Oracle Banking Digital Experience
Installer Pre-Requisite Setup Guide
Release 18.1.0.0.0

Part No. E92727-01

January 2018
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1. Preface

1.1 Intended Audience
This document is intended for the following audience:
- Customers
- Partners

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

1.3 Access to Oracle Support
Oracle customers have access to electronic support through My Oracle Support. For information, visit
http://www.oracle.com/pls/topic/lookup?ctx=accid=info or visit
http://www.oracle.com/pls/topic/lookup?ctx=accid=trs if you are hearing impaired.

1.4 Structure
This manual is organized into the following categories:
Preface gives information on the intended audience. It also describes the overall structure of the User Manual.
The subsequent chapters describes following details:
- Introduction
- Configuration / Installation of pre-requisite software’s

1.5 Related Information Sources
For more information on Oracle Banking Digital Experience Release 18.1.0.0.0, refer to the following documents:
- Oracle Banking Digital Experience Licensing Guide
2. **Introduction**

This guide helps you to do the pre-requisite setup required before the execution of OBDX 18.1.0.0.0 Installer.

More details about each task are explained in detail in following sections.

### 2.1 Software List

<table>
<thead>
<tr>
<th>Software Name</th>
<th>Version</th>
<th>Mandatory Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td>ORACLE LINUX 7.x</td>
<td>Y</td>
</tr>
<tr>
<td>Oracle Database</td>
<td>12.2.0.1.0</td>
<td>Y</td>
</tr>
<tr>
<td>Oracle Java Development Kit</td>
<td>1.8.0_131</td>
<td>Y</td>
</tr>
<tr>
<td>Oracle WebLogic</td>
<td>12.2.1.2.0</td>
<td>Y</td>
</tr>
<tr>
<td>Oracle Weblogic Infrastructure</td>
<td>12.2.1.2.0</td>
<td>Y</td>
</tr>
<tr>
<td>Oracle Web Tier Suite</td>
<td>11.1.1.9.0</td>
<td>Y</td>
</tr>
<tr>
<td>Oracle Webgates Suite</td>
<td>11.1.2.3.0</td>
<td>N*</td>
</tr>
<tr>
<td>Oracle Installer – WebLogic (OAM)</td>
<td>10.3.6.0</td>
<td>N*</td>
</tr>
<tr>
<td>Oracle Java Development Kit</td>
<td>1.7</td>
<td>N*</td>
</tr>
<tr>
<td>Oracle Identity and Access Management Suite (IAM)</td>
<td>11.1.2.3.0</td>
<td>N*</td>
</tr>
<tr>
<td>LDAP (OUD)</td>
<td>11.1.2.3.0</td>
<td>N*</td>
</tr>
<tr>
<td>Oracle Business Intelligence Publisher</td>
<td>12.2.1.2.0</td>
<td>N**</td>
</tr>
</tbody>
</table>
Software Name | Version | Mandatory Software
---|---|---
IBCS | 18.1.1 | N***
Python | 2.7.5 | Y
Python Package: cx_Oracle | 5.2.1 | Y
Python Package: urwid | 1.3.1 | Y
Oracle Client | 12.2.0.1 | Y

* Required if OBDX Native Authentication is not used and OAM is managing Authentication
** Required if Integration with Oracle Business Intelligence Publisher is needed.
*** Required if OBDX Chat bot Banking Features are used.

2.2 Pre-requisite software installation for OBDX Installer

Below steps assume Python 2.7.5 and Oracle Instant client is installed and available on server. You can verify the Python and Oracle client version by executing the command as shown below:

```
$ python -V
Python 2.7.5
```

```plaintext
[root@localhost ] # rpm -qa | grep oracle
oraclelinux-release-7.3-1.0.4.el7.x86_64
oracle-logos-70.0.3-4.0.7.el7.noarch
oracle-instantclient12.2-basic-12.2.0.1.0-1.x86_64
```

**Note:** Below steps require root login on server where OBDX software pre-requisite are performed (i.e. Server which host Oracle Weblogic)

**cx_Oracle**

**Step 1:** Download cx_Oracle from Python packages website.

**Note:** Kindly ensure correct rpm package is downloaded as per Python (2.7.5) and Oracle database (12c) version.

For .e.g.: `cx_Oracle-5.2.1-12c-py27-1.x86_64.rpm` for Python 2.7.5 and Oracle 12c

**Step 2:** Login as root onto the server and install the cx_Oracle rpm package (downloaded in earlier section).

For e.g.: We can use below command for installation
# rpm --ivh cx_Oracle-5.2.1-12c-py27-1.x86_64.rpm

```
[root@ setup]# rpm --ivh cx_Oracle-5.2.1-12c-py27-1.x86_64.rpm
Preparing... #.................................................. [100%]
Updating / installing...
1:cx_Oracle-5.2.1-1 #.......................................... [100%]
```

## Urwid

**Step 1:** Download Urwid from Urwid (or urwid.org) website.

**Note:** Support version for Urwid is 1.3.1 (urwid-1.3.1.tar.gz)

**Step 2:** Extract the tar file as shown below

```
[root@ setup]# tar -zxvf urwid-1.3.1.tar.gz
```

**Step 3:** Browse into the extracted directory and run below command

```
# python setup.py build_py
```

**Note:** Ensure Python 2.7.5 version should be available in PATH variable. Above execution should be done using Python 2.7.5.

**Step 4:** Execute below command to perform Urwid installation

```
# python setup.py install
```
Note: Ensure Python 2.7.5 version should be available in PATH variable. Above execution should be done using Python 2.7.5.
3. Installing and Configuring Weblogic 12c with JRF

This chapter describes the steps for installing the Weblogic Server version 12.2.1.2.0 along with the components of Java Required Files (JRF) in the following sections respectively:

- Section 3.1, "Installing Stand-alone Weblogic"
- Section 3.2, "Extending the Weblogic environment with JRF"

3.1 Installing Stand-alone Weblogic

Oracle WebLogic Server is a scalable, enterprise-ready Java Platform, Enterprise Edition (Java EE) application server. The WebLogic Server infrastructure supports the deployment of many types of distributed applications.

This chapter describes the installation tasks which contains the following sections:

- Section 3.1.1, "Pre-requisite - Installing Java 1.8"
- Section 3.1.2, "Installing Weblogic"
- Section 3.1.3, "Verifying the Installation"

3.1.1 Pre-requisite - Installing Java 1.8

- Obtain the Java tarball pack from the Oracle Java Downloads. Download \textit{jdk-8u131-linux-x64.tar.gz} file to a directory.
- Change the directory in which you want to install,

\begin{verbatim}
cd <Directory_Path>
\end{verbatim}

- Unpack the tarball and install Java using the following command:

\begin{verbatim}
tar zxvf <Path>/jdk-8u131-linux-x64.tar.gz
\end{verbatim}

\textbf{Note:} You must enter the absolute path of the folder where the TAR file is located.

- Now, set the path and environment variable for Java as:

\begin{verbatim}
export JAVA_HOME=<Java_Install_Path>/jdk1.8.0_131
export PATH=$JAVA_HOME/bin:$PATH
\end{verbatim}

3.1.2 Installing Weblogic

- Obtain Weblogic 12.2.1.2.0 JAR from the Oracle Fusion Middleware Downloads. Download \textit{fmw_12.2.1.2.0_wls.jar} file to a directory.
- Now to start the installer, go to the directory where you downloaded the file.
- Start the installer from the same directory using the below command:

\begin{verbatim}
java –jar <Path>/fmw_12.2.1.2.0_wls.jar
\end{verbatim}

\textbf{Note:} You must enter the absolute path of the folder where the JAR file is located.

If you are installing on a UNIX system, and if this is the first time any Oracle product is being installed on your system with the Oracle Universal Installer, you will are asked to provide the location of an inventory directory. This is where the installer sets up subdirectories and maintains inventory data for each Oracle product that is installed on this system.
Installation Inventory Setup Screen

Specify the Oracle inventory directory and group permissions for that directory. The group must have write permissions to the Oracle inventory directory.

Click OK to continue.
Welcome Screen

The Welcome screen is displayed each time you start the installer. Click Next to continue.
Auto Updates Screen

Select “Skip Auto Updates” option and click Next to continue. (Kindly follow recommended practices regarding updates depending on the setup requirements or usage.)
Specify Installation Location Screen

Specify the following installation locations:

- Oracle Middleware Home

This is the absolute path to the directory where the WebLogic Server will be installed.

Click Next to continue.
Specify Installation Type Screen

Following are the installation types:

- Weblogic Server
- Coherence
- Complete with Examples

Select Weblogic server and Click Next to continue.
Prerequisite Checks Screen

This screen shows whether the system requirements are met in order to install the software. If there is a problem, a short error message appears in the bottom portion of the screen. Fix the error, and click Retry to try again.

If you want to ignore the error or warning messages and continue with the installation, click Continue.

To stop prerequisite checking for all components, click Abort.

Click Next to continue.
Specify Security Updates Screen

Uncheck the box stating "I wish to receive security updates via My Oracle Support". (Kindly follow recommended practices regarding updates depending on the setup requirements or usage.)

Click Next.
Specify Security Updates Screen

The user will now be prompted “Do you wish remain uninformed of critical security issues in your configuration?”
Select Yes and Click on Next to proceed.
Installation Summary Screen

Review the information on this screen. The operations summarized on this page will be performed when you click Install.

If you want to make any changes to the configuration before starting the installation, use the navigation pane, and select the topic you want to edit.

If you want to save this configuration to a text file (called a response file), click Save. You will be prompted for the location of name of the file you want to create (for example, silent_install.rsp). This file can be used later if you choose to perform the same installation from the command line.

Click Install.

Then screen shows the progress of the installation.
Installation Progress Screen

This screen shows the progress of the installation.

If you want to quit before the installation is completed, click Cancel. Doing so will result in a partial installation; the portion of the software that was installed on your system before you click Cancel will remain on your system, and you will have to remove it manually.
Installation Complete Screen

Uncheck the "Automatically Launch the Configuration Wizard" option, since we do not require domain configuration.

This screen summarizes the installation that was just completed.

At the end of the summary information, there is a section called Installation Location which states the Oracle Home Location & the Log File Location along with the list of features installed.

Click Finish to dismiss the screen.

3.1.3 Verifying the Installation

You can perform the following tasks to verify that your installation was successful:

- Verifying the Installation Logs: Check for the presence of installation log files in logs directory. The location of the file is shown at the end of installation in the Installation Complete Screen.
- Verifying the Installation Directory: Check if Oracle Home directory is exists or not.
3.2 Extending the Weblogic environment with JRF

Java Required Files (JRF) consists of those components not included in the WebLogic Server installation that provide common functionality for Oracle business applications and application frameworks. It consists of a number of independently developed libraries and applications that are deployed into a common location.

This chapter describes the installation tasks which contains the following sections:

- Section 3.2.1, "Installing JRF components"
- Section 3.2.2, "Verifying the Installation"

3.2.1 Installing JRF Components

Obtain FMW 12.2.1.2.0 Infrastructure JAR from the Oracle Fusion Middleware Downloads. Download `fmw_12.2.1.2.0_infrastructure.jar` file to a directory.

Now to start the installer, go to the directory where you downloaded the file and execute the below command:

```
java –jar <Path>/fmw_12.2.1.2.0_infrastructure.jar
```

**Note:** You must enter the absolute path of the folder where the JAR file is located.

If you are installing on a UNIX system, and if this is the first time any Oracle product is being installed on your system with the Oracle Universal Installer, you will be asked to provide the location of an inventory directory. This is where the installer sets up subdirectories and maintains inventory data for each Oracle product that is installed on this system.

**Installation Inventory Setup Screen**

![Installation Inventory Setup Screen](image)
Specify the Oracle inventory directory and group permissions for that directory. The group must have write permissions to the Oracle inventory directory.

Click OK to continue.

**Welcome Screen**

The Welcome screen is displayed each time you start the installer.

Click Next to continue.
Auto Updates Screen

Select “Skip Auto Updates” option and click Next to continue. (Kindly follow recommended practices regarding updates depending on the setup requirements or usage.)
Specify Installation Location Screen

Specify the following installation locations:

- Oracle Middleware Home

The absolute path to the directory where WebLogic Server is already installed

Click Next to continue.
Specify Installation Type Screen

Following are the installation types:
- Fusion Middleware Infrastructure
- Fusion Middleware Infrastructure with Examples

Select Fusion Middleware Infrastructure and Click Next to continue.
Prerequisite Checks Screen

This screen shows whether the system requirements are met in order to install the software. If there is a problem, a short error message appears in the bottom portion of the screen. Fix the error, and click Retry to try again.

If you want to ignore the error or warning messages and continue with the installation, click Continue.

To stop prerequisite checking for all components, click Abort.

Click Next to continue.
Review the information on this screen. The operations summarized on this page will be performed when you click Install.

If you want to make any changes to the configuration before starting the installation, use the navigation pane, and select the topic you want to edit.

If you want to save this configuration to a text file (called a response file), click Save. You will be prompted for the location of name of the file you want to create (for example, silent_install.rsp). This file can be used later if you choose to perform the same installation from the command line. Click Install.

Then screen shows the progress of the installation.
Installation Progress Screen

This screen shows the progress of the installation.

If you want to quit before the installation is completed, click Cancel. Doing so will result in a partial installation; the portion of the software that was installed on your system before you click Cancel will remain on your system, and you will have to remove it manually.
Installation Complete Screen

This screen summarizes the installation that was just completed.

At the end of the summary information, there is a section called Installation Location which states the Oracle Home Location & the Log File Location along with the list of features installed.

Click Finish to dismiss the screen.

3.2.2 Verifying the Installation

You can perform the following tasks to verify that your installation was successful:

- Verifying the Installation Logs: Check for the presence of installation log files in logs directory. The location of the file is shown at the end of installation in the Installation Complete Screen.

- Verifying the Installation Directory: Check if Oracle Home directory exists or not.
4. **Oracle Webtier Installation**

Oracle Webtier is the Web server component for Oracle Fusion Middleware. The Oracle Web Tier installation gives you the option of installing Oracle HTTP Server and Oracle Web Cache. OPMN is installed, by default, and you do not have the option of deselecting this product.

Together, these products are responsible for managing incoming HTTP requests, caching web messages, and sending XML and HTML back to the client. Also, it provides a listener for Oracle WebLogic Server and the framework for hosting static pages, dynamic pages, and applications over the Web. Oracle Web Tier contains the following components:

- **Oracle HTTP Server**: Oracle HTTP Server 11g includes modules developed specifically by Oracle. The features of single sign-on, clustered deployment, and high availability enhance the operation of the Oracle HTTP Server.

- **Oracle Web Cache**: Oracle Web Cache is a content-aware server accelerator, or reverse proxy, for the Web tier that improves the performance, scalability, and availability of Web sites that run on Oracle HTTP Server. Oracle Web Cache is the primary caching mechanism provided with Oracle Fusion Middleware. Caching improves the performance, scalability, and availability of websites that run on Oracle WebLogic Server by storing frequently accessed URLs in memory.

- **Oracle Process Manager and Notification Server (OPMN)**: OPMN provides a command-line interface for you to monitor and manage Oracle Fusion Middleware components and sub-components. The OPMN server should be started as soon as possible, after turning on the computer. OPMN must be running whenever OPMN-managed components are turned on or off.

There are different Methods to install Webtier. An Oracle Web Tier solution can be built in one of the following ways:

- **In stand-alone mode**: Oracle Web Tier is configured without a domain, and administered from the command line. See Section 1.3.1 for an overview of the installation procedure.

- **Using Oracle Enterprise Manager Fusion Middleware Control**: In order to use the Oracle Enterprise Manager Fusion Middleware Control, WebLogic Server domain needs to be configured using both the Enterprise Manager and the Java Required Files (JRF) domain templates.

Here, we install Oracle Web Tier in stand-alone mode and following are the sections lists the steps for it:

- Section 4.1, “Installing and Configuring Oracle HTTP Server (Webtier)”

4.1 **Installing and Configuring Oracle HTTP Server (Webtier)**

Obtain Oracle Web Tier from the Oracle Fusion Middleware Downloads. Download webtier.zip file to a directory, and unpack the downloaded archive that contains the installer. By default, this directory is named webtier.

To start the installer, go to the directory where you unpacked the archive file and switch to the Disk1 directory. Now, start the installer using the below command:

```
./runInstaller –jreLoc Java_Home/jdk
```

**Note**: You must enter the absolute path of the JRE folder located in this JDK when launching the installer.

Now, follow the instructions as shown below to install Webtier,
Specify Inventory Directory Screen

This screen appears for UNIX systems only; if this is your first Oracle installation on this host, you must specify the location of the inventory directory. This inventory directory is used by the installer to keep track of all Oracle products installed on the computer. The default inventory location is USER_HOME/oraInventory.

In the Operating System Group name field, select the group whose members you want to grant access to the inventory directory; all members of this group will be able to install products on this system. Click Ok to continue.
Inventory Location Confirmation Screen

This screen appears for UNIX systems only; you are asked to run the inventory_directory/createCentralInventory.sh script as root.

If you do not have root access on this system but want to continue with the installation, select "Continue installation with local inventory" option. Click Ok to continue.

Welcome Screen
The Welcome screen is displayed each time you start the installer. Click Next to continue.

Install Software Updates Screen

Select “Skip Software Updates” and Click Next to continue. (Kindly follow recommended practices regarding updates depending on the setup requirements or usage.)
Select Installation Type Screen

The following are the Installation Types available.

- **Install and Configure:** This option will install the product binaries in an Oracle Home directory, and create and configure a working instance in an Oracle Instance directory.

  If you choose to install Oracle Web Tier, and associate it with the Fusion Middleware (EM) Control, then you should be able to begin configuring and managing your products using Enterprise Manager.

- **Install Software - Do Not Configure:** This option only installs the software binaries in an Oracle Home directory. You must then manually run the Configuration Tool from your `Web_Tier_ORACLE_HOME/bin` directory on UNIX, and `Web_Tier_ORACLE_HOME\bin` directory on Windows, to configure your products before you can use them. This option can be used to quickly create multiple instances of the software that share a common disk.

- **Select Install and Configure.**
  
  Click Next to continue.
Prerequisite Checks Screen

This screen shows whether the system requirements are met in order to install the software. If there is a problem, a short error message appears in the bottom portion of the screen. Fix the error, and click Retry to try again.

If you want to ignore the error or warning messages and continue with the installation, click Continue.

To stop prerequisite checking for all components, click Abort.

Click Next to continue.
Specify Installation Location Screen

Specify the following installation locations:

- **Oracle Middleware Home**: The absolute path to the directory where WebTier will be installed.
- **Oracle Home Directory**: The directory name for your Oracle home:
  - You can specify a pre-existing directory that you want to use as the Oracle home; the directory must be an empty directory.
  - You can specify the name of a new directory that will be created for you inside the Middleware home.

Oracle Home directory is where your products will be installed. All software binaries will reside in this directory, and no runtime process can write to this directory.

**Note**: The Oracle Middleware Home path should be different from the Weblogic Server installation path, in case where Webtier installation would be done on the same server where Weblogic is installed.

This installation directory will be referred to as **Web_Tier_ORACLE_HOME** throughout the remainder of this document. If you are performing an installation on a Windows operating system, be sure that your directory paths are valid, and do not contain double backslashes (\\).

Click Next to continue.
Specify Security Updates Screen

Enter your E-mail address if you want to receive the latest product information and security updates. If you have a My Oracle account and want to receive updates via this mechanism, select I wish to receive security updates via My Oracle Support, then enter your account password.

If you do not want to register for security updates, leave all the fields on this screen blank. You will be prompted to confirm your selection with the following screen:

Click Yes to confirm that you do not want to register for any security updates. (Kindly follow recommended practices regarding updates depending on the setup requirements or usage.)
Configure Components Screen

This screen shows the products and components that are available for installation and configuration. Select the component(s) you want to configure. Oracle Process Manager Notification (OPMN) is configured by default.

Uncheck Associate Selected Components with WebLogic Domain.

Click Next to continue.
Specify Component Details Screen

Specify the following component details:

- **Instance Home Location**: The absolute path to the directory where your Oracle Instance will reside. This is where application configuration files reside, and where the application process runs from. Runtime components write only to this location.

- **Instance Name**: Specify the unique name of your Oracle Instance. The Oracle Instance name may only contain alphanumeric and underscore (_) characters, it must begin with an alphabetic (a-z or A-Z) character, and must be 4 to 30 characters in length.

- **OHS Component Name**: Specify the name for your Oracle HTTP Server (OHS) component. This name may only contain alphanumeric and underscore (_) characters, and must be 4 to 30 characters in length.

- **Web Cache Component Name**: Specify the unique name of your Web Cache component. This name may only contain alphanumeric and underscore (_) characters, it must begin with an alphabetic (a-z or A-Z) character, and must be 4 to 30 characters in length.

Click Next to continue.
Specify a new password for your Web Cache administrator. Valid passwords are 5 to 30 characters long, must begin with an alphabetic character, use only alphanumeric, underscore (_), dollar ($) or pound (#) characters and include at least one number.

Click Next to continue.
Configure Ports Screen

Select Auto Port Configuration if you want the installer to automatically assign the default ports to the components.

Click Next to continue.
Installation Summary Screen

Review the information on this screen. The operations summarized on this page will be performed when you click Install.

If you want to make any changes to the configuration before starting the installation, use the navigation pane, and select the topic you want to edit.

If you want to save this configuration to a text file (called a response file), click Save. You will be prompted for the location of name of the file you want to create (for example, silent_install.rsp). This file can be used later if you choose to perform the same installation from the command line.

Click Install.
Installation Progress Screen

This screen shows the progress of the installation.

If you want to quit before the installation is completed, click Cancel. Doing so will result in a partial installation; the portion of the software that was installed on your system before you click Cancel will remain on your system, and you will have to remove it manually.
Configuration Progress Screen

This screen shows you the progress of the component configuration. If there is a problem, a short error message appears in the bottom portion of the screen. Fix the error and click Retry to try again.

If you want to ignore the error or warning and continue with the configuration, click Continue. Click Abort to stop prerequisite checking for all components. If you want to quit before the configuration is completed, click Cancel. Click Next to continue.
Installation Complete Screen

This screen summarizes the installation that was just completed.

At the end of the summary information, there is a section called Accessible URLs which give you the links needed to access the configured Oracle HTTP Server and Oracle Web Cache. You should make a note of these URLs so you can access these pages when you need to.

You can also save this summary information to a file for future reference by clicking Save. You will be prompted to specify a name and location for your summary file.

Click Finish to dismiss the screen.
4.2 Verifying the Installation

You can perform any combination of the following tasks to verify that your installation was successful:

- **Verifying the Installation Logs**: Check for the presence of installation log files in logs directory inside your Oracle Inventory directory. On UNIX systems, if you do not know the location of your Oracle Inventory directory, you can find it in the WebTier_ORACLE_HOME/oraInst.loc file.

- **Verifying the Domain Server Logs**: Check the domain server logs, which are located in the servers directory inside the domain home directory. For example:
  
  `Web_Tier_ORACLE_HOME/user_projects/domains/domain_name/servers/server_name`

- **Verifying the OPMN Status**: Run the opmnctl status command from the INSTANCE_HOME/bin directory on UNIX, in your instance home location. For example:
  
  `/opmnctl status`

<table>
<thead>
<tr>
<th>Processes in Instance: instance2</th>
</tr>
</thead>
<tbody>
<tr>
<td>ias-component</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>webcache1</td>
</tr>
<tr>
<td>webcache1</td>
</tr>
<tr>
<td>ohs1</td>
</tr>
</tbody>
</table>

This information shows the components configured for this installation. The status Alive means that the component is up and running.

Checking the Browser URLs

Run the opmnctl status -l command from the INSTANCE_HOME/bin directory on UNIX, and INSTANCE_HOME\bin directory on Windows, in your instance home location to obtain a list of ports used by the components. For example:

`/opmnctl status -l`

<table>
<thead>
<tr>
<th>Processes in Instance: instance2</th>
</tr>
</thead>
<tbody>
<tr>
<td>ias-component</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>webcache1</td>
</tr>
</tbody>
</table>
Use the port numbers in this display to point your browser to the appropriate pages. Use the format:

\[ http://system\_name:port\_number \]
5. Oracle HTTP Server Webgate Installation and Configuration

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.

Installing a WebGate for Oracle Access Manager involves the following steps:

- Section 5.1, "Installing and Configuring Oracle Webgate"
- Section 5.2, "Post-Installation Steps for Oracle HTTP Server WebGate"
- Section 5.3, "Verifying the Installation and Configuration of Oracle HTTP Server WebGate"
- Section 5.4, "Registering the New Oracle HTTP Server 11g WebGate"

5.1 Installing and Configuring Oracle HTTP Server WebGate

Obtain Oracle HTTP Server Webgate software from the Oracle Fusion Middleware Downloads. Download webgate.zip file (version 11.1.2.3.0) to a directory, and unpack the downloaded archive that contains the installer. By default, this directory is named webgate.

To start the installation wizard, perform the following steps:

- Extract the contents of the WebGate.zip file to a directory. By default, this directory is named WebGate.
- Go to the Disk1 directory under the WebGate folder.
- Run the following command:
  
  ```
  ./runInstaller -jreLoc Java_Home/jdk
  ```

  **Note:** You must enter the absolute path of the JRE folder located in this JDK when launching the installer.

After the Installer starts, the Welcome screen is displayed. Proceed with the installation by referring to the section "Installation Flow and Procedure of Oracle HTTP Server 11g WebGate" for installing Oracle HTTP Server 11g WebGate for Oracle Access Manager.

To install Oracle HTTP Server 11g WebGate for Oracle Access Manager, follow the instructions as shown below:
Specify Inventory Directory Screen

This screen appears for UNIX systems only; if this is your first Oracle installation on this host, you must specify the location of the inventory directory. This inventory directory is used by the installer to keep track of all Oracle products installed on the computer. The default inventory location is USER_HOME/oraInventory.

In the Operating System Group name field, select the group whose members you want to grant access to the inventory directory; all members of this group will be able to install products on this system.

Click Ok to continue.
Inventory Location Confirmation Screen

This screen appears for UNIX systems only; you are asked to run the inventory_directory/createCentralInventory.sh script as root.

If you do not have root access on this system but want to continue with the installation, select Continue installation with local inventory.

Click Ok to continue.
Welcome Screen

The Welcome screen is displayed each time you start the installer. Click Next to continue.
Install Software Updates Screen

If you want to search for and download software updates from My Oracle Support, then do the following:

Select Search My Oracle Support for Updates.
Enter User name and Password.
Click Test Connection.

If you want to search your local directory for updates, then do the following:
Select Search Local Directory for Updates.
Click Search For Updates.

If you want to skip software updates, then select Skip Software Updates. (Kindly follow recommended practices regarding updates depending on the setup requirements or usage.)
Click Next to continue.
Prerequisite Checks Screen

This screen shows whether the system requirements are met in order to install the software. If there is a problem, a short error message appears in the bottom portion of the screen. Fix the error, and click Retry to try again.

If you want to ignore the error or warning messages and continue with the installation, click Continue.

To stop prerequisite checking for all components, click Abort.

Click Next to continue.
Specify Installation Location Screen

Specify the following installation locations:

- **Oracle Middleware Home**: The absolute path to the directory where Webgate will be installed.
- **Oracle Home Directory**: The directory name for your Oracle home:
  - You can specify a pre-existing directory that you want to use as the Oracle home; the directory must be an empty directory.
  - You can specify the name of a new directory that will be created for you inside the Middleware home.

Oracle Home directory is where your products will be installed. All software binaries will reside in this directory, and no runtime process can write to this directory.

**Note**: The Oracle Middleware Home path should be different from the Weblogic Server installation path, in case where Webgate installation would be done on the same server where Weblogic is installed.

This installation directory will be referred to as `Webgate.ORACLE_HOME` throughout the remainder of this document. If you are performing an installation on a Windows operating system, be sure that your directory paths are valid, and do not contain double backslashes (`\`).

Click Next to continue.
Review the information on this screen. The operations summarized on this page will be performed when you click Install.

If you want to make any changes to the configuration before starting the installation, use the navigation pane, and select the topic you want to edit.

If you want to save this configuration to a text file (called a response file), click Save. You will be prompted for the location of name of the file you want to create (for example, silent_install.rsp). This file can be used later if you choose to perform the same installation from the command line.

Click Install.
Installation Progress Screen

This screen shows the progress of the installation.

If you want to quit before the installation is completed, click Cancel. Doing so will result in a partial installation; the portion of the software that was installed on your system before you click Cancel will remain on your system, and you will have to remove it manually.
5.2 Post-Installation Steps for Oracle HTTP Server WebGate

You must complete the following steps after installing Oracle HTTP Server 11g WebGate for Oracle Access Manager:

- Go to the WebGate_Home/webgate/ohs/tools/deployWebGate directory by running the following command:

  `cd WebGate_Home/webgate/ohs/tools/deployWebGate`

- Run the following command to copy the required bits of agent from the WebGate_Home directory to the WebGate_Instance location:

  `./deployWebGateInstance.sh -w WebGate_Instance_Directory -oh WebGate_Oracle_Home`
In this command:
WebGate_Oracle_Home is the directory in which you have installed Oracle HTTP Server WebGate and created it as the Oracle home for WebGate.

Example: MW_HOME/Oracle_OAMWebGate1

WebGate_Instance_Directory is the location of WebGate Instance Home, which is same as the Instance Home of Oracle HTTP Server.

Example:
MW_HOME/Oracle_WT1/instances/instance1/config/OHS/ohs1

Run the following command to ensure that the LD_LIBRARY_PATH variable contains Oracle_Home_for_Oracle_HTTP_Server/lib:

```
export LD_LIBRARY_PATH = $LD_LIBRARY_PATH:$Oracle_Home_for_Oracle_HTTP_Server/lib
```

From your present working directory, move to directory:
```
cd WebGate_Home/webgate/ohs/tools/setup/InstallTools
```

On the command line, run the following command to copy the apache_WebGate.template from the WebGate_Home directory to the WebGate Instance location (re-named to WebGate.conf) and update the httpd.conf file to add one line to include the name of WebGate.conf:

```
./EditHttpConf -w WebGate_Instance_Directory [-oh WebGate_Oracle_Home] [-o output_file]
```

In this command:
WebGate_Oracle_Home is the directory where you have installed Oracle HTTP Server WebGate for Oracle Access Manager and created as the Oracle Home for WebGate.
Example: MW_HOME/Oracle_OAMWebGate1
WebGate_Instance_Directory is the location of WebGate Instance Home, which is same as the Instance Home of Oracle HTTP Server.
Example: MW_HOME/Oracle_WT1/instances/instance1/config/OHS/ohs1
output_file is the name of the temporary output file used by the tool.
Example: Edithhttpconf.log

**Note:** The -oh WebGate_Orale_Home and -o output_file parameters are optional.

### 5.3 Verifying the Installation of Oracle HTTP Server WebGate

After installing Oracle HTTP Server 11g WebGate for Oracle Access Manager, including the post-installation steps, you can examine the install DATE-TIME_STAMP.out log file to verify the installation.

The default location of the log is: **WebGate_Home/orainst.loc**

### 5.4 Registering the New Oracle HTTP Server 11g WebGate

Before you can use the new Oracle HTTP Server 11g WebGate agent for Oracle Access Manager, you must register the new WebGate agent with Oracle Access Manager by using the Oracle Access Manager Administration Console.

Refer to the Section 7.1.2 “Post-Installation Tasks” under Oracle Access Management Configuration chapter.
6. **Oracle Identity and Access Management Installation and Configuration**

Oracle Identity and Access Management (IAM) components enable enterprises to manage the end-to-end lifecycle of user identities across all enterprise resources - both within and beyond the firewall. With IAM, you can deploy applications faster, apply the most granular protection to enterprise resources, automatically eliminate latent access privileges, and much more. Following components are included in IAM:

- Oracle Identity Manager
- Oracle Access Management
- Oracle Adaptive Access Manager
- Oracle Entitlements Server
- Oracle Privileged Account Manager
- Oracle Access Management Mobile and Social
- Oracle Mobile Security Suite

This chapter provides information for installing IAM and includes the following topics:

- Section 6.1, "Pre-requisite - Installing Java 1.7"
- Section 6.2, "Pre-requisite - Installing Weblogic 11g"
- Section 6.3, "Installing Oracle Identity and Access Management (IAM)"

### 6.1 Pre-requisite - Installing Java 1.7

Obtain the Java tarball pack from the Oracle Java Downloads. Download `jdk-7u80-linux-x64.tar.gz` file to a directory.

- Change the directory in which you want to install,
  
  ```
  cd <Directory_Path>
  ```

- Unpack the tarball and install Java using the following command:
  
  ```
  tar zxfv <Path>/jdk-7u80-linux-x64.tar.gz
  ```

**Note**: You must enter the absolute path of the folder where the TAR file is located.

- Now, set the path and environment variable for Java as:
  
  ```
  export JAVA_HOME=<Java_Install_Path>/jdk1.7.0_80
  export PATH=$JAVA_HOME/bin:$PATH
  ```

### 6.2 Pre-requisite - Installing Weblogic 11g

Oracle WebLogic Server is a scalable, enterprise-ready Java Platform, Enterprise Edition (Java EE) application server. The WebLogic Server infrastructure supports the deployment of many types of distributed applications.

This chapter describes the installation tasks which contains the following sections:

- Section 6.2.1, "Installing Weblogic"
- Section 6.2.2, "Verifying the Installation"
6.2.1 Installing Weblogic

Obtain Weblogic 10.3.6 JAR from the Oracle Fusion Middleware Downloads. Download `wls1036_generic.jar` file to a directory.

- Now to start the installer, go to the directory where you downloaded the file.
- Start the installer from the same directory using the below command:

  \[ \text{java} -jar <\text{Path}>/wls1036_generic.jar \]

**Note:** You must enter the absolute path of the folder where the JAR file is located.

Follow the instructions as shown below for installation:

**Welcome Screen**

The Welcome screen is displayed each time you start the installer.

Click Next to continue.
Specify Middleware Home Screen

Specify the following installation locations:

- Oracle Middleware Home

The absolute path to the directory where WebLogic Server will be installed.

Click Next to continue.
Specify Security Updates Screen

Click to uncheck the box stating "I wish to receive security updates via My Oracle Support" and the user will be prompted “Do you wish to bypass initiation of the configuration manager and remain uninformed of critical security issues in your configuration?” (Kindly follow recommended practices regarding updates depending on the setup requirements or usage.)
Select Yes and Click on Next.

**Specify Security Updates Screen**
The user will now be prompted “Do you wish remain uninformed of critical security issues in your configuration?”

Select Yes and it will prompt “Do you wish to bypass initiation of the configuration manager and remain uninformed of critical security issues in your configuration?”

Select Yes and Click on Next to proceed.
Specify Security Updates Screen

If necessary, specify proxy server information. Otherwise click Cancel and check your network connection.

Proxy Server: 
Proxy Port: 

Use authentication

Proxy Username: 
Proxy Password: 

If this machine has no internet connection, select the checkbox below and click Continue.

I wish to remain uninformed of security issues in my configuration or this machine has no Internet access.

Click to select the checkbox "I wish to remain uninformed of security issues in my configuration or this machine has no Internet access."

Click on Continue to proceed.
Specify Installation Type Screen

Follow are the installation types:

- Typical
- Custom

Select Typical and Click Next to continue.
Specify JDK Selection Screen

Check if the JDK Path listed is correct.
If the user wants to change the path, the user can do so by clicking on the Browse button and selecting the path where JDK is installed.
Once done, Click Next to continue.
Choose Product Installation Directories Screen

This screen shows the Middleware Home location and the Weblogic Server and Oracle Coherence Product home directories.

The user should verify the path and Click Next to continue.
**Installation Summary Screen**

Review the information on this screen. The operations summarized on this page will be performed when you click Next.

If you want to make any changes to the configuration before starting the installation, click Previous option to navigate to the screen where you want to edit the data.

Click Next.

Then screen shows the progress of the installation.
Installation Progress Screen

This screen shows the progress of the installation.

If you want to quit before the installation is completed, click Exit. Doing so will result in a partial installation; the portion of the software that was installed on your system before you click Exit will remain on your system, and you will have to remove it manually.
Installation Complete Screen

This screen summarizes the installation that was just completed with a message “Congratulations! Installation is complete.”

Click Done to dismiss the screen.

6.2.2 Verifying the Installation

You can perform the following tasks to verify that your installation was successful:

- **Verifying the Installation Directory**

  Check if Oracle Home directory exists or not.

6.3 Installing Oracle Identity and Access Management

This chapter describes the installation tasks which contains the following sections:

- Section 6.3.1, “Installing and Configuring Oracle Identity and Access Management”
- Section 6.3.2, “Verifying the Installation”

6.3.1 Installing and Configuring Oracle Identity and Access Management

Obtain IAM installer version 11.1.2.3.0 from the Oracle Fusion Middleware Downloads. Download the zip file’s (respective installation files) to a directory, and unpack the downloaded archive that contains the installer.

- Now to start the installer, go to the directory where you unpacked the archive file and switch to the Disk1 directory.
- Start the installer from the Disk1 directory
  
  ```bash
  /runInstaller -jreLoc Java_Home/jdk
  ```

**Note:** You must enter the absolute path of the JRE folder located in this JDK when launching the installer.

- If you are installing on a UNIX system, and if this is the first time any Oracle product is being installed on your system with the Oracle Universal Installer, you will be asked to provide the location of an inventory directory. This is where the installer sets up subdirectories and maintains inventory data for each Oracle product that is installed on this system.

- Follow the instructions in the below table to configure the inventory directory information. For more help, click on the screen name in the table below, or click the Help button in the GUI.

**Table: Inventory Directory and Group Screens**

<table>
<thead>
<tr>
<th>Screen</th>
<th>Description and Action Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specify Inventory Directory Screen (UNIX Only)</td>
<td>Specify the Oracle inventory directory and group permissions for that directory. The group must have write permissions to the Oracle inventory directory. Click OK to continue.</td>
</tr>
<tr>
<td>Inventory Location Confirmation Screen (UNIX Only)</td>
<td>Run the createCentralInventory.sh script as root. Click OK to continue.</td>
</tr>
</tbody>
</table>

Now, perform the steps as shown below to install and configure OUD after you start the OUD installer.
Welcome Screen

The Welcome screen is displayed each time you start the installer.
Click Next to continue.
If you want to search for and download software updates from My Oracle Support, then do the following:

Select Search My Oracle Support for Updates.
Enter User name and Password.
Click Test Connection.
If you want to search your local directory for updates, then do the following:
Select Search Local Directory for Updates.
Click Search For Updates.
If you want to skip software updates, then select Skip Software Updates. (Kindly follow recommended practices regarding updates depending on the setup requirements or usage.)
Click Next to continue.
Prerequisite Checks Screen

This screen shows whether the system requirements are met in order to install the software. If there is a problem, a short error message appears in the bottom portion of the screen. Fix the error, and click Retry to try again. If you want to ignore the error or warning messages and continue with the installation, click Continue. To stop prerequisite checking for all components, click Abort. Click Next to continue.
Specify Installation Location Screen

Specify the following installation locations:

- **Oracle Middleware Home**
  - The absolute path to the directory where WebLogic Server was installed.
- **Oracle Home Directory**: The directory name for your Oracle home:
  - You can specify a pre-existing directory that you want to use as the Oracle home; the directory must be an empty directory.
  - You can specify the name of a new directory that will be created for you inside the Middleware home.

Oracle Home directory is where your products will be installed. All software binaries will reside in this directory, and no runtime process can write to this directory.

**Note:** This installation directory will be referred to as IDM_ORACLE_HOME throughout the remainder of this document. If you are performing an installation on a Windows operating system, be sure that your directory paths are valid, and do not contain double backslashes (\). 

Click Next to continue.
Installation Summary Screen

Review the information on this screen. The operations summarized on this page will be performed when you click Install.

If you want to make any changes to the configuration before starting the installation, use the navigation pane, and select the topic you want to edit.

If you want to save this configuration to a text file (called a response file), click Save. You will be prompted for the location of name of the file you want to create (for example, silent_install.rsp). This file can be used later if you choose to perform the same installation from the command line.

Click Install.

Then screen shows the progress of the installation.
Installation Progress Screen

This screen shows the progress of the installation.

If you want to quit before the installation is completed, click Cancel. Doing so will result in a partial installation; the portion of the software that was installed on your system before you click Cancel will remain on your system, and you will have to remove it manually.
Installation Complete Screen

This screen summarizes the installation that was just completed.
You can also save this summary information to a file for future reference by clicking Save. You will be prompted to specify a name and location for your summary file.
Click Finish to dismiss the screen.

6.3.2 Verifying the Installation
You can perform any combination of the following tasks to verify that your installation was successful:

- **Verifying the Installation Logs**: Check for the presence of installation log files in logs directory inside your Oracle Inventory directory.

- **Verifying the IDM Home Directory**: Check for the presence of IDM Home directory. For example, <Oracle_Home>/Oracle_IDM1
7. **Oracle Access Management Installation and Configuration**


Following topics in this chapter provides detailed information on installing and configuring Oracle Access Management after installing Oracle Identity and Access Management:

- Section 7.1, "Creating Weblogic Domain for Oracle Access Manager"
- Section 7.2, "Post-Installation Tasks"
- Section 7.3, “Verifying the Installation”

### 7.1 Creating Weblogic Domain for Oracle Access Manager

- Before you start configuring Oracle Access Management, note that the IDM HOME is the path provided during IDM installation and is used to refer to the Oracle home directory.
- Execute the below command, to launch the Weblogic Configuration Wizard:

  ```bash
  <Oracle_Home>/wlserver_10.3/common/bin/config.sh
  ```

**Note:** Oracle_Home is the Middleware Home, which is the absolute path where Weblogic Server is installed.

- Follow the instructions as shown below for installation:
Welcome Screen

The Welcome screen is displayed each time you start the installer. Click Next to continue.
Select Domain Source Screen

Use this screen to select the components that you want to configure.

For Oracle Access Manager, select the **Oracle Access Management And Mobile Security Suite - 11.1.2.3.0 [IDM_HOME]**

Click Next to continue.

**Note:** On selecting Oracle Access Management and Mobile Security Suite option, few options like Oracle Enterprise Manager, Oracle WSM Policy Manager, Oracle JRF, Oracle Platform Security Service and Oracle OPSS Metadata for JRF gets selected by-default.
Specify Domain Name and Location Screen

Specify the following locations:

- Domain name
  Specify the name of the domain.

- Domain location
  The default locations for the domain home is
  
  `<Oracle_HOME>/user_projects/domains`

  However, the domain home directory can also be created outside of Oracle home.

- Application location
  The default locations for the domain home is
  
  `<Oracle_HOME>/user_projects/applications`

  However, the domain home directory can also be created outside of Oracle home.

Here, Oracle Home directory is where the Weblogic Server is installed.

Click on Next.
Configure Administrator User Name and Password Screen

This screen is to provide the username and password for the Weblogic Administrator. The default username is **weblogic**. The user can provide a different username. Then, Click on Next.
Configure Server Start Mode and JDK Screen

Choose a JDK from the Available JDKs.
Select a mode under the Weblogic Domain Startup Mode.
Click Next.
Configure JDBC Component Schema Screen

This screen displays a list of the following component schemas:

- OAM MDS Schema
- OWSM MDS Schema
- OAM Infrastructure
- OMSM Schema
- OPSS Schema

In case there is any changes to Schema Owner, Schema Password, Database and Service, Host Name, and Port, select that particular component schema, for example **OAM Infrastructure Schema** and enter the new configuration value.

Click Next.

**Note:** The schemas listed in this screen should be created before starting the configuration using Oracle Repository Creation Utility. RCU utility should be downloaded from Oracle website which is compatible with your Oracle Database.
Test JDBC Component Schema Screen

This screen displays the status of the DB Schema Test Connection.

- If the test fails, click Previous, correct the issue, and try again.
- After the test succeeds, click on Next.
Select Optional Configuration Screen

Choose the options to configure from the following list:

- Administration Server
- Managed Servers, Clusters and Machines
- Deployments and Services
- RDBMS Security Store

Select Administration Server and Click on Next.
Configure the Administrator Server Screen

Specify the following details of the Administration Server in this screen:

- Name
- Listen address
- Listen port
- SSL listen port (Only if SSL is enabled)
- SSL enabled

After entering the details, click on Next.
Configuration Summary Screen

Review the domain configuration on this screen.

If you want to make any changes to the configuration before creating the domain, click Previous to navigate to the selected screen where you want to edit the details.

Click Create to start creating the domain.

By default, a new Weblogic Domain to support Oracle Access Management is created in the `<Oracle_Home>/user_projects/domains` directory.
Creating Domain Screen

This screen summarizes the domain creation information that was just completed.
Click Done to dismiss the screen.

- After configuring Oracle Access Management in a Weblogic Administration Domain and before starting the Admin Server, you must configure the Database Security Store by executing the below command:

  `<Oracle_Home>/oracle_common/common/bin/wlst.sh`
  `<IDM_HOME>/common/tools/configureSecurityStore.py -d`
  `<Oracle_Home>/user_projects/domains/<OAM_domain>/-c IAM -p`
  `<opss_schema_password> -m create`

- Now, start the Admin Server using the following command to check if the Security Store is configured correctly.

  `<Oracle_Home>/user_projects/domains/<OAM_domain>/bin/startWeblogic.sh`

**Note:** Oracle_Home is the Middleware Home, which is the absolute path where Weblogic Server is installed & IDM_HOME is the absolute path of the Oracle_IDM directory.
7.2 Post-Installation Tasks

After installing and configuring Oracle Access Management, the user can perform the following steps:

- Configure your own LDAP to use instead of the default embedded LDAP, which comes with Oracle Weblogic Server.
- To do this, ensure that the Admin Server is running. Login to the Weblogic Console using the following URL:
  
  \[http://<hostname>:<oam_admin_port>/console\]

- Now, go to Security Realms > myrealm > Providers
- Click on ‘DefaultAuthenticator’ provider and change the Control Flag to SUFFICIENT and Save the changes.
- Now, click on New and enter the below details and click Save.
  
  Name : OUDAuthenticator  
  Type : IPlanetAuthenticator  
  Control Flag : SUFFICIENT

- Click on the new OUDAuthenticator Provider and under Provider Specific tab and set the details of LDAP where the server should point. Refer to the following table for more information:

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host</td>
<td>This is the LDAP Server (OUD) Hostname</td>
</tr>
<tr>
<td>Port</td>
<td>This is the LDAP Server (OUD) Port. E.g. 1389</td>
</tr>
<tr>
<td>Principal</td>
<td>This is the Administrator Account name. E.g. \textit{cn=orcladmin}</td>
</tr>
<tr>
<td>Credential</td>
<td>This is the Administrator Account password.</td>
</tr>
<tr>
<td>UserBase DN</td>
<td>This is the OUD user search base \textit{cn=Users, dc=in,dc=oracle,dc=com}</td>
</tr>
<tr>
<td>GroupBase DN</td>
<td>This is the OUD group search base \textit{cn=Groups, dc=in,dc=oracle,dc=com}</td>
</tr>
</tbody>
</table>

- Click on Save to update the changes.
- Click on Save and reorder the providers so that LDAP Provider gets highest priority followed by DefaultAuthenticator.
- Click Save to apply the changes and shutdown the Admin Server for restart.
- Now, again start the Admin Server using the command,
  
  \(<\text{Oracle\_Home}>/user_projects/domains/\langle\text{OAM\_domain}\rangle/bin/startWeblogic.sh\)

- Also, start the OAM Managed Server (by default it is ‘oam\_server1’) as mentioned below:
<Oracle_Home>/user_projects/domains/<OAM_domain>/bin/startManagedWeblogic.sh oam_server1

(Only if Managed Server Start Fails)

- In case Managed Server startup fails with the below error
  
  <Info> <Security> <BEA-090065> <Getting boot identity from user.>
  Enter username to boot WebLogic server: Error: Failed to get value from Standard Input
  Enter password to boot WebLogic server:
  
  <Info> <Management> <BEA-141107> <Version: WebLogic Server 10.3.6.0 Tue Nov 15 08:52:36 PST 2011 1441050>
  <Error> <Configuration Management> <BEA-150021> <The admin server failed to authenticate the identity of the user starting the managed server. The reason for the error is.>

  or

  <Error> <Security> <BEA-090783> <Server is Running in Development Mode and Native Library(termalio) to read the password securely from command line is not found.>

- To fix the above problem, either create a file "boot.properties" in <OAM_domain>/servers/oam_server1/security or copy it from <OAM_domain>/servers/AdminServer/security

- If creating a new file, add the username and password as given below:

  username=<domain_username>
  password=<domain_password>

- After setting the values in the file, try starting the Managed Server once again.

7.3 Verifying the Installation

- You can perform any combination of the following tasks to verify that your installation was successful:
  
  - Ensure that the Administration Server and Managed Servers are up and running.
  - Verifying the installation for Oracle Access Management
  - Log in to the Administration Console for Oracle Access Management using the following URL:

    http://<hostname>:<oam_admin_port>/oamconsole

  - You will be redirected to:

    http://<hostname>:<oamserver_port>/oam/server

  When you access this Administration Console running on the Administration Server, you are prompted to enter a user name and password. Note that you must have Administrator’s role and privileges.

  - Verifying the installation for Weblogic Server Administration Console

  If the installation and configuration of Oracle Access Management are successful, this console shows the Administration Server in running mode.
8. Configuring OBDX Application and Mobile Banking using OAM and Weblogic

Following topics in this chapter provides detailed information on configuring OBDX Application and Mobile Banking:

- Section 8.1, "Creating WebGate Agent on OAM Console"
- Section 8.2, "Manage Application Domain and Resources"
- Section 8.3, "Creating Custom Login Scheme"
- Section 8.4, "Add the Login Scheme to Authentication Policy"
- Section 8.5, "Manage User Identity Stores"
- Section 8.6, "Enabling OIC in OAM (For Mobile Banking)"
- Section 8.7, "Finger Print Authentication"
- Section 8.8, "Copying the artifacts generated after registering Webgate"

8.1 Creating WebGate Agent on OAM Console

Before you can use the new Oracle HTTP Server 11g WebGate agent for Oracle Access Manager, you must register the new WebGate agent with Oracle Access Manager by using the Oracle Access Manager Administration Console. Following are the steps to register a WebGate Agent:

Login to OAM Console.

E. g. http://<hostname>:<oam_admin_port>/oamconsole
In the **Agents** block, Click the “+” and choose **Create Webgate**.
Select the Version as 11g
Enter the hostname in Name field
Click on Apply
This creates the 11g Webgate Agent for OAM.

**Note:** The hostname here will be the fully qualified hostname of the server where Webgate is installed.
8.2 Manage Application Domain and Resources

Go to **Launch Pad** and search for an application domain.
Click on **Applications Domain** in the Access Manager tab.

Click on **Search**
Click on the Domain Name you want to configure.
Click on the Resources Tab
Click on Search

Search Results will show an entry for Resource URL as /** which is Protected. Select the Resource entry and Click the Edit option.
Modify the values of Protection Level, Authentication & Authorization Policy as shown.
Click on Apply to save the changes.
Click on the Create Icon
Specify the following values for each of the fields respectively:

- **Type:** The HTTP type is the default; it covers resources that are accessed using either the HTTP or HTTPS protocol. Policies that govern a particular resource apply to all operations.
  
  Select Type **HTTP**

- **Description:** An optional unique description for this resource.

- **Host Identifier:** A list of host identifiers is available, which contains all identifiers that were defined as a shared component. You must search and choose a host identifier to assign this resource.

- **Resource URL:** The URL value must be expressed as a single relative URL string that represents a path component of a full URL. For example, `/pages/*`

- **Operations:** Select the required Operation from the table.

- **Protection Level:** Select the Protection Level from the dropdown as per the table.

- **Authentication Policy:** Select the required value from the dropdown.

- **Authorization Policy:** Select the required value from the dropdown.

Click on **Apply** to add the resource.
Perform the above steps to add the URLs listed in the table below:

<table>
<thead>
<tr>
<th>Resource URLs</th>
<th>Operations</th>
<th>Protection Level</th>
<th>Authentication Authorization Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>/**</td>
<td>ALL</td>
<td>Unprotected</td>
<td>Public Resource Policy</td>
</tr>
<tr>
<td>/pages/*</td>
<td>ALL</td>
<td>Protected</td>
<td>Protected Resource Policy</td>
</tr>
<tr>
<td><em>/pages/</em></td>
<td>ALL</td>
<td>Protected</td>
<td>Protected Resource Policy</td>
</tr>
<tr>
<td>/digx/v1/locations/branches/*</td>
<td>GET</td>
<td>Excluded</td>
<td>-</td>
</tr>
<tr>
<td>/digx/v1/locations/atms/*</td>
<td>GET</td>
<td>Excluded</td>
<td>-</td>
</tr>
<tr>
<td>/digx/v1/locations/*</td>
<td>GET</td>
<td>Excluded</td>
<td>-</td>
</tr>
<tr>
<td>/digx/v1/mobileClient/verify</td>
<td>ALL</td>
<td>Excluded</td>
<td>-</td>
</tr>
</tbody>
</table>

### Table 1

<table>
<thead>
<tr>
<th>Row</th>
<th>Resource Type</th>
<th>Host Identifier</th>
<th>Resource URL</th>
<th>Query String</th>
<th>Authentication Policy</th>
<th>Authorization Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>HTTP</td>
<td>digx310065</td>
<td>/pages/*</td>
<td></td>
<td>Protected Resource Policy</td>
<td>Protected Resource Policy</td>
</tr>
<tr>
<td>2</td>
<td>HTTP</td>
<td>digx310065</td>
<td>/digx/v1/locations/branches/*</td>
<td></td>
<td>Protected Resource Policy</td>
<td>Protected Resource Policy</td>
</tr>
<tr>
<td>3</td>
<td>HTTP</td>
<td>digx310065</td>
<td>/digx/v1/locations/atms/*</td>
<td></td>
<td>Protected Resource Policy</td>
<td>Protected Resource Policy</td>
</tr>
<tr>
<td>4</td>
<td>HTTP</td>
<td>digx310065</td>
<td>/digx/v1/locations/*</td>
<td></td>
<td>Protected Resource Policy</td>
<td>Protected Resource Policy</td>
</tr>
<tr>
<td>5</td>
<td>HTTP</td>
<td>digx310065</td>
<td>/digx/v1/mobileClient/verify</td>
<td></td>
<td>Protected Resource Policy</td>
<td>Protected Resource Policy</td>
</tr>
<tr>
<td>6</td>
<td>HTTP</td>
<td>digx310065</td>
<td><em>/pages/</em></td>
<td></td>
<td>Protected Resource Policy</td>
<td>Protected Resource Policy</td>
</tr>
<tr>
<td>7</td>
<td>HTTP</td>
<td>digx310065</td>
<td>/*</td>
<td></td>
<td>Public Resource Policy</td>
<td>Public Resource Policy</td>
</tr>
</tbody>
</table>
8.3 Creating Custom Login Scheme

To add a Custom Login Page, go to Launch Pad on oamconsole.

Click on Authentication Schemes from the Access Manager block.
Click on Create Authentication Scheme
Specifying the following details:

- Provide a name for the Scheme. E.g. OBDXLoginScheme
- Select the authentication level as 2.
- Choose the Challenge Method as FORM
- Enter the Challenge Re-direct URL. E.g. /oam/server
- Select the Authentication Module as LDAP
- Enter the Challenge URL which is the actual URL of the login page.
- Select the Context Type as External

Click on Apply to save the Scheme.
8.4 Add the Login Scheme to Authentication Policy

Go to the Launch Pad.

Click on Application Domain.
Click on Search and Select the Domain Name.

Click on Authentication Policies Tab
Click on Protected Resource Policy
Select the Scheme create for Login from the Authentication Scheme drop-down.

Click on Apply to save the changes.

### 8.5 Manage User Identity Stores

For modifying the OAM Identity Store to store LDAP details, click on Configuration button available on the top-right corner.
Click on User Identity Stores.

Select the entry UserIdentityStore1, under OAM ID Stores and Click the Edit option.
Now, Select the Store Type depending on the LDAP to be used and you will be shown additional fields to provide further details as shown below.

Enter the values against the mandatory field on the page:

**Location:** Provide LDAP hostname & port in the following form:

```
<ldap_hostname>:<port>
```

**Base DN:** This will be the LDAP username e.g. `cn=orcladmin`

**Password:** Enter the LDAP user’s password.

**User Search Base:** Provide the user search hierarchy e.g.

```
 cn=Users,dc=in,dc=oracle,dc=com
```
**Group Search Base**: Provide the group search hierarchy e.g.

```
cn=Groups,dc=in,dc=oracle,dc=com
```

Then, check the **Enable Password Management** checkbox at the end and provide the details in the fields as shown below.

Click Apply to save the changes.

**Note**: After mapping the LDAP server details in OAM ID Store, login to the oamconsole will be only allowed using the LDAP admin user credentials. The user details can be found in the usergroup.ldif file attached in the Section 9.4 "Creating Attributes, Object Class, Users, Groups and Adding Optional Attributes on LDAP Server" of this document.
8.6 Enabling OIC in OAM (For Mobile Banking)

OBDX uses Oracle Identity Connect (OIC) API's. Below are the steps to enable OIC in OAM.

Navigate to Configuration > Available Services
Enable Mobile and Social Service.
Now, go to Application Security Tab > Agents
Select the WebGate for which OIC is to be enabled.

Add the below parameters in User Defined Parameters as shown and save changes.

\texttt{OAMAuthUserAgentPrefix=OIC}
**Configuring OBDX Application and Mobile Banking using OAM and Weblogic**

**OAMAuthAuthenticationServiceLocation=http://<OAM Host>:14100/oic_rest/rest/oamauthentication**

Note: The below step is required if using non-default identity store in OAM. In such a case map the identity store to an authentication scheme and then the authentication scheme to OIC.

From Launch Pad, go to Application Domain > IAM Suite > Authentication Policies > OICAuthenticationPolicy

Select the OBDX Authentication Scheme created previously and click Apply.

Now, refer Section 5 in **OpenLDAP-Configuration.docx** to configure Mobile Banking using Weblogic Managed Authentication.
8.7 **Finger Print Authentication**

Finger print authentication in OBDX mobile banking is achieved using JSON Web Tokens (JWT). JWT Tokens are validated along with mobile device UUID. Below configurations are required in OAM:

Navigate to Mobile Security Tab > Mobile & Social Services > Service Providers > JWTOAMAuthentication
Click Edit and Change value of TokenExchangeInput to **JWT_UT+CRED**. Also set the validity of the token as required in seconds and Save the changes.

Now, Navigate to Application Security Tab > Authentication Modules Tab > Create Custom Authentication Module

Give Name eg. **DeviceUUIDBasedUserModule**
Now, configure the Steps tab as shown above.

Now, configure the Step Orchestration tab as shown. Click on Apply to save the Module.

After creating the module, Navigate to Launch Pad > Authentication Scheme > Create.
Create a new authentication scheme as shown and map the previously created module.
Then, go to Launch Pad > Application Domains > IAM Suite > Authentication Policies > OICTokenExchangePolicy

Map the DeviceUUID scheme here from the Authentication scheme dropdown. Click Apply to save the changes.

Run below on OBDX schema

```sql
insert into digx_fw_config_all_b (PROP_ID, CATEGORY_ID, PROP_VALUE, FACTORY_SHIPPED_FLAG, PROP_COMMENTS, SUMMARY_TEXT, CREATED_BY, CREATION_DATE, LAST_UPDATED_BY, LAST_UPDATED_DATE, OBJECT_STATUS, OBJECT_VERSION_NUMBER)
values ('AUTH_PROVIDER', 'mobileconfig', 'OAM', 'N', '', 'Stores device id in OUD', 'ofssuser', sysdate, 'ofssuser', sysdate, 'Y', 1);
```

8.8 Copying the artifacts generated after registering Webgate

Registering the new WebGate agent will generate the following files and artifacts either in `<IDM_HOME>/oam/server/reg/client/rreg/output/Agent_ID` directory or else in `<Oracle_Home>/user_projects/domains/<oam_domain>/output/Agent_ID` directory:

- cwallet.sso
- ObAccessClient.xml

The user should copy the files from the above mentioned location to the `<WebTier_Instance_Home>/config/OHS/ohs1/webgate/config` directory and restart OHS server instance. 

Home
9. LDAP Installation and Configuration

Note: If you want to install OBDX with DB Authenticator then below steps need not be followed.

This chapter describes the different ways of installing the Lightweight Directory Access Protocol (LDAP) server in the following sections respectively:

- Section 9.1, "Using Oracle Unified Directory"
- Section 9.2, "Creating Weblogic Domain for Oracle Unified Directory"
- Section 9.3, "Creating Attributes, Object Class, Users, Groups and Adding Optional Attributes on LDAP Server"

9.1 Using Oracle Unified Directory

Oracle Unified Directory is a comprehensive next generation directory service. It is designed to address large deployments and to provide high performance, and is highly extensive. Oracle Unified Directory is easy to deploy, manage, and monitor.

This chapter describes the installation tasks which contains the following sections:

- Section 9.1.1, "Installing and Configuring Oracle Unified Directory"
- Section 9.1.2, "Verifying the Installation"

9.1.1 Installing and Configuring Oracle Unified Directory

- Obtain OUD from the Oracle Fusion Middleware Downloads. Download OUD.zip file to a directory, and unpack the downloaded archive that contains the installer. By default, this directory is named OUD.

- Now to start the installer, go to the directory where you unpacked the archive file and switch to the Disk1 directory.

Start the installer from the Disk1 directory (On UNIX)

```
./runInstaller –jreLoc Java_HOME/jdk
```

Note: You must enter the absolute path of the JRE folder located in this JDK when launching the installer.

- If you are installing on a UNIX system, and if this is the first time any Oracle product is being installed on your system with the Oracle Universal Installer, you will be asked to provide the location of an inventory directory. This is where the installer sets up subdirectories and maintains inventory data for each Oracle product that is installed on this system.

- Follow the instructions in the below table to configure the inventory directory information. For more help, click on the screen name in the table below, or click the Help button in the GUI.

<table>
<thead>
<tr>
<th>Screen</th>
<th>Description and Action Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specify Inventory Directory Screen (UNIX Only)</td>
<td>Specify the Oracle inventory directory and group permissions for that directory. The group must have write permissions to the Oracle inventory directory. Click OK to continue.</td>
</tr>
<tr>
<td>Screen</td>
<td>Description and Action Required</td>
</tr>
<tr>
<td>--------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>Inventory Location Screen (UNIX Only)</td>
<td>Run the createCentralInventory.sh script as root. Click OK to continue.</td>
</tr>
</tbody>
</table>

Now, perform the steps as shown below to install and configure OUD after you start the OUD installer.

**Welcome Screen**

The Welcome screen is displayed each time you start the installer. Click Next to continue.
Install Software Updates Screen

If you want to search for and download software updates from My Oracle Support, then do the following:

Select Search My Oracle Support for Updates.
Enter User name and Password.
Click Test Connection.
If you want to search your local directory for updates, then do the following:
Select Search Local Directory for Updates.
Click Search For Updates.
If you want to skip software updates, then select Skip Software Updates. (Kindly follow recommended practices regarding updates depending on the setup requirements or usage.)
Click Next to continue.
Prerequisite Checks Screen

This screen shows whether the system requirements are met in order to install the software.

If there is a problem, a short error message appears in the bottom portion of the screen. Fix the error, and click Retry to try again.

If you want to ignore the error or warning messages and continue with the installation, click Continue.

To stop prerequisite checking for all components, click Abort.

Click Next to continue.
Specify the following installation locations:

- **Oracle Middleware Home**
  
  The absolute path to the directory where WebLogic Server was installed.

- **Oracle Home Directory**
  
  The directory name for your Oracle home:

- You can specify a pre-existing directory that you want to use as the Oracle home; the directory must be an empty directory.

- You can specify the name of a new directory that will be created for you inside the Middleware home.

Oracle Home directory is where your products will be installed. All software binaries will reside in this directory, and no runtime process can write to this directory.

**Note:** This installation directory will be referred to as OUD_ORACLE_HOME throughout the remainder of this document.

If you are performing an installation on a Windows operating system, be sure that your directory paths are valid, and do not contain double backslashes (\\).
Click Next to continue.

**Installation Summary Screen**

Review the information on this screen. The operations summarized on this page will be performed when you click Install.

If you want to make any changes to the configuration before starting the installation, use the navigation pane, and select the topic you want to edit.

If you want to save this configuration to a text file (called a response file), click Save. You will be prompted for the location of name of the file you want to create (for example, silent_install.rsp). This file can be used later if you choose to perform the same installation from the command line.

Click Install.

Then screen shows the progress of the installation.
Installation Progress Screen

This screen shows the progress of the installation.

If you want to quit before the installation is completed, click Cancel. Doing so will result in a partial installation; the portion of the software that was installed on your system before you click Cancel will remain on your system, and you will have to remove it manually.
Installation Complete Screen

This screen summarizes the installation that was just completed.

You can also save this summary information to a file for future reference by clicking Save. You will be prompted to specify a name and location for your summary file.

Click Finish to dismiss the screen.

- After the installation of OUD, go to the OUD_Oracle_Home directory and start the oud-setup.sh as follows,

  ```
  cd /ORACLE_HOME/Oracle_OUD1/
  ./oud-setup
  ```

- After starting the oud-setup, follow the steps as shown below:
Welcome Screen

The Welcome screen is displayed each time you start the installer.

Server Settings Screen
Enter the details as shown in the figure below:

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

LDAP Listener Port: Enter the LDAP port for the directory server.

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

The default administration port is 4444.

Topology Options Screen

Select This will be a stand alone server.

Click Next.
Directory Data Screen

Specify how to load data into your directory

Directory Base DN: Enter the base DN for your directory.
dc=in,dc=oracle,dc=com

Directory Data: Select the following data option: Only Create Base Entry: Creates an entry with the base DN specified previously.

Click Next.
Oracle Components Integration Screen

Select No specific integration as we want a standard installation. This is the default option.
Click Next.
Server Tuning Screen
The Server Tuning screen enables you to tune Oracle Unified Directory server by selecting one of these options: Providing the specific memory to be dedicated to the server.

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

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

Click Next.

**Review Screen**

Review your configuration and Select Start Server when Configuration has Completed to start the server after the directory server has been configured.

Click Finish.
After the processing is done i.e., after creating directory server is done and starting directory Is done click close.

9.1.2 Verifying the Installation

You can perform any combination of the following tasks to verify that your installation was successful:

- Verifying the Installation Logs
  
  Check for the presence of installation log files in logs directory inside your Oracle Inventory directory. On UNIX systems, if you do not know the location of your Oracle Inventory directory, you can find it in the OUD_ORACLE_HOME/orainst.loc file.

- Checking the Browser URLs
  
  Use the port numbers of OUD provided during configuration, by default UserDN port is 1389 and Admin Connector Port is 4444. Check if there is any process running on the port. Use the following command:

  `netstat –ulpn | grep <port_number>`

  **In-case there is no process bind to respective port number, kindly check your Server process.**

- To check the URLs, use the format:

  `http://system_name:port_number/odsm`
9.2 Creating Weblogic Domain for Oracle Unified Directory

- Start the Weblogic Configuration Wizard, by executing the below command:
  
  `<Oracle_Home>/wlserver_10.3/common/bin/config.sh`

  **Note:** Oracle_Home is the Middleware Home, which is the absolute path where Weblogic Server is installed.

- Follow the instructions as shown below for installation:

  **Welcome Screen**

  ![Welcome Screen](image)

  - Create a new WebLogic domain
    - Create a WebLogic domain in your projects directory.
  - Extend an existing WebLogic domain
    - Use this option to add new components to an existing domain and modify configuration settings.

  The Welcome screen is displayed each time you start the installer.
  Click Next to continue.
Select Domain Source Screen

Use this screen to select the components that you want to configure.

For Oracle Access Manager, select the **Oracle Directory Services Manager - 11.1.2.3.0 [OUD_HOME]**

Click Next to continue.

**Note**: On selecting Oracle Entitlement Server option, Oracle JRF option gets selected by-default.
Specify Domain Name and Location Screen

Specify the following locations:

- **Domain name**
  Specify the name of the domain.

- **Domain location**
  The default locations for the domain home is

  `<Oracle_HOME>/user_projects/domains`

  However, the domain home directory can also be created outside of Oracle home. Here, Oracle Home directory is where the Weblogic Server is installed.

Click on Next.
Configure Administrator User Name and Password Screen

This screen is to provide the username and password for the Weblogic Administrator. The default username is `weblogic`. The user can provide a different username. Then, Click on Next.
Configure Server Start Mode and JDK Screen

Choose a JDK from the Available JDKs.
Select a mode under the Weblogic Domain Startup Mode.
Click Next.
Choose the options to configure from the following list:

- Administration Server
- Managed Servers, Clusters and Machines
- Deployments and Services
- RDBMS Security Store

Select Administration Server and Click on Next.
Configure the Administrator Server Screen

Specify the following details of the Administration Server in this screen:

- Name
- Listen address
- Listen port
- SSL listen port (Only if SSL is enabled)
- SSL enabled

After entering the details, click on Next.
Configuration Summary Screen

Review the domain configuration on this screen.

If you want to make any changes to the configuration before creating the domain, click Previous to navigate to the selected screen where you want to edit the details.

Click Create to start creating the domain.

By default, a new Weblogic Domain to support Oracle Unified Directory is created in the `<Oracle_Home>/user_projects/domains` directory.
Creating Domain Screen

This screen summarizes the domain creation information that was just completed. Click Done to dismiss the screen.

After configuring Oracle Unified Directory in a Weblogic Administration Domain, the Admin Server should be started to access the Directory Service on browser using the URL

http://<ldap_hostname>:<ldap_port>/odsm

9.3 Creating the Attributes, Object Class, Users, Groups and Adding Optional Attributes on LDAP Server

1. To create Attributes
   - Copy the "attributes.ldif" file from <OBDX BASE Installer zip>/installables/oud directory to a location on the server where OUD is installed and switch to the following directory:

     cd <Oracle_Home>/Oracle_OUD1/bin

   - Now, execute the below command:

     ./ldapmodify -h localhost -p <ldap_port> -D "ldap_user" -w <ldap_password> -a -f <file_location>/attributes.ldif

     OR (using SSL)
1. **LDAP Installation and Configuration**

   ./ldapmodify -h localhost -p <ldap_port> -D "ldap_user" -w <ldap_password> -a -f <file_location>/attributes.ldif --useSSL

   - Login to ODSM Console. E.g. [http://<hostname>:<port>/odsm](http://<hostname>:<port>/odsm) and under the Schema tab check if the following attributes are created:
     - accountType
     - businessUnit
     - deviceuuid
     - fbId
     - fcManager
     - fcRoleId
     - fcUserType
     - homeBranch
     - otpseed
     - partyId
     - partyName
     - targetUnit

   2. **To create a Object Class**

      - Copy the “objectclass.ldif” file from <OBDX BASE Installer zip>installables/oud directory to a location on the server where OUD is installed and switch to the following directory:
        
        cd <Oracle_Home>/Oracle_OUD1/bin

      - Now, execute the below command:

        ./ldapmodify -h localhost -p <ldap_port> -D "ldap_user" -w <ldap_password> -a -f <file_location>/objectclass.ldif

        OR (using SSL)

        ./ldapmodify -h localhost -p <ldap_port> -D "ldap_user" -w <ldap_password> -a -f <file_location>/objectclass.ldif --useSSL

      - Login to ODSM Console. E.g. [http://<hostname>:<port>/odsm](http://<hostname>:<port>/odsm) and under the Schema tab check if the ‘fcPerson’ and ‘fcRole’ object class is created.

   3. **To create Groups**

      - Copy the “usergroup.ldif” file from <OBDX BASE Installer zip>installables/oud directory to a location on the server where OUD is installed and switch to the following directory:

        cd <Oracle_Home>/Oracle_OUD1/bin

      - Now, execute the below command:
./ldapmodify -h localhost -p <ldap_port> -D "ldap_user" -w <ldap_password> -a -f <file_location>/usergroup.ldif

OR (using SSL)
./ldapmodify -h localhost -p <ldap_port> -D "ldap_user" -w <ldap_password> -a -f <file_location>/usergroup.ldif --useSSL

- Login to ODSM Console. E.g. http://<hostname>:<port>/odsm and under the Data Browser tab check if the groups are created.

4. **To create User and mapping it to the Group**


- Under the Data Browser tab, click on the Add icon
• Select **User Entry** from the list.
• Now, uncheck **Common Name** from the **RDN Attributes** dropdown list.

• And, Check the **User ID** Attribute checkbox.
- Add the values in the mandatory fields **Common Name, Last Name, User ID and User Password**.

- Click on **Create** and the user entry will be created.
• Now, expand the Groups tab.
- Select **Administrator** Group.

- Expand **Member Information** and click on **Add** button.
- Enter the entry of the user created in the previous steps.

- Click on Apply to save the changes.

- Repeat the same steps and add the user to the group named AuthAdmin. The user’s group membership should look similar to the following screenshot.
5. **Adding Optional Attributes**
• Under the Data Browser tab, expand the Groups

• Select a particular group, e.g. `cn=Administrator`. 
• Now, under the Attributes tab, expand the Optional Attributes.

• Click on Show Attributes button.
• In the Filter type “fc” and click on Search button. It will show a entry for “fcroleid”.

• Select the entry “fcroleid”.

LDAP Installation and Configuration
- Click on the arrow to move the entry on right side.

- Click Ok and the attribute will be added to the Optional Attribute list.
Now, Click on the ‘+ Add’ button of “fcroleid” attribute.

Refer to the table below and enter the value mentioned for the respective Group which is being modified. E.g. for “cn=Administrator” group the value is “EMPLOYEE”.
<table>
<thead>
<tr>
<th>Groups</th>
<th>Value for ‘fcroleid’ Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>cn=Adminstartor</td>
<td>EMPLOYEE</td>
</tr>
<tr>
<td>cn=AuthAdmin</td>
<td>EMPLOYEE</td>
</tr>
<tr>
<td>cn=Checker</td>
<td>CORPORATE</td>
</tr>
<tr>
<td>cn=CorporateUser</td>
<td>CORPORATE</td>
</tr>
<tr>
<td>cn=Customer</td>
<td>RETAIL</td>
</tr>
<tr>
<td>cn=Maker</td>
<td>CORPORATE</td>
</tr>
<tr>
<td>cn=RetailUser</td>
<td>RETAIL</td>
</tr>
<tr>
<td>cn=Viewer</td>
<td>CORPORATE</td>
</tr>
<tr>
<td>cn=AdminChecker</td>
<td>EMPLOYEE</td>
</tr>
<tr>
<td>cn=AdminMaker</td>
<td>EMPLOYEE</td>
</tr>
<tr>
<td>cn=CorporateAdminChecker</td>
<td>CORPORATE</td>
</tr>
<tr>
<td>cn=CorporateAdminMaker</td>
<td>CORPORATE</td>
</tr>
</tbody>
</table>

- Click on Apply to save the changes.
10. **Oracle Business Intelligence Publisher Installation**

To install Oracle Business Intelligence Installation click [here].