Oracle® Banking Enterprise Limits and Collateral Management Oracle HTTP Server 11g R1 Configuration for FLEXCUBE





Oracle Banking Enterprise Limits and Collateral Management Oracle HTTP Server 11g R1 Configuration for FLEXCUBE, Release 14.8.0.0.0

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Preface

- Purpose
- Audience
- Documentation Accessibility
- Critical Patches
- · Diversity and Inclusion
- Conventions
- Screenshot Disclaimer

1.1 Purpose

This guide helps the user to create the required resources for Oracle Banking Enterprise Limits and Collateral Management.

1.2 Audience

This guide is intended for anyone responsible for installing Oracle Banking Application.

1.3 Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at https://www.oracle.com/corporate/accessibility/.

Access to Oracle Support

Oracle customer access to and use of Oracle support services will be pursuant to the terms and conditions specified in their Oracle order for the applicable services.

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Oracle is fully committed to diversity and inclusion. Oracle respects and values having a diverse workforce that increases thought leadership and innovation. As part of our initiative to build a more inclusive culture that positively impacts our employees, customers, and partners, we are working to remove insensitive terms from our products and documentation. We are also mindful of the necessity to maintain compatibility with our customers' existing technologies and the need to ensure continuity of service as Oracle's offerings and industry standards evolve.

Because of these technical constraints, our effort to remove insensitive terms is ongoing and will take time and external cooperation.

1.6 Conventions

The following text conventions are used in this document:

Table 1-1 Conventions

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

1.7 Screenshot Disclaimer

Personal information used in the interface or documents is dummy and does not exist in the real world. It is only for reference purposes.



Purpose

The objective of Oracle HTTP Server 11g R1 Configuration for FLEXCUBE document is to explain the installation and configuration of Oracle HTTP Server 11g R1 (11.1.1.6.0). This includes setting up server details, the configuration of compression rules, and enabling SSL.



Introduction to Oracle HTTP Server (OHS)

Oracle HTTP Server is the Web server component for Oracle Fusion Middleware. It is based on Apache web server, and includes all base Apache modules and modules developed specifically by Oracle. It provides a HTTP listener for Oracle WebLogic Server and the framework for hosting static pages, dynamic pages, and applications over the Web. Key aspects of Oracle HTTP Server are its technology, its serving of both static and dynamic content and its integration with both Oracle and non-Oracle products.

Oracle HTTP Server consists of several components that run within the same process. These components provide the extensive list of features that Oracle HTTP Server offers when handling client requests. The following are the major components -

Table 3-1 Major Component- Oracle HTTP Server

Major Components	Description
HTTP Listener	Oracle HTTP Server is based on an Apache HTTP listener to serve client requests. An HTTP server listener handles incoming requests and routes them to the appropriate processing utility.
Modules (mods)	Modules extend the basic functionality of Oracle HTTP Server and support integration between Oracle HTTP Server and other Oracle Fusion Middleware components. There are modules developed specifically by Oracle for Oracle HTTP Server. For example, mod_wl_ohs, mod_plsql etc. Oracle HTTP Server also includes the base Apache and third-party modules out-of-the-box. These modules are not developed by Oracle. For example, mod_proxy, mod_perl etc.

Install OHS 11g

This topic explains systematic instructions to install Oracle HTTP Server 11g.

1. Launch the setup exe file to start the installation process.

The **Welcome** screen displays.

Figure 4-1 Welcome

2. Click Next.

The Install Software Updates screen displays.

Figure 4-2 Install Software Updates

3. Select **Skip Software Updates** option and click **Next**.

The **Install and Configure** screen displays.

Figure 4-3 Install and Configure

4. Select Install and Configure option and click Next.

The **Prerequisite Checks** screen displays.

Figure 4-4 Prerequisite Checks

Check the Checking Operating system certification and Checking physical memory boxes and click Next.

The **Installation Location** screen displays.

Figure 4-5 Installation Location

Select Oracle Middleware Home path by navigating through Browse and then click Next.
 The Security Updates screen displays.

Figure 4-6 Security Updates

7. Click Next.

The My Oracle Support Username/Email Address Not Specifiedmessage displays.

Figure 4-7 My Oracle Support Username/Email Address Not Specified

8. Click Yes.

The **Configure Components** screen displays.

Figure 4-8 Configure Components

9. Select Oracle HTTP Server option and then click Next.

The **Specify Component details** screen displays.

Figure 4-9 Specify Component details

10. Enter the required Instance Name and OHS Component Name and click Next.

The **Configure Ports** screen displays.

Figure 4-10 Configure Ports

11. Select Auto Port Configuration option and click Next.

The **Installation Summary** screen displays.

Figure 4-11 Installation Summary

12. Click Install.

The **Configuration Progress** screen displays.

Figure 4-12 Configuration Progress

13. Click Next.

The Installation Complete screen displays.

Figure 4-13 Installation Complete

This completes the installation of Oracle HTTP Server with **Instance** and **Component**. For example, **Instance** is **instance1** and **Component** is **ohs1**.

14. If the user wants to change the OHS Listen Port after the installation, edit **\$ORACLE_INSTANCE/config/OHS/<component_name>/httpd.conf** and change the Listen port.



This port is for http protocol and not for https.

Figure 4-14 httpd.conf



Configure Oracle HTTP Server in front of Weblogic Server

This topic explains systematic instructions to configure Oracle HTTP Server in front of Weblogic Server.

In Oracle HTTP Server requests from Oracle HTTP Server to the Weblogic server are proxied using **mod_wl_ohs** module. This configuration file needs to be modified to include the Weblogic server and port details.

```
mod_wl_ohs.conf file is located at ${ORACLE_INSTANCE}/config/OHS/
{COMPONENT NAME}/mod wl ohs.conf.
```

Add the below-mentioned directives to mod_wl_ohs.conf file.

For WebLogic in single instance -

```
<Location /<<context/url>> >
SetHandler weblogic-handler
WebLogicHost <<server name>>
WeblogicPort <<port>>
</Location>
```

For example,

```
<Location /FCJNeoWeb>
SetHandler weblogic-handler
WebLogicHost wlserver1
WeblogicPort 7707
</Location>
```

This will forward /FCJNeoWeb from HTTP server to /FCJNeoWeb on WebLogic Server wlserver1: 7707

Figure 5-1 mod_wl_ohs.conf

For Weblogic instances in cluster -

```
<Location /<<context/url>> >
SetHandler weblogic-handler
WebLogicCluster <server1>:<port1>, <server2>:<port2>
</Location>
```

For example,

```
<Location / FCJNeoWeb >
SetHandler weblogic-handler
```

WebLogicCluster wlserver1:7010, wlserver2:7010
</Location>

This will forward /FCJNeoWeb from HTTP server to /FCJNeoWeb on WebLogic Cluster wlserver1:7010 and wlserver2:7010

Figure 5-2 mod_wl_ohs.conf



Enable WebLogic Plug-In Enabled flag in Weblogic

This topic explains systematic instructions to enable the WebLogic Plug-In Enabled flag in WebLogic.

This flag needs to be enabled in WebLogic if it is accessed through proxy plugins. When the WebLogic plugin is enabled, a call to getRemoteAddr will return the address of the browser client from the proprietary WL-Proxy-Client-IP header instead of the webserver.

- 1. Enable WebLogic Plug-In Enabled flag at managed server level as per below steps.
 - a. Click Environment, and then Servers, and then ManagedServer, and then General, and then Advanced tab respectively.

The Advanced tab displays.

- b. On the Advanced tab, check the WebLogic Plug-In Enabled box.
- c. Click Save.
- d. Restart the Server.
- 2. Enable **WebLogic Plug-In Enabled** flag at domain level as per below steps:
 - a. Click Domain, and then click Web Applications.
 - b. Check the WebLogic Plug-In Enabled box.
 - c. Click Save.
 - Restart the server.

Compression rule setting

Content compression in Oracle HTTP Server is done using mod_deflate. This can compress HTML, text, or XML files to approx. 20 - 30% of their original sizes, thus saving on server traffic. However, compressing files causes a slightly higher load on the server, but clients' connection times to the server are reduced.

Load mod deflate

This topic explains systematic instructions to load mod deflate.

Configure file types

This topic explains systematic instructions to configure file types.

Change httpd.conf file

This topic explains systematic instructions to change the httpd.conf file.

7.1 Load mod deflate

This topic explains systematic instructions to load mod deflate.

mod_deflate is used for compression in OHS and this is installed in Oracle HTTP Server under location \${ORACLE_HOME}/OHS/modules/mod_deflate.so but it might not be loaded.

To load the file, add the below directive in mod_wl_ohs.conf file.

LoadModule deflate_module \${ORACLE HOME}/OHS/modules/mod deflate.so

Figure 7-1 mod_wl_ohs.conf

7.2 Configure file types

This topic explains systematic instructions to configure file types.

mod_deflate also requires to specify which type of files are going to be compressed.

- In the LOCATION section of the mod_wl_ohs.conf file, add the below entries.
 - AddOutputFilterByType DEFLATE text/plain
 - AddOutputFilterByType DEFLATE text/xml
 - AddOutputFilterByType DEFLATE application/xhtml+xml
 - AddOutputFilterByType DEFLATE text/css
 - AddOutputFilterByType DEFLATE application/xml
 - AddOutputFilterByType DEFLATE application/x-javascript
 - AddOutputFilterByType DEFLATE text/html
 - SetOutputFilter DEFLATE

Images are supposed to be in a compressed format and therefore are bypassed by **mod_deflate**.

Figure 7-2 mod_wl_ohs.conf

7.3 Change httpd.conf file

This topic explains systematic instructions to change the httpd.conf file.

This is a server configuration file that typically contains directives that affect how the server runs, such as user and group IDs it should use, and the location of other files. Cross-check the existence of **mod_wl_ohs.conf** include in the **httpd.conf** file.

1. Cross-check the existence of mod_wl_ohs.conf include in httpd.conf file.

httpd.conf file is present under location \${ORACLE_INSTANCE}/config/OHS/
{COMPONENT NAME}/httpd.conf.

- In this file, cross check for the entry include \${ORACLE_INSTANCE}/config/OHS/\$ {COMPONENT_NAME}/mod_wl_ohs.conf.
- 3. If above include entry is not present, then add the \${ORACLE_INSTANCE}/config/OHS/\$ {COMPONENT_NAME}/mod_wl_ohs.conf in httpd.conf file.

Figure 7-3 httpd.conf



SSL Configuration for Oracle HTTP Server

Secure Sockets Layer (SSL) is required to run any Web site securely. Secure Sockets Layer (SSL) is an encrypted communication protocol that is designed to securely send messages across the Internet. Reading of Weblogic Configuration document provided as part of FCUBS installation is recommended before proceeding with further setup.

In Oracle HTTP server, SSL configuration can be done between -

- Browser to Oracle HTTP Server (Mandatory)
- Oracle HTTP Server to Oracle Weblogic Server (If required)
- Configure SSL for Inbound Request to Oracle HTTP Server
 This topic explains systematic instructions to enable and configure SSL between browser and Oracle HTTP Server.
- SSL Configuration between Oracle HTTP Server and Oracle Weblogic Server
 This topic describes the SSL configuration process between the Oracle HTTP server and
 the Oracle Weblogic server.

8.1 Configure SSL for Inbound Request to Oracle HTTP Server

This topic explains systematic instructions to enable and configure SSL between browser and Oracle HTTP Server.

- Obtain a certificate from CA or create a self-signed certificate.
- 2. Create an Oracle Wallet which contains the above SSL Certificate.

The default wallet that is automatically installed with Oracle HTTP Server is for testing purposes only. The default wallet is located in \${ORACLE_INSTANCE}/config/OHS/\${COMPONENT NAME}/keystores/default.

- 3. Configure Wallet in ssl.conf file
- Create a new Wallet and import Certificate
 This topic explains systematic instructions to create a new Wallet and import Certificate.
- Configure Wallet in ssl.conf file
 This topic explains systematic instructions to configure Wallet in the ssl.conf file.

8.1.1 Create a new Wallet and import Certificate

This topic explains systematic instructions to create a new Wallet and import Certificate.

1. Go to the \Oracle WT1\bin\launch.exe to launch wallet manager.

Oracle Wallet Manager- Home screen displays.

Figure 8-1 Oracle Wallet Manager- Home

2. Click Create New.

A pop-up message displays on the **Oracle Wallet Manager** screen.

Figure 8-2 Message-Oracle Wallet Manager

3. Click Yes.

The **New Wallet** window displays.

Figure 8-3 New Wallet

4. Enter the Wallet Password and Confirm Password fields and then click OK.

New Wallet will get created and it will ask for certificate reguest creation.

Click No to proceed.

The **Oracle Wallet Manager** screen displays with **Trusted Certificates**.

Figure 8-4 Oracle Wallet Manager

6. Right-click Trusted Certificates.

The Import Trusted Certificate window displays.

Figure 8-5 Import Trusted Certificate

Choose Select a file that contains the certificate option and click OK to import the trusted certificate.

The **Import Trusted Certificate** window displays to choose certificate location.

Figure 8-6 Import Trusted Certificate

- 8. Browse to the folder where the certificate is stored and then click **Open**.
- 9. Click Save Wallet on the left side navigation and save the wallet either to the default location (\${ORACLE_INSTANCE}/config/OHS/\${COMPONENT_NAME}/keystores/default) or to desired folder location.
- 10. Click Wallet tab and enable Auto Login.

8.1.2 Configure Wallet in ssl.conf file

This topic explains systematic instructions to configure Wallet in the ssl.conf file.

In **ssl.conf** file the newly created wallet need to be updated. This file is located under the folder **\${ORACLE_INSTANCE}/config/OHS/\${COMPONENT_NAME}/**.

1. Change the SSLWallet directive to point to the location of the new wallet created.

SSLWallet - \${ORACLE_INSTANCE}/config/\${COMPONENT_TYPE}/\$
{COMPONENT_NAME}/keystores/

Figure 8-7 ssl.conf

Change the Listen port number in the ssl.conf file to the SSL enabled port.



Listen port number by default: 4443



Figure 8-8 ssl.conf

8.2 SSL Configuration between Oracle HTTP Server and Oracle Weblogic Server

This topic describes the SSL configuration process between the Oracle HTTP server and the Oracle Weblogic server.

SSL for outbound requests from Oracle HTTP Server is configured in **mod_wl_ohs**. Refer to the Weblogic Configuration document for the weblogic server setting mentioned in below topics:

- **1.** #unique_33
- 2. #unique_34
- 3. #unique 35
- Turn off KeepAliveEnabled

This topic explains systematic instructions to turn off KeepAliveEnabled parameter.

- Enable one-way SSL
 - This topic explains systematic instructions to enable one-way SSL.
- Enable two-way SSL

This topic explains systematic instructions to enable two-way SSL.

8.2.1 Turn off KeepAliveEnabled

This topic explains systematic instructions to turn off KeepAliveEnabled parameter.

 The below parameter in mod_wl_ohs should be turned off, by default it is on. Add the below directive under the LOCATION section of the mod_wl_ohs file.

The KeepAliveEnabled parameter in the **mod_wl_ohs** file is on by default.

Figure 8-9 mod_wl_ohs

8.2.2 Enable one-way SSL

This topic explains systematic instructions to enable one-way SSL.

- Generate a custom keystore identity.jks for Weblogic Server containing a certificate.
- 2. In the Settings for AdminServer screen, set the Keystore details under the Keystore tab.

Table 8-1 Keystore- Field Description

Field	Description
Custom Identity Keystore	Specify the identity.jks file location
Custom Identity Keystore Type	Specify Keystore type as JKS.
Custom Identity Keystore Passphrase	Specify the passphrase used to create the Keystore.
Confirm Custom Identity Keystore Passphrase	Confirm the passphrase used to create the Keystore.



Figure 8-10 Keystore

- Copy the certificate to Oracle HTTP Server and import the new certificate into the OHS wallet as a trusted certificate.
- 4. Add the following new directive in mod_wl_ohs.conf to point to the wallet location.
 WISSLWallet \${ORACLE_INSTANCE}/config/OHS/{COMPONENT_NAME}/keystores/default
- Change the port in the mod_wl_ohs.conf file to point to the SSL port of the Weblogic server.

Figure 8-11 mod_wl_ohs file

6. Restart both Weblogic Server and Oracle HTTP Server.

8.2.3 Enable two-way SSL

This topic explains systematic instructions to enable two-way SSL.

- 1. Perform one-way SSL configuration steps as per the topic #unique_34.
- **2.** Generate a new trust store **trust.jks** for the Weblogic server.
 - Keystore created for one-way SSL can be used, but it is recommended to create a separate truststore for two-way SSL.
- Export the user certificate from the Oracle HTTP Server wallet, and import it into the newly created truststore.
- 4. In the **Settings for AdminServer** screen, set the Keystore details under the **Keystore** tab.

Table 8-2 Keystore - Field Description

Field	Description
Custom Trust Keystore	Specify the trust.jks file location.
Custom Trust Keystore Type	Specify the Keystore type as JKS.
Custom Trust Keystore Passphrase	Specify the passphrase used to create the Keystore.
Confirm Custom Trust Keystore Passphrase	Confirm the passphrase used to create the Keystore.

Under the SSL tab, ensure Trusted Certificate Authorities field is set as from Custom Trust Keystore.

Figure 8-12 SSL Tab

6. Restart the Weblogic Server.



Sample Configuration Files

Refer to the sample configuration files -

- httpd.conf
- mod_wl_ohs.conf
- ssl.conf



Start, Stop, and Restart Oracle HTTP Server

This topic explains systematic instructions to Start, Stop, and Restart the Oracle HTTP Server.

Navigate to the below location in command prompt \${ORACLE_INSTANCE}/bin/ and run
the below commands.

Table 10-1 Command- Oracle HTTP Server

Action	Command
Start	opmnctl startproc ias- component={COMPONENT_NAME}, For example, opmnctl startproc ias- component=ohs1
Stop	opmnctl stopproc ias- component={COMPONENT_NAME}, For example, opmnctl stopproc ias- component=ohs1
Restart	opmnctl restartproc ias- component={COMPONENT_NAME}, For example, opmnctl restartproc ias- component=ohs1



Test the application

This topic explains systematic instructions to test the application.

- Test the application deployed on Weblogic using Oracle HTTP Server after restarting both the Oracle HTTP server and WebLogic server.
 - https://ohs_servername:ohs_https_port/<<context/url>>
 - http://ohs_servername:ohs_http_port/<<context/url>>

Table 11-1 Server Details

Field	Description
ohs_servername	The server on which OHS is deployed.
ohs_https_port	The port number mentioned against LISTEN directive in SSL.conf file.
ohs_http_port	The port number mentioned against LISTEN directive in httpd.conf file.

Example - https://localhost:4443/FCJNeoWeb/welcome.jsp or http://localhost:7777/FCJNeoWeb/welcome.jsp

Server Logs Location

This topic describes the location of Oracle HTTP Server Logs.

Oracle HTTP Server Logs are generated under the folder **\${ORACLE_INSTANCE}/ diagnostics/logs/OHS/{COMPONENT_NAME}/**.



References

This topic describes a list of references for Oracle HTTP Server configuration.

The Weblogic Configuration document provided as part of FCUBS installation.

References for Oracle HTTP Server -

- Understanding Oracle HTTP Server Modules
- Configuring SSL in Oracle Fusion Middleware

