

WebLogic Multitenancy Workshop

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INTRODUCTION:

Multitenancy in WebLogic Server provides a sharable infrastructure for use by client organizations (tenants). By allowing one domain to support multiple tenants, WLS MT improves density and achieves a more efficient use of resources while eliminating the trade-offs that are traditionally made in a shared environment: Isolation issues. Multitenancy essentially creates the tension between isolation and sharing. Isolation separates both the administration and runtime of different tenants from each other, where resource sharing among tenants improves efficiency and reduces operation costs.

Domain Partition:

WebLogic Server MT provides resource isolation with in domain partitions, an administrative and runtime slice of a WebLogic domain that is dedicated to running application instances and related resources for a tenant. Domain Partition achieve greater density by allowing application instances and related resources to share the domain, WebLogic Server itself, the Java virtual machine, and the operating system while isolating tenant specific application data, configuration, and runtime traffic. Each domain partition has its own runtime copy of the application and resources.

Resource Groups:

WLS MT introduces resource groups, simply as a convenient way to group together Java EE applications and the resources they use into a distinct administrative unit within the domain. The resources and applications are “fully qualified” in that administrator provides all information needed to start or connect to those resources, including credentials for connecting to data source and targeting information for Java EE application. A resource group will either contain these deployable resources directly or refer to a resource group templates which contain the resources. Resource group can be defined at the domain level, or be specific to domain partition.

All the resources in or referenced by a resource group are targeted together (to the same target). Resource group can be started and stopped.

Virtual Target:

Encapsulate where a partition or resource group runs and how to route traffic to them, including addresses, protocol settings, and targeting, Request routing is determined by the host name and optional URI.

May Include:-

- Host name and port
- Optional URI
- Network Access Point or Channel
- Protocol specific configuration
 - T3, IIOP
 - Web Server
- Target Clusters and managed servers

Note: This Hands-on Lab uses pre-release version of WebLogic Server 12.2.1, so few screen shot may differ when you use GA version of WebLogic Server 12.2.1.

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	/u01/java/jdk1.8.0_60/
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/MT-Workshop/
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Prerequisite:

Before Executing this Lab Guide, Please make sure you followed the Guide **VirtualBoxSetupGuide.docx**. And you already installed WebLogic Server 12.2.1 in **/u01/wins/wls1221** directory and OTD in **collocated** mode in same location and you have JDK 1.8.0_60 in **/u01/java**.

LAB 1: DOMAIN CREATION AND NON-MT CONFIG

Overview

In this lab, we are going to perform the below operations.

- We create an OTD domain; in that domain we create a machine and OTD configuration.
- We create a WebLogic domain, In that domain we create machine, dynamic cluster and also we register an OTD runtime.

Start the database

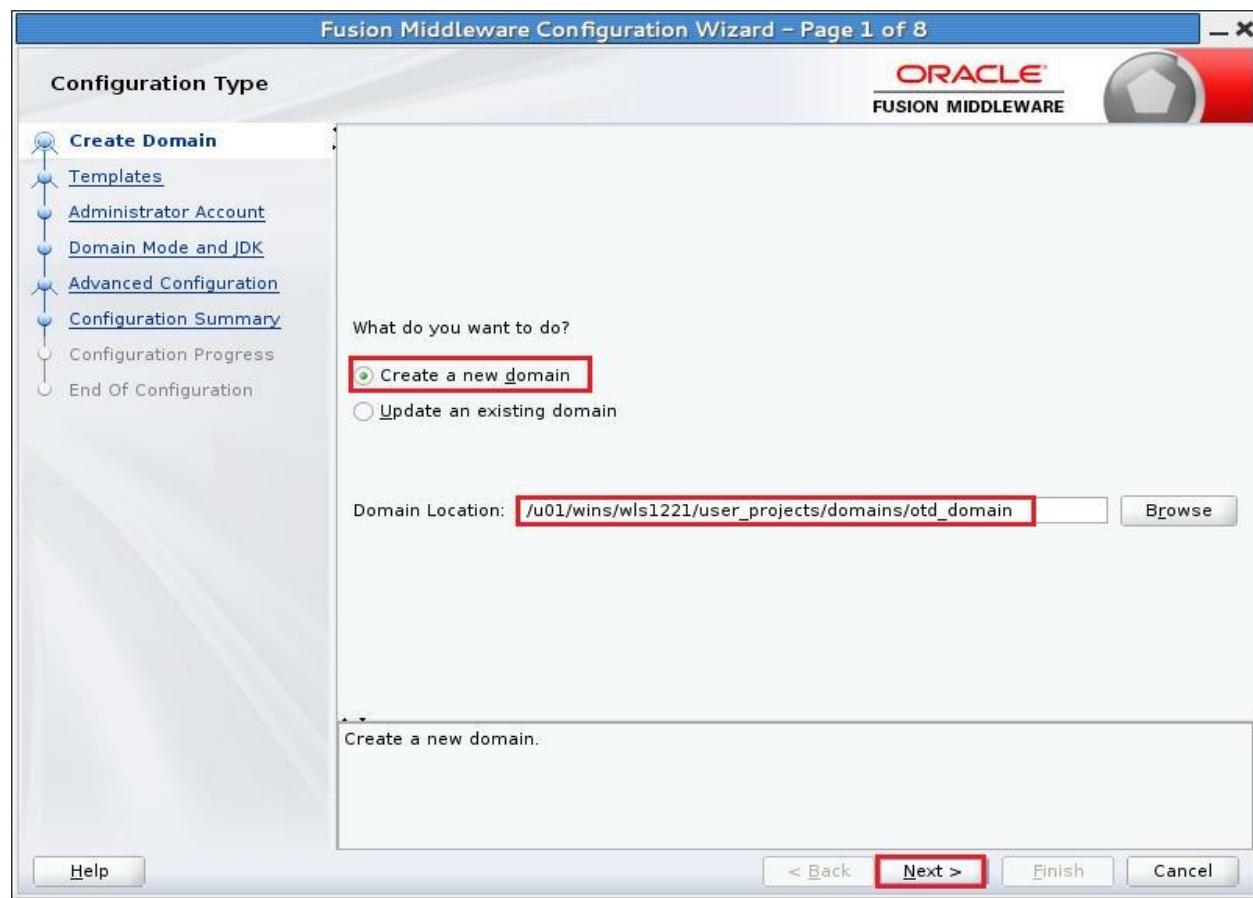
We have two Pluggable database pdborcl and pdb2; we are going to start both the database.

- a. Open a terminal.
- b. cd /u01/content/weblogic-innovation-seminars/WInS_Demos/MT-Workshop/Lab1/
- c. ./startDB.sh

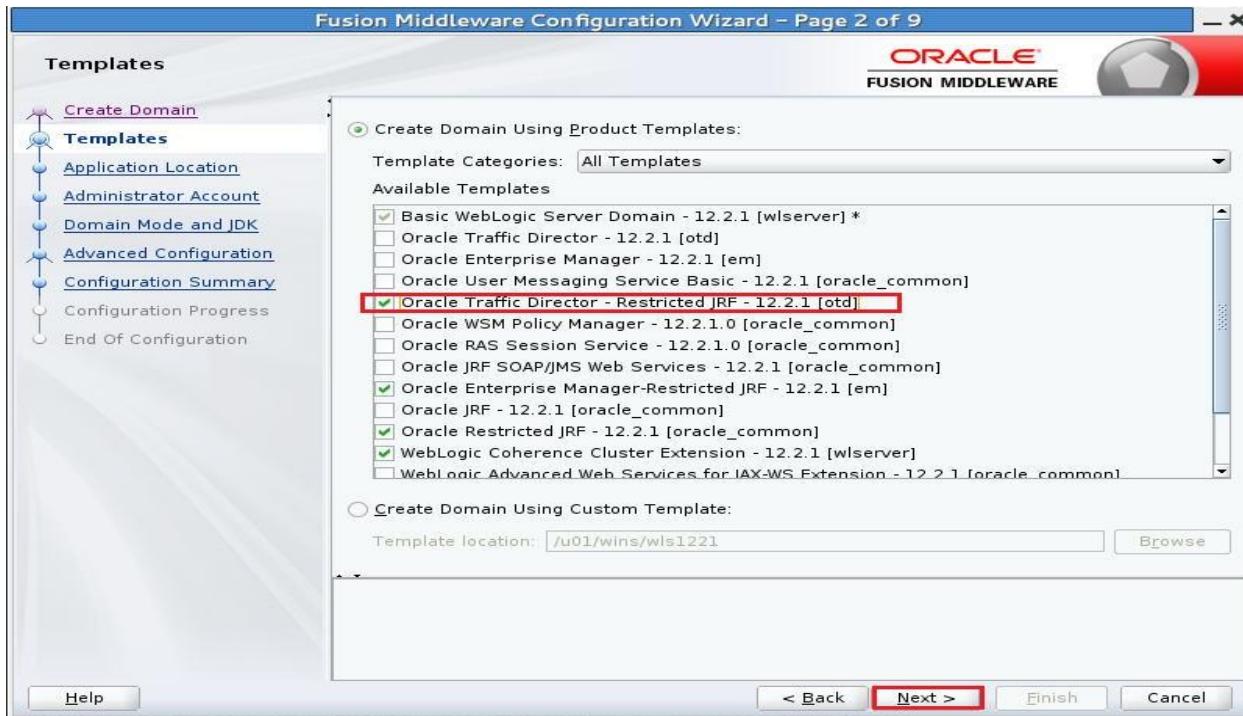
Note: Wait until you see the bash prompt.

Create OTD Restricted JRF Domain

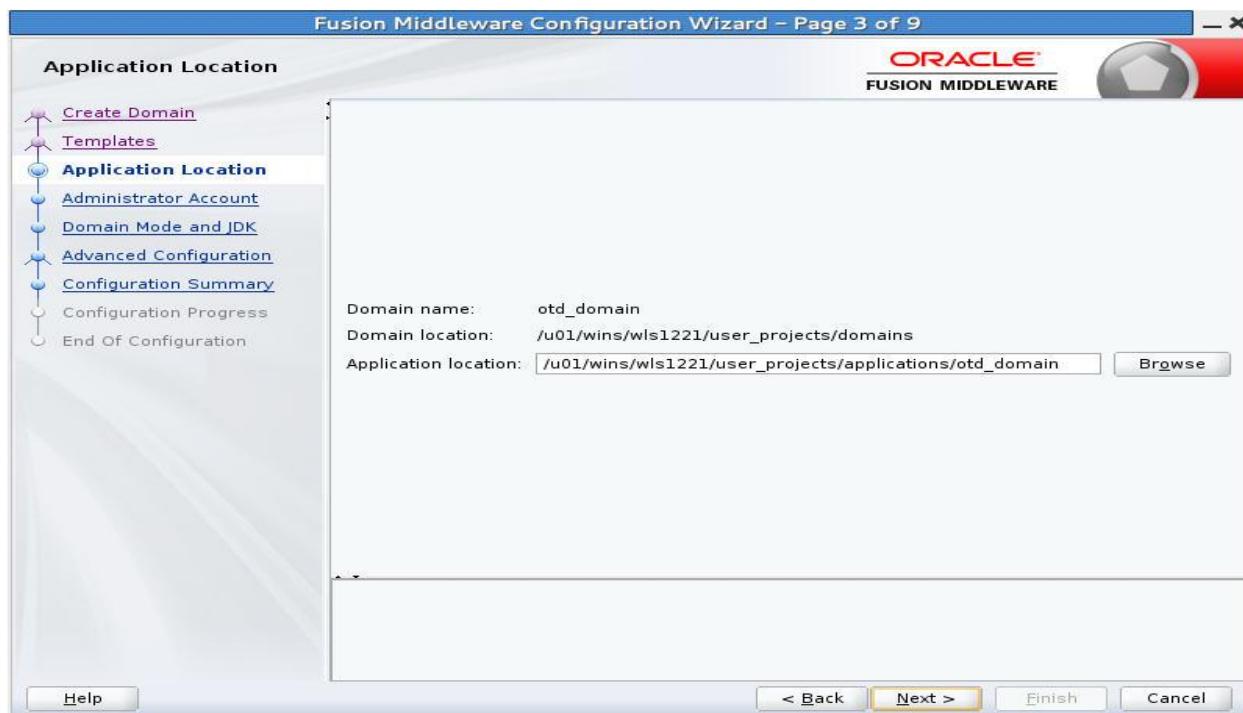
- a. cd /u01/wls/wls1221/oracle_common/common/bin/
- b. ./config.sh
- c. Select “Create a new domain” and enter
“/u01/wls/wls1221/user_projects/domains/otd_domain” as Domain Location then Click on Next.



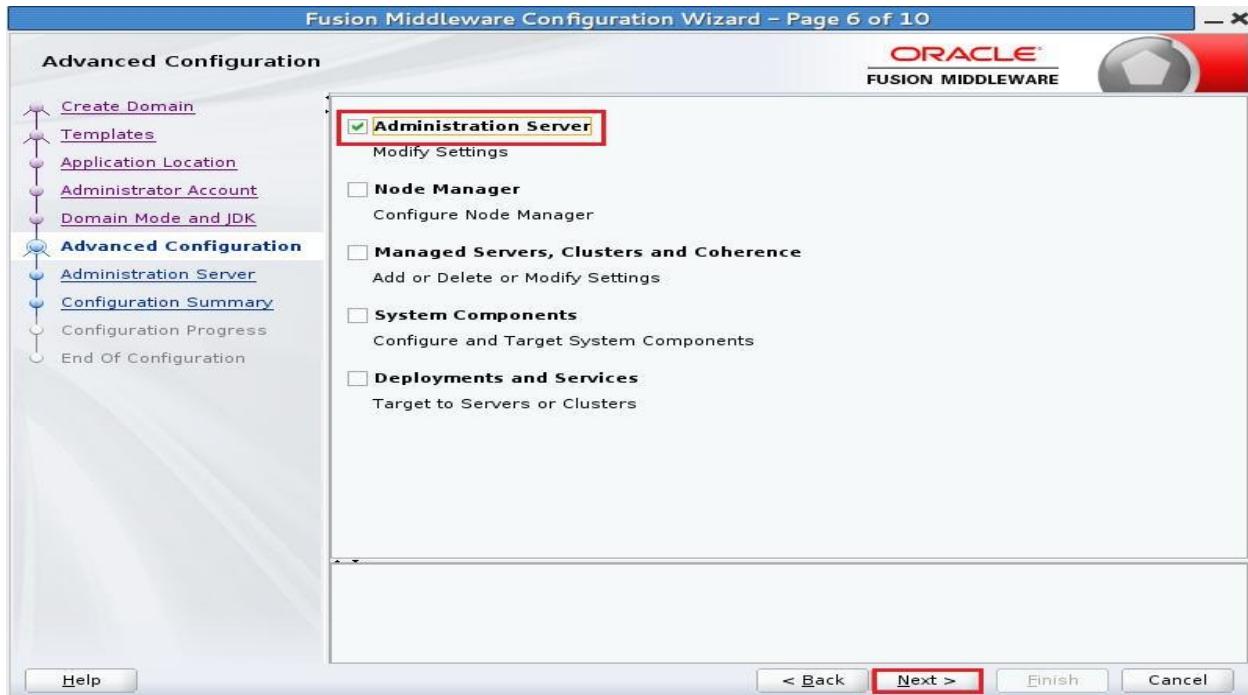
- d. Enter “**Oracle Traffic Director- Restricted JRF**” Template as it also selects other required template then Click on Next.



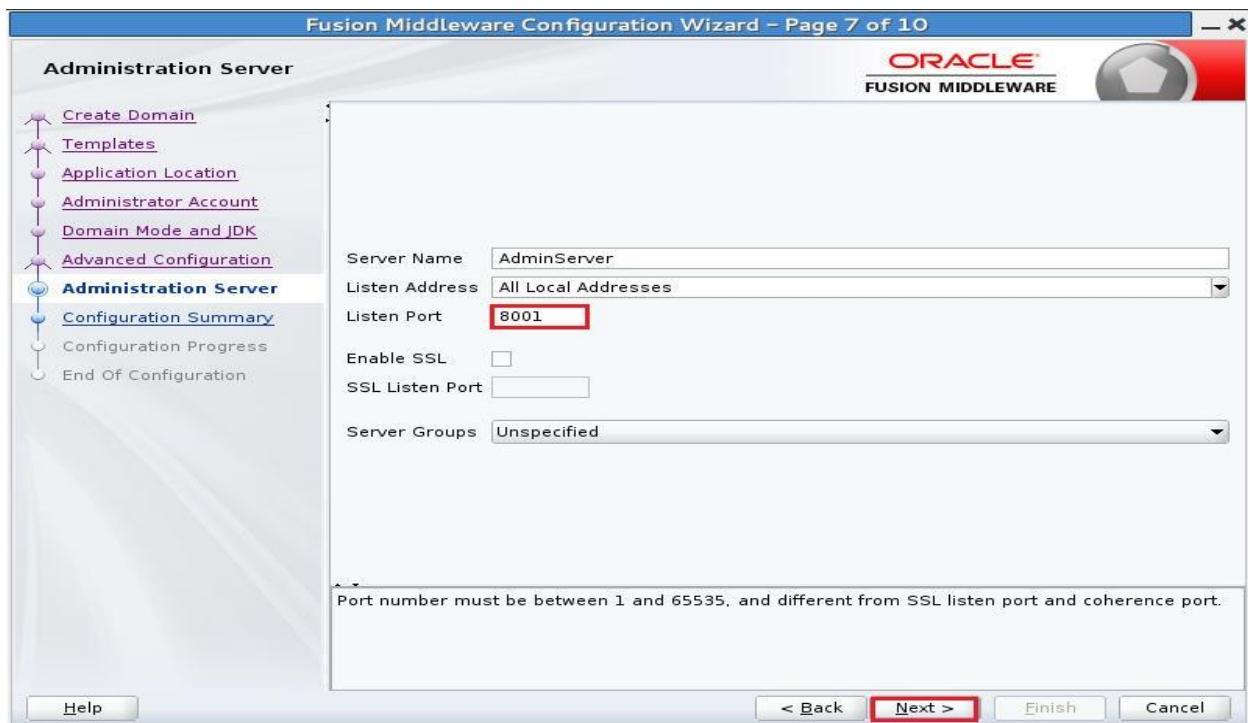
- e. Enter “/u01/wins/wls1221/user_projects/applications/otd_domain” as Application Location then Click on Next.



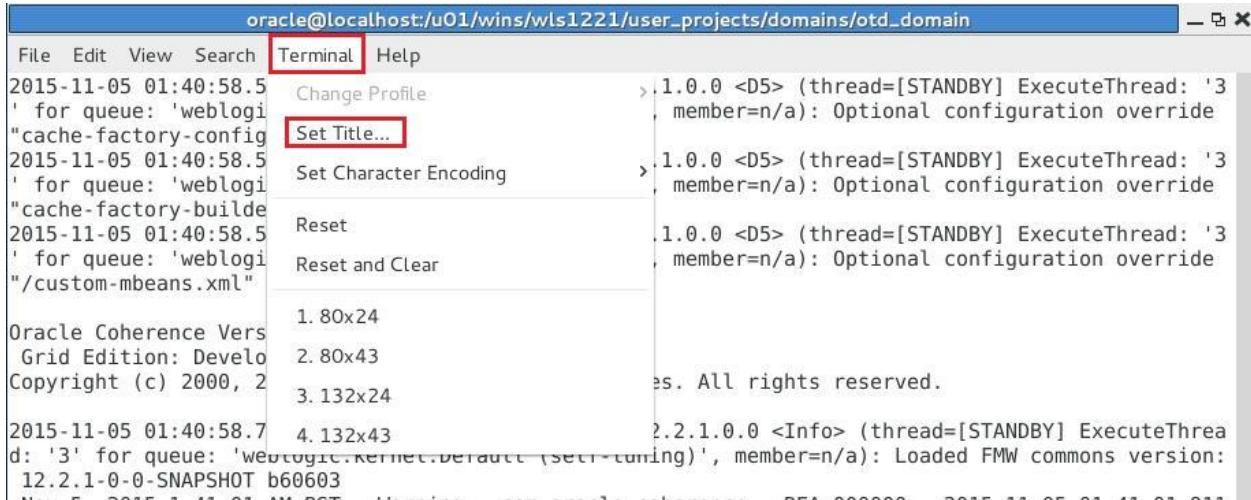
- f. Enter “**weblogic/welcome1**” as **Username/Password** then Click on Next.
- g. Leave Default in **Domain Mode and JDK** then Click on Next.
- h. In **Advanced Configuration**, Select the box near **Administration Server** then Click on Next.



- i. Change Listen port to **8001** then click on Next.



- j. Click on **Create**.
- k. Click on **Next** then Click on **Finish**.
- l. cd /u01/wins/wls1221/user_projects/domains/otd_domain/
- m. ./startWebLogic.sh
- n. In terminal, Click on **Terminal -> Set Title**. Enter **otd_admin** as Title then click on OK.

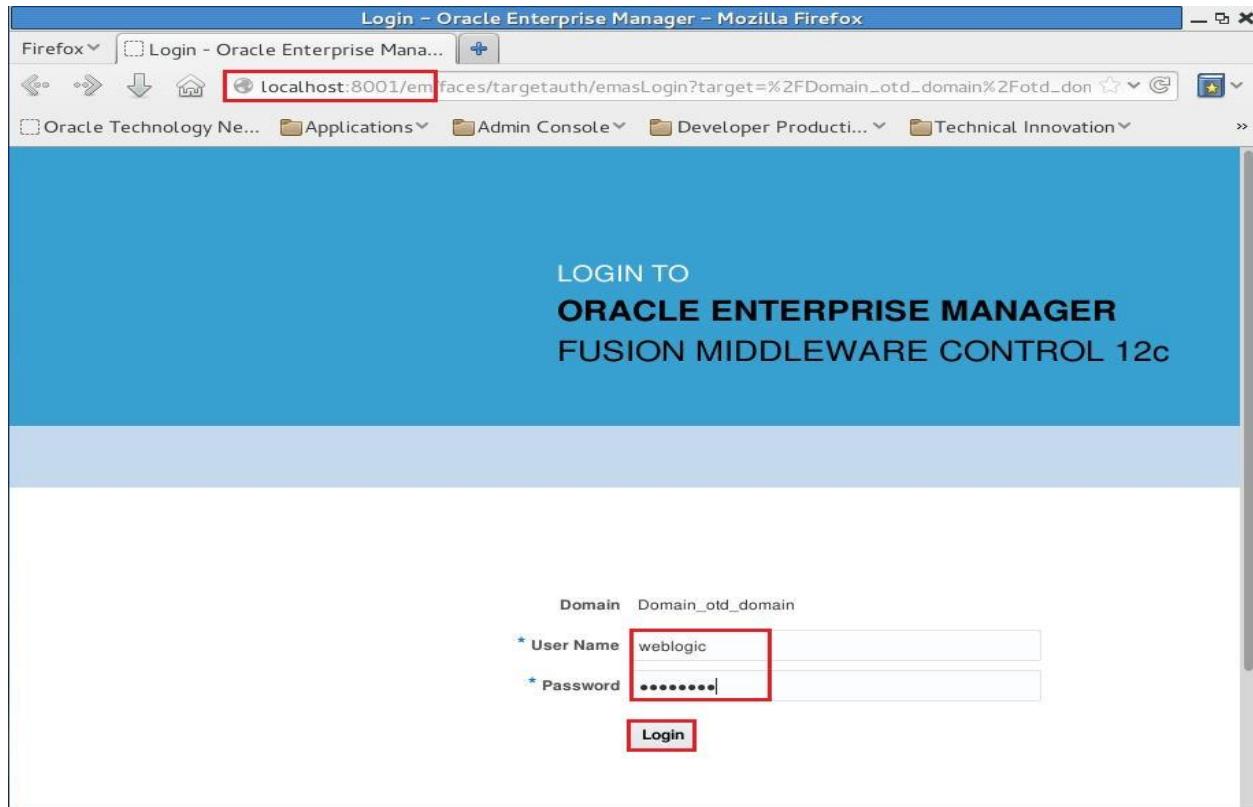


- o. Open a New terminal.
- p. cd /u01/wins/wls1221/user_projects/domains/otd_domain/
- q. vi nodemanager/nodemanager.properties
- r. Change Listen Port to 5557 then save the file and close it.

```
#Node manager properties
#Thu Nov 05 01:39:36 PST 2015
DomainsFile=/u01/wins/wls1221/user_projects/domains/otd_domain/nodemanager/nodemanager.domains
LogLimit=0
PropertiesVersion=12.2.1
AuthenticationEnabled=true
NodeManagerHome=/u01/wins/wls1221/user_projects/domains/otd_domain/nodemanager
JavaHome=/u01/java/jdk1.8.0_60
LogLevel=INFO
DomainsFileEnabled=true
StartScriptName=startWebLogic.sh
ListenAddress=localhost
NativeVersionEnabled=true
ListenPort=5557
LogIostderr=true
SecureListener=true
LogCount=1
StopScriptEnabled=false
QuitEnabled=false
LogAppend=true
StateCheckInterval=500
CrashRecoveryEnabled=false
StartScriptEnabled=true
LogFile=/u01/wins/wls1221/user_projects/domains/otd_domain/nodemanager/nodemanager.log
LogFormatter=weblogic.nodemanager.server.LogFormatter
ListenBacklog=50
```

- s. bin/startNodeManager.sh
- t. In terminal, Click on **Terminal -> Set Title**. Enter **otd_nm** as Title then click on OK.

- u. Go to Firefox and type the Fusion Middleware Control URL <http://localhost:8001/em> .
- v. Enter “weblogic/welcome1” as Username/Password then click on Login.



- w. Create a Machine.
 - i. Click on **WebLogic Domain ->Environment ->Machines**.

The screenshot shows the Oracle Enterprise Manager interface for a "WebLogic Domain". The left sidebar has sections for "Server", "Cluster", and "Deployment". Under "WebLogic Domain", the "Environment" link is highlighted in red. The right panel displays a "Machine" configuration for the "Admin Server". The "Machines" link in the sub-navigation is also highlighted in red. A table lists the machine details:

Domain	Machine	State
OTD Runtime	OTD Runtime	Running

At the bottom of the table, it says "Servers 1 of 1".

- ii. Click on Create, Enter “**otd_machine**” as Name and “**Unix**” as Machine OS then Click on Next.

The screenshot shows the Oracle Enterprise Manager interface for creating a machine. The top navigation bar says "ORACLE Enterprise Manager Fusion Middleware Control 12c". Below it, a progress bar shows "otd_domain" with three steps: "Machine Identity" (selected), "Node Manager Properties", and "Review". The main content area is titled "Create a Machine: Machine Identity". It contains fields for "Name" (set to "otd_machine") and "Machine OS" (set to "Unix"). At the bottom right are buttons for "Back", "Step 1 of 3", "Next" (highlighted with a red box), "Create", and "Cancel".

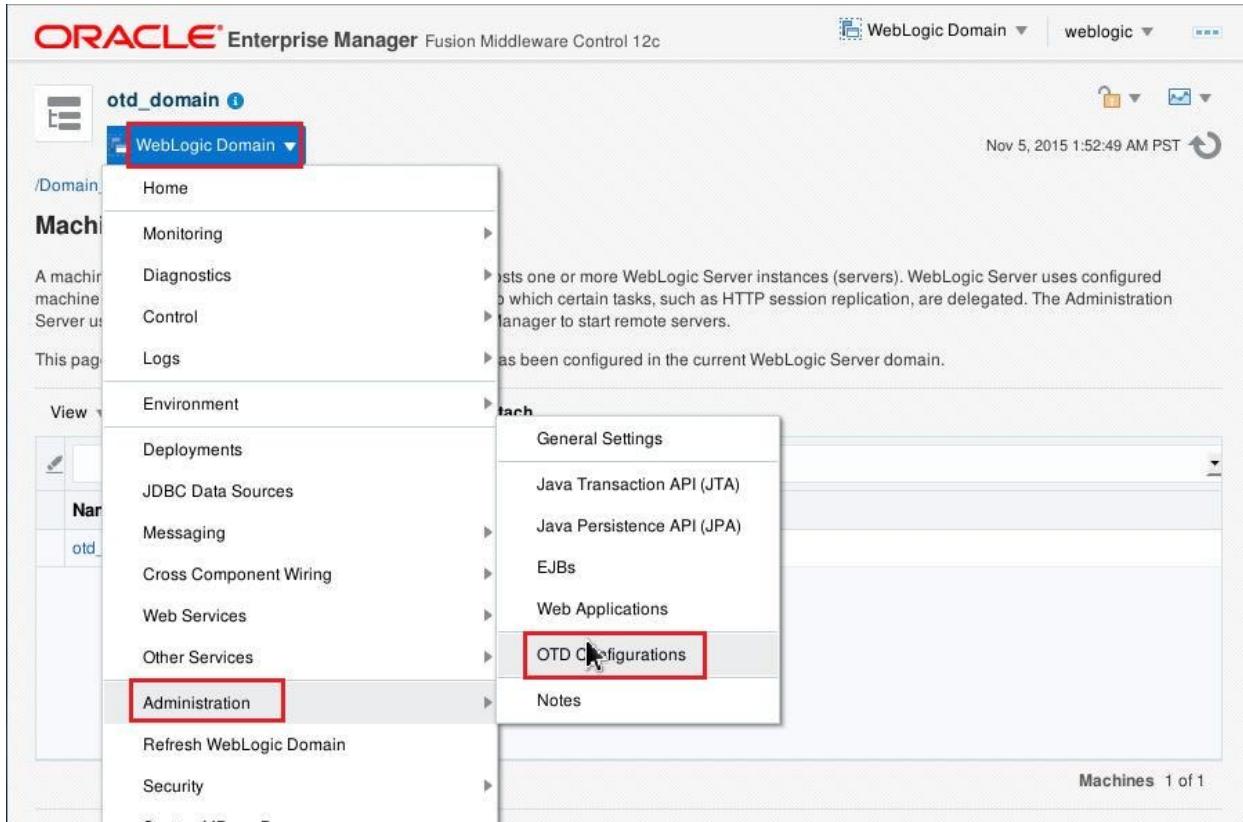
- iii. Change Listen Port to **5557** then Click on Next.

The screenshot shows the Oracle Enterprise Manager interface for creating a machine, specifically the "Node Manager Properties" step. The top navigation bar and progress bar are identical to the previous screenshot. The main content area is titled "Create a Machine: Node Manager Properties". It includes a note about configuring Node Manager for Managed Servers. Below are fields for "Node Manager Type" (set to "SSL") and "Listen Address" (set to "localhost"). The "Listen Port" field is highlighted with a red box and contains the value "5557". At the bottom right are buttons for "Back", "Step 2 of 3", "Next" (highlighted with a red box), "Create", and "Cancel".

- iv. Click on **Create**.

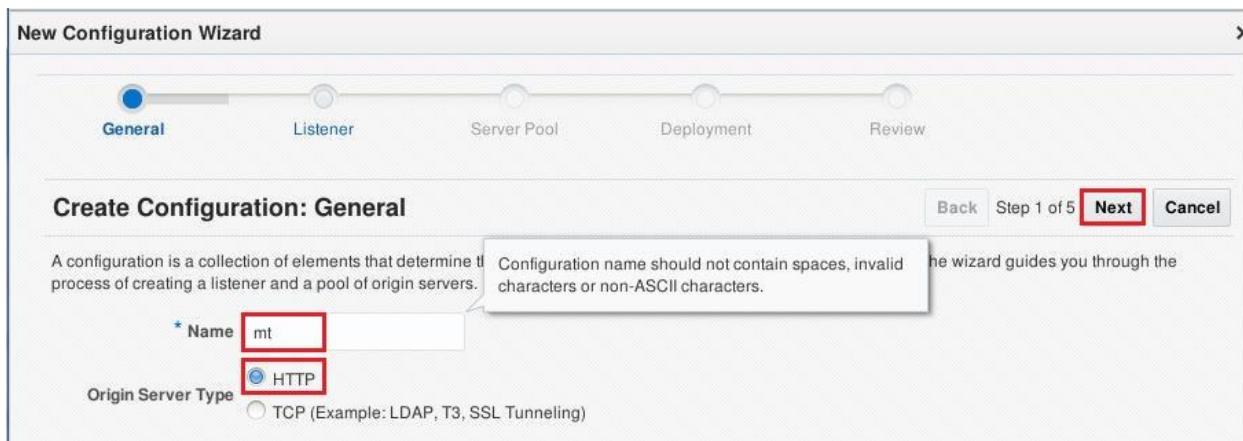
x. Create an OTD Configuration.

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



ii. Click on Create.

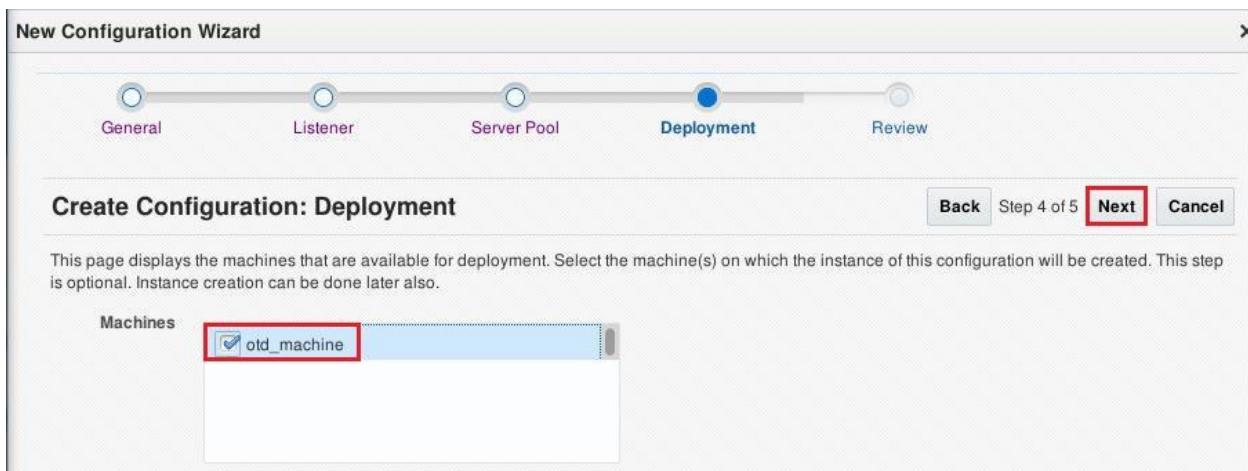
iii. Enter "mt" as Name and "HTTP" as Origin Server Type then click on Next.



iv. Leave Default in "Create Configuration: Listener" then click on Next.

v. Leave Default in "Create Configuration: Server Pool" then click on Next.

vi. Select the "otd_machine" then click on Next.



- vii. Click on “Create Configuration”.
- viii. Check the box near “mt” to make it highlighted and then click on **Start Instances**. Click on Close.

ORACLE® Enterprise Manager Fusion Middleware Control 12c

WebLogic Domain ▾ weblogic ▾ ...

Nov 5, 2015 2:00:12 AM PST

otd_domain ⓘ

WebLogic Domain ▾

i Information

Successfully created configuration "mt".

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

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.

Configuration Name	Target Full Name
mt	/Domain_otd_domain/otd_domain/mt

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

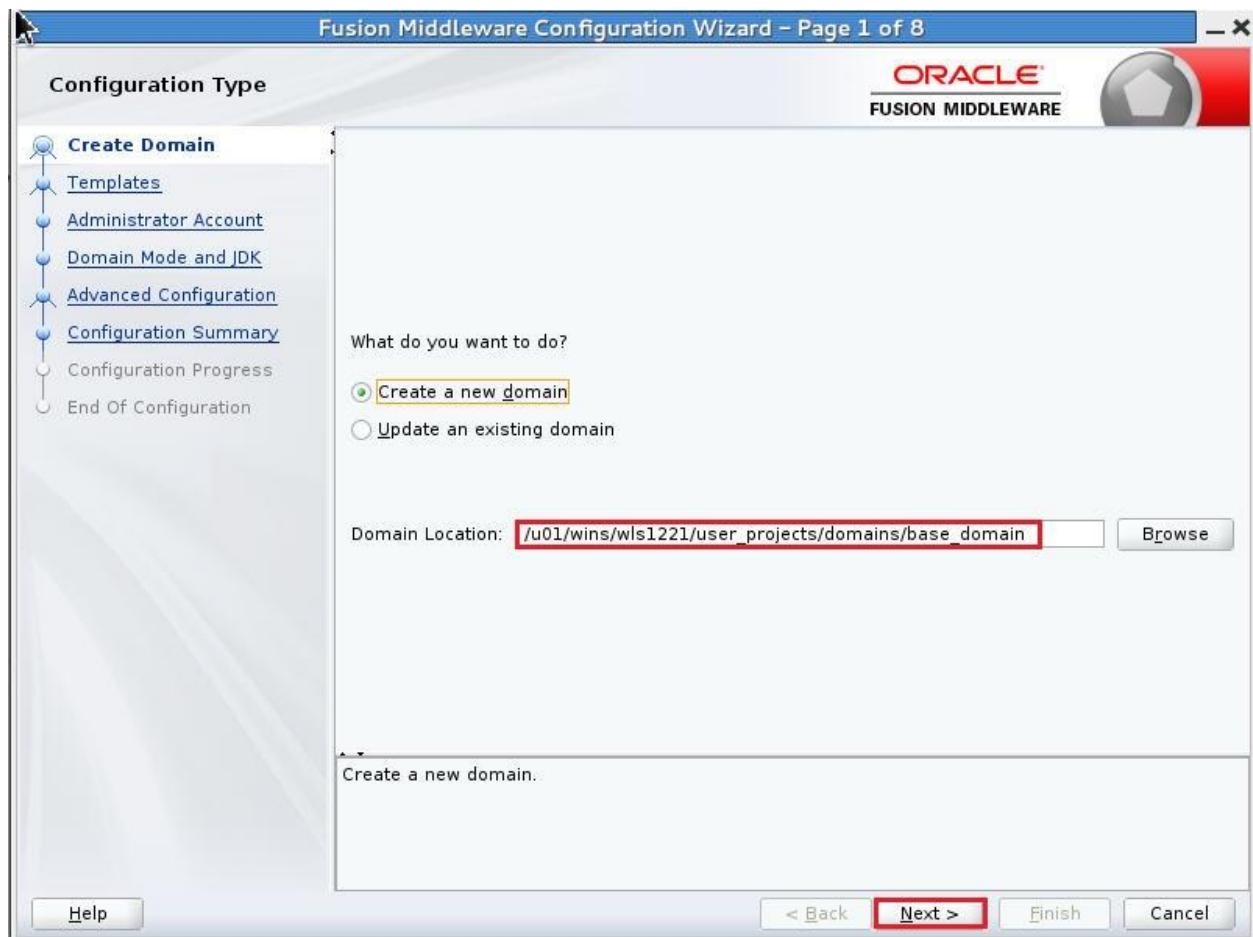


Note: Go to Firefox and type the URL <http://localhost:8080/> to verify that server is listening.

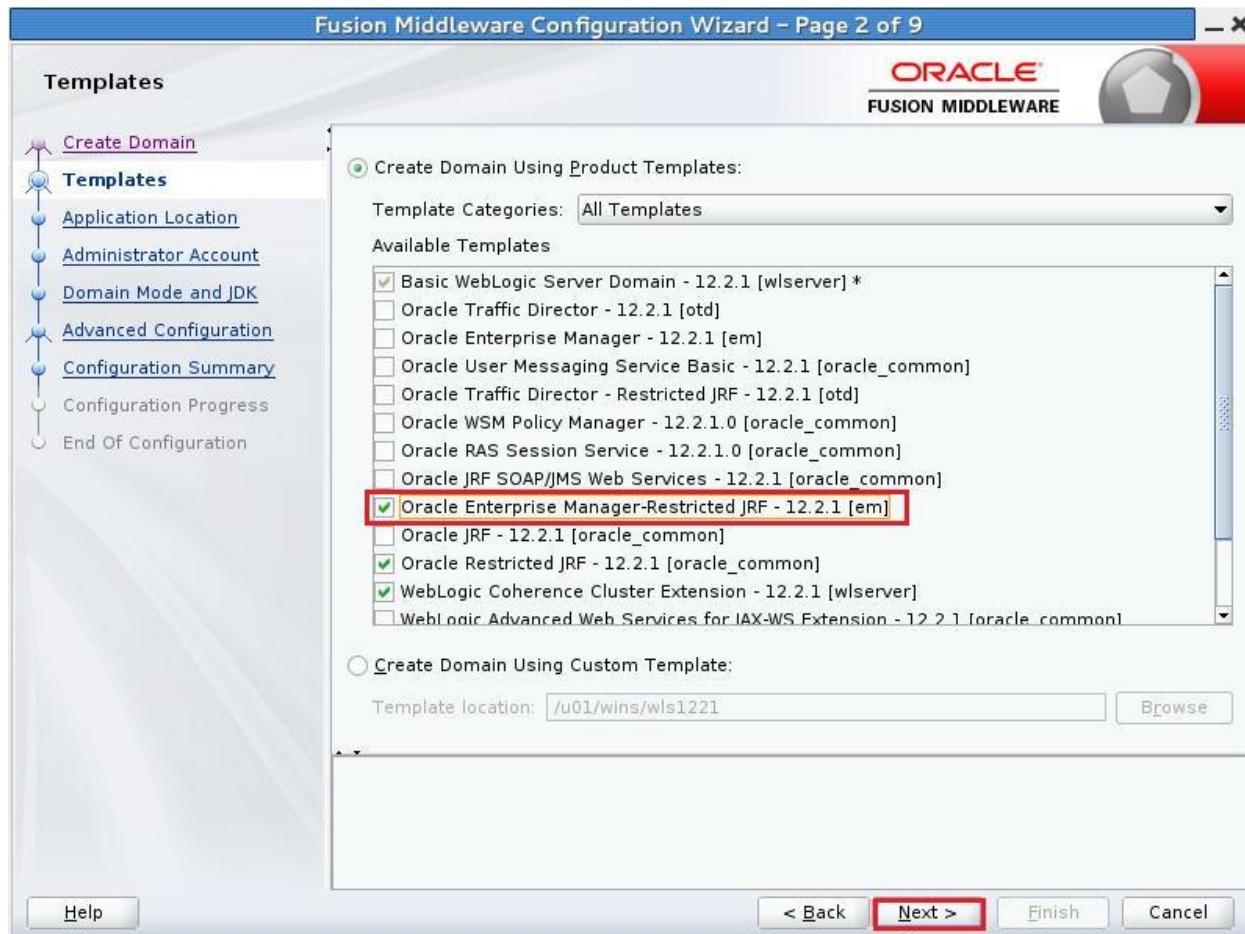


Create WebLogic Restricted JRF Domain

- a. Open a new terminal.
- b. cd /u01/wins/wls1221/oracle_common/common/bin/
- c. ./config.sh
- d. Select “**Create a new domain**” and Enter
“/u01/wins/wls1221/user_projects/domains/base_domain” as Domain Location then click on **Next**.



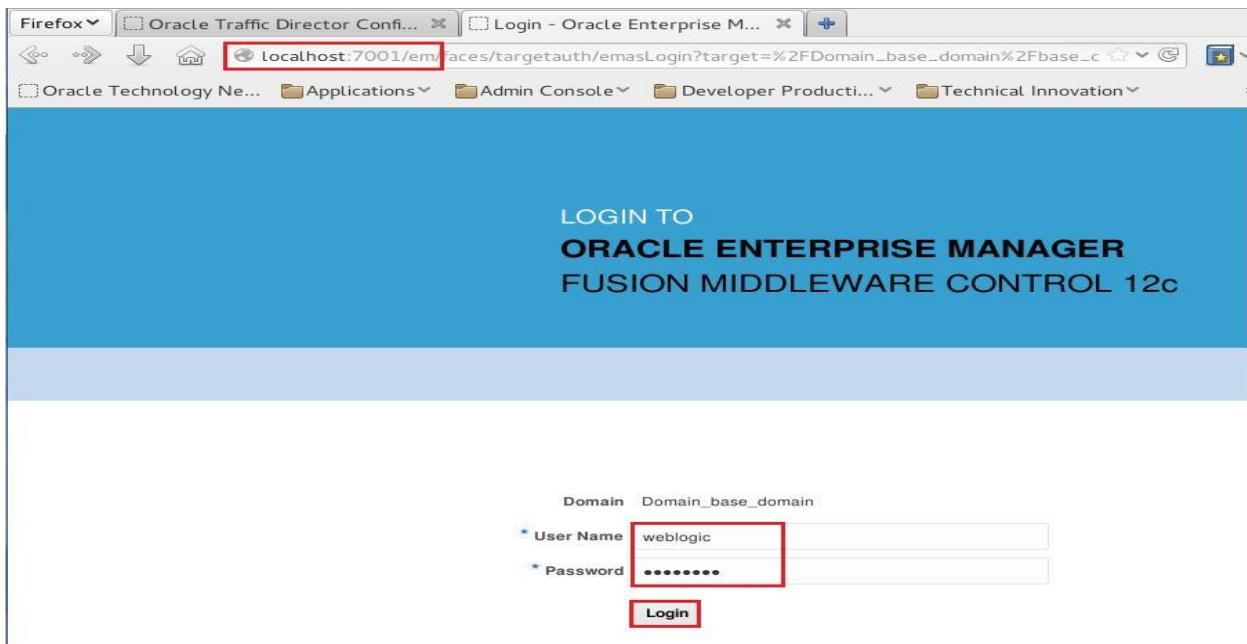
- e. Select “**Oracle Enterprise Manager –Restricted JRF-12.2.1 [em]**” as it also select the remaining required check boxes then click on **Next**.



- f. Leave Default on **Application Location** then click on **Next**.
 g. Enter **weblogic/welcome1** as Name/Password then click on **Next**.
 h. Leave Default on **Domain Mode and JDK Screen** then click on **Next**.
 i. Leave Default on **Advanced Configuration** then click on **Next**.
 j. Click on **Create**.
 k. Click on **Next** then click on **Finish**.

Configuration of WebLogic base_domain

- `cd /u01/wins/wls1221/user_projects/domains/base_domain/bin/`
- `./startNodeManager.sh`
- In terminal, Click on **Terminal -> Set Title**. Enter **base_nm** as Title then click on OK.
- Open a new terminal.
- `cd /u01/wins/wls1221/user_projects/domains/base_domain/bin/`
- `./startWebLogic.sh`
- In terminal, Click on **Terminal -> Set Title**. Enter **base_admin** as Title then click on OK.
- Go back to Firefox and type the Fusion Middleware Control URL <http://localhost:7001/em>
- Enter **weblogic/welcome1** as **username/password** then click on **Login**.



- j. Create a Machine.
 - i. Click on **WebLogic Domain-> Environment -> Machine**.
 - ii. Click on **Create**.
 - iii. Enter “**machine**” as Name, Select “**Unix**” as Machine OS, then click on **Next**.
 - iv. Leave Defaults on Node Manager Properties then click on **Create**.
 - v. Click on the Machine name **machine**.
 - vi. Click on **Monitoring** tab and verify the status as **Reachable**.
- k. Create a Dynamic Cluster
 - i. Click on **WebLogic Domain -> Environment -> Clusters**.

Cluster Name	Machine	State
Machine	localhost	Running

Servers 1 of 1

- ii. Click on **Create -> Dynamic Cluster**.

The screenshot shows the 'Clusters' page in Oracle Enterprise Manager. At the top, there's a navigation bar with 'Clusters' selected. Below it is a toolbar with 'Create' (highlighted with a red box), 'Delete', 'Control', 'Scale Up/Down', and other icons. A table lists clusters, with the first row labeled 'Dynamic Cluster' also highlighted with a red box. The table columns include Name, Cluster Type, Servers, Cluster Messaging Mode, Default Load Algorithm, Replication Type, Multicast Address, and Multicast Port. A message at the bottom says 'No clusters found'.

- iii. Enter **app-cluster** as Name then click on **Next**.
 iv. Leave Default on **Dynamic Server Properties** page and click on **Next**.
 v. Select “**Use a single machine for all dynamic servers**” and choose the **machine**, then click on **Next**.

The screenshot shows the 'Create a Dynamic Cluster: Machine Bindings' page in Oracle Enterprise Manager. At the top, it says 'base_domain'. Below that is a progress bar with five steps: Cluster Properties, Dynamic Server Properties, Machine Bindings (highlighted with a blue circle), Listen Port Bindings, and Review. The main area is titled 'Create a Dynamic Cluster: Machine Bindings' and contains instructions: 'Use this page to associate dynamic servers with machines.' It asks 'How do you want to distribute dynamic servers across machines?' with three options: 'Use any machine configured in this domain' (radio button), 'Use a single machine for all dynamic servers' (radio button, highlighted with a red box), and 'Use a subset of machines in this domain'. Below this is a dropdown menu 'Selected Machine' with 'machine' and a dropdown arrow. At the bottom is a 'Machine Name Match Expression' input field. On the right, there are 'Back', 'Step 3 of 5', 'Next' (highlighted with a red box), 'Create', and 'Cancel' buttons.

- vi. Leave Default on Listen Port Bindings, and then click on **Next**.
 vii. Review the Configuration and click on **Create**.
 I. Registering an OTD Runtime Instance.

- i. Click on **Weblogic Domain -> Environment -> OTD Runtimes.**

The screenshot shows the Oracle Enterprise Manager interface for a WebLogic domain named 'base_domain'. The navigation tree on the left has 'WebLogic Domain' selected. Under 'Environment', 'OTD Runtimes' is also selected and highlighted with a red box. A message box at the top right says 'All changes have been activated.' Below the tree, there's a table for 'OTD Runtimes' with one row:

ID	Replication Type	Multicast Address	Multicast Port
1	(None)	239.192.0.0	7001

Clusters 1 of 1

- ii. Click on **Enable Lifecycle Manager.**

The screenshot shows the 'OTD Runtimes' page. At the top, it says 'Oracle Traffic Director can be used to front-end domain partitions created in this WebLogic domain. Oracle Traffic Director can be installed within this same domain or in a separate domain. OTD runtimes need to be registered with this WebLogic domain before they can be used.' Below this, there's an 'Information' section and a 'Enable Lifecycle Manager' button, which is highlighted with a red box. The table below shows no data:

Name	OTD Configuration Name	Admin Server Host	Admin Server Port	Username	OTD Domain
The Oracle Traffic Director runtimes cannot be accessed.					

- iii. Go back to terminal **base_admin** where AdminServer is running, Press Ctrl+C.
- iv. **./ startWebLogic.sh**

```

<Nov 5, 2015 2:19:35 AM PST> <Notice> <WebLogicServer> <BEA-000365> <Server state changed to ADMIN.>
<Nov 5, 2015 2:19:35 AM PST> <Notice> <WebLogicServer> <BEA-000365> <Server state changed to FORCE_SHUTTING DOWN.>
<Nov 5, 2015 2:19:36 AM PST> <Notice> <Log Management> <BEA-170037> <The log monitoring service timer has been stopped.>
ProvCommonIntegration.destroy
PAF Integration destroy BEGIN
PAF Integration destroy END
Stopping Derby server...
Derby server stopped.
[oracle@localhost bin]$ ./startWebLogic.sh

```

- v. Go back to Firefox, and then go Fusion Middleware Control <http://localhost:7001/em>.
- vi. Enter **weblogic/welcome1** as **username/password** then click on **Login**.
- vii. Click on **WebLogic Domain -> Environment -> OTD Runtimes**.
- viii. Click on **Register Runtime**.

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 is titled 'OTD Runtimes'. A sub-header states: 'Oracle Traffic Director can be used to front-end domain partitions created in this WebLogic domain. Oracle Traffic Director can be installed within this same domain or in a separate domain. OTD runtimes need to be registered with this WebLogic domain before they can be used.' Below this, there is a table with columns: Name, OTD Configuration Name, Admin Server Host, Admin Server Port, Username, and OTD Domain Name. A red box highlights the 'Register Runtime' button in the toolbar above the table. The message 'No Oracle Traffic Director runtimes have been registered in this WebLogic domain.' is displayed at the bottom of the table area.

- ix. Enter the following and then click on OK.

Runtime Name:	otd_runtime
OTD Configuration Name:	mt
Admin Server Host:	localhost
Admin Server Port:	8001
Username:	weblogic
Password:	welcome1
OTD Domain Name:	otd_domain

Register Runtime

An OTD configuration will be used to front-end domain partitions. Provide the OTD configuration name and connection information (host, port and credentials) for the WebLogic Admin Server where this configuration is located.

* Runtime Name	otd_runtime
* OTD Configuration Name	mt
* Admin Server Host	localhost
* Admin Server Port	8001
* Username	weblogic
* Password	*****
* OTD Domain Name	otd_domain

OK **Cancel**

m. Start Managed Servers.

i. Click on **WebLogic Domain -> Control ->Clusters.**

The screenshot shows the Oracle Enterprise Manager interface for a WebLogic Domain named 'base_domain'. The left sidebar has sections for Control, OTD, View, and Navigation. Under Control, the 'Clusters' option is highlighted with a red box. A tooltip for 'Clusters' states: 'Start Up, Shut Down. Oracle Traffic Director can be installed within this same domain. Oracle Traffic Director can be installed within this same domain before they can be used.' To the right, there is a table with columns: Admin Server Port, Username, and OTD Domain. The table row contains the values: 8001, weblogic, and otd_domain.

Admin Server Port	Username	OTD Domain
8001	weblogic	otd_domain

- ii. Check the box near to **app-cluster** to make it highlighted and then Click on **Control -> Start -> Start Servers**.

The screenshot shows the Oracle Enterprise Manager Fusion Middleware Control 12c interface. The title bar reads "ORACLE Enterprise Manager Fusion Middleware Control 12c". The top navigation bar includes "WebLogic Domain" and "weblogic", with "Auto Refresh" set to "Off". The date and time are shown as "Nov 5, 2015 2:26:48 AM PST". The main content area is titled "Clusters (Control)". A pie chart indicates "Down (1)" status. Below it is a table with columns: Name, Cluster Type, Servers, Cluster Messaging Mode, Default Load Algorithm, and Replication Type. One row is selected, showing "app-cluster" in the Name column, "Dynamic" in Cluster Type, "2" in Servers, "Unicast" in Cluster Messaging Mode, "Round Robin" in Default Load Algorithm, and "(None)" in Replication Type. A context menu is open over the "app-cluster" row, with the "Start" option highlighted by a red box. Other options in the menu include "Resume", "Suspend", "Shutdown", and "Restart SSL". The bottom of the screen shows "Rows Selected 1" and "Clusters 1 of 1".



LAB 2: MULTITENANCY CONFIGURATION

Overview:

In this lab, we are going to learn the following:

- Configuration of Virtual Target, Domain Partition and Resource Group
- Run multiple instances of Medrec application in different domain partition without modifying the application. We try to show **JNDI Isolation** for that we are using the same Medrec applications and same JNDI name for the Datasources, connection factory and Distributed queue in both the domain partition.
- Run Day trader application which is build by WebSphere to WebLogic 12.2.1.
- You don't need to modify your application to run in Multitenant environment. So no special application development needed.

Configuration of Medrec Application in Domain Partition 1

In the next step we are creating the below configuration for Medrec application in domain partition dp1.

Virtual Target: VT-Medrec-1

Domain Partition: dp1

Resource Group app1RG

app1RG:

Datasource:

Name: MedRecGlobalDataSourceXA

JNDI Name: jdbc/MedRecGlobalDataSourceXA

Mail Session:

Name: MedRecMailSession

JNDI Name: mail/MedRecMailSession

Persistence Store: MedRec-fs

JMS Server: MedRecJMSServer

JMS Module: MedRecModule

MedRecModule:

Subdeployment: MedRecJMS

Connection Factory:

Name: MedRecConnectionFactory

JNDI Name: com.oracle.medrec.jms.connectionFactory

Distributed Queue:

Name: PatientNotificationQueue

JNDI Name: com.oracle.medrec.jms.PatientNotificationQueue

Applications: medrec.ear

physician.ear

chat.war

- a. Open a new terminal.
- b. cd /u01/content/weblogic-innovation-seminars/WInS_Demos/MT-Workshop/Lab2/
- c. ./Medrec1DB.sh (It creates the required database user and populate sample data into database)
- d. Close the terminal.
- e. In Enterprise Manager, Click on **WebLogic Domain > Environment -> Virtual Targets**.

The screenshot shows the Oracle Enterprise Manager interface. The left sidebar has a tree view with 'Cluster' selected. The main menu under 'WebLogic Domain' has 'Environment' highlighted with a red box. The 'Virtual Targets' option under 'Environment' is also highlighted with a red box. A tooltip above the 'Virtual Targets' button says 'the selected Server(s):app-cluster-2, app-cluster-1'. On the right, there's a table for 'Virtual Targets' with columns: Cluster Messaging Mode, Default Load Algorithm, and Replication Type. The table shows one row for 'Clusters 1 of 1' with values: Unicast, Round Robin, and (None).

- f. Click on **Create**.
- g. Enter **VT-Medrec-1** as Name and **/dp1** as Uri Prefix and Add **localhost** as Hosts then click on **Next**.

The screenshot shows the 'Create Virtual Target: General' wizard. Step 1 of 2 is selected. The 'Name' field contains 'VT-Medrec-1' and the 'Uri Prefix' field contains '/dp1'. Under the 'Hosts' section, there's a table with a single host entry 'localhost'. The 'Next' button is highlighted with a red box.

h. Select Cluster **app-cluster** as Target then click on **Create**.

The screenshot shows the Oracle Enterprise Manager interface for creating a virtual target. The top navigation bar says "ORACLE Enterprise Manager Fusion Middleware Control 12c". Below it, a breadcrumb path shows "base_domain". A tabs section has "General" and "Targets" tabs, with "Targets" being the active one. The main content area is titled "Create Virtual Target: Targets". It contains a sub-header "Choose a server or cluster to be associated with this virtual target." and a dropdown menu where "Cluster" is selected from "app-cluster". There are also "Server" and "None" options. At the bottom right of the content area are buttons for "Back", "Step 2 of 2", "Next", "Create" (which is highlighted with a red box), and "Cancel".

i. Click on **WebLogic Domain -> Environment -> Domain Partitions**.

The screenshot shows the Oracle Enterprise Manager navigation tree. The root node is "base_domain". Under "Virtual Targets", there is a "WebLogic Domain" node, which is expanded to show "Home", "Monitoring", "Diagnostics", "Control", "Logs", "Environment" (which is highlighted with a red box), "Deployments", "JDBC Data Sources", "Messaging", "Cross Component Wiring", "Web Services", "Other Services", "Administration", "Refresh WebLogic Domain", and "Security". To the right of the tree, a table titled "Domain Partitions" is displayed. The table has columns: "Used By", "Servers", "Server Templates", "Clusters", "Machines", and "Resource Groups". The "Domain Partitions" row is highlighted with a red box. Other rows include "OTD Runtimes", "Resource Group Templates", "Partition Work Managers", and "Resource Consumption Managers". A footer at the bottom right of the table area says "Virtual Targets 1 of 1".

- j. Click on **Create**.
- k. Enter **dp1** as Name then click on Next.

ORACLE® Enterprise Manager Fusion Middleware Control 12c weblogic ▾ ...

base_domain [i](#)

General Available Targets Resource Group Summary

Create Domain Partition: General Back Step 1 of 4 **Next** Cancel

Use this page to specify general attributes for this domain partition.

* Name	dp1
Security Realm	None
Primary Identity Domain	

Load Balancer Configuration

If you wish to use a load balancer to front-end this domain partition, choose an Oracle Traffic Director runtime from the list of registered runtimes shown below. If you wish to register a new OTD runtime, please use the Environment->OTD Runtimes menu item on the WebLogic Domain menu.

Use OTD for load balancing	<input type="checkbox"/>
OTD Runtime	None

- l. Check the left box near **VT-Medrec-1** and also check the box for **Set as Default** then click on **Next**.

ORACLE® Enterprise Manager Fusion Middleware Control 12c weblogic ▾ ...

base_domain [i](#)

General Available Targets Resource Group Summary

Create Domain Partition: Available Targets Back Step 2 of 4 **Next** Cancel

Select the virtual targets that will be available for this domain partition to use. Note that virtual targets can only be used by one partition; so, only available virtual targets are listed below.

Select	Virtual Target	Set as Default
<input checked="" type="checkbox"/>	VT-Medrec-1	<input checked="" type="checkbox"/>

- m. Enter **app1RG** as Resource Group name and **None** as Resource Group Template, Move the **VT-Medrec-1** virtual target to **Selected targets** then click on **Next**.

Create Domain Partition: Resource Group

A resource group needs to be created within a partition before you can deploy applications or resources. The resource group can optionally extend a resource group template specified at the domain level.

* Resource Group Name **app1RG**

Resource Group Template **None**

Targets for the Resource Group Select a target for the resource group from the list of available targets. If the partition has a default target specified, the resource group will implicitly inherit that target.

Available Targets	Selected Targets
VT-Medrec-1	VT-Medrec-1

- n. Verify the configuration and click on **Create**.
o. Check the box near **dp1** and click on **Control -> Start**. Once you notice the message “Partition state after the operation is RUNNING” then Click on Close.

Domain Partitions

Domain partitions are the building blocks of WebLogic server multi-tenancy (MT). Multi-tenancy permits multiple client organizations to share a domain, improving efficiency and reducing operation costs. Before creating a domain partition, you must first create one or more virtual targets. Look at the Getting Started topics for more information.

► Getting Started with Multi-Tenancy

Hide Pie Chart

Name	Status	OTD Partition	Realm	Default Targets	Available Targets
dp1	Down	OTD Partition	Realm	VT-Medrec-1	VT-Medrec-1

Domain Partitions 1 of 1



p. Click on the Domain Partition **dp1**.

Name	Status	State	OTD Partition	Realm	Default Targets	Available Targets
dp1		Running			VT-Medrec-1	VT-Medrec-1

q. Click on **Domain Partition -> Administration -> Resource Group**.

The screenshot shows the Oracle Enterprise Manager interface for Fusion Middleware Control 12c. The top navigation bar includes "WebLogic Domain" and "weblogic". The main content area is for the domain partition "dp1". The left sidebar has sections for Monitoring, Resource Groups, Deployment, and Administration. The "Administration" section is currently selected, with its sub-menu expanded. The sub-menu items include Home, General, JDBC and JTA Usage, Resource Groups (which is highlighted with a red box), Load Balancer Configuration, Resource Overrides, Resource Sharing, Coherence Caches, Notes, Pending Messages, and Current Messages. The "General" section shows the State as Running and Default Targets as VT-Medrec-1. The "JDBC and JTA Usage" section shows Open JDBC Connections at 0, JDBC Connection Creates (per minute) at 0.00, Active Transactions at 0, Transaction Commits (per minute) at 0.00, and Transaction Rollbacks (per minute) at 0.00. The "Resource Usage" section shows CPU Usage (%) as Unavailable and Open Files as Unavailable.

- r. Click on Resource Group **app1RG**.
- s. Creation of Datasource.
 - i. Select the **Services** tab.
 - ii. Choose JDBC tab, click on **Create > Generic Data Source**.

The screenshot shows the Oracle Enterprise Manager interface for a WebLogic Domain named 'weblogic'. The top navigation bar includes 'WebLogic Domain' and 'weblogic'. Below the navigation is a toolbar with icons for 'Domain Partition', 'Start Up', 'Shut Down', 'Auto Refresh' (set to 'Off'), and a date/time stamp 'Nov 5, 2015 2:44:29 AM PST'. The main content area is titled 'Resource Group : app1RG'. The 'Services' tab is selected, indicated by a red box. Under the 'Services' tab, the 'JDBC' tab is also selected, shown with a red box. A dropdown menu under 'Create' shows options: 'Generic Data Source' (highlighted with a red box), 'GridLink Data Source', and 'Multi Data Source'. The main table displays columns for 'Name', 'JNDI Name', 'Type', and 'Targets'. At the bottom right of the table, it says 'JDBC Data Sources 0 of 0'.

- iii. Enter **MedRecGlobalDataSourceXA** as Data Source Name and **jdbc/MedRecGlobalDataSourceXA** as JNDI Name, and then click on Select.

The screenshot shows the 'Create a JDBC Data Source: Data Source Properties' wizard, Step 1 of 5. The top navigation bar shows 'weblogic'. Below it is a progress bar with five steps: 'Data Source Properties' (selected), 'Connection Properties', 'Transaction Properties', 'Select Targets', and 'Review'. The main form is titled 'Create a JDBC Data Source: Data Source Properties'. It contains fields for 'Data Source Name' (set to 'MedRecGlobalDataSourceXA'), 'Scope' (set to 'Resource group "app1RG" in domain partition "dp1"'), 'Type' (set to 'Generic'), 'Database Type' (set to 'Oracle'), 'Driver Class Name' (set to 'oracle.jdbc.OracleDriver'), and 'JNDI Name' (set to 'jdbc/MedRecGlobalDataSourceXA'). A 'Select...' button next to the 'Driver Class Name' field is highlighted with a red box. At the bottom right are buttons for 'Back', 'Step 1 of 5', 'Next', and 'Cancel'.

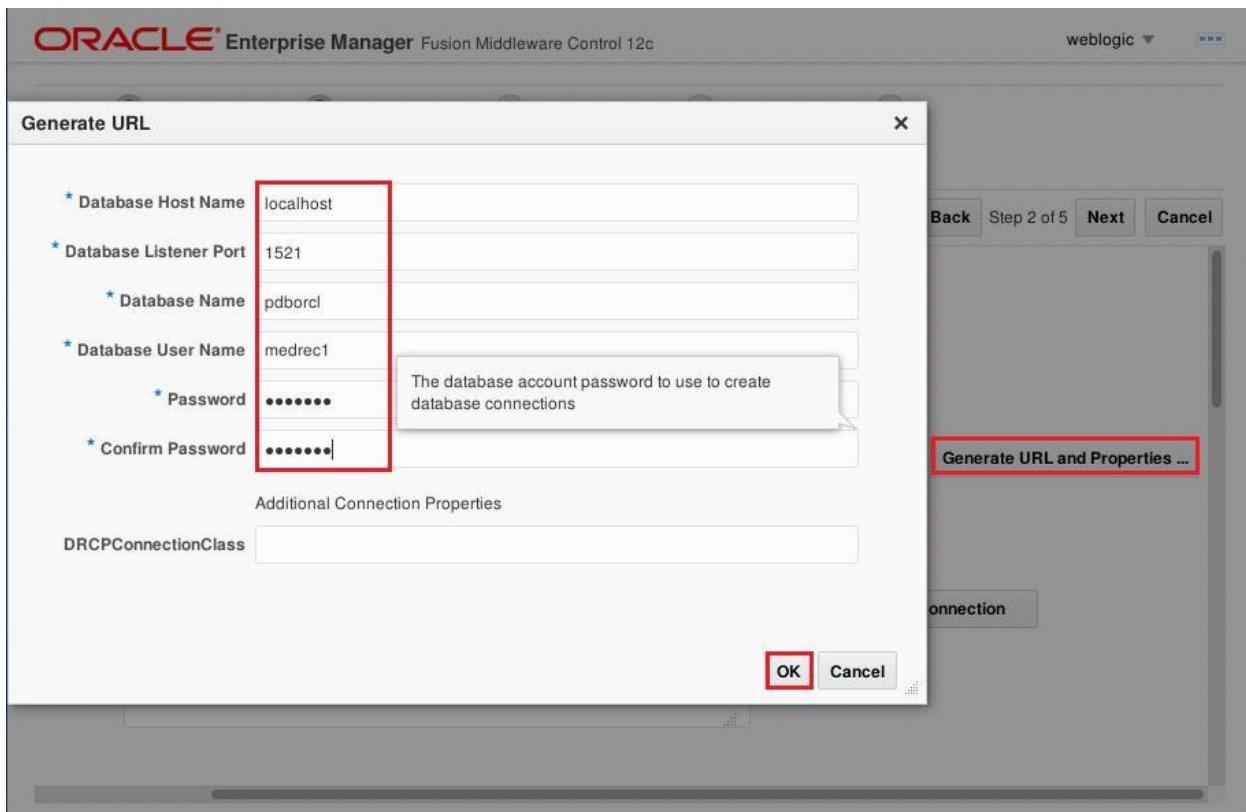
- iv. Select **Oracle** as Database Type and “**Oracle’s Driver (Thin XA) for service connections; Versions: Any**” as JDBC Driver then click on OK.



- v. Click on **Next**.
vi. Click on **Generate URL and Properties** and Enter the following:

Host Name:	localhost
Listen Port:	1521
Database Name:	pdborcl
User Name:	medrec1
Password:	medrec1
Confirm Password	medrec1

Click OK.



vii. Click on **Test Database Connection** to verify the connection. Click **Next**.

The screenshot shows the Oracle Enterprise Manager interface for creating a JDBC Data Source. A confirmation dialog box is open, stating "Connection test succeeded." with an "OK" button. The main form shows the following details:

- Driver:** oracle.jdbc.xa.client.OracleXADataSource
- Class:** oracle.jdbc.xa.client.OracleXADataSource
- Name:** (not explicitly named)
- Database URL:** jdbc:oracle:thin:@//localhost:1521/pdborcl
- Password:** (redacted)
- Confirm Password:** (redacted)
- SQL ISVALID:** (empty)
- Test Table Name or SQL Statement:** (empty)
- Test Database Connection:** (button highlighted with a red box)

The status bar at the bottom shows the URL: Localhost:7001/em/faces/as-emas_createDS_taskflow/as/jdbc/createDSStep2#.

viii. Leave Default on **Transaction Options** and click on **Next**.

ix. Verify the configuration and click on **Create**.

t. Adding User to Default Realm.

i. Click on **Weblogic Domain -> Security -> Users and Groups**.

The screenshot shows the Oracle Enterprise Manager interface for managing a WebLogic Domain. The left sidebar shows the navigation path: base_domain > WebLogic Domain > Confirmation > Resource Group : app1RG > Services > JDBC. The main content area displays the "Resource Group : app1RG" page for JDBC data sources. A confirmation message is shown: "JDBC Data Source 'MedRecGlobalDataSourceXA' has been created successfully. All changes have been saved." Below this, a table lists the JDBC system data sources in the resource group, including "MedRecGlobalDataSourceXA". On the right side, a context menu is open over the "MedRecGlobalDataSourceXA" row, with the "Users and Groups" option highlighted and a red box drawn around it. The right sidebar shows the available services under the "Security" category.

- ii. In **Users** tab, click on **Create**.

Users and Groups

This page displays information about the users and groups that have been configured in the selected security realm in this WebLogic Server domain.

Select a Realm: myrealm

Default Realm for This WebLogic Domain: true

Users Groups

Create Delete Detach

Name	Description	Provider
LCMUser	This is the default service account ...	DefaultAuthenticator
OracleSystemUser	Oracle application software syste...	DefaultAuthenticator
weblogic	This user is the default administrator.	DefaultAuthenticator

Columns Hidden: 1

Users 3 of 3

- iii. Enter the following then click on **Create**.

Name: administrator
Description: Medrec Admin
Provider: Default Authenticator
Password: administrator123
Confirm Password: administrator123

u. Configuring Mail Session.

- Click on **Weblogic Domain ->Environment ->Domain Partition**.
- Click on Domain Partition dp1.
- Click on **Domain Partition -> Other Services -> Mail Sessions**.

ORACLE® Enterprise Manager Fusion Middleware Control 12c

WebLogic Domain: weblogic

dp1

Domain Partition Start Up Shut Down

Nov 5, 2015 7:09:41 AM PST

Monit

- Home
- Monitoring
- Diagnostics
- Control
- Logs

Resou

- Deployments
- JDBC Data Sources
- Messaging
- Coherence Caches

Deplo

- Web Services
- Other Services**
- Administration
- Security
- System MBean Browser
- Target Sitemap

Start Up **Shut Down**

General

State: Running

Default Targets: VT-Medrec-1

Available Targets: VT-Medrec-1

JDBC and JTA Usage

Open JDBC Connections: 0

JDBC Connection Creates (per minute): 0.00

Active Transactions: 0

Work Manager

Requests (per minute): 6.41

Pending Requests: 0

Transaction Commits (per minute): 0.00

Transaction Rollbacks (per minute): 0.00

Resource Usage

CPU Usage (%): Unavailable

Open Files: Unavailable

Persistent Stores

Mail Sessions

Foreign JNDI Providers

Current Messages: 0

iv. Click on **Create**.

v. Enter the following and click on **Next**.

Name: MedRecMailSession
Scope: Leave as default
JNDI Name: mail/MedRecMailSession

The screenshot shows the 'Create a Mail Session: General Configuration' page. The 'Name' field contains 'MedRecMailSession'. The 'Scope' dropdown shows 'Domain Partition Resource Group' with 'app1RG in partition dp1' selected. The 'JNDI Name' field contains 'mail/MedRecMailSession'. The 'Next' button is highlighted with a red box.

vi. Click on **Create**.

v. Configuring JMS Server.

i. Click on **Domain Partition** -> **Messaging** -> **JMS Servers**.

The screenshot shows the 'Domain Partition' section of the Oracle Enterprise Manager interface. The 'Messaging' option under 'Domain Partition' is selected and highlighted with a red box. A tooltip message 'as been created successfully. All changes have been activated.' is displayed above the 'JMS Servers' link. The 'JMS Servers' link is also highlighted with a red box.

- ii. Click on **Create**. Enter **MedRecJMSServer** as Name then click on **Create a Store** -> **File Store**.

JMS servers act as management containers for the queues and topics in JMS modules that are targeted to them. A JMS server's primary responsibility for its destinations is to maintain information on what persistent store is used for any persistent messages that arrive on the destinations, and to maintain the states of durable subscribers created on the destinations.

Use this page to define the general configuration parameters for this JMS server.

* Name

Scope Domain Partition Resource Group

Persistent Store

- iii. Enter **MedRec-fs** as Name then click on **Next**. Click on **Create**.
 iv. In **JMS Server: General Setting**, Select the newly created file store as persistent store then click on **Next**.

Information
Persistent store "MedRec-fs" has been created successfully. All changes have been activated.

JMS servers act as management containers for the queues and topics in JMS modules that are targeted to them. A JMS server's primary responsibility for its destinations is to maintain information on what persistent store is used for any persistent messages that arrive on the destinations, and to maintain the states of durable subscribers created on the destinations.

Use this page to define the general configuration parameters for this JMS server.

* Name

Scope Domain Partition Resource Group

Persistent Store

- v. Click on **Create**.
- w. Configure JMS Module.
- i. Click on **Domain Partition -> Messaging -> JMS Resources and Modules**.

The screenshot shows the Oracle Enterprise Manager interface for a WebLogic Domain named 'weblogic'. The left sidebar shows a tree structure with 'dp1' selected. Under 'dp1', 'Domain Partition' is expanded, and 'Messaging' is selected. A red box highlights the 'Create' button in the top navigation bar. A yellow box highlights a success message: 'JMS module has been created successfully. All changes have been activated.' Below this, there's a table titled 'JMS Resources and Modules' with one row: 'app1RG'. The bottom right corner shows 'JMS Servers 1 of 1'.

- ii. Under the **JMS Modules** tab, click on **Create**.

The screenshot shows the 'JMS Resources and Modules' page for domain partition 'dp1'. The 'JMS Modules' tab is selected. A red box highlights the 'Create' button in the top navigation bar. A message at the top says 'To configure and manage JMS modules, use the [WebLogic Server Administration Console](#)'. Below this, there's a table with columns: Name, Resource Group, Queues, Topics, Connection Factories, Distributed Queues, Distributed Topics, Foreign Servers, Quotas, and Hand. The table is currently empty. The bottom right corner shows 'JMS Modules 0 of 0'.

- iii. Enter **MedRecModule** as Name then click on **Next**. Click on **Create**.
- iv. Under **JMS Modules** tab, click on **MedRecModule**.

JMS Resources and Modules

To configure and manage JMS modules, use the [WebLogic Server Administration Console](#).

Name	Resource Group	Queues	Topics	Connection Factories	Distributed Queues	Distributed Topics	Foreign Servers	Quotas	Handle
MedRecModule	app1RG	0	0	0	0	0	0	0	

- v. Under **Subdeployment** tab, click on **Create**.

JMS Module: MedRecModule

To configure and manage this JMS module, use the [WebLogic Server Administration Console](#).

Name	Resources	Targets
The table is empty		

- vi. Enter **MedRecJMS** as Name and Select the box near **MedRecJMSServer** then click on **Create**.

Create a Subdeployment

Subdeployment Name **MedRecJMS**

Select targets for this subdeployment.

JMS Servers

Select Name
MedRecJMSServer

SAF Agents

Select Name
No data to display

Create **Cancel**

- vii. Under **General** tab, click on **Create**.

JMS Module: MedRecModule

To configure and manage this JMS module, use the [WebLogic Server Administration Console](#).

General Subdeployments Notes

This page displays general information about a JMS system module and its resources. It also allows you to configure new resources and access existing resources.

Name: MedRecModule
Scope: Resource group "app1RG" in domain partition "dp1"
Descriptor File Name: partitions/dp1/jms/medrecmodule-jms.xml

This page summarizes the JMS resources that have been created for this JMS system module, including queue and topic destinations, connection factories, JMS templates, destination sort keys, destination quota, distributed destinations, foreign servers, and store-and-forward parameters.

Create **Delete** **Detach**

- viii. Select box near **Connection Factory** then click on **Next**.

The screenshot shows the Oracle Enterprise Manager interface for creating a JMS System Module Resource. The top navigation bar indicates 'ORACLE Enterprise Manager Fusion Middleware Control 12c' and 'weblogic'. Below the header, there's a breadcrumb trail: 'dp1' > 'Resource Type' (highlighted in blue), 'JMS System Module', 'Properties', 'Targets', and 'Review'. The main content area is titled 'Create a JMS System Module Resource: Resource Type'. A sub-section titled 'Connection Factory' is shown with the following description: 'A connection factory defines configuration parameters that are used to create connections for WebLogic JMS clients. A client's connection factory must be hosted on the same server or cluster as the client's destinations.' On the left, there are two sections: 'Connection Factory' (with 'Connection Factory' selected and highlighted with a red box) and 'Destination' (with 'Destination Key' and 'Quota' options). At the bottom right of the main content area are buttons for 'Back', 'Step 1 of 5', 'Next' (highlighted with a red box), and 'Cancel'.

- ix. Leave Default in **JMS System Module** Page then click on **Next**.
x. Enter **MedRecConnectionFactory/com.oracle.medrec.jms.connectionFactory** as Name/JNDI Name respectively then click on **Next**. Click on **Create**.

The screenshot shows the Oracle Enterprise Manager interface for creating a Connection Factory. The top navigation bar and breadcrumb trail are identical to the previous screenshot. The main content area is titled 'Create a Connection Factory: Properties'. It asks to 'Specify the properties that you would like to identify your new JMS resource.' Below this, there are fields for 'Resource Type' (set to 'Connection Factory'), 'Name' (set to 'MedRecConnectionFactory'), and 'JNDI Name' (set to 'com.oracle.medrec.jms.connectionFactory'). A tooltip for 'Name' is displayed: '<p>The global JNDI name used to look up a connection factory within a clustered JNDI namespace.</p>'. There is also a 'Notes' section at the bottom. At the bottom right of the main content area are buttons for 'Back', 'Step 3 of 5', 'Next' (highlighted with a red box), and 'Cancel'.

- xi. Under General tab, Click on **Create**.
- xii. Select **Uniform Distributed Queue** then click on **Next**.

Create a JMS System Module Resource: Resource Type

Choose the type of JMS resource that you would like to create.

Resource Type

- Connection Factory
 - Connection Factory
- Destination
 - Destination Key
 - Quota
 - JMS Template
- Queue
 - JMS Queue
 - Uniform Distributed Queue
- Topic
 - JMS Topic
 - Uniform Distributed Topic

Uniform Distributed Queue

A uniform distributed topic is a logical topic that references a set of automatically generated JMS topic instances, each hosted on a different JMS server.

Note: depending on the type of resource selected, you will be prompted to enter basic information for the new JMS resource to be created in next step. For targetable resources, like stand-alone queues and topics, connection factories, distributed queues and topics, foreign servers, and SAF import destinations, you can also proceed to "Targets" step for selecting the appropriate targeting policy. For untargetable resources, like destination keys, quotas, templates, SAF error handling, and remote SAF context, the "Targets" step will be skipped.

xiii. Click on **Next**.

xiv. Enter the following and click on **Next**.

Name: PatientNotificationQueue

JNDI Name: com.oracle.medrec.jms.PatientNotificationQueue

Create a Uniform Distributed Queue: Properties

Specify the properties that you would like to identify your new JMS resource.

Properties

Resource Type	Uniform Distributed Queue
* Name	PatientNotificationQueue
Notes	<p>The name used to bind a virtual destination to the JNDI tree. Applications can use the JNDI name to look up the virtual destination.</p>
JNDI Name	com.oracle.medrec.jms.PatientNotificationQueue
Template	(None)

- xv. Click on **Create**. Click on **PatientNotificationQueue**, Under **Targeting**, Select **Subdeployment targeting as Targeting Policy** and **MedRecJMS** as **Subdeployment** then click on **Apply**.

The screenshot shows the Oracle Enterprise Manager interface for configuring a JMS resource. The top navigation bar includes Configuration, Monitoring, Notes, General, Advanced Configuration, Delivery Failure, Delivery Overrides, Logging, and Thresholds and Quotas. The General tab is selected. In the main content area, there is a 'Reset Delivery Count On Forward' checkbox. Below it, the 'Targeting' section is expanded, showing two radio buttons: 'Subdeployment targeting' (selected) and 'Default to the parent module's target'. Under 'Subdeployment', a dropdown menu is open, with 'MedRecJMS' selected.

Note: You must restart domain partition before going to deploy Medrec Application.

- Click on Change Center -> View Restart Checklist.

The screenshot shows the Oracle Enterprise Manager interface with a context menu open over a domain partition named 'dp1'. The menu items include Edit Sessions, Lock & Edit, View Change List, View & Resolve Conflicts, Release Configuration, Activate Changes, Undo All Changes, and a redboxed 'View Restart Checklist'. Other menu items like Console and Help are also visible. The main pane shows a confirmation message: 'Settings updated successfully. All changes have been activated. There are 1 or more item(s) that must be effect. Use the "View Restart Checklist" menu in Change Center to view the details.' Below this, the 'Uniform Distributed Queue: PatientNotificationQueue' configuration page is shown, with the General tab selected. The configuration details include Name: PatientNotificationQueue and Scope: Resource group "app1RG" in domain partition "dp1".

b. Select the box near to dp1 then click on Restart.

Restart Checklist			
This page lists servers, domain partitions, system components, and other resources that must be restarted for configuration changes to take effect. To restart, select the resource you would like to restart and click Restart button.			
Name	Resource Type	Targets	Status of Last Action
dp1	Domain Partition		START (TASK COMPLETED)

c. On Confirmation Screen, Click on Restart.

x. Deployment of Medrec Application.

i. Click on **WebLogic Domain -> Environment -> Resource Groups**.

The screenshot shows the Oracle Enterprise Manager Fusion Middleware Control 12c interface. The left pane displays the configuration for a Uniform Distributed Queue named 'PatientNotificationQueue'. The right pane shows the navigation menu under 'Environment'.

Left Panel (Configuration):

- General tab selected.
- Name: PatientNotificationQueue
- Scope: Resource group
- JNDI Name: com.oracle.
- Template: None

Right Panel (Navigation Menu):

- Home
- Monitoring
- Diagnostics
- Control
- Logs
- Environment** (selected)
- Deployments
- JDBC Data Sources
- Messaging
- Cross Component Wiring
- Web Services
- Other Services
- Administration
- Refresh WebLogic Domain
- Security
- System MBean Browser
- WebLogic Server Administration Console
- Target Sitemap

- ii. Click on Resource Group **app1RG**, click on **Deployments** tab.
- iii. Click on **Deployment -> Deploy**.

The screenshot shows the Oracle Enterprise Manager interface for a WebLogic Domain. The top navigation bar includes 'WebLogic Domain' and 'weblogic'. The URL is /Domain_base_domain/base_domain > Resource Groups > Resource Group : app1RG. The main content area is titled 'Resource Group : app1RG' and has tabs for General, Deployments, Services, Targets, Monitoring, Control, and Notes. The 'Deployments' tab is selected and highlighted with a red box. Below it, a sub-menu is open over the 'Deployment' dropdown, with the 'Deploy' option highlighted with a red box. The sub-menu also includes 'Redeploy', 'Undeploy', and 'Fetch Deployment Plan'.

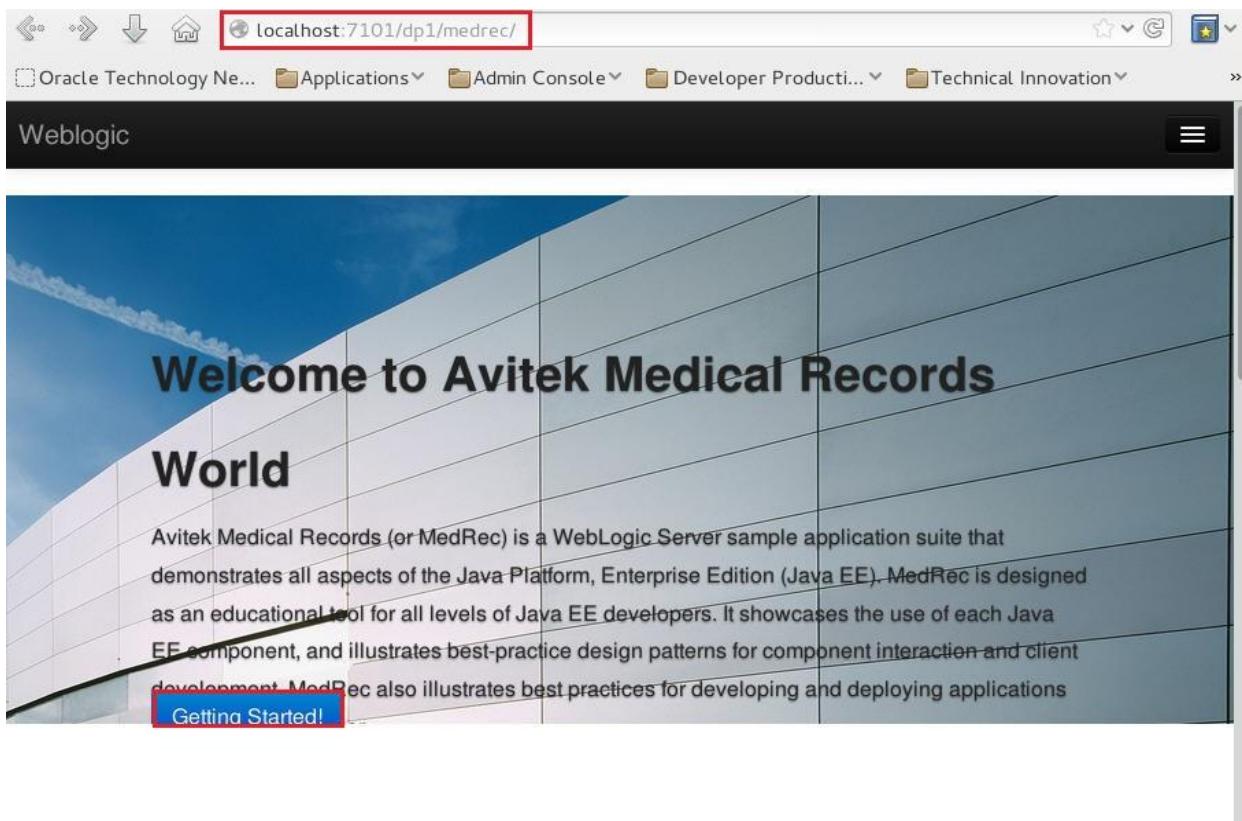
- iv. Select “Archive or exploded directory is on the server where Enterprise Manager is running” then click on **Browse**. Specify the location of **medrec.ear** from **/u01/content/weblogic-innovation-seminars/WInS_Demos/MT-Workshop/Lab2** then click on **OK**.

The screenshot shows the 'Deploy Java EE Application: Select Archive' wizard, Step 1 of 4. It has tabs for Select Archive, Select Target, Application Attributes, and Deployment Settings. The 'Select Archive' tab is active. The 'Scope' section indicates the scope is 'Resource group "app1RG" in domain partition "dp1"'. The 'Archive or Exploded Directory' section contains a note about deploying Java EE archives, Web Modules (WAR files), EJB Modules (EJB JAR files), Resource Adapter Modules (RAR files), Coherence Archives (GAR files), JDBC Modules, JMS Modules, and library files (Jar files). It also notes that an exploded archive can be deployed if present on the server. There are two radio button options: 'Archive is on the machine where this Web browser is running.' and 'Archive or exploded directory is on the server where Enterprise Manager is running.' The second option is selected and highlighted with a red box. Below it, the path '/u01/content/weblogic-innovation-seminars/WInS_Demos/MT-Workshop/Lab2/medrec.ear' is entered in an input field, which is also highlighted with a red box. To the right of the input field is a 'Browse...' button, also highlighted with a red box.

- v. Click on **Next** then click on **Deploy**. Click on Close.
- vi. Deploy **physician.ear** file similarly from the **/u01/content/weblogic-innovation-seminars/WInS_Demos/MT-Workshop/Lab2** location.
- vii. Deploy **chat.war** file similarly from the **/u01/content/weblogic-innovation-seminars/WInS_Demos/MT-Workshop/Lab2** location.

Accessing Medrec Application in Domain Partition dp1

- i. Go to Firefox and type the URL: <http://localhost:7101/dp1/medrec/>
- ii. Click on Getting Started.



- iii. Under Patient, Click on **I'm New Here**
- iv. Enter the following or any other data then click on Submit.

Email:	weblogic@oracle.com
Password:	welcome1
Confirm Password:	welcome1
First Name:	Ankit
Last Name:	Pandey
Gender:	Male
DOB:	Jun 23, 1988
SSN:	123456788

Note: Make sure you not use 123456789 as SSN Number.

- v. Click on Getting Started again on Medrec Home Page.
- vi. Under Administrator, click on Login.
- vii. Enter **administrator/administrator123** as username and password then click on Sign In.

Administrator

Please sign in.

Username

Password

Sign In

- viii. Under **Pending Requests**, click on Go.
- ix. Click on the Email Id, and then click on Approve.
- x. Click on Logout. Click on Logout again.
- xi. You can login as weblogic@oracle.com/welcome1 as username/password as Patient.
- xii. You can view your record summary, and you can also have interaction with physician.



Patient look up and view your visit and prescription history and edit your profile information.

The Patient application allows patients to log in, edit their profile information, or request that their profile be added to the system. Patients can also view prior medical records of visits with their physician.

Login

I'm New Here

Configuration of Medrec Application in Domain Partition 2

In the next step we are creating the below configuration for Medrec application in domain partition dp2. We are using the same Medrec applications and same JNDI name for the Datasources, connection factory and Distributed queue but we will connect to different database. So there are two benefits of Multitenancy.

- In a domain, you can deploy the same application in two different domain partitions and there will be no JNDI conflict. You do not have to make any changes in application.
- In single domain, you can have same application deployed in two different domain partitions and connected to two databases. So both the application will have different Set of Users in our case or different set of Application Specific Data.

Virtual Target: VT-Medrec-2

Domain Partition: dp2

Resource Group app2RG

app1RG:

Datasource:	MedRec2GlobalDataSourceXA, jdbc/MedRecGlobalDataSourceXA
Mail Session:	MedRecMailSession, mail/MedRecMailSession
Persistence Store:	MedRec2-fs
JMS Server:	MedRec2JMSServer
JMS Module:	MedRec2Module
MedRecModule:	
Subdeployment:	MedRec2JMS
Connection Factory:	MedRec2ConnectionFactory, com.oracle.medrec.jms.connectionFactory
Distributed Queue:	PatientNotificationQueue com.oracle.medrec.jms.PatientNotificationQueue
Applications:	medrec.ear physician.ear chat.war

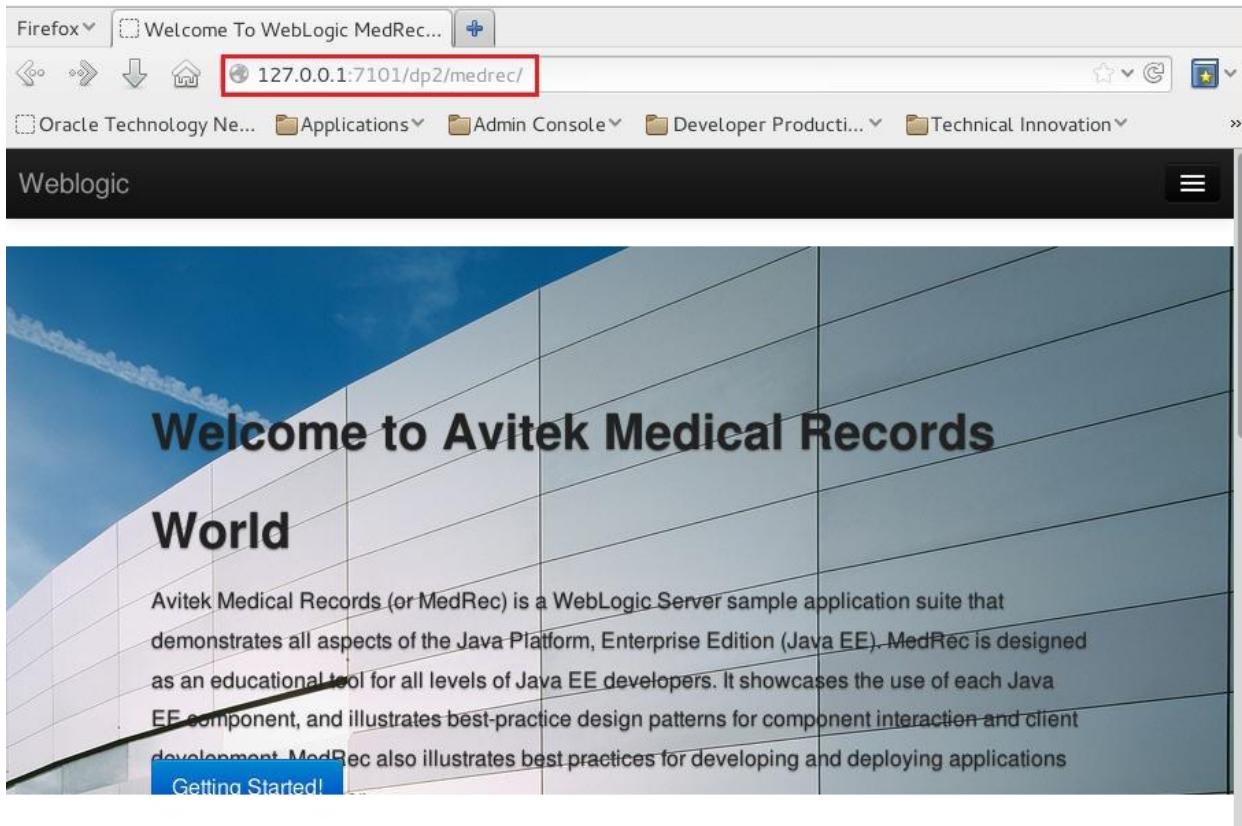
The Scripts MedrecInDP2.sh creates the Virtual Target, Domain Partition, Resource Group, JDBC Datasource, JMS Server, JMS Module, Distributed Queue and Connection Factory then deploys the medrec.ear, physician.ear and chat.war.

- a. Open a new terminal.
- b. cd /u01/content/weblogic-innovation-seminars/WInS_Demos/MT-Workshop/Lab2
- c. ./Medrec2DB.sh (It creates the required user medrec2 in pdb2 and populates the sample data.)
- d. ./MedrecInDP2.sh
- e. Go back to Fusion Middleware Control <http://localhost:7001/em>.
- f. Verify the creation of following the following resources.
 - i. Click on **WebLogic Domain ->Environment ->Virtual Target**. Here we have **dp2** as **URI Prefix** for the Virtual Target **VT-Medrec-2**.
 - ii. Click on **WebLogic Domain ->Environment ->Domain Partition**.
 - iii. Click on Domain Partition **dp2** then Select **Domain Partition -> Administration -> Resource Groups**.
 - iv. Click on Resource group **app2RG**.
 - v. In the “**Services**” and “**Deployments**” tab, you can verify the creation of above System Resources here.

Accessing Medrec Application in Domain Partition dp2

While accessing the application we need to use the Virtual Target URI. As domain partition dp2 is targeted to Virtual Target VT-Medrec-2, which has /dp2 as URI, we need to add it in URL for the accessing the application.

- a. In Firefox, type the URL: <http://127.0.0.1:7101/dp2/medrec/>



- b. As both this application has exactly same JNDI name used within application, JNDI name of Datasource, JMS connection factory, mail sessions, Distributed Queue.
- c. Click on Getting Started!
- d. Under **Patient**, Click on Login, Try to login with weblogic@oracle.com/welcome1. You will not be able to login. As both Medrec application is connected to different database. So in Multitenant WebLogic Server, you can deploy exactly same application with same configuration but with different database and there will be no JNDI conflict in domain.

Configuration of Day Trader application in domain partition 3

Here we will create the below configuration through WLST to Run Day Trader Application on Domain Partition dp3.

Virtual Target: VT-daytrader

Domain Partition: dp3

Resource Group app3RG

app1RG:

Datasource:

Name:	jdbc/datasources/TradeDataSource,
JNDI Name:	jdbc/datasources/TradeDataSource
Name:	jdbc/datasources/NoTxTradeDataSource
JNDI Name:	jdbc/datasources/NoTxTradeDataSource

Persistence Store: MyFileStore

JMS Server: MyJMServer

JMS Module: MyJMSModule

MyJMSModule:

Subdeployment: MySubdeployment

Connection Factory:

Name:	jms/myQueueConnectionFactory,
JNDI Name:	jms/myQueueConnectionFactory
Name:	jms/myTopicConnectionFactory
JNDI Name:	jms/myTopicConnectionFactory

Distributed Queue:

Name:	jms/TradeBrokerQueue
JNDI Name:	jms/TradeBrokerQueue

Distributed Topic:

Name:	jms/TradeStreamerTopic
JNDI Name:	jms/TradeStreamerTopic

Applications: web-3.0.0.war

This DayTraderInDP3.sh creates the Virtual Target, Domain Partition, Resource Group, JDBC Datasource, JMS Server, JMS Module, Distributed Queue and Connection Factory then deploys the web-3.0.0.war.

- a. cd / u01/content/weblogic-innovation-seminars/WInS_Demos/MT-Workshop/Lab2
- b. ./DayTrader3DB.sh (It creates the required user for pdborcl database.)
- c. ./DayTraderInDP3.sh
- d. Go back to Fusion Middleware Control <http://localhost:7001/em>
- e. Verify the creation of following the following resources.
 - i. Click on **WebLogic Domain ->Environment ->Virtual Target**. Here we have **dp3** as **URI Prefix** for the Virtual Target **VT-daytrader**.
 - ii. Click on **WebLogic Domain ->Environment ->Domain Partition**.
 - iii. Click on Domain Partition to **dp3** then Select **Domain Partition -> Administration -> Resource Groups**.
 - iv. Click on Resource group **app3RG**.
 - v. In **Services** and **Deployments** tab, you can verify the creation of above System Resources here.

Access Day Trader Application in Domain Partition dp3

- a. Go to Firefox and type the URL: <http://127.0.0.1:7101/dp3/daytrader/>
- b. Click on **Configuration** tab, click on “**Re-populate Day Trader Database**”. It creates the 500 users in the database and also populates some sample data.

Benchmark Configuration Tools	Description
Reset DayTrader (to be done before each run)	Reset the DayTrader runtime to a clean starting point by logging off all users, removing new registrations and other general cleanup. For consistent results this URL should be run before each Trade run.
Configure DayTrader run-time parameters	This link provides an interface to set configuration parameters that control DayTrader run-time characteristics such as using EJBs or JDBC. This link also provides utilities such as setting the UID and Password for a remote or protected database when using JDBC.
(Re)-create DayTrader Database Tables and Indexes	This link is used to (a) initially create or (b) drop and re-create the DayTrader tables. A DayTrader database should exist before doing this action , the existing DayTrader tables, if any, are dropped, then new tables and indexes are created. Please stop and re-start the Daytrader application (or your application server) after this action and then use the "Repopulate DayTrader Database" link below to repopulate the new database tables.
(Re)-populate DayTrader Database	This link is used to initially populate or re-populate the DayTrader database with fictitious users (uid:0, uid:1, ...) and stocks (s:0, s:1, ...). First all existing users and stocks are deleted (if any). The database is then populated with a new set of DayTrader users and stocks. This option does not drop and recreate the Daytrader db tables.

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- c. Choose following Options and leave other defaults then click on **Update Config**.

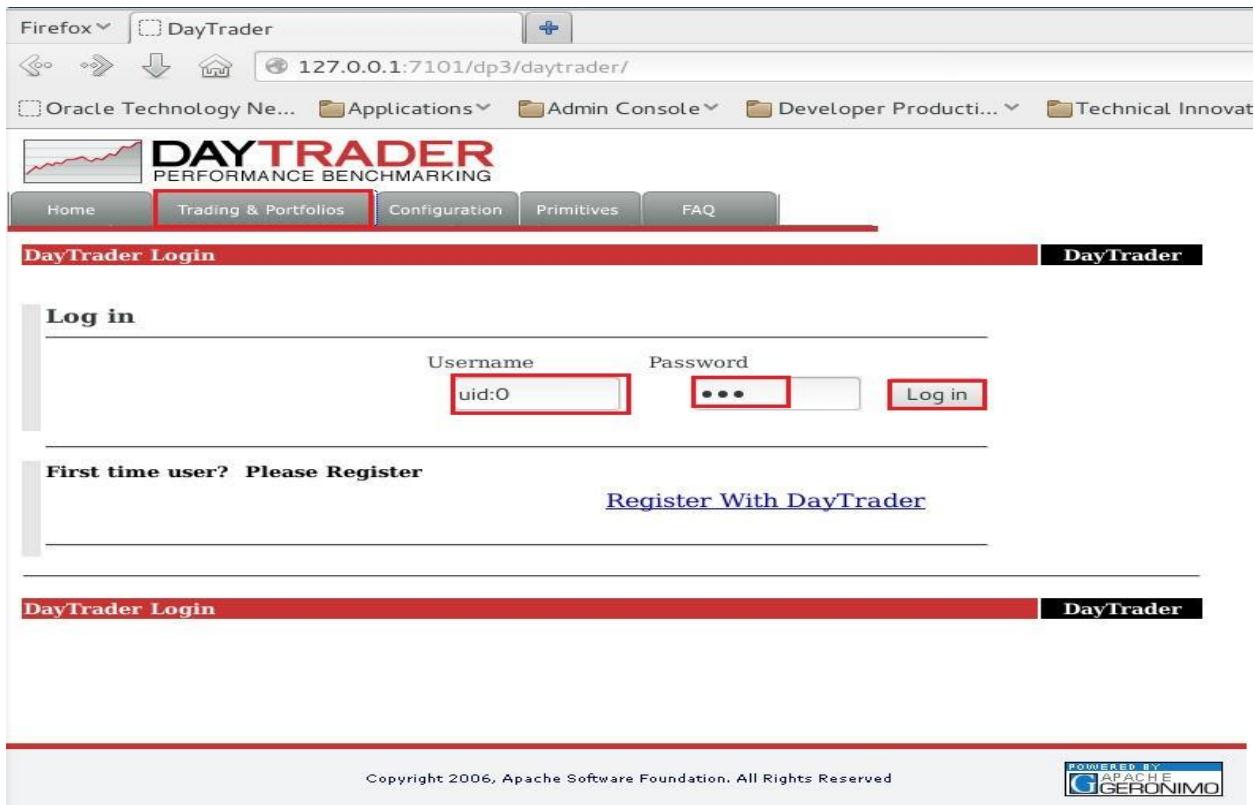
Run Time Mode:	Full EJB 3
JPA Layer:	Hibernate
Order Processing Mode:	Synchronous



DAYTRADER
PERFORMANCE BENCHMARKING

Home	Trading & Portfolios	Configuration	Primitives	FAQ
Run-Time Mode	Run Time Mode determines server implementation of the TradeServices to use in the DayTrader application Enterprise Java Beans including Session, Entity and Message beans or Direct mode which uses direct database and JMS access. See DayTrader FAQ for details.			
<input checked="" type="radio"/> Full EJB3 <input type="radio"/> Direct (JDBC) <input type="radio"/> Session (EJB3) To Direct				
JPA Layer	JPA Layer determines what kind of JPA Implementation Daytrader EJB classes use. Typically, Apache Geronimo uses OpenJPA, and RedHat JBoss 5 uses Hibernate.			
<input type="radio"/> OpenJPA <input checked="" type="radio"/> Hibernate				
Order-Processing Mode	Order Processing Mode determines the mode for completing stock purchase and sell operations. Synchronous mode completes the order immediately. Asynchronous_2-Phase performs a 2-phase commit over the EJB Entity/DB and MDB/JMS transactions. See DayTrader FAQ for details.			
<input type="radio"/> Synchronous <input type="radio"/> Asynchronous_2-Phase				
Scenario Workload Mix	This setting determines the runtime workload mix of DayTrader operations when driving the benchmark through TradeScenarioServlet. See DayTrader FAQ for details.			
<input type="radio"/> Standard <input checked="" type="radio"/> High-Volume				
WebInterface				

- d. Once it is done, go to terminal.
- e. ./correctDB.sh (This application has some issue, so to solve it we are removing some data from database)
- f. Close the terminal.
- g. Click on **Trading & Portfolios** tab, Enter uid:0/xxx as username/password then click on **Login**.



The screenshot shows a Firefox browser window with the following details:

- Address Bar:** Firefox, DayTrader, 127.0.0.1:7101/dp3/daytrader/
- Title Bar:** Oracle Technology Ne..., Applications, Admin Console, Developer Producti..., Technical Innovat...
- Page Content:**
 - Header:** DAYTRADER PERFORMANCE BENCHMARKING
 - Navigation:** Home, Trading & Portfolios, Configuration, Primitives, FAQ
 - Section:** DayTrader Login
 - Form:** Log in

Username	Password
uid:0	•••
<input type="button" value="Log in"/>	
 - Text:** First time user? Please Register [Register With DayTrader](#)
 - Footer:** DayTrader Login, DayTrader, Copyright 2006, Apache Software Foundation. All Rights Reserved, POWERED BY APACHE GERONIMO

- h. Click on **Quotes/Trade**, Click on buy to purchase a share.

The screenshot shows the DayTrader application interface. At the top, there is a navigation bar with links for Home, Trading & Portfolios, Configuration, Primitives, and FAQ. Below the navigation bar, a red header bar displays "DayTrader Home", "DayTrader", and "Logoff". The main content area has several sections: "Welcome uid:0", "User Statistics" (including account ID, account creation date, created, total logins, and session created), "Account Summary" (including cash balance, number of holdings, total of holdings, sum of cash/holdings, and opening balance), and a "Market Summary 2015-11-05" table. The Market Summary table contains three parts: "DayTrader Stock Index (TSIA)" with a value of 101.54 (-1.00%), "Trading Volume" with a value of 21350.0, and two tables for "Top Gainers" and "Top Losers" with their respective stock symbols, prices, and changes. The "Top Gainers" table includes rows for s:100 through s:104. The "Top Losers" table includes rows for s:199 through s:196. A copyright notice at the bottom left states "Copyright 2006, Apache Software Foundation. All Rights Reserved". A "POWERED BY APACHE GERONIMO" logo is at the bottom right.

Market Summary 2015-11-05		
DayTrader Stock Index (TSIA)	101.54 (-1.00%)	
Trading Volume	21350.0	
Top Gainers	symbol	price
	s:100	207.86
	s:101	188
	s:102	100.19
	s:103	154.34
	s:104	105.06
Top Losers	symbol	price
	s:199	74.08
	s:198	157.41
	s:197	77.96
	s:196	47

- i. Click on **Portfolio**, Verify the Order then click on Sell.
j. Again click on Portfolio, to verify the Sell of share.
k. Click on **Log off**.

You can create many domain partitions in WebLogic 12.2.1. Your application does not require any specific application development. Your application which is working in previous version of WebLogic 12c, you can deploy them in multitenant environment without modifying the application. Daytrader application is developed by IBM which we deployed in domain partition dp3. So you can also easily deployed application build on different platform to WebLogic Server.

LAB 3: SECURITY ISOLATION

Overview

When you create a domain, it already contains a default security realm. You can also create a custom security realm and use it in your domain as default security realm. In WebLogic 12.2.1 where we have MT, we can create many domain partitions. When we create the domain partition we also get the option to choose the security realm. If we do not choose it, by default our domain partition uses default security realms.

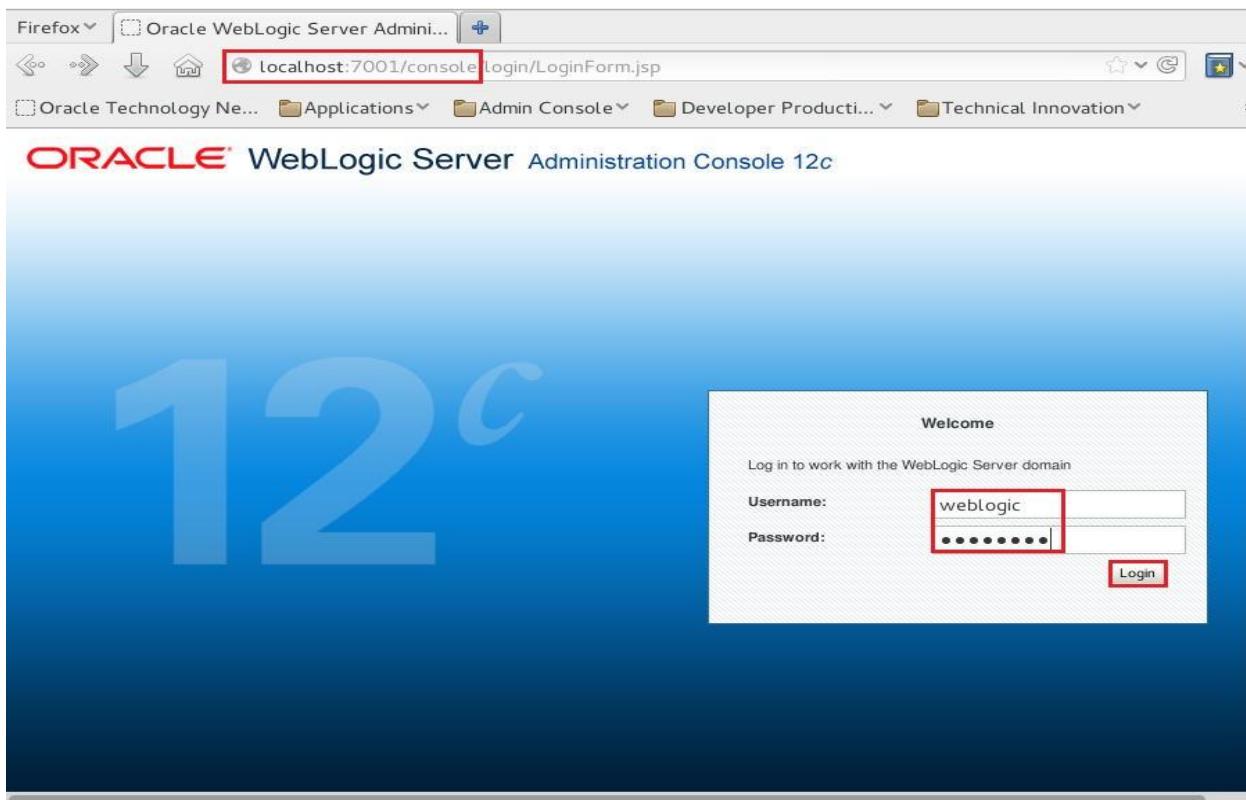
Here you can create your own Security realm and assign it to a domain partition. So In single domain, you will have two domain partitions which are using different security realms.

In this lab we are going to learn the following:

- Creation of New Security Realm.
- Assigning a new Security realm to Domain Partition.
- Medrec application deployed in two different domain partitions which are using two different security realms in single domain.

Creating a New Security Realm

- i. Go to Firefox and type the WebLogic Admin Console URL:
<http://localhost:7001/console>.
- ii. Enter **weblogic/welcome1** as username/password then click on Login.



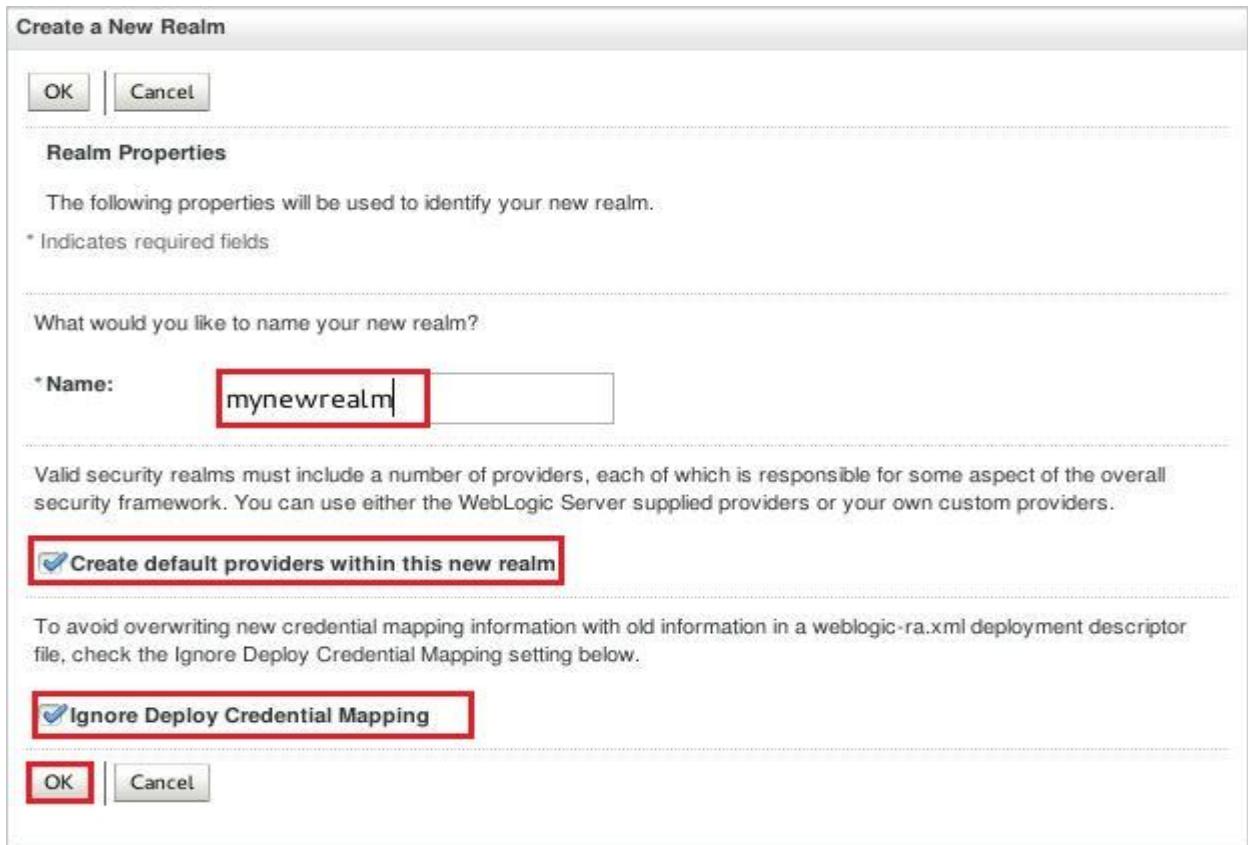
iii. Under Domain Structure, click on **Security Realms**.



The screenshot shows the Oracle WebLogic Server Administration Console 12c interface. On the left, there's a sidebar titled 'Change Center' with sections for 'View changes and restarts' and 'Domain Structure'. The 'Domain Structure' section lists 'base_domain' with several sub-nodes: 'Domain Partitions', 'Environment', 'Deployments', 'Services', 'Security Realms' (which is highlighted with a red box), 'Interoperability', and 'Diagnostics'. The main content area is titled 'Home Page' and contains sections for 'Information and Resources' and 'Domain Configurations'. Under 'Information and Resources', there are 'Helpful Tools' (with links to 'Configure applications', 'Configure GridLink for RAC Data Source', 'Configure a Dynamic Cluster', 'Recent Task Status', 'Set your console preferences', and 'Oracle Enterprise Manager') and 'General Information' (with links to 'Common Administration Task Descriptions', 'Read the documentation', and 'Ask a question on My Oracle Support'). At the bottom of the main content area, there are links for 'Domain', 'Resource Group Templates', and 'Interoperability'.

iv. Click on **New**.

- v. Enter **mynewrealm** as Name; check the box for “**Create default providers within new realm**” and “**Ignore Deploy Credential Mapping**” then click on **OK**.



The screenshot shows the 'Create a New Realm' dialog box. It has 'OK' and 'Cancel' buttons at the top. Below them is a 'Realm Properties' section with a note: 'The following properties will be used to identify your new realm.' A note also says '* Indicates required fields'. The next section is 'What would you like to name your new realm?'. It has a required field 'Name:' with the value 'mynewrealm' (which is highlighted with a red box). Below it is a note: 'Valid security realms must include a number of providers, each of which is responsible for some aspect of the overall security framework. You can use either the WebLogic Server supplied providers or your own custom providers.' There are two checkboxes at the bottom: one checked ('Create default providers within this new realm') and one unchecked ('Ignore Deploy Credential Mapping'). At the very bottom are 'OK' and 'Cancel' buttons.

- vi. Click on **mynewrealm**.
- vii. Click on **Users and Groups -> Users** tab.

Settings for mynewrealm

Configuration **Users and Groups** Credential Mappings Providers Migration

Users Groups

This page displays information about each user that has been configured in this security realm.

Customize this table

Users (Filtered - More Columns Exist)

	Name	Description	Provider
There are no items to display			

New Delete Showing 0 to 0 of 0 Previous | Next

- viii. Click on New.
 - ix. Enter the following then click on **OK**.
- | | |
|-------------------|--------------------------|
| Name: | administrator |
| Description: | Domain Partition 2 users |
| Provider: | Default Authenticator |
| Password: | welcome1 |
| Confirm Password: | welcome1 |

Create a New User

OK Cancel

User Properties

The following properties will be used to identify your new User.

* Indicates required fields

What would you like to name your new User?

* Name: **administrator**

How would you like to describe the new User?

Description: **Domain Partition 2 users**

Please choose a provider for the user.

Provider: **DefaultAuthenticator**

The password is associated with the login name for the new User.

* Password: *********

* Confirm Password: *********

OK Cancel

Assign the mynewrealm security realm to domain partition dp1.

- i. Click on **Domain Partitions**, then on **Control** tab.
- ii. Check the box near dp1 to make it highlighted and click on **Shutdown ->Force Shutdown Now**.

Name	Default Target	When work completes	Status of Last Action
dp1	VT-Medrec-1	Force Shutdown Now	RUNNING
dp2	VT-Medrec-2		RUNNING
dp3	VT-daytrader		RUNNING

- iii. Once domain partition shutdown, click on dp1.
- iv. In Configuration-> General tab, Under Use Realm, select **mynewrealm** then click on **Save**.

Settings for dp1

Configuration Resource Groups Deployments Services Resource Overrides Coherence Caches

Work Manager Concurrent Templates Monitoring Notes

General Available Targets File Systems JTA Concurrency Partition Work Manager

Resource Management

Save

Use this page to view or change the configuration of a domain partition. Only the targets that have been selected on the Targets page will be available and shown on this page.

Select Default Targets:

Available: [Empty list box]

Chosen: VT-Medrec-1

Select de
These ta
that does

Use Realm: mynewrealm

Primary Identity Domain: idd_dp1

Select a i
Info...

The parti

- v. Click on **Domain Partitions**, then on **Control** tab.
- vi. Select the box near dp1 and click on **Start**.

The screenshot shows the Oracle WebLogic Server Administration Console interface. On the left, there's a navigation tree under 'Domain Structure' for 'base_domain' with 'Domain Partitions' selected. A red box highlights this selection. On the right, the 'Control' tab of the 'Summary of Domain Partitions' page is active. It displays a table of domain partitions:

Name	Default Target(s)	State	Status of Last Action
<input checked="" type="checkbox"/> dp1	VT-Medrec-1	SHUTDOWN	TASK COMPLETED
<input type="checkbox"/> dp2	VT-Medrec-2	RUNNING	TASK COMPLETED
<input type="checkbox"/> dp3	VT-daytrader	RUNNING	TASK COMPLETED

Verified that we have two security realms in different domain partition in single domain

- i. Go to Firefox and type the URL: <http://localhost:7101/dp1/medrec/index.xhtml>
- ii. Under Administrator, click on Login.
- iii. Login with old security realm credential that is administrator/administrator123.
- iv. You must get “Incorrect username or password!”
- v. Login with new security realm credential that is administrator/welcome1.
- vi. Click on Logout. Click on Logout again.
- vii. Go to Firefox and type the URL: <http://localhost:7101/dp2/medrec/index.xhtml>
- viii. Under Administrator, click on Login.
- ix. Login with new security realm credential that is administrator/welcome1.
- x. You must get “Incorrect username or password!”
- xi. Login with old security realm credential that is administrator/administrato123.
- xii. Click on Logout. Click on Logout again.

Here we learned how you can have two security realms in a domain. So one of your domain partition can use default security realm and other can use custom security realm created by you in same domain.

LAB 4: EXPORT/IMPORT DOMAIN PARTITION

Overview

In this Lab, We already created a Non-JRF domain dev_domain and configured it with all required resources for Medrec application. You will remove domain partition dp1 from base_domain. As this domain partition is targeted to Virtual Target VT-Medrec-1 and we are going to import a new domain partition on this Virtual target. So we need to remove this domain partition dp1 for this Lab2.

We are going to learn the following:

- Exporting a domain partition from a Non-JRF domain dev_domain and importing it to a Restricted JRF domain base_domain.

Note: To simplify import/export both domains contain Virtual Target with the same name. In our case, base_domain and dev_domain has VT-Medrec-1 as Virtual Target. It is possible to make import/export without that restriction. To import partition and bind it to virtual target of different name, you should modify settings inside associated “*-attributes.JSON” file.

Stop and remove domain partition dp1 from base_domain.

- a. In Fusion Middleware Control <http://localhost:7001/em> , Click on **WebLogic Domain -> Environment -> Domain Partition**.
- b. Check the **box** near dp1 then click on **Control -> Stop->Force Stop Now**. On the Confirmation Screen Click on **OK**. Once you see the message “**Partition state after the operation is SHUTDOWN**” then click on **Close**.

Name	Status	OTD Partition	Realm	Default Targets	Available Targets
dp1	Up	When work completes	newrealm	VT-Medrec-1	VT-Medrec-1
dp2	Running			VT-Medrec-2	VT-Medrec-2
dp3	Running			VT-daytrader	VT-daytrader

- c. Check the box near **dp1** and make it highlighted then click on **Delete**. In Delete Domain Partition Screen, click on OK.

The screenshot shows the Oracle Enterprise Manager interface for a WebLogic Domain named 'base_domain'. At the top, there are navigation tabs for 'WebLogic Domain' and 'weblogic'. The date 'Nov 5, 2015 6:14:46 PM PST' is also visible. Below the header, there are two pie charts: 'Status' (Up 2, Down 1) and 'State' (Running 2, Shutdown 1). A 'Domain Partitions' section follows, containing a table with columns: Name, Status, State, OTD Partition, Realm, Default Targets, and Available Targets. Two rows are present: 'dp1' (Status: Shutdown, State: Shutdown) and 'dp2' (Status: Up, State: Running). The 'dp1' row has its 'Name' cell highlighted with a red box. The 'Delete' button in the toolbar above the table is also highlighted with a red box.

Name	Status	State	OTD Partition	Realm	Default Targets	Available Targets
dp1	Shutdown	Shutdown		mynewrealm	VT-Medrec-1	VT-Medrec-1
dp2	Up	Running			VT-Medrec-2	VT-Medrec-2

- d. Go to Firefox and type the URL: <http://localhost:7101/dp1/medrec/>
e. Confirm that page return “Error 404—Not Found”.

The screenshot shows a Firefox browser window with the address bar containing 'localhost:7101/dp1/medrec/'. The main content area displays an 'Error 404--Not Found' message. Below this, a section titled 'From RFC 2068 Hypertext Transfer Protocol -- HTTP/1.1:' is shown, followed by '10.4.5 404 Not Found' and a detailed explanation of the error status code.

Error 404--Not Found

From RFC 2068 Hypertext Transfer Protocol -- HTTP/1.1:

10.4.5 404 Not Found

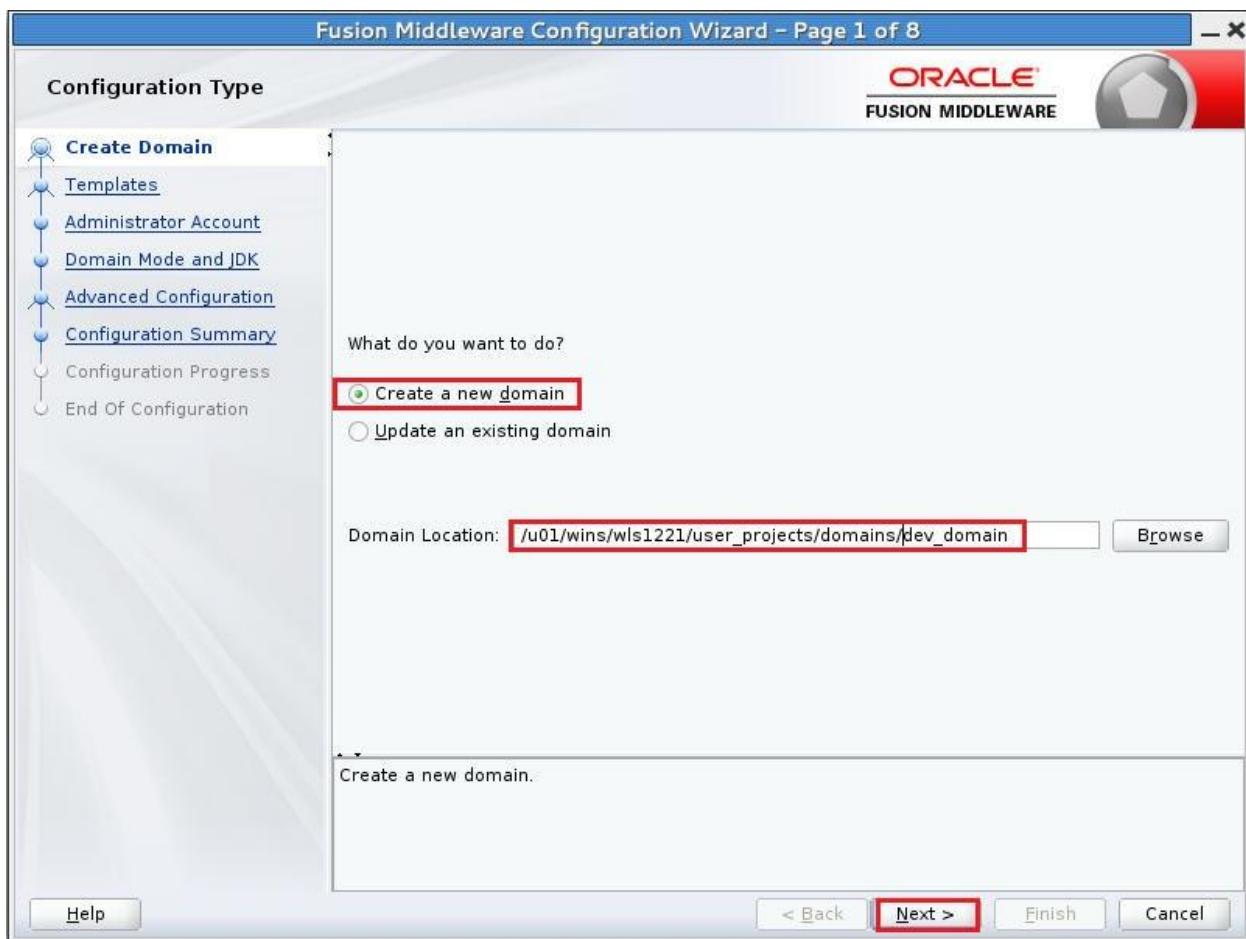
The server has not found anything matching the Request-URI. No indication is given of whether the condition is temporary or permanent.

If the server does not wish to make this information available to the client, the status code 403 (Forbidden) can be used instead. The 410 (Gone) status code SHOULD be used if the server knows, through some internally configurable mechanism, that an old resource is permanently unavailable and has no forwarding address.

Create a new dev single server (Admin Server) domain

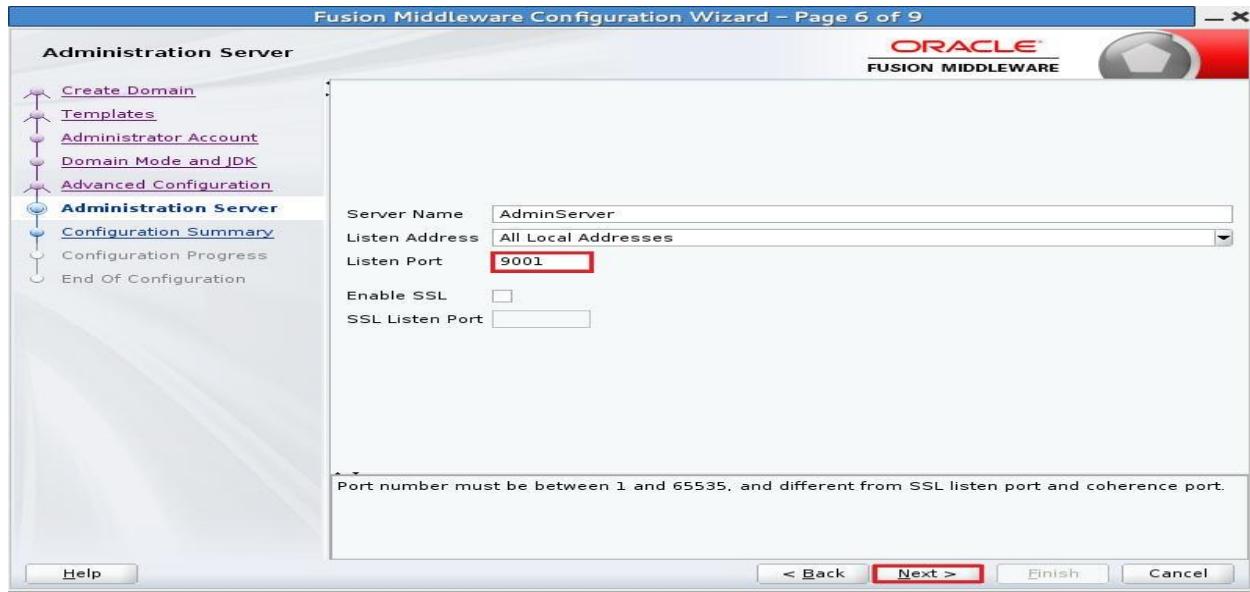
We are going to create a domain which contains only Admin Server, as the previous two domains otd_domain and base_domain are created with RESTRICTED-JRF template. But this domain will be created by default template that is with basic template.

- a. Open a new terminal.
- b. cd /u01/wins/wls1221/oracle_common/common/bin/
- c. ./config.sh
- d. Select “Create a new domain” and Enter “/u01/wins/wls1221/user_projects/domains/dev_domain” as Domain Location then click on **Next**.



- e. Leave **Default** on Templates then click on **Next**.
- f. Enter **weblogic/welcome1** as Name/Password in Administrator Account then click on **Next**.
- g. Leave default on Domain Mode and JDK then click on **Next**.
- h. Check the box near to Administration Server then click on **Next**.

- i. In Administration Server, Enter 9001 as Listen Port then click on **Next**.



- j. Click on **Create** then click on **Next**. Click on **Finish**.

Configure domain for Medrec Application.

In Lab 2, you configure the domain using Fusion Middleware console, but here we are going to configure domain using Weblogic Admin Console. The operation related to Multitenancy, we can also perform using WebLogic Admin Console.

- cd /u01/wls/wls1221/user_projects/domains/dev_domain/
- ./startWebLogic.sh
- In Terminal, Click on Terminal -> Set Title, Enter **dev_admin** as Title then Click on OK.
- Go to Firefox and type the WebLogic Admin Console URL:
<http://localhost:9001/console>.
- Enter **weblogic/welcome1** as **Username/Password** then click on Login.
- Creation of Virtual Target.
 - Click on **Environment -> Virtual Targets**.



- ii. Click on New.
- iii. Enter the following then click on **OK**.

Name:	VT-Medrec-1 (Both Virtual Target Name will be same)
Target:	Admin Server
URI Prefix:	/devDP

Home >Summary of Virtual Targets

Create a New Virtual Target

OK | **Cancel**

Virtual Target Properties

The following properties will be used to identify your new virtual target.

What would you like to name your new virtual target?

Name: **VT-Medrec-1**

Select one managed server or cluster on which you would like to deploy this virtual target

Target: **AdminServer**

Enter one or more hostnames, each on separate lines within the text box.

Host Names:

Enter an URI prefix starting with a / (forward slash).

URI Prefix: **/devDP**

- g. Creation of Domain Partition.
- i. Click on **Domain Partition -> New**.

ORACLE WebLogic Server Administration Console 12c

Change Center

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

- + dev_domain
 - 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...

- Create Domain Partitions
- Configure Domain Partition General Settings
- Export partitions
- Import partitions

System Status

Health of Running Servers

Home >Summary of Virtual Targets >Summary of Domain Partitions

Welcome, weblogic | Connected to: dev_domain

Summary of Domain Partitions

Configuration | **Control**

Domain partitions are an administrative and runtime slice of a WebLogic domain that is dedicated to running application instances and related resources for a tenant.

This page summarizes the domain partitions that have been configured in the current WebLogic Server domain.

Customize this table

Domain Partitions (Filtered - More Columns Exist)

New	Delete	Import	Export	Showing 0 to 0 of 0 Previous Next				
	Name	Resource Groups	Default Target(s)	State				
There are no items to display								

New | **Delete** | **Import** | **Export** | Showing 0 to 0 of 0 Previous | Next

- ii. Enter **Medrec-Dev** as Name and **unchecked** the box for **Default Resource Group**. Click on **Next**.
- iii. Check the box for **VT-Medrec-1** then click on **Next**.
- iv. In Default Targets, Move **VT-Medrec-1** to Chosen. Click on **Finish**.

Create a New Domain Partition

Back | Next | **Finish** | Cancel

Domain Partition Configuration

The following properties will be used to configure your new domain partition.

Default Targets:

Available:	Chosen:
[Empty]	<input checked="" type="checkbox"/> VT-Medrec-1

Security: Not assigned
Realm:

Partition File System

- v. In **Domain Partition -> Control tab**, check the box near Medrec-Dev and click on Start.

Summary of Domain Partitions

Configuration | **Control**

This page lists the state of the domain partitions in this WebLogic Server domain.

Name	Default Target(s)	State	Status of Last Action
Medrec-Dev	VT-Medrec-1	SHUTDOWN	None

Start | Resume | Suspend | Shutdown | Showing 1 to 1 of 1 Previous | Next

Start | Resume | Suspend | Shutdown | Showing 1 to 1 of 1 Previous | Next

h. Creation of Resource Group

- i. Click on domain partition **Medrec-Dev**.
- ii. Click on **Resource Groups -> Configuration tab** then click on New.

This page summarizes the resource groups of a domain partition that have been configured in the current WebLogic Server domain.

<input type="checkbox"/>	Name	Resource Group Template	Effective Targets	State	Notes
There are no items to display					

- iii. Enter **appRG** as Name, Leave others as default then click on **OK**.

i. Creation of Data Source.

- i. Click on **dev_domain -> Services -> Data Sources** then click on **New-> Generic Data Sources**.

A JDBC data source is an object bound to the JNDI tree that provides database connectivity through a pool of JDBC connections. Applications can look up a data source on the JNDI tree and then borrow a database connection from a data source.

<input type="checkbox"/>	Type	JNDI Name	Targets	Scope	Domain Partitions
There are no items to display					

- ii. Enter the following and click on **Next**.

Name: MedRecGlobalDataSourceXA
JNDI Name: jdbc/MedRecGlobalDataSourceXA
Scope: appRG in Medrec-Dev
Database Type: Oracle

Create a New JDBC Data Source

Back | **Next** | Finish | Cancel

JDBC Data Source Properties

The following properties will be used to identify your new JDBC data source.

* Indicates required fields

What would you like to name your new JDBC data source?

* Name: **MedRecGlobalDataSourceXA**

What scope do you want to create your data source in ?

Scope: **appRG in Medrec-Dev**

What JNDI name would you like to assign to your new JDBC Data Source?

JNDI Name: **jdbc/MedRecGlobalDataSourceXA**

What database type would you like to select?

Database Type: **Oracle**

- iii. Select “**Oracle’s Driver (Thin XA) for Service connections; Version: Any**” then click on **Next**.

- iv. In Transaction Options, click on **Next**.

v. Enter the following and click on **Next**.

Database Name: pdborcl
Host Name: localhost
Port: 1521
Database User Name: medrec1
Password: medrec1

Create a New JDBC Data Source

Back | **Next** | Finish | Cancel

Connection Properties

Define Connection Properties..

What is the name of the database you would like to connect to?

Database Name: pdborcl

What is the name or IP address of the database server?

Host Name: localhost

What is the port on the database server used to connect to the database?

Port: 1521

What database account user name do you want to use to create database connections?

Database User Name: medrec1

What is the database account password to use to create database connections?

Password: •••••

Confirm Password: •••••|

vi. Click on **Test Configuration** and verify the connectivity.

vii. Click on **Next** then Click on **Finish**.

j. Creation of JMS Server.

- i. Click on **Services -> Messaging -> JMS Servers**.
- ii. Click on **New**.

ORACLE WebLogic Server Administration Console 12c

Change Center

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

- dev_domain
 - + Domain Partitions
 - + Environment
 - Deployments
 - Services**
 - ↳ Messaging
 - JMS Servers**
 - Store-and-Forward Agents
 - JMS Modules
 - Path Services
 - + Bridges
 - Data Sources
 - Persistent Stores
 - Foreign JNDI Providers

How do I...

- Configure JMS servers
- Configure JMS system modules

Welcome, weblogic | Connected to: dev_domain

Home >Summary of Virtual Targets >Summary of Domain Partitions >Medrec-Dev >Summary of JDBC Data Sources >Summary of JMS Servers

Summary of JMS Servers

JMS servers act as management containers for the queues and topics in JMS modules that are targeted to them. This page summarizes the JMS servers that have been created in the current WebLogic Server domain.

Customize this table

JMS Servers (Filtered - More Columns Exist)

<input type="checkbox"/>	Name	Persistent Store	Target	Current Target	Health	Scope	Domain Partitions
There are no items to display							

New | Delete | Showing 0 to 0 of 0 Previous | Next

<input type="checkbox"/>	Name	Persistent Store	Target	Current Target	Health	Scope	Domain Partitions
Showing 0 to 0 of 0 Previous Next							

New | Delete | Showing 0 to 0 of 0 Previous | Next

iii. Enter the following and click on **Next**.

Name: DevJMServer
Scope: appRG in Medrec-Dev

Create a New JMS Server

Back Next Finish Cancel

JMS Server Properties

The following properties will be used to identify your new JMS Server.

* Indicates required fields

What would you like to name your new JMS Server?

 * Name:

Would you like this new JMS Bridge Destination to be restricted to a specific resource group template or resource group ?

Scope:

Back Next Finish Cancel

iv. Click on **Create a New Store**.

v. Select “File Store” as Type then click on **Next**.

vi. Enter “MedrecDev-fs” as Name and “appRG in Medrec-Dev” as Scope then click on **Next**. Click on **Finish**.

Create a New JMS Server

Back Next Finish Cancel

File Store Properties

The following properties will be used to identify your new file store.

* Indicates required fields

What would you like to name your new file store?

* Name:

What scope do you want to create your jms file store in ?

Scope:

The pathname to the directory on the file system where the file store is kept. This directory must exist on your system, so be sure to create it before completing this tab.

Directory:

Back Next Finish Cancel

vii. Select “**MedrecDev-fs**” as Persistent Store then click on **Next**.



viii. Click on **Finish**.

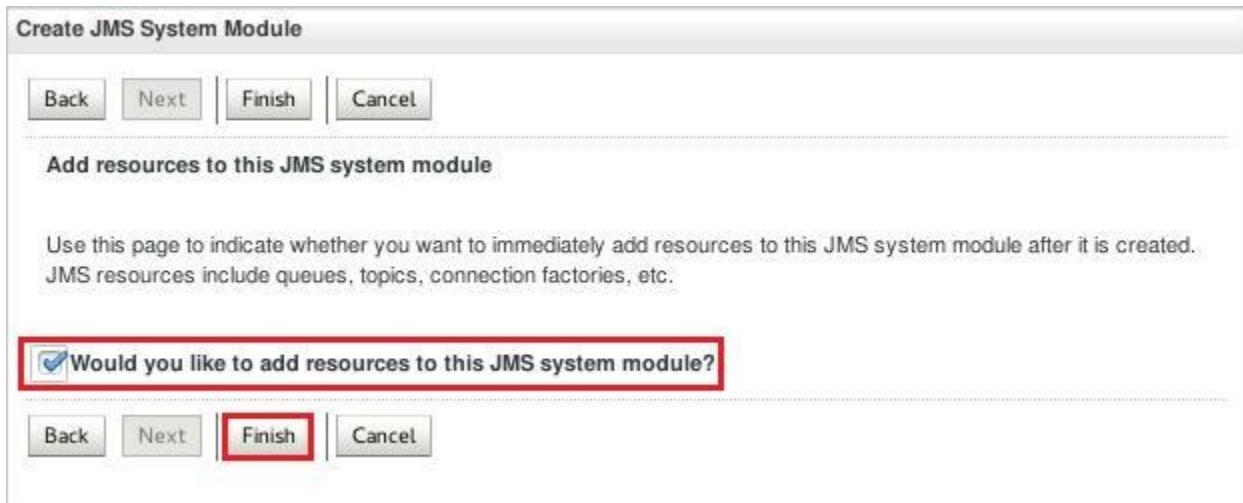
k. Creation of JMS Module.

i. Click on **Services -> Messaging -> JMS Modules** then click on **New**.

The screenshot shows the Oracle WebLogic Server Administration Console. The left sidebar has a 'Domain Structure' tree with 'Services' expanded, showing 'Messaging' with 'JMS Modules' selected. The main content area is titled 'Summary of JMS Modules' and contains a table with columns: 'Name' (with a dropdown arrow icon), 'Type', 'Scope', and 'Domain Partitions'. A message at the bottom of the table says 'There are no items to display'. Navigation buttons for 'New' and 'Delete' are at the top of the table, and 'Showing 0 to 0 of 0' is at the bottom.

ii. Enter **DevJMSModule** as Name and “**appRG in Medrec-Dev**” then click on **Next**.

- iii. Check the box for “Would you like to add resources to this JMS system module” then click on **Finish**.



- I. Creation of Subdeployment.
i. Select **Subdeployments** tab then click on New.

The screenshot shows a page titled "Settings for DevJMSModule". At the top, there are four tabs: "Configuration", "Subdeployments" (which is highlighted with a red border), "Security", and "Notes". Below the tabs, a message states: "This page displays subdeployments created for a JMS system module. A subdeployment is a mechanism by which JMS module resources (such as queues, topics, and connection factories) are grouped and targeted to a server resource (such as JMS servers, server instances, or cluster)". Under the heading "Subdeployments", there is a table with columns: "Name" (with a sorting arrow icon), "Resources", and "Targets". The table is currently empty, showing the message "There are no items to display". At the bottom of the table, there are "New" and "Delete" buttons, and a pagination message "Showing 0 to 0 of 0 Previous | Next".

- ii. Enter **DevMedrecJMS** as Name then click on **Next**.
iii. Select **DevJMSServer** as Target then click on **Finish**.

- m. Creation of Connection Factory.
- Click on Configuration tab then click on New.

Settings for DevJMSModule

Configuration	Subdeployments	Security	Notes																								
This page displays general information about a JMS system module and its resources. It also allows you to configure new resources and access existing resources.																											
Name:	DevJMSModule																										
			The name of this JMS system module. More Info...																								
Scope:	appRG in Medrec-Dev																										
			Specifies if the JMS system module is accessible within the domain, a partition, or a resource group template. More Info...																								
Descriptor File Name:	partitions/Medrec-Dev/jms/devjmsmodule-jms.xml																										
The name of the JMS module descriptor file. More Info...																											
This page summarizes the JMS resources that have been created for this JMS system module, including queue and topic destinations, connection factories, JMS templates, destination sort keys, destination quota, distributed destinations, foreign servers, and store-and-forward parameters.																											
<p>Customize this table</p> <p>Summary of Resources</p> <table border="1"> <thead> <tr> <th>New</th> <th>Delete</th> <th colspan="4">Showing 0 to 0 of 0 Previous Next</th> </tr> <tr> <th><input type="checkbox"/></th> <th>Name </th> <th>Type</th> <th>JNDI Name</th> <th>Subdeployment</th> <th>Targets</th> </tr> </thead> <tbody> <tr> <td colspan="6">There are no items to display</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>New</th> <th>Delete</th> <th colspan="4">Showing 0 to 0 of 0 Previous Next</th> </tr> </thead> </table>				New	Delete	Showing 0 to 0 of 0 Previous Next				<input type="checkbox"/>	Name	Type	JNDI Name	Subdeployment	Targets	There are no items to display						New	Delete	Showing 0 to 0 of 0 Previous Next			
New	Delete	Showing 0 to 0 of 0 Previous Next																									
<input type="checkbox"/>	Name	Type	JNDI Name	Subdeployment	Targets																						
There are no items to display																											
New	Delete	Showing 0 to 0 of 0 Previous Next																									

- Select the box for Connection Factory then click on **Next**.
 - Enter **DevMedRecConnectionFactory** as Name and **com.oracle.medrec.jms.connectionFactory** and leave other default then click on **Next**.
 - Click on **Finish**.
- n. Creation of Distributed Queue.
- Click on New.
 - Select the box for Distributed Queue then click on **Next**.
 - Enter **PatientNotificationQueue** as Name and **com.oracle.medrec.jms.PatientNotificationQueue** as JNDI Name and leave other default then click on **Next**.

- iv. Click on **Advanced Targeting**, Select DevMedrecJMS as Subdeployments and DevJMSServer as Targets then click on **Finish**.

Create a New JMS System Module Resource

Back | Next | **Finish** | Cancel

The following properties will be used to target your new JMS system module resource

Use this page to select a subdeployment to assign this system module resource. A subdeployment is a mechanism by which JMS resources are grouped and targeted to a server instance, cluster, or SAF agent. If necessary, you can create a new subdeployment by clicking the **Create a New Subdeployment** button. You can also reconfigure subdeployment targets later by using the parent module's subdeployment management page.

Select the subdeployment you want to use. If you select (none), no targeting will occur.

Subdeployments: **DevMedrecJMS** ▾ Create a New Subdeployment

What targets do you want to assign to this subdeployment?

Targets: **DevJMSServer** ▾

Back | Next | **Finish** | Cancel

- o. Creation of Mail Session.
i. Click on **Services -> Mail Sessions**.



- ii. Click on **New**.
iii. Enter the following then click on **Next**.
- | | |
|------------|------------------------|
| Name: | MedRecMailSession |
| JNDI Name: | mail/MedRecMailSession |
| Scope: | appRG in Medrec-Dev |

Create a New Mail Session

Back **Next** Finish Cancel

Mail Session Properties

The following property will be used to identify your new mail session.

* Indicates required fields

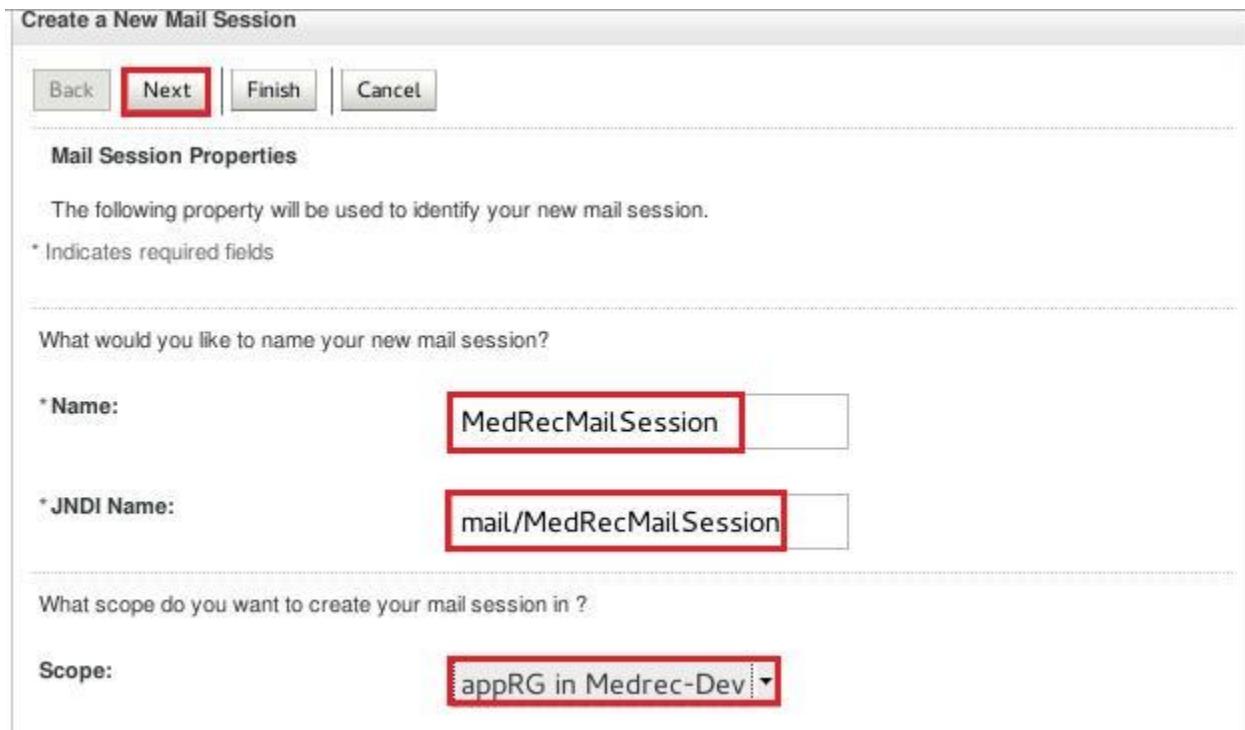
What would you like to name your new mail session?

* Name:

* JNDI Name:

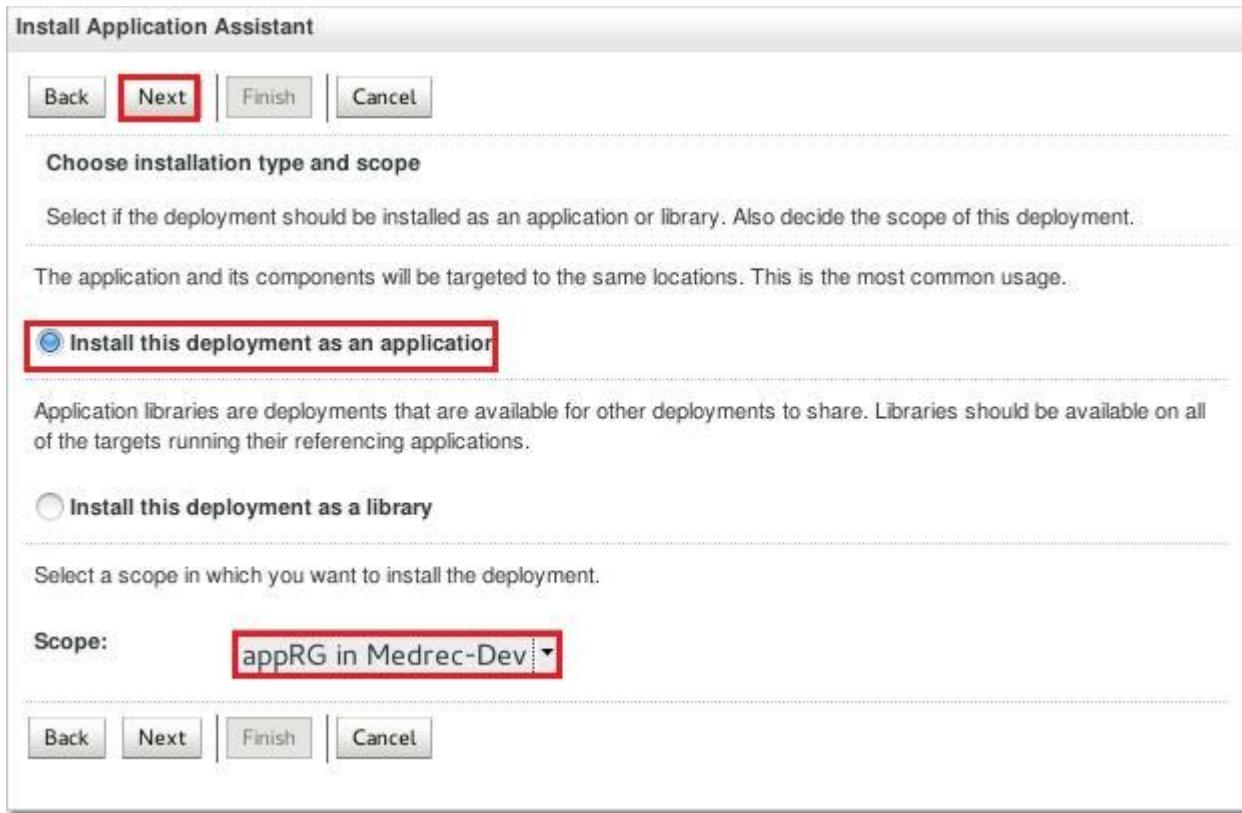
What scope do you want to create your mail session in ?

Scope:



- iv. Click on **Finish**.
- p. Deployments of Application
- Click on **Deployments** then on **Install**.
 - Select the medrec.ear application from the Path /u01/content/weblogic-innovation-seminars/WInS_Demos/MT-Workshop/Lab4/ then click on **Next**.

- iii. Select “**Install this deployment as an application**” and “**appRG in Medrec-Dev**” as Scope then click on **Next**. Click on **Finish**.



- iv. Click on **Install** then Select the physician.ear application from the Path /u01/content/weblogic-innovation-seminars/WInS_Demos/MT-Workshop/Lab4/ then click on **Next**.
- v. Select “**Install this deployment as an application**” and “**appRG in Medrec-Dev**” as Scope then click on **Next**. Click on **Finish**.
- vi. Click on **Install** then Select the chat.war application from the Path /u01/content/weblogic-innovation-seminars/WInS_Demos/MT-Workshop/Lab4/ then click on **Next**.
- vii. Select “**Install this deployment as an application**” and “**appRG in Medrec-Dev**” as Scope then click on **Next**. Click on **Finish**.
- viii. Go to Firefox and type the URL: <http://localhost:9001/devDP/medrec/> and confirm the execution of application.

Exporting the domain partition

- Go back to admin console <http://localhost:9001/console/> of dev_domain.
- Click on **Domain Partition**, and then check the box near to “**Medrec-Dev**” then click on Export.

Name	Resource Groups	Default Target(s)	State
Medrec-Dev	appRG	VT-Medrec-1	RUNNING

- Select the box for “**Include Application Bits**” and enter **/home/oracle/Desktop** as Path then click on **OK**.

OK | Cancel

Export a Domain Partition

Select or enter the directory where the domain partition archive should be placed. Each domain partition should be located in its own directory. The domain partition archive will be overwritten if it already exists. Other files in the directory may be overwritten as well.

Domain: Medrec-Dev
Partition Name:

Do you want to include the installed applications in the exported ZIP file?

Include Application Bits

What is the full path to the key file you want to use to encrypt attributes in the partition archive?

Full path to the Key File: [empty input field]

Where do you want the domain partition archive to be placed ?

Path: /home/oracle/Desktop

- Go to Desktop and Verify the Creation of **Medrec-Dev-attributes.json** and **Medrec-Dev.zip** file.

Importing the domain partition

- Go back to EM console of base_domain. Go to Firefox and type the WebLogic Admin Console URL: <http://localhost:7001/em>.
- Enter **weblogic/welcome1** as Username/Password and click on Login.
- Click on **WebLogic Domain-> Environment ->Domain Partition**.
- Click on Import. Click on **Browse** button, Select the file **Medrec-Dev.zip** from **/home/oracle/Desktop** directory then click on **OK**.

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 is titled 'base_domain'. Under 'Domain Partitions', there is a pie chart showing two green circles: one labeled 'Up (2)' and another labeled 'Running(2)'. Below the chart is a table with columns: Name, Status, State, OTD Partition, Realm, Default Targets, and Available Targets. Two rows are listed: dp2 (Status Up, State Running, Default Targets VT-Medrec-2, Available Targets VT-Medrec-2) and dp3 (Status Up, State Running, Default Targets VT-daytrader, Available Targets VT-daytrader). A red box highlights the 'Import' button in the toolbar above the table. The status bar at the bottom right shows 'Nov 5, 2015 9:32:21 PM PST'.

The screenshot shows the 'Import Domain Partition' dialog box. It contains instructions: 'Use this dialog to import a partition archive into the domain. The archive was previously generated by exporting a partition.' Below this is a text input field 'Import domain partition from zip file' containing the path '/home/oracle/Desktop/Medrec-Dev.zip', which is also highlighted with a red box. To the right of this input field is a 'Browse...' button. There are three checkboxes at the bottom: 'Overwrite existing resource group templates' (unchecked), 'Override domain partition name (optional)' (unchecked), and 'Full path to the key file used to decrypt attributes (optional)' (unchecked). At the bottom right are 'OK' and 'Cancel' buttons, with 'OK' also highlighted with a red box.

- e. Initially it will have State “**Unknown**”. Wait for 1 or 2 minute, click on Refresh icon to get the current state.
- f. Once the status for **Medrec-Dev** domain partition is **Shutdown**, check the box, near Medrec-Dev then click on **Control -> Start**. Click on **Close**. Click on the Refresh icon to get the current state.

Domain Partitions

Domain partitions are the building blocks of WebLogic server multi-tenancy (MT). Multi-tenancy permits multiple client organizations to share a domain, improving efficiency and reducing operation costs. Before creating a domain partition, you must first create one or more virtual targets. Look at the Getting Started topics for more information.

► Getting Started with Multi-Tenancy

Hide Pie Chart

Name	Status	State	OTD Partition	Realm	Default Targets	Available Targets
dp2	Up	Running			VT-Medrec-2	VT-Medrec-2
dp3	Up	Running			VT-daytrader	VT-daytrader
Medrec-Dev	Up	Running			VT-Medrec-1	VT-Medrec-1

- g. Go to Firefox and type the URL: <http://localhost:7101/dp1/medrec/>
- h. Click on “**Getting Started!**” Under Administrator, click on Login.
- i. Enter **administrator/administrator123** as Username/Password then click on Sign in.
- j. Click on Logout. Click on Logout again.

Note: As we have VT-Medrec-1 as Virtual target in both the domains `base_domain` and `dev_domain`. In `base_domain`, we have added administrator user to default security realm. So as this domain partition becomes part of this domain. It also uses the default security realm.

- k. Come back to terminal `dev_admin`.
- l. Stop the Weblogic Server running in `dev_domain`, by pressing **Ctrl +C** in terminal in which Admin Server is running. Close the Terminal.

LAB 5: RESOURCE CONSUMPTION MANAGEMENT

Overview

When applications that are deployed to multiple collocated Domain Partitions, access shared resources (low level resources such as CPU, network, storage) two key problems are likely to be faced:

- Contention and unfairness during allocation: Multiple request for a Shared resources results in contention and interference. Abnormal resource consumption requests may happen due to benign reasons (high traffic-genuine or DDoS), misbehaving, buggy applications or malicious code. These requests could overload the capacity of shared resources, thereby preventing another consumer's access to the resource.
- Variable performance leading to potential Service Level Agreement (SLA) violations: From a cloud operations perspective, performance for different collocated consumers.

It is therefore critical to manage and isolate access to shared resources in the WebLogic application Server by domain partition to ensure fairness in allocation, prevent contention/interferences of access to shared resources and to provide consistent performance for multiple co resident tenants. The Resource Consumption Management (RCM) feature in WebLogic 12.2.1 Multitenancy allows WebLogic System administrator to specify resource consumption management policies (allows the specification of constraints, recourse actions and notification) on shared resources such as CPU, Heap, File and Network.

In this lab we are going to learn the following:

- Enabling RCM by adding extra arguments in Server Java Arguments.
- Creating Resource manager on the basis of Heap Size.
- Assign Resource manager to a Domain Partition.
- Running an example to understand the functioning of RCM.

Enabling RCM by adding extra arguments in Server JAVA_OPTION Arguments

- Go to Firefox and type the Fusion Middleware Control Console URL:

<http://localhost:7001/em>

- Click on **WebLogic Domain -> Control -> Clusters**.

The screenshot shows the Oracle Enterprise Manager Fusion Middleware Control 12c interface. The left sidebar shows a navigation tree under 'Domain'. The 'Control' node is highlighted with a red box. Under 'Control', the 'Clusters' node is also highlighted with a red box. The main content area displays a summary of cluster status: 'Running(3)'. Below this, there is a table with columns 'TD Partition', 'Realm', 'Default Targets', and 'Available Targets'. The data in the table is as follows:

TD Partition	Realm	Default Targets	Available Targets
		VT-Medrec-2	VT-Medrec-2
		VT-daytrader	VT-daytrader
		VT-Medrec-1	VT-Medrec-1

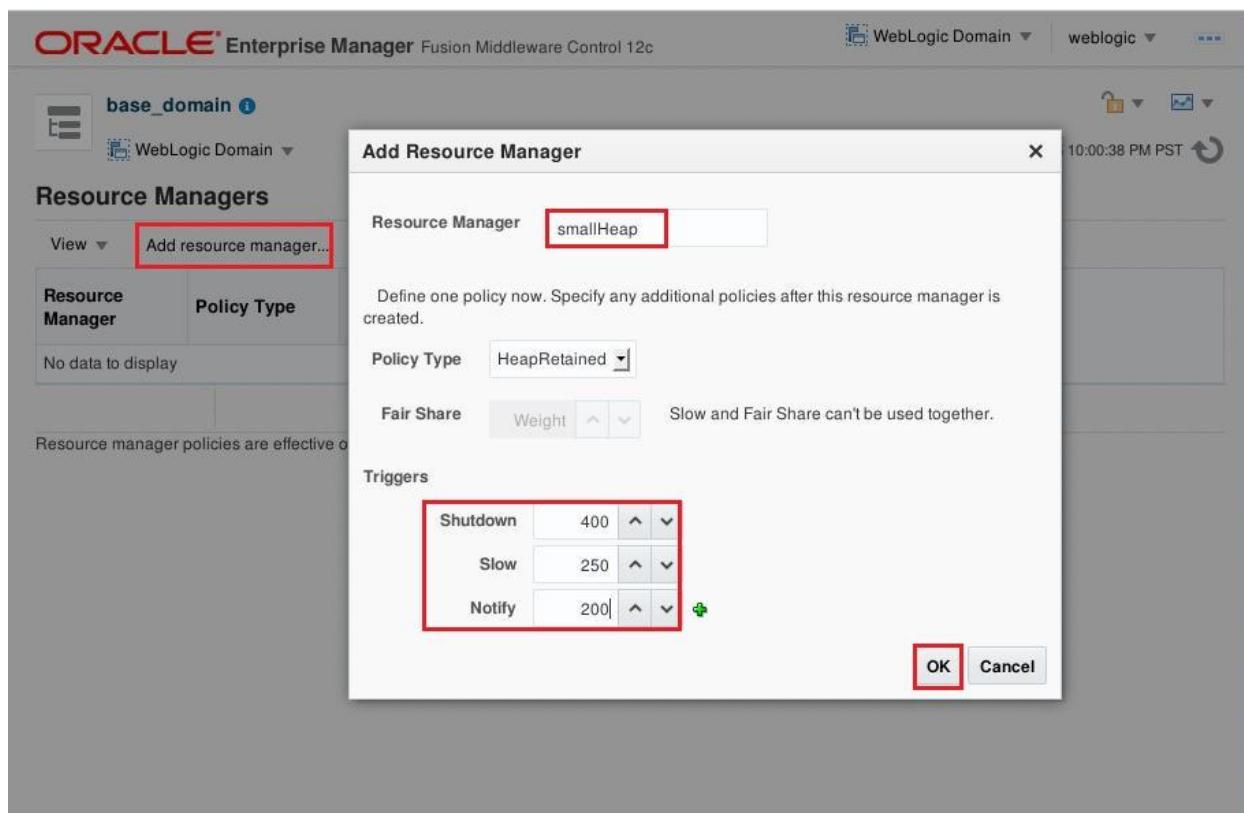
- c. Check the boxes near app-cluster then click on **Control -> Shutdown ->Force Shutdown Now**. Click on **Forcibly Shutdown Servers**.

The screenshot shows the Oracle Enterprise Manager interface for a WebLogic Domain named 'base_domain'. The main title bar reads 'ORACLE Enterprise Manager Fusion Middleware Control 12c'. The top navigation bar includes 'WebLogic Domain' and 'weblogic', with a timestamp 'Nov 5, 2015 9:48:49 PM PST'. Below the title bar, there are buttons for 'Auto Refresh' (set to 'Off') and a refresh icon. The main content area is titled 'Clusters (Control)' and displays a pie chart showing 'Up (1)'. A table lists clusters with columns: Name, Cluster Type, Servers, Cluster Messaging Mode, Default Load Algorithm, and Replication Type. The 'app-cluster' row is selected and highlighted with a yellow background. A context menu is open over the 'app-cluster' row, with the 'Control' option highlighted. The 'Shutdown' option in the menu is also highlighted with a red box, and its submenu 'Force Shutdown Now' is also highlighted with a red box.

- d. Open a new terminal.
e. cd /u01/content/weblogic-innovation-seminars/WInS_Demos/MT-Workshop/Lab5
f. cp setDomainEnv.sh /u01/wins/wls1221/user_projects/domains/base_domain/bin/
g. In above command we have modified the JAVA_OPTIONS as specified below.
JAVA_OPTIONS="-XX:+UnlockCommercialFeatures -XX:+ResourceManagement -
XX:+UseG1GC \${JAVA_OPTIONS} \${JAVA_PROPERTIES}"
h. cd /u01/wins/wls1221/user_projects/domains/base_domain/bin/
i. ./setDomainEnv.sh
j. Go back to Fusion middleware control then click on WebLogic Domain -> Control -> Clusters.
k. Check the box near to app-cluster-1 to make it highlighted and then click on Control -> Start.
l. tail -f /u01/wins/wls1221/user_projects/domains/base_domain/servers/app-cluster-1/logs/app-cluster-1.log
m. In this terminal, Click on Enter Terminal -> Set Title and app-cluster-1 then click on **OK**. We will use these logs to monitor resource consumption manager lab.

Creating a Resource Manager and Configuring Resource Manager for a domain partition

- a. Go to FMW control <http://localhost:7001/em>
 - b. Enter weblogic/welcome1 as Username/Password then click on Login.
 - c. Click on **WebLogic Domain->Environment -> Resource Consumption Managers**.
 - d. Click on **Add Resource Manager** and Enter the following value then click on **OK**
- | | |
|-------------------|--------------|
| Resource Manager: | smallHeap |
| Policy Type: | HeapRetained |
| Shutdown: | 400 |
| Slow: | 250 |
| Notify: | 200 |



Associate the Resource Manager with Medrec-Dev domain partition.

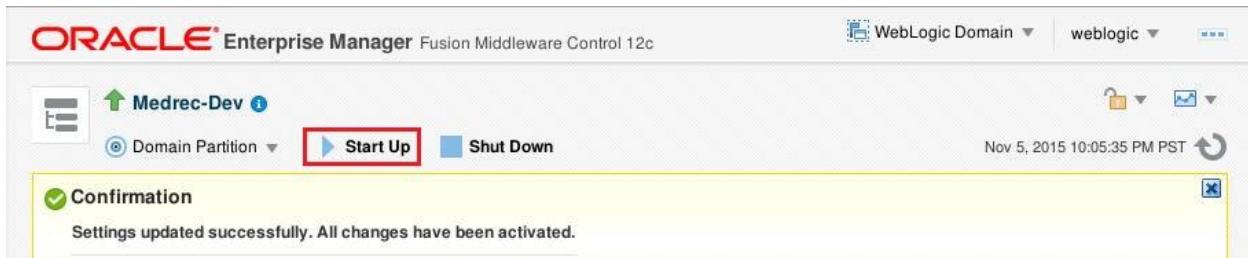
- Click on **WebLogic Domain -> Environment->Domain Partition** then click on **Medrec-Dev**.
- Click on **Domain Partition ->Administration -> Resource Sharing**.

The screenshot shows the Oracle Enterprise Manager interface for a 'Medrec-Dev' domain. The left sidebar has sections for Monitoring, Resource, Deployment, and Administration. Under 'Administration', the 'Resource Sharing' option is highlighted with a red box. The main panel displays 'JDBC and JTA Usage' and 'Resource Usage' metrics. The 'Resource Sharing' section is expanded, showing options like Available Targets, Resource Groups, Load Balancer Configuration, Resource Overrides, and Notes. The 'Resource Sharing' option itself is also highlighted with a red box.

- Under **Resource Manager Configuration**, and Select “**Use a Resource Manager configured for the domain**” and choose “**smallHeap**” then click on **Save**.

The screenshot shows the 'Partition Work Manager Configuration' and 'Resource Manager Configuration' sections for the 'Medrec-Dev' partition. In the 'Partition Work Manager Configuration', the 'No Partition Work Manager' radio button is selected. In the 'Resource Manager Configuration', the 'Use a resource manager configured for the domain: smallHeap' radio button is selected and highlighted with a red box. There are other options like 'No resource manager' and 'Use a domain partition specific resource manager'. At the top right, there are 'Save' and 'Revert' buttons, with 'Save' highlighted with a red box.

- d. Click on **Start Up** near Domain partition. Click on Close.



- e. Open a new terminal.
- f. cd /u01/content/weblogic-innovation-seminars/WInS_Demos/MT-Workshop/Lab5
- g. ./DeployHeap.sh
- h. Close the terminal.
- i. Go back to Firefox and type the URL: <http://localhost:7101/dp1/heapApp/>
- j. Enter 160 in **Allocate Heap** then click on Submit then observe the logs of app-cluster-1 managed server. After that no Warning message should be observed in the log as we didn't cross the boundary of any RCM action.

- k. Enter 50 in **Allocate Heap** then click on Submit then observe the logs of app-cluster-1 managed server. We will cross the first ("Notify") boundary of RCM actions. So we should see associated log message.

```
####<Nov 5, 2015 10:12:23 PM PST> <Notice> <RCM> <localhost.localdomain> <app-cluster-1> <Thread-73> <weblogic> <> <f11a4b64-f694-4af6-8b28-7f32a9f96d47-0000003c> <1446790343249> <[Notifying Quota Reached For Partition: Medrec-Dev] [severity-value: 32] [rid: 0] [Previous Usage: 207153216] [partition-id: cd3147a2-5e49-4731-bad1-94689b69cd5b] [Resource Name: com.oracle.weblogic.rcm.framework.base.HeapRetainedResourceAttributes] [Current Usage: 215825984] [partition-name: Medrec-Dev]> <BEA-2165799> <Resource Consumption Management Notification Message: Given quota has been reached for the partition and a notify action has been executed.>
```

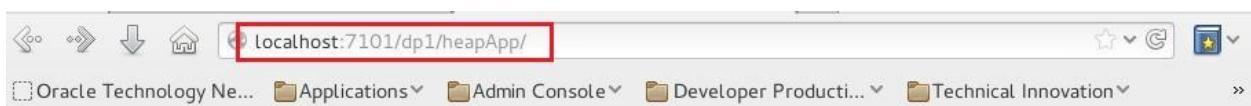
- l. Enter 50 in **Allocate Heap** then click on Submit then observe the logs of app-cluster-1 managed server. We crossed the second limit ("Slow") so the associated message should be seen in the log.

```
####<Nov 5, 2015 10:14:04 PM PST> <Notice> <RCM> <localhost.localdomain> <app-cluster-1> <Thread-72> <weblogic> <> <f11a4b64-f694-4af6-8b28-7f32a9f96d47-0000003d> <1446790444011> <[Slow Action Quota Reached For Partition: Medrec-Dev] [Current Usage: 299741448] [severity-value: 32] [Previous Usage : 298576032] [Was Required action to Slow the Partition is executed?: true] [Resource Name: com.oracle.weblogic.rcm.framework.base.HeapRetainedResourceAttributes] [partition-id: cd3147a2-5e49-4731-bad1-94689b69cd5b] [partition-name: Medrec-Dev] [rid: 0]> <BEA-2165800> <Resource Consumption Management Slow Message: Given quota has been reached for the partition and a slow action has been executed.>
```

- m. Enter 150 in **Allocate Heap** then click on Submit then observe the logs of app-cluster-1 managed server. This will exceed the limit of memory allowed to be used by that partition. So to prevent other partitions from suffering of lack of memory WebLogic will shutdown the partition.

```
####<Nov 5, 2015 10:15:15 PM PST> <Notice> <RCM> <localhost.localdomain> <app-cluster-1> <Thread-74> <weblogic> <> <f11a4b64-f694-4af6-8b28-7f32a9f96d47-0000003e> <1446790515227> <[severity-value: 32] [Proposed Usage: 459764600] [rid: 0] [partition-id: cd3147a2-5e49-4731-bad1-94689b69cd5b] [Shutdown Action Quota Reached For Partition: Medrec-Dev] [Resource Name: com.oracle.weblogic.rcm.framework.base.HeapRetainedResourceAttributes] [Current Usage: 442240104] [partition-name: Medrec-Dev]> <BEA-2165801> <Resource Consumption Management Shutdown Message: Given quota has been reached for the partition and a shutdown action has been executed.>
```

- n. Refresh the page, <http://localhost:7101/dp1/heapApp/> which return 404 and confirm shutdown of the domain partition Medrec-dev in managed server 1.



Error 404--Not Found

From RFC 2068 Hypertext Transfer Protocol -- HTTP/1.1:

10.4.5 404 Not Found

The server has not found anything matching the Request-URI. No indication is given of whether the condition is temporary or permanent.

If the server does not wish to make this information available to the client, the status code 403 (Forbidden) can be used instead. The 410 (Gone) status code SHOULD be used if the server knows, through some internally configurable mechanism, that an old resource is permanently unavailable and has no forwarding address.

Note: As this domain partition is target to virtual target which is target at cluster which consists of two managed servers. So this domain partition stopped working on managed server 1, but if you access the application on managed server 2, you still will be able to access the application in this domain partition. If similar things happen in managed server 2 and domain partition shutdown on managed server 2 as well, then domain partition will be shutdown.

LAB 6: OTD INTEGRATION AND RESOURCE MIGRATION

Creating Domain Partition front ended by OTD

- a. Click on WebLogic Domain -> Environment ->Virtual Target.
- b. Click on Create.
- c. Enter VT-1 as Name and /dp4 as Uri Prefix then click on Add to Enter localhost as Host Name then click on Next.

The screenshot shows the Oracle Enterprise Manager interface for creating a virtual target. The top navigation bar says "ORACLE Enterprise Manager Fusion Middleware Control 12c" and has a dropdown "weblogic". The main area is titled "base_domain" with tabs "General" and "Targets". A sub-titled "Create Virtual Target: General" is shown. The "Name" field contains "VT-1" and the "Uri Prefix" field contains "/dp4", both highlighted with a red box. Below these fields is a "Hosts" section with a sub-titled "Specify the host name(s) that will be used for front-end access...". It includes a "View" dropdown, an "Add" button (highlighted with a red box), and a "Delete" button. A table-like structure shows a single host entry: "Host Name" with "localhost" listed. At the bottom right of the sub-form are buttons: "Back", "Step 1 of 2", "Next" (highlighted with a red box), and "Cancel".

- d. Select “app-cluster” as Cluster then click on Create.

The screenshot shows the Oracle Enterprise Manager interface for creating a virtual target, specifically on the "Targets" tab. The sub-titled "Create Virtual Target: Targets" is displayed. A note at the top says "Choose a server or cluster to be associated with this virtual target." Below it is a dropdown menu where "Cluster" is selected (highlighted with a red box) and "app-cluster" is chosen from the list. There is also an option for "Server". The "Logging Configuration" section contains a "Log File Name" input field. The "Notes" section contains a "Notes" text area. At the bottom right of the sub-form are buttons: "Back", "Step 2 of 2", "Create" (highlighted with a red box), and "Cancel".

- e. Click on WebLogic Domain -> Environment -> Domain Partition.
- f. Click on Create.
- g. Enter dp4 as name and Check the box for “Use OTD for load balancing” and select “otd_runtime” then click on Next.

Create Domain Partition: General

Use this page to specify general attributes for this domain partition.

* Name Security Realm

Primary Identity Domain

Load Balancer Configuration

If you wish to use a load balancer to front-end this domain partition, choose an Oracle Traffic Director runtime from the list of registered runtimes shown below. If you wish to register a new OTD runtime, please use the Environment->OTD Runtimes menu item on the WebLogic Domain menu.

Use OTD for load balancing
 OTD Runtime

- h. Check the box for “VT-1” as shown below then click on Next.

Create Domain Partition: Available Targets

Select the virtual targets that will be available for this domain partition to use. Note that virtual targets can only be used by one partition; so, only available virtual targets are listed below.

Select	Virtual Target	Set as Default
<input checked="" type="checkbox"/>	VT-1	<input checked="" type="checkbox"/>

- i. Enter app4RG as Resource Group Name and Move VT-1 to Selected Targets then click on Next.

Create Domain Partition: Resource Group

Back Step 3 of 4 **Next** Cancel

A resource group needs to be created within a partition before you can deploy applications or resources. The resource group can optionally extend a resource group template specified at the domain level.

* Resource Group Name: app4RG

Resource Group Template: None

Targets for the Resource Group: Select a target for the resource group from the list of available targets. If the partition has a default target specified, the resource group will implicitly inherit that target.

Available Targets	Selected Targets
	VT-1

- j. Review the Configuration then click on Create.
k. Check box near to dp4 and click on Control -> Start. Click on Close.

base_domain

WebLogic Domain | weblogic | ...

Nov 5, 2015 10:53:08 PM PST

/Domain_base_domain/base_domain > Domain Partitions

Getting Started with Multi-Tenancy

Hide Pie Chart

Status State

Control ▾

View ▾ Create Delete Control ▾ Import Export

Name	Status	OTD Partition	Realm	Default Targets	Available Targets
dp2	Up			VT-Medrec-2	VT-Medrec-2
dp3	Up			VT-daytrader	VT-daytrader
dp4	Shutdown	dp4		VT-1	VT-1
Medrec-Dev	Up			VT-Medrec-1	VT-Medrec-1

Domain Partitions 4 of 4

Deploying simple application to test OTD integration with weblogic

Here we are going to deploy heapApp.war which we used in Lab5. We will access that application through **load balancer** now.

- a. Click on dp4.
- b. Click on **Domain Partition -> Administration -> Resource Groups**.
- c. Click on Resource Group **app4RG**.
- d. Click on Deployments tab, and then click on Deployment -> Deploy.

The screenshot shows the Oracle Enterprise Manager interface for a WebLogic Domain. The top navigation bar includes 'WebLogic Domain' and 'weblogic'. Below the navigation is a toolbar with icons for Start Up and Shut Down, and a date/time stamp of 'Nov 5, 2015 11:32:49 PM PST'. The main content area is titled 'Resource Group : app4RG'. At the top of this section, there are tabs: General, Deployments (which is highlighted with a red box), Services, Targets, Monitoring, Control, and Notes. Below the tabs, a message states 'This page displays a list of Java EE applications and standalone application modules that have been deployed to this resource group.' Underneath this message is a table header with columns: Name, Status, State, Health, and Type. A tooltip for the 'Deploy' button indicates it is used for 'Applications, resource adapters, and libraries.' At the bottom of the table area, there are buttons for 'Redeploy', 'Undeploy', and 'Fetch Deployment Plan'. A status bar at the bottom right shows 'Deployments 0 of 0'.

- e. Select “Archive or exploded directory is on the server where Enterprise Manager is running” then click on Browse. Select the file heapApp.war from /u01/content/weblogic-innovation-seminars/WInS_Demos/MT-Workshop/Lab6/ location then click on OK.

ORACLE® Enterprise Manager Fusion Middleware Control 12c

weblogic ▾ ...
dp4 i

Select Archive Select Target Application Attributes Deployment Settings

Deploy Java EE Application: Select Archive

Scope
The scope that this application will be deployed to : Resource group "app4RG" in domain partition "dp4"

Archive or Exploded Directory
Java EE archives, Web Modules (WAR files), EJB Modules (EJB JAR files), Resource Adapter Modules (RAR files), Coherence Archives (GAR files), JDBC Modules, JMS Modules, and library files (Jar files) can be deployed. You can also deploy an exploded archive that is present on the server where Enterprise Manager is running.

Archive is on the machine where this Web browser is running.
 Archive or exploded directory is on the server where Enterprise Manager is running.
 /u01/content/weblogic-innovation-seminars/WInS_Demos/MT-Workshop/Lab6/heapApp.war Browse...

Deployment Plan
The deployment plan is a file that contains the deployment settings for an application. You can use a previously saved deployment plan for this application. Later in the deployment process, you can optionally edit the deployment plan and save it for a future deployment of this application. If you

- f. Click on Next then click on Deploy. Click on Close.
- g. Go to Firefox and type the URL <http://localhost:8080/dp4/heapApp/>.



Total Heap in Use = 0 MB

Allocate Heap : MB Submit

Migration Resource Group from one Cluster to other Cluster

Now we are going to migrate Resource Group app4RG from app-cluster to another cluster. As the application deployed in app4RG are front ended by OTD, when you migrate your resource group on other cluster. WebLogic automatically detect the server setting and you can access the application continuously without doing any manual configuration.

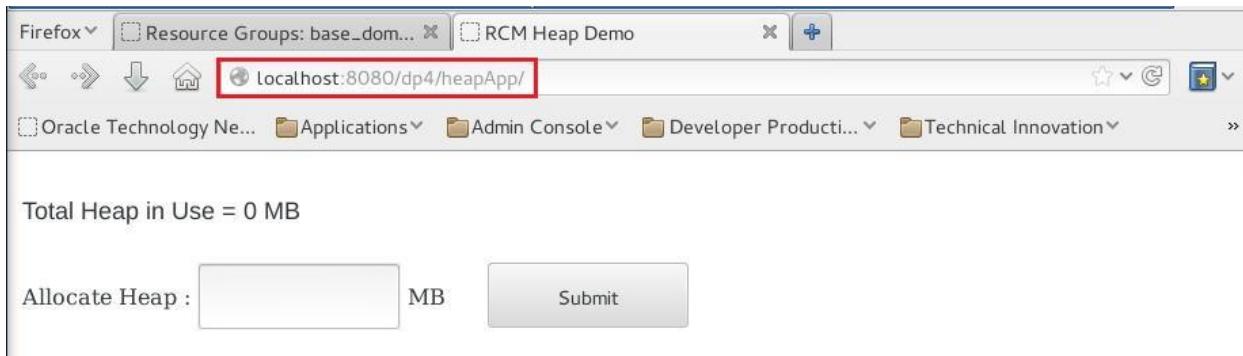
- a. Go back to Fusion middleware control console <http://localhost:7001/em>
- b. Create a new Cluster.

- i. Click on **WebLogic Domain -> Environment -> Clusters**.
 - ii. Click on **Create -> Dynamic Cluster**.
 - iii. Enter **new-cluster** as Name then click on Next.
 - iv. Enter 1 as Dynamic Cluster Size then click on Next.
 - v. Select the box for “**Use a single machine for all dynamic servers**” and choose “**machine**” as Selected Machine then click on Next.
 - vi. Enter 9100 and 10101 as **Base Listen Port** and **SSL Base Listen Port** Respectively then click on Next.
 - vii. Review the Configuration then click on **Create**.
 - viii. Click on **WebLogic Domain -> Control -> Clusters**.
 - ix. Check the box near **new-cluster** to make it highlighted and then click on **Control -> Start -> Start Servers**.
- c. Migration of Resource Group.
- i. Click on **WebLogic Domain -> Environment -> Resource Groups..**
 - ii. Check the box near to app4RG to make it highlighted and then click on Migrate. Select **new-cluster** as New Target then click on Migrate. In Confirmation window click on Migrate.
 - iii. Once you notice “**Migrating resource group “app2RG” – Completed successfully**” message then click on Close.

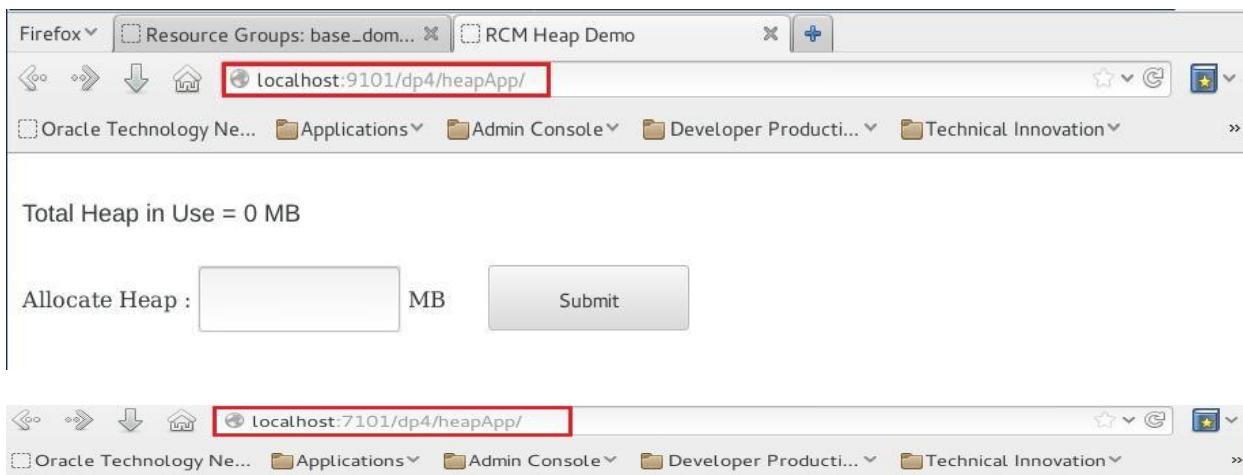
The screenshot shows the Oracle Enterprise Manager interface for managing WebLogic domains. On the left, there's a sidebar with 'base_domain' selected. The main area is titled 'Resource Group Migration'. It displays a table of resource groups, with 'app4RG' selected and highlighted by a red box. The 'New Target' dropdown also has a red box around it, indicating it was selected. A confirmation dialog box is overlaid on the main window, with its title 'Confirmation' and message 'Migrating resource group "app4RG" - Completed Successfully' also highlighted with a red box. The message continues: 'The virtual target "VT-1", to which this resource group is targeted to, has been migrated from "app-cluster (Cluster)" to "new-cluster (Dynamic cluster)"'. At the bottom of the confirmation box are 'Migrate' and 'Cancel' buttons, with 'Migrate' also highlighted with a red box.

Access Application through OTD

- Go to Firefox and type the URL <http://localhost:8080/dp4/heapApp>



- As the Resource group migrated from app-cluster to new-cluster. But still you are able to access the application through same URL. Load balancer is redirecting all requests to new cluster. new-cluster-1 is running on 9101 port and app-cluster-1 is running on 7101.



Error 404--Not Found

From RFC 2068 *Hypertext Transfer Protocol -- HTTP/1.1*:

10.4.5 404 Not Found

The server has not found anything matching the Request-URI. No indication is given of whether the condition is temporary or permanent.

If the server does not wish to make this information available to the client, the status code 403 (Forbidden) can be used instead. The 410 (Gone) status code SHOULD be used if the server knows, through some internally configurable mechanism, that an old resource is permanently unavailable and has no forwarding address.

So you can successfully migrate the resource group from one cluster to another cluster without affecting the front end of your application.

CLEANING AND RESETTING

Cleaning up Environment

- a. Go back to Fusion Middleware Control <http://localhost:7001/em>
- b. Click on WebLogic Domain -> Control -> Cluster.
- c. Check the boxes near to both the cluster then click on Control -> Shutdown -> Force Shutdown now. Click on Forcibly Shutdown Servers.

The screenshot shows the Oracle Enterprise Manager Fusion Middleware Control 12c interface. The top navigation bar includes 'WebLogic Domain' and 'weblogic'. The main area is titled 'Clusters (Control)' with a pie chart showing 'Up (2)'. Below is a table of clusters:

Name	Cluster Type	Servers	Cluster Messaging Mode	Default Load Algorithm	Replication Type
app-cluster	Dynamic	2	Unicast	Round Robin	(None)
new-cluster	When work completes	1	Unicast	Round Robin	(None)

At the bottom, it says 'Rows Selected 2 | Columns Hidden 32 | Clusters 2 of 2'.

- d. Press CTRL + C on Terminal title with otd_admin, otd_nm, base_nm, base_admin, app-cluster-1.
- e. Go back to one terminal.
- f. rm -Rf /u01/wins/wls1221/user_projects/domains/base_domain
- g. rm -Rf /u01/wins/wls1221/user_projects/domains/dev_domain
- h. rm -Rf /u01/wins/wls1221/user_projects/domains/otd_domain
- i. rm -Rf /u01/wins/wls1221/user_projects/applications/base_domain
- j. rm -Rf /u01/wins/wls1221/user_projects/applications/otd_domain
- k. Delete Medrec-Dev.zip and Medrec-Dev-attributes.json from Desktop.
- l. Close all Terminals.