

Configuring OFSAA in Clustered Environment User Guide

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Preface

This guide explains the concepts of the WebLogic Clustering.

This chapter focuses on the following topics:

- How this Guide is Organized
- Conventions Used in this Guide

How this Guide is Organized

The *Configuring OFSAA in Clustered Environment User Guide*, Release 1.1, includes the following sections:

- Chapter 1, *WebLogic Clustering*, provides an overview of WebLogic Clustering.

Conventions Used in this Guide

Table 1 lists the conventions used in this guide.

Table 1. Conventions Used in this Guide

Convention	Meaning
<i>Italics</i>	<ul style="list-style-type: none">• Names of books, chapters, and sections as references• Emphasis
Bold	<ul style="list-style-type: none">• Object of an action (menu names, field names, options, button names) in a step-by-step procedure• Commands typed at a prompt• User input
Monospace	<ul style="list-style-type: none">• Directories and subdirectories• File names and extensions• Process names• Code sample, including keywords and variables within text and as separate paragraphs, and user-defined program elements within text
<Variable>	<ul style="list-style-type: none">• Substitute input value

This chapter explains the process of doing clustering in Web logic server to provide increased scalability and reliability.

This chapter discusses the following topics:

- Overview
- Types of Clustering
- Configuration of OFS AAI in Clustered Environment
- Changes in Node Manager Configuration
- Node Manager
- Domain creation in HOST B from HOST A (valid for horizontal clustering)

Overview

Cluster permits the deployment of application components and services to several machines while presenting only a single face to the client. There are good reasons to support this. When a client requests a service, it should Make no difference if the service runs on a single server or across a number of servers. The clustering abstraction provides you with a clear route to improving the performance and scalability of your applications, albeit with increased administration of hardware and network resources.

WebLogic clustering offers three important benefits:

- **Scability** : A solution that allows you to create additional capacity by introducing more Servers to the cluster, thereby reducing the load on existing servers.
- **Load Balancing** :The ability to distribute requests across all members of the cluster, according to the workload on each server.
- **High-Availability** : A mix of features that ensure applications and services are available even if a server or machine fails. Clients can continue to work with little or no disruption in a highly available environment. WebLogic achieves high availability using a combination of features like replication and failover.

Types of Clustering

The following two types of clustering are available:

- **Vertical Clustering** : The servers that are members of a cluster can be on located on the same host computer and node
- **Horizontal Clustering** : The servers that are members of a cluster can be on located on different host computers and nodes.

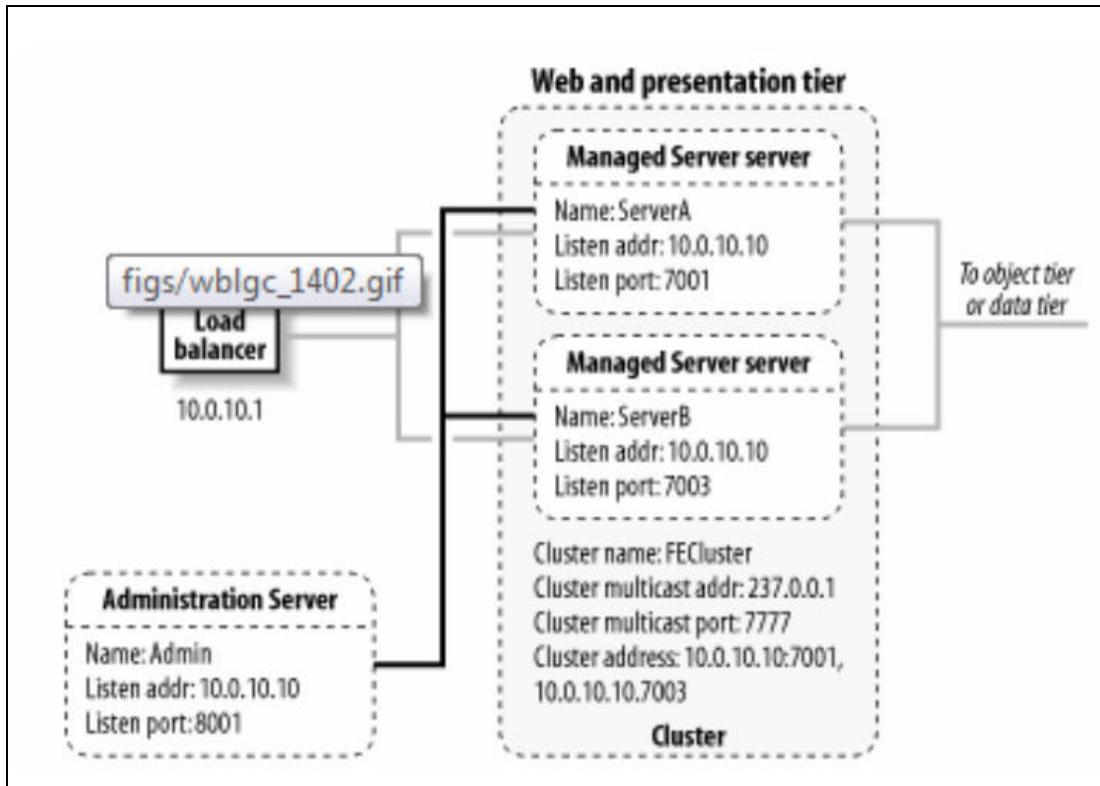


Figure 1. Clustered Environment

Configuration of OFS AAI in Clustered Environment

To configure OFS AAI in a clustered environment, follow these steps:

1. Create a WebLogic Domain.

You can create WebLogic domains either by configuring all the machines/ servers at the time of domain creation or create a WebLogic domain and configure only for Admin Server. All the wanted resources will configure from the Admin Console.

2. Execute the script to create a domain.

```
<Web_logic_Installation_path> /wlserver_10.3/common/bin/config.sh
```

3. Login to Admin Console.

4. Navigate to Environment < Servers.

The Summary of Servers window is displayed.

Name	Cluster	Machine	State	Health	Listen Port
AdminServer(admin)		Machine1	RUNNING	OK	7001
Server-2	Cluster1	Machine2	SHUTDOWN		9001
Server-3	Cluster1	Machine2	SHUTDOWN		9002
Server0	Cluster1	Machine1	SHUTDOWN		9001
Server1	Cluster1	Machine1	SHUTDOWN		9002

Figure 2. Summary of Servers

5. Click New to create a server.
6. Enter the details mentioned in the following table:

Table 1. Server Details

Fields	Description
Server Name	Enter the server name.
Server Listen Address	Enter the listen address.
Server Listen Port	Enter the listen port.

7. Create the number of Servers which should be a part of the cluster.
8. Navigate to Server < Protocol and Enable Tunneling for all the servers which are going to be the part of cluster.
9. Navigate to Environment < Clusters.
10. Click **New** to create a cluster.

The Create a New Cluster window is displayed.

Configuration of OFS AAI in Clustered Environment

Chapter 1-WebLogic Clustering

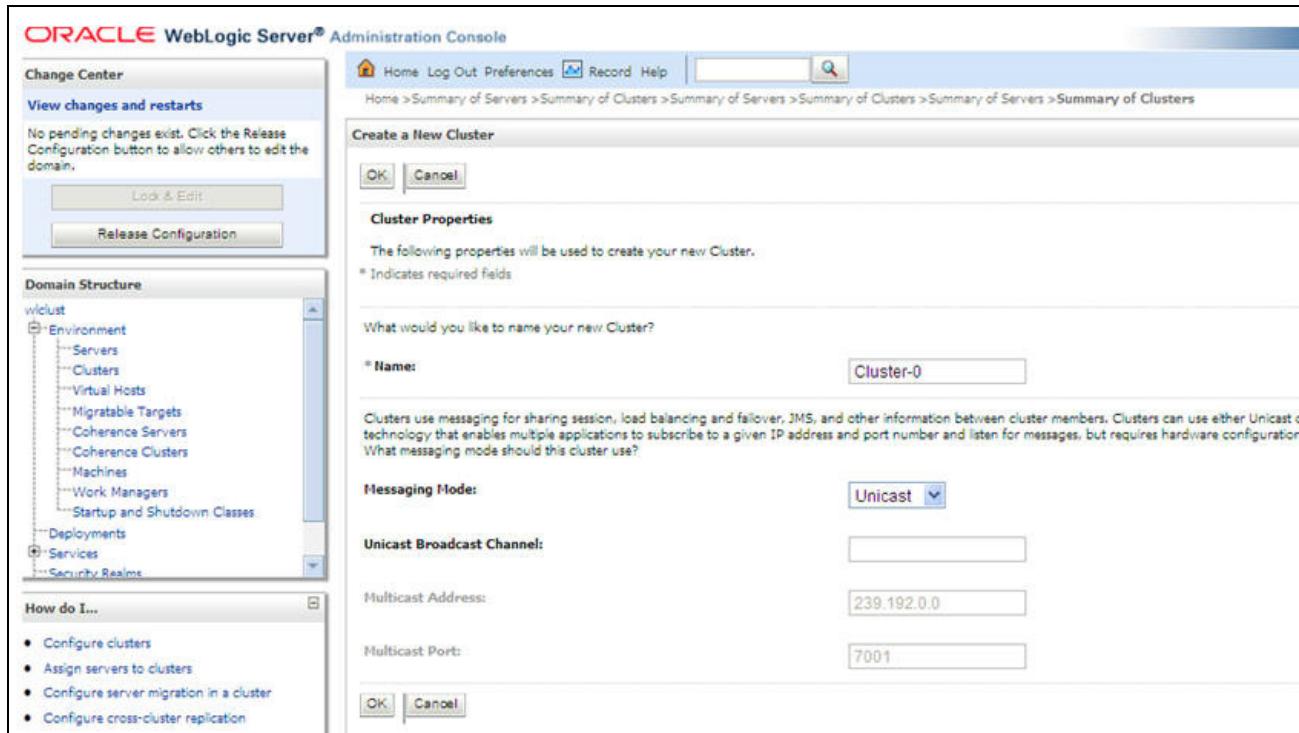


Figure 3. Create a New Cluster

11. Enter the following details.

Table 2. Cluster Details

Field	Description
Name	Enter the name of the cluster
Message Mode	When creating a new cluster, it is recommended that you use unicast for messaging within a cluster. For backward compatibility with previous versions, WebLogic Server you must use multicast for communications between clusters

12. Open the created Cluster in editable mode and specify the following details.

Table 3. Cluster Details

Field	Description
Default Load Algorithm	there are so many load algorithm be default web logic offers .Please select the one as per your requirement. Refer the below link for more understanding. http://download.oracle.com/docs/cd/E11035_01/wls100/cluster/load_balancing.html
Cluster Address	All servers which are needs to part of Cluster machine should be mention here with comma separated. EX-<IP_addresss1>:<Port1>,<IP_addresss2>:<Port2>,<IP_addresss3>:<Port3> Make sure to enable Web Logic Plug-In Enabled as it is required to access the app from Apache proxy.

13. Navigate to Servers Tab all the servers which need to be part of cluster.
14. This step is required to Cluster to identify all servers which are the part of Cluster.

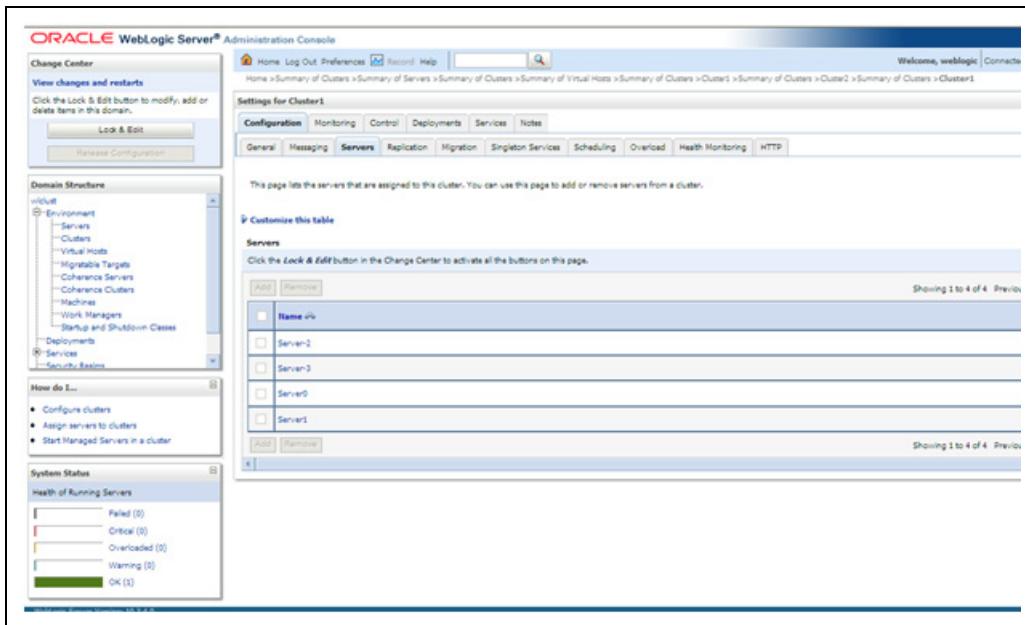


Figure 4. Settings for Cluster

15. Navigate to Environment < Machines.
16. This step is required for configuring the Node manager for the cluster.
17. Click New to create a new machine.

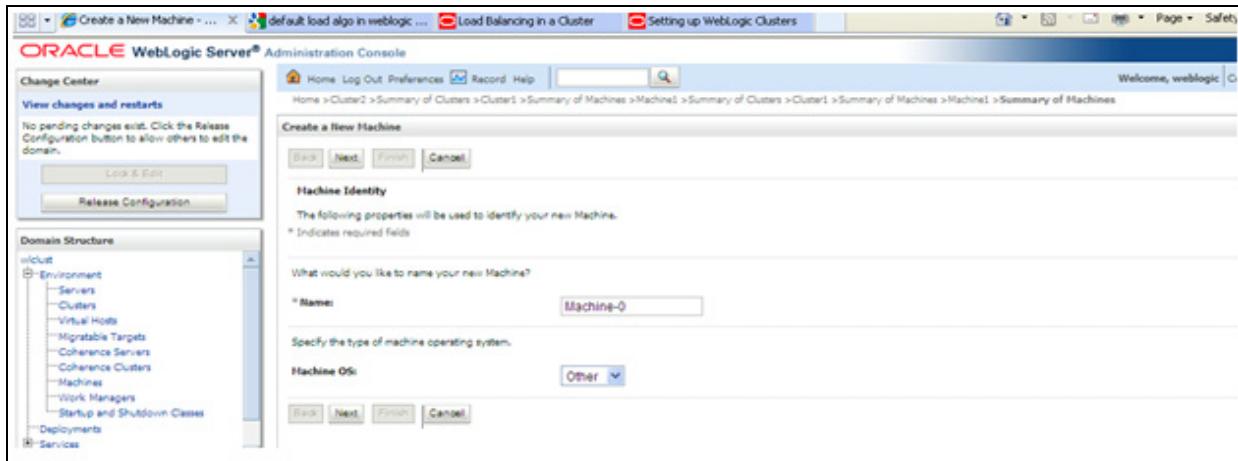


Figure 5. Create a New Machine

18. Enter the details in the following table.

Table 4. Machine Details

Field	Description
Name	Enter the machine name.
Machine OS	Enter the Machine OS.

19. Open machine in Edit mode.
20. Navigate to Servers tab.
21. Add all created Servers in this screen that you want to bind with a machine (Node manager).
22. Monitoring tab will show the current status of node manager.
23. If node manager status is inactive you can restart nodemanager from command prompt.

<Web_Logic_bin_Dir>/startNodeManager.sh.

Note: Importance of Node Manager: The Managed Servers in a production Web Logic Server environment are often distributed across multiple machines. If you run Node Manager on a machine that hosts Managed Servers, you can start and stop the Managed Servers remotely using the Administration Console or from the command line. Node Manager can also automatically restart a Managed Server after an unexpected failure.

Refer below link for more information

http://download.oracle.com/docs/cd/E13222_01/wls/docs90/server_start/nodemgr.html

24. Navigate to Environment < Deployment tab.

The Install Application Assistant window is displayed.

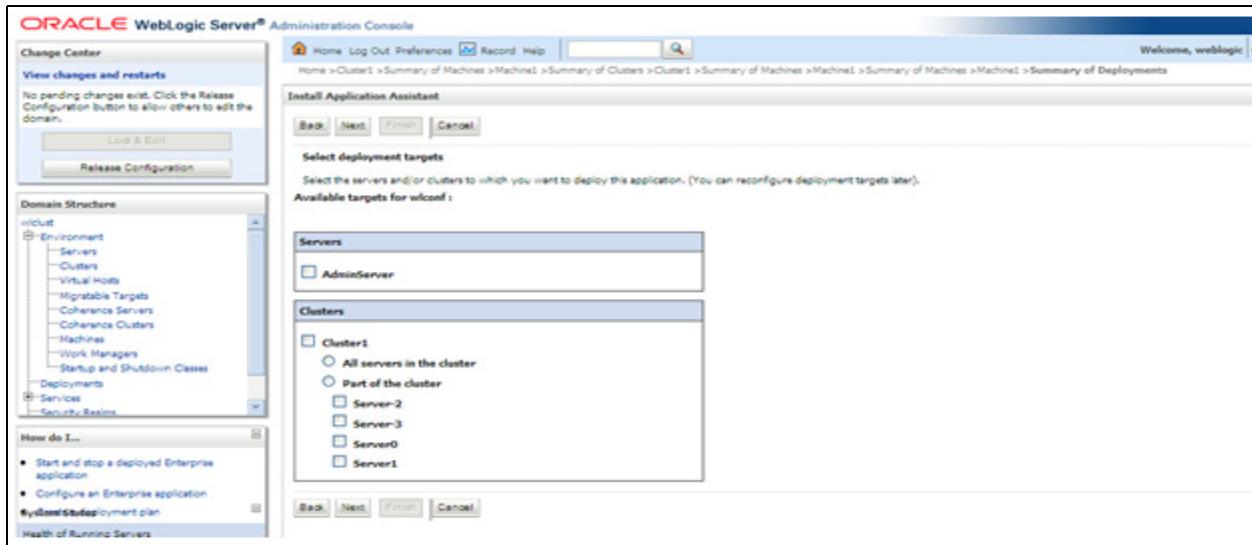


Figure 6. Install Application Assistant

25. Select deployment targets as Cluster was created earlier.

Changes in Node Manager Configuration

1. Change node manager type to SSL/Plain based on requirement.
2. Navigate to path- <Web_logic_Instalation_path>/common/node manager
3. Open configuration file nodemanager.properties and do below changes to node manager to work properly.
 - Set SecureListener to true/false based on section in machine configuration.
 - Set StartScriptEnabled to true.
 - Paste below lines

```
LISTEN_PORT=5556
export LISTEN_PORT
LISTEN_ADDRESS=<Machine IP address>
export LISTEN_ADDRESS
DISPLAY=:1.0
export DISPLAY
```
4. Start Node manager from the path
<Web_logic_Instalation_path>/server/bin/startNodeManager.sh

Note: All servers in a cluster should be part of same WebLogic Domain.

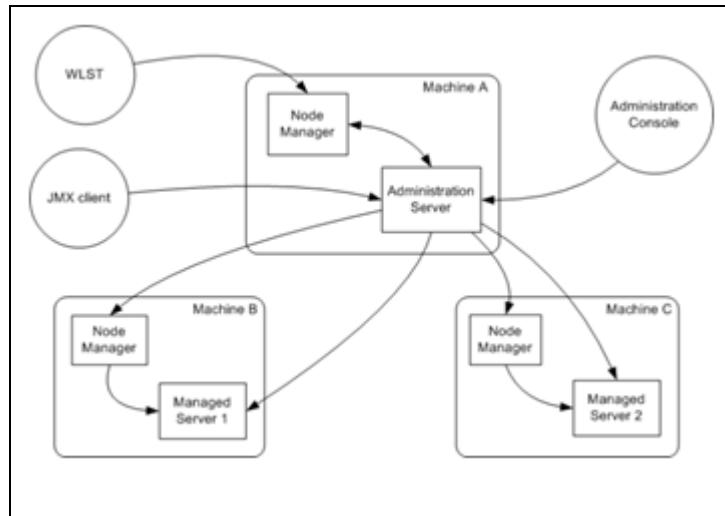


Figure 7. Node Manager

Configuring the Apache Proxy Plug-in for WebLogic

1. Download Apache Web server version 2.0 or later.
2. Copy the mod_wl_20.so file from the BEA_HOME\server\plugin\win\32 directory to the APACHE_HOME\modules directory.
3. Open the httpd.conf file from the APACHE_HOME\conf directory, and add the following at the end of this file:

```
LoadModule weblogic_module modules/mod_wl_20.so.
LoadModule rewrite_module modules/mod_rewrite.so
LoadModule ssl_module modules/mod_ssl.so.

b- <IfModule mod_weblogic.c>
    WebLogicCluster node1:node1_port,node2:node2_port
    DebugConfigInfo ON
    MatchExpression *.jsp
    MatchExpression *.xyz
</IfModule>
c- <IfModule mod_ssl.c>
    Include conf/ssl.conf
</IfModule>

d- <Location /HTTPClnt>
    SetHandler weblogic-handler
</Location>

e- <Location /iiop>
    SetHandler weblogic-handler
```

```
</Location>

f- <Location /<name of EAR file of deployed application> >
    SetHandler weblogic-handler
    DebugConfigInfo ON
    PathTrim /weblogic
</Location>
```

4. Restart Apache.

Note: Refer the following link for more information

http://download.oracle.com/docs/cd/E14049_01/doc.9101/e14047/apacheproxy.htm

5. For registering the node manager present in a different host(HOST A) with the admin present in a different host(HOST B) .Admin server requires the nodemanager to communicate with the managed servers do the below process.

Note: This step is required only for horizontal clustering.

6. Let say admin is present in HOST A and Node manager is present in HOST B.

7. Login to HOST B box and execute the following commands.

```
1----<Java_path> -cp <Web_logic_lib_path>/ weblogic.jar weblogic.WLST
```

```
EX-/home/weblogic/jdk1.6.0_17/bin/java -cp /oracle/weblogic/Oracle/Middleware/wls-
server_10.3/server/lib/weblogic.jar weblogic.WLST
```

```
2----connect(weblogic_user_id_HOST A,'Web_logic_password_HOST A','t3://<Admin_con-
sole_ip_HOST A>:<Admin_console_port Host A>')
EX-connect('weblogic','weblogic123','t3://10.184.108.86:7001')
3---wls:/weblogic/serverConfig>nmEnroll(
'<Web_logic_Domain_path_Host A>',
'<Web_logic_Node_manager_path_Host A>'
Ex-wls:/weblogic/serverConfig>nmEnroll(
'/oracle/weblogic/Oracle/Middleware/user_projects/domains/wlclust',
'/oracle/weblogic/Oracle/Middleware/wlserver_10.3/common/nodemanager')
```

Note: Refer below link for more information

http://download.oracle.com/docs/cd/E13222_01/wls/docs81/admin_ref/cli.html

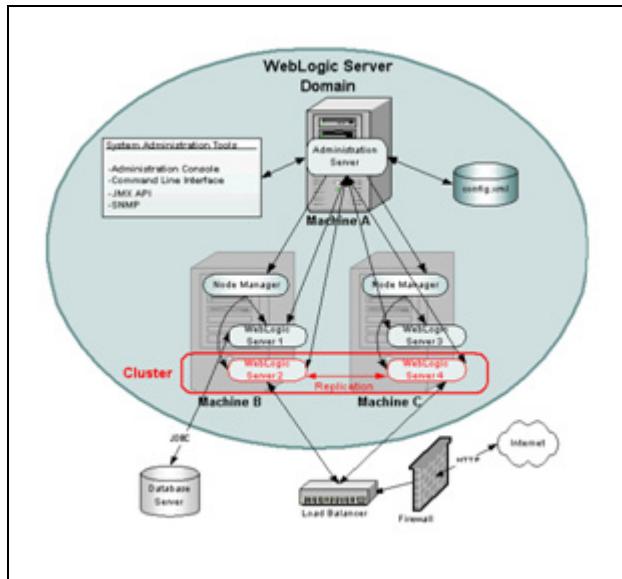


Figure 8. WebLogic Server Domain

Note: The path where weblogic is installed should be same for different machines. Across a cluster (valid for horizontal clustering), else clustering will not work properly. Installer creates the web logic path on the machines. This path should be identical on other machine. Else Servers will not run properly so as machines.

Domain creation in HOST B from HOST A (valid for horizontal clustering)

1. By pack command create the <Domain_Name>.jar from HOST A machine and unpacked it in HOST B.

2. Include below in PATH variable in .profile

```
export PATH=/BEA_HOME /common/bin:$PATH
```

3. Run below command in HOST A

```
pack.sh -managed=true -domain=<User_Project_Dir> /domains/<Domain_Name> -template=<User_Project_Dir> /domains /<Domain_Name>.jar -template_name=<Domain_name>  
Ex-pack.sh -managed=true -domain=/home/isve/ofsa/INSTLD/Oracle/Middleware/user_projects/domains/ror732 -template=/home/isve/ofsa/INSTLD/Oracle/Middleware/user_projects/domains/ror732.jar -template_name="ror732"
```

<Domain_Name>.jar will be created, move the file to User_Project_Dir> /domains location in HOST B.

4. Run below command in HOST B

```
unpack.sh -template=<User_Project_Dir>/domains /<Domain_Name>.jar  
-domain=<User_Project_Dir>/domains/<Domain_Name>  
Ex-unpack.sh -template=/home/isve/ofsa/INSTLD/Oracle/Middleware/ror732.jar  
-domain=/home/isve/ofsa/INSTLD/Oracle/Middleware/user_projects/domains/ror732
```

Session Replication between servers

Note: Ensure that the /tmp Directory in the <persistent-store-dir>/tmp</persistent-store-dir> Tag is created in a location that is accessible to all the nodes of a Clustered WebLogic Environment.

To replicate sessions between servers, follow these steps:

1. For session replication, include weblogic.xml in EAR creation.
2. Put the file weblogic.xml in <Path_of_Server> /webroot/WEB-INF and build the EAR. The same EAR should be used for session replication. This file consist the session-descriptor which is used for replicating the session.
3. There is several type of session replication in weblogic. Refer link below.

http://download.oracle.com/docs/cd/E12840_01/wls/docs103/webapp/sessions.html

Sample file attached.



4. Rename the file to weblogic.xml before placing in the location-<Path_of_Server> /webroot/WEB-INF.
5. Changes: The below entry should be deleted from web.xml before creating the ear file, as there is no servlet mapping for the same.

```
1---<!-- ofs summary -->
     <servlet>
         <servlet-name>context</servlet-name>
     <servlet-class>com.ofs.reveleus.common.summary.common.ContextDocLoader</servlet-class>
         <load-on-startup>1</load-on-startup>
     </servlet>
2--Change the FIC_PHYSICAL_HOME_LOC and FIC_HOME value in web xml to a path and give
read access.
```

6. Copy /webroot/conf folder to the same.

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