

Configuring Weblogic Server
Oracle FLEXCUBE Universal Banking Solution 12.0.1
Version 3.0
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Table of Contents

1.	CONFIGURING WEBLOGIC SERVER	1-1
1.1	DOMAIN	1-1
1.2	ADMINISTRATION SERVER.....	1-1
1.3	MANAGED SERVER.....	1-2
1.4	MANAGED SERVER CLUSTER	1-2
1.5	NODE MANAGER	1-2
2.	DOMAIN CREATION.....	2-1
2.1	ENVIRONMENT DETAILS	2-1
2.1.1	Node1.....	2-1
2.1.2	Node2.....	2-1
3.	START NODE MANAGER	3-1
3.1	ENABLE GRAPHICAL USER INTERFACE (GUI).....	3-1
3.2	FUSION MIDDLEWARE CONFIGURATION WIZARD	3-1
3.2.1	Configure Managed Server.....	3-6
3.2.2	Cluster Creation and Configuration.....	3-6
3.2.3	Configure machines.....	3-8
4.	PACK AND UNPACK DOMAIN	4-1
4.1	PACK	4-1
4.2	UNPACK	4-1
5.	JVM TUNING.....	5-1
5.1	32 BIT JVM	5-1
5.1.1	SUN JDK	5-1
5.1.2	JROCKIT JDK.....	5-1
5.2	64 BIT JVM	5-2
5.2.1	SUN JDK	5-2
5.2.2	JROCKIT JDK.....	5-2
6.	MANAGED SERVER STARTUP USING SCRIPT	6-1
6.1	STARTING ADMIN SERVER.....	6-1
6.2	STARTING MANAGED SERVERS	6-1
6.3	VERIFYING MACHINE STATUS	6-3
7.	DATA SOURCE CREATION AND JDBC CONFIGURATION	7-1
7.1	FOR ORACLE SINGLE INSTANCE DATABASE.....	7-1
7.1.1	Data source creation : jdbc/fcjdevDSBranch	7-5
7.1.2	Data source creation : jdbc/fcjSchedulerDS.....	7-8
7.1.3	Data source creation: for Oracle RAC database.....	7-8
8.	JDBC TUNING.....	8-1
8.1	GENERAL PARAMETERS	8-1
8.2	MANAGED SERVER & HTTP LOGGING	8-2
8.2.1	General.....	8-2
8.2.2	HTTP	8-3
9.	ORACLE WEBLOGIC LOADBALANCING.....	9-1
10.	APPENDIX.....	10-1
10.1	KNOWN ISSUES	10-1

1. Configuring WebLogic Server

This section of the document provides detailed explanation on the following:

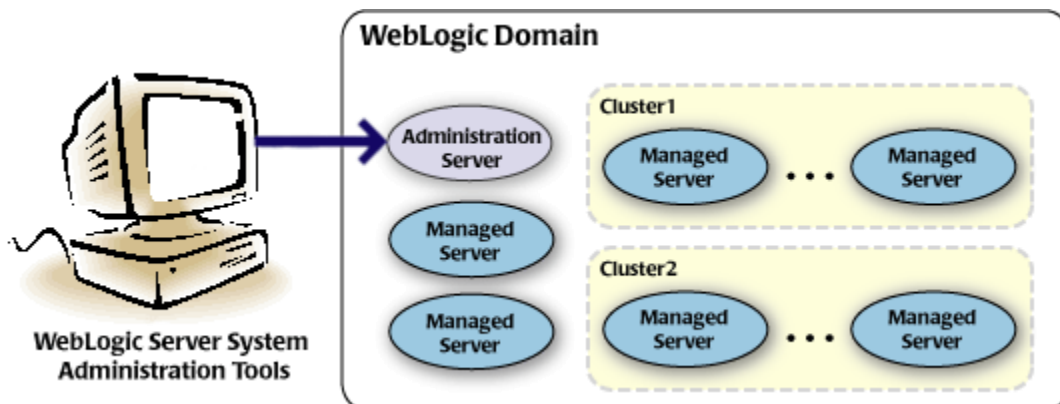
- [Domain](#)
- [Administration Server](#)
- [Managed Server](#)
- [Managed Server Cluster](#)
- [Node Manager](#)

1.1 Domain

A domain is the basic administration unit for WebLogic Server instances. A domain consists of one or more WebLogic Server instances (and their associated resources) that is managed with a single Administration Server. Multiple domains can be defined based on different system administrators' responsibilities, application boundaries, or geographical locations of servers. Conversely, a single domain can be used to centralize all WebLogic Server administration activities.

Each WebLogic Server domain must have one server instance that acts as the Administration Server. Administration Server can be used via the Administration Console or using the command line for configuring all other server instances and resources in the domain.

WebLogic Domain Structure



1.2 Administration Server

A domain includes one WebLogic Server instance that is configured as an Administration Server. All changes to configuration and deployment of applications are done through the Administration Server.

The Administration Server provides a central point for managing the domain and providing access to the WebLogic Server administration tools. These tools include the following:

- WebLogic Server Administration Console: Graphical user interface to the Administration Server.

- WebLogic Server Node Manager: A Java program that lets you start and stop server instances - both Administration Servers and Managed Servers - remotely, and to monitor and automatically restart them after an unexpected failure.

Admin server start mode needs to be configured as Production Mode.

1.3 **Managed Server**

In a domain, server instances other than the Administration Server are referred to as Managed Servers. Managed servers host the components and associated resources that constitute your applications—for example, JSPs and EJBs. When a Managed Server starts up, it connects to the domain's Administration Server to obtain configuration and deployment settings.

In a domain with only a single WebLogic Server instance, that single server works as both the administration server and managed server.

1.4 **Managed Server Cluster**

Two or more Managed Servers can be configured as a WebLogic Server cluster to increase application scalability and availability. In a WebLogic Server cluster, most resources and services are deployed to each Managed Server (as opposed to a single Managed Server,) enabling failover and load balancing.

The servers within a cluster can either run on the same machine or reside in different machines. To the client, a cluster appears as a single WebLogic Server instance.

1.5 **Node Manager**

The Managed Servers in a production WebLogic Server environment are often distributed across multiple machines and geographic locations.

Node Manager is a Java utility that runs as separate process from WebLogic Server and allows you to perform common operations tasks for a Managed Server, regardless of its location with respect to its Administration Server. While use of Node Manager is optional, it provides valuable benefits if your WebLogic Server environment hosts applications with high availability requirements.

If you run Node Manager on a machine that hosts Managed Servers, you can start and stop the Managed Servers remotely using the Administration Console or from the command line. Node Manager can also automatically restart a Managed Server after an unexpected failure.

2. Domain Creation

The following sections provides step-wise WebLogic Server configuration for Oracle FCUBS which covers the following:

- Managed server Creation
- Cluster Creation
- Node Creation

In this example, we are going to create a domain with two managed servers. The managed servers are going to be created on two different physical servers (nodes). This requires Weblogic Server of same version to be installed on both the machines and services (Weblogic and node manager) should be up.

2.1 Environment details

Note that, this document has been prepared based on a test conducted in Linux servers running ORACLE Linux 5 UPDATE 5.

The machine configuration is as given below:

2.1.1 Node1

Hostname: XXX187DOR

IP Address: xx.xx.xx.187

CPU details: 8 core Intel(R) Xeon(R) CPU E5540 @ 2.53GHz

Physical memory: 24GB

2.1.2 Node2

Hostname: XXX186DOR

IP Address: xx.xx.xx.186

CPU details: 8 core Intel(R) Xeon(R) CPU E5540 @ 2.53GHz

Physical memory: 24GB

3. Start Node Manager

You need to start the node manager in both servers before creating a domain. Any domain created before creation of Node Manager Service will not be accessible via node Manager even after restarting node manager. Hence the solution is to run the WLST command “nmEnroll” to enroll that domain with the Node Manager.

If the domain is created after the Node Manager Service has been started should not have to be enrolled against the Node Manager. The Node Manager should automatically be 'reachable' by the domain.

How to check whether nodemanager is already running?

To verify the nodemanager status, execute the following command:

```
ps -ef|grep weblogic.nodemanager.javaHome
```

If the above command returns the process details then node manager is running.

If nodemanager is not running in any of the server, start the Nodemanager in both the servers using **startNodeManager.sh** script under \$WLSHOME/server/bin directory.

3.1 Enable Graphical User Interface (GUI)

Establish a telnet or SSH connection to xx.xx.xx.187 server. Start X-manager (or any similar tool) in windows desktop. Export DISPLAY environment variable to the machine IP where x-manager is running.

Syntax: export DISPLAY=<ip-address>:<port>

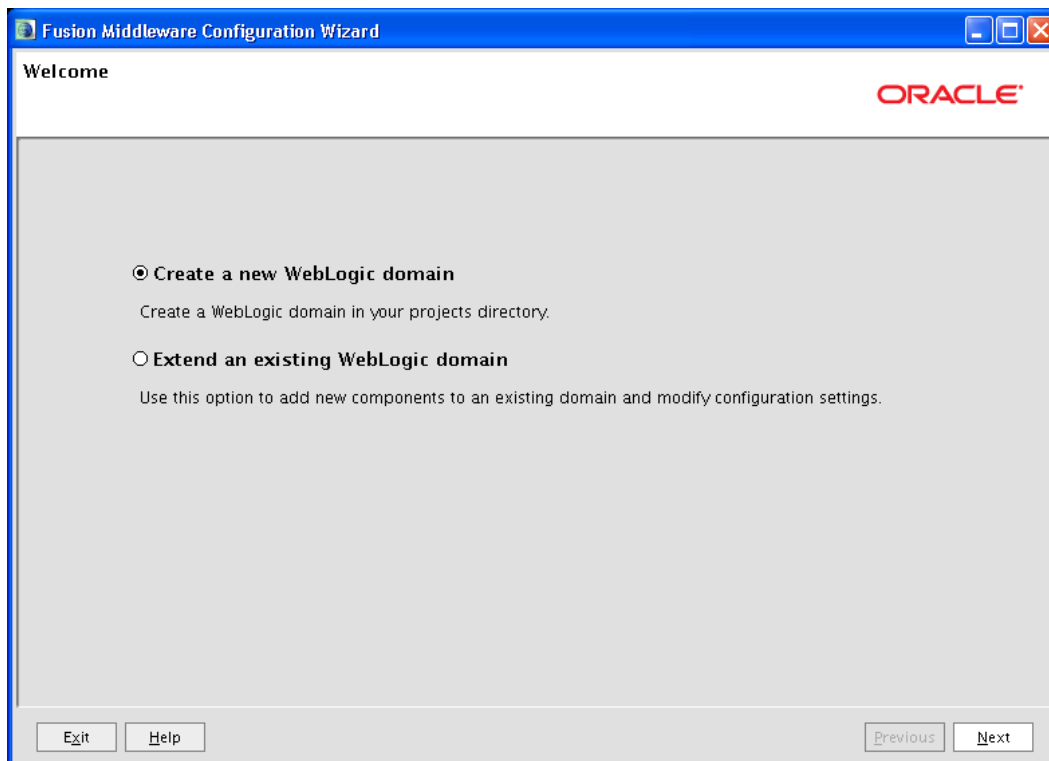
Test using xclock

3.2 Fusion Middleware Configuration Wizard

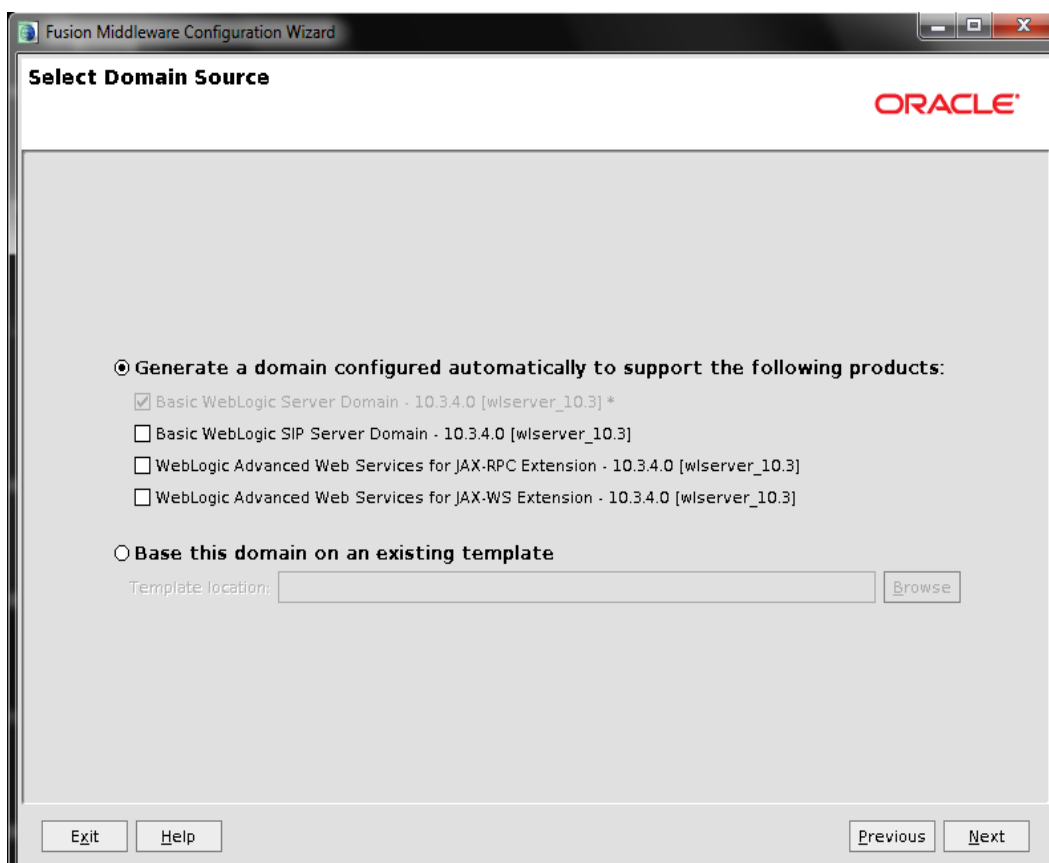
Weblogic domain creation and configuration will be done from server xx.xx.xx.187.

From server xx.xx.xx.187, launch the fusion Middleware configuration wizard using the command **config.sh** available under \$WLS_HOME/common/bin directory.

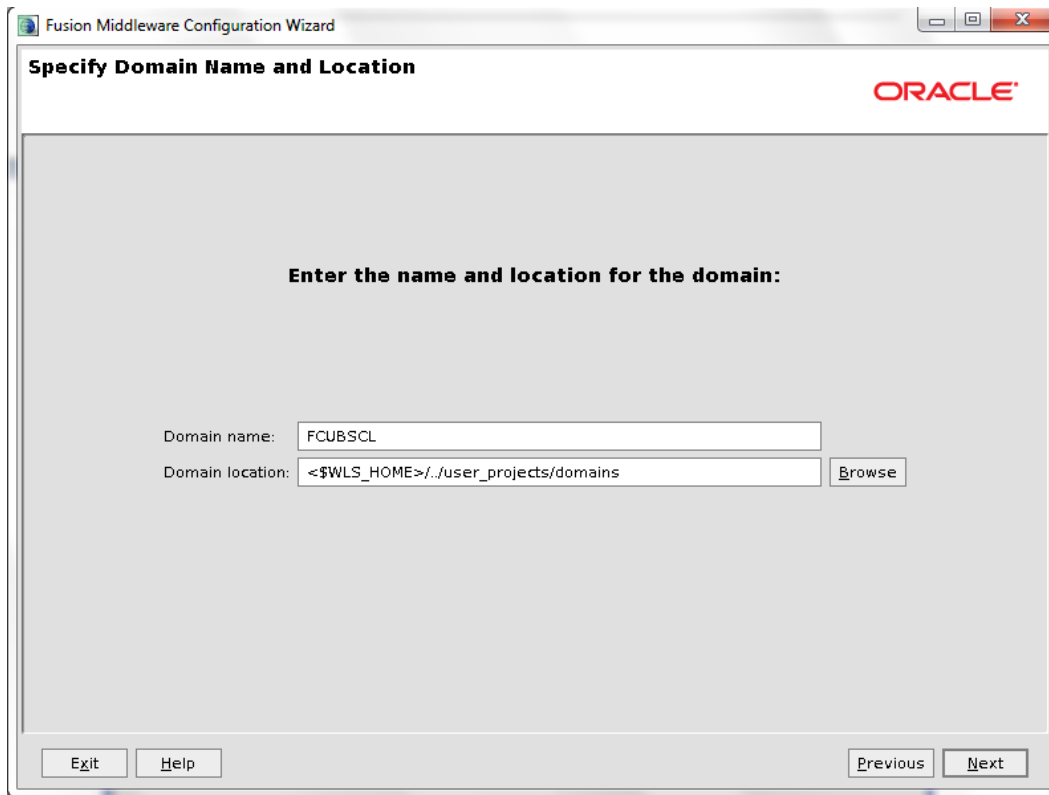
- In the Welcome screen, select “Create a new Weblogic domain” option. Click on **Next**.



- Select the **Domain Source** and click **Next**.



- Specify **Domain Name** and **Location**.
Ensure to replace <WLS_HOME> with the full path. Click **Next**.



Fusion Middleware Configuration Wizard

Specify Domain Name and Location

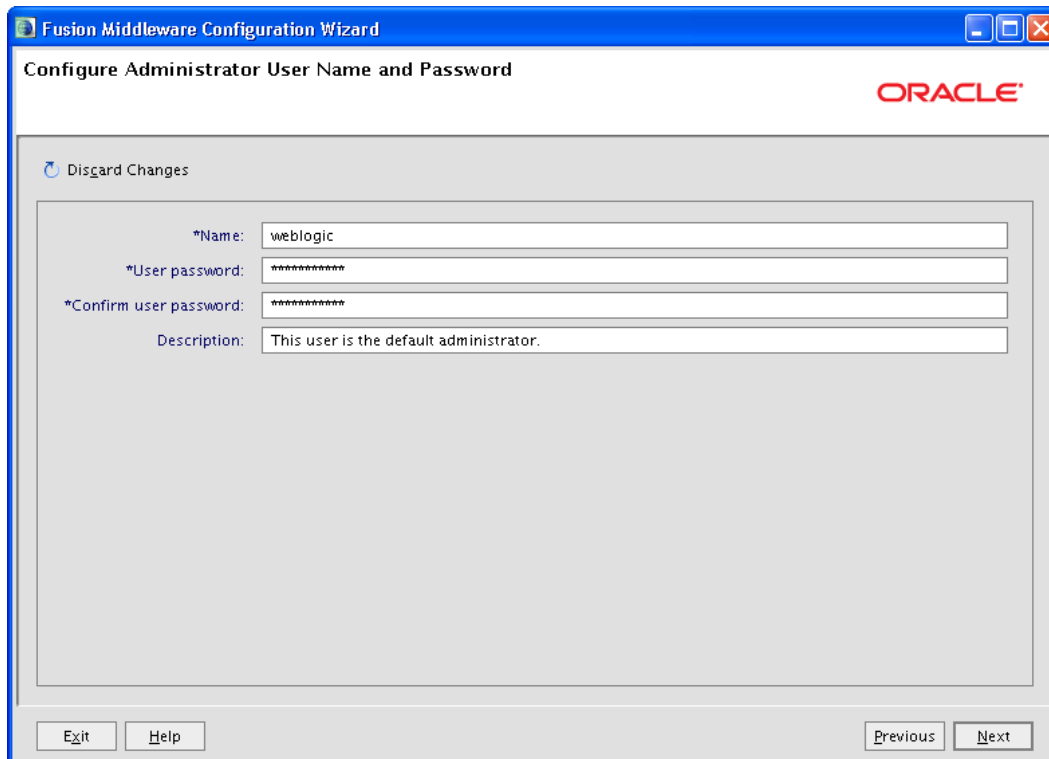
ORACLE

Enter the name and location for the domain:

Domain name:

Domain location:

- Specify Administrator **User Name** and **Password**.
 - The specified credentials are used to access Administration console.
 - You can use this screen to define the default WebLogic Administrator account for the domain. This account is used to boot and connect to the domain's Administration Server. Click **Next**.



Fusion Middleware Configuration Wizard

Configure Administrator User Name and Password

ORACLE

Disgard Changes

*Name:

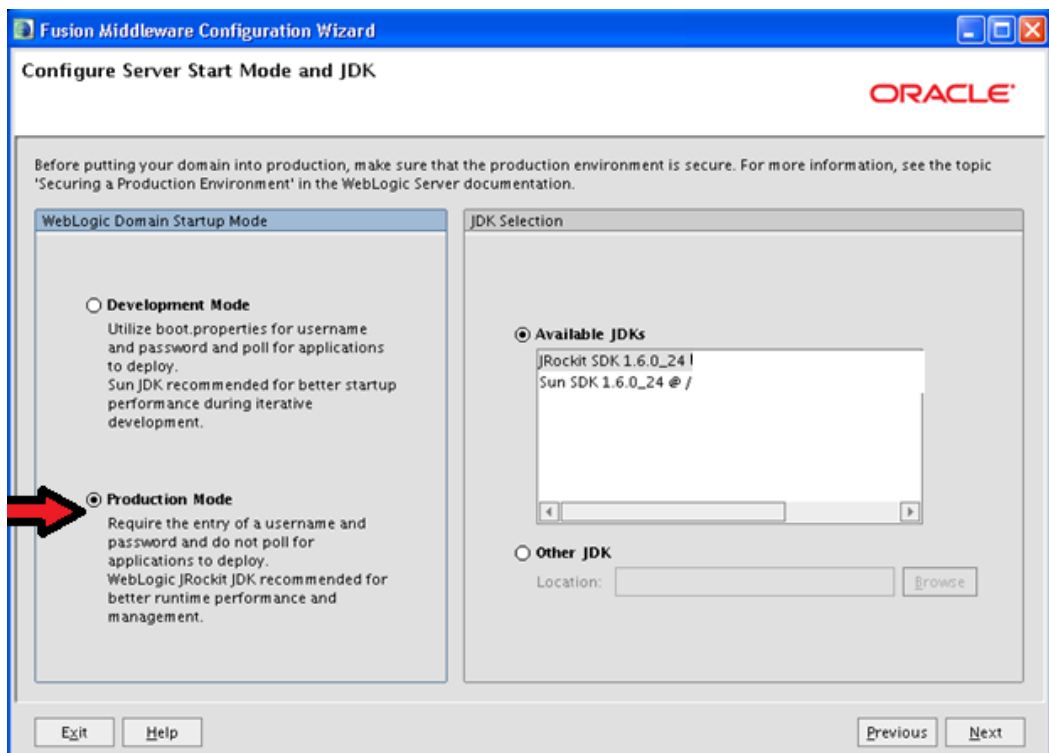
*User password:

*Confirm user password:

Description:

Exit Help Previous Next

- Select Server Startup as **Production Mode** and the available **JDKs**. Click **Next**.



Fusion Middleware Configuration Wizard

Configure Server Start Mode and JDK

ORACLE

Before putting your domain into production, make sure that the production environment is secure. For more information, see the topic 'Securing a Production Environment' in the WebLogic Server documentation.

WebLogic Domain Startup Mode

☐ **Development Mode**
Utilize boot.properties for username and password and poll for applications to deploy.
Sun JDK recommended for better startup performance during iterative development.

☒ **Production Mode**
Require the entry of a username and password and do not poll for applications to deploy.
WebLogic JRockit JDK recommended for better runtime performance and management.

JDK Selection

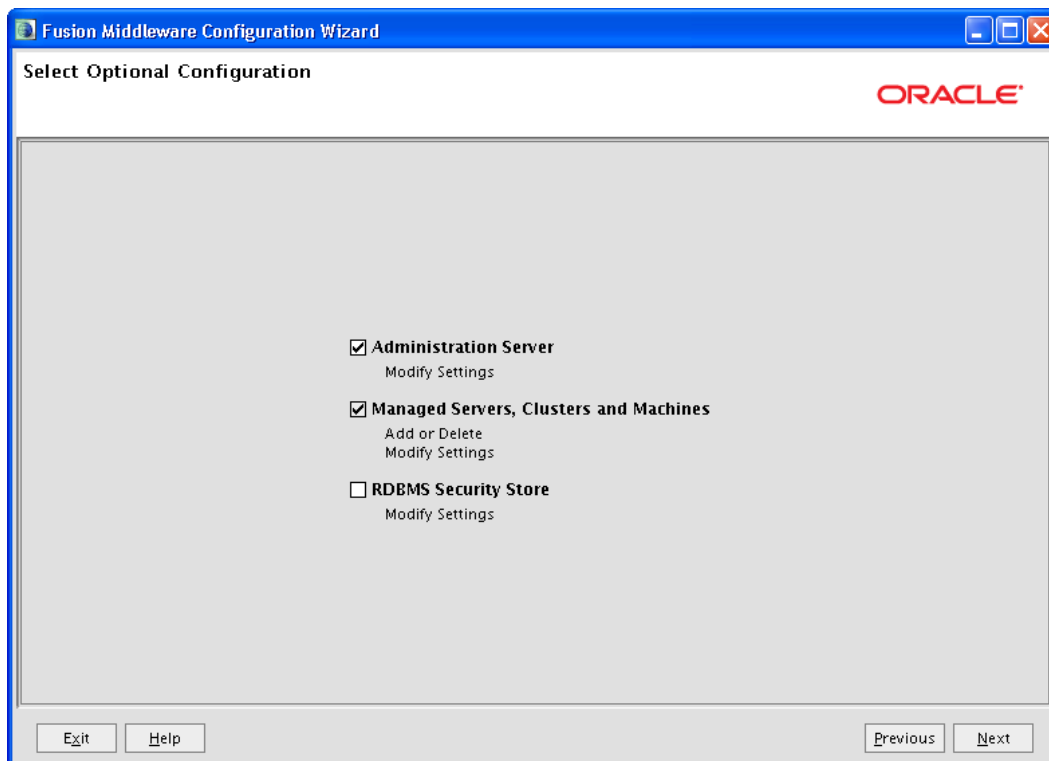
☒ **Available JDKs**

JRockit SDK 1.6.0_24 |
Sun SDK 1.6.0_24 @ /

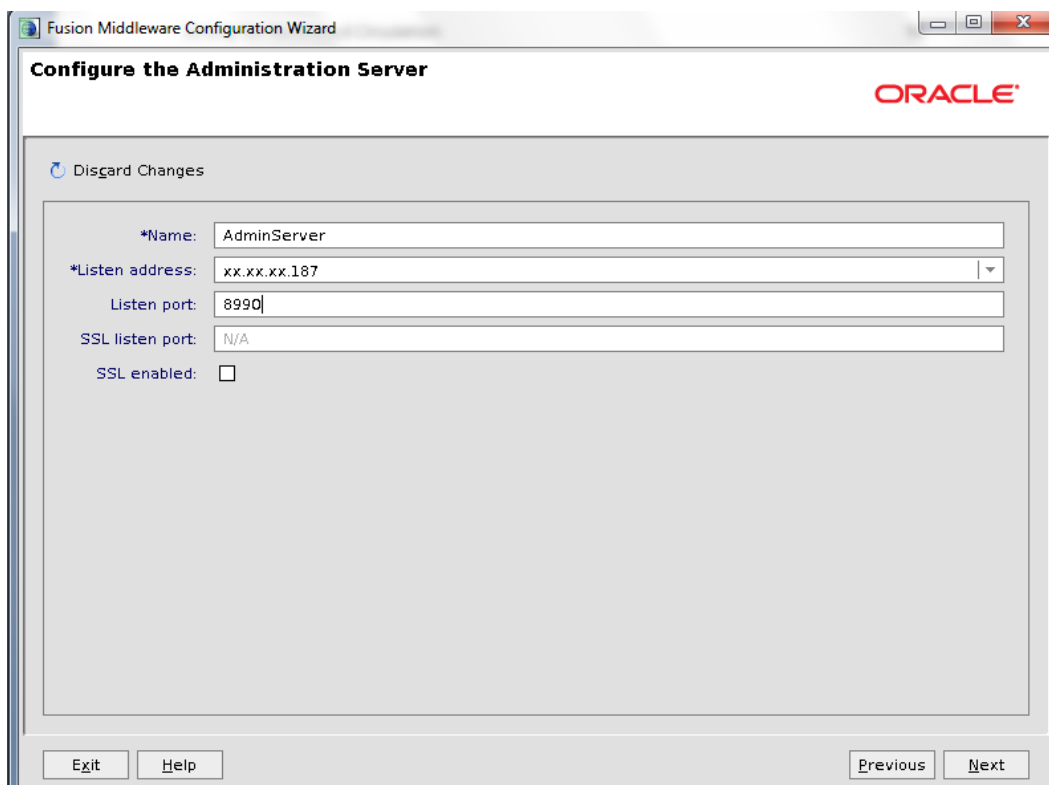
☐ **Other JDK**
Location: Browse

Exit Help Previous Next

- Select the check box adjacent to **Administration Server** and **Managed Servers, Clusters and Machines**. Click **Next**.



- Specify the Administration server **Listen address** and **Listen port**.



Note: The default Listen port is 7001. This could be changed to any other available port. Ensure to make a note, of this port since the same is required for launching the Admin console, post domain creation.

In this configuration 8990 port is input. This completes Admin Server configuration.

Note: Check for the port availability using the command - **netstat -anp |grep <Port no>**

The next screen navigates to **Managed Server configuration**.

3.2.1 Configure Managed Server

Note that, every 75 concurrent users require one managed server of size 4GB. I.e. for 300 concurrent FCUBS users, it is recommended to have 4 managed servers.

	Name*	Listen address*	Listen port	SSL listen port	SSL enabled
1	fcubs1	XX.XX.XX.187	8991	N/A	<input type="checkbox"/>
2	fcubs2	xx.xx.xx.186	8992	N/A	<input type="checkbox"/>

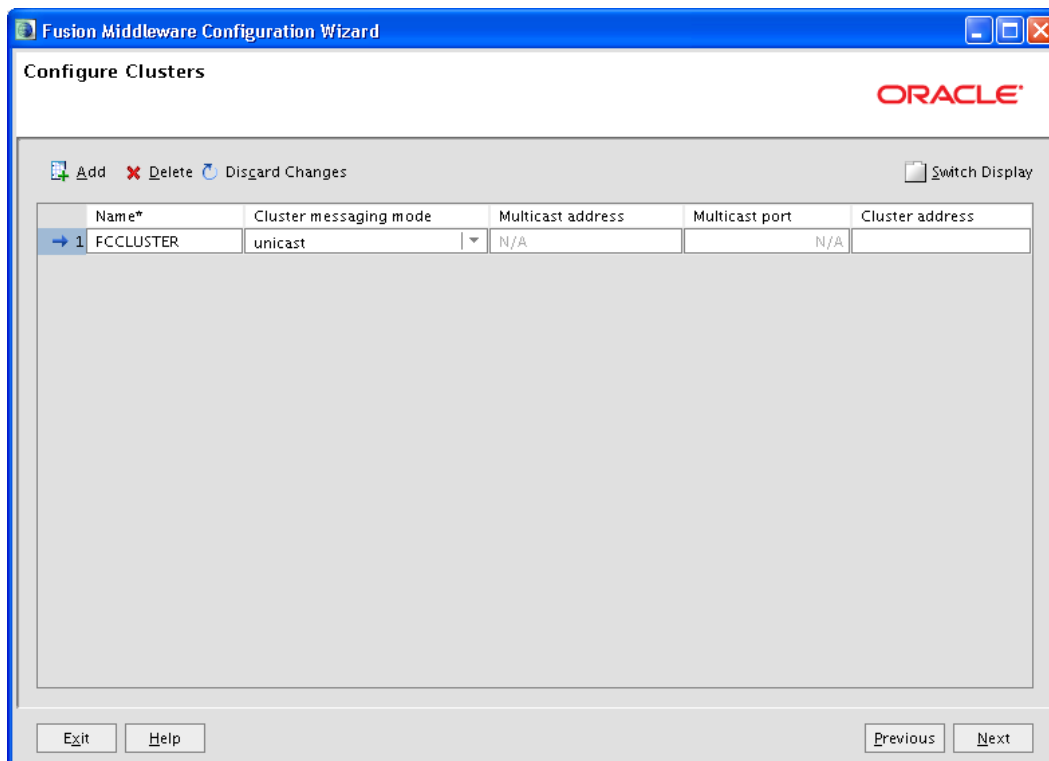
- Click on **Add** to add the desired number of Managed Servers.

This completes managed server configurations.

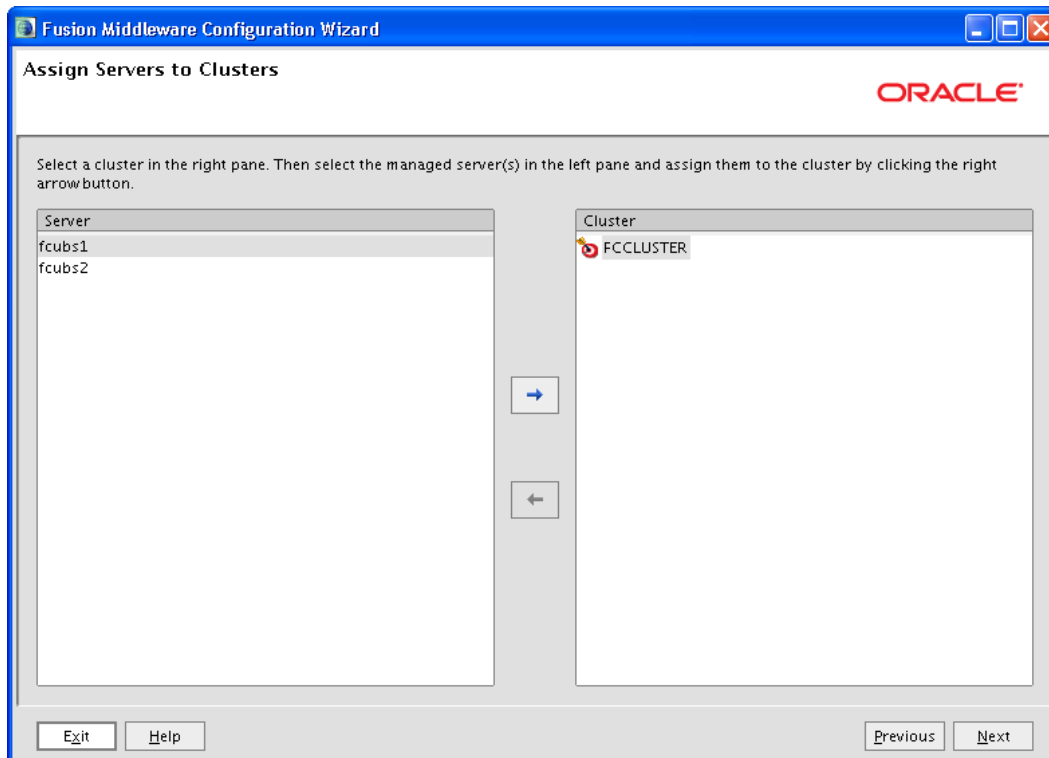
The next screen navigates to **Cluster creation and configuration**.

3.2.2 Cluster Creation and Configuration

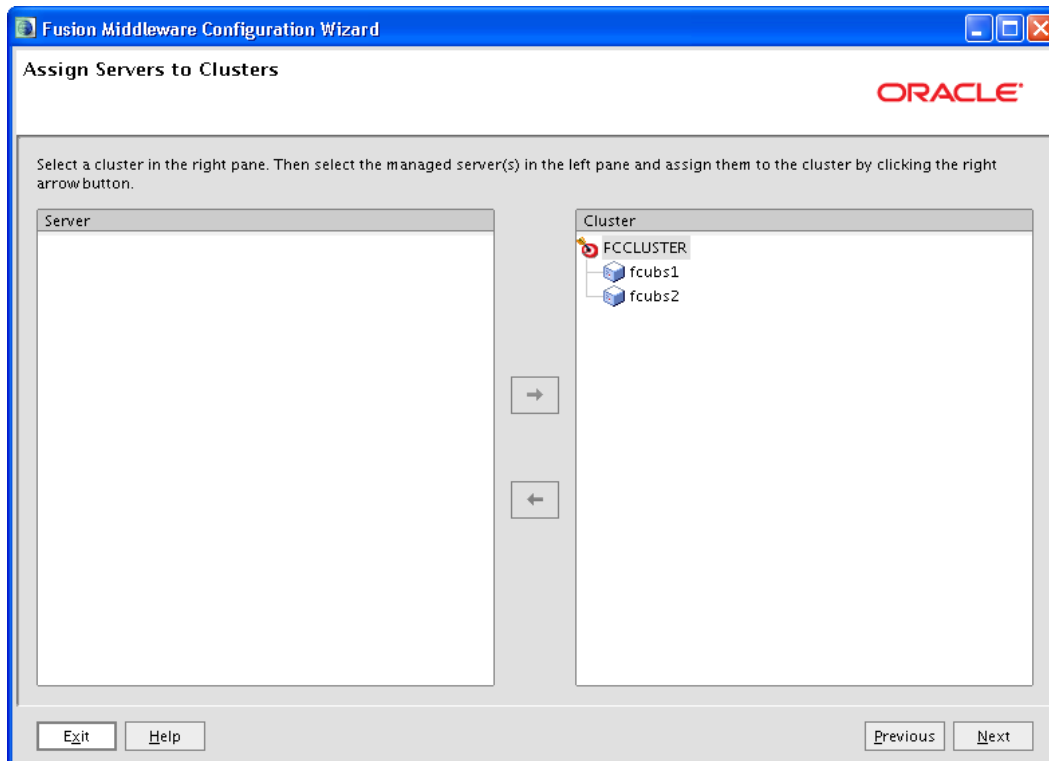
- Click on **Add** to add a new cluster and specify the **Cluster Name** and select the Cluster messaging mode as **unicast**.



- Select the managed servers listed in the left pane and assign them to the cluster by clicking on the right arrow button.



- Following screen indicates post assigning managed servers to cluster.

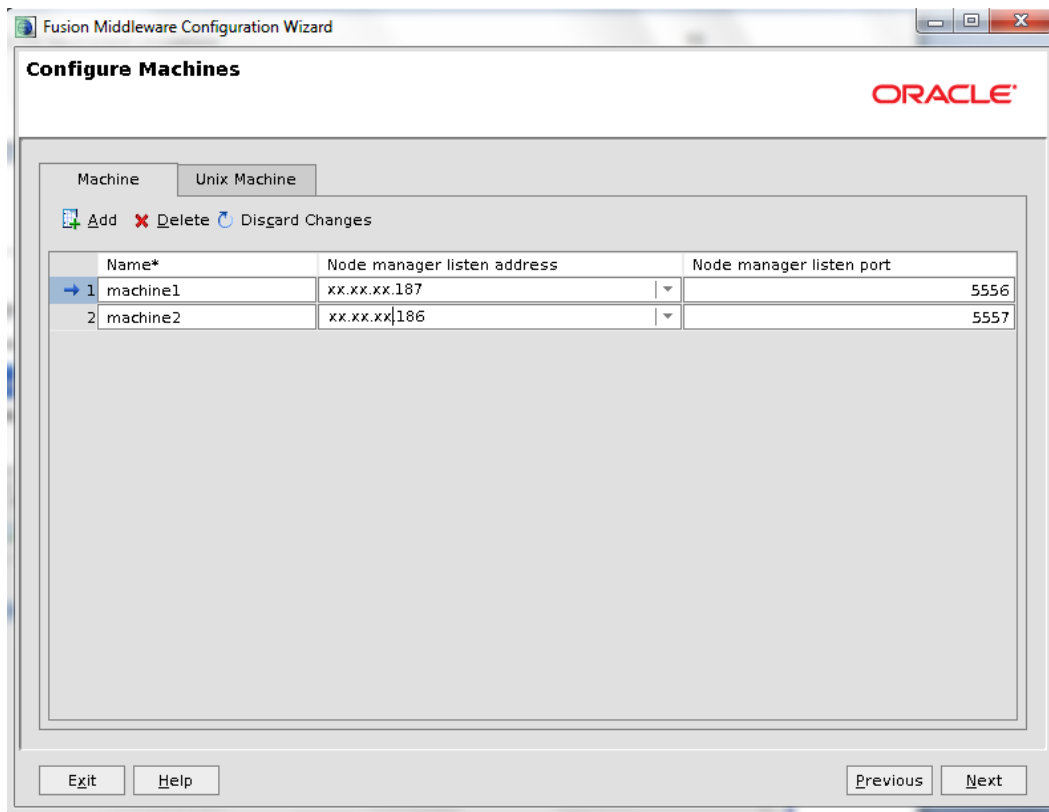


This completes Cluster configuration.

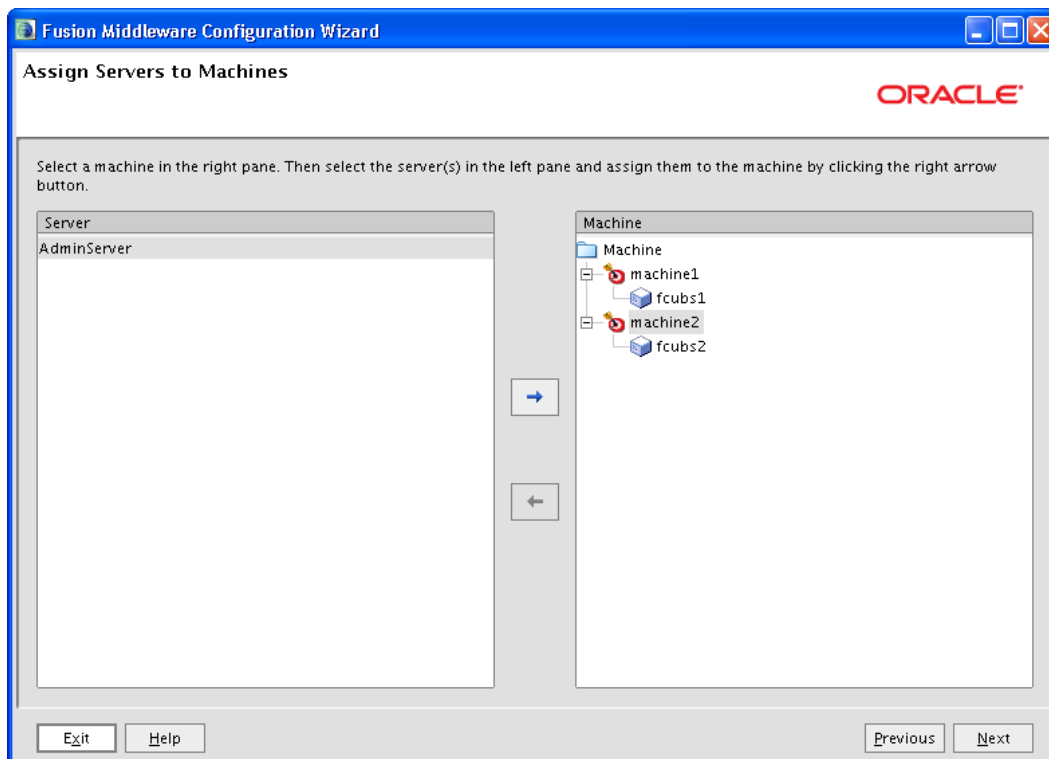
The next screen navigates to *Machine Configuration* screen.

3.2.3 Configure machines

- Click on **Add** to add the desired number of nodes.



- Depending on the host on which the managed server is created, the managed servers are assigned to respective Nodes. Select the managed Server(s) in the left pane and assign them to the desired Node by clicking the right arrow button.

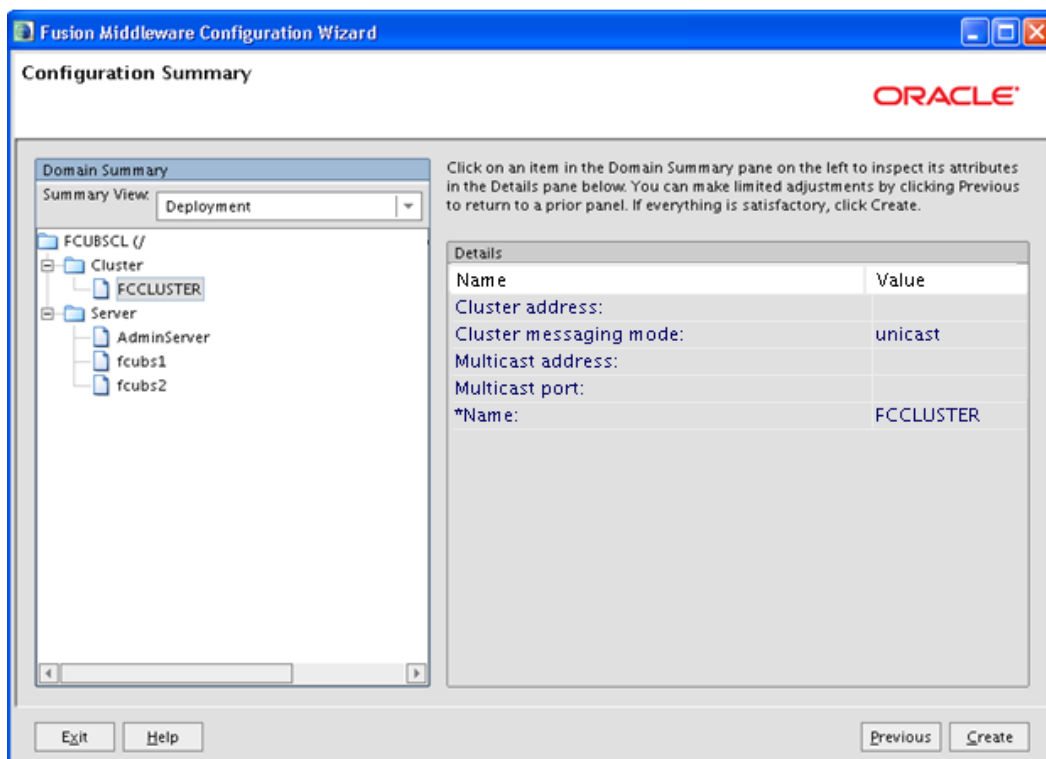


As per the above configuration,

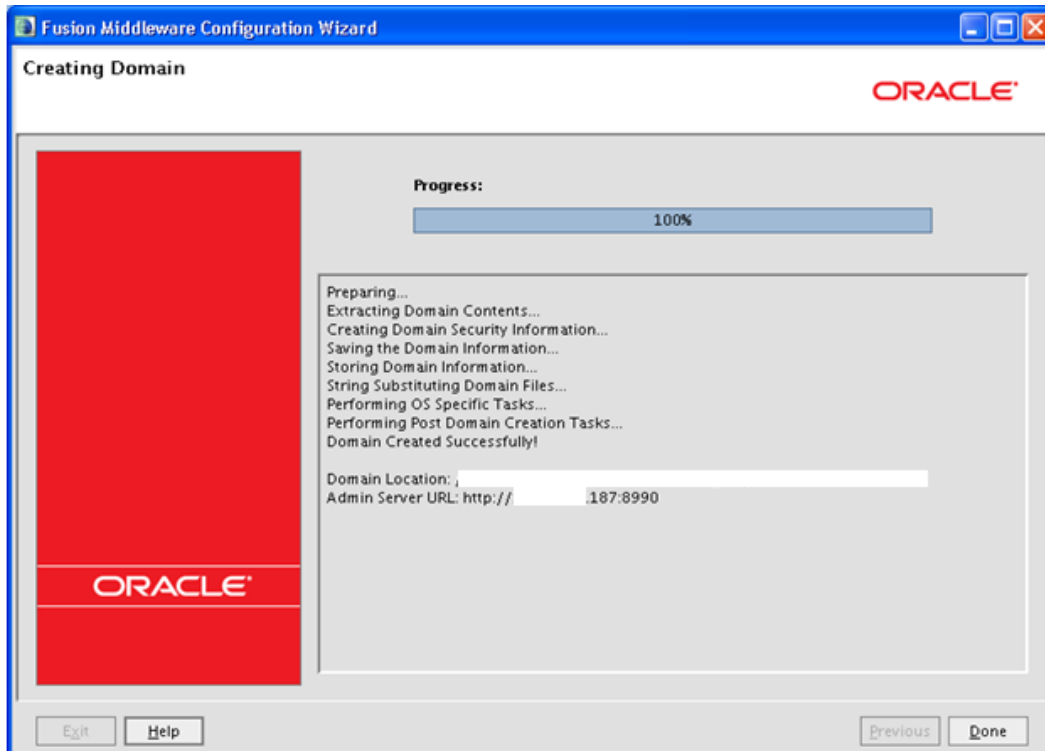
- Managed server fcubs1 will start in server xx.xx.xx.187 and listen to port 8991.
- Managed server fcubs2 will start in server xx.xx.xx.186 and listen to port 8992.

The following configurations are completed:

1. Admin Server Configuration
2. Cluster Configuration
3. Machine configuration
 - Click **Next** and view the summary screen.



- Verify the details and click **Create**. The domain creation process is initiated and the progress of completion is indicated.



The Admin Server console URL is as indicated below:

http://<IP address>:<admin console port>/console

- <IP address >: Host on which domain was created.
- <admin console port> : Port specified in Administration Server configuration page.

In this case the Admin Console URL is: `http://xx.xx.xx.187:8990/console`

4. Pack and Unpack Domain

The domain structure is expected to be copied to the second server (XXX186DOR) during domain creation. In some cases, the domain structure (domain directories and scripts) will not be copied to the second node (XXX186DOR) of the weblogic clusters. Hence to copy the same, you can use pack and unpack utility provided under \$WLSHOME/common/bin.

4.1 Pack

Pack domain in xx.xx.xx.187 server:

```
./pack.sh -managed=true -  
domain=$WLS_HOME/../../user_projects/domains/FCUBSCL -  
template=/tmp/FCUBSCL.jar -template_name="FCUBSCL"
```

4.2 Unpack

Unpack FTP FCUBSCL.jar in binary mode to server xx.xx.xx.186 under /tmp area and unpack the domain using unpack utility provided under \$WLSHOME/common/bin

```
./unpack.sh -domain=$WLS_HOME/../../user_projects/domains/FCUBSCL -  
template=/tmp/FCUBSCL.jar
```

5. JVM Tuning

This section of the document provides JVM optimization for Oracle FLEXCUBE Universal Banking Solution.

Note that, every 75 concurrent FLEXCUBE users require one managed server of size 4GB. I.e. for 300 concurrent FLEXCUBE users, it is recommended to have 4 managed servers.

Basically the JAVA minimum and maximum heap size needs to be reset for 32 and 64 bit environments. Both the minimum and maximum heap size is set to 1.5GB and 4GB in case of 32 bit and 64 bit environments respectively.

How to find whether the JVM is 32bit or 64bit?

Go to \$JAVA_HOME/bin directory. Check java version using command `./java -d64 -version`

64 bit JVM shows the version details where as 32bit throws an error.

How to modify the JVM heap parameters?

To change the JVM heap parameters modify setDomainEnv.sh under domain FCUBSCL in both servers. This file is located at "\$WL_HOME/user_projects/domains/\$WLS_DOMAIN/bin"

Use USER_MEM_ARGS variable to override the standard memory arguments passed to java.

5.1 32 bit JVM

5.1.1 SUN JDK

```
USER_MEM_ARGS="-
Dorg.apache.xml.dtm.DTMManager=org.apache.xml.dtm.ref.DTMManagerDefault
-
Dorg.apache.xerces.xni.parser.XMLParserConfiguration=org.apache.xerces.
parsers.XML11Configuration -Dweblogic.threadpool.MinPoolSize=100 -
Dweblogic.threadpool.MaxPoolSize=100 -Xms1536M -Xmx1536M -
XX:MaxPermSize=256m -server -XX:+UseParallelOldGC -
XX:ParallelGCThreads=4"
```

```
export USER_MEM_ARGS
```

5.1.2 JROCKIT JDK

```
USER_MEM_ARGS="-
Dorg.apache.xml.dtm.DTMManager=org.apache.xml.dtm.ref.DTMManagerDefault
-
Dorg.apache.xerces.xni.parser.XMLParserConfiguration=org.apache.xerces.
parsers.XML11Configuration -Dweblogic.threadpool.MinPoolSize=100 -
Dweblogic.threadpool.MaxPoolSize=100 -Xms1536M -Xmx1536M -server"
```

```
export USER_MEM_ARGS
```

5.2 64 bit JVM

5.2.1 SUN JDK

```
USER_MEM_ARGS="-  
Dorg.apache.xml.dtm.DTManager=org.apache.xml.dtm.ref.DTManagerDefault  
-  
Dorg.apache.xerces.xni.parser.XMLParserConfiguration=org.apache.xerces.  
parsers.XML11Configuration -Dweblogic.threadpool.MinPoolSize=100 -  
Dweblogic.threadpool.MaxPoolSize=100 -Xms4g -Xmx4g -XX:MaxPermSize=512m  
-server -d64 -XX:+UseParallelOldGC -XX:ParallelGCThreads=4"
```

```
export USER_MEM_ARGS
```

5.2.2 JROCKIT JDK

```
USER_MEM_ARGS="-  
Dorg.apache.xml.dtm.DTManager=org.apache.xml.dtm.ref.DTManagerDefault  
-  
Dorg.apache.xerces.xni.parser.XMLParserConfiguration=org.apache.xerces.  
parsers.XML11Configuration -Dweblogic.threadpool.MinPoolSize=100 -  
Dweblogic.threadpool.MaxPoolSize=100 -Xms4g -Xmx4g -server -d64"
```

```
export USER_MEM_ARGS
```

In server XXX187DOR,

File setDomain.sh under directory \$WLS_HOME/./user_projects/domains/FCUBSCL/bin

In server XXX186DOR,

File setDomain.sh under directory \$WLS_HOME/./user_projects/domains/FCUBSCL/bin

Note: Take a backup of the file before modifying the same.

6. Managed server startup using script

It is recommended to start managed servers using scripts (`startWeblogic.sh`) when the managed servers are started from weblogic console.

To enable this option, set the following property in `Nodemanager.properties` file available under `$WLS_HOME/common/nodemanager` in both servers:

```
StartScriptEnabled=true
```

In server `xx.xx.xx.187` - `Nodemanager.properties` location: `$WLS_HOME/common/nodemanager/`

In server `xx.xx.xx.186` - `Nodemanager.properties` location: `$WLS_HOME/common/nodemanager`

Note: Node manager must be restarted in all servers (`xx.xx.xx.187` & `xx.xx.xx.186`) to activate these settings.

How to restart node manager?

- Locate node manager pid using `ps -ef|grep weblogic.nodemanager.javaHome`
- Change directory to `$WLS_HOME/server/bin`
- Kill the unix process using `kill -9 <pid>`
- Verify that the node manager is killed by `tail -f nohup.out`
- Start node manager using `nohup ./startNodeManager.sh &`
- Verify nodemanager is started using `tail -f nohup.out`

Similarly, restart nodemanager in server `xx.xx.xx.186`.

6.1 Starting Admin server

To start the Admin server in `xx.xx.xx.187` server, execute **`startWeblogic.sh`** available under `$DOMAIN_HOME/bin`.

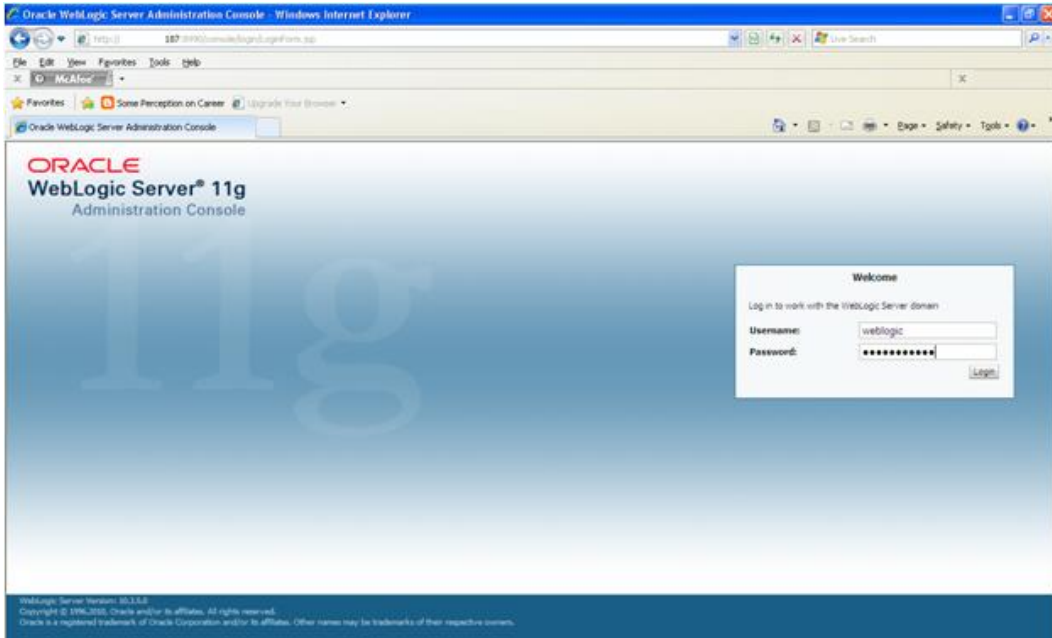
In this example `startWeblogic.sh` script is under `$WLS_HOME/./user_projects/domains/FCUBSCL/bin/` under server `xx.xx.xx.187`

Note: Refer to Appendix section to know about the possible admin server startup problems.

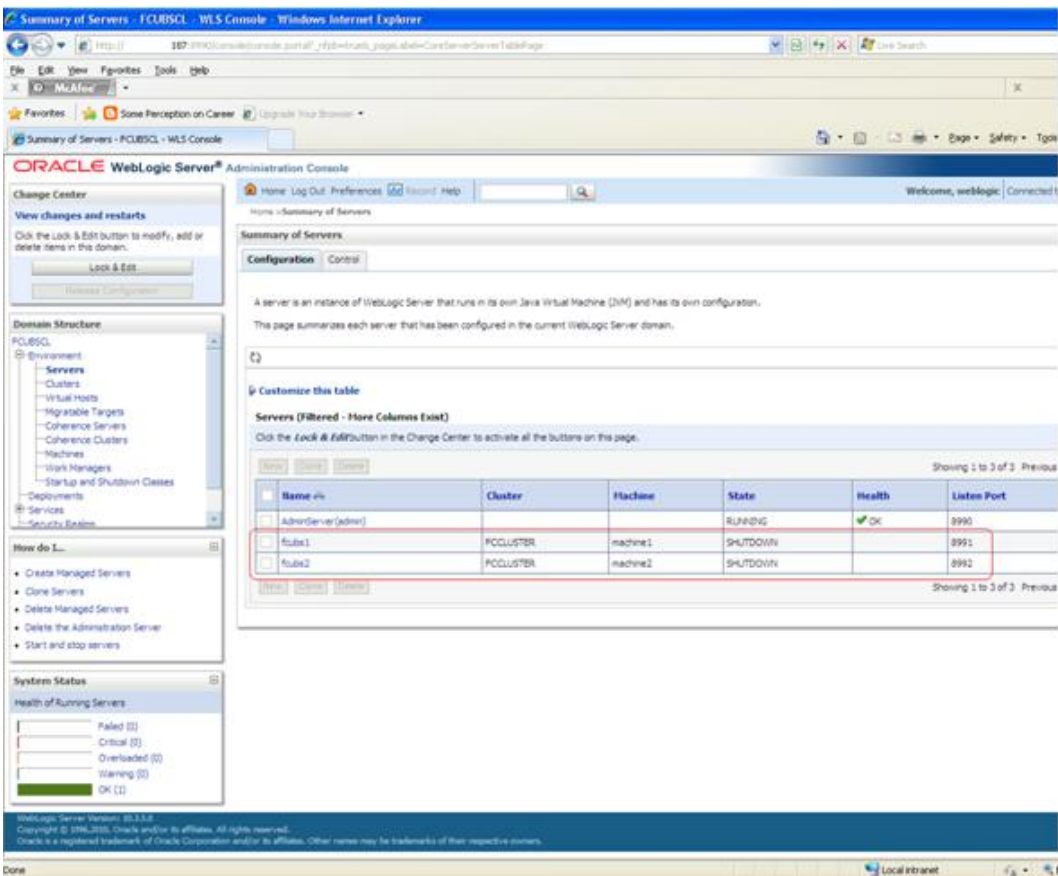
6.2 Starting managed servers

To start the managed servers, do the following:

- Login to Administration console using URL <http://xx.xx.xx.187:8990/console>. The User name and password set during domain creation are auto populated.



- Click **Login**.



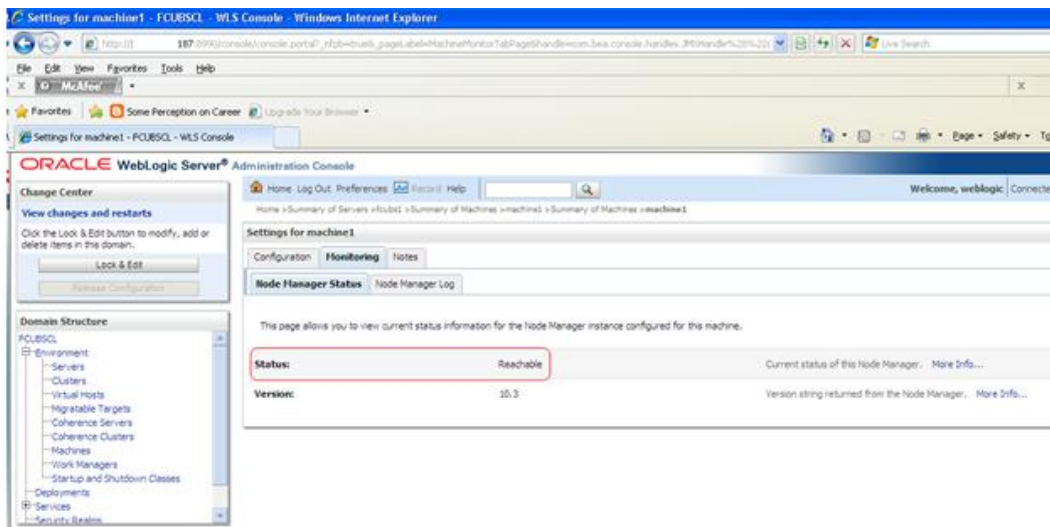
- This screen provides details of both managed servers which are currently down. Both managed servers are part of FCUBSCL domain.
 - Fcubs1 managed server is associated with machine1 that is xx.xx.xx.187 server.

- Fcubs2 managed server is associated with machine2 that is xx.xx.xx.186 server.

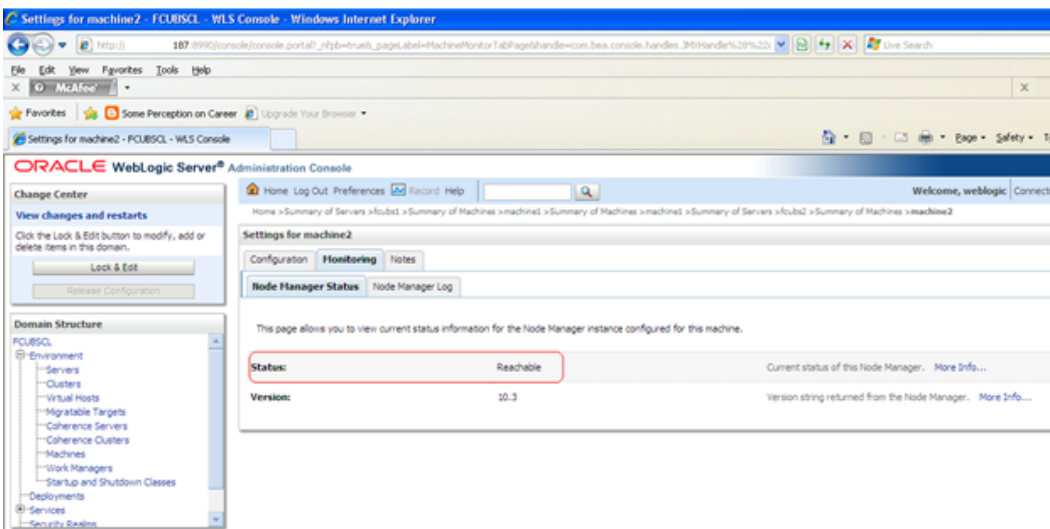
6.3 Verifying machine status

Before starting the managed servers, ensure that the Node manager Status of all the machines are "Reachable".

- In the console, navigate through Domain structure > Machines > machine1 > Monitoring > Node Manager Status.



- In the console, navigate through Domain structure > Machines > machine2 > Monitoring > Node Manager Status.



To start the managed server:

- In the console, navigate through Domain structure > Environment > servers > control.
- Select the adjacent checkbox and click **Start**.

Summary of Servers - FCUBSQL - WLS Console - Windows Internet Explorer

ORACLE WebLogic Server® Administration Console

Home Log Out Preferences Record Help

Welcome, weblogic Connected to FC

Summary of Servers

Configuration Control

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

Customize this table

Servers (Filtered - More Columns Exist)

Server	Machine	State	Status of Last Action
AdminServer(admin)		RUNNING	None
fsub1	machine1	SHUTDOWN	None
fsub2	machine2	SHUTDOWN	None

Showing 1 to 3 of 3 Previous | Next

- The status of Managed server is indicated as **"RUNNING"**.

Summary of Servers - FCUBSQL - WLS Console - Windows Internet Explorer

ORACLE WebLogic Server® Administration Console

Home Log Out Preferences Record Help

Welcome, weblogic Connected to FC

Summary of Servers

Configuration Control

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

Customize this table

Servers (Filtered - More Columns Exist)

Server	Machine	State	Status of Last Action
AdminServer(admin)		RUNNING	None
fsub1	machine1	RUNNING	TASK COMPLETED
fsub2	machine2	RUNNING	TASK COMPLETED

Showing 1 to 3 of 3 Previous | Next

7. Data Source creation and JDBC Configuration

Following are the JNDI names of those data sources used by FLEXCUBE application.

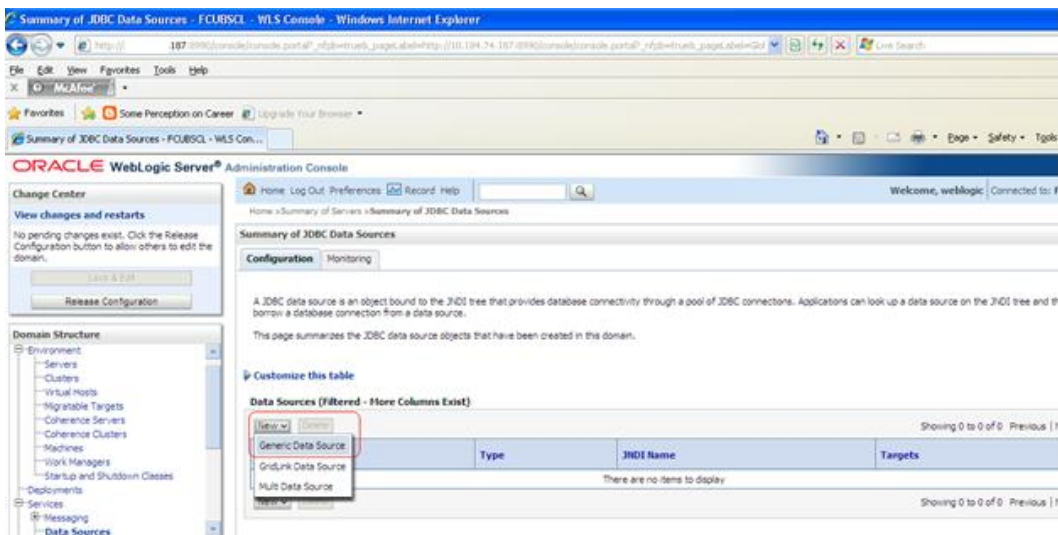
- jdbc/fcjdevDS - This datasource is used by FLEXCUBE online screen excluding branch screens.
- jdbc/fcjdevDSBranch - This datasource is used by Branch screens.
- jdbc/fcjSchedulerDS - This datasource is used by Quartz scheduler.

Note:

- jdbc/fcjdevDS should be **NonXA**.
- jdbc/fcjdevDSBranch and jdbc/fcjSchedulerDS should be **XA**

7.1 For Oracle Single Instance Database

- Click on Services > Data Sources on the left pane.
- Click on Lock & edit button and select New > Generic data source. (jdbc/fcjdevDS)



- Provide the following details,
 - Name: FCUBSDS
 - JNDI Name: jdbc/fcjdevDS
 - Database Type: Oracle

Create a New JDBC Data Source - FCUBSQL - WLS Console - Windows Internet Explorer

Home Log Out Preferences Record Help

Welcome, weblogic Connected

Home > Summary of Servers > Summary of JDBC Data Sources

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: FCUBSDS

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

JNDI Name: jdbc/FCJdevDS

What database type would you like to select?

Database Type: Oracle

Back Next Finish Cancel

- **Select the Database Driver:** Oracle Driver (Thin) for instance connections; Versions:9.0.1 and later. Ensure that the Driver selected has “Oracle Driver (Thin)”, the version can be the latest available.

Create a New JDBC Data Source - FCUBSQL - WLS Console - Windows Internet Explorer

Home Log Out Preferences Record Help

Welcome, weblogic Connected

Home > Summary of Servers > Summary of JDBC Data Sources

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.

Database Type: Oracle

What database driver would you like to use for database connections? Note: * indicates that the driver is explicitly supported by Oracle WebLogic Server.

Database Driver: *Oracle's Driver (Thin) for instance connections; Versions 9.0.1 and later

Back Next Finish Cancel

- Uncheck **Support Global Transaction** checkbox. Click **Next**.

Oracle WebLogic Server Administration Console

Home Log Out Preferences Record Help

Welcome, weblogic Connected

Home > Summary of Servers > Summary of JDBC Data Sources

Create a New JDBC Data Source

Back Next Finish Cancel

Transaction Options

You have selected non-XA JDBC driver to create database connection in your new data source.

Does this data source support global transactions? If yes, please choose the transaction protocol for this data source.

☒ **Supports Global Transactions**

Select this option if you want to enable non-XA JDBC connections from the data source to participate in global transactions using the *Logging Last Resource (LRR)* transaction optimization. Recall in place of *Emulate Two-Phase Commit*.

☐ **Logging Last Resource**

Select this option if you want to enable non-XA JDBC connections from the data source to emulate participation in global transactions using JTA. Select this option only if your application can to heuristic conditions.

☐ **Emulate Two-Phase Commit**

Select this option if you want to enable non-XA JDBC connections from the data source to participate in global transactions using the one-phase commit transaction processing. With this option resources can participate in the global transaction.

☐ **One-Phase Commit**

Back Next Finish Cancel

- Specify the Oracle database details such as Database Name, Host Name, Port, Database User Name, and Password. Click **Next**.

Oracle WebLogic Server Administration Console

Home Log Out Preferences Record Help

Welcome, weblogic Connected

Home > Summary of Servers > Summary of JDBC Data Sources

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: FCUBS

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

Host Name: 101

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?

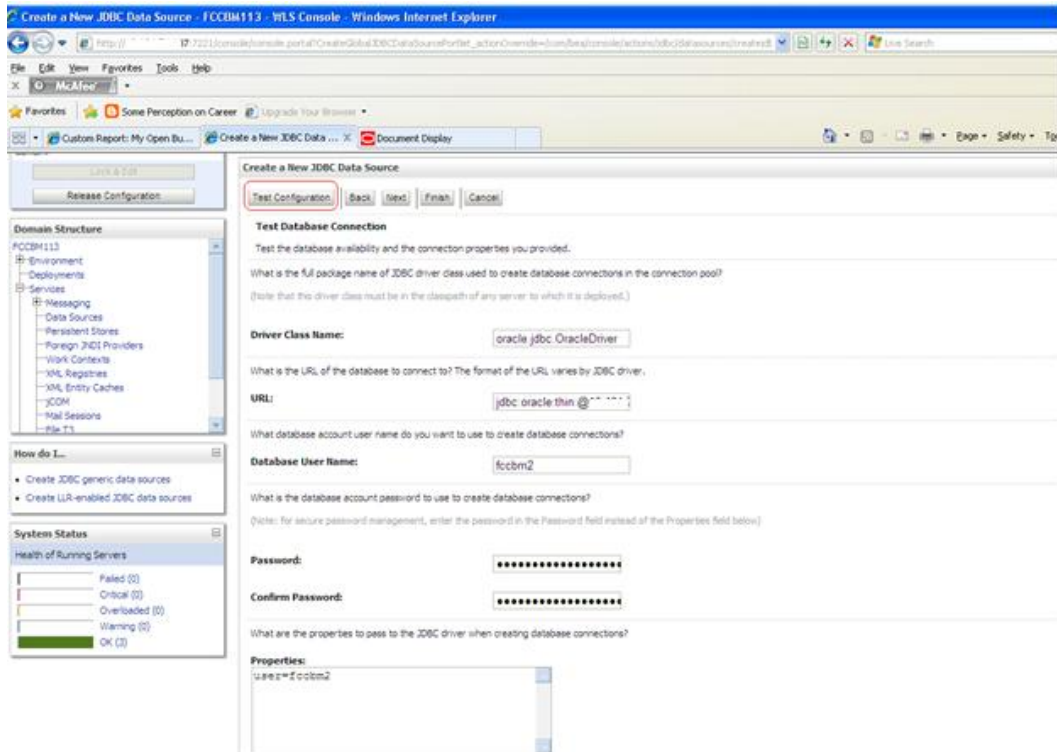
Database User Name: fcubm2

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

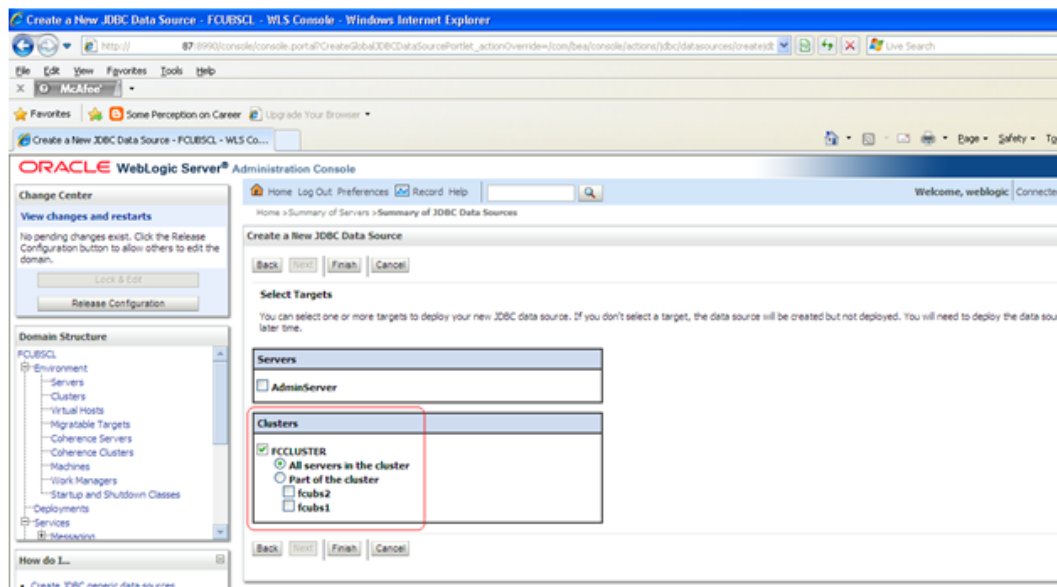
Password: *****

Confirm Password: *****

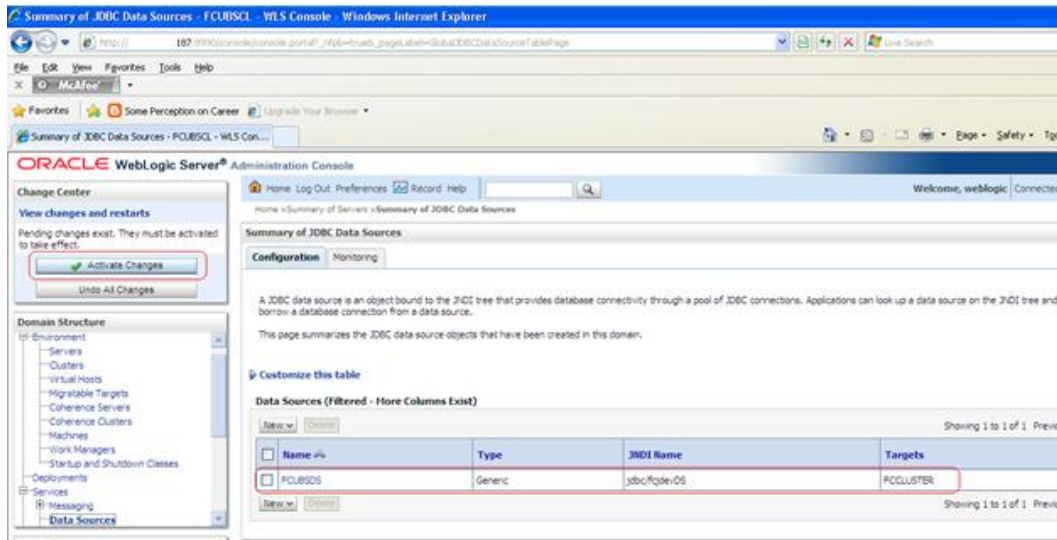
Back Next Finish Cancel



- In **Select Targets** section, select the target as cluster **FCCLUSTER**. Click **Finish**.

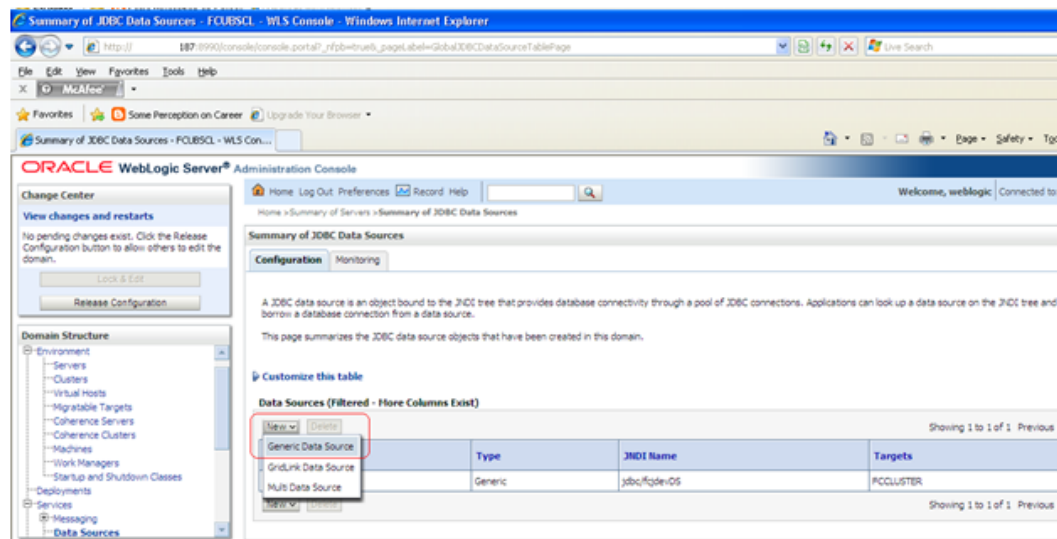


- Click on **Activate Changes** on the LHS menu to configure the changes.

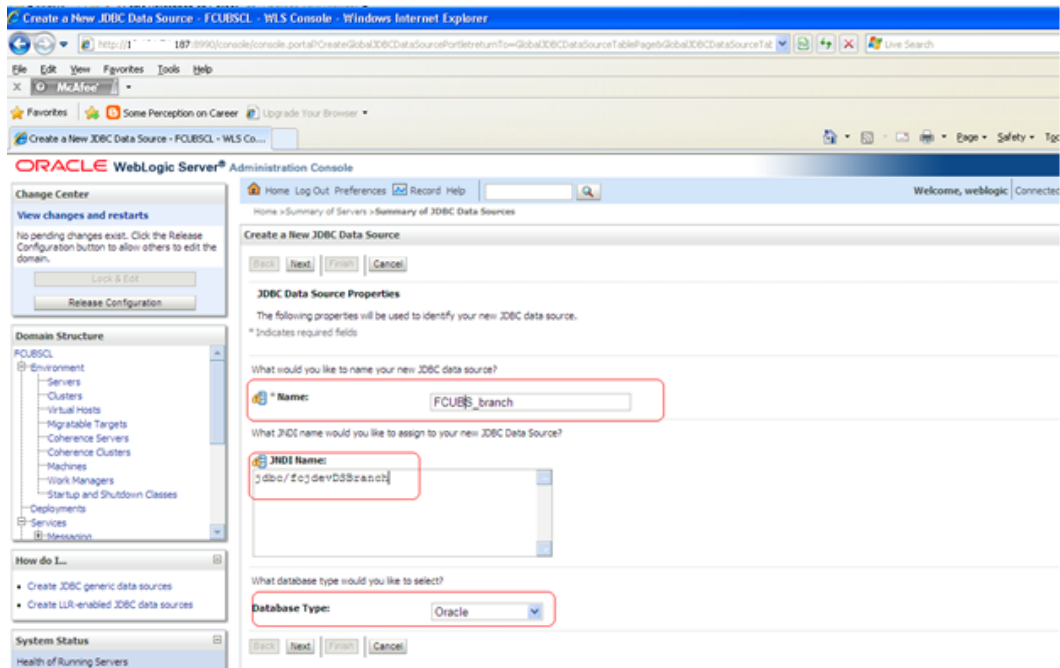


7.1.1 Data source creation : jdbc/fcdevDSBranch

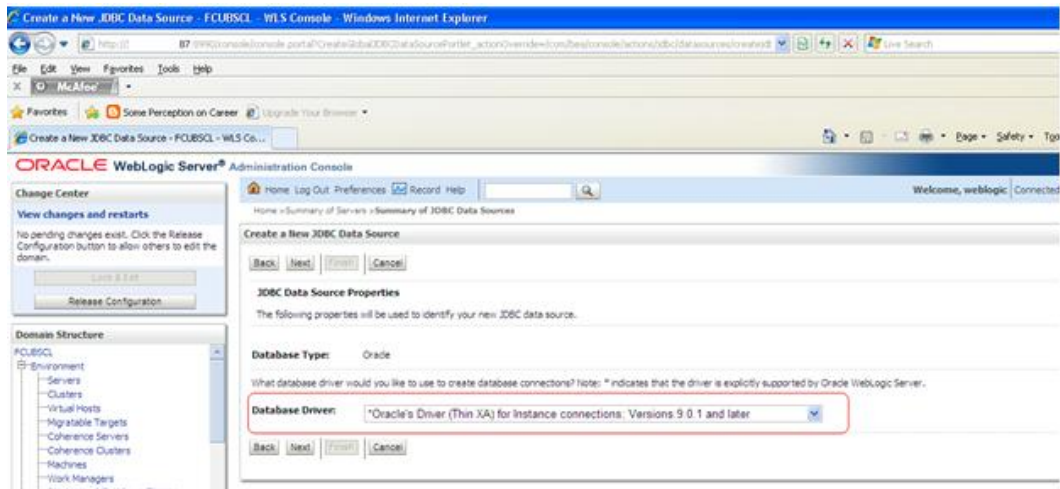
- Select the Data Source from the drop down list.



- Enter JDBC data Source Properties such as JDBC data Source Name, JNDI Name, and Database Type. Click **Next**.



- Select the Database Driver as “Oracle’s Driver (Thin XA) for instance connections; Versions 9.0.1 and later”. Ensure to select the latest available version of the database driver.



- Enter database connection details such as Database Name, Host Name, Port, Database User Name, and Password. Click **Next**.

Create a New JDBC Data Source - FCUBSQL - WLS Console - Windows Internet Explorer

Home Log Out Preferences Record Help

Welcome, weblogic Connected

Home » Summary of Servers » Summary of JDBC Data Sources

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: FCUBS

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

Host Name: 101

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: fcbm2

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

Password: *****

Confirm Password: *****

Back Next Finish Cancel

- Click **Test configuration**.

Create a New JDBC Data Source - FCUBSQL - WLS Console - Windows Internet Explorer

Home Log Out Preferences Record Help

Welcome, weblogic Connected

Home » Summary of Servers » Summary of JDBC Data Sources

Messages

Connection test succeeded.

Create a New JDBC Data Source

Test Configuration Back Next Finish Cancel

Test Database Connection

Test the database availability and the connection properties you provided.

What is the full package name of JDBC driver class used to create database connections in the connection pool?

(Note that this driver class must be in the classpath of any server to which it is deployed.)

Driver Class Name: oracle.jdbc.xa.client.OracleXAClient

What is the URL of the database to connect to? The format of the URL varies by JDBC driver.

URL: jdbc:oracle:thin:@101:1521:FCUBS

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

Database User Name: fcbm2

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

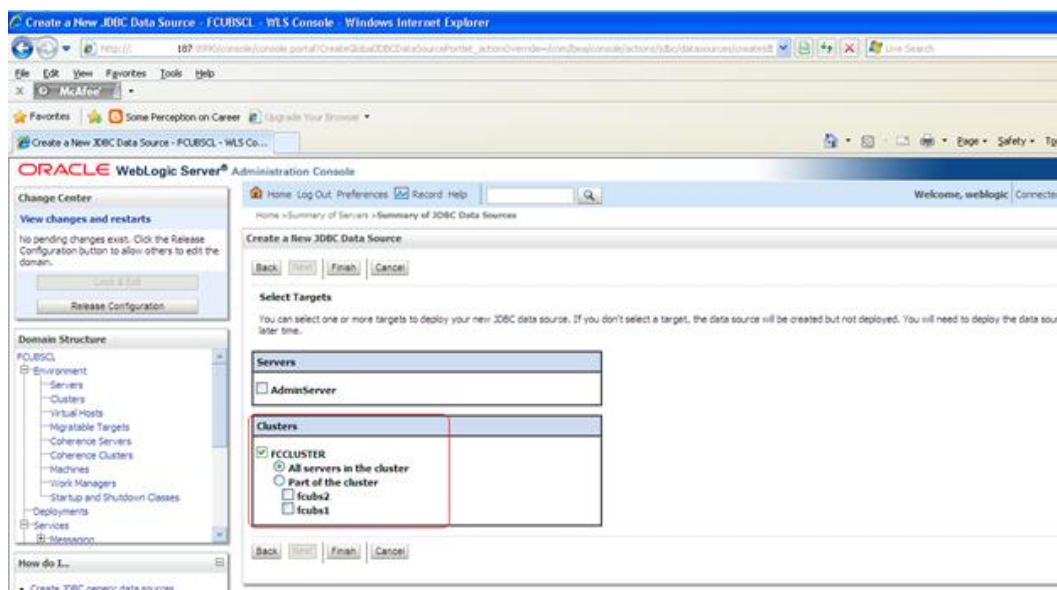
(Note: for secure password management, enter the password in the Password field instead of the Properties field below)

Password: *****

Confirm Password: *****

What are the properties to pass to the JDBC driver when creating database connections?

- In **Select Targets** section, select the target as cluster **FCCLUSTER**. Click **Finish**.



- Click on **Activate Changes** to activate the configuration.

7.1.2 Data source creation : jdbc/fcjschedulerDS

Create a data source jdbc/fcjschedulerDS similar to [jdbc/fcjsdevDSBranch](#) created above.

Data sources are created as follows,

Data Sources (Filtered - More Columns Exist)

Click the **Lock & Edit** button in the Change Center to activate all the buttons on this page.

Name	Type	JNDI Name	Targets
FCUBSDS	Generic	jdbc/fcjsdevDS	FCCLUSTER
fcubs_async	Generic	jdbc/fcjsdevDS_ASYNC	FCCLUSTER
FCUBS_Branch	Generic	jdbc/fcjsdevDSBranch	FCCLUSTER
FCUBS_sch	Generic	jdbc/fcjschedulerDS	FCCLUSTER

7.1.3 Data source creation: for Oracle RAC database

You can create JDBC datasource for RAC databases using Single Client Access Name IP or SCAN – IP. 11gR2 Grid Infrastructure (CRS) introduced Single Client Access Name (SCAN) to simplify client access to database services.

Note: From oracle database 11g Release 2 onwards. it is highly recommend using SCAN IP.

- Choose **New > Generic Data Source**.

Summary of JDBC Data Sources - FCCBM113 - WLS Console - Windows Internet Explorer

Home Log Out Preferences Record Help

Welcome, weblogic Connected to: FCCBM113

Home > Summary of JDBC Data Sources

Summary of JDBC Data Sources

Configuration Monitoring

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 borrow a database connection from a data source.

This page summarizes the JDBC data source objects that have been created in this domain.

Customize this table

Data Sources (Filtered - More Columns Exist)

Name	Type	JNDI Name	Targets
Generic Data Source	Generic	jdbc/fcdevDS	FCLUSTER
GridLink Data Source	Generic	jdbc/fcdevDS_ASMS	FCLUSTER
Multi Data Source	Generic	jdbc/fcdevDSbranch	FCLUSTER
FCUBS_branch	Generic	jbc/fcScheduleDS	FCLUSTER
FCUBS_sch	Generic	PLEXTST:WORLD	FCLUSTER

Showing 1 to 5 of 5 Previous

How do I...
 • Create JDBC generic data sources
 • Create JDBC GridLink data sources
 • Create JDBC multi data sources
 • Delete JDBC data sources
 • Delete JDBC multi data sources

- Specify the **Name** and **JNDI Name**. Click **Next**.

Create a New JDBC Data Source - FCCBM113 - WLS Console - Windows Internet Explorer

Home Log Out Preferences Record Help

Welcome, weblogic Connected to: FCCBM113

Home > Summary of JDBC Data Sources

Create a New JDBC Data Source

Next Previous 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: FCUBSDS

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

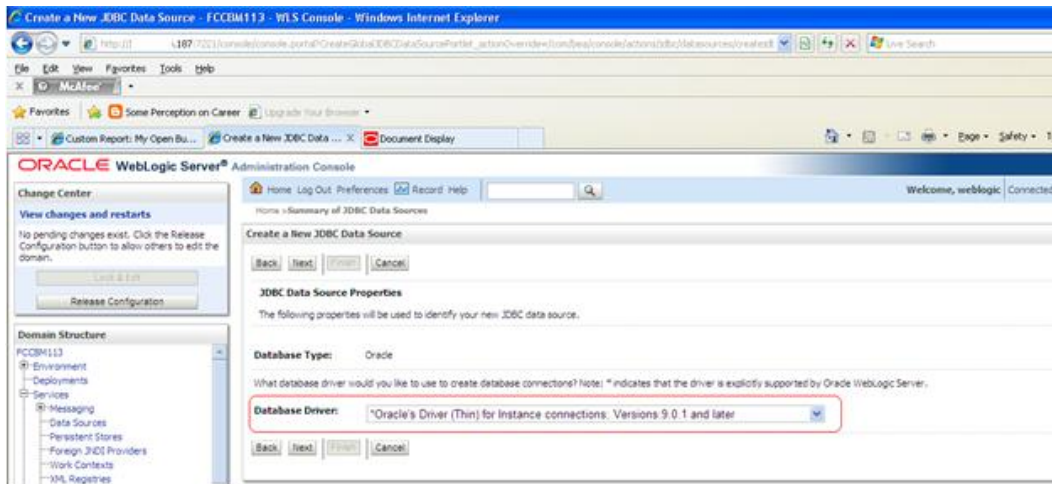
JNDI Name: jdbc/fcdevDS

What database type would you like to select?

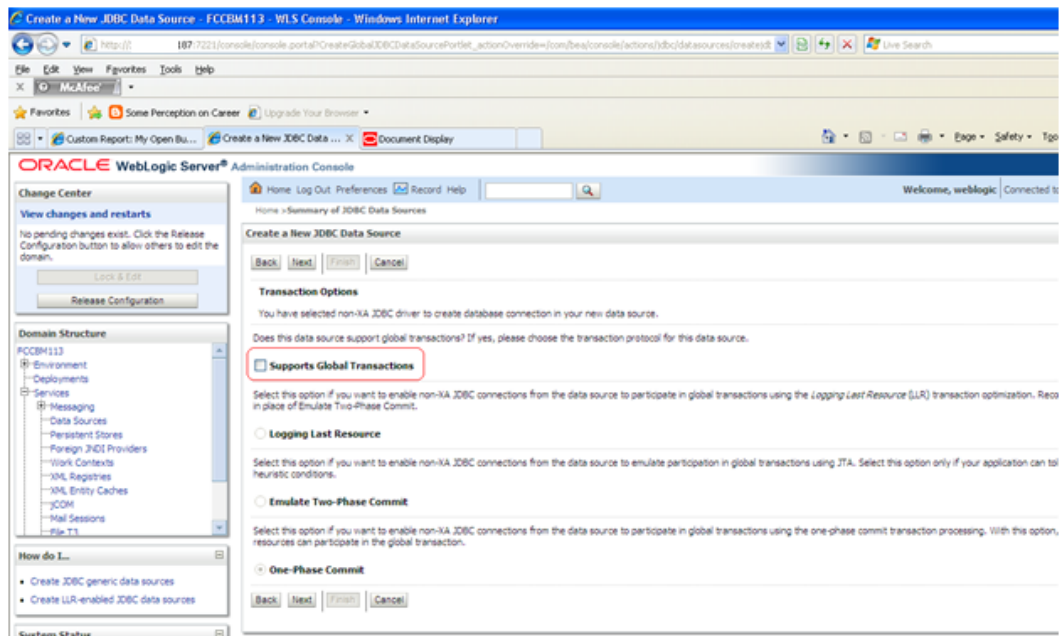
Database Type: Oracle

Next Previous Cancel

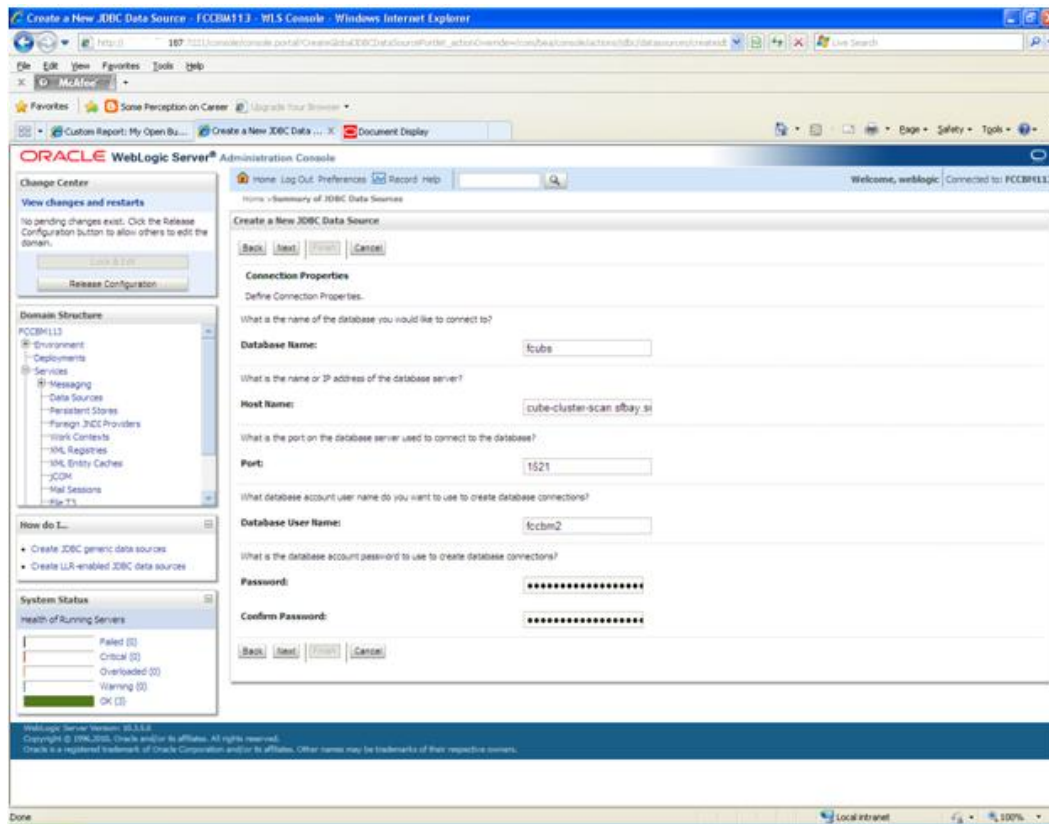
- Select the appropriate Database Driver. Ensure to select the latest available driver and click **Next**.



- Deselect the **Support Global Transactions** checkbox. Click **Next**.



- Specify the **Host Name** and the **SCAN IP** details. Click **Next**.



- Replace the URL in the following way:

`jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=cube-cluster-scan.sfbay.sun.com)(PORT=1521)))(CONNECT_DATA=(SERVICE_NAME=fcubs)))`

Where,

- Scan IP = cube-cluster-scan.sfbay.sun.com
- Service Name = fcubs
- Port = 1521

then Click on **Test Configuration**. The connection test should be successful.

Create a New JDBC Data Source - FCCBM113 - WLS Console - Windows Internet Explorer

Test Database Connection

Test the database availability and the connection properties you provided.

What is the full package name of JDBC driver class used to create database connections in the connection pool?
(Note that this driver class must be in the classpath of any server to which it is deployed.)

Driver Class Name:

What is the URL of the database to connect to? The format of the URL varies by JDBC driver.

URL:

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

Database User Name:

What is the database account password to use to create database connections?
(Note: for secure password management, enter the password in the Password field instead of the Properties field below)

Password:

Confirm Password:

What are the properties to pass to the JDBC driver when creating database connections?

Properties:

- In **Select Targets** section, select the target as cluster **FCCLUSTER**. Click **Finish**.

ORACLE WebLogic Server® Administration Console

Home Log Out Preferences Record Help

Welcome, weblogic Connected to

Change Center

View changes and restarts

No pending changes exist. Click the Release Configuration button to allow others to edit the domain.

Lock & Edit

Release Configuration

Domain Structure

FCCBM113

- Environment
- Deployments
- Services
 - Messaging
 - Data Sources
 - Persistent Stores
 - Foreign JNDI Providers
 - Work Contexts
 - XML Registries
 - XML Entry Caches
 - JCOM
 - Mail Sessions
 - File Tr

How do I...?

- Create JDBC generic data sources
- Create LIR-enabled JDBC data sources

System Status

Health of Running Servers

- Failed (0)
- Critical (0)
- Overloaded (0)
- Warning (0)
- OK (3)

Create a New JDBC Data Source

Back Next Finish Cancel

Select Targets

You can select one or more targets to deploy your new JDBC data source. If you don't select a target, the data source will be created but not deployed. You will need to deploy the data source later on.

Servers

- ☐ AdminServer
- ☐ proxy

Clusters

- ☒ FCCLUSTER
 - ☒ All servers in the cluster
 - ☐ Part of the cluster
 - ☐ HsServer2
 - ☐ HsServer1
 - ☐ Managed3
 - ☐ managed4

Back Next Finish Cancel

- Click **Finish** to complete the data source creation.

Similarly you can create other data sources with appropriate driver.

8. JDBC Tuning

The following JDBC tuning parameters are detailed below:

- [General Parameters](#)
- [Managed Server & Http Logging](#)
 - [General](#)
 - [HTTP](#)

8.1 General Parameters

PARAMETER	VALUE	Navigate To
JTA Time out seconds	18000	<ul style="list-style-type: none">• Login to Weblogic Server console.• Click on the domain name (ex: FCUBS) which is under 'Domain Structure'.• Go to Configuration > JTA, parameter and values is found on the right side panel of console.
Session Timeout	900	<ul style="list-style-type: none">• Login to Weblogic Server console• Click on Deployments which is under 'Domain Structure'.• Click on the deployed FCJ application from right side panel.• Click on FCJNeoWeb from 'Modules and components'• Go to Configuration General, the parameter values can be found here.
Stuck Thread Max Time	18000	Server > Configuration > Tuning > Stuck Thread Max Time (Should be set for all managed servers)

jdbc/fcdevDS

jdbc/fcdevDSBranch

PARAMETER	VALUE	Navigate To
Connection Reserve time out	30	Connection Pool->Advance
Test Frequency	60	Connection Pool->Advance
Inactive connection time out	30	Connection Pool->Advance

Initial Capacity	1	Connection Pool
Max capacity	100	Connection Pool
Capacity Increment	5	Connection Pool
Shrink Frequency	1800	Connection Pool->Advance
Test Connection on Reserve	Checked	Connection Pool->Advance

jdbc/fcjschedulerDS

PARAMETER	VALUE	Navigate To
Connection Reserve time out	30	Connection Pool->Advance
Test Frequency	60	Connection Pool->Advance
Inactive connection time out	30	Connection Pool->Advance
Initial Capacity	1	Connection Pool
Max capacity	20	Connection Pool
Capacity Increment	2	Connection Pool
Shrink Frequency	900	Connection Pool->Advance
Test Connection on Reserve	Checked	Connection Pool->Advance

8.2 Managed server & HTTP logging

The process of log file writing in a Weblogic server can impact the performance. Hence, you need to keep the logging to minimum in a production environment.

The following changes are to be done for all the managed servers.

8.2.1 General

Navigate to Managed server > Logging > General > Advanced option.

Minimum Severity to log	Warning
Log file Severity level	Warning
Standard Out Severity level	Critical
Domain broadcaster Severity level	Critical

8.2.2 HTTP

Navigate to Managed server > Logging > HTTP

Access Logs	Unchecked
-------------	-----------

9. Oracle WebLogic Loadbalancing

For Weblogic Load balancing, use Oracle HTTP Server.

Best practice document for Oracle HTTP Server is available.

10. Appendix

This section of the documents explains about the resolved issues for reference.

10.1 Known Issues

Following are the issues that you might face during the Admin server startup.

1. Server is running in Production Mode and Native Library (terminalio) to read the password securely from command line is not found.

Solution:

Add **-Dweblogic.management.allowPasswordEcho=true** in **Startweblogic.sh** as per Metalink doc Id **1354736.1**,

```
if [ "${WLS_REDIRECT_LOG}" = "" ] ; then
    echo "Starting WLS with line:"
    echo "${JAVA_HOME}/bin/java ${JAVA_VM} ${MEM_ARGS} -Dweblogic.Name=${SERVER_NAME} -Djava.
security.policy=${WL_HOME}/server/lib/weblogic.policy ${JAVA_OPTIONS} ${PROXY_SETTINGS} ${SERVER_
CLASS}"
    ${JAVA_HOME}/bin/java ${JAVA_VM} ${MEM_ARGS} -Dweblogic.Name=${SERVER_NAME} -Djava.securi
ty.policy=${WL_HOME}/server/lib/weblogic.policy -Dweblogic.management.allowPasswordEcho=true ${JA
VA_OPTIONS} ${PROXY_SETTINGS} ${SERVER_CLASS}
else
    echo "Redirecting output from WLS window to ${WLS_REDIRECT_LOG}"
    ${JAVA_HOME}/bin/java ${JAVA_VM} ${MEM_ARGS} -Dweblogic.Name=${SERVER_NAME} -Djava.securi
ty.policy=${WL_HOME}/server/lib/weblogic.policy -Dweblogic.management.allowPasswordEcho=true ${JA
VA_OPTIONS} ${PROXY_SETTINGS} ${SERVER_CLASS} >"${WLS_REDIRECT_LOG}" 2>&1
fi
```

2. Admin server failed to start with following errors:

Error1

```
Enter username to boot WebLogic server:Error: Failed to get value from Standard
Input
<Jan 24, 2012 12:41:05 PM IST> <Error> <Security> <BEA-090782> <Server is Runnin
g in Production Mode and Native Library(terminalio) to read the password securel
y from commandline is not found.>
<Jan 24, 2012 12:41:05 PM IST> <Notice> <WebLogicServer> <BEA-000388> <JVM calle
d WLS shutdown hook. The server will force shutdown now>
<Jan 24, 2012 12:41:05 PM IST> <Alert> <WebLogicServer> <BEA-000396> <Server shu
tdown has been requested by <WLS Kernel>
<Jan 24, 2012 12:41:05 PM IST> <Notice> <WebLogicServer> <BEA-000365> <Server st
ate changed to FORCE SHUTTING DOWN>
```

Error2

```

>
<Jan 13, 2012 7:32:34 PM IST> <Critical> <WebLogicServer> <BEA-000386> <Server subsystem failed.
Reason: weblogic.security.SecurityInitializationException: Authentication for user denied
weblogic.security.SecurityInitializationException: Authentication for user denied
    at weblogic.security.service.CommonSecurityServiceManagerDelegateImpl.doBootAuthorization
(CommonSecurityServiceManagerDelegateImpl.java:965)
    at weblogic.security.service.CommonSecurityServiceManagerDelegateImpl.initialize(CommonS
curityServiceManagerDelegateImpl.java:1050)
    at weblogic.security.service.SecurityServiceManager.initialize(SecurityServiceManager.ja
a:873)
    at weblogic.security.SecurityService.start(SecurityService.java:141)
    at weblogic.t3.srvr.SubsystemRequest.run(SubsystemRequest.java:64)
    Truncated. see log file for complete stacktrace
Caused By: javax.security.auth.login.FailedLoginException: [Security:090304]Authentication Faile
: User javax.security.auth.login.LoginException: [Security:090301]Password Not Supplied
    at weblogic.security.providers.authentication.LDAPAtnLoginModuleImpl.login(LDAPAtnLoginM
oduleImpl.java:261)
    at com.bea.common.security.internal.service.LoginModuleWrapper$1.run(LoginModuleWrapper.
ava:110)
    at java.security.AccessController.doPrivileged(Native Method)
    at com.bea.common.security.internal.service.LoginModuleWrapper.login(LoginModuleWrapper.
ava:106)
    at sun.reflect.NativeMethodAccessorImpl.invoke0(Native Method)

```

Solution

To solve the above errors,

1. Create a new directory **security** under
\$WLS_HOME/./user_projects/domains/FCUBSCL/servers/AdminServer and create a file
boot.properties. Add weblogic console username and password in it
2. If there is a directory ldap exists under
\$WLS_HOME/./user_projects/domains/FCUBSCL/servers/AdminServer/data, then
rename directory ldap to ldap_old and start the Admin server.

This recreates the ldap setting with new password and starts the admin server.



FCUBS Weblogic Middleware Practices

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Version 3.0

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