Configuration Type screen appears.

d. Select the RCU Data option, complete the required fields, and then click **Get RCU Configuration**, which retrieves the schema information.

You select the **RCU Data** option to connect to the database to retrieve schema information for all schemas that are included in the domain.

e. Click **Next**.

f. Navigate through the different screens by clicking **Next** on each screen and specify your settings as necessary.

g. On the Node Manager screen, under the **Node Manager Type** area, select **Manual Node Manager Setup** and click **Next**.

The Advanced Configuration screen appears.

h. Select **Administration Server** and then select the other categories for which you want to perform advanced configuration and click **Next**.

The Administration Server screen appears.

i. Do one of the following depending on your installation type:

For a single server installation, in the **Server Groups** list, select **MAPVIEWER-MAN-SVR** and **JRF-MAN-SVR** groups and click **Next**. (The **Server Groups** list may not display both the groups if you did not install MapViewer.)

For a cluster installation, in the Managed Servers screen, in the **Server Groups** list, select **MAPVIEWER-MAN-SVR** and **JRF-MAN-SVR** groups and click **Next**. (The **Server Groups** list may not display both the groups if you did not install MapViewer.)

For each category you selected in the previous step, the appropriate configuration screen is displayed to allow you to perform advanced configuration.

j. Navigate through the different screens by clicking **Next** on each screen and specify your settings as necessary.

k. On the Deployments Targeting screen, under **Targets**, select the **oracle.communications.inventory** application and then click the left arrow, which moves the application to the **Deployments** section.

l. On the Deployments Targeting screen, under **Deployments**, select **Library**, and then under **Targets**, select the server or cluster, and then click the right arrow, which moves all the libraries to the targeted server or cluster for deployment.

m. Click **Next**.

The Services Targeting screen appears.
n. Under **Services**, select all the services, and then under **Targets**, select the server or cluster, and then click the right arrow, which moves the services to the targeted server or cluster for deployment.

o. Click **Next** until the Configuration Summary screen appears.

p. Review the detailed configuration settings of the domain and click **Reconfig**.

The Reconfiguration Progress screen appears, which displays the progress of the reconfiguration process.

After the reconfiguration process completes, the Reconfiguration Success screen appears.

q. Click **Finish**.

See Oracle Fusion Middleware documentation for more information.

10. Upgrade the WebLogic domain configurations by doing the following:

a. Navigate to the `MW_Home/oracle_common/upgrade/bin/ua` directory.

This directory contains the Fusion Middleware Upgrade Assistant 12c, which you use to upgrade the WebLogic domain configurations.

b. Launch the Fusion Middleware Upgrade Assistant.

The Welcome screen appears.

c. Click **Next**.

d. Select **WebLogic Component Configurations**, and in the **Domain Directory** field, select the WebLogic domain directory you want to upgrade, and then click **Next**.

The Prerequisites screen appears.

e. Confirm that the database backup is complete by selecting the **All affected data is backed up**, **Database version is certified by Oracle for Fusion Middleware upgrade**, and **Certification and system requirements have been met** check boxes, and click **Next**.

f. Navigate through the different screens by clicking **Next** on each screen and specifying your settings as necessary.

g. On the Upgrade Success screen, verify that the upgrade was successful and click **Close**.

See Oracle Fusion Middleware documentation for more information.

11. Upgrade the Oracle Database software. See "Database Software Changes" for more information.

See the Oracle Database documentation for information on upgrading the database software to a newer version.

12. Apply any required Oracle Database patches.

See "Software Requirements" for more information on the Oracle Database patches.

See the Oracle Database documentation for information on applying patches to the database.

13. Upgrade the UIM database schema by performing the following steps:
Upgrading UIM

**WARNING:** Data can change when you upgrade the UIM database schema.

- **a.** Create two temporary directories, `temp_dir` and `temp_dir_schema`.
- **b.** Download the UIM software for your operating system from the Oracle software delivery website and save it to `temp_dir`.
- **c.** From the ZIP file, extract the `ora_uim_dbtools.jar` file into `temp_dir_schema`.

  The `ora_uim_dbtools.jar` file is located in the root of the downloaded ZIP file.

- **d.** In `temp_dir_schema`, open the `ora_uim_dbtools.jar` file and extract the contents into `temp_dir_schema`.

**Note:** For dbtools to work, you must have both the `ora_uim_dbtools.jar` file itself, and its extracted contents, in the `temp_dir_schema` directory.

- **e.** Open the `temp_dir_schema/config/databases.xml` file in an editor, where you will see the following:

  ```xml
  <db:database name="SID">
    <db:driver>oracle.jdbc.driver.OracleDriver</db:driver>
    <db:connectionUrlString>
      jdbc:oracle:thin:@DBHostName:port:SID
    </db:connectionUrlString>
    <db:schemaComparison fromSchema="UIM_701" toSchema="UIM_710">
      fromFile="\filepath\dist\scripts\create.sql" toFile="\filepath\dist\scripts\create.sql"
    </db:schemaComparison>
  </db:database>
  ```

  Modify the `<db:database>` element name attribute value (`SID` in the above XML) to be the SID value of the database you are upgrading.

  Modify the `<db:connectionUrlString>` element value (`DBHostName:port:SID` in the above XML) to be the database you are upgrading.

  **Note:** For a clustered environment, the `DBHostName:port:SID` must specify the primary Oracle RAC node.

  For a pluggable database (PDB), specify `<db:connectionUrlString>` in the following format:

  ```xml
  jdbc:oracle:thin:@DBHostName:port/SID
  ```

- **f.** Grant the execute permission for the `runDB.sh` script.

- **g.** Run the DB upgrade with the following command:

  ```bash
  runDB.sh DBTOOLS_PATH JAVA_HOME upgrade
  ```

  where `DBTOOLS_PATH` is the directory location of the `ora_uimdbtools.jar` file, and where `JAVA_HOME` is the directory location of your Java installation (up to the `jdk/bin` directory).

  For example:
Upgrading UIM

./runDB.sh /home/uimdev/download/dbupgrade/temp_dir_schema
/usr/jdk1.8.0_patch/bin upgrade

where patch is the version of your JDK. You will be prompted to enter the
database SID, and the UIM DB userid and password for the DB you want to
migrate.

You will also be prompted to enter upgrade to confirm that an upgrade is to
be performed on the database.

**Note:** The database contains tables that record if a script has been
run against the database and if the script can be re-run. If the script
has been previously run and it has been identified as *Not re-Runnable*,
the message *Update has already run* displays next to the script name in
the DbVersionController.log file.

The following is an example of the DbVersionController.log file:

1/11/17 6:34:22 AM PST: Applying Framework Update: sq1frmwrk - Success
1/11/17 6:34:22 AM PST: Applying Framework Update: sq1frmwrk1 - Success
1/11/17 6:34:22 AM PST: Applying Framework Update: sq1frmwrk2 - Success
1/11/17 6:34:22 AM PST:
1/11/17 6:34:22 AM PST:
1/11/17 6:34:22 AM PST: DbVersionController Completed Wednesday, January
11, 2017 6:34:22 AM PST

View the DbVersionController.log file to verify that all the scripts were
successful or have already been run.

14. If the domain names or managed server names for the old WebLogic domain and
the new WebLogic domain are different, then delete the records from the UIM
database schema tables named WL_LLRR-servername.

For example, if there were two managed servers (uim_ms1 and uim_ms2) from the
previous UIM release, you would need to delete the records from the following
tables:

WL_LLRR_UIM_MS1 and WL_LLRR_UIM_MS2

15. If you are upgrading from UIM Release 7.3.0 and you are using the MapViewer
software, delete the older version of MapViewer currently deployed in the
WebLogic domain by performing the following steps:

a. Log in to the WebLogic Server Administration Console.

b. On the Home page, under **Domain Structure**, click the **Deployments** link.

The Summary of Deployments page appears.

c. Select the check box for the oracle.communications.inventory.mapviewer
application, and click **Stop**, and then select **Force Stop Now**.

A confirmation message appears.

d. Click **Yes**.

e. Select the check box for the oracle.communications.inventory.mapviewer
application and click **Delete**.

A confirmation message appears.

f. Click **Yes**.
In the Change Center of the Administration Console, click **Activate Changes**, which activates these changes.

16. (Optional) Install the new version of MapViewer. See "Software Requirements" for software version information.

17. (Optional) If you are upgrading from UIM Release 7.3.0 (and you performed step 15), update the existing WebLogic domain for MapViewer using the Fusion Middleware Configuration Wizard, with the following command:

```
./MW_Home/oracle_common/common/bin/config.sh
```

a. On the Select Domain screen, select the **update an existing domain** option and from the **Existing Domain Location** list, select the UIM domain that you want to upgrade and click **Next**.

   The Domain Template screen appears.

b. Select **Oracle MapViewer - 12.2.1.3.0 [oracle_common]**.

c. Click **Next**.

d. Navigate through different screens by clicking **Next** on each screen and specify your setting as necessary.

e. On the Configuration Summary screen, click **Update** to finish the upgrade.

f. Start the UIM domain servers.

You can now access the newly deployed MapViewer 12c application at the following URL:

```
http://ServerName:Port/mapviewer/
```

where:

- **ServerName** is the application server used by UIM.
- **Port** is the port used by UIM.

**Note:** If you do not delete the older version of MapViewer before deploying the new version, and then restart the UIM domain server, the new MapViewer is started by default and the status of the older version changes to Failed.

18. Restart all the servers, including the Administration server, using the following command:

```
./startUIM.sh
```

**Upgrading UIM**

This section assumes you have already performed the pre-upgrade steps appropriate for the release of UIM from which you are upgrading. This section also assumes you have downloaded the software pack to **temp_dir**.

Perform the following tasks to upgrade UIM:

1. Navigate to the **temp_dir** directory and extract the contents of the downloaded software pack:

```
unzip -xvf Software_Pack.zip
```
The extracted software pack has the following structure:

`uim/Disk1/install/

2. Navigate to the `temp_dir/uim/Disk1/install/` directory, and run the following command to start the installer:

```
./runInstaller -jreloc jre_Path
```

where `jre_Path` is the JRE location.

Ensure that you have installed the correct version of the JRE. See "Software Requirements" for more information.

The installer Welcome screen appears.

3. Click Next.

4. In the Select Installation Type screen, select Complete, and click Next.

The Specify Home Details screen appears.

5. Do the following:

   a. In Name, enter, browse to, or confirm the name of the folder that contains the installation files for the old version of UIM.

   b. In Path, enter, browse to, or confirm the directory where the folder specified in the Name field is located.

   c. Click Next.

The installer scans the specified directory and folder.

The installer displays a warning message if it detects a pre-existing installation of UIM.

6. Click Yes to acknowledge the message.

The WebLogic Administration Server Connection Information screen appears.

7. Do the following:

   a. In Host Name, enter the Listen address of the Administration server (IP address or the host name of the host machine).

   b. In Port Number, enter the Administration server port number.

   c. In User Name, enter the user name with which you connected to the Administration Server.

   d. In Password, enter the password for the user name you provided in User Name.

   e. Click Next.

The WebLogic Server/Cluster Selection screen appears.

Note: This user should belong to the WebLogic Server Administrator’s group.

Note: In the following steps, the WebLogic Server should be running.
8. Select the same target WebLogic server or cluster of servers belonging to the WebLogic Server domain to upgrade, and click **Next**.

If you are upgrading a cluster of servers, the Cluster Member Server Selection screen appears, where you can select a cluster member for UIM to install or upgrade.

The Database Type Selection screen appears.

9. Select the same database type that is used by your old UIM installation:

- If your old installation is connected to a standalone database, select **Standard Oracle 12c Enterprise Database** and click **Next**.

  The Database Connection Information screen appears.

  Do the following:
  
  a. Verify that the retrieved field values are correct, and click **Next**.
  
  b. In **Password**, enter the database server password for the user name you provided in **User Name**.
  
  c. Click **Next**.

- If your old installation is connected to an Oracle RAC database, select **Oracle 12c Real Application Cluster Database** and click **Next**.

  The Oracle RAC DB for MDS screen appears.

  Do the following:
  
  a. Verify that the retrieved field values are correct, and click **Next**.
  
  b. In **Password**, enter the database server password for the user name you provided in **User Name**.
  
  c. Click **Next**.

  The Oracle RAC DB Nodes Connection Information screen appears.

  Do the following:
  
  a. Verify that the retrieved field values are correct, and click **Next**.
  
  b. In **Password**, enter the database server password for the user name you provided in **User Name**.
  
  c. Click **Next**.

  The MDS Schema Information screen appears.

10. Enter the MDS Schema information by doing the following:

    a. In **Host Name**, enter the IP address or host name of the machine where the database server is installed.
    
    b. In **Port Number**, enter the port number with which the installer will connect to the database server.
    
    c. In **User Name**, enter the user name for the MDS schema.
    
    d. In **Password**, enter the password for the user name you provided in **User Name**.
    
    e. In **Service Name**, enter the service name for that uniquely identifies your database on the system.
    
    f. Click **Next**.
The Database Connection Information screen appears.

11. Provide the database user name and password, and click Next.

**Caution:** You must use the same user name and password that you provided when you set up the database schema using the Repository Creation Utility (RCU).

The user must have the following privileges: CATALOG, CONNECT, Create User, Create Session, Grant Any Privilege, Grant Any Role, Select Any Table, Select any Dictionary.

See "Creating the Database (MetaData) Schema for UIM" for more information.

The UIM database schema creation screen appears.

12. Enter the UIM database schema information, by doing the following:

   a. In **User Name**, enter the user name for the Unified Inventory Management schema.

   b. In **Password**, enter the password for the user name you provided in **User Name**.

   c. In **System Tablespace**, enter the name for the permanent tablespace.

   d. In **Temp Tablespace**, enter the name for the temporary tablespace.

   e. Click Next.

The Security Provider Selection screen appears.

13. Select the security provider you want to use, and click Next.

The CMWS User Information screen appears.

14. Enter the CMWS User information, by doing the following:

   a. In **User Name**, enter the user name for the CMWS user.

   b. In **Password**, enter the password for the user name you provided in **User Name**.

   c. In **Confirm Password**, enter the password again.

   d. Click Next.

   A warning message appears because the “cmwsuser” already exists.

15. Click OK to acknowledge the message.

The UIM Administrator user creation (Optional) screen appears.

16. Enter the UIM User information, by doing the following:

   a. In **User Name**, enter the user name for the UIM user.

   b. In **Password**, define a password for the UIM user.

**Note:** The UIM user password can be a maximum of 12 letters long, and should contain at least one numeric value and one capital letter. For example, Weblogic123.

Also, the user name must not be part of the password.
In **Confirm Password**, enter the password again.

c. Click **Next**.

A warning message appears because “uimuser” already exists.

17. Click **OK** to acknowledge the message.

The Do you want to create the UIM file store or JDBC store? screen appears.

18. Select the same type of store you selected when UIM was initially installed, and click **Next**.

The SSL enable Information screen appears.

19. Select whether or not to enable SSL. If you select **Yes**, enter the **Port** number. Click **Next**.

The MapViewer information or a Summary screen appears.

20. In the **URL** field, enter the URL for MapViewer if you installed MapViewer.

21. Click **Next**.

The Summary screen appears.

22. Review the selections you have made in the preceding screens, and click **Install**.

The Install screen appears.

23. You can view the installation progress.

On successful installation of Unified Inventory Management, the End of Installation screen appears.

24. Perform the post-upgrade tasks. See "Post-Upgrade Tasks" for more information.

### Post-Upgrade Tasks

These post-upgrade tasks apply if your old version of UIM is version 7.2.x or 7.3.x. Complete all of the following post-upgrade tasks after upgrading UIM, if necessary:

1. Verify that the upgrade process completed successfully before performing the remaining post-upgrade tasks. See "Verifying the Unified Inventory Management Installation" for more information.

2. If your UIM system is set up using Oracle RAC, and runs on multiple systems or across networks, update and re-enable cache coordination. See "Configuring Ehcache for the Cluster" for more information.

3. If the old version of your UIM user interface was customized, apply the changes to the new version of UIM. (You backed up these changes when performing the pre-upgrade tasks.)

4. Install the new version of Design Studio. See the Design Studio documentation for more information.

Oracle recommends installing the new version of Design Studio along side the old version of Design Studio so that you can migrate custom cartridges to the new version more easily.

5. Deploy all the 7.4.x base cartridges into the upgraded UIM environment. For information on base cartridges, see **UIM Cartridge Guide**.

6. Redeploy any custom cartridges and cartridge packs, after migrating and compiling the cartridges and cartridge packs using Design Studio. See the Design Studio documentation for more information.
7. Repackage the 7.4 custom.ear file by doing the following, regardless of whether any custom code needs to be added:
   a. In the Oracle WebLogic Server Administration Console, undeploy the existing 7.3.x custom.ear file.
   b. Make a backup copy of the 7.4 custom.ear file located in the UIM_Home/app/7_4 directory.
   c. Extract the contents of the 7.4 custom.ear file to a temporary directory, such as tempDirCustom.
   d. Copy any custom code from 7.3.x custom.ear to 7.4 custom.ear (which is extracted to tempDirCustom).
   e. Repackage the 7.4 custom.ear file with the upgraded content in the tempDirCustom directory.
   f. Copy the upgraded and repackaged custom.ear file to the UIM_Home/app/7_4 directory.

---

**Note:** You will deploy the repackaged custom.ear file in a later post-upgrade step, after you have restarted the WebLogic server.

---

8. For cluster server upgrades, increase the **Stuck Thread Max Time** value of each server from 600 to 1200:
   a. Login to the WebLogic Server Administration Console.
   b. In the left section, under Domain Structure, expand Environment.
   c. Click Servers.
      The Summary of Servers page appears.
   d. Click the link for each managed server.
      The Settings for ManagedServer page appears, where ManagedServer is the name of the managed server you selected.
   e. Click the Configuration tab.
   f. Click the Tuning sub-tab.
   g. In Stuck Thread Max Time, change the value from 600 to 1200.
   h. Click Save.

9. For clustered server upgrades, configure the WebLogic Server proxy timeout value:
   b. Add the following parameter to the web.xml file:
      ```
      <init-param>
        <param-name>WLIOTimeoutSecs</param-name>
        <param-value>1800</param-value>
      </init-param>
      ```
   c. Save and close the web.xml file.
   d. Restart the WebLogic server.
10. If upgrading from UIM 7.2.0, convert logical devices from UIM 7.2.0 to UIM 7.2.4. (In UIM 7.2.2, logical devices were enhanced to define rate codes; so, if upgrading from UIM 7.2.2 or 7.2.3, logical devices are already converted.) To convert logical devices, execute the ruleset `CONVERT_LD_SR1_TO_SR2`, by giving it a list of associated Logical Device specifications. The list of Logical Device specifications is passed to the ruleset via a text file. For example, if you text file contains the following specifications:

- Analog Telephony Adapter
- IP Phone
- Data Networking Device

Then all the Logical Device instances that have those respective specifications will be converted.

To execute the ruleset, perform the following:

a. Create a text file and list all the Logical Device Specifications for which you want to upgrade. You should list one specification per line.

b. Login to UIM and from the Tasks menu select the link Execute Rule.

c. From the Ruleset dropdown menu, select `CONVERT_LD_SR1_TO_SR2`.

d. Using the Browse button, select the text file that contains the list of Logical Devices to be converted.

e. Click the Process button (upper-right corner of the UIM UI) to start the conversion.

f. Restart the WebLogic server.

If there is a large number of Logical Device instances per Logical Device specifications, then the conversion process should be split into multiple executions.

11. Deploy the custom.ear file by running the following command:

```
java -cp MW_Home/wls/server/server/lib/weblogic.jar weblogic.Deployer -adminurl t3://ServerName:Port -user UserName -password Password -deploy Domain_Home/UIM/app/uimVersion/custom.ear -targets ServerName -name custom -plan Domain_Home/UIM/app/plan/Plan.xml
```

where:

- **MW_Home** is the directory in which the Oracle Fusion Middleware 12c products are installed.
- **Domain_Home** is the directory containing the configuration for the domain into which UIM is installed.
- **ServerName** is the name of the Administration Server machine.
- **Port** is the Administration Server port number.
- **UserName** is the user name with which you connect to the Administration server.
- **Password** is the password for the Administration server.
- **name** is the name of the file. This value defaults to the base name of the deployment file or directory.
- **targets** is the administration server name or cluster server name.
About Rolling Back UIM

If the installer fails to successfully upgrade UIM, you must manually restore the WebLogic server domain, the database schema, and the database domain. See the chapter, “Unified Inventory Management Backup and Restore” in UIM System Administrator’s Guide for more information about restoring the database. See the WebLogic Server documentation for more information about restoring the WebLogic Server domain.
Setting Up Unified Inventory Management for Single Sign-On Authentication

This chapter provides instructions for setting up Oracle Communications Unified Inventory Management (UIM) for single sign-on (SSO) authentication.

UIM implements the single sign-on (SSO) authentication solution using Oracle Access Manager, which enables you to seamlessly access multiple applications without being prompted to authenticate for each application separately. The main advantage of SSO is that you are authenticated only once, which is when you log in to the first application; you are not required to authenticate again when you subsequently access different applications with the same (or lower) authentication level (as the first application) within the same web browser session.

UIM also supports the single logout (SLO) feature. If you access multiple applications using SSO within the same web browser session, and then if you log out of any one of the applications, you are logged out of all the applications.

This solution supports SSO authentication between UIM and Network Integrity applications.

For more information, see Oracle Fusion Middleware Administrator’s Guide for Oracle Access Management.

Installing Required Software

Install and configure the following software that UIM requires for implementing SSO authentication:

- Oracle Access Manager (OAM), included with Oracle Identity and Access Management 12c (12.2.1.3.0)
- Oracle WebLogic Server 12c (12.2.1.3.0)
- Oracle HTTP Server (OHS) 12c (12.2.1.3.0)
- Oracle HTTP Server 12c WebGate for OAM

To install the required software, do the following:

1. Install Oracle WebLogic Server 12c and create the Oracle Middleware Home directory ($MW_Home). This is the directory in which the Oracle Fusion Middleware products are installed.
Configuring UIM to Enable SSO Authentication

For more information, see Oracle Fusion Middleware Installation Guide for Oracle WebLogic Server 12c.

2. Install Oracle Access Manager (OAM) in the same Oracle Middleware Home directory that you created when you installed Oracle WebLogic Server 11g.

For more information, see Oracle Fusion Middleware Installation Guide for Oracle Identity and Access Management.

3. Install and configure Oracle HTTP Server, which is a Web server that acts as the front end to the Oracle WebLogic Server.

For more information, Oracle Fusion Middleware Installing and Configuring Oracle HTTP Server.

4. Install and configure Oracle HTTP Server WebGate for OAM.
A WebGate is a web-server plug-in for Oracle Access Manager (OAM) that intercepts HTTP requests and forwards them to the Access Server for authentication and authorization. For more information, see Oracle Fusion Middleware Installing WebGates for Oracle Access Manager.

5. Install an external LDAP server. For example, Oracle Internet Directory (OID). Oracle recommends Oracle Internet Directory as an external LDAP store.
For information on installing and configuring Oracle Internet Directory, see Oracle Fusion Middleware Installation Guide for Oracle Identity Management.

6. Configure the external LDAP as the user identity store in OAM.
For more information, see Oracle Fusion Middleware Administrator’s Guide for Oracle Access Management.

7. Register the Oracle HTTP Server WebGate instance with OAM by using the Oracle Access Manager Administration Console.
For more information, see the chapter on “Registering Partners (Agents and Applications) by Using the Console” in Oracle Fusion Middleware Administrator’s Guide for Oracle Access Manager with Oracle Security Token Service.

8. Continue with the steps in "Configuring UIM to Enable SSO Authentication".

Configuring UIM to Enable SSO Authentication

Configuring UIM to enable SSO authentication involves the following tasks:

- Prerequisites
- Installing and Deploying UIM Specifying the External LDAP Provider
- Configuring the Frontend URL in Administration Console
- Creating and Configuring Providers for OAM SSO
- Configuring web.xml for the OAM Identity Asserter
- Configuring the mod_wl_ohs Plug-In for Oracle HTTP Server
- Protecting Resources For SSO Authentication
- Excluding Resources From SSO Authentication
Prerequisites

Before configuring UIM for SSO, ensure that the server on which UIM is installed can connect to the server on which OID is installed.

To enable the UIM server to connect to the OID server, edit the UIM server’s **hosts** file and add the host name and IP address of the OID server. On Windows, the **hosts** file is typically located at `C:\Windows\System32\drivers\etc\`. On Unix and Solaris, the **hosts** file is located at `/etc/hosts`.

Installing and Deploying UIM Specifying the External LDAP Provider

Install and deploy UIM specifying the external LDAP provider. When installing UIM, in the Security Provider Selection screen, select the **External_LDAP** option, and then enter the required information in the External Security Provider Connection Information screen. Follow the instructions provided in "Installing UIM by Using Interactive Install".

Configuring the Frontend URL in Administration Console

Set the front-end host and port so that all requests to access the applications (UIM/Network Integrity) deployed in the WebLogic administration server go through the Oracle HTTP server:

To configure the Frontend URL:

1. Log in to the WebLogic Server Administration Console.
2. In the **Domain Structure** tree, expand **Environment**, and click **Servers**.
   
   The Summary of Servers screen appears.
3. Click **AdminServer**.
   
   The Setting for AdminServer screen appears.
4. Click the **Protocols** tab.
5. On the HTTP tab, do the following:
6. In the **Frontend Host** field, enter the name of the Oracle HTTP Server host machine.
   
   WebLogic Server uses this value instead of the one in the host header. All HTTP URLs are redirected to this HTTP host.
7. In the **Frontend HTTP Port** field, enter the Oracle HTTP Server port number.
   
   All HTTP URLs are redirected to this HTTP port.
8. Click **Save**.
9. In the Change Center of the Administration Console, click **Activate Changes**, which activates these changes.

Creating and Configuring Providers for OAM SSO

You must create a new OAMIdentityAsserter provider for OAM SSO in WebLogic Server Administration Console.

To create the OAMIdentityAsserter provider:

1. Log in to the WebLogic Server Administration Console.
2. Under Your Application’s Security Settings, click **Security Realms**.
The Summary of Security Realms screen appears.

3. Select the realm YourRealmName, for which you need to configure the OAM identity asserter.

The Settings For YourRealmName screen appears.

4. Click the Providers tab, and then click the Authentication tab.

5. Click New.

The Create a New Authentication Provider screen appears.

6. In the Name field, enter a name for the new provider; for example, OAM ID Asserter.

7. From the Type list, select OAMIdentityAsserter.

8. Click OK.

The Settings For YourRealmName screen appears, showing the newly created authentication name in the Authentication tab.

9. Click the link for AuthenticatorName (For example, OAM ID Asserter).

The Settings for AuthenticatorName screen appears.

10. On the Common tab, from the Control Flag list, select REQUIRED.

11. Under Active Types, use the directional arrow buttons to move OAM_REMOTE_USER from the Available column to the Chosen column.

12. (Optional) If you use Oracle Internet Directory as the external LDAP store, ensure that you move OAM_IDENTITY_ASSERTION to the Chosen column.

13. Click Save.

14. Click the Providers tab, and then click the Authentication tab.

15. Click the link for DefaultAuthenticator and ensure that the default authenticator’s control flag is set to SUFFICIENT.

16. Click the link for OID/OUD Authenticator (for example, OracleInternetDirectoryAuthenticator) and ensure that the OID/OUD authenticator’s control flag is set to SUFFICIENT.

See "Installing and Configuring an Authentication Provider" for more information.

17. On the Authentication tab, click Reorder.

The Reorder Authentication Providers screen appears

18. Use the Up and Down arrows to reorder the listed Authentication Providers as follows:
   - OAMIdentityAsserter (REQUIRED)
   - OracleInternetDirectoryAuthenticator (SUFFICIENT)
   - DefaultAuthenticator (SUFFICIENT)

19. Click OK.

Configuring web.xml for the OAM Identity Asserter

You configure the web.xml file for the OAM Identity Asserter by updating the deployment plan. You use deployment plans to change an application’s WebLogic
Server configuration for a specific environment without modifying existing deployment descriptors.

To configure the `web.xml` file:

1. For using Oracle Access Manager Identity Assertor, you must specify the authentication method as CLIENT-CERT in the `web.xml` file for the appropriate realm by editing the deployment plan. The `web.xml` file is located at `UIM_Home/app/inventory.ear/inv.war/WEB-INF/`, where `UIM_Home` is the directory in which the UIM software is installed.

   - Depending on your deployment configuration, do one of the following:
     - If UIM is installed in a single server environment, navigate to and open the `UIM_Home/app/plan/Plan.xml` file.
     - If UIM is installed in a clustered server environment, navigate to and open the `UIM_Home/app/plan/ClusterPlan.xml` file.

   - Update the variable-definition and variable-assignment elements; specifically, add CLIENT-CERT as follows:

     ```xml
     <variable-definition>
     <variable>
       <name>ClientCertAuthMethod</name>
       <value>CLIENT-CERT</value>
     </variable>
     <variable>
       <name>RealmName</name>
       <value>myrealm</value>
     </variable>
     </variable-definition>
     <module-override>
       <module-name>inv.war</module-name>
       <module-type>war</module-type> <module-descriptor external="false">
         <root-element>web-app</root-element>
         <uri>WEB-INF/web.xml</uri>
         <variable-assignment>
           <name>ClientCertAuthMethod</name>
           <xpath>/web-app/login-config/auth-method</xpath>
           <operation>replace</operation>
         </variable-assignment>
         <variable-assignment>
           <name>RealmName</name>
           <xpath>/web-app/login-config/realm-name</xpath>
           <operation>add</operation>
         </variable-assignment>
     </module-descriptor>
     </module-override>
     
   - Save and close the `Plan.xml/ClusterPlan.xml` file.

2. Update the deployment plan for the currently-deployed UIM application:
   a. Log in to the WebLogic Server Administration Console.
   b. In the Domain Structure tree, expand Environment, and click Deployments. The Summary of Deployments screen appears.
   c. Select the check box for oracle.communications.inventory.
   d. Click Update. The Update Application Assistant page appears.
Configuring UIM to Enable SSO Authentication

e. Select Update this application in place with new deployment plan changes and click Next.

f. (Optional) Click Change Path beside the Deployment Plan Path field and browse to the location of the Plan.xml/ClusterPlan.xml file.

   The Summary page appears.

g. Click Finish.

h. In the Change Center of the Administration Console, click Activate Changes, which activates these changes.

Configuring the mod_wl_ohs Plug-In for Oracle HTTP Server

You must configure the mod_wl_ohs plug-in and edit the mod_wl_ohs.conf file to enable the Oracle HTTP Server instances to forward requests to the applications deployed on the Oracle WebLogic server or clusters.

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

Configuring the mod_wl_ohs plug-in involves the following tasks:

- Configuring the WebLogic Proxy Plug-In
- Editing the mod_wl_ohs.conf File

Configuring the WebLogic Proxy Plug-In

To configure the WebLogic Proxy Plug-in:

1. Log in to the Oracle WebLogic Server administration console.

2. In the Domain Structure tree, expand Environment, and do one of the following:
   - Select Clusters (if the server instances to which you want to proxy requests from Oracle HTTP Server are in a cluster)
   - Select Servers.

   The Summary of Servers page appears.

3. Select the server or cluster to which you want to proxy requests from Oracle HTTP Server.

4. Click the Configuration tab.

5. On the General tab, in the Advanced section, select the WebLogic Plug-In Enabled check box.

6. If you selected Servers in step 2, repeat steps 3 and 4 for the other servers to which you want to proxy requests from Oracle HTTP Servers.

7. Click Save.

8. Restart the WebLogic server.

Editing the mod_wl_ohs.conf File

To edit the mod_wl_ohs.conf file:

1. Open the mod_wl_ohs.conf file from the following location:

   Domain_Home/config/fmwconfig/components/OHS/ohs1/

   where:
*Domain_Home* is the directory containing the configuration for the domain into which UIM is installed.

2. Add directives within the `<IfModule weblogic_module>` element in the configuration file as follows:

   - To forward requests to the UIM application running on a single Oracle WebLogic Server instance, specify `/Inventory` within the `<location>` element as follows:

     ```
     <IfModule weblogic_module>
     <Location /Inventory>
     SetHandler weblogic-handler
     WebLogicHost host
     WebLogicPort port
     </Location>
     </IfModule>
     ```

     where:
     - *host* is the name of the WebLogic Administration server machine
     - *port* is the port of the server on which UIM is installed

   - To forward requests to the UIM application running on a cluster of Oracle WebLogic Server instances, specify `/Inventory` within a new `<location>` element as follows:

     ```
     <IfModule weblogic_module>
     <Location /Inventory>
     SetHandler weblogic-handler
     WebLogicCluster host1:port1,host2:port2
     </Location>
     </IfModule>
     ```

     where:
     - *host1* and *host 2* are host names of the managed servers
     - *port1* and *port2* are ports of the managed servers

   - To forward requests to the UIM Web services running on a single Oracle WebLogic Server instance, specify `/InventoryWS` within the `<location>` element as follows:

     ```
     <IfModule weblogic_module>
     <Location /InventoryWS>
     SetHandler weblogic-handler
     WebLogicHost host
     WebLogicPort port
     </Location>
     </IfModule>
     ```

     where:
     - *host* is the name of the WebLogic Administration server machine
     - *port* is the port of the server on which UIM is installed

   - To forward requests to the UIM Web services running on a cluster of Oracle WebLogic Server instances, specify `/InventoryWS` within a new `<location>` element as follows:

     ```
     <IfModule weblogic_module>
     <Location /InventoryWS>
     ```
Configuring UIM to Enable SSO Authentication

SetHandler weblogic-handler
WebLogicCluster host1:port1,host2:port2
</Location>
</IfModule>

where:
-  host1 and host 2 are host names of the managed servers
-  port1 and port2 are ports of the managed servers

To forward requests to the UIM application running on a single Oracle
WebLogic Server instance into which you want to deploy cartridges, specify /
cartridge within the <location> element as follows:

<IfModule weblogic_module>
<Location /cartridge>
SetHandler weblogic-handler
WebLogicHost host
WebLogicPort port
</Location>
</IfModule>

where:
-  host is the name of the WebLogic Administration server machine
-  port is the port of the server on which UIM is installed

To forward requests to the UIM application running on a cluster of Oracle
WebLogic Server instances into which you want to deploy cartridges, specify /
cartridge within a new <location> element as follows:

<IfModule weblogic_module>
<Location /cartridge>
SetHandler weblogic-handler
WebLogicHost host
WebLogicPort ms_port
</Location>
</IfModule>

where:
-  host is the machine where the managed server is running
-  ms_port is the port of the managed server running on the host specified in
  the host variable above

For example, if a managed server uim_ms1 with listen port 8065 is running on
the machine UIM1, you must specify the following:

<IfModule weblogic_module>
<Location /cartridge>
SetHandler weblogic-handler
WebLogicHost UIM1
WebLogicPort 8065
</Location>
</IfModule>

Protecting Resources For SSO Authentication

You must protect resources (for example, the UIM application) in Oracle Access
Manager for SSO authentication. For more information, see Fusion Middleware
Configuring UIM to Enable SSO Authentication

To protect resources for SSO authentication:

1. Open the Oracle Access Management Console.
2. On the **Policy Configuration** tab, expand the **Application Domains** node.
3. Expand the node for the application domain.
4. Within the application domain, expand the **Resources** node.
5. Click the **Resources** tab, and then click the **New Resource** button in the upper-right corner of the Search page.
   The Resource Definition page appears.
6. Do the following to configure the UIM application as a protected resource for SSO authentication:
   - From the **Type** list, select **HTTP**.
   - In the **Resource URL** field, enter `/Inventory/*`.
   - From the **Protection Level** list, select **Protected**.
7. Click **Apply**.

**Excluding Resources From SSO Authentication**

You can exclude HTTP resources that do not require SSO authentication. For example, when accessing a Web Services Description Language (WSDL) document for Web services. The excluded resources are public and do not require an OAM Server check for authentication.

When allowing access to excluded resources, WebGate does not contact the OAM Server. Excluded resources cannot be added to any user-defined policy in the console.

For more information, see *Fusion Middleware Administrator’s Guide for Oracle Access Management*.

To exclude resources from SSO authentication:

1. Open the Oracle Access Management Console.
2. On the **Policy Configuration** tab, expand the **Application Domains** node.
3. Expand the node for the application domain.
4. Within the application domain, expand the **Resources** node.
5. Click the **Resources** tab, and then click the **New Resource** button in the upper-right corner of the Search page.
   The Resource Definition page appears.
6. Do the following to exclude UIM Web services from SSO authentication:
   - From the **Type** list, select **HTTP**.
   - In the **Resource URL** field, enter `/InventoryWS/.../*`.
   - From the **Protection Level** list, select **Excluded**.
7. Click **Apply**.
8. Click the **New Resource** button in the upper-right corner of the Search page.
   The Resource Definition page appears.
9. Do the following to exclude the UIM cartridge deployment process from SSO authentication:
- From the Type list, select HTTP.
- In the Resource URL field, enter /cartridge/.../*.
- From the Protection Level list, select Excluded.

10. Click Apply.
This chapter describes how to install patches on Oracle Communications Unified Inventory Management (UIM).

See the patch ReadMe file, included in the patch download, for information about the contents of a patch.

About Patching UIM

UIM patches are posted on the My Oracle Support website:

https://support.oracle.com

Most UIM patches are installed using the Oracle Universal Installer. If the installer fails to install the patch, you must restore your database schema and domain, and your WebLogic Server domain.

The patch ReadMe file specifies whether to use the installer to install a patch or whether to follow other installation instructions.

---

**Important:** Always read the patch ReadMe file in its entirety before installing a patch.

---

UIM patches are released as cumulative patches. This means that if there is more than one patch, the last patch will contain the changes for the other patches. For example, patch #3 will contain the changes for patch #1 and patch #2.

Some patches contain fixes and functionality that may not be of any interest to you or may apply to features that you have not installed or purchased. Read the patch ReadMe file to determine if you must install the patch.

Some patches are password protected. To request the password to download a protected patch, open a Service Request on the My Oracle Support website.
Planning Your Patch Installation

Before installing a patch, verify your version of UIM and ensure the patch is not already installed.

Oracle recommends scheduling your patch installation during non-peak hours to minimize the disruption to your operations.

Ensure that UIM is not running any operations.

As a precaution against a failed patch installation, Oracle recommends that you back up your database schema for UIM, database domain for UIM, WebLogic Server domain for UIM, the UIM_Home directory, and the installer inventory directory. See UIM System Administrator’s Guide for more information about backing up and restoring the database. See your WebLogic Server documentation for more information about backing up your WebLogic Server domain.

Oracle recommends installing a patch on a test system with a copy of your production data before installing the patch on your production system. Test the patch by logging into UIM and verifying the version number of installed components.

Installing a Patch

To install a patch on UIM:

1. Create a temporary directory (temp_dir).
2. Download the patch from the My Oracle Support website:
   https://support.oracle.com
   and save it to temp_dir.
3. Unzip the patch package and select a patch installer package based on your specific platform.
   
   **Note:** The package contains patch installer packages for the Linux, Solaris, and AIX platforms.

4. Extract the contents of the installer package to temp_dir.
   The extracted software pack has the following structure:
   PatchSet-UnifiedInventoryManagement-release-version/uim/Disk1/install/
5. Run the following command:
Installing UIM Patches

1. Navigate to the directory where the UIM patch files are located.

   
   ```
   /dir/PatchSet-UnifiedInventoryManagement-release-version/Disk1/install/runInstaller
   ```

   The JRE Location command prompt appears.

6. Enter the path to the JRE location.

The Oracle Universal Installer Welcome screen appears.

7. Click Next.

The Specify Home Details screen appears.

8. Do the following:
   
   a. In the **Name** field, confirm the name of the folder that contains the installation files for UIM.
   
   b. In the **Path** field, confirm the directory where the folder specified in the **Name** field is located.
   
   c. Click Next.

   The installer scans the specified directory and folder and retrieves information about your UIM installation, such as connection details and user names.

   The WebLogic Administration Server Connection Information screen appears, displaying the current connection information.

9. Do the following:
   
   a. In the **Host Name** field, confirm the IP address or host name for the server that UIM was installed on.
   
   b. In the **Port Number** field, confirm the port used by UIM.
   
   c. If SSL is not being used, uncheck the **Use SSL?** box.
   
   d. In the **Password** field, enter the WebLogic Administration server password.
   
   e. Click Next.

   The WebLogic Server/Cluster Selection screen appears.

   **Note:** The installer does not proceed from the WebLogic Administration Server Connection Information screen if any field contains errors.

10. Select the same target WebLogic server or cluster of servers belonging to the WebLogic Server domain and click Next.

    If you are installing a patch on a cluster of servers, the Cluster Member Server Selection screen appears, where you can select a cluster member for UIM to patch.

    The Database Type Selection screen appears.

11. Select the same database type that is used by your old UIM installation:

    - If your old installation is connected to a standalone database, select **Standard Oracle 12c Enterprise Database** and click Next.

      The Database Connection Information screen appears.

      Do the following:

      a. Verify that the retrieved field values are correct and click Next.
b. In the Password field, enter the database server password for the user specified in the User Name field.

c. Click Next.

The UIM Schema User Information screen appears.

If your old installation is connected to an Oracle Real Application Clusters (Oracle RAC) database, select Oracle 12c Real Application Cluster Database and click Next.

The Oracle RAC DB Nodes Connection Information screen appears.

Do the following:

a. Verify that the retrieved field values are correct and click Next.

b. In the Password field, enter the database server password for the user specified in the User Name field.

c. Click Next.

The UIM Schema User Information screen appears.

---

**Note:** The installer does not proceed from either the Database Connection Information screen or the Oracle RAC DB Nodes Connection Information screen if any field on these screens contains errors.

---

12. Do the following:

   a. Verify that the retrieved value in the Schema User Name field is correct.

   b. In the Schema User Password field, enter the schema user password for the user specified in the Schema User Name field.

   c. Click Next.

   The Summary screen appears.

13. Review the Summary screen and click Install.

   The Install screen appears, showing the status of the installation.

   When the installer completes the installation, the End of Installation screen appears. This screen provides the URLs for accessing the new release of UIM. Make a note of the URLs.

14. Click Installed Products and verify that the patch is listed.

15. Click Exit.

16. It is recommended to restart the WebLogic Administration server by using the following command from within the Domain_Home/bin directory:

```bash
./startUIM.sh
```
This chapter provides instructions on configuring Oracle MapViewer for use with Oracle Communications Unified Inventory Management (UIM).

Choosing a Map Option

UIM provides different options for you to point to your map data. UIM supports the following options:

- Point to the Oracle Map service (default). See "Pointing to the Oracle Map Service (Default)".
- Use existing map data. See "Using Existing Map Data".
- No existing map data. See "Using a Sample Map".

Pointing to the Oracle Map Service (Default)

UIM is preconfigured for the Oracle Map service.

The default map can be previewed from the following link:

http://elocation.oracle.com/elocation/ajax/

To review the proprietary information statements, see:

http://elocation.oracle.com/elocation/legal.html

World Mercator (Oracle Spatial SRID 54004) is a projection coordinate system widely used by tile-based online mapping services. The elocation_mercator.world_map served by elocation.oracle.com is rendered in this coordinate system.

See "Linking UIM Map Profile to MapViewer".

Using Existing Map Data

If you already have map data, you can define a custom data source that points to it. See the steps starting from "Defining the Map Data Source".

Using a Sample Map

If you do not have map data but would like to see your UIM data on a map background, you may download a world sample map from the Oracle Technology Network at the following link:

Configuring MapViewer

To configure MapViewer for UIM, perform the procedures in the following sections:

1. Defining the Map Data Source
2. Defining Base Maps
3. Modifying the Map Profile Defaults
4. Linking UIM Map Profile to MapViewer
5. Installing Map Builder

Defining the Map Data Source

To define the data source:

1. Log in to MapViewer by entering the following in a Web browser:
   
   \[http://ServerName:PortNumber/mapviewer\]

   where ServerName is the application server used by UIM and PortNumber is the port used by UIM.

   The Log In page is displayed.

2. Enter the user name and password that you used for the WebLogic Server installation and then select Log In.

   The MapViewer home page is displayed.

3. Select Admin.

   The predefined UIMDATA data source is displayed. UIMDATA is the connection between the map data and the UIM data.

4. To point to your local map data, you must build a map data source to connect the map data to the UIM data. This map data can be your own map data (in Oracle Spatial format) or the world sample map.

5. To define the map data source, select Configuration.

   The Edit mapViewerconfig.xml file is displayed.

6. Scroll down to the Predefined Data Sources section within the file, as shown in Example 12–1.

   Example 12–1  mapViewerConfig.xml File

   ```xml
   <!--***************************************************************************-->
   <!--**************************Predefined Data Sources**************************-->
   <!--***************************************************************************-->
   <!--Uncomment and modify the following to redefine one or more data sources.
   
   <!--***************************************************************************-->
   ```

After you have accessed the link, download the sample:

1. You must accept the OTN License Agreement to download this software. Click Accept License Agreement.

2. Click Download Data Bundle.

3. Follow the instructions in the downloaded ZIP file.

Next, see the steps starting from “Defining the Map Data Source”.
Note: You must precede the jdbc_password value with a "!" (exclamation point), so that when MapViewer starts the next time, it will encrypt and replace the clear text password.

```xml
<map_data_source name="mvdemo"
    jdbc_host="elocation.oracle.com"
    jdbc_sid="orcl"
    jdbc_port="1521"
    jdbc_user="scott"
    jdbc_password="tiger"
    jdbc_mode="thin"
    number_of_mappers="3"
    allow_jdbc_theme_based_foi="false"
>
</map_data_source>
```

7. Copy the entire contents starting from the map_data_source tag to the end and paste the copied information below the existing predefined data source information within the Predefined Data Sources section. See Example 12–2.

**Example 12–2  Contents of mapViewerConfig.xml File to Copy**

```xml
<map_data_source name="UIMDATA" container-ds="jdbc/InventoryMapDataSource"
    number_of_mappers="7"/>
```

8. Modify the copied XML code, using settings that match your environment. Use the database connection that points to your map data.

```xml
<map_data_source name="Give your data source name"
    container_d-s="JNDI URL of Map Datasource"
    number_of_mappers="7"
```

The data source should be created on the domain where the mapviewer is installed and should be pointing to the UIM database, otherwise this step will fail.

See "Copying the JNDI URL of Map Data Source" for information about copying the JNDI URL for your map data source.

9. Click Save & Restart.

Two messages File mapViewerConfig.xml has been saved and MapViewer has been restarted are displayed above the Config area. The jdbc_password is displayed as encrypted.

10. Select Datasources and verify that MAPDATA, for example, is displayed in the Existing data sources table.
Configuring MapViewer

Copying the JDNI URL of Map Data Source
This section provides information on how to copy the JDNI name of the map data source in the WebLogic domain where MapViewer is installed.

To copy the JDNI name of the map data source:
1. Log in to the WebLogic Server Administration Console.
2. Click Lock & Edit.
3. In the Domain Structure tree, expand Services, and then click Data Sources.
   The Summary of JDBC Data Sources page appears.
4. Click YourDataSource.
   The Settings for YourDataSource page appears.
5. In the JNDI Name field, copy the JNDI name, jdbc/YourDataSource.

Defining Base Maps
There is no limit to the number of base maps that can be used for UIM. For example, you can use an existing world map as the base map.

To point to the world map:
1. Select Manage Map Tile Layers from the blue menu bar.
   The Managing Map Tile Layers page is displayed.
2. Select Create.
3. From the Select type of map source, select Internal.
4. Click Continue.
   The Create a map tile layer page is displayed.
5. In the Name field, enter a name. Do not use spaces in the name that your enter.
6. For the Data Source, select MAPDATA.
7. For the Base map, select TELECOM. You must select a base map.
8. Leave the rest of the default data in the other fields.
9. Select Submit.
10. Verify the map is set up correctly by looking at the existing map tile layers.
    Figure 12–1 shows an example of existing map tile layers.
Configuring MapViewer

Figure 12–1  Example of Existing Map Tile Layers

The map tile layer is the link between UIM and MapViewer. In UIM, the base map is defined as the Data Source name plus the Base Map name separated by a period. In this example, the UIM base map is MAPDATA.NW_REGION.

There is no limit to the number of map tile layers you can set up.

Modifying the Map Profile Defaults

If you want to change the default settings for the map profile, set the UIM_Home/config/resources/event/topologyProcess.properties file on the application server to:

# Map Profile Default Settings
defaultBaseMap=elocation_mercator.world_map
defaultApplicationDatasource=UIMDATA
defaultMapTileServerUrl=http://elocation.oracle.com/mapviewer/mcserver
defaultMapCopyright=©2008 Oracle Corp.™ ©2008 NAVTEQ™

Note: If you are pointing to an internal base map and not the Oracle map service, leave the defaultMapTileServerUrl= blank.

Linking UIM Map Profile to MapViewer

To link the UIM map profile to MapViewer:

1. Ensure you are logged into UIM.
2. Select the Network link.
3. Search for and open any Network.
4. From the Related Pages drop-down, select Map Profile.
   The Map Profile page is displayed.
5. Enter Map Center Latitude.
6. Enter Map Center Longitude.

Figure 12–2 points to a MapViewer DataSource/Map Tile Layer Name combination.
7. Click **Save**.
   The Network Summary page is displayed.

8. From the **Related Pages** drop-down, select Map View.

   **Note:** The Map View is not enabled until you enter the map center latitude and longitude in the Map Profile.

9. The **Map View canvas** is displayed.

### Installing Map Builder

Oracle Map Builder is a standalone application that lets you create and manage the mapping metadata (styles, themes, and base maps) that is stored in the database.

Oracle Map Builder is downloaded as a JAR file (**mapbuilder.jar**) from the Oracle software delivery website. You can run it as a standalone Java application in the JRE:

```
java -jar mapbuilder.jar [Options]
```

It is important to use the **Mapbuilder.jar** file that is downloaded from the Oracle software delivery website in order to stay on the same release with the MapViewer application that is shipped with UIM.

See the **User’s Guide For Oracle MapViewer** for detailed information on MapViewer. For a link to the document, see “Viewing MapViewer Documentation”.

### Viewing MapViewer Documentation

The **Oracle Fusion Middleware User’s Guide For Oracle MapViewer** contains detailed MapViewer documentation. The following is a link to the library page, where the document is located:

Uninstalling Unified Inventory Management

This chapter describes how to uninstall Oracle Communications Unified Inventory Management (UIM).

About Uninstalling UIM

You use the Oracle Universal Installer to uninstall UIM. The installer uninstalls the core application and other components of UIM.

Interactive mode: Use the interactive mode when you want to interact with the installer UI during installation. See "Uninstalling UIM or UIM Components".

Note: WebLogic Server must be running before proceeding with the uninstall procedure.

Uninstalling UIM or UIM Components

To uninstall UIM, or a component belonging to the UIM product:

1. From a command line, navigate to the Oracle_Home/oui/bin directory and run the following command to initiate the Oracle Universal Installer runInstaller executable file:

./runInstaller

The Oracle Universal Installer installation wizard starts.

The Welcome screen appears.

2. Click Deinstall Products.

The Inventory screen appears.

3. Select the components you want to uninstall.

4. Click Remove.

Note: Selecting Show Empty Homes displays any previously created Oracle product homes. Select displayed homes, or folders, to remove them.

The User Input screen appears.

5. In the WebLogic User Password field, enter your WebLogic user password, and click OK.
The Confirmation screen appears.

6. View and confirm your selection, and click Next.

You can see the progress as the selected components are uninstalled.

The installer removes all of the files except the logs. If required, delete the log files manually. The logs can be found at the following location:

CentralInventorylocation/logs/

Note: The UIM schema, UIM user, Cartridge Deployer Client and CMWS user will not be removed during uninstallation. The database schema and application users can be used by other applications, so they should not be deleted.