

Continuous Availability Workshop

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Introduction:

Oracle WebLogic Server Continuous Availability provides an integrated solution for building maximum availability architectures that span data centers across distributed geographical locations.

Continuous Availability:

Continuous availability is the ability of a system to provide maximum availability by employing both high availability and disaster recovery solutions to ensure that applications are available when they are needed. Typically, high availability solutions provide redundancy in one data center. Disaster recovery solutions provide the ability to safeguard against natural or unplanned outages at a production site by having a recovery strategy for applications and data to a geographically separate standby site. Oracle WebLogic Server Continuous Availability provides an integrated solution for building maximum availability architectures (MAA) that span data centers across distributed geographical locations. Integrated components include Oracle Weblogic Server, Oracle Coherence, Oracle Traffic Director, and Oracle Site Guard. The major benefits of this integrated solution are faster failover or switchover, increased overall application availability, data integrity, reduced human error and risk, recovery of work, and local access of real time data.

Continuous Availability Key Features:

Continuous Availability provides maximum availability, reliability and application stability during planned upgrades or unexpected failures. It builds on the existing high availability features | Oracle WebLogic Server, Oracle Coherence, and Oracle Fusion and supports the key features described in the following sections.

Automated Cross-Domain transaction Recovery:

Automated cross domain transaction recovery provides automatic recovery of XA transactions across an entire domain, or across an entire site with servers running in a different domain or at a different site. In active/active architecture, transactions can be recovered when an entire domain or site fails by having an active server running in a different domain either collocated at the same site or at a different site. In active/passive architecture, the server at the passive (standby) site at a different location can be started when the production site is no longer available.

WebLogic Server Zero Downtime Patching:

WebLogic Server Zero Downtime Patching provides an automated mechanism to orchestrate the rollout of patches while avoiding downtime or loss of sessions. It reduces risks and downtime of mission critical applications that require availability and predictability while applying patches. Using Workflow that you define; you can patch or update any number of nodes in a domain with little or no manual intervention. Changes are rolled out to one node at a time, allowing a load balancer such as Oracle Traffic Director to redirect incoming traffic to the remaining nodes until the node has been updated.

Coherence Federated Caching:

The federated caching feature replicates cache data asynchronously across multiple geographically dispersed clusters. Cached data is replicated across clusters to provide redundancy, off-site backup, and multiple points of access for application users in different geographical locations.

Multiple Replication Topologies

Federated caching supports multiple replication topologies. These include: active-active, active-passive, hub-spoke, and central-replication. The topologies define common replication strategies between clusters and support a wide variety of use cases. Custom replication topologies can also be created as required.

Conflict Resolution

Federated caching provides applications with the ability to accept, reject, or modify cache entries being stored locally or remotely. Conflict resolution is application specific to allow the greatest amount of flexibility when defining replication rules.

Replication Configuration

Federated caching is configured using Coherence configuration files and requires no changes to application code. An operational override file is used to configure federation participants and the federation topology. A cache configuration file is used to create federated caches schemes. A federated cache is a type of partitioned cache service and is managed by a federated cache service instance.

Management and Monitoring

Federated caching is managed using attributes and operations from the FederationManagerMBean, DestinationMBean, OriginMBean and TopologyMBean MBeans. These MBeans make it easy to perform administrative operations, such as starting and stopping replication and to monitor replication configuration and performance statistics. Many of these statistics and operations are also available from the Coherence Java VisualVM plugin.

Replication attributes and statistics are aggregated in the federation-status, federation-origin, and federation-destination reports. Replication statistics are also aggregated in the Coherence Java VisualVM plugin. Both tools can help troubleshoot possible resource and performance issues. In addition, as with any distributed cache, federated services and caches can be managed and monitored using the attributes operations of the ServiceMBean MBean and CacheMBean MBean and related reports and Java VisualVM plugin tabs .

Oracle Traffic Director:

Oracle Traffic Director is a fast, reliable and scalable software load balancer that routes HTTP, HTTPS, and TCP traffic to applications servers and web servers on the network. It distributes the requests that it receives from clients to available servers based on the specified load-balancing method, routes the requests based on specified rules, caches frequently accessed data, prioritizes traffic and controls the quality of service. The architecture of Oracle Traffic Director enables it to handle large volumes of application traffic with low latency. For high availability, you can set up pairs of Oracle Traffic Director Instances for either active-passive or active-active failover. As the volume of traffic to your network grows, you can easily scale the environment by reconfiguring Oracle Traffic Director with additional back-end servers to which it can route requests.

Oracle Site Guard:

Oracle Site Guard, a component of Oracle Enterprise Manager Cloud Control, is a disaster-recovery solution that enables administrators to automate complete site switchover or failover, thereby minimizing downtime for enterprise deployments. Because Oracle Site Guard operates at the site level, it eliminates the need to tediously perform manual disaster recovery for individual site components like applications, middleware, databases, and so on. The traffic of an entire production site can be redirected to a standby site in a single operation.

Administrator do not requires any special skills or domain expertise in areas like databases, applications, and storage replication. Oracle Site Guard can continuously monitor disaster-recovery readiness and it can do this without disrupting the production site. You can manage an Oracle Site Guard configuration by using either the Enterprise Manager Command Line Interface (EMCLI), or a compatible version of Oracle Enterprise Manager Cloud Control (Cloud Control).

Virtual Box Environment

The Hands on Lab Environment

Operating System Details

Operating System	Oracle Linux 6.4 x86_64
Hostname	localhost, wins-vbox
Root User	root/oracle
Oracle User	oracle/welcome1

Note: For this hand on lab you should only need to use **oracle** user account.

Installation Directories

JDK 1.8.0_60	/usr/java/jdk1.8.0_60/
JDK 1.8.0_25	/usr/java/jdk1.8.0_25/
Fusion Middleware WebLogic Server 12.2.1	/u01/wins/wls1221/
Oracle Traffic Director 12.2.1	/u01/wins/wls1221/
Oracle Database 12c	/u01/app/oracle/product/12.1.0/dbhome_1/

Workshop Content:

Labs Directory	/u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/
----------------	---

Pre-requisite:

- a. You must have connected to internet via browser and terminal as well.
- b. The exercises in this lab require a machine capable of running the VirtualBox VM supplied.

Supported operating systems configurations are below.

Operating System: Mac OS X, Windows, Linux or Solaris.

For the supplied VM, the following minimums are required.

Disk Space: 40 GB available

Memory: 8 GB absolute minimum, 12 GB recommended for good performance.

Lab Overview

This lab guide has an associated VirtualBox VM in which to carry out the exercises. While it is possible to run these labs in your own environment is not outlined in this document.

The following components installed for this workshop:

- Oracle WebLogic Server 12.2.1
- Oracle Coherence 12.2.1

Lab1: Zero Downtime Patching

Overview:

The Zero Downtime Patching feature may be better thought of as the Zero Downtime Rollout feature. The feature does not actually apply any patches to an OracleHome, but provides a process and mechanism for automating out-of-place patching rollout across a domain while allowing applications to continue to service requests. This is achieved through a combination of configuration requirements, patching strategy, and a new WLST command to orchestrate the rollout of updates across servers. The process is built on top of the Orchestration framework which provides fault tolerance and error handling. The zero downtime effect is achieved by rolling out the change to one node at a time, and allowing a load balancer (typically OTD) to redirect incoming traffic to the remaining nodes until the change is complete. For Zero Downtime Patching, your domain directory must be outside the Oracle Home. In our demo, we will perform four type of Rollout.

Rolling Restart: We will have two Managed servers inside the Cluster, and our application will be deployed to Cluster. We will use Oracle Traffic Director to redirect the request to Managed Servers. In this Case, suppose your request is served by Managed Server2 (at Node 3), before restarting the Managed Server 2, your session data will be copied to Managed Server 1(at Node 2), and you will access the application through Managed Server 1 and your session data will be preserved. Once Managed Server 2 will be up and running, your session data will be copied to Managed Server 2, and you will access the application through Managed Server 2 now. And Managed Server 1 will restart now. During Servers restart your access to application will be transparent as you are access the application through OTD, which redirect the request to server up and running.

Java Home Rollout: In this case, we update the JDK version of Managed Server Node by Node, and your session data preserved during the rollout.

Oracle Home Rollout: We create a patched jar through our demo, in which we modified the weblogic.jar's MANIFEST.MF to change the WebLogic Version and implementation time. To show you the difference while updating the Oracle Home Node by Node.

Application Rollout: In this Case we have version 2 of the same application, we specify the location of a json file, which contains the location of version 2 of the application, and also you need to specify the location, so that you can take back up of current application version.

Description of the Environment:

In our domain, we have a cluster with two managed servers, each managed server and admin server will be part of different Oracle Home.

To show this Zero Downtime Patching features in single Machine (Virtual Box). Instead of using different machine for Admin Server, Managed Server 1 and Managed Server 2, we are using different folder to represent the Machines. It means these folders will be on the same machine instead of different machines.

Server Name	Folder location	Oracle Home	Domain Directory
Admin Server	/u01/wins/ma	/u01/wins/ma/OracleHome1221	/u01/wins/ma/Domain1221
ms1	/u01/wins/m1	/u01/wins/m1/OracleHome1221	/u01/wins/m1/Domain1221
ms2	/u01/wins/m2	/u01/wins/m2/OracleHome1221	/u01/wins/m2/Domain1221

We have put WebLogic Generic jar in /u01/wins/install folder.

Creation of the Environment:

- Open a new terminal.
- cd /u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/Zero.Downtime.Patching/Setup
- ./create_env.sh

```
[oracle@localhost Desktop]$ cd /u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/Zero.Downtime.Patching/Setup
[oracle@localhost Setup]$ ./create_env.sh
Launcher log file is /tmp/OraInstall2016-01-19_02-03-07AM/launcher2016-01-19_02-03-07AM.log.
Extracting files.....
Starting Oracle Universal Installer

Checking if CPU speed is above 300 MHz. Actual 2593.432 MHz Passed
Checking swap space: must be greater than 512 MB. Actual 2063 MB Passed
Checking if this platform requires a 64-bit JVM. Actual 64 Passed (64-bit not required)
Checking temp space: must be greater than 300 MB. Actual 16693 MB Passed
```

Note: This Script takes 12-15 minutes. It perform the below operations.

It creates the required directories for this Lab. The individual directories significant will be clear from next upcoming steps. Below is the description of commands which create_env.sh script executes.

cd /u01/wins/install

```
java -jar fmw_12.2.1.0.0_wls.jar -silent -invPtrLoc /u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/Zero.Downtime.Patching/Setup/oralnst_ma.loc
ORACLE_HOME=/u01/wins/ma/OracleHome1221 INSTALL_TYPE="WebLogic Server"
SECURITY_UPDATES_VIA_MYORACLESUPPORT=false DECLINE_AUTO_UPDATES=true
DECLINE_SECURITY_UPDATES=true
```

Here we are installing the WebLogic Server in silent mode using the Generic jar in /u01/wins/ma/OracleHome1221 as ORACLE_HOME and the inventory location is /u01/wins/ma/.

/u01/wins/ma/OracleHome1221/wlserver/server/bin/setWLSEnv.sh

In WebLogic Generic jar, we have two scripts copyBinary.sh and pasteBinary.sh.

copyBinary.sh- We use this script to create WebLogic archive from Oracle Home. Later we can use this archive to install WebLogic Server at different places.

pasteBinary.sh- We use this script to install WebLogic Server from the archive created by copBinary.sh script.

So we execute the setWLSEnv.sh to set WebLogic Server environment.

```
/u01/wins/ma/OracleHome1221/oracle_common/bin/copyBinary.sh -javaHome $JAVA_HOME -archiveLoc /u01/wins/OracleHome1221p1.jar -sourceOracleHomeLoc  
/u01/wins/ma/OracleHome1221
```

We are creating the archive OracleHome1221p1.jar using copyBinary.sh script, where the Oracle Home is /u01/wins/ma/OracleHome1221.

```
cp /u01/wins/ma/OracleHome1221/oracle_common/bin/pasteBinary.sh  
/u01/wins/tmp/pasteBinary.sh  
cp /u01/wins/ma/OracleHome1221/oracle_common/jlib/cloningclient.jar  
/u01/wins/tmp/cloningclient.jar
```

On each machine where you are going to install WebLogic Server from the archive created using the copyBinary.sh script, you must have these two files on that machine. In our case, we are putting it inside /u01/wins/tmp folder.

```
/u01/wins/tmp/pasteBinary.sh -javaHome $JAVA_HOME -invPtrLoc /u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/Zero.Downtime.Patching/Setup/oraInst_m1.loc -archiveLoc  
/u01/wins/OracleHome1221p1.jar -targetOracleHomeLoc /u01/wins/m1/OracleHome1221
```

We are installing the WebLogic server in /u01/wins/m1/OracleHome1221 as OracleHome, as we are having all the installation on same machine, we are having different inventory location for each installation. Remember we are using the archive which we created by copyBinary.sh script for the installation.

Server Name	Oracle Home	Inventory Location
Admin Server	/u01/wins/ma/OracleHome1221	/u01/wins/ma
m1	/u01/wins/m1/OracleHome1221	/u01/wins/m1
m2	/u01/wins/m2/OracleHome1221	/u01/wins/m2

```
/u01/wins/tmp/pasteBinary.sh -javaHome $JAVA_HOME -invPtrLoc /u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/Zero.Downtime.Patching/Setup/oraInst_m2.loc -archiveLoc  
/u01/wins/OracleHome1221p1.jar -targetOracleHomeLoc /u01/wins/m2/OracleHome1221
```

In similar way, we are installing WebLogic Server in /u01/wins/m2/OracleHome1221 as Oracle Home.

```
cd /u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/Zero.Downtime.Patching/Setup/  
../create_otd_domain.sh
```

We need a load balancer, which can redirect the incoming request to managed servers. For that we are using Oracle Traffic Director here. We created a template otd-domain.jar, which we use to create otd_domain.

```
../createDomain1221.sh
```

It creates a domain Domain1221 in /u01/wins/ma/Domain1221. This domain consist the following. A cluster with two managed server, three machines Machine_ma, Machine_m1 and Machine_m2,

We will start the admin server using Machine_ma, ms1 using Machine_m1 and ms2 by Machine_m2. It also consists an application ScrabbleStage.war, which we will use for the lab.

```
/u01/wins/ma/OracleHome1221/oracle_common/common/bin/pack.sh -template  
/u01/wins/Domain1221.jar -domain /u01/wins/ma/Domain1221 -  
template_name="Domain1221" -managed=true
```

Using the pack utility we are packaging the domain and making a template jar out of it. When you have all the WebLogic Server installation on different machine, you can use this utility to pack your domain and distribute it, where you have other WebLogic Server installations. In our case, we installed WebLogic Server in different folders instead of different machines.

```
/u01/wins/m1/OracleHome1221/oracle_common/common/bin/unpack.sh -template  
/u01/wins/Domain1221.jar -domain /u01/wins/m1/Domain1221
```

We are unpacking the domain Domain1221 as /u01/wins/m1/Domain1221 as domain Directory.

```
/u01/wins/m2/OracleHome1221/oracle_common/common/bin/unpack.sh -template  
/u01/wins/Domain1221.jar -domain /u01/wins/m2/Domain1221
```

We are unpacking the domain Domain1221 as /u01/wins/m2/Domain1221 as domain directory.

```
sed -i '/ListenPort/s/5559/5558/'  
/u01/wins/m1/Domain1221/nodemanager/nodemanager.properties
```

To make the configuration like below, we are modifying the files. In each node manager properties file, you must have CrashRecoveryEnabled parameter value to true. You should also start the server using the nodemanager.

Server Name	Server Port	Machine Name	NodeManager Port	Domain Directory
Admin Server	7001	Machine_ma	5557	/u01/wins/ma/Domain1221
ms1	7101	Machine_m1	5558	/u01/wins/m1/Domain1221
ms2	7102	Machine_m2	5559	/u01/wins/m2/Domain1221

./create_patchP2.sh

For Oracle Home rollout we need a patched WebLogic Oracle Home, we modify the WebLogic version and its implementation time by editing the MANIFEST.MF file of weblogic.jar file. You can refer the create_patchP2.sh script for the creation of this OracleHome.

Configuring OTD Domain and Starting Load balancer:

- a. /u01/wins/wls1221/user_projects/domains/otd_domain/bin/startNodeManager.sh
It starts the Nodemanager in otd_domain.
- b. In terminal, Click on **Terminal -> Set Title**. Enter **otd_nm** as Title then click on **OK**.

```

File Edit View Search Terminal Help
LogLimit=0
DomainsDirRemoteSharingEnabled=true
AuthenticationEnabled=true
LogLevel=INFO
DomainsFileEnabled=true
ListenAddress=localhost
NativeVersionEnabled=true
ProcessDestroyTimeout=10000
ListenPort=5556
LogToStderr=true
weblogic.StartScriptName=nodemanager
SecureListener=true
LogCount=1
LogAppend=true
weblogic.StopScriptName=nodemanager
StateCheckInterval=5000
CrashRecoveryEnabled=false
weblogic.StartScriptEnabled=true
LogFile=/u01/wins/wls1221/user_projects/domains/otd_domain/nodemanager/nodemanager.log
LogFormatter=weblogic.nodemanager.server.LogFormatter
coherence.StartScriptEnabled=false
ListenBacklog=50
NodeManagerHome=/u01/wins/wls1221/user_projects/domains/otd_domain/nodemanager
weblogic.startup.JavaHome=/usr/java/jdk1.8.0_60
weblogic.startup.MW_Home=
coherence.startup.JavaHome=/usr/java/jdk1.8.0_60
coherence.startup.MW_Home=

Domain name mappings:
otd_domain -> /u01/wins/wls1221/user_projects/domains/otd_domain

<Jan 19, 2016 3:42:38 AM PST> <INFO> <12.2.1.0.0>
<Jan 19, 2016 3:42:39 AM PST> <INFO> <Secure socket listener started on port 5556, host localhost/127.0.0.1>

```

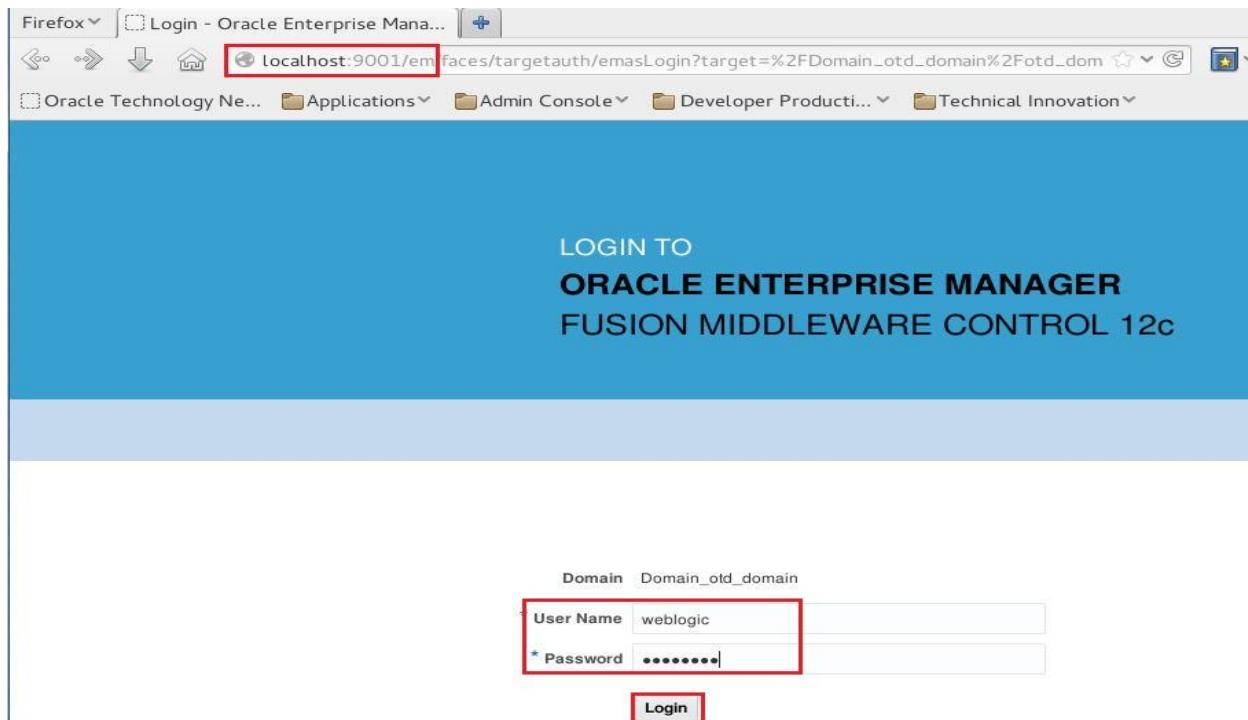
- c. Open a new tab.
- d. /u01/wins/wls1221/user_projects/domains/otd_domain/bin/startWebLogic.sh
It starts the Admin Server in otd_domain.
- e. In terminal, Click on Terminal -> Set Title. Enter **otd_Admin** as Title then click on OK.

```

File Edit View Search Terminal Tabs Help
otd_nm otd_Admin
PAF Integration init END
ProvCommonIntegration.init, registering the Page Handlers and Page Segment Handlers
inside MultiOMSIntegration
FMWProv: Integration Class called and was reloaded for me
PostInstallConfigIntegration:oracle_ias_farm target auth registration is done.
CompositesProvIntegration init...
getAllPluginOracleHomes: ConnectionService is null
getAllPluginOracleHomes: ConnectionService is null
Anonymous url config processing:/WEB-INF/config/anonymous-access-emcore.config
Anonymous-urls:[/em/IEsvgdetect.js.*, /em/LoginStatusServlet.*, /em/adf/.* , /em/adflib/.* , /em/afr/.* , /em/bi/.* , /em/bmp/discovertargets , /em/cabo/.* , /em/console/help.* , /em/console/logon/.* , /em/consolestatus.jsp , /em/dynamicImage.* , /em/ecm/csa/CSA.jar , /em/ecm/csa/CSA.mb , /em/ecm/csa/csabanner.gif , /em/emcli/custAttrib.* , /em/emr/.* , /em/faces/logon/.* , /em/faces/helppages/.* , /em/flashbridge.* , /em/formsapp/lib/formsRecorder.jar , /em/images/.* , /em/install/getAgentImage , /em/helppages/help.* , /em/jsLibs/.* , /em/jsLibsObf/.* , /em/login.jsp , /em/mapproxy.* , /em/mobile/core/uifwk/skins/.* , /em/ocamm/lib.* , /em/onetime.* , /em/ovs/discovertargets , /em/public/.* , /em/public_lib_download/.* , /em/redirect.* , /em/relocateTarget.* , /em/sdkImpl/core/uifwkmobile/skins/* , /em/servlet/GaugeServlet.* , /em/servlet/GraphServlet.* , /em/swlib/getfile , /em/VncViewer.jar , /em/websvcs.* , /em/jobrecv.*]
<Jan 19, 2016 3:48:36 AM PST> <Notice> <Log Management> <BEA-170027> <The server has successfully established a connection with the Domain level Diagnostic Service.>
<Jan 19, 2016 3:48:36 AM PST> <Notice> <WebLogicServer> <BEA-000365> <Server state changed to ADMIN.>
<Jan 19, 2016 3:48:37 AM PST> <Notice> <WebLogicServer> <BEA-000365> <Server state changed to RESUMING.>
<Jan 19, 2016 3:48:37 AM PST> <Notice> <WebLogicServer> <BEA-000331> <Started the WebLogic Server Administration Server "AdminServer" for domain "otd_domain" running in development mode.>
<Jan 19, 2016 3:48:37 AM PST> <Notice> <Server> <BEA-002613> <Channel "Default" is now listening on 127.0.0.1:9001 for protocols iiop, t3, ldap, snmp, http.>
<Jan 19, 2016 3:48:37 AM PST> <Notice> <Server> <BEA-002613> <Channel "Default" is now listening on 127.0.0.1:9001 for protocols iiop, t3, ldap, snmp, http.>
<Jan 19, 2016 3:48:37 AM PST> <Notice> <WebLogicServer> <BEA-000360> <The server started in RUNNING mode.>
<Jan 19, 2016 3:48:38 AM PST> <Notice> <WebLogicServer> <BEA-000365> <Server state changed to RUNNING.>

```

- f. Go to Firefox, and type the URL for Fusion Middleware Control Console for otd_domain <http://localhost:9001/em> .
- g. Enter **weblogic/welcome1** as **Username/Password** then Click on **Login**.



- h. Click on **WebLogic Domain -> Administration -> OTD Configurations**.

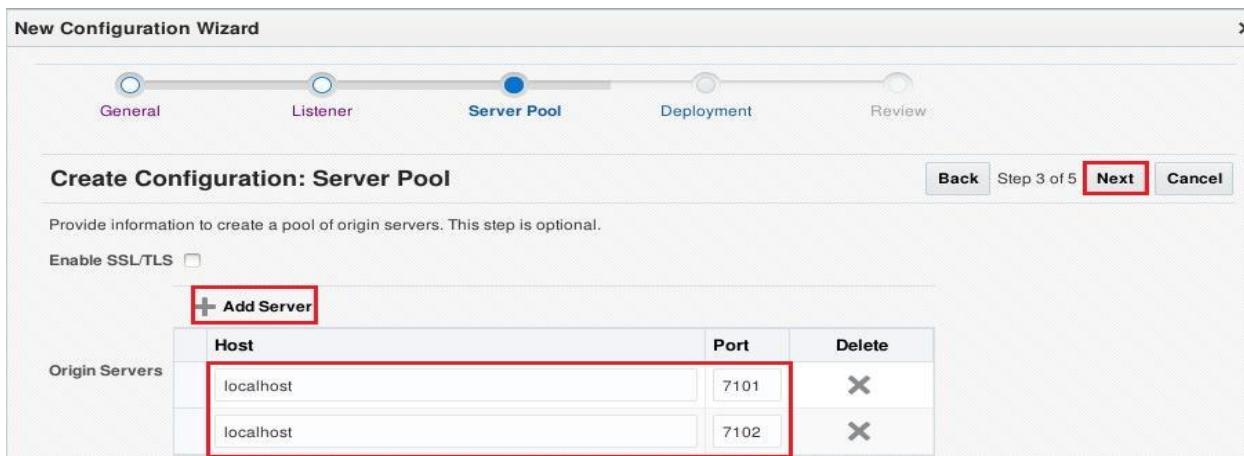
The screenshot shows the Oracle Enterprise Manager Fusion Middleware Control 12c interface for a WebLogic Domain named "otd_domain". The left sidebar has sections for Server, Cluster, Deployment, and Security. Under "Administration", there is a dropdown menu with "WebLogic Domain" selected. The "OTD Configurations" link in this dropdown is highlighted with a red box. The right panel shows details for the Admin Server, including Name: AdminServer, Host: localhost, and Port: 9001. Below this is a table for "OTD Configurations" with columns Cluster, Machine, and State, showing one entry in the "Running" state. At the bottom, there are buttons for "Columns Hidden" and "33", and a note "Servers 1 of 1".

- i. Click on **Create**.
- j. Enter **zdp** as Name then click on **Next**.

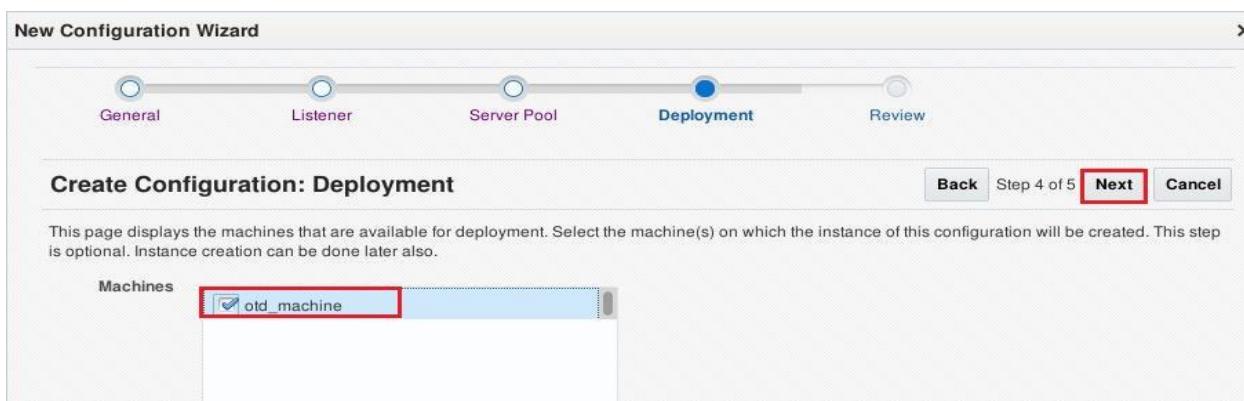


- k. Leave Default then click on **Next**.
- l. Click on **Add Server** to Add the following Server as shown in the below Screen.

localhost 7101
localhost 7102



- m. Select the box for **otd_machine** then click on **Next**.
This **otd_machine** machine has been configured with node manager running in port 5556.



- n. Click on **Create Configuration**.
- o. Once **zdp** created, check the box near **zdp** to make it highlighted then click on **Start Instances**. Wait until you see the Message "**Start Operation on target Domain_otd_domain/otd_domain/zdp – Completed successfully**". Then click on **Close** on that window. Do not close this FMW Console later we will use it to stop this load balancer instance.

The screenshot shows the Oracle Enterprise Manager Fusion Middleware Control 12c interface. The top navigation bar includes 'WebLogic Domain' and 'weblogic'. The main content area displays a message box with the following text:

Information

Successfully created configuration "zdp".

Successfully created instance(s) of configuration "zdp" on machine(s) "otd_machine".
All changes have been activated.

Below this, the section 'Oracle Traffic Director Configurations' is visible, showing a table with one row. The table has two columns: 'Configuration Name' and 'Target Full Name'. The 'Configuration Name' column contains 'zdp', which is highlighted with a red box. The 'Target Full Name' column contains '/Domain_otd_domain/otd_domain/zdp'.

The screenshot shows a confirmation dialog box titled 'Confirmation'. The message inside the box is:

Start Operation on target /Domain_otd_domain/otd_domain/zdp - Completed Successfully

Below the message, there is a 'Hide' link and a scrollable log area containing the following text:

Perform Start Up operation on target /Domain_otd_domain/otd_domain/zdp

Checking operation status on target /Domain_otd_domain/otd_domain/zdp
Operation Start Up on target /Domain_otd_domain/otd_domain
/otd_zdp_otd_machine succeeded

In the bottom right corner of the dialog box, there is a 'Close' button, which is also highlighted with a red box.

- p. Go to Firefox and type the URL <http://localhost:8080/> to verify that load balancer instance is running.

Starting Node Managers and Servers:

- a. Open a new tab.
- b. /u01/wins/ma/Domain1221/bin/startNodeManager.sh
It starts the Node manager, which we will use to start the Admin Server.
- c. In this tab, Click on **Terminal -> Set Title**. Enter **Admin_nm** as Title then click on **OK**.
- d. Open a new tab.
- e. /u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/Zero.Downtime.Patching/Setup/startAdminServer.sh
This startAdminServer.sh script first connects to Nodemanager started in previous step, setting few parameters for Admin Server, then start the Admin Server for domain Domain1221.

```
[oracle@localhost Setup]$ /u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/Zero.Downtime.Patching/Setup/startAdminServer.sh

Initializing WebLogic Scripting Tool (WLST) ...

Welcome to WebLogic Server Administration Scripting Shell

Type help() for help on available commands

Connecting to Node Manager ...
<Jan 19, 2016 4:20:48 AM PST> <Info> <Security> <BEA-090905> <Disabling the CryptoJ JCE Provider self-integrity check for better startup performance. To enable this check, specify -Dweblogic.security.allowCryptoJDefaultJCEVerification=true.>
<Jan 19, 2016 4:20:48 AM PST> <Info> <Security> <BEA-090906> <Changing the default Random Number Generator in RSA CryptoJ from ECDRBG128 to HMACDRBG. To disable this change, specify -Dweblogic.security.allowCryptoJDefaultPRNG=true.>
<Jan 19, 2016 4:20:48 AM PST> <Info> <Security> <BEA-090909> <Using the configured custom SSL Hostname Verifier implementation: weblogic.security.utils.SSLWLSSHostnameVerifier$NullHostnameVerifier.>
Successfully Connected to Node Manager.
Starting server AdminServer ...
Successfully started server AdminServer ...
```

Exiting WebLogic Scripting Tool.

```
[oracle@localhost Setup]$ █
```

- f. /u01/wins/m1/Domain1221/bin/startNodeManager.sh
- g. In this tab, Click on **Terminal -> Set Title**. Enter **m1_nm** as Title then click on **OK**.
- h. Open a new tab.

- i. /u01/wins/m2/Domain1221/bin/startNodeManager.sh
- j. In this tab, Click on **Terminal -> Set Title**. Enter **m2_nm** as Title then click on **OK**.

```

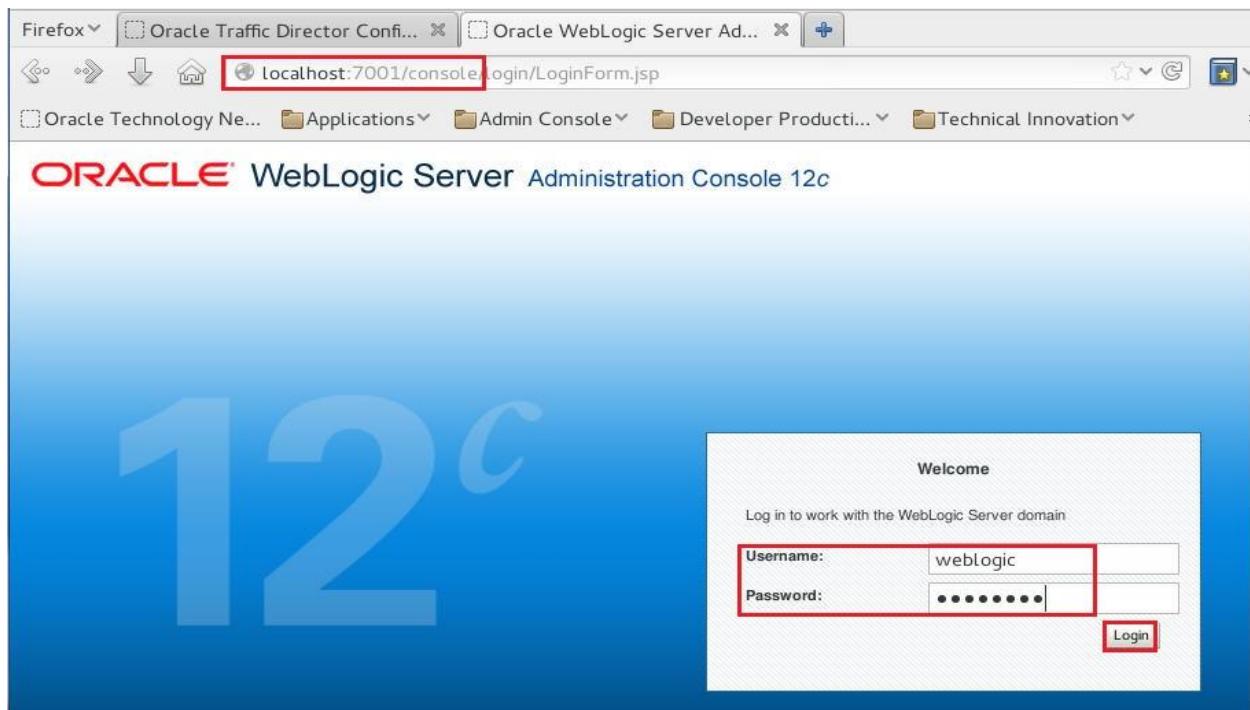
File Edit View Search Terminal Tabs Help
otd_nm x otd_Admin x Admin_nm x ms1_nm x ms2_nm x
DomainsDirRemoteSharingEnabled=false
AuthenticationEnabled=true
LogLevel=INFO
DomainsFileEnabled=true
ListenAddress=localhost
NativeVersionEnabled=true
ProcessDestroyTimeout=20000
ListenPort=5559
LogToStderr=true
weblogic.StartScriptName=startWebLogic.sh
SecureListener=true
LogCount=1
LogAppend=true
weblogic.StopScriptEnabled=false
StateCheckInterval=500
CrashRecoveryEnabled=true
weblogic.StartScriptEnabled=true
LogFile=/u01/wins/m2/Domain1221/nodemanager/nodemanager.log
LogFormatter=weblogic.nodemanager.server.LogFormatter
coherence.StartScriptEnabled=false
ListenBacklog=50
NodeManagerHome=/u01/wins/m2/Domain1221/nodemanager
weblogic.startup.JavaHome=/usr/java/jdk1.8.0_60
weblogic.startup.MW_Home=
coherence.startup.JavaHome=/usr/java/jdk1.8.0_60
coherence.startup.MW_Home=

Domain name mappings:
Domain1221 -> /u01/wins/m2/Domain1221

<Jan 19, 2016 4:22:59 AM PST> <INFO> <12.2.1.0.0>
<Jan 19, 2016 4:23:00 AM PST> <INFO> <Secure socket listener started on port 5559, host localhost/12
7.0.0.1>

```

- k. Go to Firefox and type the URL for Admin Console <http://localhost:7001/console> .
- l. Enter **weblogic/welcome1** as **Username/Password** then click on **Login**.



m. Click on **Environment -> Servers**. Click on **Control** tab then click on **Customize this table**.

The screenshot shows the Oracle WebLogic Server Administration Console interface. On the left, there's a navigation tree under 'Domain Structure' for 'Domain1221'. The 'Environment' node is expanded, and its 'Servers' child node is also expanded, with a red box around it. On the right, the 'Summary of Servers' page is displayed. The 'Control' tab is selected. Below it, a note says: 'Use this page to change the state of the servers in this WebLogic Server domain. Control operations on Managed Servers require starting the Node Manager. Starting Managed Servers in Standby mode requires the domain-wide administration port.' A red box highlights the 'Customize this table' link. Below this, a table lists three servers: AdminServer(admin), ms1, and ms2, with columns for Server, Machine, State, and Status of Last Action.

Server	Machine	State	Status of Last Action
AdminServer(admin)	Machine_Admin	RUNNING	None
ms1	Machine_m1	SHUTDOWN	None
ms2	Machine_m2	SHUTDOWN	None

n. Customize the table to include **Java Version** and **WebLogic Version** as shown below.

The screenshot shows the 'Customize this table' dialog. Under 'Available', checkboxes for 'Java Version' and 'WebLogic Version' are checked and highlighted with a red box. Under 'Chosen', checkboxes for 'Server', 'Machine', 'State', and 'Status of Last Action' are not checked. At the bottom, there are buttons for 'Apply' and 'Reset', and dropdowns for 'Number of rows displayed per page' (set to 10) and 'Maximum Results Returned' (set to All).

- o. Check the box near **ms1** and **ms2** and click on **Start**.

Home >Summary of Servers

Messages

✓ A request has been sent to the Node Manager to start the selected servers.

Summary of Servers

Control

Use this page to change the state of the servers in this WebLogic Server domain. Control operations on Managed Servers require starting the Node Manager. Starting Managed Servers in Standby mode requires the domain-wide administration port.

<input type="checkbox"/>	Server	Machine	State	Status of Last Action	Java Version	WebLogic Version
<input type="checkbox"/>	AdminServer(admin)	Machine_Admin	RUNNING	None	1.8.0_60	WebLogic Server 12.2.1.0.0 Tue Oct 6 10:05:47 PDT 2015 1721936
<input type="checkbox"/>	ms1	Machine_m1	STARTING	TASK IN PROGRESS		
<input type="checkbox"/>	ms2	Machine_m2	STARTING	TASK IN PROGRESS		

Start Resume Suspend Shutdown Restart SSL Showing 1 to 3 of 3 Previous | Next

Summary of Servers

Control

Use this page to change the state of the servers in this WebLogic Server domain. Control operations on Managed Servers require starting the Node Manager. Starting Managed Servers in Standby mode requires the domain-wide administration port.

<input type="checkbox"/>	Server	Machine	State	Status of Last Action	Java Version	WebLogic Version
<input type="checkbox"/>	AdminServer(admin)	Machine_Admin	RUNNING	None	1.8.0_60	WebLogic Server 12.2.1.0.0 Tue Oct 6 10:05:47 PDT 2015 1721936
<input type="checkbox"/>	ms1	Machine_m1	RUNNING	TASK COMPLETED	1.8.0_60	WebLogic Server 12.2.1.0.0 Tue Oct 6 10:05:47 PDT 2015 1721936
<input type="checkbox"/>	ms2	Machine_m2	RUNNING	TASK COMPLETED	1.8.0_60	WebLogic Server 12.2.1.0.0 Tue Oct 6 10:05:47 PDT 2015 1721936

Start Resume Suspend Shutdown Restart SSL Showing 1 to 3 of 3 Previous | Next

Rolling Restart Rollout:

- a. Now on each of these managed servers, we have application deployed, which we will be accessing during the rollout to show that even during the rollout user can access their applications and their session data. So for the end user the rollout will be transparent.
- b. Go to Firefox and type the URL <http://localhost:8080/ScrabbleStage/Scrabble.jsp> for application. We are accessing the application through OTD. This Application also includes the Name of the Server which is fulfilling the request. This application is a simple Word score counter, so whatever the word you add here, it gives you the score based on how many letters and the value of each letter in the word. So the Score for word “WebLogic” is 16. We are using this application to show that even after the rollout user session data is maintained.

Note: - SCRABBLE APPLICATION NEEDS INTERNET CONNECTION; OTHERWISE, YOU WILL NOT BE ABLE TO SEE GRAPH IN IT.

The server currently hosting this session is **ms2 (WebLogic Server 12.2.1.0.0 Tue Oct 6 10:05:47 PDT 2015 1721936)**

Scrabble Word Scores

Points

Word	Score
ms2	16

- c. What we will see during the Rolling Restart is that **ms2** will get shutdown and brought up again and then the rollout will wait until all the application on that **ms2** are ready and then it will shutdown **ms1** and bring it up again and will see that throughout this process we can access this application with session information still preserved.
- d. In **Domain Structure**, click on Domain name **Domain1221**.
- e. Click on **ZDT Control** tab, where ZDT refers Zero Downtime Patching.
- f. The first three tabs you use to select the target of the Rollout (**Domain, Cluster and Servers**). In this case we are going to rollout the **Clusters**.

g. Check the box near **Cluster** then Click on **Patch**.

The screenshot shows the Oracle WebLogic Server Administration Console interface. On the left, there's a navigation tree under 'Domain Structure' for 'Domain1221'. The 'Clusters' node is expanded, showing sub-options like 'Coherence Clusters', 'Resource Groups', etc. On the right, the main content area is titled 'Settings for Domain1221'. It has tabs for Configuration, Monitoring, Control, Security, Web Service Security, ZDT Control (which is selected and highlighted with a red box), and Notes. Below these tabs, there are buttons for Domain, Clusters (highlighted with a red box), Servers, and Workflow Progress. A message at the top says 'Configuration editing is enabled. Future changes will automatically be activated as you modify, add or delete items in this domain.' Below this, a table titled 'Clusters (Filtered - More Columns Exist)' lists one cluster named 'Cluster'. The 'Patch' button in the table header is also highlighted with a red box. The table has columns: Patch, Name, Cluster Address, Workflow Task Id, Rollout Type, and Status of Last Action.

h. The kind of rollout which we are going to perform is **Rolling Restart**, so choose the box for **Rolling Restart** and click on **Next**.

This screenshot shows the 'Patch Clusters' wizard. At the top, there are buttons for Back, Next (highlighted with a red box), Finish, and Cancel. The main section is titled 'Rollout Task' with the sub-instruction: 'Different rollout tasks can be performed on the domain, servers or clusters. This may include just rolling out a version of Java Home, or a version of Oracle Home or both.' Below this, a question asks 'Which rollout task do you want to perform ?'. There are four radio buttons: 'Java Home', 'Oracle Home', 'Application', and 'All Combinations'. The 'Rolling Restart' option is selected and highlighted with a red box. At the bottom, there are buttons for Back, Next (highlighted with a red box), Finish, and Cancel.

- i. On this page we have some options, **Migration Properties** allows you to handle singleton service migration during the rollout. **Shutdown Timeout** is a timeout if you have sessions that may persist for very longtime and you can set this timeout so that it can try graceful shutdown. **Delay between Nodes** is just a propagation time. It will pause for this amount of time after successfully doing the rollout on one node before starting on the Next node. 60 is the default value, but in order to speed up the Lab, we make it 6. **Dry run** is used when the user wants to check that all of the pre conditions for doing this particular roll out are met, without actually performing the rollout. So finally to make sure that I could connect to all of the Node Managers and this topology is valid. If you are going to do Java Home rollout, so it will identify that java Home path is correct and valid. So it is the way through which you can identify issue with the rollout before actually attempting the rollout. So you can do Dry Run for a rollout. Here we are not choosing this box. So click on **Finish**.

The screenshot shows the 'Patch Clusters' dialog box. It includes fields for 'Target' (set to 'Cluster'), 'Migration Properties' (empty), 'Shutdown Timeout' (set to 0), 'Delay between Nodes' (set to 6), and a checked 'Dry Run' option. Buttons at the bottom include 'Back', 'Finish' (highlighted in red), and 'Cancel'.

- j. We can see that every rollout has a **Workflow Task Id**, **Rollout Type** and the **Status of Last Action**.

The screenshot shows the 'Clusters' table under the 'Settings for Domain1221' section. The table has columns: Patch, Name, Cluster Address, Workflow Task Id, Rollout Type, and Status of Last Action. One row is visible, showing 'Cluster' as the name, 'wf0001' as the Workflow Task Id, 'rollingRestart' as the Rollout Type, and 'STARTED' as the Status of Last Action. A 'Patch' button is located at the bottom left of the table area.

- k. You can also click on **Workflow Progress** tab, here you can see the table for workflow which are in running or paused and the bottom table is for workflow which is completed successfully or failed. You can get more detail about workflow by click on **Workflow Id**. So if something goes wrong or failed. Click on Workflow Id will give you more information on why it failed and possibly on how to resolve the issue.

Settings for Domain1221

Configuration	Monitoring	Control	Security	Web Service Security	ZDT Control	Notes
Domain	Clusters	Servers	Workflow Progress			

This table lists out all the Workflow Progress that are either Active (Executing or Reverting), or Stopped. Depending on the resume capable flag, the workflow can be resumed.

Workflow in Progress (Filtered - More Columns Exist)

<input type="checkbox"/>	Workflow ID	Task Type	Targets	Running	Resumable	Status	# of Completed Commands
<input type="checkbox"/>	wf0001	rollingRestart	Cluster	true	false	STARTED	9

This table lists out all the Workflow Progress that has been completed. They have finished running and are not eligible to be resumed. These workflows either completed successfully or reverted successfully

Completed Workflow (Filtered - More Columns Exist)

<input type="checkbox"/>	Workflow ID	Task Type	Targets	Status
There are no items to display				

- I. Click on **Environment -> Servers** then click on **Control Tab**. Click on the **Refresh** icon, so that you can get the Server state information after each 10 seconds. We see **ms2** goes to Shutdown state and if you access the application now, it will be served by **ms1**. Wait for the **ms2** to up and running. Then Access the application again, now it will be served by **ms2**. Your access to application through the OTD is transparent and it preserved your session data throughout the rollout process.

ORACLE WebLogic Server Administration Console 12c

The screenshot shows the Oracle WebLogic Server Administration Console interface. On the left, there's a sidebar with a 'Domain Structure' tree view under 'Domain1221'. The 'Servers' node is highlighted with a red box. Below it is a 'How do I...' section with several bullet points about managing servers. On the right, the main content area is titled 'Summary of Servers' and has a 'Control' tab selected (also highlighted with a red box). It displays a table of servers with columns for Server, Machine, State, Status of Last Action, Java Version, and WebLogic Version. One row for 'ms2' is highlighted with a red box, showing 'STARTING' in the status column.

You can click on Workflow Progress tab to get the Final Status of Rollout.

The screenshot shows the 'Workflow Progress' tab within the 'Settings for Domain1221' section. The 'Workflow Progress' tab is highlighted with a red box. Below it is a table titled 'Workflow in Progress (Filtered - More Columns Exist)' with columns for Workflow ID, Task Type, Targets, Running, Resumable, Status, and # of Completed Commands. A message indicates 'There are no items to display'. Further down, another table titled 'Completed Workflow' is shown, also with a red box around its title. This table has columns for Workflow ID, Task Type, Targets, and Status. One row for 'wf0001' is highlighted with a red box, showing 'SUCCESS' in the status column.

Java Home Rollout:

- a. In this Case we are going to show the Java Home Rollout. In **Servers** page, you can see that **Admin Server, ms1** and **ms2** has **1.8.0_60** as Java Version. As we are going to perform Java Home Rollout on cluster, so as the end result ms1 and ms2 will have **1.8.0_25** as Java Version.

Server	Machine	State	Status of Last Action	Java Version	WebLogic Version
AdminServer(admin)	Machine_Admin	RUNNING	None	1.8.0_60	WebLogic Server 12.2.1.0.0 Tue Oct 6 10:05:47 PDT 2015 1721936
ms1	Machine_m1	RUNNING	TASK COMPLETED	1.8.0_60	WebLogic Server 12.2.1.0.0 Tue Oct 6 10:05:47 PDT 2015 1721936
ms2	Machine_m2	RUNNING	TASK COMPLETED	1.8.0_60	WebLogic Server 12.2.1.0.0 Tue Oct 6 10:05:47 PDT 2015 1721936

- b. In **Domain Structure**, click on Domain name **Domain1221**.
c. Click on **ZDT Control** tab. Then Click on **Clusters** tab.
d. Check the box near **Cluster** then Click on **Patch**.

Name	Cluster Address	Workflow Task Id	Rollout Type	Status of Last Action
Cluster		wf0001	rollingRestart	SUCCESS

- e. The kind of rollout which we are going to perform is Java Home, so choose the box for **Java Home** and click on **Next**.

Patch Clusters

Rollout Task

Different rollout tasks can be performed on the domain, servers or clusters. This may include just rolling out a version of Java Home, or a version of Oracle Home or both.

Which rollout task do you want to perform ?

Java Home

Oracle Home

Application

All Combinations

Rolling Restart

Back **Next** **Finish** **Cancel**

- f. We need to tell the location of new Java home, Enter **/usr/java/jdk1.8.0_25/** as Java Home. Edit the value for **Delay between Nodes** to 6 second then click on **Finish**.

Target: Cluster

What is the location of the new JAVA_HOME to use?

* Java Home: **/usr/java/jdk1.8.0_25/**

What is the path of a text file in JSON format containing the information needed for service migration (JMS or JTA) as well as :

Migration Properties:

What is the number of seconds to wait for server to shutdown gracefully before forcing the server to shutdown ? default 0 indicates you must specify a value greater than zero.

Shutdown Timeout: **0**

What is the number of seconds to wait after updating one node before updating the next node ? This is for giving sessions acknowledgement time.

Delay between Nodes: **6**

Is the task to be evaluated but not executed ?

Dry Run

Should the operation be automatically reverted on failure ? If not selected, the operation will stop on failure and wait for you to react.

Auto Revert on Failure

Back **Finish** **Cancel**

- g. You can see the **Workflow Task id**, **Rollout Type** and **Status of Last Action**.
- h. To get more information click on **Workflow Progress** tab. In **Workflow in Progress** table you can see the **No of Completed Commands**, **No of Total Commands**.

Settings for Domain1221

Configuration Monitoring Control Security Web Service Security ZDT Control Notes

Domain Clusters Servers Workflow Progress

This table lists out all the Workflow Progress that are either Active (Executing or Reverting), or Stopped. Depending on the resume capable flag, the workflow can be resumed.

Customize this table

Workflow in Progress (Filtered - More Columns Exist)

Workflow ID	Task Type	Targets	Running	Resumable	Status	# of Completed Commands	# of Total Commands
wf0002	rolloutJavaHome	Cluster	true	false	STARTED	9	30

Showing 1 to 1 of 1 Previous | Next

Execute Revert Cancel Delete

This table lists out all the Workflow Progress that has been completed. They have finished running and are not eligible to be resumed. These workflows either completed successfully or reverted successfully

Customize this table

- i. If we go back to **Servers** page, we can see that **ms2** is in shutdown state. So while its down, go back to Application page, click on refresh, and we see that WebLogic Session data is still available and now we connected to **ms1**. Because **ms2** is down, so **OTD** redirected us to **ms1**.

View changes and restarts

Configuration editing is enabled. Future changes will automatically be activated as you modify, add or delete items in this domain.

Domain Structure

- Domain1221
 - Domain Partitions
 - Environment
 - Servers**
 - Clusters
 - Coherence Clusters
 - Resource Groups
 - Resource Group Templates
 - Machines
 - Virtual Hosts
 - Virtual Targets
 - Work Managers
 - Concurrent Templates
 - Resource Management

How do I...

- Start and stop servers
- Start Managed Servers from the Administration Console
- Restart SSL
- Start Managed Servers in Admin mode
- Start Managed Servers in a cluster
- Configure the domain-wide administration port

System Status

Health of Running Servers

Welcome, weblogic | Connected to: Domain1221

Home >Summary of Servers >Domain1221 >Summary of Servers >Domain1221 >Summary of Servers >Domain1221 >Summary of Servers

Summary of Servers

Configuration **Control**

Use this page to change the state of the servers in this WebLogic Server domain. Control operations on Managed Servers require starting the Node Manager. Starting Managed Servers in Standby mode requires the domain-wide administration port.

Customize this table

Servers (Filtered - More Columns Exist)

Server	Machine	State	Status of Last Action	Java Version	WebLogic Version
AdminServer(admin)	Machine_Admin	RUNNING	None	1.8.0_60	WebLogic Server 12.2.1.0.0 Tue Oct 6 10:05:47 PDT 2015 1721936
ms1	Machine_m1	RUNNING	TASK COMPLETED	1.8.0_60	WebLogic Server 12.2.1.0.0 Tue Oct 6 10:05:47 PDT 2015 1721936
ms2	Machine_m2	SHUTDOWN	TASK COMPLETED		

Showing 1 to 3 of 3 Previous | Next

Start Resume Suspend Shutdown Restart SSL

The server currently hosting this session is **ms1 (WebLogic Server 12.2.1.0.0 Tue Oct 6 10:05:47 PDT 2015 1721936)**

- j. On the Server page, click on the **Refresh** icon, to get the current state after each 10 seconds.
- k. While **ms2** is in **Shutdown** state, the rollout is going through and finding all the references to the Java Path include version 1.8.0_60 and updating it to the new path i.e. /usr/java/jdk1.8.0_25 and this is doing for the managed server that is running on that node and also the nodemanager running on that node. So both of those will be restarted after they are updated and will be running on new version of java.
- l. Now we see that ms2 is starting, when it comes to **Running State**, you can verify that it will be running on new Java version. Now ms1 will get in shutdown state and the update will happen on this node.

Servers (Filtered - More Columns Exist)						
	Start	Resume	Suspend	Shutdown	Restart SSL	
<input type="checkbox"/>	Server	Machine	State	Status of Last Action	Java Version	WebLogic Version
<input type="checkbox"/>	AdminServer(admin)	Machine_Admin	RUNNING	None	1.8.0_60	WebLogic Server 12.2.1.0.0 Tue Oct 6 10:05:47 PDT 2015 1721936
<input type="checkbox"/>	ms1	Machine_m1	SHUTDOWN	TASK COMPLETED		
<input type="checkbox"/>	ms2	Machine_m2	RUNNING	TASK COMPLETED	1.8.0_25	WebLogic Server 12.2.1.0.0 Tue Oct 6 10:05:47 PDT 2015 1721936

m. This complete process takes around 8-10 minutes as we are running so many servers and nodemanager on single virtual machine. In real scenario it will take less time. If you access the application now, it will be served by ms2.

n. Once both the Managed Server is in “**Running**” state, it shows the new Java Version for both the managed server part of cluster. It completes our java home rollout.

	Server	Machine	State	Status of Last Action	Java Version	WebLogic Version
<input type="checkbox"/>	AdminServer(admin)	Machine_Admin	RUNNING	None	1.8.0_60	WebLogic Server 12.2.1.0.0 Tue Oct 6 10:05:47 PDT 2015 1721936
<input type="checkbox"/>	ms1	Machine_m1	RUNNING	TASK COMPLETED	1.8.0_25	WebLogic Server 12.2.1.0.0 Tue Oct 6 10:05:47 PDT 2015 1721936
<input type="checkbox"/>	ms2	Machine_m2	RUNNING	TASK COMPLETED	1.8.0_25	WebLogic Server 12.2.1.0.0 Tue Oct 6 10:05:47 PDT 2015 1721936

Oracle Home Rollout:

- a. In this case we are going to roll out new **Oracle Home** with a new patched version. If you look in Servers page, Admin Server, ms1 and ms2 has **WebLogic Server 12.2.1.0.0 Tue Oct 6 10:05:47 PDT 2015 1721936** as WebLogic Version. We will show that during the process it shutdown the managed server and update the WebLogic Version. As we described in the Environment section that we create a new Oracle Home with modified **WebLogic Server version** and its **implementation time**. So you can verify the Oracle Home rollout by the WebLogic Version.
- b. Click on Domain name **Domain1221**, and then click on **ZDT Control** tab.
- c. Click on **Cluster** tab, Select the box near **Cluster** and then click on **Patch**.
- d. The kind of rollout which we are going to perform is OracleHome, so choose the box **for Oracle Home** and click on **Next**.



- e. In Rollout OracleHome, We need to specify the location of patched Oracle Home, Enter **/u01/wins/OracleHome1221p2.jar** here. This is the archive file which we created in Environment Section.
- f. In the Backup OracleHome we are going to specify the location **/u01/wins/OracleHome1221p1-Backup** where to store the current OracleHome. So in the future if we want to rollback, then backup will be there for us.
- g. Edit the value for **Delay between Nodes** to 6 second then click on **Finish**.

What is the location of the archive or local directory that contains the version of OracleHome to roll out, which will replace the current OracleHome ?

* Rollout OracleHome:

What is the local directory to which the current OracleHome will be moved and renamed ?

* Backup OracleHome:

What is the path of a text file in JSON format containing the information needed for service migration (JMS or JTA) as well as server migration (WSM) ?

Migration Properties:

is Rollback

Select this option if the sessions between the patched and unpatched versions of OracleHome are compatible. If not selected, special consideration should be taken to preserve unpatched sessions.

Session Compatibility

What is the number of seconds to wait for server to shutdown gracefully before forcing the server to shutdown ? default 0 indicates no timeout. If session is in progress you must specify a value greater than zero.

Shutdown Timeout:

What is the number of seconds to wait after updating one node before updating the next node ? This is for giving sessions additional time to replicate. default is 60.

Delay between Nodes:

- h. You can see the **Workflow Task id**, **Rollout Type** and **Status of Last Action**.
- i. Click on the **Environment -> Server**, and then Click on **Control** tab.
- j. We can see that ms2 is in Shutdown state. So while its down, go back to Application page, click on refresh, and we see that WebLogic Session data is still available and now we connected to ms1. Because ms2 is down, so OTD redirected us to ms1.

Summary of Servers

Configuration **Control**

Use this page to change the state of the servers in this WebLogic Server domain. Control operations on Managed Servers require starting the Node Manager. Starting Managed Servers in Standby mode requires the domain-wide administration port.

Servers (Filtered - More Columns Exist)						
	Start	Resume	Suspend	Shutdown	Restart SSL	Showing 1 to 3 of 3 Previous Next
	Server	Machine	State	Status of Last Action	Java Version	WebLogic Version
<input type="checkbox"/>	AdminServer(admin)	Machine_Admin	RUNNING	None	1.8.0_60	WebLogic Server 12.2.1.0.0 Tue Oct 6 10:05:47 PDT 2015 1721936
<input type="checkbox"/>	ms1	Machine_m1	RUNNING	TASK COMPLETED	1.8.0_25	WebLogic Server 12.2.1.0.0 Tue Oct 6 10:05:47 PDT 2015 1721936
<input type="checkbox"/>	ms2	Machine_m2	SHUTDOWN	TASK COMPLETED		

Firefox □ Oracle Traffic Director Confi... □ Summary of Servers - Domai... □ Zero Downtime Patching De... □

localhost:8080/ScrabbleStage/Scrabble.jsp

Oracle Technology Ne... Applications Admin Console Developer Producti... Technical Innovation

ORACLE®

Zero Downtime Patching Demo - Scrabble Example - Stage Mode - Version 1

Illustrating session replication and continuous serviceability

This Zero Downtime Patching Demo uses a JSP to demonstrate the use of replication of a session in memory, using an OTD load balancer front end. An end-user client adds or deletes words to a session. The words are scored according to the rules of a popular board game and then displayed in the table. Server affinity allows WebLogic Server to retrieve the same session the next time the client visits the page.

The server currently hosting this session is **ms1 (WebLogic Server 12.2.1.0.0 Tue Oct 6 10:05:47 PDT 2015 1721936)**

Scrabble Word Scores

Points	Score
10	
15	■
20	
30	
40	

- k. On the Servers page, click on the Refresh icon, to get the current state after each 10 seconds.
- l. What is happening now the original OracleHome on with ms2 was running is backed up on the location which we specified. And the patched Oracle Home archive that we provided is being expanded in its place. Once that is done, the Node manager and the managed server will be started again and will pick up the changes in new Patched Oracle Home and we can verify it by looking the WebLogic Version in the Server page, which will be **WebLogic Server 12.2.1.0.0 Mon Oct 23 12:22:22 PDT**.

Summary of Servers

Configuration Control

Use this page to change the state of the servers in this WebLogic Server domain. Control operations on Managed Servers require starting the Node Manager. Starting Managed Servers in Standby mode requires the domain-wide administration port.

Last Refreshed: Jan 28, 2016 10:02:10 AM

Customize this table

Servers (Filtered - More Columns Exist)

	Server	Machine	State	Status of Last Action	Java Version	WebLogic Version
<input type="checkbox"/>	AdminServer(admin)	Machine_Admin	RUNNING	None	1.8.0_60	WebLogic Server 12.2.1.0.0 Tue Oct 6 10:05:47 PDT 2015 1721936
<input type="checkbox"/>	ms1	Machine_m1	SHUTDOWN	TASK COMPLETED		
<input type="checkbox"/>	ms2	Machine_m2	RUNNING	TASK COMPLETED	1.8.0_25	WebLogic Server 12.2.1.0.1 Mon Oct 23 12:22:22 PDT 2015 1725230

- m. Now we see that **ms2** is starting, when it comes to Running State, you can verify that it will be running on new WebLogic Version. Now **ms1** will get in Shutdown state and the same process will happen on this node. So while its down, go back to Application page, click on refresh, and we see that WebLogic Session data is still available and now we connected to ms2. Because ms1 is down, so OTD redirected us to ms2.

The server currently hosting this session is **ms2 (WebLogic Server 12.2.1.0.1 Mon Oct 23 12:22:22 PDT 2015 1725230)**

- n. This complete process takes around 8-10 minutes as we are running so many servers and nodemanager on single virtual machine. In real scenario it will take less time. If you access the application now, it will be served by ms2.
o. Once both the Managed Server is in “**Running**” state, it shows the new WebLogic Version for both the managed servers part of cluster. It completes our OracleHome rollout.

<input type="checkbox"/>	Server	Machine	State	Status of Last Action	Java Version	WebLogic Version
<input type="checkbox"/>	AdminServer(admin)	Machine_Admin	RUNNING	None	1.8.0_60	WebLogic Server 12.2.1.0.0 Tue Oct 6 10:05:47 PDT 2015 1721936
<input type="checkbox"/>	ms1	Machine_m1	RUNNING	TASK COMPLETED	1.8.0_25	WebLogic Server 12.2.1.0.1 Mon Oct 23 12:22:22 PDT 2015 1725230
<input type="checkbox"/>	ms2	Machine_m2	RUNNING	TASK COMPLETED	1.8.0_25	WebLogic Server 12.2.1.0.1 Mon Oct 23 12:22:22 PDT 2015 1725230

Application Rollout:

- In this case, we will be doing application rollout. If you go to the application page, currently it has application **Version 1** is running. And it is serving by **ms2**.

The server currently hosting this session is **ms2 (WebLogic Server 12.2.1.0.1 Mon Oct 23 12:22:22 PDT 2015 1725230)**

Scrabble Word Scores

Points
15

WebLogic

- Click on Domain name **Domain1221**, and then click on **ZDT Control** tab.
- Click on **Clusters** tab, Select the box near **Cluster** and then click on **Patch**.
- Check the box for **Application**, and then click on **Next**.

Which rollout task do you want to perform ?

Application

- e. In the **Application Properties**, we need to specify the location of a json file that contains the information about the **name of the application** that is going to be updated, **location of the new application source**, and the backup location for the **current application source**. Enter **/u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/Zero.Downtime.Patching/applications/appUpgrade.json** as **Application Properties**.

```
{"applications": [
{
"applicationName": "ScrabbleStage",
'patchedLocation': "/u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/Zero.Downtime.Patching/applications/ScrabbleStagev2.war",
'backupLocation': "/u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/Zero.Downtime.Patching/applications/ScrabbleStagev1.war"
}
]}
~
```

- f. Edit the value for **Delay between Nodes** to 6 second then click on **Finish**.

What is the path of a formatted text file containing the information needed to upgrade applications ?

* Application Properties: **eblogic-innovation-seminars/WInS_Demos/CA-Workshop/Zero.Downtime.Patching/applications/appUp**

What is the path of a text file in JSON format containing the information needed for service migration (JMS or JTA) as well as server migration (WSM) ?

Migration Properties:

Select this option if the sessions between the patched and unpatched versions of OracleHome are compatible. If not selected, special consideration should account to preserve unpatched sessions.

Session Compatibility

What is the number of seconds to wait for server to shutdown gracefully before forcing the server to shutdown ? default 0 indicates no timeout. If session you must specify a value greater than zero.

Shutdown Timeout:

0

What is the number of seconds to wait after updating one node before updating the next node ? This is for giving sessions additional time to replicate. def

Delay between Nodes:

6

Is the task to be evaluated but not executed ?

Dry Run

Should the operation be automatically reverted on failure ? If not selected, the operation will stop on failure and wait for you to resume it.

Auto Revert on Failure

Back

Finish

Cancel

- g. You can see the **Workflow Task id**, **Rollout Type** and **Status of Last Action**.

Home >Summary of Servers >Domain1221 >Summary of Servers >Domain1221 >Summary of Servers >Domain1221 >Summary of Servers >Domain1221 >Summary of Servers >Domain1221

Messages

✓ A request has been sent to perform the rollout task. The workflow id for this task is wf0004

Settings for Domain1221

Configuration	Monitoring	Control	Security	Web Service Security	ZDT Control	Notes
Domain	Clusters	Servers	Workflow Progress			

This page lists all clusters in the domain and any roll out or revert information that is available for each cluster.

▶ **Customize this table**

Clusters (Filtered - More Columns Exist)

<input type="checkbox"/>	Name	Cluster Address	Workflow Task Id	Rollout Type	Status of Last Action
<input type="checkbox"/>	Cluster		wf0004	rolloutApplications	STARTED

- h. Click on the **Environment -> Server**, and then Click on **Control** tab.
 i. We can see that ms2 is in Shutdown state. So while its down, go back to Application page, click on refresh, and we see that WebLogic Session data is still available and now we connected to ms1. Because ms2 is down, so OTD redirected us to ms1.

localhost:8080/ScrabbleStage/Scrabble.jsp

Oracle Technology Ne... Applications Admin Console Developer Producti... Technical Innovation

ORACLE®

Zero Downtime Patching Demo - Scrabble Example - Stage Mode Version 1

Illustrating session replication and continuous serviceability

This Zero Downtime Patching Demo uses a JSP to demonstrate the use of replication of a session in memory, using an OTD load balancer front end. An end-user client adds or deletes words to a session. The words are scored according to the rules of a popular board game and then displayed in the table. *Server affinity* allows WebLogic Server to retrieve the same session the next time the client visits the page.

The server currently hosting this session is ms1 (WebLogic Server 12.2.1.0.1 Mon Oct 23 12:22:22 PDT 2015 1725230)

Scrabble Word Scores

Score	Points
18	18

- j. On the Server Page, Now the ms2 is running, so ms1 will shutdown now. Now reload the application page, we are connected to ms2, and we can see the Version 2 of the application. And session data is still preserved. When ms1 will be running, it will also update to run application version 2. So this is done without no application downtime and loss of session.

The server currently hosting this session is **ms2 (WebLogic Server 12.2.1.0.1 Mon Oct 23 12:22:22 PDT 2015 1725230)**

Letter Values					
A	1	J	8	S	1
B	3	K	5	T	1
C	3	L	1	U	1
D	2	M	3	V	4
E	1	N	1	W	4
F	4	O	1	X	8
G	2	P	3	Y	4
H	4	Q	10	Z	10

Scrabble Word Scores

Points

WebLogic

Workflow in Progress (Filtered - More Columns Exist)									
		Workflow ID	Task Type	Targets	Running	Resumable	Status	# of Completed Commands	# of Total Commands
There are no items to display									

Completed Workflow (Filtered - More Columns Exist)					
				Showing 1 to 4 of 4 Previous Next	
		Workflow ID	Task Type	Targets	Status
<input type="checkbox"/>	wf0001	rollingRestart	Cluster	SUCCESS	
<input type="checkbox"/>	wf0002	rolloutJavaHome	Cluster	SUCCESS	
<input type="checkbox"/>	wf0003	rolloutOracleHome	Cluster	SUCCESS	
<input type="checkbox"/>	wf0004	rolloutApplications	Cluster	SUCCESS	

This completes our Lab 1. You must follow the **Clean Up** Section before proceeding to next Lab.

Clean Up:

- Click on **Environment -> Server**, and then click on **Control** tab.
- Check the box near to **Admin Server, ms1** and **ms2** then click on **Shutdown -> Force Shutdown Now**.

Summary of Servers

Configuration **Control**

Use this page to change the state of the servers in this WebLogic Server domain. Control operations on Managed Servers require starting the Node Manager. Starting Managed Servers in Standby mode requires the domain-wide administration port.

Servers (Filtered - More Columns Exist)						
	Start	Resume	Suspend ▾	Shutdown ▾	Restart SSL	
<input checked="" type="checkbox"/>	Server ▲	Machine		When work completes Force Shutdown Now		Showing 1 to 3 of 3 Previous Next
<input checked="" type="checkbox"/>	AdminServer(admin)	Machine_Admin	RUNNING	None	1.8.0_60	WebLogic Server 12.2.1.0.0 Tue Oct 6 10:05:47 PDT 2015 1721936
<input checked="" type="checkbox"/>	ms1	Machine_m1	RUNNING	TASK COMPLETED	1.8.0_25	WebLogic Server 12.2.1.0.1 Mon Oct 23 12:22:22 PDT 2015 1725230
<input checked="" type="checkbox"/>	ms2	Machine_m2	RUNNING	TASK COMPLETED	1.8.0_25	WebLogic Server 12.2.1.0.1 Mon Oct 23 12:22:22 PDT 2015 1725230

Start **Resume** **Suspend ▾** **Shutdown ▾** **Restart SSL** Showing 1 to 3 of 3 Previous | Next

- Go back to Fusion Middleware Control Console of otd_domain <http://localhost:9001/em>.
- Check the box near **zdp** to make it highlighted and click on **Stop Instances**. In Confirmation Page, Click on **OK**. It will stop the load balancer. Click on **Close**.

ORACLE® Enterprise Manager Fusion Middleware Control 12c

WebLogic Domain weblogic ...

Jan 19, 2016 6:35:32 AM PST

Oracle Traffic Director Configurations

This page displays all the Oracle Traffic Director configurations. A configuration is a collection of elements that determine the run-time behavior of an Oracle Traffic Director instance. Click on 'Delete' to delete the selected configuration.

Create... Duplicate Delete... Stop Instances Start Instances

Configuration Name	Target Full Name
<input checked="" type="checkbox"/> zdp	/Domain_otd_domain/otd_domain/zdp

- Press **Ctrl+ C** on all terminals with name **otd_nm**, **otd_Admin**, **Admin_nm**, **ms1_nm** and **ms2_nm**. Then close all the terminals.
 - Open a new terminal.
 - cd /u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/Zero.Downtime.Patching/CleanUp/
 - ./delete_dir.sh
- It deletes all the folder and files which we created during the Lab 1.

```
[oracle@localhost Desktop]$ cd /u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/Zero.Downtime.Patching/CleanUp/  
[oracle@localhost CleanUp]$ ./delete_dir.sh  
[oracle@localhost CleanUp]$ ls -ltra /u01/wins  
total 16  
drwx----- 6 oracle oracle 4096 Nov 17 04:44 ..  
drwxrwxr-x 2 oracle oracle 4096 Jan 11 02:01 install  
drwxr-x--- 33 oracle oracle 4096 Jan 19 02:13 wls1221  
drwxrwxr-x 4 oracle oracle 4096 Jan 19 06:39 .  
[oracle@localhost CleanUp]$ █
```

Lab 2: Cross Domain Transaction Recovery

Overview:

Cross Domain Transaction Recovery allows for the recovery of the transaction in Active-Active Configuration. Where one domain fails or site 1 or entire site fails, the server running on WebLogic Server domain on site 2 can recover transaction for the failed site.

You can refer the following link for getting more information on Cross Domain Transaction Recovery: [here](#).

Description of the Environment:

- We are using the **Docker 1.9** for this Lab. It is up and running. To verify the State of Docker, run the following command: **sudo /bin/systemctl status -l docker.service**
It must be in Running State.

```
[oracle@localhost CleanUp]$ sudo /bin/systemctl status -l docker.service
docker.service - Docker Application Container Engine
   Loaded: loaded (/usr/lib/systemd/system/docker.service; enabled)
   Drop-In: /etc/systemd/system/docker.service.d
             └─docker-sysconfig.conf
     Active: active (running) since Tue 2016-01-19 01:59:42 PST; 4h 41min ago
       Docs: https://docs.docker.com
      Main PID: 1080 (docker)
        CGroup: /system.slice/docker.service
                  └─1080 /usr/bin/docker -d --selinux-enabled --group=docker --storage-opt dm.basesize=20G -H t
cp://0.0.0.0:4243 -H unix:///var/run/docker.sock

Jan 19 01:59:39 localhost.localdomain docker[1080]: time="2016-01-19T01:59:39.948451122-08:00" level=info
o msg="[graphdriver] using prior storage driver \"devicemapper\""
Jan 19 01:59:40 localhost.localdomain docker[1080]: time="2016-01-19T01:59:40.583019111-08:00" level=warning
o msg="Running modprobe bridge br_netfilter failed with message: modprobe: WARNING: Module br_netfilter not found.\ninsmod /lib/modules/3.8.13-35.3.3.el7uek.x86_64/kernel/net/llc/llc.ko \ninsmod /lib/modules/3.8.13-35.3.3.el7uek.x86_64/kernel/net/bridge/bridge.ko \n, error: exit status 1"
Jan 19 01:59:40 localhost.localdomain docker[1080]: time="2016-01-19T01:59:40.702086288-08:00" level=info
o msg="FirewallD running: false"
Jan 19 01:59:41 localhost.localdomain docker[1080]: time="2016-01-19T01:59:41.480990517-08:00" level=info
o msg="Default bridge (docker0) is assigned with an IP address 172.17.0.0/16. Daemon option --bip can be used to set a preferred IP address"
Jan 19 01:59:42 localhost.localdomain docker[1080]: time="2016-01-19T01:59:42.363631831-08:00" level=info
o msg="Loading containers: start."
Jan 19 01:59:42 localhost.localdomain docker[1080]: time="2016-01-19T01:59:42.365035042-08:00" level=info
o msg="Loading containers: done."
Jan 19 01:59:42 localhost.localdomain docker[1080]: time="2016-01-19T01:59:42.365167630-08:00" level=info
o msg="Daemon has completed initialization"
Jan 19 01:59:42 localhost.localdomain docker[1080]: time="2016-01-19T01:59:42.365220883-08:00" level=info
o msg="Docker daemon" commit=b3da262 execdriver=native-0.2 graphdriver=devicemapper version=1.9.0
Jan 19 01:59:42 localhost.localdomain systemd[1]: Started Docker Application Container Engine.
Jan 19 02:00:34 localhost.localdomain docker[1080]: time="2016-01-19T02:00:34.933436198-08:00" level=info
o msg="GET /v1.21/images/json"
[oracle@localhost CleanUp]$
```

- We also created two docker images, using which we can create docker image for WebLogic Domain.

To list the available Docker images: **sudo docker images**

REPOSITORY	TAG	IMAGE ID	CREATED	VIRTUAL SIZE
oracle/weblogic	12.2.1-dev	afc7d8741cbf	8 days ago	1.738 GB
oraclelinux	7.0	707f44423637	4 months ago	197.2 MB

- As Part of the Lab, We will create two domains, which you can say one domain will be primary domain and another one will be standby domain. Both domains will have Admin Server only, on which we will deploy the application. This is an online shop application where you can purchase or return clothes. Also you can see the inventory and the activity log for the Transactions.
- As the requirement for the Cross Domain Transaction Recovery, Both Domain must have same domain name, hostname and port number but different IP address. That is why we are using docker to do the same.
- We will use **base_domain** as domain name, **aadrdemo** as hostname and **8001** as Admin Server port number for both the domain.
- We have two Oracle pluggable database **pdborcl** and **pdb2**. Both the databases will be in use while creating jdbc datasources for both the domains.

Creation of the Environment:

- a. Double click on the “**Start Database**” Icon on Desktop to start both the pluggable databases.
 - b. cd /u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/Cross.Domain.Transaction.Recovery/Setup
 - c. ./create_env.sh
- This script provides required permission to the files, and it also creates the user **cdtr** in both the pluggable database.

```
[oracle@localhost CleanUp]$ cd /u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/Cross.Domain.Transaction.Recovery/Setup
[oracle@localhost Setup]$ ./create_env.sh

SQL*Plus: Release 12.1.0.2.0 Production on Tue Jan 19 06:59:56 2016

Copyright (c) 1982, 2014, Oracle. All rights reserved.

Last Successful login time: Wed Jan 13 2016 08:37:22 -08:00

Connected to:
Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 - 64bit Production
With the Partitioning, OLAP, Advanced Analytics and Real Application Testing options

SQL>
User created.

SQL>
```

Creation of Primary and Standby Domain:

- a. cd /u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/Cross.Domain.Transaction.Recovery/primaryDomain/
- b. **sudo docker build -t samplewls:12.2.1 .**
 - i. This creates docker image with repository tag “**samplewls:12.2.1**” by extending **oracle/weblogic** docker image.
 - ii. Inside this docker image it creates a **base_domain** WebLogic Domain.
 - iii. Open the file **Dockerfile** to get more information.
 - iv. It executes **create-wls-domain.py wlst** script to create **base_domain**.
 - v. Open the file **create-wls-domain.py** file from the container-scripts folder.

Below is the summary of Resources, which we are creating and Configuration information:

Site Name	DEMOPRI	
Recovery Site Name	DEMOSTD	
Admin Server	Name: ADMIN Port:8001	Listen Address: aadrdemo
JMS Server	myJMSServer	
JMS Module	myJmsSystemResource	
	JMS Queue	Name: myqueue JNDI Name: jms/myqueue
	SubDeployment	Name: myQueueSubDeployment
JDBC Datasource	Name: AuditDS JNDI Name: AuditDS	XA Datasource: Yes PDB Name: pdborcl
	Name: StockDS JNDI Name: StockDS	XA Datasource: Yes PDB Name: pdb2
	Name: TlogDS JNDI Name: TlogDS	XA Datasource: No PDB Name: pdborcl
TransactionLogJDBCStore	Name: ADMIN	

It also set **CrossDomainRecoveryRetryInterval** to 120 Seconds; this is the interval at which a store lock for a given server in a recovery domain will be checked for takeover eligibility.

- vi. Current directory also contains the file **hosts**, which contains the **aadrdemo** as hostname, Dockerfile copies these file to **/etc/hosts/** file in the docker environment.
- vii. Dockerfile also copies the application **CADemo.war** file to **/u01/oracle/weblogic/user_projects/domains/base_domain/autodeploy/** which is **autodeploy** directory for **base_domain**. So as we start the Admin Server. This application will be also started.

Note: This step takes around 12-15 minute.

```
[oracle@localhost Setup]$ cd /u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/Cross.Domain.Transaction.Recovery/primaryDomain/
[oracle@localhost primaryDomain]$ sudo docker build -t samplewls:12.2.1 .
Sending build context to Docker daemon 44.03 KB
Step 1 : FROM oracle/weblogic:12.2.1-dev
--> afc7d8741cbf
Step 2 : MAINTAINER Monica Riccelli <monica.riccelli@oracle.com>
--> Running in cc8b3a3e5920
--> 25e9a232324b
Removing intermediate container cc8b3a3e5920
Step 3 : ENV ADMIN_PASSWORD welcome1
--> Running in 9481797d69ea
--> 36786fb89c4
```

```

Type help() for help on available commands

Exiting WebLogic Scripting Tool.

--> 8f4cb1795f57
Removing intermediate container 4ba25c7dda32
Step 14 : EXPOSE $NM_PORT $ADMIN_PORT $MS_PORT
--> Running in 17a0ddaa1b30e
--> 5762e3af0da5
Removing intermediate container 17a0ddaa1b30e
Step 15 : WORKDIR /u01/oracle
--> Running in cab57f0dc10b
--> a90f6381b070
Removing intermediate container cab57f0dc10b
Step 16 : ENV PATH $PATH:/u01/oracle/weblogic/wlserver/common/bin:/u01/oracle/weblogic/user_projects/domains/base_domain/bin:/u01/oracle
--> Running in 0858fd769bb1
--> f899399b0a65
Removing intermediate container 0858fd769bb1
Step 17 : COPY CADemo.war /u01/oracle/weblogic/user_projects/domains/base_domain/autodeploy/
--> 132c7ff7fcf6
Removing intermediate container ba91d1c1ccee
Step 18 : ENV JAVA_OPTIONS "-Dweblogic.transaction.EnableInstrumentedTM=true -Dweblogic.StdoutDebugEnabled=true ${JAVA_OPTIONS}"
--> Running in 4948d95aa68d
--> f429a18a2794
Removing intermediate container 4948d95aa68d
Step 19 : CMD startWebLogic.sh
--> Running in b05189b7ae35
--> lafaab02ce45
Removing intermediate container b05189b7ae35
Successfully built lafaab02ce45
[oracle@localhost primaryDomain]$ █

```

- c. cd /u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/Cross.Domain.Transaction.Recovery/standbyDomain/
- d. **sudo docker build -t samplewls2:12.2.1 .**
 - i. This creates docker image with repository tag “**samplewls2:12.2.1**” by extending **oracle/weblogic** docker image.
 - ii. Inside this docker image it creates a **base_domain** WebLogic Domain.
 - iii. Open the file **Dockerfile** to get more information.
 - iv. It executes **create-wls-domain.py** wlst script to create base_domain.
 - v. Open the file **create-wls-domain.py** file from the container-scripts folder.

Below is the summary of Resources, which we are creating and Configuration information:

Site Name	DEMOSTD	
Recovery Site Name	DEMOPRI	
Admin Server	Name: ADMIN Port:8001	Listen Address: aaddrdemo
JMS Server	myJMSServer	
JMS Module	myJmsSystemResource	
	JMS Queue	Name: myqueue JNDI Name: jms/myqueue
	SubDeployment	Name: myQueueSubDeployment
JDBC Datasource	Name: AuditDS JNDI Name: AuditDS	XA Datasource: Yes PDB Name: pdborcl
	Name: StockDS JNDI Name: StockDS	XA Datasource: Yes PDB Name: pdb2
	Name: TlogDS JNDI Name: TlogDS	XA Datasource: No PDB Name: pdborcl
TransactionLogJDBCStore	Name: ADMIN	

It also set **CrossDomainRecoveryRetryInterval** to 120 Seconds; this is the interval at which a store lock for a given server in a recovery domain will be checked for takeover eligibility.

- vi. Current directory also contains the file **hosts**, which contains the **aadrdemo** as hostname, Dockerfile copies these file to **/etc/hosts/** file inside the docker environment.
- vii. Dockerfile also copies the application **CADemo.war** file to **/u01/oracle/weblogic/user_projects/domains/base_domain/autodeploy/** which is **autodeploy** directory for **base_domain**. So as we start the Admin Server. This application will be also started.

Note: This step takes around 12-15 minute.

```
[oracle@localhost primaryDomain]$ cd /u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/Cross.Domain.Transaction.Recovery/standbyDomain/  
[oracle@localhost standbyDomain]$ sudo docker build -t samplewlsls2:12.2.1 .  
Sending build context to Docker daemon 44.03 KB  
Step 1 : FROM oracle/weblogic:12.2.1-dev  
--> afc7d8741cbf  
Step 2 : MAINTAINER Monica Riccelli <monica.riccelli@oracle.com>  
--> Using cache  
--> 25e9a232324b  
Step 3 : ENV ADMIN_PASSWORD welcome1  
--> Using cache  
--> 36786fbcb89c4  
Step 4 : ENV ADMIN_PORT 8001  
--> Using cache  
--> 2607e56e0167  
Step 5 : ENV NM_PORT 5556  
--> Using cache  
--> 0272afac3e52  
Step 6 : ENV MS_PORT 7001  
--> Using cache  
--> 08ef877928d4  
Step 7 : COPY container-scripts/* /u01/oracle/  
Step 14 : EXPOSE $NM_PORT $ADMIN_PORT $MS_PORT  
--> Running in 3d1739654dce  
--> fb1258de3005  
Removing intermediate container 3d1739654dce  
Step 15 : WORKDIR /u01/oracle  
--> Running in 2c88cab675f7  
--> e2093ce3211d  
Removing intermediate container 2c88cab675f7  
Step 16 : ENV PATH $PATH:/u01/oracle/weblogic/wlserver/common/bin:/u01/oracle/weblogic/user_projects/domains/base_domain/bin:/u01/oracle  
--> Running in 661b0031a723  
--> 72b198ce6269  
Removing intermediate container 661b0031a723  
Step 17 : COPY CADemo.war /u01/oracle/weblogic/user_projects/domains/base_domain/autodeploy/  
--> 12ca514533f2  
Removing intermediate container c741bb7d873f  
Step 18 : ENV JAVA_OPTIONS "-Dweblogic.transaction.EnableInstrumentedTM=true -Dweblogic.StdoutDebugEnabled=true ${JAVA_OPTIONS}"  
--> Running in 884b9d449240  
--> 2ef025de3b5f  
Removing intermediate container 884b9d449240  
Step 19 : CMD startWebLogic.sh  
--> Running in 364642b19a23  
--> 41cc6d676e07  
Removing intermediate container 364642b19a23  
Successfully built 41cc6d676e07  
[oracle@localhost standbyDomain]$ █
```

Note: If any of images does not create successfully, you can delete the exiting image and re-run the command again to create docker image.

`sudo docker rmi samplewlsls:12.2.1` #where samplewlsls:12.2.1 is repository and tag.

Starting Admin Server in respective domains:

- a. sudo docker run -p 8001:8001 --name=wlsadmin -h aadrdemo samplewls:12.2.1

startWebLogic.sh

It starts the docker container with name **wlsadmin** inside the docker image **samplewls:12.2.1**.

The docker container is running the WebLogic Admin Server with **aadrdemo** as hostname and **8001** as port number inside the docker image. But you can access the Admin Console on URL <http://localhost:8001/console> in the host machine Firefox browser.

```
[oracle@localhost standbyDomain]$ sudo docker run -p 8001:8001 --name=wlsadmin -h aadrdemo samplewls:12.2.1 startWebLogic.sh

JAVA Memory arguments: -Xms256m -Xmx512m

CLASSPATH=/usr/java/jdk1.8.0_60/lib/tools.jar:/u01/oracle/weblogic/server/lib/weblogic.jar:/u01/oracle/weblogic/wlserver/./oracle_common/modules/net.sf.antcontrib_1.1.0.0_1-003/lib/ant-contrib.jar:/u01/oracle/weblogic/wlserver/modules/features/oracle.wls.common.nodemanager.jar:/u01/oracle/weblogic/wlserver/./oracle_common/modules/com.oracle.cie.config-wls-online_8.2.0.0.jar:/u01/oracle/weblogic/wlserver/common/derby/lib/derbynet.jar:/u01/oracle/weblogic/wlserver/common/derby/lib/derbyclient.jar:/u01/oracle/weblogic/wlserver/common/derby/lib/derby.jar

PATH=/u01/oracle/weblogic/user_projects/domains/base_domain/bin:/u01/oracle/weblogic/server/bin:/u01/oracle/weblogic/wlserver/./oracle_common/modules/org.apache.ant_1.9.2/bin:/usr/java/jdk1.8.0_60/jre/bin:/usr/java/jdk1.8.0_60/bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/u01/oracle/weblogic/oracle_common/common/bin:/u01/oracle/weblogic/wlserver/common/bin:/u01/oracle/weblogic/user_projects/domains/base_domain/bin:/u01/oracle

*****
* To start Weblogic Server, use a username and *
* password assigned to an admin-level user. For *
* server administration, use the WebLogic Server *
* console at http://hostname:port/console *
*****
Starting WLS with line:
/usr/java/jdk1.8.0_60/bin/java -server -Xms256m -Xmx512m -Dweblogic.Name=ADMIN -Djava.security.policy=/u01/oracle/weblogic/wlserver/server/lib/weblogic.policy -Dweblogic.transaction.EnableInstrumentedTM=true -Dweblogic.StdoutDebugEnabled=true -XX:+PrintCommandLineFlags -Djava.security.egd=file:/dev/.urandom -Xverify:none -Djava.system.class.loader=com.oracle.classloader.weblogic.LaunchClassLoader -javaagent:/u01/oracle/weblogic/wlserver/server/lib/debugpatch-agent.jar -da -Dwlshome=/u01/oracle/weblogic/wlserver/server -Dweblogic.home=/u01/oracle/weblogic/wlserver/server weblogic.Server
Picked up _JAVA_OPTIONS: -XX:+PrintCommandLineFlags -Djava.security.egd=file:/dev/.urandom
```

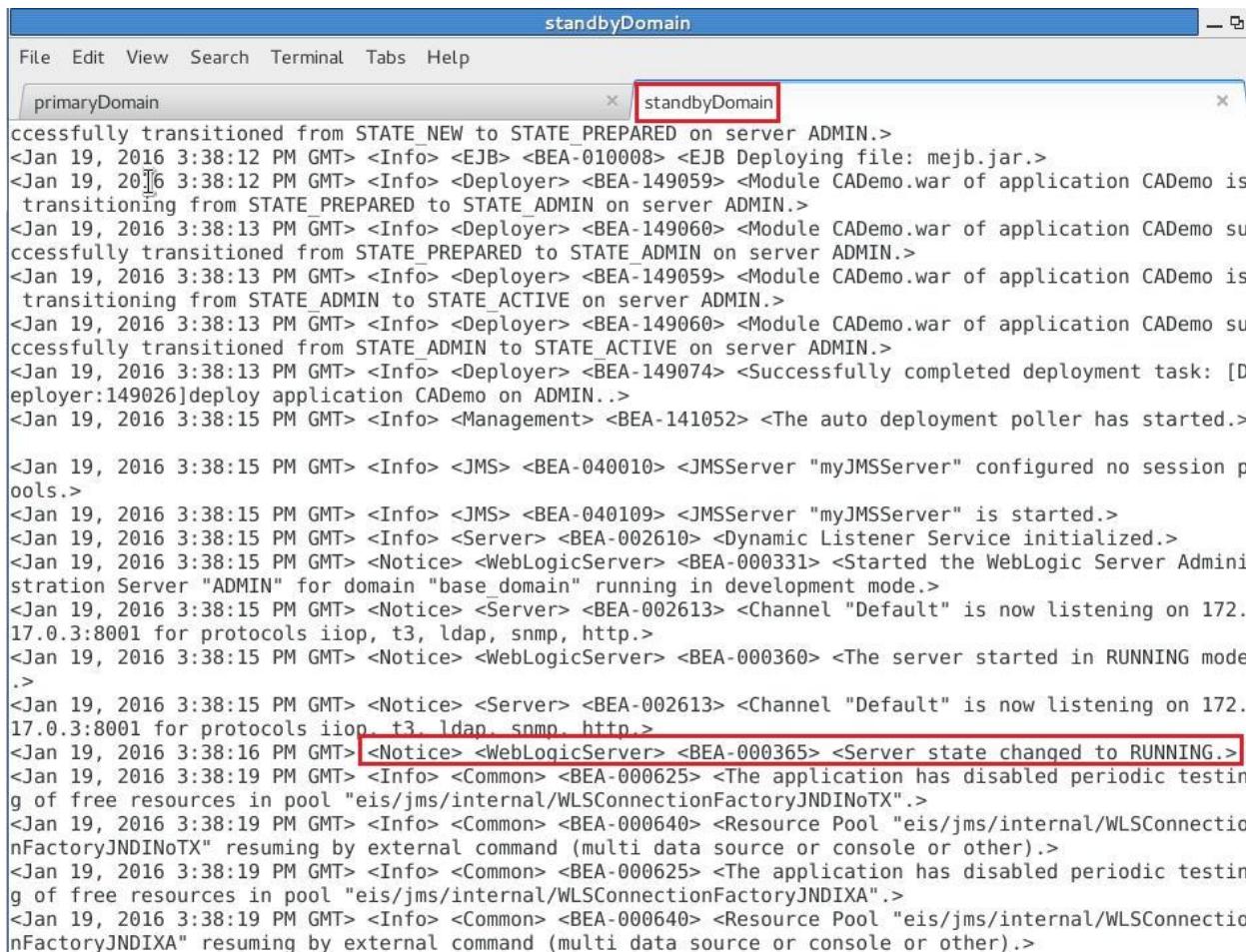
- b. In this tab, Click on **Terminal** -> **Set Title**. Enter **primaryDomain** as Title then click on **OK**.
- c. Wait until the Admin Server is in **Running** State. Then only proceed to next step.



The screenshot shows a terminal window with the title bar set to "primaryDomain". The window displays deployment logs for the "primaryDomain" application. The logs show the transition from STATE_PREPARED to STATE_ADMIN, the deployment of the CADemo.war application, and the successful creation of various services like ContextService, ManagedThreadFactory, and ManagedExecutorService. It also shows the configuration of JMS and the starting of the WebLogic Server Adminstration Server. The log concludes with the message "<Notice> <WebLogicServer> <BEA-000360> <The server started in RUNNING mode>".

```
File Edit View Search Terminal Help primaryDomain
Successfully transitioned from STATE_PREPARED to STATE_ADMIN on server ADMIN.>
<Jan 19, 2016 3:32:27 PM GMT> <Info> <Deployer> <BEA-149059> <Module CADemo.war of application CADemo is transitioning from STATE_ADMIN to STATE_ACTIVE on server ADMIN.>
<Jan 19, 2016 3:32:27 PM GMT> <Info> <Deployer> <BEA-149960> <Module CADemo.war of application CADemo successfully transitioned from STATE_ADMIN to STATE_ACTIVE on server ADMIN.>
<Jan 19, 2016 3:32:27 PM GMT> <Info> <Deployer> <BEA-149074> <Successfully completed deployment task: [Deployment:149026]deploy application CADemo on ADMIN..>
<Jan 19, 2016 3:32:27 PM GMT> <Info> <CONCURRENCY> <BEA-2162601> <Creating ContextService "DefaultContextService" (partition="DOMAIN", module="null", application="jms-internal-xa-adp")>
<Jan 19, 2016 3:32:27 PM GMT> <Info> <CONCURRENCY> <BEA-2162600> <Creating ManagedThreadFactory "DefaultManagedThreadFactory" (partition="DOMAIN", module="null", application="jms-internal-xa-adp")>
<Jan 19, 2016 3:32:27 PM GMT> <Info> <CONCURRENCY> <BEA-2162610> <Creating ManagedExecutorService "DefaultManagedExecutorService" (partition="DOMAIN", module="null", application="jms-internal-xa-adp", workmanager="default")>
<Jan 19, 2016 3:32:27 PM GMT> <Info> <CONCURRENCY> <BEA-2162611> <Creating ManagedScheduledExecutorService "DefaultManagedScheduledExecutorService" (partition="DOMAIN", module="null", application="jms-internal-xa-adp", workmanager="default")>
<Jan 19, 2016 3:32:27 PM GMT> <Info> <Management> <BEA-141052> <The auto deployment poller has started.>
<Jan 19, 2016 3:32:27 PM GMT> <Info> <JMS> <BEA-040010> <JMSServer "myJMSServer" configured no session pools.>
<Jan 19, 2016 3:32:27 PM GMT> <Info> <JMS> <BEA-040109> <JMSServer "myJMSServer" is started.>
<Jan 19, 2016 3:32:28 PM GMT> <Notice> <Server> <BEA-002613> <Channel "Default" is now listening on 172.17.0.2:8001 for protocols iiop, t3, ldap, snmp, http.>
<Jan 19, 2016 3:32:28 PM GMT> <Info> <Server> <BEA-002610> <Dynamic Listener Service initialized.>
<Jan 19, 2016 3:32:28 PM GMT> <Notice> <WebLogicServer> <BEA-000331> <Started the WebLogic Server Administration Server "ADMIN" for domain "base_domain" running in development mode.>
<Jan 19, 2016 3:32:28 PM GMT> <Notice> <Server> <BEA-002613> <Channel "Default" is now listening on 172.17.0.2:8001 for protocols iiop, t3, ldap, snmp, http.>
<Jan 19, 2016 3:32:28 PM GMT> <Notice> <WebLogicServer> <BEA-000360> <The server started in RUNNING mode>
<Jan 19, 2016 3:32:28 PM GMT> <Notice> <WebLogicServer> <BEA-000365> <Server state changed to RUNNING.>
<Jan 19, 2016 3:32:28 PM GMT> <Info> <Connector> <BEA-190156> <There were no compliance or validation errors found in the resource adapter /u01/oracle/weblogic/user_projects/domains/base_domain/servers/ADMIN/tmp/internal/jms-internal-xa-adp.rar.>
<Jan 19, 2016 3:32:28 PM GMT> <Info> <Connector> <BEA-199185> <There is no META-INF/validation.xml file
```

- d. Open a new tab.
- e. `sudo docker run -p 8002:8001 --name=wlsadmin2 -h aaddrdemo samplewls2:12.2.1 startWebLogic.sh`
It starts the docker container with name **wlsadmin2** inside the docker image **samplewls2:12.2.1**. The docker container is running the WebLogic Admin Server with **aaddrdemo** as hostname and **8001** as port number inside the docker image. But you can access the Admin Console on URL <http://localhost:8002/console> in the host machine Firefox browser
- f. In this tab, Click on **Terminal -> Set Title**. Enter **standbyDomain** as Title then click on **OK**.
- g. Wait until the Admin Server is in **Running State**. Then only proceed to next step.



```

standbyDomain
File Edit View Search Terminal Tabs Help
primaryDomain standbyDomain
ccesfully transitioned from STATE_NEW to STATE_PREPARED on server ADMIN.>
<Jan 19, 2016 3:38:12 PM GMT> <Info> <EJB> <BEA-010008> <EJB Deploying file: mejb.jar.>
<Jan 19, 2016 3:38:12 PM GMT> <Info> <Deployer> <BEA-149059> <Module CADemo.war of application CADemo is transitioning from STATE_PREPARED to STATE_ADMIN on server ADMIN.>
<Jan 19, 2016 3:38:13 PM GMT> <Info> <Deployer> <BEA-149060> <Module CADemo.war of application CADemo successfully transitioned from STATE_PREPARED to STATE_ADMIN on server ADMIN.>
<Jan 19, 2016 3:38:13 PM GMT> <Info> <Deployer> <BEA-149059> <Module CADemo.war of application CADemo is transitioning from STATE_ADMIN to STATE_ACTIVE on server ADMIN.>
<Jan 19, 2016 3:38:13 PM GMT> <Info> <Deployer> <BEA-149060> <Module CADemo.war of application CADemo successfully transitioned from STATE_ADMIN to STATE_ACTIVE on server ADMIN.>
<Jan 19, 2016 3:38:13 PM GMT> <Info> <Deployer> <BEA-149074> <Successfully completed deployment task: [Deployer:149026]deploy application CADemo on ADMIN..>
<Jan 19, 2016 3:38:15 PM GMT> <Info> <Management> <BEA-141052> <The auto deployment poller has started.>

<Jan 19, 2016 3:38:15 PM GMT> <Info> <JMS> <BEA-040010> <JMSServer "myJMSServer" configured no session pools.>
<Jan 19, 2016 3:38:15 PM GMT> <Info> <JMS> <BEA-040109> <JMSServer "myJMSServer" is started.>
<Jan 19, 2016 3:38:15 PM GMT> <Info> <Server> <BEA-002610> <Dynamic Listener Service initialized.>
<Jan 19, 2016 3:38:15 PM GMT> <Notice> <WebLogicServer> <BEA-000331> <Started the WebLogic Server Administration Server "ADMIN" for domain "base_domain" running in development mode.>
<Jan 19, 2016 3:38:15 PM GMT> <Notice> <Server> <BEA-002613> <Channel "Default" is now listening on 172.17.0.3:8001 for protocols iiop, t3, ldap, snmp, http.>
<Jan 19, 2016 3:38:15 PM GMT> <Notice> <WebLogicServer> <BEA-000360> <The server started in RUNNING mode.>
<Jan 19, 2016 3:38:15 PM GMT> <Notice> <Server> <BEA-002613> <Channel "Default" is now listening on 172.17.0.3:8001 for protocols iiop, t3, ldap, snmp, http.>
<Jan 19, 2016 3:38:16 PM GMT> <Notice> <WebLogicServer> <BEA-000365> <Server state changed to RUNNING.>
<Jan 19, 2016 3:38:19 PM GMT> <Info> <Common> <BEA-000625> <The application has disabled periodic testing of free resources in pool "eis/jms/internal/WLSConnectionFactoryJNDINoTX".>
<Jan 19, 2016 3:38:19 PM GMT> <Info> <Common> <BEA-000640> <Resource Pool "eis/jms/internal/WLSConnectionFactoryJNDINoTX" resuming by external command (multi data source or console or other).>
<Jan 19, 2016 3:38:19 PM GMT> <Info> <Common> <BEA-000625> <The application has disabled periodic testing of free resources in pool "eis/jms/internal/WLSConnectionFactoryJNDIXA".>
<Jan 19, 2016 3:38:19 PM GMT> <Info> <Common> <BEA-000640> <Resource Pool "eis/jms/internal/WLSConnectionFactoryJNDIXA" resuming by external command (multi data source or console or other).>

```

Note: Both the **base_domain** are running in **development** mode. If somehow your container is not started successfully with WebLogic Server. You can stop the container and remove the container by below commands.

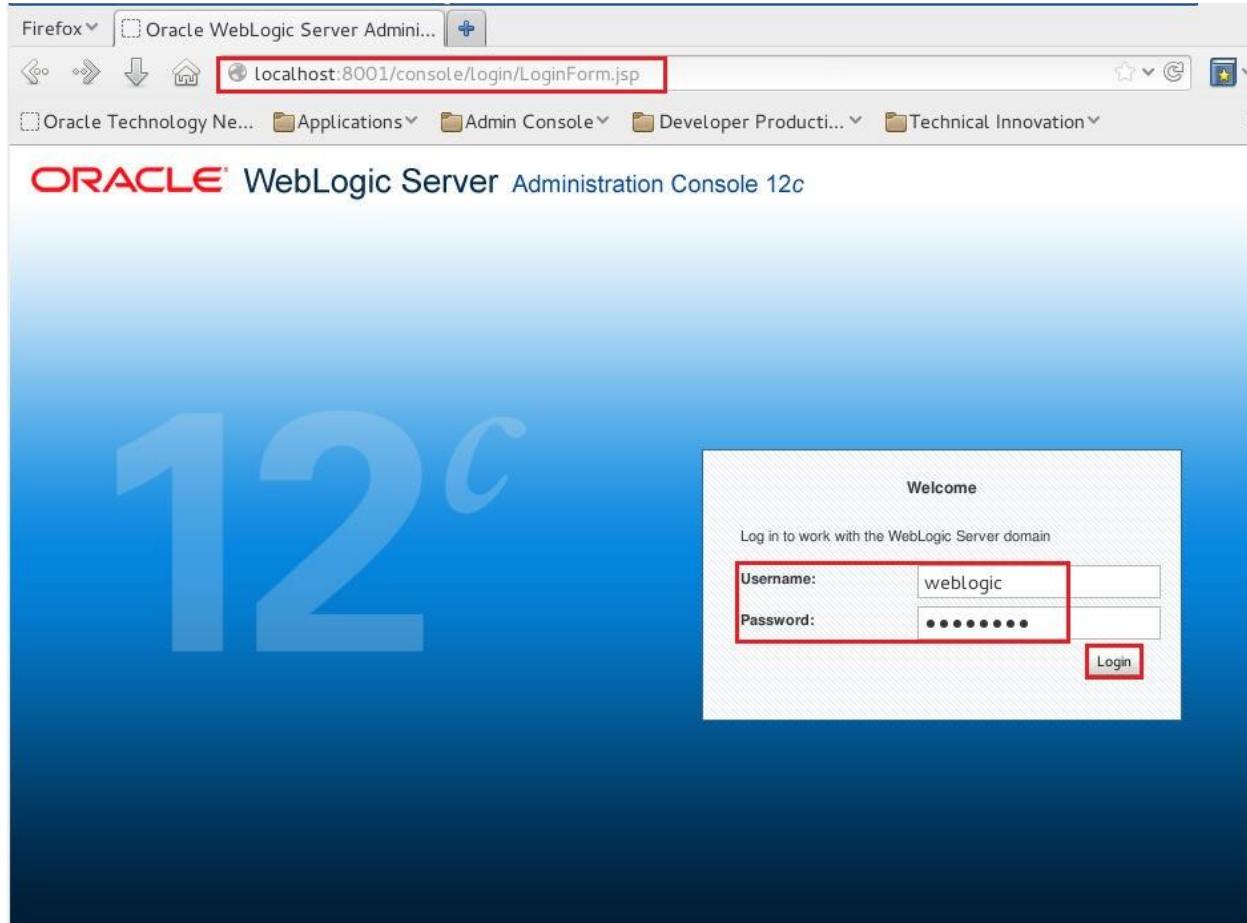
```

sudo docker stop <container_name>;#sudo docker stop wlsadmin; or sudo docker stop wlsadmin2
sudo docker rm $(sudo docker ps -a -q)

```

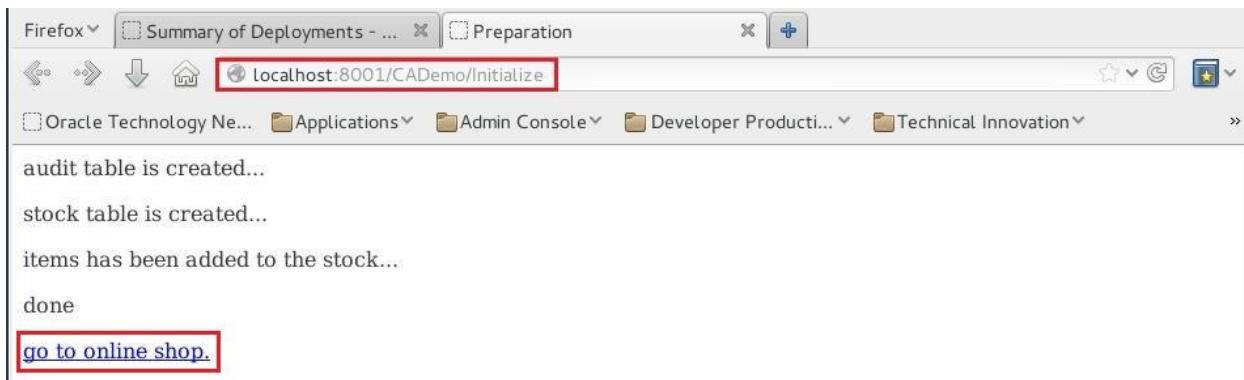
Cross Domain Transaction Recovery show case:

- a. Go to Firefox, and type the URL for primary Domain Admin Console <http://localhost:8001/console> .
- b. Enter **weblogic/welcome1** as **Username/Password** then click on **Login**.



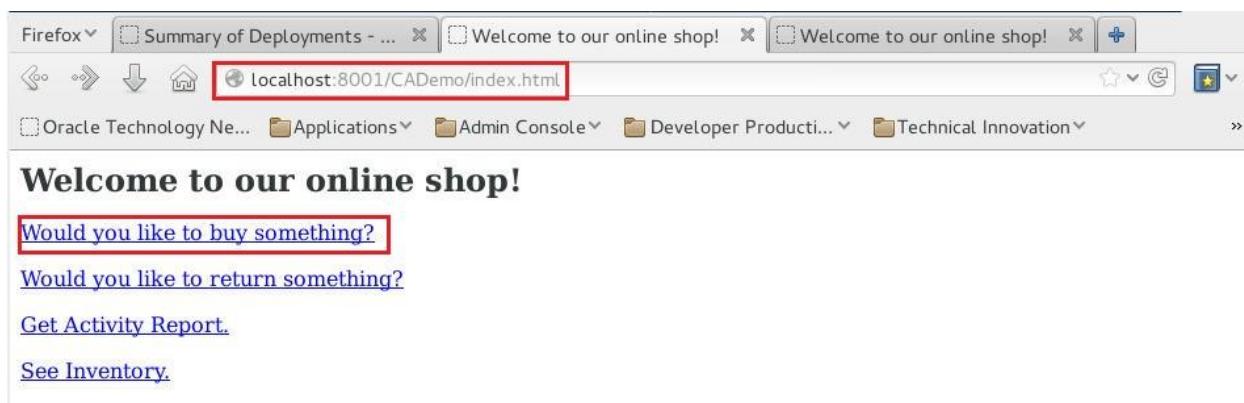
- c. Click on domain name **base_domain**, Go down in the **Configuration -> General** tab, Click on **Advanced** and then verify the **Site Name** to **DEMOPRI**.
- d. Click on **Configuration -> JTA** tab, then click on **Advanced** and then verify the **Recovery Site Name** to **DEMOSTD** and **Cross Domain Recovery Retry Interval** to 120.
- e. Click on **Deployments**, and verify the **CADemo** application deployments.
- f. Open another tab in Firefox and Enter the URL for standbyDomain Admin Console <http://localhost:8002/console> .
- g. Enter **weblogic/welcome1** as **Username/Password** then click on **Login**.
- h. Click on domain name **base_domain**, Go down in the **Configuration -> General** tab, Click on **Advanced** and then verify the **Site Name** to **DEMOSTD**.
- i. Click on **Configuration -> JTA** tab, then click on **Advanced** and then verify the **Recovery Site Name** to **DEMOPRI** and **Cross Domain Recovery Retry Interval** to 120.
- j. Click on **Deployments**, and verify the **CADemo** application deployments.

- k. Open a new tab in browser and type the URL <http://localhost:8001/CADemo/Initialize> to initialize the Database table. Click on “**go to online shop**”. This is the application deployed on primary domain. We will refer this tab as **primarySite** tab for next few steps.



- I. Open a new tab in Firefox and type the URL <http://localhost:8002/CADemo/> to access the application deployed in standbyDomain. We will refer this tab as **standbySite** tab for next few steps.
- m. In the standbySite, Click on “**See Inventory**” and make sure every Item has Quantity equal to 3. Click on “**return to main page**” link.
- n. Go back to the primarySite tab, Click on “**See Inventory**” and verify the value of Quantity be the same with standbySite value. Click on “**return to main page**” link
- o. In the primarySite, Click on “**Get Activity Report**”. It will be blank as of now. Click on “**return to main page**” link.
- p. In the standbySite, Click on “**Get Activity Report**”. It will be blank as of now. **Click on “return to main page” link**.
- q. In the primarySite, Click on “**Would you like to buy something?**”, and then enter the following value or any other data then click on **Submit**.

Men T Shirt: 1
 Women T Shirt: 1
 Name: Kyle



Firefox ▾ Summary of Deployments - ... Sales Welcome to our online shop! +

localhost:8001/CADemo/Purchase.html

Oracle Technology Ne... Applications Admin Console Developer Product... Technical Innovation

Sales

Please select item, enter quantity that you would like to purchase, and enter name

WomenTShirts:	1
MenTShirts:	1
KidsTShirts:	
WomenPants:	
MenPants:	
KidsPants:	
Your Name:	Kyle

Procedure Failure:

submit **Reset**

[return to main page](#)

You will see the page like below. Click on “[return to main page](#)”, Click on “**Get Activity Report**”. Click on “[return to main page](#)” link

Firefox ▾ Summary of Deployments - ... Items Bought Welcome to our online shop! +

localhost:8001/CADemo/Purchase

Oracle Technology Ne... Applications Admin Console Developer Product... Technical Innovation

Hi Kyle, Here are what you bought:

Items	Quantity
Men TShirt	1
Women TShirt	1

[return to main page](#)

Firefox ▾ Summary of Deployments - ... Activity Report Welcome to our online shop! +

localhost:8001/CADemo/CheckAudit

Oracle Technology Ne... Applications Admin Console Developer Product... Technical Innovation

Activity Report

Customer Name	Record Date	Action	Xid
Kyle	2016.01.19 AD at 15:51:10 PM GMT	Bought items: [Men TShirt:1] [Women TShirt:1]	BEA1-0000385CFE758FFDF71FD0354C68

[return to main page](#)

- r. In the standbySite, Click on “**Get Activity Report**”, and verify the transaction. Click on “**return to main page**” link. Both sites will have same Activity Log and same Inventory Stocks Quantity.

The screenshot shows a Firefox browser window with multiple tabs open. The active tab is titled "Activity Report" and has the URL "localhost:8002/CADemo/CheckAudit". Below the title, it says "Activity Report" again. The page content is a table with the following columns: Customer Name, Record Date, Action, and Xid. There is one row of data: "Kyle" in Customer Name, "2016.01.19 AD at 15:51:10 PM GMT" in Record Date, "Bought items: [Men TShirt:1] [Women TShirt:1]" in Action, and "BEA1-0000385CFE758FFDF71FD0354C68" in Xid. At the bottom left, there is a link "return to main page".

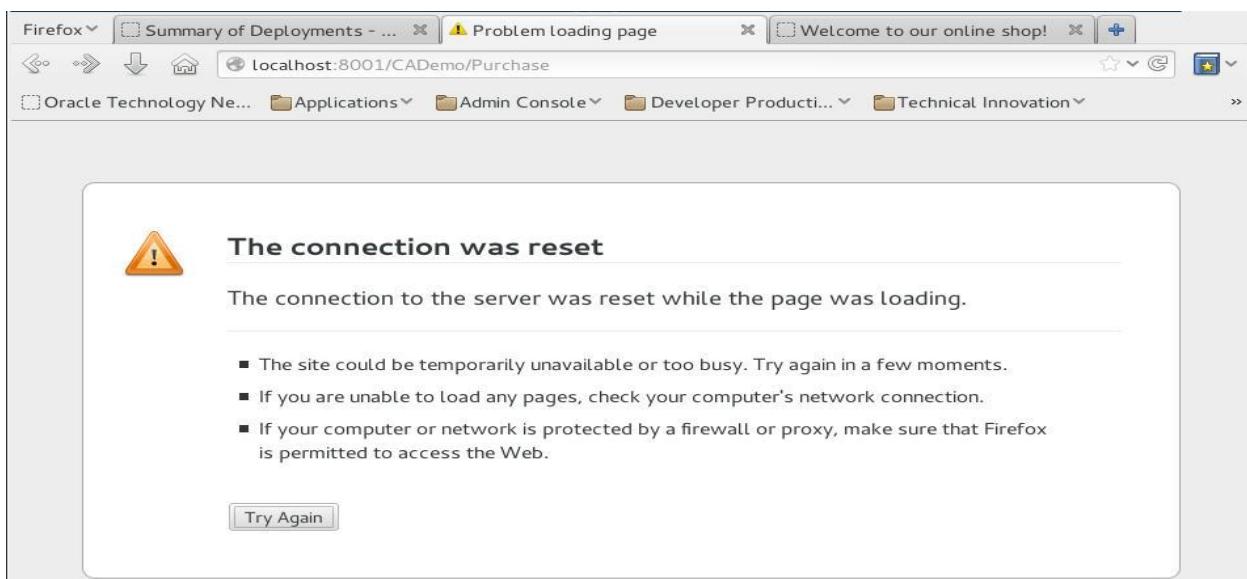
- s. This application has few basic checks before performing a transaction:
- i. While purchasing or returning the Item, if you do not enter any Quantity and Name both. It will ask you to provide both.
 - ii. While purchasing or returning the item, if you provide the quantity but not the Name, It will ask you to provide the Name.
 - iii. While purchasing or returning the item, if you enter the Name but not the Quantity, it will ask you to provide the Quantity Value.
 - iv. If you are purchasing the Item and that much quantity of items is not available, transaction will not happen.
- You can check the above conditions by yourself.
- t. In the primarySite, on main page of application, Click on “**Would you like to Buy Something**”, and then enter the following value or any other data and choose the box for “**Procedure Failure**” then click on **Submit**.

Women Pants: 2
 Man Pants: 2
 Name: Maciej

As you click on **Submit**, you will see “**The Connection was reset**” on this tab, It means Admin Server on this domain has been **Shutdown**. You can go back to Terminal in **primaryDomain** tab; you can verify the Shutdown of Admin Server.

The screenshot shows a Firefox browser window with multiple tabs open. The active tab is titled "Sales" and has the URL "localhost:8001/CADemo/Purchase.html". Below the title, it says "Welcome to our online shop!". The page content is a form with the following fields:
WomenTShirts:
MenTShirts:
KidsTShirts:
WomenPants:
MenPants:
KidsPants:
Your Name:
Procedure Failure:

At the bottom left, there is a link "return to main page".



```

File Edit View Search Terminal Tabs Help
primaryDomain      standbyDomain
the sql about to be executed are insert into DEMOAUDIT values('Maciej','2016.01.19 AD at 15:56
','Bought items: [Men Pant:2][Women Pant:2]',BEA1-0001385CFE758FFDF71FD0354C68)
*** Instrumented location:TMBeforePrepare server:null resource:null
*** Instrumented location:ResourceBeforePrepare server:ADMIN resource:StockDS_base_domain
*** Instrumented location:ResourceBeforePrepare server:ADMIN resource:AuditDS_base_domain
*** Instrumented location:ResourceAfterPrepare server:ADMIN resource:StockDS_base_domain
*** Instrumented location:ResourceAfterPrepare server:ADMIN resource:AuditDS_base_domain
*** Instrumented location:TMAfterPrepareBeforeTLog server:null resource:null
*** Instrumented location:TMAfterTLogBeforeCommit server:null resource:null
*** Instrumented 'TMAfterTLogBeforeCommitExit' xid=BEA1-0001385CFE758FFDF71FD0354C68
Stopping Derby server...
Derby server stopped.
[oracle@localhost standbyDomain]$

```

- u. We have configured the Recovery Interval to 120 seconds, so we need to wait some time.
- v. In the standbySite, Click on "**Get Activity Report**". You can see the details of the Transaction. Click on "**return to main page**" link.

Customer Name	Record Date	Action	Xid
Kyle	2016.01.19 AD at 15:51:10 PM GMT	Bought items: [Men TShirt:1] [Women TShirt:1]	BEA1-0000385CFE758FFDF71FD0354C68
Maciej	2016.01.19 AD at 15:56:54 PM GMT	Bought items: [Men Pant:2] [Women Pant:2]	BEA1-0001385CFE758FFDF71FD0354C68

[return to main page](#)

w. Click on “**See Inventory**”, and the Items quantity has been modified as well.

The screenshot shows a Firefox browser window with three tabs: "Summary of Deployments - ...", "Problem loading page", and "Inventory". The "Inventory" tab is active, displaying a table with columns "Item" and "Quantity". The table contains the following data:

Item	Quantity
Women TShirt	2
Men TShirt	2
Kids TShirt	3
Women Pant	1
Men Pant	1
Kids Pant	3

Below the table is a link "return to main page".

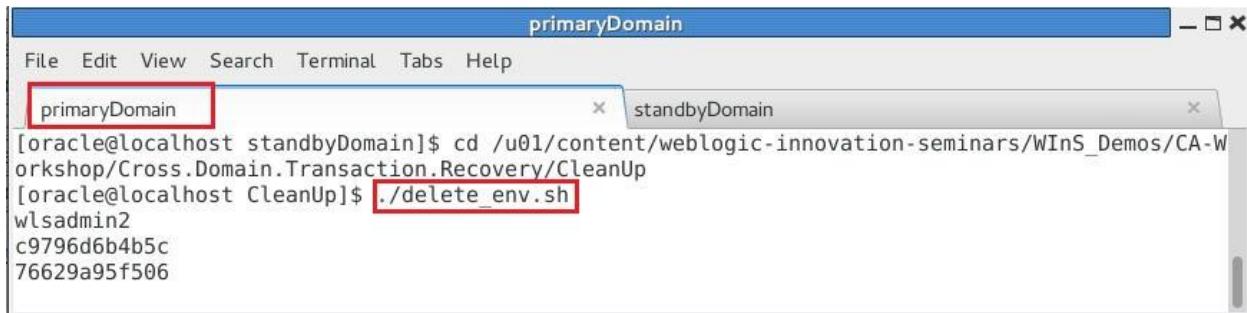
Below the browser is a terminal window titled "standbyDomain" with the following log output:

```
standbyDomain
File Edit View Search Terminal Tabs Help
primaryDomain standbyDomain
of which "1" are available and "0" are unavailable.>
<Jan 19, 2016 3:59:06 PM GMT> <Info> <Store> <BEA-280071> <JDBC store "DEMOPRIADMINJTA_JDBCTLOGStore" opened table "DEMOPRI_ADMIN_WLStore" and loaded DEMOPRIADMINJTA_JDBCTLOGStore records. For additional store information, use the diagnostics framework while the JDBC store is open.>
*** Instrumented location:ResourceBeforeCommit server:ADMIN resource:AuditDS_base_domain
*** Instrumented location:ResourceBeforeCommit server:ADMIN resource:StockDS_base_domain
*** Instrumented location:ResourceAfterCommit server:ADMIN resource:AuditDS_base_domain
*** Instrumented location:ResourceAfterCommit server:ADMIN resource:StockDS_base_domain
*** Instrumented location:TMAfterCommit server:null resource:null
<Jan 19, 2016 4:01:06 PM GMT> <Info> <Store> <BEA-280071> <JDBC store "DEMOPRIADMINJTA_JDBCTLOGStore" opened table "DEMOPRI_ADMIN_WLStore" and loaded 1 record. For additional JDBC store information, use the diagnostics framework while the JDBC store is open.>
```

Note: As this is the Active-Active configuration, so like we performed transaction on primarySite and showed recovery on standbySite. You can also try to make transaction on standbySite; it will be recovered by primarySite.

Clean Up:

- a. Go back to terminal, with name primaryDomain.
- b. cd /u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/Cross.Domain.Transaction.Recovery/CleanUp
- c. ./delete_env.sh



The screenshot shows a terminal window titled "primaryDomain". The window has two tabs: "primaryDomain" (active) and "standbyDomain". The "primaryDomain" tab contains the following command-line session:

```
[oracle@localhost standbyDomain]$ cd /u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/Cross.Domain.Transaction.Recovery/CleanUp
[oracle@localhost CleanUp]$ ./delete_env.sh
wlsadmin2
c9796d6b4b5c
76629a95f506
```

Note: It stops the running docker container and then removes the docker container. Then it deletes the docker images we created during the Lab. At last it drops users in both the databases.

Lab 3: Coherence Federated Cache

Overview:

Managed Coherence Servers provides tight integration between WebLogic Server and Coherence. This integration allows for a simplified and streamlined development and management environments of distributed applications. The functionality allows end users to build a new archive type (Grid Archive aka GAR), which can be deployed and managed via standard WebLogic Server best practices. Developers can now streamline their build processes to generate GARs. Operations departments can now standardize deployment of Coherence and Coherence applications in the test and production environments. This feature requires both WLS 12.1.2 and Coherence 12.1.2 in order to work.

Traditionally, Coherence has been deployed as a jar incorporated into a java application (e.g., WAR or standalone Java application) along with a tier of standalone cache server JVMs (often using the DefaultCacheServer class). The embedded java usages (such as in a WAR) are referred to as clients and the standalone cache servers are referred to as servers. The lifecycles of the “clients” and cache servers are managed separately, often manually, with the cache servers managed by custom shell scripts. Application development and deployment in this model is a complicated process involving many moving parts that require custom management processes.

What is a Grid Archive?

A Coherence application is defined by the artifacts required for a Coherence node to serve a particular Coherence cache or invocation request. A GAR contains:

- A deployment descriptor, with required name coherence-application.xml. The deployment descriptor contains the following:
 - A pointer to a cache configuration xml document. This document describes the Coherence services and caches.
 - An optional pointer to a POF configuration document. This document describes the types serializable using the Portable Object Format.
 - An optional class name of a class implementing the LifeCycleListener interface.
 - An optional class name of a class implementing the ConfigurableCacheFactory interface.
- A collection of Java classes required serving the request; typically these are implementations of EntryProcessors, Filters, Aggregators, and backing-map business logic. Classes are optional.
- A collection of library jars these classes depend on. Library jars are optional.

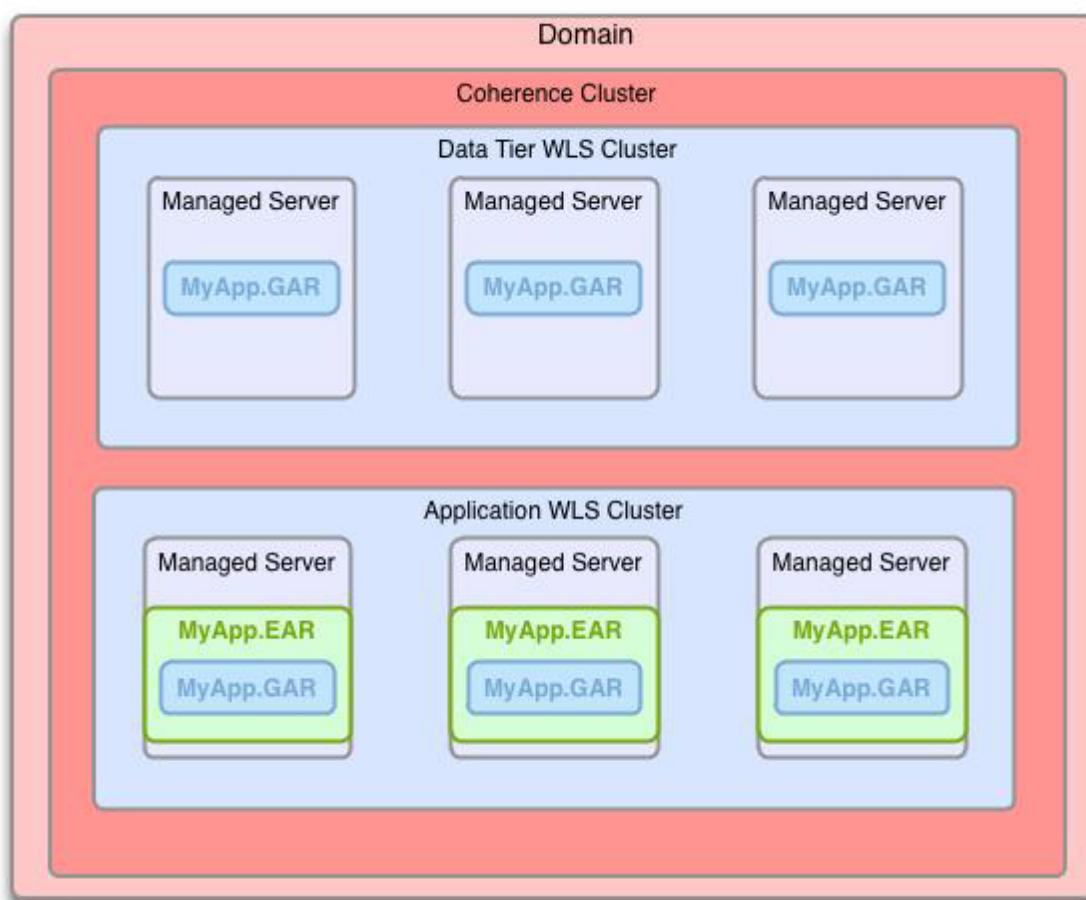
These artifacts are grouped in a jar called a Coherence Grid Archive (GAR) that defines all the artifacts for a particular Coherence Application. This mirrors to a large degree the structure of other Java EE artifacts such as Web Archives (WAR). The format of a GAR is as follows:

- META-INF
 - MANIFEST.MF
 - coherence-application.xml – Coherence deployment descriptor
 - coherence-cache-config.xml – Coherence cache configuration
 - pof-config.xml – Coherence POF configuration
- [optional class files in appropriate packages]
- lib [optional directory containing any additional dependency objects]

Coherence Application Deployment Models

Coherence Applications are typically deployed in tier. The simplest model is a two-tiered deployment. A data tier, used to host Coherence Server instances responsible for storing the data related to the application. And an application tier that hosts the application consuming data stored in the data tier. Each tier is managed using standard WLS principles combined with the new functionality integrated for the 12.1.2 release. The new Coherence Cluster definition represents the operational (runtime) configuration of a Coherence cluster. Coherence clusters are then associated with a WLS cluster representing the data tier, and a separate WLS cluster representing the application tier. In the data tier, the grid archive is deployed to each managed server, which is configured as a storage enabled coherence node. The application tier would deploy the identical GAR, packaged in an EAR and the EAR is then deployed to each storage disabled managed server representing the application tier.

Note: it is considered best practice to have dedicated storage tiers, separate from the application tier to ensure optimum cluster performance. Please refer to the diagram below.



Configuration:

There are two areas related to configuration with Managed Coherence Servers:

- Standard Cache Configuration
- WLS Domain configuration

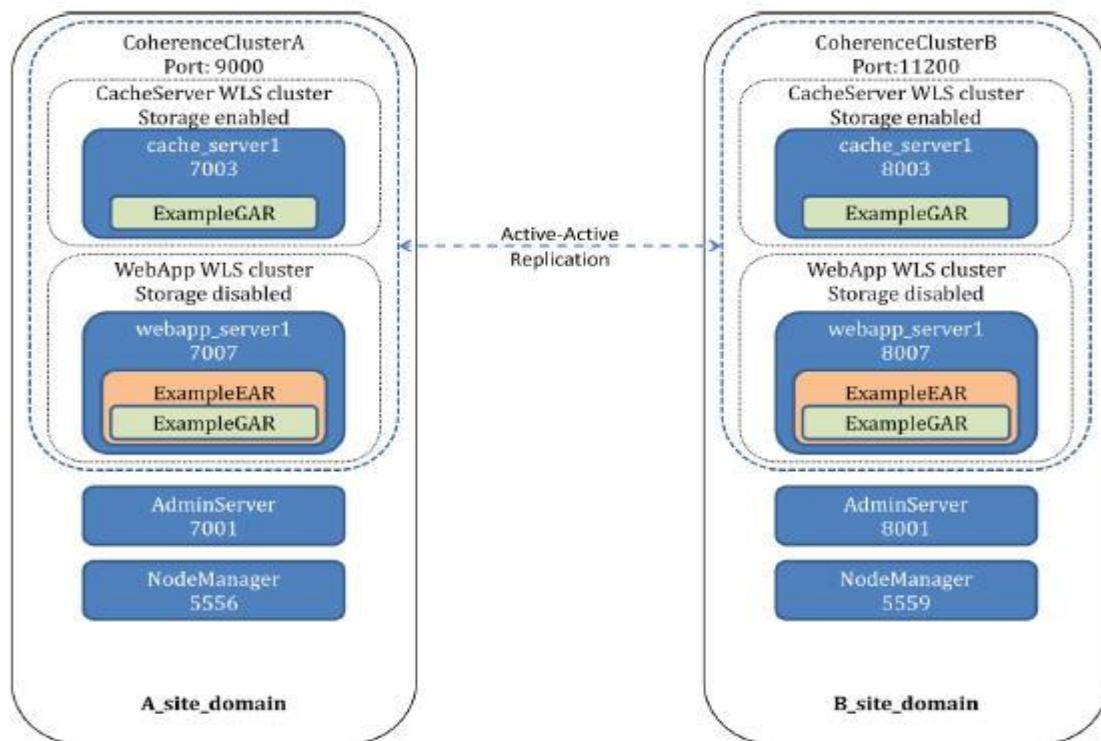
Standard Cache configuration is managed by the coherence-cache-config.xml file that resides within the Grid ARchive. These configuration concepts relate to cache configuration and topologies (near caches) which are explained via the standard coherence documentation (http://docs.oracle.com/cd/E24290_01/coh.371/e22837/gs_config.htm#CEGJBDJD).

Configuring the WLS domain as described in the preceding sections is new functionality made available in 12.2.1. It is possible to perform this configuration via both WLST and the Administration console. The high-level steps involved would be to:

1. Create a domain
2. Create a Coherence Cluster
3. Create a Data tier WLS cluster.
4. Associate the Data tier WLS cluster with the Coherence Cluster
5. Deploy your GAR to the data tier
6. Create an Application WLS Cluster and associate it with the Coherence Cluster
7. Deploy your EAR to the application tier.

Coherence Federated Cache Lab

The target environment you will build is shown in the diagram below. This environment will be built using script.



The following components make up the lab architecture:

- Two identical WebLogic Server 12.2.1 domains (**A_site_domain**, **B_site_domain**) with node manager pre-configured.
- Cache Server WebLogic Cluster – containing one storage-enabled managed server and holding Coherence Cluster data. Often referred to as the Data Tier
- WebApp WebLogic Cluster – containing one stored DIS-abled managed servers, and hosting a web application contained in an EAR. Often referred to as the Web Tier.
- The following artifacts will be deployed:
 - **ExampleGAR.gar** – the “Grid Archive” (GAR) which contains POJO’s, cache and POF configuration, as well as other classes required by the Coherence applications and cache servers.
 - **ExampleEAR.ear** – the application to be deployed to the “WebApp” cluster. Contains a Web Archive (WAR) file with the application code, and the GAR file with required cluster resources.

The scenario is the following the two sites are identical and have the same application to be deployed. Between the two sites Coherence Federated Cache feature is activated. So whenever the data is created/updated/inserted on a site the changes will be immediately propagated to the other site.

Create the demo environment

The objective of this step is to create the environment for sample application.

Run the domain creation script

The domain configuration come in domain template form and we must execute the unpack command to create the two domains. Carry out the following:

- a. Open a new terminal
- b. cd /u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/
Coherence.Federated.Cache/setup/
- c. Run the following script to create (unpack) the two domains: **./createDomains.sh**

```
[oracle@localhost setup]$ ./createDomains.sh
Warning: Option "-password" is deprecated. Use "-walletDir" to specify wallet where pw is stored.
<< read template from "/u01/content/weblogic-innovation-seminars/WInS_Demos/CA-
Workshop/Coherence.Federated.Cache/templates/A_site_template.jar"
>> succeed: read template from "/u01/content/weblogic-innovation-seminars/WInS_Demos/CA-
Workshop/Coherence.Federated.Cache/templates/A_site_template.jar"
<< find User "weblogic" as ul_CREATE_IF_NOT_EXIST
>> succeed: find User "weblogic" as ul_CREATE_IF_NOT_EXIST
<< set ul_CREATE_IF_NOT_EXIST attribute Password to "*****"
>> succeed: set ul_CREATE_IF_NOT_EXIST attribute Password to "*****"
<< set ul_CREATE_IF_NOT_EXIST attribute IsDefaultAdmin to "true"
>> succeed: set ul_CREATE_IF_NOT_EXIST attribute IsDefaultAdmin to "true"
<< write Domain to "/u01/wins/wls1221/user_projects/domains/A_site_domain"
>> warning:write Domain to "/u01/wins/wls1221/user_projects/domains/A_site_domain"
>> 40326: Invalid coherence server address.
40326: At least one server in a Coherence cluster should have non localhost address.
40326: Enter a non localhost listen address for at least one Coherence server.
.....
>> succeed: write Domain to "/u01/wins/wls1221/user_projects/domains/A_site_domain"
<< close template
>> succeed: close template
Warning: Option "-password" is deprecated. Use "-walletDir" to specify wallet where pw is stored.
<< read template from "/u01/content/weblogic-innovation-seminars/WInS_Demos/CA-
Workshop/Coherence.Federated.Cache/templates/B_site_template.jar"
>> succeed: read template from "/u01/content/weblogic-innovation-seminars/WInS_Demos/CA-
Workshop/Coherence.Federated.Cache/templates/B_site_template.jar"
<< find User "weblogic" as ul_CREATE_IF_NOT_EXIST
>> succeed: find User "weblogic" as ul_CREATE_IF_NOT_EXIST
<< set ul_CREATE_IF_NOT_EXIST attribute Password to "*****"
>> succeed: set ul_CREATE_IF_NOT_EXIST attribute Password to "*****"
<< set ul_CREATE_IF_NOT_EXIST attribute IsDefaultAdmin to "true"
>> succeed: set ul_CREATE_IF_NOT_EXIST attribute IsDefaultAdmin to "true"
<< write Domain to "/u01/wins/wls1221/user_projects/domains/B_site_domain"
>> warning:write Domain to "/u01/wins/wls1221/user_projects/domains/B_site_domain"
>> 40326: Invalid coherence server address.
40326: At least one server in a Coherence cluster should have non localhost address.
40326: Enter a non localhost listen address for at least one Coherence server.
.....
>> succeed: write Domain to "/u01/wins/wls1221/user_projects/domains/B_site_domain"
<< close template
>> succeed: close template
[oracle@localhost setup]$
```

This indicates the two domains have been unpacked successfully. If you have any errors first check the domain creation logs:

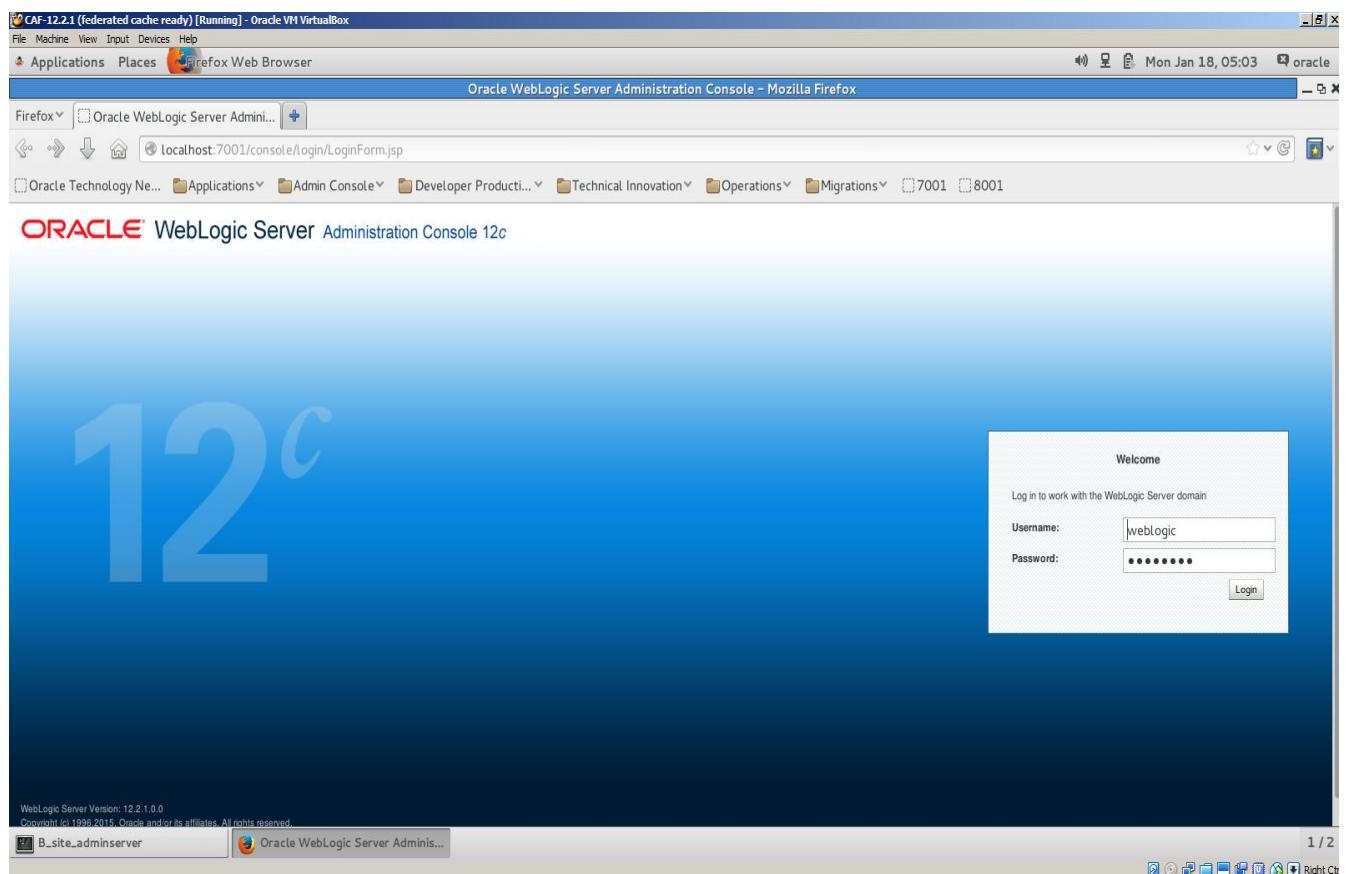
- /u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/Coherence.Federated.Cache/setup/A_site_domain_creation.log
- /u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/Coherence.Federated.Cache/setup/B_site_domain_creation.log

And/or consult your instructor. You can re-run createDomain.sh, but first clean up the failed folders:

- a. cd /u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/Coherence.Federated.Cache/cleanup/
- b. Run the following script to remove the domain's folders: **./removeDomains.sh**

Start the environment:

- a. Once the previous step has been completed, do the following:
- b. In this tab, click on **Terminal -> Set Title**, Enter **A_site_nodemanager** as Title then click on **OK**.
- c. cd /u01/wls/wls1221/user_projects/domains/A_site_domain/bin/
- d. Run the following to start the node manager for site 'A': **./startNodeManager.sh**
- e. Open a new tab.
- f. In this tab, click on **Terminal -> Set Title**, Enter **B_site_nodemanager** as Title then click on **OK**.
- g. cd /u01/wls/wls1221/user_projects/domains/B_site_domain/bin/
- h. Run the following to start the node manager for site 'B': **./startNodeManager.sh**
- i. Open a new tab.
- j. **/u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/Coherence.Federated.Cache/setup/startA_site_adminserver.sh**
This script starts the Admin Server in A_site_domain through NodeManager.
- k. **/u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/Coherence.Federated.Cache/setup/startB_site_adminserver.sh**
This script starts the Admin Server in B_site_domain through NodeManager
- l. Open Firefox and login to the **A_site_domain**'s console at the following URL
<http://localhost:7001/console> using **weblogic/welcome1**.



m. Click on Environment -> Servers.

The screenshot shows the Oracle WebLogic Server Administration Console interface. On the left, there's a navigation tree for 'Domain Structure' under 'A_site_domain'. The 'Servers' node under 'Environment' is highlighted with a red box. On the right, there are several sections: 'Information and Resources' (Helpful Tools like Configure applications, Configure a Dynamic Cluster, etc.), 'General Information' (Common Administration Task Descriptions, Read the documentation, Ask a question on My Oracle Support), 'Domain Configurations' (Domain, Resource Group Templates, Resource Groups, Deployed Resources, Services), and 'Interoperability' (WTC Servers, Jolt Connection Pools). Below the main content area, there's a 'How do I...' section with links to various configuration options, and a 'System Status' section showing the health of running servers.

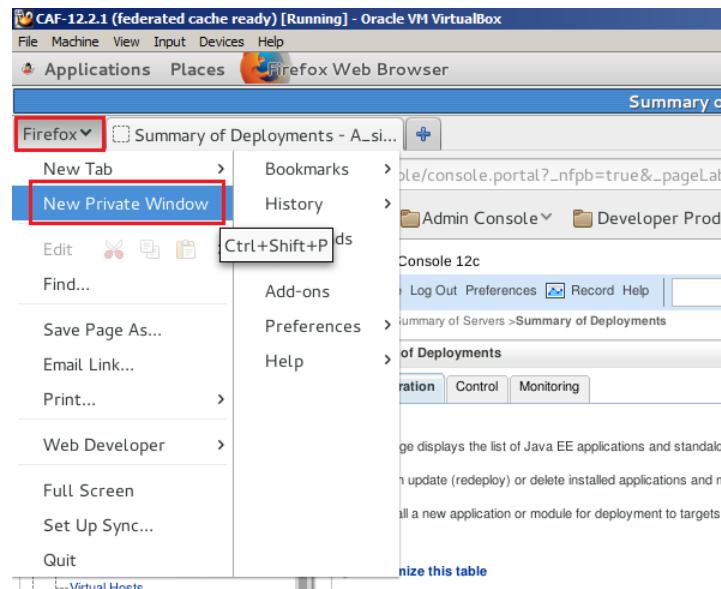
Check the configuration and status of the managed servers.

The screenshot shows the 'Summary of Servers' page. At the top, there are tabs for 'Configuration' and 'Control'. Below that, a message states: 'A server is an instance of WebLogic Server that runs in its own Java Virtual Machine (JVM) and has its own configuration. This page summarizes each server that has been configured in the current WebLogic Server domain.' A 'Customize this table' link is present. The main part of the page is a table titled 'Servers (Filtered - More Columns Exist)'. The table has columns: Name, Type, Cluster, Machine, State, Health, and Listen Port. Three rows are listed: 'AdminServer(admin)' (Configured, machine_A, RUNNING, OK, 7001), 'cache_server1' (Configured, CacheServerWebLogicCluster, machine_A, SHUTDOWN, Not reachable, 7003), and 'webapp_server1' (Configured, WebAppWebLogicCluster, machine_A, SHUTDOWN, Not reachable, 7007). The first two rows ('AdminServer(admin)' and 'cache_server1') are highlighted with red boxes.

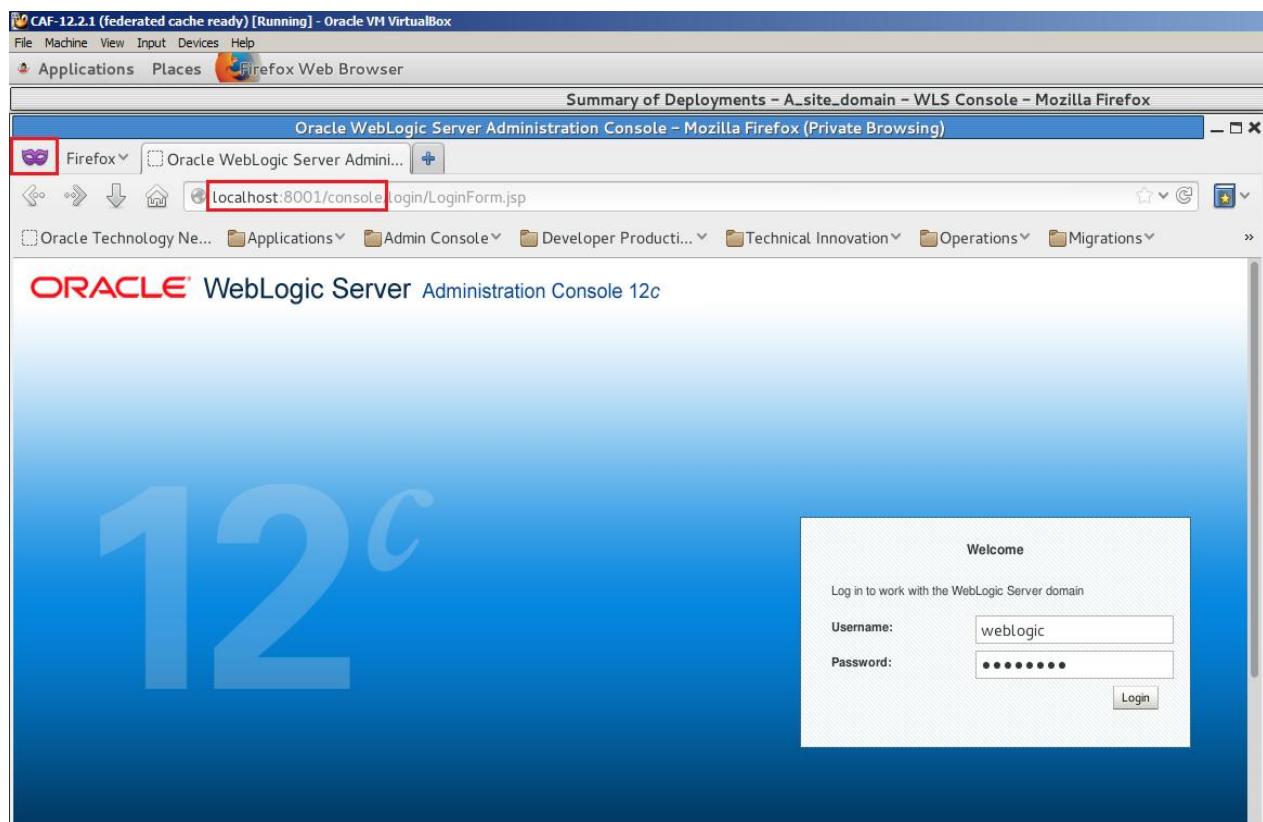
Name	Type	Cluster	Machine	State	Health	Listen Port
AdminServer(admin)	Configured		machine_A	RUNNING	OK	7001
cache_server1	Configured	CacheServerWebLogicCluster	machine_A	SHUTDOWN	Not reachable	7003
webapp_server1	Configured	WebAppWebLogicCluster	machine_A	SHUTDOWN	Not reachable	7007

According to the architecture here we can see one cache server which acts as the data grid layer and a web application server which hosts the demo application.

- n. Open a **New Private Firefox Window** and login to the **B_site_domain**'s console at the following URL <http://localhost:8001/console> using **weblogic/welcome1**.



It is important to use this type of separate browser to login the **B_site_domain**'s console; otherwise Firefox will always kick out from the other site's admin console



o. Click on Environment -> Servers.

p. Now check the configuration and status of the managed servers in the B site domain.

Name	Type	Machine	State	Health	Listen Port
AdminServer(admin)	Configured	machine_B	RUNNING	OK	8001
cache_server1	Configured	machine_B	SHUTDOWN	Not reachable	8003
webapp_server1	Configured	machine_B	SHUTDOWN	Not reachable	8007

According to the architecture here we can also see one cache server which acts as the data grid layer and a web application server which hosts the demo application. Don't forget the domain's configurations are identical **except the port configuration** for servers and clusters.

- q. Now the managed servers in both the domain must be started.
- r. Go back to the Terminal.
- s. **/u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/Coherence.Federated.Cache/setup/startServers.sh**
This script first connects to the **A_site_nodemanager** and through NodeManager it starts the **cache_server1** and **webapp_server1** in **A_site_domain**. Then it connects to **B_site_nodemanager** and through NodeManager it starts the **cache_server1** and **webapp_server1** in **B_site_domain**.
- t. Before you proceed to the next step please check all the managed server status in the two domains. They all must be in **Running** State.

Deploy the Federated Cache demo application

The demo application must now be deployed for both domains. Carry out the following:

- a. **/u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/Coherence.Federated.Cache/setup/deploy.sh**
This script connect to the Admin Server in **A_site_domain**, then it deploy the **ExampleGAR.gar** application to **CacheServerWebLogicCluster** and **ExampleEAR.ear** application to **WebAppWebLogicCluster** then disconnect to the Admin Server. Then it connects to the Admin Server in **B_site_domain** and then it deploys the **ExampleGAR.gar** application to **CacheServerWebLogicCluster** and **ExampleEAR.ear** application to **WebAppWebLogicCluster**.
- b. Go to the Admin Console of **A_site_domain** and click on **Deployments**.
- c. Go to the Admin Console of **B_site_domain** and click on **Deployments**.

If you have any issue, consult your instructor.

Run the federated cache demo application

Once the previous step has been completed, access to the demo application on both sites:

- a. Open a new tab in browser which is used for **A_site_domain**.
- b. To run the demo application, go to the following URL. Choose port 7007.
<http://localhost:7007/WebApp/faces/ContactList.jsp>

Last Name	First Name	Work Address	Home Address	Birth Date	Age	Phone Numbers	Actions

On the application's page you can see lot of information. Currently this application's domain is **A_site_domain**; hosting server is **webapp_server1**, the Coherence data grid layer ensured by

CoherenceClusterA in this domain which is one of the participants of the federated cache. If you have questions about the architecture see the diagram in the overview section or consult your instructor.

- c. Open a new tab in the (private) browser which is used for **B_site_domain**.
- d. To access to the same demo application in the secondary site go to the following URL. Choose port 8007. <http://localhost:8007/WebApp/faces/ContactList.jsp> .

Managed Coherence Servers – Contact Demo – Mozilla Firefox (Private Browsing)

localhost:8007/WebApp/faces/ContactList.jsp

DOMAIN: **B_site_domain** SERVER: **webapp_server1** COHERENCE CLUSTER: **CoherenceClusterB**

Current cache size: 0 Total cluster size: 2 Total storage-enabled members: 1

Replication status: INITIAL Pending Messages: 0 Total entries sent: 0

Insert 5 Random Contacts Create Contact

Pause replication Start replication Replicate all

Last Name	First Name	Work Address	Home Address	Birth Date	Age	Phone Numbers	Actions

On the application's page here you can also find information about the **hosting environment** and the **replication status** as well. As you can see this application belongs to **B_site_domain** and part of the **CoherenceClusterB** which is the other participant of the federated cache. If you have questions about the architecture see the diagram in the overview section or consult your instructor.

Note: If you do not see the above output in any of site or both the site follow the instruction in **Troubleshoot** section given in the last of part of Lab 3.

- e. Now test the behavior of the Active-Active configured federated cache.

- f. Click in the **Insert 5 Random Contacts** button. The browser for **A_site_domain** should resemble the following.

Managed Coherence Servers - Contact Demo - Mozilla Firefox

DOMAIN: **A_site_domain**, SERVER: **webapp_server1**, COHERENCE CLUSTER: **CoherenceClusterA**

Current cache size: 5 Total cluster size: 2 Total storage-enabled members: 1

Replication status: YIELDING Pending Messages: 5 Total entries sent: 10

Insert 5 Random Contacts **Create Contact** **Clear Cache**

Pause replication **Start replication** **Replicate all**

Last Name	First Name	Work Address	Home Address	Birth Date	Age	Phone Numbers	Actions
Okonkwo	John	8 Yawkey Way Liuobmg, GU 05715 US	1500 Boylston St. Ckksewe, FL 38268 US	01/03/1960	56	Work: +11 76 100 4090356	Delete Update
Khokhty	John	8 Yawkey Way Mtyk, VA 00011 US	1500 Boylston St. Nzhvny, PA 01252 US	01/02/1961	55	Work: +11 80 193 4276753	Delete Update
Ovlibax	John	8 Yawkey Way Mnjmbi, NC 93495 US	1500 Boylston St. Yckbh, KY 17262 US	12/08/1983	32	Work: +11 26 973 2279613	Delete Update
Xdip	John	8 Yawkey Way Hyfms, OH 09859 US	1500 Boylston St. lldjutq, TX 54699 US	01/04/1955	61	Work: +11 87 324 2492799	Delete Update
Vnnevgtake	John	8 Yawkey Way Rahrkrkn, VT 41319 US	1500 Boylston St. Tdaegpulg, SC 11131 US	12/29/1979	36	Work: +11 87 399 0899232	Delete Update

The red background indicates the recently (in the last 5-7 sec.) inserted/updated records.

- g. Now switch to the (private) browser which shows the application for **B_site_domain**.

Managed Coherence Servers - Contact Demo - Mozilla Firefox (Private Browsing)

DOMAIN: **B_site_domain**, SERVER: **webapp_server1**, COHERENCE CLUSTER: **CoherenceClusterB**

Current cache size: 5 Total cluster size: 2 Total storage-enabled members: 1

Replication status: IDLE Pending Messages: 0 Total entries sent: 24

Insert 5 Random Contacts **Create Contact** **Clear Cache**

Pause replication **Start replication** **Replicate all**

Last Name	First Name	Work Address	Home Address	Birth Date	Age	Phone Numbers	Actions
Okonkwo	John	8 Yawkey Way Liuobmg, GU 05715 US	1500 Boylston St. Ckksewe, FL 38268 US	01/03/1960	56	Work: +11 76 100 4090356	Delete Update
Khokhty	John	8 Yawkey Way Mtyk, VA 00011 US	1500 Boylston St. Nzhvny, PA 01252 US	01/02/1961	55	Work: +11 80 193 4276753	Delete Update
Ovlibax	John	8 Yawkey Way Mnjmbi, NC 93495 US	1500 Boylston St. Yckbh, KY 17262 US	12/08/1983	32	Work: +11 26 973 2279613	Delete Update
Xdip	John	8 Yawkey Way Hyfms, OH 09859 US	1500 Boylston St. lldjutq, TX 54699 US	01/04/1955	61	Work: +11 87 324 2492799	Delete Update
Vnnevgtake	John	8 Yawkey Way Rahrkrkn, VT 41319 US	1500 Boylston St. Tdaegpulg, SC 11131 US	12/29/1979	36	Work: +11 87 399 0899232	Delete Update

There you can see the 5 records which were inserted by the application hosted in **A_site_domain**. If you switch enough fast there you can also see the red highlights for recently inserted records

h. Now insert 5 another records on **B_site_domain**

The screenshot shows a Firefox browser window titled "Managed Coherence Servers - Contact Demo - Mozilla Firefox (Private Browsing)". The address bar shows "localhost:8007/WebApp/faces/ContactList.jsp". The page header includes the Oracle logo. The main content area displays a table of contact information with the following columns: Last Name, First Name, Work Address, Home Address, Birth Date, Age, Phone Numbers, and Actions. The contacts listed are:

Last Name	First Name	Work Address	Home Address	Birth Date	Age	Phone Numbers	Actions
Bwnebzrje	John	8 Yawkey Way Unnx, MA 87949 US	1500 Boylston St. Ropocoawki, KS 60709 US	12/01/1970	45	Work: +11 67 683 64073	Delete Update
Encocpnv	John	8 Yawkey Way Kogn, ID 71059 US	1500 Boylston St. Pjhnln, AK 16013 US	01/03/1958	58	Work: +11 85 157 9569182	Delete Update
Eosokiapvm	John	8 Yawkey Way Luobmg, GU 85715 US	1500 Boylston St. Ckxsewe, FL 38268 US	01/03/1960	56	Work: +11 76 100 4090356	Delete Update
Fibdptv	John	8 Yawkey Way Myqyk, VA 80611 US	1500 Boylston St. Nzilvny, PA 81252 US	01/02/1961	55	Work: +11 80 193 4276753	Delete Update
Maoibgqwe	John	8 Yawkey Way Ogsdnf, GU 49951 US	1500 Boylston St. Ejac, KS 51750 US	01/02/1963	53	Work: +11 5 365 761399	Delete Update
Precscwgez	John	8 Yawkey Way Zwnunbwkh, OK 89596 US	1500 Boylston St. Cdli, TX 17450 US	01/01/1968	48	Work: +11 85 339 4268691	Delete Update
Oquukyym	John	8 Yawkey Way Dgzkyskjq, MI 94566 US	1500 Boylston St. Vhwyzyxp, MP 19724 US	12/28/1982	33	Work: +11 26 438 5112064	Delete Update
Qvifpax	John	8 Yawkey Way Mmtrmbi, NC 93495 US	1500 Boylston St. Yckbh, KY 17262 US	12/28/1983	32	Work: +11 26 973 2279613	Delete Update
Xdpp	John	8 Yawkey Way Hylmso, OH 69859 US	1500 Boylston St. Ildultq, TX 54699 US	01/04/1955	61	Work: +11 87 324 2492799	Delete Update
Ynasvtpkbe	John	8 Yawkey Way Rahvrknrsj, VT 41319 US	1500 Boylston St. Tdawpgulk, SC 11131 US	12/29/1979	36	Work: +11 87 399 8699232	Delete Update

i. Then switch to the **A_site_domain's** applications.

The screenshot shows a Firefox browser window titled "Managed Coherence Servers - Contact Demo - Mozilla Firefox (Private Browsing)". The address bar shows "localhost:7007/WebApp/faces/ContactList.jsp". The page header includes the Oracle logo. The main content area displays a table of contact information with the following columns: Last Name, First Name, Work Address, Home Address, Birth Date, Age, Phone Numbers, and Actions. The contacts listed are:

Last Name	First Name	Work Address	Home Address	Birth Date	Age	Phone Numbers	Actions
Bwnebzrje	John	8 Yawkey Way Unnx, MA 87949 US	1500 Boylston St. Ropocoawki, KS 60709 US	12/01/1970	45	Work: +11 67 683 64073	Delete Update
Encocpnv	John	8 Yawkey Way Kogn, ID 71059 US	1500 Boylston St. Pjhnln, AK 16013 US	01/03/1958	58	Work: +11 85 157 9569182	Delete Update
Eosokiapvm	John	8 Yawkey Way Luobmg, GU 85715 US	1500 Boylston St. Ckxsewe, FL 38268 US	01/03/1960	56	Work: +11 76 100 4090356	Delete Update
Fibdptv	John	8 Yawkey Way Myqyk, VA 80611 US	1500 Boylston St. Nzilvny, PA 81252 US	01/02/1961	55	Work: +11 80 193 4276753	Delete Update
Maoibgqwe	John	8 Yawkey Way Ogsdnf, GU 49951 US	1500 Boylston St. Ejac, KS 51750 US	01/02/1963	53	Work: +11 5 365 761399	Delete Update
Precscwgez	John	8 Yawkey Way Zwnunbwkh, OK 89596 US	1500 Boylston St. Cdli, TX 17450 US	01/01/1968	48	Work: +11 85 339 4268691	Delete Update
Oquukyym	John	8 Yawkey Way Dgzkyskjq, MI 94566 US	1500 Boylston St. Vhwyzyxp, MP 19724 US	12/28/1982	33	Work: +11 26 438 5112064	Delete Update
Qvifpax	John	8 Yawkey Way Mmtrmbi, NC 93495 US	1500 Boylston St. Yckbh, KY 17262 US	12/28/1983	32	Work: +11 26 973 2279613	Delete Update
Xdpp	John	8 Yawkey Way Hylmso, OH 69859 US	1500 Boylston St. Ildultq, TX 54699 US	01/04/1955	61	Work: +11 87 324 2492799	Delete Update
Ynasvtpkbe	John	8 Yawkey Way Rahvrknrsj, VT 41319 US	1500 Boylston St. Tdawpgulk, SC 11131 US	12/29/1979	36	Work: +11 87 399 8699232	Delete Update

- j. You can modify or create just one record and see the immediate propagation. For example create a new record on **A_site_domain**. Click on **Create Contact**

Managed Coherence Servers – Contact Demo – Mozilla Firefox

localhost:7007/WebApp/faces/ContactList.jsp

DOMAIN: A_site_domain SERVER: webapp_server1, COHERENCE CLUSTER: CoherenceClusterA

Current cache size: 10 Total cluster size: 2 Total storage-enabled members: 1

Replication status: IDLE Pending Messages: 0 Total entries sent: 10

Create Contact (highlighted with a red box)

Insert 5 Random Contacts Clear Cache

Pause replication Start replication Replicate all

Last Name	First Name	Work Address	Home Address
Bvnwbznej	John	8 Yawkey Way Unxk, MA 87949 US	1500 Boylston St. Rqocwoaxk, KS 60709 US
Eanccqnv	John	8 Yawkey Way Kogr, ID 71055 US	1500 Boylston St. Pjthnl, AK 16013 US

Fill out few properties (First, Last name etc.) and click on **Save**.

Contact Details – Mozilla Firefox

localhost:7007/WebApp/faces/ContactList.jsp

ORACLE®

Contact Details

Last Name	Nagy
First Name	Peter
BirthDate	05/12/1976 (mm/dd/yyyy)
Work Address	Oracle Hungary
City	Budapest
Zip Code	1095
Address 2	Lechner odon fasor 7
State	Other
Country	Hungary
Home Address	
City	
Zip Code	
Work Phone	
Home Phone	
Cell Phone	

(Access code) (Country Code) (Area Code) (Number)

Create **Cancel**

k. In the browser you will see the new record.

The screenshot shows a Mozilla Firefox browser window with the title "Managed Coherence Servers - Contact Demo - Mozilla Firefox". The address bar displays "localhost:7007/WebApp/faces/ContactDetail.jsp". The page content includes:

- DOMAIN: A_site_domain SERVER: webapp_server1, COHERENCE CLUSTER: CoherenceClusterA**
- Current cache size: 11 Total cluster size: 2 Total storage-enabled members: 1
- Replication status: YIELDING Pending Messages: 1 Total entries sent: 11
- Buttons: Insert 5 Random Contacts, Create Contact, Clear Cache, Pause replication, Start replication, Replicate all
- A table listing contacts with columns: Last Name, First Name, Work Address, Home Address, Birth Date, Age, Phone Numbers, Actions.

In the table, the last row for "Rudy" is highlighted with a red box, indicating it is the newly added record. The "Actions" column for this row contains "Delete" and "Update" links.

Last Name	First Name	Work Address	Home Address	Birth Date	Age	Phone Numbers	Actions
Bvwzbzrje	John	8 Yawkey Way Unxk, MA 87949 US	1500 Boylston St. Rqocwoaxk, KS 60709 US	12/31/1970	45	Work: +11 67 863 64073	Delete Update
Eancqcnv	John	8 Yawkey Way Kogr, ID 71055 US	1500 Boylston St. Pjthnl, AK 16013 US	01/03/1958	58	Work: +11 85 157 9569182	Delete Update
Esoskiapvm	John	8 Yawkey Way Ltubomg, GU 85715 US	1500 Boylston St. Ckksewe, FL 38268 US	01/03/1960	56	Work: +11 76 100 4090356	Delete Update
Fibdpvt	John	8 Yawkey Way Mpyvk, VA 80611 US	1500 Boylston St. Nzlrvny, PA 81252 US	01/02/1961	55	Work: +11 80 193 4276753	Delete Update
Maobfgwzr	John	8 Yawkey Way Ondinf, GU 49651 US	1500 Boylston St. Ejac, KS 51750 US	01/02/1963	53	Work: +11 5 385 7613959	Delete Update
Rudy	Peter	Oracle Hungary Lechner János fasor 7 Budapest, null 1095 HU		05/12/1978	39		Delete Update
Petscwgze	John	8 Yawkey Way Zwurunbwkh, OK 89596 US	1500 Boylston St. Czli, TX 17450 US	01/01/1968	48	Work: +11 85 339 4268691	Delete Update
Ogukjymy	John	8 Yawkey Way Dtgzkskjwg, MI 94566 US	1500 Boylston St. Vhwzypxp, MP 19724 US	12/28/1982	33	Work: +11 43 618 5112064	Delete Update
Qvifpax	John	8 Yawkey Way Mnmlmbi, NC 93495 US	1500 Boylston St. Yckbh, KY 17262 US	12/28/1983	32	Work: +11 26 673 2279613	Delete Update
Xdpp	John	8 Yawkey Way Hylmso, OH 69859 US	1500 Boylston St. Ildjlfq, TX 54699 US	01/04/1955	61	Work: +11 87 324 2492799	Delete Update
Ynastvpkbe	John	8 Yawkey Way Rahvrknsl, VT 41319 US	1500 Boylston St. Tdawpgulk, SC 11131 US	12/29/1979	36	Work: +11 87 399 8699232	Delete Update

I. Switch to the **B_site_domain's** browser.

The screenshot shows a Mozilla Firefox (Private Browsing) browser window with the title "Managed Coherence Servers - Contact Demo - Mozilla Firefox (Private Browsing)". The address bar displays "localhost:8007/WebApp/faces/ContactList.jsp". The page content includes:

- DOMAIN: B_site_domain SERVER: webapp_server1, COHERENCE CLUSTER: CoherenceClusterB**
- Current cache size: 11 Total cluster size: 2 Total storage-enabled members: 1
- Replication status: IDLE Pending Messages: 0 Total entries sent: 29
- Buttons: Insert 5 Random Contacts, Create Contact, Clear Cache, Pause replication, Start replication, Replicate all
- A table listing contacts with columns: Last Name, First Name, Work Address, Home Address, Birth Date, Age, Phone Numbers, Actions.

In the table, the last row for "Rudy" is highlighted with a red box, indicating it is the replicated record. The "Actions" column for this row contains "Delete" and "Update" links.

Last Name	First Name	Work Address	Home Address	Birth Date	Age	Phone Numbers	Actions
Bvwzbzrje	John	8 Yawkey Way Unxk, MA 87949 US	1500 Boylston St. Rqocwoaxk, KS 60709 US	12/31/1970	45	Work: +11 67 863 64073	Delete Update
Eancqcnv	John	8 Yawkey Way Kogr, ID 71055 US	1500 Boylston St. Pjthnl, AK 16013 US	01/03/1958	58	Work: +11 85 157 9569182	Delete Update
Esoskiapvm	John	8 Yawkey Way Ltubomg, GU 85715 US	1500 Boylston St. Ckksewe, FL 38268 US	01/03/1960	56	Work: +11 76 100 4090356	Delete Update
Fibdpvt	John	8 Yawkey Way Mpyvk, VA 80611 US	1500 Boylston St. Nzlrvny, PA 81252 US	01/02/1961	55	Work: +11 80 193 4276753	Delete Update
Maobfgwzr	John	8 Yawkey Way Ondinf, GU 49651 US	1500 Boylston St. Ejac, KS 51750 US	01/02/1963	53	Work: +11 5 385 7613959	Delete Update
Rudy	Peter	Oracle Hungary Lechner János fasor 7 Budapest, null 1095 HU		05/12/1978	39		Delete Update
Petscwgze	John	8 Yawkey Way Zwurunbwkh, OK 89596 US	1500 Boylston St. Czli, TX 17450 US	01/01/1968	48	Work: +11 85 339 4268691	Delete Update
Ogukjymy	John	8 Yawkey Way Dtgzkskjwg, MI 94566 US	1500 Boylston St. Vhwzypxp, MP 19724 US	12/28/1982	33	Work: +11 43 618 5112064	Delete Update
Qvifpax	John	8 Yawkey Way Mnmlmbi, NC 93495 US	1500 Boylston St. Yckbh, KY 17262 US	12/28/1983	32	Work: +11 26 673 2279613	Delete Update
Xdpp	John	8 Yawkey Way Hylmso, OH 69859 US	1500 Boylston St. Ildjlfq, TX 54699 US	01/04/1955	61	Work: +11 87 324 2492799	Delete Update
Ynastvpkbe	John	8 Yawkey Way Rahvrknsl, VT 41319 US	1500 Boylston St. Tdawpgulk, SC 11131 US	12/29/1979	36	Work: +11 87 399 8699232	Delete Update

m. In the next scenario let's **pause** the replication between the two sites. Click on **Pause replication**. You can use either of the sites, but now e.g. let's do it on **A_site_domain**.

Coherence - Federated Cache Demo

DOMAIN: A_site_domain, SERVER: webapp_server1, COHERENCE CLUSTER: CoherenceClusterA

Current cache size: 11 Total cluster size: 2 Total storage-enabled members: 1

Replication status: PAUSED Pending Messages: 0 Total entries sent: 11

[Insert 5 Random Contacts](#) [Create Contact](#) [Clear Cache](#)

[Pause replication](#) [Start replication](#) [Replicate all](#)

Last Name	First Name	Work Address	Home Address
Bvnwbnje	John	8 Yawkey Way Unxk, MA 87949 US	1500 Boylston St. Rqocwoaxk, KS 60709 US
Eancqqnv	John	8 Yawkey Way Koqr, ID 71055 US	1500 Boylston St. Pithnl, AK 16013 US

n. Now modify a record. Click on **Update** at selected record in the list.

Coherence - Federated Cache Demo

ORACLE®

DOMAIN: A_site_domain SERVER: webapp_server1, COHERENCE CLUSTER: CoherenceClusterA

Current cache size: 11 Total cluster size: 2 Total storage-enabled members: 1

Replication status: PAUSED Pending Messages: 0 Total entries sent: 21

[Insert 5 Random Contacts](#) [Create Contact](#) [Clear Cache](#)

[Pause replication](#) [Start replication](#) [Replicate all](#)

Last Name	First Name	Work Address	Home Address	Birth Date	Age	Phone Numbers	Actions
Bbydcy	John	8 Yawkey Way Ntchcqau, GU 60551 US	1500 Boylston St. Uvhlszepn, CA 37412 US	01/01/1968	48	Work: +11 98 779 7104848	Delete Update
Jsyiz	John	8 Yawkey Way Tqyjirkon, FM 44618 US	1500 Boylston St. Yrmec, MI 81860 US	01/01/1968	48	Work: +11 95 304 4418426	Delete Update
Mghod	John	8 Yawkey Way Pcmpp, KS 59176 US	1500 Boylston St. Qltib, VT 42230 US	01/01/1967	49	Work: +11 10 644 2609835	Delete Update
Nagy	Peter	Oracle Hungary Lechner odon fasor 7 Budapest, null 1095 HU		05/12/1976	39		Delete Update
Petcscgez	John	8 Yawkey Way Zzwuanbwkh, OK 89596 US	1500 Boylston St. Czli, TX 17450 US	01/01/1968	48	Work: +11 85 339 4268691	Delete Update
Oqujkymy	John	8 Yawkey Way Dtgzkjkwg, MI 94566 US	1500 Boylston St. Vhwzypp, MP 19724 US	12/28/1982	33	Work: +11 43 618 5112064	Delete Update
Qvilkpx	John	8 Yawkey Way Mmtjmmbi, NC 93495 US	1500 Boylston St. Yckbh, KY 17262 US	12/28/1983	32	Work: +11 26 973 2279613	Delete Update
Qvpvr	John	8 Yawkey Way Eldfvs, WY 07961 US	1500 Boylston St. Nupdmi, NM 09413 US	01/02/1964	52	Work: +11 15 827 1553270	Delete Update
Sntkdg	John	8 Yawkey Way Eklygtus, CA 59310 US	1500 Boylston St. Bwrkyau, ME 06178 US	12/28/1983	32	Work: +11 28 863 3567591	Delete Update
Xdpp	John	8 Yawkey Way Hylmso, OH 69859 US	1500 Boylston St. Idjutq, TX 54699 US	01/04/1955	61	Work: +11 87 324 2492799	Delete Update
Ynasvtpkbe	John	8 Yawkey Way Rahvrknsl, VT 41319 US	1500 Boylston St. Tdawpgulk, SC 11131 US	12/29/1979	36	Work: +11 87 399 8699232	Delete Update

o. Make changes on the record. Then click on **Save**.

Contact Details – Mozilla Firefox

Last Name: Nagy
First Name: Peter
BirthDate: 05/12/1976 (mm/dd/yyyy)
Work Address: Oracle Hungary
City: Budapest
Zip Code: 1095
Home Address: Budenz 2
City: Budapest
Zip Code: 1021
Work Phone:
Home Phone:
Cell Phone:
Address 2: Lechner odon fasor 7
State: Other
Country: Hungary
Address 2: (mm/dd/yyyy)
State: Other
Country: Hungary
(Access code) (Country Code) (Area Code) (Number)

Save **Cancel**

p. In the list you can see the updated record with red background.

Managed Coherence Servers - Contact Demo – Mozilla Firefox

DOMAIN: A_site_domain SERVER: webapp_server1, COHERENCE CLUSTER: CoherenceClusterA

Current cache size: 11 Total cluster size: 2 Total storage-enabled members: 1

Replication status: PAUSED Pending Messages: 1 Total entries sent: 21

Insert 5 Random Contacts Create Contact Clear Cache

Pause replication Start replication Replicate all

Last Name	First Name	Work Address	Home Address	Birth Date	Age	Phone Numbers	Actions
Bbxydcyc	John	8 Yawkey Way Nnchqqua, GU 60551 US	1500 Boylston St. Uvhlszepn, CA 37412 US	01/01/1968	48	Work: +11 98 779 7104848	Delete Update
Jsytz	John	8 Yawkey Way Tqqyjirkn, FM 44618 US	1500 Boylston St. Yrcmc, MI 81860 US	01/01/1968	48	Work: +11 95 304 4418426	Delete Update
Mghod	John	8 Yawkey Way Pcmpp, KS 59176 US	1500 Boylston St. Qltb, VT 42230 US	01/01/1967	49	Work: +11 10 644 2609835	Delete Update
Nagy	Peter	Oracle Hungary Lechner odon fasor 7 Budapest, null 1095 HU	Budenz 2 Budapest, null 1021 HU	05/12/1976	39		Delete Update
Petscwgez	John	8 Yawkey Way Zwwunwbxh, OK 89596 US	1500 Boylston St. Czli, TX 17450 US	01/01/1968	48	Work: +11 85 339 4268691	Delete Update
Qgjujkymy	John	8 Yawkey Way Dtgzkskjwg, MI 94566 US	1500 Boylston St. Vhwzypx, MP 19724 US	12/28/1982	33	Work: +11 43 618 5112064	Delete Update
Qvlpax	John	8 Yawkey Way Mmtrjmbi, NC 93495 US	1500 Boylston St. Yckbh, KY 17262 US	12/28/1983	32	Work: +11 26 973 2279613	Delete Update
Qvpvlr	John	8 Yawkey Way Eldfvo, WY 07961 US	1500 Boylston St. Nupdmi, NM 09413 US	01/02/1964	52	Work: +11 15 827 1553270	Delete Update
Sntkdg	John	8 Yawkey Way Ekygtus, CA 59310 US	1500 Boylston St. Bwrkyau, ME 06178 US	12/28/1983	32	Work: +11 28 863 3567591	Delete Update
Xdpp	John	8 Yawkey Way Hylmso, OH 69859 US	1500 Boylston St. Ildjuft, TX 54699 US	01/04/1955	61	Work: +11 87 324 2492799	Delete Update
Ynasvtpkbe	John	8 Yawkey Way Rahvrknrsj, VT 41319 US	1500 Boylston St. Tdawpgulk, SC 11131 US	12/29/1979	36	Work: +11 87 399 8699232	Delete Update

Please notice the **Pending Messages** indicator which shows the currently pending messages to be executed on the other participant in federated cache.

q. Before restart of the replication check the other site's records.

Managed Coherence Servers - Contact Demo - Mozilla Firefox (Private Browsing)

DOMAIN: B_site_domain SERVER: webapp_server1, COHERENCE CLUSTER: CoherenceClusterB

Current cache size: 11 Total cluster size: 2 Total storage-enabled members: 1

Replication status: IDLE Pending Messages: 0 Total entries sent: 29

Insert 5 Random Contacts Create Contact Clear Cache

Pause replication Start replication Replicate all

Last Name	First Name	Work Address	Home Address	Birth Date	Age	Phone Numbers	Actions
Bixdycy	John	8 Yawkey Way Nnchqquau, GU 60551 US	1500 Boylston St. Uvhiszepn, CA 37412 US	01/01/1968	48	Work: +11 98 779 7104848	Delete Update
Jaylz	John	8 Yawkey Way Tqyjilikon, FM 44618 US	1500 Boylston St. Yrcmec, MI 81860 US	01/01/1968	48	Work: +11 95 304 4418426	Delete Update
Mghod	John	8 Yawkey Way Pcmpp, KS 59176 US	1500 Boylston St. Qttlb, VT 42230 US	01/01/1967	49	Work: +11 10 644 2609835	Delete Update
Nagy	Peter	Oracle Hungary Lechner odon fasor 7 Budapest, null 1095 HU		05/12/1976	39		Delete Update
Petscwez	John	8 Yawkey Way Zwununbwih, OK 89596 US	1500 Boylston St. Czli, TX 17450 US	01/01/1968	48	Work: +11 85 339 4268691	Delete Update
Qquikmy	John	8 Yawkey Way Dtzkskjqwg, MI 94566 US	1500 Boylston St. Vhwzyppx, MP 19724 US	12/28/1982	33	Work: +11 43 618 5112064	Delete Update
Qvifpax	John	8 Yawkey Way Mmijmibi, NC 93495 US	1500 Boylston St. Yckih, KY 17262 US	12/28/1983	32	Work: +11 26 973 2279613	Delete Update
Qvqlr	John	8 Yawkey Way Eldfuso, WY 07961 US	1500 Boylston St. Nupdmi, NM 09413 US	01/02/1964	52	Work: +11 15 827 1553270	Delete Update
Sndkg	John	8 Yawkey Way Eklytus, CA 59310 US	1500 Boylston St. Brwkyau, ME 06178 US	12/28/1983	32	Work: +11 28 863 3567591	Delete Update
Xdpp	John	8 Yawkey Way Hyfimo, OH 69859 US	1500 Boylston St. Idljhu, TX 54699 US	01/04/1955	61	Work: +11 87 324 2492799	Delete Update
Ynasvptkbe	John	8 Yawkey Way Rahvknrsj, VT 41319 US	1500 Boylston St. Tdawpguik, SC 11131 US	12/29/1979	36	Work: +11 87 399 8699232	Delete Update

You should see the selected record without any changes what was made on the A_site_domain.

r. Restart the replication by clicking on **Start replication** button on the A_site_domain.

Managed Coherence Servers - Contact Demo - Mozilla Firefox (Private Browsing)

DOMAIN: A_site_domain SERVER: webapp_server1, COHERENCE CLUSTER: CoherenceClusterA

Current cache size: 8 Total cluster size: 2 Total storage-enabled members: 1

Replication status: PAUSED Pending Messages: 3 Total entries sent: 11

Insert 5 Random Contacts Create Contact Clear Cache

Pause replication **Start replication** Replicate all

Last Name	First Name	Work Address	Home Address
Fibdptv	John	8 Yawkey Way Mqyvk, VA 80611 US	1500 Boylston St. Nzilrvny, PA 81
Maobfgqwr	John	8 Yawkey Way Ogsdjnf, GU 49651 US	1500 Boylston St. Ejtac, KS 51750

- s. Switch to the B_site_domain's (private) browser and check the result. You should see the updated records with the correct values.

Managed Coherence Servers – Contact Demo – Mozilla Firefox (Private Browsing)

DOMAIN: **B_site_domain**, SERVER: webapp_server1, COHERENCE CLUSTER: CoherenceClusterB

Current cache size: 11 Total cluster size: 2 Total storage-enabled members: 1

Replication status: IDLE Pending Messages: 0 Total entries sent: 29

Buttons: Insert 5 Random Contacts, Create Contact, Clear Cache, Pause replication, Start replication, Replicate all

Last Name	First Name	Work Address	Home Address	Birth
Bbxydcy	John	8 Yawkey Way Ntchqqua, GU 60551 US	1500 Boylston St. Uhlszepn, CA 37412 US	01/01
Jsyylz	John	8 Yawkey Way Tqyjirkon, FM 44618 US	1500 Boylston St. Yrcmec, MI 81860 US	01/01
Mghod	John	8 Yawkey Way Pcmpp, KS 59176 US	1500 Boylston St. Qltib, VT 42230 US	01/01
Nagy	Peter	Oracle Hungary Lechner odon fasor 7 Budapest, null 1095 HU	Budenz 2 Budapest, null 1021 HU	05/12
Petscwgez	John	8 Yawkey Way Zwwuunbwkh, OK 89596 US	1500 Boylston St. Czli, TX 17450 US	01/01
Qquikmy	John	8 Yawkey Way Dtgzskskjwg, MI 94566 US	1500 Boylston St. Vhwzypxp, MP 19724 US	12/28
Qvifpax	John	8 Yawkey Way Mmtjrmbl, NC 93495 US	1500 Boylston St. Yckbh, KY 17262 US	12/28
Qvpvrl	John	8 Yawkey Way Eldfvs, WY 07961 US	1500 Boylston St. Nupdmi, NM 09413 US	01/02
Sntkdg	John	8 Yawkey Way Ekfygtus, CA 59310 US	1500 Boylston St. Bwrkxyau, ME 06178 US	12/28
Xdpp	John	8 Yawkey Way Hyrlmso, OH 69859 US	1500 Boylston St. Ildjuftq, TX 54699 US	01/04
Ynasvtpkbe	John	8 Yawkey Way Rahvrknrsj, VT 41319 US	1500 Boylston St. Tdawpgulk, SC 11131 US	12/25

Clean Up:

The objective of this step is to clean up the environment after Coherence federated cache demo. Please make sure that you have done because the clean up script will stop all server instances including node managers and delete the domains. To completely stop and remove the demo carries out the following:

- Open a new terminal window.
- cd /u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/Coherence.Federated.Cache/cleanup/
- Run the following script to remove the two domains: **./removeDomains.sh**

The script will shut down all server processes and the node managers. Finally deletes the domain folders

Troubleshooting

If any of the applications fail to start or behave unexpectedly. Redeploy the application and restart the servers.

- Go back to the terminal.
- /u01/content/weblogic-innovation-seminars/WInS_Demos/CA-Workshop/Coherence.Federated.Cache/setup/troubleshoot.sh**

This script takes 8-10 minutes. It undeploys the applications from both the domain, then stop AdminServer, cache_server1 and webapp_server1 in both the domain. Then it starts this server and deploys the application to respective server as described in architecture diagram.

Appendix

This section is to provide you help if you already run this workshop once, and only interested to showcase any specific features or any specific lab. We created few scripts about which the description is given below

In Zero Downtime Patching Lab:

Configure_start_OTD.sh: This script starts the node manager in otd_domain, then it starts admin server, and creates otd configuration in otd_domain, and starts load balancer in otd_domain. In each Domain1221 in all three nodes, it starts the node manager, then it starts the admin server in ma node, then it starts the Cluster. In Admin Console, You need “Customize the table” to show Java Version and WebLogic Version, then you can proceed with all type of roll out.

Clean_ZDT_env.sh: If you used the above script to start node manager and servers, then you can use this script to clean the environment. You can also use this script if you use the start nodemanager and admin server section in the lab.

In Cross Domain Transaction Recovery Lab:

cdtr_demo.sh: