Oracle HTTP Server 11g R1 Configuration for FLEXCUBE
Oracle Banking Corporate Lending
Release 14.7.3.0.0
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## 1. Purpose

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



## 2. 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.

Following are the major components:

#### 2.1 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.

#### 2.2 Modules (mods)

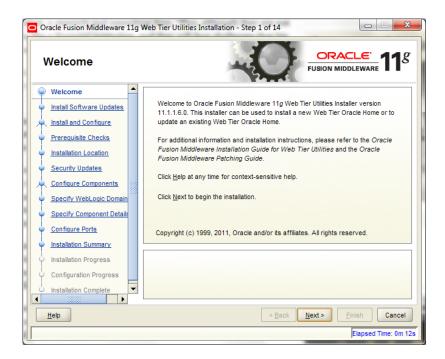
Modules extend the basic functionality of Oracle HTTP Server, and support integration between Oracle HTTP Server and other Oracle Fusion Middleware components. There are modules developed specifically by Oracle for Oracle HTTP Server. Ex: mod\_wl\_ohs, mod\_plsql

Oracle HTTP Server also includes the base Apache and third-party modules out-of-the-box. These modules are not developed by Oracle. Ex: mod\_proxy, mod\_perl

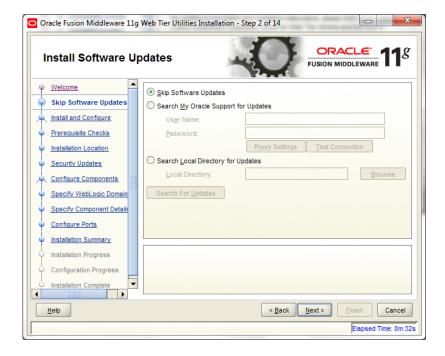


## 3. Installation of OHS 11g

Invoke the setup exe to start the installation

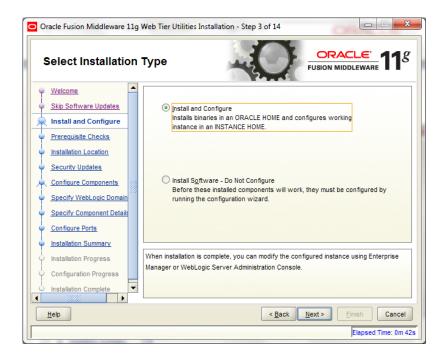


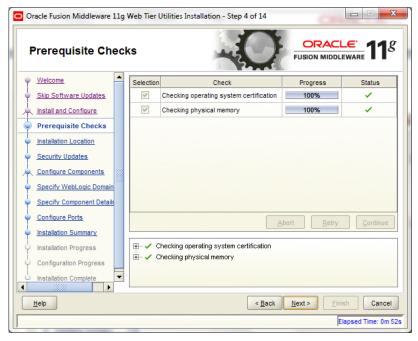
#### Select Skip Software Updates





#### Select Install and Configure







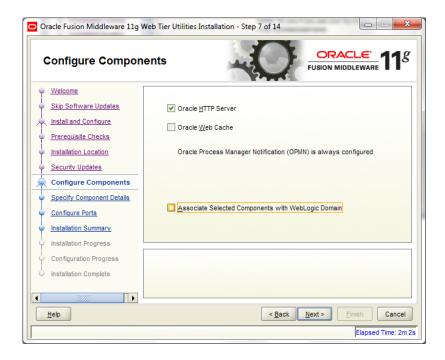




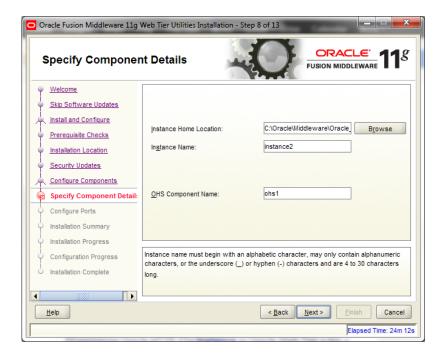




#### Select only Oracle HTTP Server

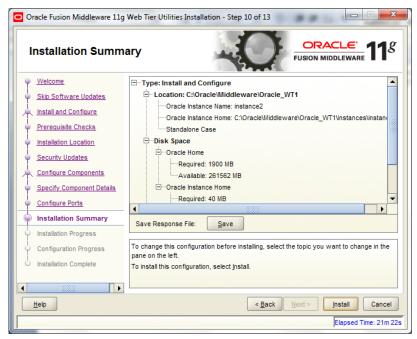


Enter the required OHS instance and component names

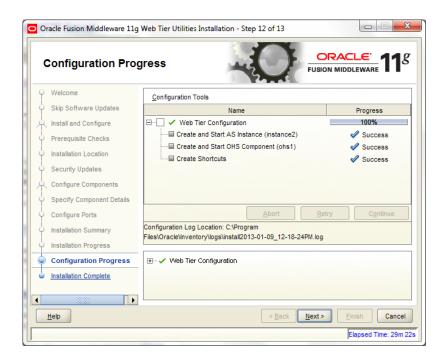


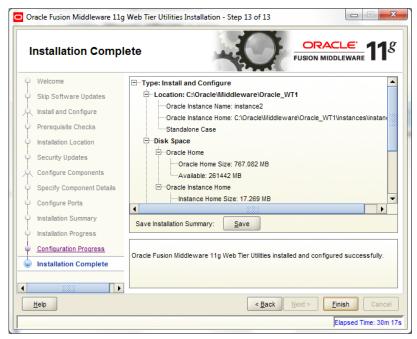












This completes the installation of Oracle HTTP Server with <Instance> and <component>. Example: Instance is instance1 and component is ohs1.

If you would like to change the port after the installation(OHS Listen Port) edit \$ORACLE\_INSTANCE/config/OHS/<component\_name>/httpd.conf and change the listen port.

NOTE: This port is for http protocol and not for https.



```
183 # Listen: Allows you to bind Apache to specific IP addresses and/or
\$ ports, instead of the default. See also the <VirtualHost>
      # directive.
186
187
      # Change this to Listen on specific IP addresses as shown below to
      # prevent Apache from glomming onto all bound IP addresses (0.0.0.0)
189
      # Listen 12.34.56.78:80
      # OHS Listen Port
      Listen 7777
196 # Dynamic Shared Object (DSO) Support
197 #
To be able to use the functionality of a module which was built as a DSO you the fave to place corresponding 'LoadModule' lines at this location so the directives contained in it are actually available before they are used.
201 # Statically compiled
202 # to be loaded here.
      # Statically compiled modules (those listed by `httpd -l') do not need
203 #
# LoadModule foo_module "${ORACLE_HOME}/ohs/modules/mod_foo.so"
```



# 4. Configure Oracle HTTP Server infront of Weblogic Server

In Oracle HTTP Server requests from Oracle HTTP Server to 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 directives to mod\_wl\_ohs.conf file.

#### 4.1 For WebLogic in single instance

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



```
mod_wl_ohs.conf |
   # NOTE : This is a template to configure mod_weblogic.
    LoadModule weblogic_module "${ORACLE_HOME}/ohs/modules/mod_wl_ohs.so"
LoadModule deflate_module "${ORACLE_HOME}/ohs/modules/mod_deflate.so"
 4 LoadModule deflate_module
 f This empty block is needed to save mod w1 related configuration from EM to t
    <IfModule weblogic_module>
           WebLogicHost <WEBLOGIC_HOST>
 8 ±
9 #
           WebLogicPort <WEBLOGIC_PORT>
10 #
           Debug ON
11 #
           WLLogFile /tmp/weblogic.log
           MatchExpression *.jsp
13 </IfModule>
14
15
    # <Location /weblogic>
16
            SetHandler weblogic-handler
17
            PathTrim /weblogic
           ErrorPage http:/WEBLOGIC_HOME:WEBLOGIC_PORT/
    # </Location>
19
        <Location /FCJNeoWeb>
             SetHandler weblogic-handler
             WebLogicHost wlserver1
             WebLogicPort 7707
         </Location>
```

#### 4.2 For Weblogic instances in cluster

<Location /<<context/url>>>

SetHandler weblogic-handler

WebLogicCluster <server1>:<port1>,<server2>:<port2>

</Location>

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



```
mod_wl_ohs.conf
                  # NOTE : This is a template to configure mod_weblogic.
     LoadModule weblogic_module "${ORACLE_HOME}/ohs/modules/mod_wl_ohs.so"
LoadModule deflate_module "${ORACLE_HOME}/ohs/modules/mod_deflate.so"
   # This empty block is needed to save mod_wl related configuration from EM to this fi

five the five tensor of the five ten
  10 #
                                                 Debug ON
                                                 WLLogFile /tmp/weblogic.log
   12 #
                                             MatchExpression *.jsp
  13 </IfModule>
 14
15 # <Location /weblogic>
   16 #
                                                 SetHandler weblogic-handler
                                                   PathTrim /weblogic
   18
                                                 ErrorPage http:/WEBLOGIC_HOME:WEBLOGIC_PORT/
   19 # </Location>
                                  <Location /FCJNeoWeb>
                                                     <Location / FCJNeoWeb >
                                                                        SetHandler weblogic-handler
                                                                     WebLogicCluster wlserver1:7010,wlserver2:7010
                                                       </Location>
```



## 5. Enable "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 web server.

- a. Plugin flag at managed server level
  - i. Click on 'Environment' -> 'Servers' -> '<ManagedServer>' -> 'General' -> 'Advanced'
  - ii. Check the 'WebLogic Plug-In Enabled' box.
  - iii. Click 'Save'
  - iv. Restart the Server.
- b. Plugin flag at domain level
  - v. Click on <Domain> -> 'Web Applications'
  - vi. Check the 'WebLogic Plug-In Enabled' box.
  - vii. Click 'Save'
  - viii. Restart the server.



#### 6. 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 server is reduced.

#### 6.1 Loading 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"

#### 6.2 Configuring file types

mod\_deflate also requires to specify which type files are going to be compressed.

In the LOCATION section of 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.

#### 6.3 httpd.conf file changes

This is a server configuration file which typically contains directives that affect how the server runs, such as user and group IDs it should use, and location of other files. 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 below entry

include "\${ORACLE INSTANCE}/config/OHS/\${COMPONENT NAME}/mod wl ohs.conf"

If above include entry is not present, then add the above include section.





### 7. Configuring SSL 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 "SSL\_Configuration on Weblogic" document provided as part of FCUBS installation is recommended before proceeding with further setup.

In Oracle HTTP server, SSL configuration can be done between

- 1. Browser to Oracle HTTP Server(Mandatory)
- 2. Oracle HTTP Server to Oracle Weblogic Server(If required)

#### 7.1 SSL configuration for Inbound Request to Oracle HTTP

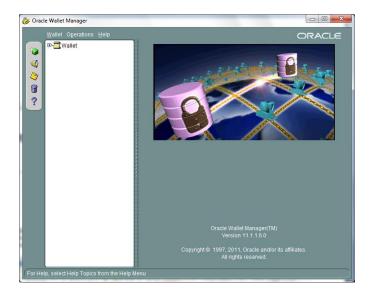
#### **Server**

Perform these tasks to enable and configure SSL between browser and Oracle HTTP Server.

- 1. 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. Configuring Wallet in ssl.conf file

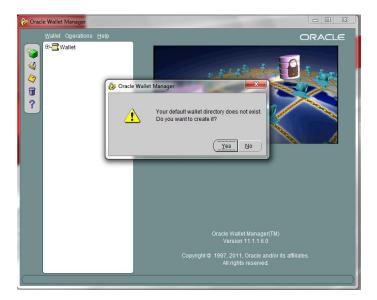
#### 7.1.1 Create a new Wallet and import Certificate

1. Go to the \Oracle\_WT1\bin\launch.exe, this will launch your wallet manager

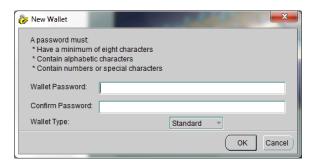




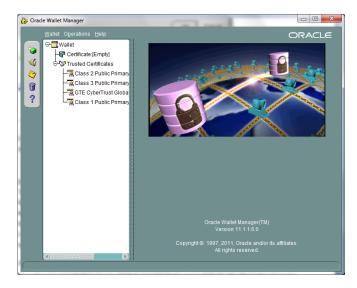
2. Click on Create new and then click no option.



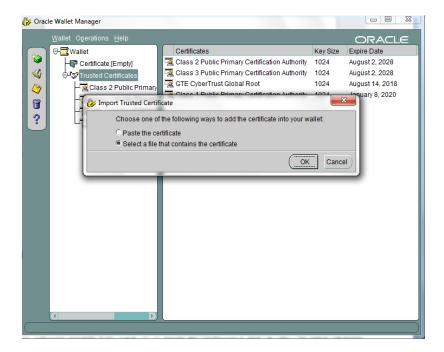
3. Enter the wallet password and click on OK, this will create a new wallet.



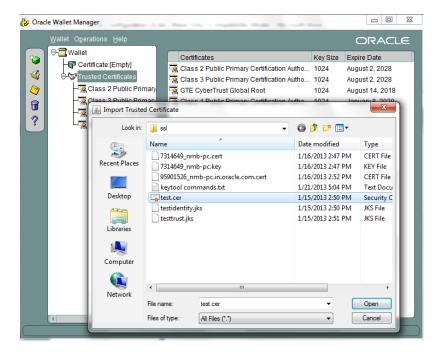
4. Not it will ask for certificate request creation, Click on NO to proceed



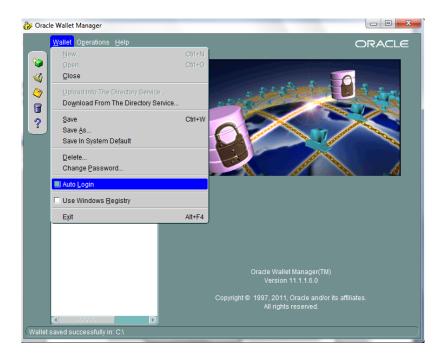
5. Right click on trusted certificates and then import trusted certificate.



6. Browse to the folder where certificate is stored and click on Open



- 7. Click on Save Wallet button on the left side navigation and save the wallet either to default location("\${ORACLE\_INSTANCE}/config/OHS/\${COMPONENT\_NAME}/keystores/default") or folder of your choice.
- 8. Click on Wallet tab and enable Auto Login





#### 7.1.2 Configuring Wallet in ssl.conf file

In ssl.conf file the newly created wallet need to updated. This file is located under folder

"\${ORACLE\_INSTANCE}/config/OHS/\${COMPONENT\_NAME}/

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

SSLWallet "\${ORACLE\_INSTANCE}/config/\${COMPONENT\_TYPE}/\${COMPONENT\_NAME}/keystores/"

```
one orphers onat one orient is permitted to negotiate.
    SSLCipherSuite
SSL RSA WITH RC4 128 MD5, SSL RSA WITH RC4 128 SHA, SSL RSA WITH SDES EDE CBC SHA, SSL RSA WITH DES CBC SH
    AES 256 CBC SHA
     # SSL Certificate Revocation List Check
     # Valid values are On and Off
SSLCRLCheck Off
    $Path to the wallet
SSLWallet "%{ORACLE_INSTANCE}/config/%{COMPONENT_TYPE}//${COMPONENT_NAME}/keystores/"
     <FilesMatch "\.(cgi|shtml|phtml|php)$">
        SSLOptions +StdEnvVars
    </FilesMatch>
    <Directory "${ORACLE INSTANCE}/config/${COMPONENT TYPE}/${COMPONENT NAME}/cgi-bin">
        SSLOptions +StdEnvVars
    </Directory>
    nokeepalive ssl-unclean-shutdown \
    downgrade-1.0 force-response-1.0
    </IfModule>
</IfModule>
```

2. Change the Listen port number in ssl.conf file to the SSL enabled port, by default the value is 4443

```
# Oracle HTTP Server mod ossl configuration file: ssl.conf
  # OHS Listen Port
  Listen 4443
  <IfModule ossl module>
 ## SSL Global Context
 ##
 ## All SSL configuration in this context applies both to
 ## the main server and all SSL-enabled virtual hosts.
 ##
    Some MIME-types for downloading Certificates and CRLs
     AddType application/x-x509-ca-cert .crt
0
     AddType application/x-pkcs7-crl
2 # Pass Phrase Dialog:
```



# 7.2 Configuring SSL between Oracle HTTP Server and Oracle Weblogic Server

SSL for outbound requests from Oracle HTTP Server are configured in mod\_wl\_ohs.

Refer to "SSL\_Configuration on Weblogic" document for weblogic server setting mentioned in below section.

#### 7.2.1 Turn off KeepAliveEnabled

The below parameter in mod\_wl\_ohs should be turned off, by default it is on. Add the below directive under LOCATION section of mod wl ohs file

#### KeepAliveEnabled OFF

```
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

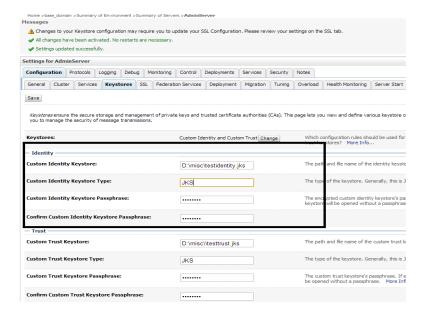
KeepAliveEnabled OFF

WlSSLWallet "D:\misc\ssl\"
</Location>
```

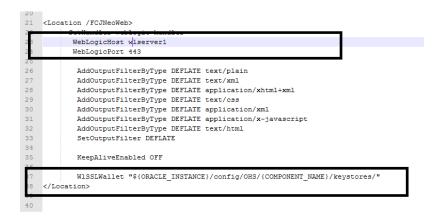
#### 7.2.2 To enable one-way SSL

- 1. Generate a custom keystore identity jks for Weblogic Server containing a certificate.
- 2. At Identity section in Keystores tab in weblogic Admin Console for server set
  - a. The custom trust store with the identity.jks file location
  - b. The keystore type as JKS
  - c. The passphrase used to created the keystore





- Copy the certificate to Oracle HTTP Server and import the new certificate into OHS wallet as a trusted certificate.
- Add following new directive in mod\_wl\_ohs.conf to point to the wallet location
   WISSLWallet "\${ORACLE\_INSTANCE}/config/OHS/{COMPONENT\_NAME}/keystores/default"
- 5. Change the port in mod\_wl\_ohs file to point to SSL port of Weblogic server.



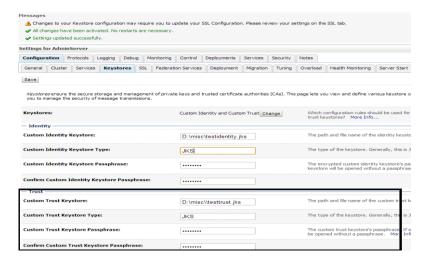
6. Restart both Weblogic Server and Oracle HTTP Server

#### 7.2.3 To enable two-way SSL

- 1. Perform one-way SSL configuration steps
- 2. Generate a new trust store, trust.jks for Weblogic server

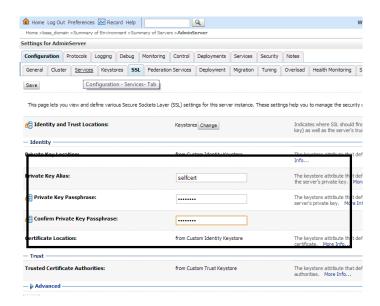


- 3. Keystore created for one-way SSL could be used, but it is recommended to create a separate truststore
- 4. Export the user certificate from Oracle HTTP Server wallet, and import it into truststore created above
- 5. At Trust section in Keystores tab in Weblogic Admin Console for the server set
  - a. The custom trust store with the trust.jks file location
  - b. The keystore type as JKS
  - c. The passphrase used to created the keystore



Under the SSL tab

Ensure trusted CA is set as from Custom Trust Keystore.



7. Restart Weblogic Server



## 8. Sample Configuration Files







mod\_wl\_ohs.conf

## 9. Starting, Stopping, and Restarting Oracle HTTP Server

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

#### 9.1 **Start**

opmnctl startproc ias-component={COMPONENT\_NAME}

Example: opmnctl startproc ias-component=ohs1

#### 9.2 **Stop**

opmnctl stopproc ias-component={COMPONENT\_NAME}

Example: opmnctl stopproc ias-component=ohs1

#### 9.3 Restart

opmnctl restartproc ias-component={COMPONENT\_NAME}

Example: opmnctl restartproc ias-component=ohs1



## 10. 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>>

ohs\_servername: server on which OHS is deployed

ohs\_https\_port: port number mentioned against LISTEN directive in SSL.conf file

ohs\_http\_port: port number mentioned against LISTEN directive in httpd.conf file

Example:

https://localhost:4443/FCJNeoWeb/welcome.jsp

Or

http://localhost:7777/FCJNeoWeb/welcome.jsp



4 4			4 •
11	SARVAR		LACATIAN
I I _	SELVEL	I ()(15	Location
	<b>O</b> O: 10:	_090	

Oracle HTTP Server Logs are generated under folder



## 12. References

SSL\_Configuration.doc for Weblogic provided as part of FCUBS installation.

http://docs.oracle.com/cd/E16764\_01/web.1111/e10144/under\_mods.htm

http://docs.oracle.com/cd/E25054\_01/core.1111/e10105/sslconfig.htm





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