Middleware Best Practice Oracle FLEXCUBE Universal Banking Release 14.4.0.2.0 Part No. F36581-01 [November] [2020]

FINANCIAL SERVICES

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1. Introduction

1.1 Purpose of this Document

The purpose of this document is to explain the steps required for Configuration and applying best practices in cluster mode for

- FCUBS 14.4
- Weblogic Version 12.2.1.4.0
- JDK 1.8.0_241

1.2 WebLogic Server Overview

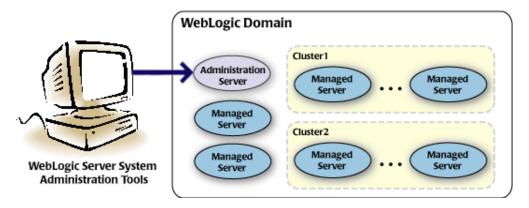
This section of the document provides brief explanation on the main components involved in WebLogic server.

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.

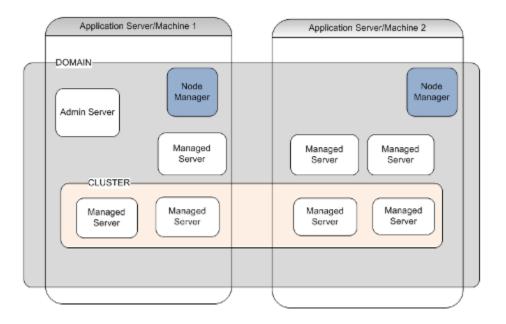
Each WebLogic Server domain must have one server instance that acts as the Administration Server. Administration Server can be used via the Administration Console or using the command line for configuring all other server instances and resources in the domain.

WebLogic Domain Structure





Weblogic 12c Domain Overview



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.

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.



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.

<u>Machine</u>

A machine in the Weblogic Serve context is the logical representation of the computer that hosts one or more Weblogic Server instances(servers). The Admin Server uses the machine definitions to start remote servers through the Node Managers that run on those servers. A machine could be a physical or virtual server that hosts an Admin or Managed Server that belongs to a domain.

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.

Dynamic Cluster

A dynamic cluster is any cluster that contains one or more dynamic servers. Each server in the cluster will be based upon a single shared server template. The server template allows you to configure each server the same and ensures that servers do not need to be manually configured before being added to the cluster. This allows you to easily scale up or down the number of servers in your cluster without the need for setting up each server manually. Changes made to the server template are rolled out to all servers that use that template.

You cannot configure dynamic servers individually; there are no server instance definitions in the config.xml file when using a dynamic cluster. Therefore, you cannot override the server template with server-specific attributes or target applications to an individual dynamic server instance.

When configuring your cluster you specify the maximum number of servers you expect to need at peak times. The specified number of server instances is then created, each based upon your server template. You can then start up however many you need and scale up or down over time according to your needs. If you need additional server instances on top of the number you originally specified, you can increase the maximum number of servers instances (dynamic) in the dynamic cluster configuration.



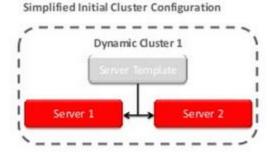
Server Templates

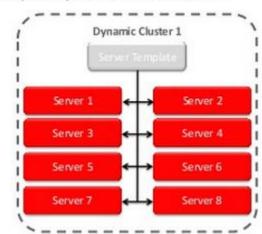
A single server template provides the basis for the creation of the dynamic servers. Using this single template provides the possibility of every member being created with exactly the same attributes. Where some of the server-specific attributes like Servername, listen-ports, machines, etc. can be calculated based upon tokens.

You can pre-create server templates and let Weblogic clone one when a Dynamic Cluster is created.

When none is available a server template is created with the Dynamic Cluster. The name and the listen ports are the only server template attributes that you provide during Dynamic Cluster creation.

Simplified Configuration with Scalability and Elasticity





Simplified Operations for Cluster Scale Out



1.3 Pre-requisites

In this document, 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). Note that, this document has been prepared based on a test conducted in Linux servers.

This requires Weblogic Server of same version to be installed on both the machines and services.

Environment

2 servers where linux is installed, 1 will be primary where admin console will be running along with managed servers and the other where only managed servers will be.

Softwares

- 1) Oracle Weblogic Server 12.2.1.4 installed on both the machines under same folder structure.
- 2) JDK 1.8 Latest available version installed on both the machines. In this document JDK1.8.0_241 version is used.

Clock Synchronization

The clocks of both the servers participating in the cluster must be synchronized to within one second difference to enable proper functioning of jobs otherwise it will lead to session timeouts.

Enable Graphical User Interface (GUI)

Establish a telnet or SSH connection to primary 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



2. Domain Configuration

2.1 **Domain Creation**

Weblogic domain creation and configuration will be done from primary server.

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

1) In the Welcome screen, select **Create a new domain** option. Enter the domain name and click on **Next**.

Configuration Type		
Configuration Type Create Domain Templates Administrator Account Domain Mode and JDK Advanced Configuration Configuration Summary Configuration Progress End Of Configuration		
Help	< Back	Einish Cancel

2) Select the required templates from **Available Templates** and click **Next**.



Templates	
Create Domain Templates Administrator Account Domain Mode and JDK	Create Domain Using Product Templates: Template Categories: All Templates Available Templates
Advanced Configuration <u>Configuration Summary</u> Configuration Progress End Of Configuration	Basic WebLogic Server Domain - 12.1.3.0 [wiserver] * WebLogic Advanced Web Services for JAX-RPC Extension - 12.1.3.0 [oracle_common] WebLogic Advanced Web Services for JAX-WS Extension - 12.1.3.0 [oracle_common] WebLogic Coherence Cluster Extension - 12.1.3.0 [wiserver] WebLogic JAX-WS SOAP/JMS Extension - 12.1.3.0 [wiserver] WebLogic JAX-WS SOAP/JMS Extension - 12.1.3.0 [oracle_common]
	Create Domain Using Custom Template: Template location: /scratch/app/w12c Browse
Help	< <u>Back</u> <u>Next></u> Einish Cancel

3) 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**.

Administrator Account				
Create Domain	:			
Templates				
Administrator Account				
Domain Mode and JDK				
Advanced Configuration				
Configuration Summary				
Configuration Progress				
U End Of Configuration	Name	weblogic		
	Password	•••••		
	Confirm Password	•••••		
	Must be the same as one number or speci	the password. Password must conta ial character	ain at least 8 alphanumeric charact	ters with at least
	one number or speci	ai criaracter.		
Help			< Back Next > Finish	1 Cancel

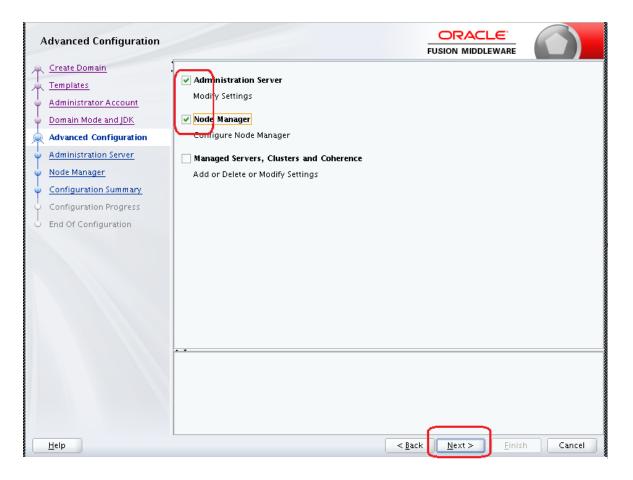


4) Select Server Startup as **Production Mode** and the available **JDKs**. Click **Next**.

Domain Mode and JDK	
Create Domain Templates Administrator Account Domain Mode and JDK Advanced Configuration Administration Server	Domain Mode Development Utilize boot.properties for username and password, and poll for applications to deploy. Production Require the entry o a username and password, and do not poll for applications to deploy. JDK
Node Manager Configuration Summary Configuration Progress End Of Configuration	Oracle HotSpot 1.7.0_75 /usr/java/jdk1.7.0_75 Other JDK Location: Browse
Пер	Sector



5) Select the check box adjacent to Administration Server and Node Manager. Click Next.





6) Specify the Administration Server Listen address and Listen port.

Administration Server				FL		
Create Domain Templates Administrator Account Domain Mode and JDK Advanced Configuration Administration Server Node Manager Configuration Summary Configuration Progress End Of Configuration		7001	535, and differ			
Help	L			< <u>B</u> ack	<u>N</u> ext > <u>F</u> i	nish Cancel

Note: The default Listen port is 7001 and SSL port is 7101. 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.

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

The next screen displays Node Manager Configuration.



7) Configure Node Manager.

Select **Per Domain Default Location** option from **Node Manager Type.** And in the **Node Manager Credentials**, provide the username and password of the node manager. Click **Next**.

Node Manager	
Create Domain Templates Administrator Account Domain Mode and JDK Advanced Configuration Administration Server	Node Manager Type
Node Manager	Per Domain <u>C</u> ustom Location
Configuration Summary Configuration Progress End Of Configuration	Node Manager Home: pp/w12c/user_projects/domains/FCUBSDomain/nodemanager Browse Manual Node Manager Setup Node Manager Credentials Username: weblogic Password: ••••••••• •••••••• ••••••••
Help	Must be the same as the password. Password must contain at least 8 alphanumeric characters with at leas one number or special character.



~

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

Configuration Summary		
Create Domain Templates Administrator Account Domain Mode and JDK Advanced Configuration Administration Server Node Manager Configuration Summary Configuration Progress End Of Configuration	View: Deployment	Name Basic WebLogic Server Domain Description Create a basic WebLogic Server domain Author Oracle Corporation Location /scratch/app/w12c/wlserver/commo
Help	Select Create to accept the above options and start creat above configuration before starting Domain Creation, g the left pane, or by using the Back button.	ting and configuring a new domain. To change the



9) Click Next.





10) The **Configuration Success** message will be displayed as follows:

Configuration Success	
A Create Domain	
Templates	Oracle Weblogic Server Configuration Succeeded
4 Administrator Account	New Domain FCUBSDomain Creation Successful
Oomain Mode and JDK	Domain Location
Advanced Configuration	/scratch/app/w12c/user_projects/domains/FCUBSDomain
Administration Server	Admin Server URL
V Node Manager	http://ofss222565:7001/console
Configuration Summary	
Configuration Progress	
Configuration Success	
Help	<u> Back</u> Next > Finish Cancel Ca

The Admin Server console URL is as indicated below:

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

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

In this case the Admin Console URL is: <u>https://<server1hostname>:7101/console</u>



2.2 Pack and Unpack Domain

The domain structure is expected to be copied to the second server during domain creation. To copy the same, you can use pack and unpack utility provided under \$WLSHOME/common/bin.

Pack

Pack domain in primary server:

./pack.sh -managed=true -domain=/scratch/app/wl12c/user_projects/domains/FCUBSDomain - template=/tmp/FCUBSDomain.jar -template_name="FCUBSDomain"

<u>Unpack</u>

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

./unpack.sh -domain=/scratch/app/wl12c/user_projects/domains/FCUBSDomain - template=/tmp/FCUBSDomain.jar

2.3 Start Admin server

Admin server is started on the primary server. Login to primary server and navigate to folder \$DOMAIN_HOME/bin and execute startWeblogic.sh.

2.4 Start Node Manager

Node Manager needs to be started on both the servers. Before starting the node mananger update ListenAddress to the Hostname/IP Address of the machine in nodemanager.properties located in folder \$DOMAIN_HOME/nodemanager

To start the node manager login to the servers and navigate to folder \$DOMAIN_HOME/bin and execute **NodeManager.sh**



3. Cluster Configuration

Dynamic Cluster configuration involves below steps

- 1) Machine Configuration
- 2) Dynamic Cluster Creation: In a normal WebLogic Cluster you define Managed Server and add them to Cluster. In Dynamic Cluster, you select number of Servers you want in Cluster and Server Template you wish to assign to Servers in this WebLogic Dynamic Cluster.
- Server template modification: Servers (or Managed Server) that are part of WebLogic Dynamic Cluster will have properties taken from Server Template.
 Modify server template for best practices parameters for Dynamic Servers (part of Dynamic Cluster), you modify Server Template that is applicable to Dynamic Cluster. These settings are applicable to all the managed servers.
- 4) Activate Changes which would automatically create the managed servers (as mentioned in the number of servers required parameter).

Calculate Number of Servers Required:

For every 50 logged in FLEXCUBE users require one managed server of size 8GB. i.e. for 300 logged in FLEXCUBE users, it is recommended to have 6 managed servers. Based on the logged in users that needs to be supported decide on the number of the managed servers required. This parameter is required later in the dynamic cluster creation.



3.1 Machines Configuration

 Login into Admin Console and navigate to FCUBSDomain → Environment → Machine and click New.

	dministration Console 12c	õ
Change Center	🖆 Home Log Out Preferences 🔤 Record Help	Welcome, weblogic Connected to: FCUBSDomain
View changes and restarts	Home >Summary of Machines	
Click the Lock & Edit button to modify, add or delete items in this domain.	Summary of Machines	
Lock & Edit Release Configuration	A machine is the logical representation of the computer that hosts one or more WebLogic Server instances (servers). server in a cluster to which certain tasks, such as HTTP session replication, are delegated. The Administration Server servers.	WebLogic Server uses configured machine names to determine the optimum uses the machine definition in conjunction with Node Manager to start remote
Domain Structure	This page displays key information about each machine that has been configured in the current WebLogic Server don	nain.
FCUBSDomain FCUBSDomain FCUBSTenvironment Servers Coherence Clusters Hachines Virtual Hosts Virtual Hosts Startup and Shutdown Classes Services Services Services Foepolymerability	Customize this table Machines Click the Lock & Edit button in the Change Center to activate all the buttons on this page. New: Clone Delete Name There are no items to display New: Clone Delete	Showing 0 to 0 of 0 Previous Next Type Showing 0 to 0 of 0 Previous Next
Diagnostics		
How do I		
Create and configure machines Assign server instances to machines Clone machines		

2) Enter the Machine Name and click Next.

ORACLE WebLogic Server A	dministration Console 12c	0
Change Center	🔞 Home Log Out Preferences 🐼 Record Help	Welcome, weblogic Connected to: FCUBSDomain
View changes and restarts	Hore -Summary of Machines	
No pending changes with Click the Release Configuration button to allow others to edit the domain.	Create a New Machine Back: Meet Back: Machine Hachine Identity	
	The following properties will be used to identify your new Machine.	
Domain Structure	* Indicates required fields	
FCUSSDenain FCUSSDenain FCUSSDenain FCUSSDenain Colorent FCUSSDenain FCUSEEnt FCUSEEnt FCUSEEnt FCUSEEnt FCUSEEnt FCUSEEnt FCUSEEnt FCUSEEnt FCUSEEnt FCUSEEn	What would you like to name your new Hachine? * Maree: Machine(!	
Nachines Virtual Hosts Work Planagers Starbup and Shutdown Classes	Specify the type of machine operating system. Machine OS: Other	
Deployments Bri Senators - Security Realms Bri Disconsciality R: Disconsciality R: Disconsciality R: Disconsciality	Set Jack Free Carcal	
How do I		



3) Enter the Listen Address and Listen Port (this is the port mentioned in nodemanager.properties file) and click Finish.

WebLogic Server As	ministration Console 120	<u> </u>
Change Center	🔒 Home Lag Out. Preferences 🔤 Record Help	Welcome, weblogic Connected to: FCUBSDomain
Wew changes and restarts	Home >Summary of Machines	
No pending changes exist. Click the Release Configuration betton to allow others to edit the domain. Look & Edit Release Configuration	Create a New Machine Back Finitit Encode Node Manager Properties The following properties will be used to configure the Node Manager on this machine.	
Domain Structure	What type of Node Hanager is running on this server, and what protocol should be used to communicate with it?	
FCUBSDomain A B Environment Servers	Type: SSL *	
Coherence Clusters	For a Jave based node manager, what address and push is this Ends Marager configured to listen at?	
	Listen Address: Jecabros	
R Services Security Realins	For a script based node manager, additional proporties may be carring ned.	
B-Interoperability	Node Manager Home:	
How do L_	Shell Command:	
Create and configure machines		
 Assign server instances to machines 	Debug Enabled	
Delete machines	Back Friend Family Cancel	
System Status		
Health of Running Servers		

4) Machine is created.

ORACLE WebLogic Server	Administration Console 12c		<u> </u>
Change Center	Anne Lag Out. Preferences 🖾 Housed Help		Welcome, weblogic Connected to: PCUBSDomain
View changes and restarts Click the Lock & Bdit button to modify, add or delete terms in this domain.	Harte - Semanary of Hachines Hessages # All charges have been activated. No restarts are reconstants.		
Lock & Edit Release Configuration	Summary of Hachines		
Densis Structure PCUESDensis PCUESDensis PSeves PSeves PCUexes PCUexes PCUexes PCUexes PCUexes PUsical Hostis PUsical Hostis PUsical Hostis PUsical Hostis PUsical Hostis PUsical Pusical PCUESDENSIS PUsical Pusical PCUESDENSIS PCUESDEN	server in a cluster to which certain tasks, such as HTP session arrever. This page displays lev information about each machine that has a Costomize this table Machines Chick the Lock & Lobb Justion in the Change Center to activitie a There is a cluster in the Change Center to activitie a	epication, are delegated. The Administrat	Showing 1 to 1 of 2 Previous Next
How do I	Nachive1		Machine Showing 1to 1 of 5 Previous Next
Create and configure machines Assign server instances to machines Oree reachines Delete machines			



5) Similarly create a new machine entry for the other server.

hange Center	A Home Log Out: Preferences III Record Help	8	Welcome, weblogic Connected to: PCUBSDoma
New changes and restarts	Home >Summary of Plachenes		
lick the Lock & Edit batton to modify, add or lefete iters in this domain.	Pressages #All changes have been activated. No restarts are necessary.		
Lock & Eolt	Summary of Machines		
Related Centgotation			
Orden Schucture CDSDorner Frivororent B-Charten B-Charten Charten Hachmen Hach	A machine is the logical representation of the computer that both one encours in a cluster to which certain tasks, such as HTTP session replicat servers. This page displays key information about each machine that has been in Customate this table Machines Clock the Lock & ENF botton in the Change Center to activate all the b	fore, are delegated. The Administration Server uses the much configured in the correct WebLugic Server domain.	ine definition in conjunction with Node Manager to start remote
Deployments 8-Services	New Cone Deele		Showing 1 to 2 of 2 Previous Next
Security Realins E Interoperability	□ Name ↔	Туре	
B Ownorthm	Madinet	Machine	
iow do I	B Hadviez	Hachine	
Create and configure machines Assists server instances to machines	New Ckne Devic		Showing 1 to 2 of 2 President Next

Verifying machine status

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

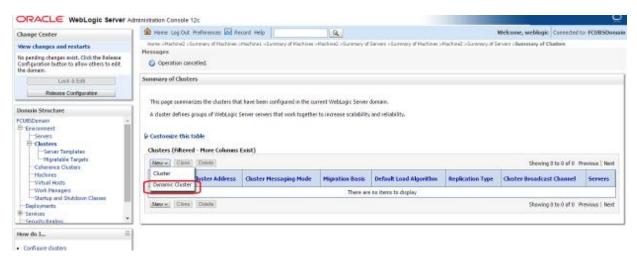
In the console, navigate through **Domain structure** \rightarrow **Machines** \rightarrow **machine1** \rightarrow **Monitoring** \rightarrow **Node Manager Status**. Status should be **Reachable**.

ORACLE WebLogic Server	Administration Console 12c		$\mathbf{\Theta}$
Change Center	🙆 Home Log Dut Preferences 🔛 Annon	i Helo	Welcome, weblagic Connected to: FCUBSDomain
New changes and restarts	Home >Summary of Hachines >Hachine1 >Sum	many of Hachines >Hachine2 >Summary of Hachines >P	PlachineL>Summary of Machines >MachineS>Summary of Machines >Machines
Click the Lock & Edit better to modify, add or	Settings for Machinet		
delete items in this domain.	Configuration Monitoring Notes		
Heliane Cathguration	Node Manager Status Node Manager	Log	
Domain Structure	They make allows you to view current status	s information for the Node Manager instance configs	used for this machine
POUSDonaiz -		reserve the reserve of the second	
B Brwrotenent Servers	Status:	Reachable	Corrent status of this Node Planages. More July
Clusters Server Templates Vigratable Targets Coherence Clusters	Version:	12.1.3	Version string returned from the Node Planager. Here \mbox{Inf}_{8}
Michaele Michaele Michaele Michaele Michaele Michaele Stackup and Shutdown Classes	-		



3.2 **Dynamic Cluster Creation**

1) Login into Admin Console and Navigate to FCUBSDomain → Environment → Clusters → New → select Dynamic Cluster.



2) Enter the Cluster Name and click on Next.

ninistration Console 12c		Q
🔒 Home Log Out Preferences 🔤 Record Help	Q	Welcome, weblogic Connected to: FCUBSDomain
Home >Machine2 >Summary of Machines >Machine1 >Summ	nary of Machines >Machine2 >Summary of Servers >Summary of I	Machines >Machine2 >Summary of Servers >Summary of Clusters
Create a New Dynamic Cluster Back Next Finish Cancel Specify Cluster Identity and Properties The following properties will be used to identify your ne	ew dynamic cluster and specify how cluster members should	i communicate with each other to coordinate work.
* Indicates required fields		
simple broadcast technology that enables multiple applic	FCUBSCluster	
Multicast Address:	239.192.0.0	
Multicast Port: Back Next Finish Cancel	7001	
	Home Log Out Preferences Record Help Home >Machine3 >Summary of Machine3 >Machine3 >Mach	Home Log Out Preferences Record Help Ame >Machines >Machi



3) Enter the **number of dynamic servers** you want to configure, enter the **server name prefix** and click on **Next**.

ORACLE WebLogic Server Ad	Iministration Console 12c	Q
Change Center	🔒 Home Log Out Preferences 🗠 Record Help	Welcome, weblogic Connected to: FCUBSDomain
View changes and restarts	Home >Machine2 >Summary of Machines >Machine1 >Summary of Machines >Machine2 >Summary of Servers >Summary of Machines	>Machine2 >Summary of Servers >Summary of Clusters
No pending changes exist. Click the Release Configuration button to allow others to edit	Create a New Dynamic Cluster	
the domain.	Back Next Finish Cancel	
Release Configuration	Specify Dynamic Server Properties	
	The following properties will be used to specify the size and characteristics of your new dynamic cluster.	
Domain Structure	How many dynamic servers will you need at peak load?	
FCUBSDomain -Environment -Servers	Number of Dynamic Servers:	
Clusters Server Templates	What naming convention would you like to use for new dynamic servers in this cluster?	
Migratable Targets Coherence Clusters Machines	Server Name Prefix: FCUBSMS	
Virtual Hosts Work Managers	Server templates are used to configure the characteristics that are common to all dynamic servers in this cluster. Server tem new server template will be created to support this new cluster.	plates are unique to a cluster and cannot be shared across clusters, so a
Startup and Shutdown Classes	Back Next Finish Cancel	
Services Security Realms The security Realms		
How do I		

4) Select machines that participate in domain, in this case all machines will be part of the domain, select **Use any machine configured in this domain** option and click on **Next**.

ORACLE WebLogic Server Ad	ministration Console 12c		<u> </u>
Change Center	🏫 Horse Log Out Preferences 🔛 Record Help	9	Welcome, weblogic Connected to: PCUBSDomain
View changes and restarts	Hone >Machine2 >Summary of Machines >Machine1 >Summ	rary of Plachines >Plachine2 >Summary of Servers >Summary o	Plachines >Plachine2 >Summary of Servers >Summary of Chollers
No pending changes exist. Click the Release Configuration button to allow others to edit	Create a New Dynamic Cluster		
the domain.	Back Next Finish Cancel		
Lock & Edit Release Configuration	Specify Machine Bindings		
Hender Competation	Associating dynamic servers with machines is essential	If you intend to use Node Hanager and the Administration	Console (or WLST) to start server instances.
Domain Structure	How do you want to distribute dynamic servers across m	achines?	
PCUBSDomain A	Use any machine configured in this domain		
B-Clusters Server Templates	🕕 Use a single machine for all dynamic servers		
Higratable Targets Coherence Clusters	Selected Machine:	Machine1 •	
*** Wachines **** Work Hasts *** Work Managers	$\ensuremath{}$ Use a subset of machines in this domain		
Startup and Shutdown Classes	Plachine Name Match Expression:		
B-Services Security Realms	Back Next Finish Cancel		
How do I 😑			
Create dynamic dusters			



5) Select the **listen port for the first server** in the dynamic cluster and then the **SSL listener port** for the first server in the dynamic cluster. The subsequent servers will be assigned with an incremental port number. Click **Next**.

Change Center	🏟 Home Log Cult Preferences 💹 Record Help	9	Welcome, weblagic Connected to: PCUBSDomain
View changes and restarts	Hore -Mathred -Sermary of Nachres -Machinel -Sermary of Flacks	nas sPlathere2 «Summery of Servers »Summery of Plathere	s Machinez -Summery of Servers >Summary of Clusters
No pending changes exist. Click the Release Configuration botton to allow others to edit the domain.	Create a New Dynamic Cluster		
Look & Eds Release Configuration	Specify Listen Port Bindings Select how these dynamic servers should be bound to listen parts.		
Donain Structure	Listen ports for dynamic servers can be specified in a server templat	te or can be dynamically generated to be unique.	
B-Entrosment I-Servers B-Clusters	Assign each dynamic server unique listen ports Listen Port for Dirat Server:		
Server Templates Nigratable Targets Coherence Clusters	SSL Listen Part for First Server:	7102	
Plachines Vintual Hosts Work Planagers	Assign each dynamic server fixed listen ports		
Startup and Stutdown Classes Deployments Services	Listen Port:	7100	
Senativ Realm	SSL Listen Parts	8100	
How do 1_	and the second sec		
Create dynamic dusters Configure dusters	Back Heat Print Cancel		

6) A summary of new Dynamic Cluster Configuration is presented. Click **Finish** to create Dynamic Cluster.

ORACLE WebLogic Server A	Idministration Console 12c		Q.
Change Center	🏠 Herne Log Out: Preferences 🖂 Record Help	.a.	Welcome, weblagic Corrected to: FCUBSDemain
View changes and restarts	Hore sMachine2 stemmary of Machines sHachine1 stemmary of Plathese	s Plachine2 >3 armary of Servers >5 armary of Plachine2 >	Survivery of Servers - Suremany of Clusters
No pending changes exist. Club the Refease Configuration button to allow others to adit the domain.	Create a New Dynamic Claster		
Release Configuration	Review Your Dynamic Clenter Configuration You have elected to create a new dynamic cluster with the following	configuration.	
Domain Structure	Configuration details for new dynamic cluster:		
FCUEDensin + B-Ensineersent -Servers	Name of New Dynamic Cluster:	PCuBSClutter	
El Clusters Server Templates	Haziman Number of Dynamic Servers:	*:	
	Server Name Prefix:	FOURSMS	
Nachinas Virtual Hosts Work Managers	Enable Calculated Listen Ports:	true	
Startup and Shutdown Classes	Enable Calculated Machine Associations:	true	
Services	Name of New Server Templates	FOUBSMSTemplate	
How do 1_	Listen Port:	7002	
· Create dynamic clusters	Lincen Port:	7642	
Configure dusters	SSL Listen Port:	7102	
 Configure server migration in a duster 	Back Next Fieldsh Cancel		
 Configure cross-cluster replication 	Tranci Indenti Indenti		
Create server templated			



7) The **Summary of Clusters** screens should show the recently created Dynamic Cluster.

Change Center	😰 Hume Lig Out Preferences 🔛 Re	card Help	A		v	Velcome, weblogic Connected to	FOIBSDone
New changes and restarts Verding changes exist. They must be activated in take effect. ## Acts ale Changes	Henne Hacharal - Lammary of Machana - Plensages A server template named PCUBDE Cluster created successfully.					ren - Sammary of Chatlans	
Undo All Changes	Summary of Clusters						
Consein Structure COBCOurum B' Environment I-Servers	This page summarizes the clusters the A cluster defines groups of WebLogic 1						
Chasters Server Templates Server Templates Separable Targets Cohereoce Clusters	© Customize this table Clusters (Filtered - More Colomis	(xiet)					
Server Templates Higurtable Targets Coherevoc Casters Histores Virtual Hosts		Exist)				Showing 1 to 1 of 1 Pro	evicus. Next
Server Templates Higratable Targets Coherence Clusters Hachines	Clusters (Filtered - More Colonna		Higration Basis	Default Lord Algorithm	Replication Type	Storing 1 to 1 of 1 Pr Cluster Broadcast Channel	evicus Nent
- Server Templates - Hightable Targets - Calverone Clasters - Machines - Victual Hosts - Work Managers - Work Managers - Work Managers - Optiopments	Chusters (Fibered - More Columns June v. [Climit: [Drints]		Migration Basis Database	Default Lovel Algorithms Found Robin	Replication Type (None)	A REAL PROPERTY AND A REAL	P.S. CONTRACT
Server Templates Hightrable Engets Coherence Clusters Hackness Work Nanagers Starting and Shubborn Classes	Chasters (Filtered - More Columns) Jame v. [Dame] Name => Chaster Address	a Guster Nessaging Hode	Contraction of the local sector	State of the state	and the second s	A REAL PROPERTY AND A REAL	Servers

8) Upon Activate Changes would automatically create 4 managed servers.

inge Center	1 A H	one lagout P	oferences 🔛 times	-1 Pely	1.9.1			Welcome, weblogic Con	rented to: FCMISDoma
w changes and restarts	Harr	+PORHSTang	ista schemerary of Serv	er Tergine «PDBIPITingle	-Summery of Class	ters .			
S the Lock S Edit button to modify, add or the items in this domain.	Second	ary of Oestern							
Lock & Edit	1	tions and the second	on the clusters that h	ave been configured in the cur	and the later former	- Armen			
Halease Configuration				ner servers that work together					
	St. 1								
nain Structure	l la com								
Billomain -	P Ca	donaire this ta	bile:						
MDumain Instrument	1.000	Sector Sector		at)					
tilloman Inspannett Serven	Ches	ters (Filtered	More Columns Ex	out) ge Center to activate all the b	uttors on this pape.				
60 Demain Decomment Decomment P Cheters P Cheters P Spotable Targets 	Ches	ters (Filtered	• Nore Colomes Ex Plotton in the Char	100	dtors so this pape.			Shewing 1 to	Lof 1. Previous Next
MDuman	Ches	ters (Filtered i the Locit # Ed	Hore Columns Ex Platton is the Char Dente	100	Hors on this pape. Migration Basis	Default Load Algorithm	Replication Type	Showing 1 to Ounter Broadcast Channel	-

9) Navigate to FCUBSDomain \rightarrow Environment \rightarrow Servers tab and 4 new servers are created.

Change Center	nme Log Gut Preferences	Terrine Parky	9			Welcome, wel	Rogic Connected to: PCORSDoom
New changes and restarts	Here HOURSYSTemplete Science	nary of Server Templates (PDJ807	ETergiste -Summary of Ou	ters charmonary of Ser			
Club the Lock & Edit buttor to modify, aid or	Summary of Servers						
delete items in this dumain. Lock & Eoli	Configuration Control						
Bellans Carligs glue	A server is an instance of the	Gagic Server that runs in its ove	Jeva Virtual Hechine (217	() and has its more cord	igoration.		
Domain Mnacture	This page summarizes each se	rver that has been configured in	the current limbLags: Ser	wr donwin.			
0 Environment	0						
Coherence Outers	P Contempre this table Servers (Filtered - More C Old the Lock & Lafe Justice	olument Exist) in the Change Center to activat	e all the buttons on this pr	p.			
	[New] [Chris] [Debits]					She	ning 1 to 5 of 5 Prentice Net
The Hanagers							
Starting and Shutdown Classes Coglectments	C Note O	Type	Cluster	Plachine	State	Health	Lates Port
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Rating and Stubbook Classes Orginariants Security Rodge	Administrativer(admin)	1.001	Cluster POIBSOuter	Plachase Plachter	11111	10.000	and the second
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3.3 Managed Server Template configuration

The server template created is modified to apply the below parameters:

3.3.1 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.

Update below parameters by in Logging Screen

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

1) Navigate to **FCUBSDomain** → **Environment** → **Clusters**.

	Administration Console 120				<u> </u>
Change Center	🔒 Home Log Out Preferences 🔤 Recor	d Help		We	Icome, weblogic Connected to: FCUBSDomai
View changes and restarts	Home >Machine2 >Summary of Servers >Sumr Templates	nary of Machines >Machine2 >Summary o	f Servers >Summary of Clusters >Summ	nary of Servers >Summary of Server Te	mplates >FCUBSMSTemplate >Summary of Server
Pending changes exist. They must be activated to take effect.	Summary of Server Templates				
Activate Changes Undo All Changes	This page summarizes each server templa A server template contains common, non- manage configuration for a group of serve	default attributes that you can apply to	o a set of server instances, which the	en inherit the template configuratio	n. Server templates enable you to easily
FCUBSDomain Creation Control	Customize this table Server Templates New Clone Delete				Showing 1 to 1 of 1 Previous Next
Coherence Clusters	Name 🌣	Cluster	Machine	Listen Port	Listen Address
Virtual Hosts	FCUBSMSTemplate	FCUBSCluster		7002	
Startup and Shutdown Classes	New Clone Delete				Showing 1 to 1 of 1 Previous Next
Services Security Realms					
How do I	3				
Create server templates					

2) Select **FCUBSTemplate** and navigate to **Logging** → **General**.

A Home Log Out Preferent	ces 🐼 Record Help	9	Welcome, weblogic Connected to: FCUBSDomai
Home >PCUBSMSTemplate >So	unmary of Server Templates >FCI	RISMSTemplate	
Settings for FCUBSMSTemp	plate		
Configuration Protocols	Logging Debug Notes		
General HTTP Data Se	ource Diagnostic Images		
Save			
Use this page to define the	general logging settings for th	is server.	
🥂 Log file name:	logs/FCUBSMST	emplate log	The name of the file that stores current log messages. Usually it is a computed value based on the name of the parent of this MBean. For example, for a server log, it isSERVER_NAMEJog. More Info
Rotation			
D Determine the second			where the same of the second second state the same take



Unc	er Advanced	tab, upda	ate the below	parameters	and click on Sav	/e.
-----------------------	--------------------	-----------	---------------	------------	------------------	-----

— ♥ Advanced —		
赶 Date Format Pattern:	MMM d, yyyy h:mm:ss a z	The date format pattern used for rendering dates in the log. The DateFormatPattern string conforms to the specification of thejava.text.SimpleDateFormat class. More Info
Minimum severity to log:	Warning 🔻	The minimum severity of log messages going to all log destinations. By default all messages are published. More Info
街 Logger severity propertie	25:	The configuration of the different logger severities keyed by name. The values are one of the predefined Severity strings namely Emergency, Ale Critical, Error, Warning, Notice, Info, Debug, Trace. More Info
og file :		
Severity level:	Warning v	The minimum severity of log messages going to the server log file. By default all messages go to the log file. More Info
Filter:	None •	The filter configuration for the server log file. More Info
🖞 Log File Buffer:	8	Gets the underlying log buffer size in kilobytes More Info
tandard out :		
Severity level:	Critical	The minimum severity of log messages going to the standard out. Messages with a lower severity than the specified value will not be published to standard out. More Info
Filter:	None ▼	The filter configuration for log events being sent to the standard out. More Info
Domain log broadcaster :		
Severity level:	Critical	The minimum severity of log messages going to the domain log from this server's log broadcaster. Messages with a lower severity than the specified value will not be published to the domain log. More Info
Filter:	None T	The filter configuration for log events being sent to the domain log. More Info
Buffer Size:	10	Broadcasts log messages to the domain log in batch mode. More Info
Stack Traces to stdout		Specifies whether to dump stack traces to the console when included in logged message. More Info
stdout Stack Trace Depth:	5	Determines the no of stacktrace frames to display on standard out. All frames are displayed in the log file. * -1 means all frames are displayed. More Info
🚰 stdout Format:	standard	The output format to use when logging to the console. More Info



3.3.2 HTTP Logging

1) FCUBSDomain → Environment → Clusters → FCUBSTemplate → Logging → HTTP → Uncheck the Access Logs Flag.

11 Home Log	Out Preference	es 🔛 Reco	rd Help	Q	Welcome, weblogic Connected to: FCUBSDor
Home >FCU058	ISTemplate >Sur	mary of Serv	ver Template	s >FCUBSMSTemplate	
ettings for FC	UBSMSTemp	late			
Configuration	Protocols	Logging	Debug I	Notes	
General H	TP Data Sou	rce Diag	nostic Imag	jes	
Save					
	to configure H or the domain		for the sen	ver. By default, HTTP logging is enabled and th	e server saves HTTP requests in a separate log file; it does not store HTTP requests in the
server log file		log file.	for the serv	ver. By default, HTTP logging is enabled and th	e server saves HTTP requests in a separate log file; it does not store HTTP requests in the Indicates whether this server logs HTTP requests. (The remaining fields on this page are relevant only if you select this check box.) More Info
server log file	e or the domain	log file.	for the serv	ver. By default, HTTP logging is enabled and th	Indicates whether this server logs HTTP requests. (The remaining fields on
Server log file	e or the domain	log file.	for the serv		Indicates whether this server logs HTTP requests. (The remaining fields on this page are relevant only if you select this check box.) Hore Info
server log file	e or the domain ess log file en ame:	log file.	for the serv		Indicates whether this server logs HTTP requests. (The remaining fields on this page are relevant only if you select this check box.) Hore Info

3.3.3 Stuck Tread Max Time

1) FCUBSDomain → Environment → Clusters → FCUBSTemplate → Tuning, update the stuck thread max time to 18000 and Click on Save.



4. Tuning

4.1 **General Parameters**

PARAMETER	VALUE	Navigate To
JTA Time out seconds	18000	Login to Weblogic Server console.
		Click on the domain name (ex: FCUBSDomain) which is under 'Domain Structure'.
		Go to Configuration > JTA, parameter and values is found on the right side panel of console.
Session Timeout	900	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.

4.2 JVM Tuning

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

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 create a file setUserOverrides.sh under domain FCUBSCL in both servers. This file should be created in ***\$WL_HOME/user_projects/domains/\$WLS_DOMAIN/bin**" in both the servers. Paste below contents of USER_MEM_ARGS variable accordingly to override the standard memory arguments passed to java for **SUN JDK**.

32 bit 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
```

64 bit JDK

```
USER_MEM_ARGS="-
Dorg.apache.xml.dtm.DTMManager=org.apache.xml.dtm.ref.DTMManagerDefault
-Dorg.a
pache.xerces.xni.parser.XMLParserConfiguration=org.apache.xerces.parser
s.XML11Configuration -Dweblogic.threadpool.MinPoolSize=100 -
Dweblogic.threadpool.MaxPoolSize=100 -Xms8g -Xmx8g -Xmn4g -server
-XX:+UseParallelOldGC -XX:ParallelGCThreads=4"
export USER_MEM_ARGS
```

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



5. Start Managed Servers

Starting using scripts

Managed Servers can be started by executing startManagedWebLogic.sh script present in folder **\$DOMAIN_HOME/bin**

Usage: ./startManagedWebLogic.sh SERVER_NAME {ADMIN_URL}

Eg: ./startManagedWeblogic.sh FCUBSMS1 https://<hostname1>/console

Starting using console

Alternatively, login to admin console, navigate to **FCUBSDomain** \rightarrow **Environment** \rightarrow **Servers** \rightarrow **Control**, select the managed servers to be started and click on **Start**.

Change Center	Hume Log Out Preferences 🐼 Namet Hel	4		Welcome, weblog	ic Corrected to: FCUBSDoew
View changes and restarts	Hare (PO/BIHSTemplate / Summary of Server Tetry	riates >FCUEDHSTemplate >Summary o	f Clubers - Sammary of Servers		
Click the Lock & Edit button to modify, add or delete items in this domain.	Summary of Servers				
Lock & Dill	Carfiguration Control				
Release Configuration	Use this page to change the state of the server mode requires the domain-uside administration	in this WebLagic Server domain. Ca port.	ntrol operations on Managed Serv	ers require starting the Node Manager, Starting Ma	maged Servers in Standby
Environment Servers Coultans "Servers Templates "Horver Templates "Horver Templates "Horver Coultans	C) ir Contomire this table Servers (Filtered - Hore Columns Exist) Statt Resume Suspent v Stuttum	v) (Restart SSL)		Shaving	1 to 5 of 5 Previous Rest
Br Devicement Servers Ceuters Repeated Repeated Coherence Ousters Tachone Worked Insets	© Customize this table Servers (Filtered - Hore Columns Exist)	e Restart SSL. Machine	State	Status of Last Action	1 to 5 of 5 Previous Rest
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Clusters Converter Templates Coherence Couters Coherence Couters Coherence Couters Coherence Couters Coherence Stantig and Shothown Classes Coherences	Contomire this table Servers (Filtered - Hore Columns Exist) (Stat: Resource (Suspend v. Shuttwee) Server & AutorServer(subset) R PC 82951 R PC 82952	Machine	PUNNSNG SHUTDOWN	Status of Last Action None Trans) to Sof S. Previous Next

Upon successful startup, the status of Managed servers is changed to "RUNNING".



6. 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

6.1 Data source creation: non XA

 Navigate to FCUBSDomain → Services → Data Sources → select New > Generic Data Source.

ORACLE: WebLogic Server Ad	fministration Console 12	le l				Ĕ
Change Center	1 Home Log Out P	veferences 🔤 Record Help	٩		Welcome, weblogic	Connected to: FCUBSDomain
Wew changes and restarts		plate >Summary of Server Templates	>PCUBSPISTemplate >Summary of 0	Judent >Summary of Servert >Sam	mary of JDBC Data Sources	
No pending changes exist. Click the Release	Summary of JDBC Da	ata Sources				
Configuration batton to allow others to edit the domain.	Configuration Ho	onitoring				
Look & Edit						
Release Configuration		is an object bound to the JNDI tre connection from a data source.	ee that provides database connec	tivity through a pool of 3DBC con	nections. Applications can look up a data source on t	the JNDI tree and then
Domain Structure	This page summariz	tes the JDBC data source objects t	that have been created in this dor	rain.		
Deployments	Data Sources (Filt	tered - More Columns Exist)				
B-Services B-Messaging	New v Delete				Showing	0 to 0 of 0 Previous Next
Persistent Stores	Generic Data Sour	_	Туре	JNDI Name	Targets	
Foreign JNDL Providers	Hulti Data Source		Tİ	ere are no iterns to display		
····XML Registries ····XML Entity Caches	THEW WE LOOKE				Showing (0 to 0 of 0 Previous Next
-усом						

2) Enter the Name and JNDI Name and Click on Next



ORACLE WebLogic Server	Administration Console 12c	Q
Change Center	🙆 Hare LapOut Ardennes 🖾 Record Help	Welcome, weblogic Connected to: FOUBSDomail
View changes and restarts	Horse >RCURSHSTemplate >Summary of Server Templates >RCURSHSTemplate >Summary of Clusters >S	avvery of Servera -Sammary of JDBC Data Sources
No pending changes extrt. Click the Release Configuration button to allow others to edit the domain.	Create a New JDBC Data Source	
Release Configuration	30BC Data Source Properties The following properties will be used to identify your new JOBC data source.	
FCUBSCensin -	- indicates regarded himps	
Concentration Services Services Services Services Services Services Services Services Victualities Victualities Victualities Victualities Services Services	What would you like to ranne your new JOBC data source? IFCUBSDS What JNDE name would you like to assign to your new JDBC Data Source? IMDI Reme: Jdbc/fcjdevDS)
How do 1_		
Create JDBC generic data sources Create LIR-enabled JDBC data sources	What database type would you like to relect? Database Type: Cracle	
System Status B Health of Ranning Servers	Inc. Next Careat	
Failed (0)	3	



3) Select the Driver as **Oracle's Driver(thin) for Instance connection: Versions: Any** and Click on **Next**.

ORACLE WebLogic Server A	dministration Console 12c		Q
Change Gester	1 Horne Log Out Preferences III Record Help	9.	Welcome, weblogic Connected to: PCUBSDomain
View changes and restarts	Home >PC083M3Template =Summary of Server Templates >PC085F	STemplete >Summary of Clusters >Summary of Servers	-Sensiony of 200C Data Senses
No pending changes exist. Click the Release Configuration batton to allow others to edit the domain.	Create a New JDBC Data Source Back, Rent Printly Carcel		
Lack & Edil Release Configuration	JDBC Data Source Properties The following properties will be used to identify your new JDD	i data source.	
Dennini Structure PCUESDarian D'Structure D'Structure D'Structure D'Structure D'Structure D'Structure D'Structure Notation D'Structure Structure Structure D'Structure 'Structure D'Structure D'Structu	Detailease Type: Oracle What database driver would yes like to use to create database Dotailease Driver: Concle's Driver (Thin) for Ins Back (Next) (Presh) (Gascal)	connections? Note: * indicates that the driver is exp tance connections; Versions Any	Alcithy separated by Ocacle Weblingic Server.

4) Uncheck the **Supports Global Transactions** and click on **Next**.

ORACLE WebLogic Server Ad	ninistration Console 12c	ğ
Change Center	🏦 Home Log Out Preferences 🖾 Record Help	CUBSDomaii
View changes and restarts	Home >FCUBSMSTemplate >Summary of Server Templates >FCUBSMSTemplate >Summary of Clusters >Summary of Servers >Summary of JDBC Data Sources	
No pending changes exist. Click the Release Configuration button to allow others to edit the domain. Lock & Edit Release Configuration	Create a New JDBC Data Source Back Next Cancel Transaction Options You have selected non-XA JDBC driver to create database connection in your new data source.	
Domain Structure	Does this data source support global transactions? If yes, please choose the transaction protocol for this data source.	
FCUBSOmain Defenvironment Servers Clusters Clusters Cherence Clusters Coherence Clusters Machines	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 <i>Logging Last Resource</i> (LLR) transaction optimization. Recommended in place of Emulate Two-Phase Commit. Degging Last Resource	
Virtual Hosts Vork Managers Startup and Shutdown Classes Deployments ⊕ Services ⊕ Hescaninn	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 car heuristic conditions.	
How do I • Create JDBC generic data sources	other resources can participate in the global transaction. One-Phase Commit	
Create LLR-enabled JDBC data sources System Status	Back Next Finish Cancel	



5) Enter the Database Name, Host Name, Port, Database User Name, Password, Confirm Password and click on Next.

😰 Home Log Out Preferences 🔤 Record Help	9	Welcome, weblogic Connected to: FCUBSDonain
Hane -PELRSHSTamplata -Summary of Server Templates -PELRSHST	resplate -Summery of Clusters -Summery of Servers -Sur	swary of RDBC Data Sources
Create a New 3DBC Data Source Baok [Rest] [Finish] [Careet]		
Connection Properties Define Connection Properties.		
What is the name of the database you would like to cannect to?	(
Database Name:		
What is the name or IP address of the database server? Host Name:	1	
What is the port on the detabase server used to connect to the de Poet:	1521	
What database account user same do you want to use to create d	atabase connections?	
Database User Name:		
What is the database account password to use to create database Password:	connections?	
Confirm Password:	E	
Additional Connection Properties: oracle.jdlsc.DRCPCoansectionClass:	<u></u>	
	Here -PCMENTSTerplate -Surrency of Series Templates -PCMENTST Create a New 30BC Data Source Basis Itent) Temm) Casesti Connection Properties Define Connection Properties Define Connection Properties What is the name of the database you would like to cannect to? Database Name: What is the name of the database server used to connect to the database server? Host Name: What is the port on the database server used to connect to the database server? Host Name: What is the port on the database server used to connect to the database Pert: What is the database account gaseout to use to meete database Pert: What is the database account gaseout to use to meete database Pertice What is the database account gaseout to use to meete database Perseverdi Confirm Passwordi Confirm Passwordi	Here PCLEDIMSTerplate of Summary of Server Terplates of Cleaters of Cle

6) Replace the JDBC URL in the below format and click on Next.

Default URL: jdbc:oracle:thin:@<IP_Adress>:<Port>:<INSTANCE_NAME>.

Change the default URL to:

jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOS T=xxxxx.com)(PORT=1521)))(CONNECT_DATA=(SERVICE_NAME=fcubs)))

Where,

Scan IP = xxxxxx.com

Service Name = fcubs

Port = 1521

Make sure that in URL, we make the necessary changes.

Then Click on Test Configuration. The connection test should be successful.



ORACLE WebLogic Server Adv	inistration Console 12c		<u>ŏ</u>
Change Center	🙆 Home Lug Out Preferences 🔤 Recard Help	a	Welcome, weblogic Connected to: FCUBSDomail
View changes and restarts	Home >FCURSHSTemplate >Summary of Server Templates >FC	URSHSTemplate Scummary of Clusters Scummary of Servers S	Summary of 309C Data Sources
Na pending changes exist. Click the Release Carliguration button to allow others to edit the familie. Lock & Edit Rateure Configuration	Create a New JDBC Data Source Text Configuration Back Next Prink Cancer Text Database Connection Text the database availably and the connection proper Text the database availably and the connection proper	_	
Domain Structure	What is the full package name of JDBC driver class used to	create database connections in the connection pool?	
FCUBSDomain * B=Environment	(Note that this driver class must be in the classpath of any		
Servers BClusters Server Templates	Driver Class Name:	oracle.jdbc.OracleDriver	
	What is the URL of the database to connect to? The formation	of the URL varies by JDBC driver.	
Wirtual Hosts Work Managers	URL:	idbc.oracle.oc/ @(DESCRIP'	
Startup and Shutdown Classes	What database account user name do you want to use to o	eate database connections?	
El-Services	Database User Name:	FCUBS121DB	
Now do L	What is the database account password to use to create d	tabase connections?	
Create 3DBC generic data sources Create LLR-enabled 3DBC data sources	(Note: for secure password management, enter the passw	ard in the Password field instead of the Properties field be	low)
System Status 🖂	Password:		
Health of Running Servers	Confirm Password:		
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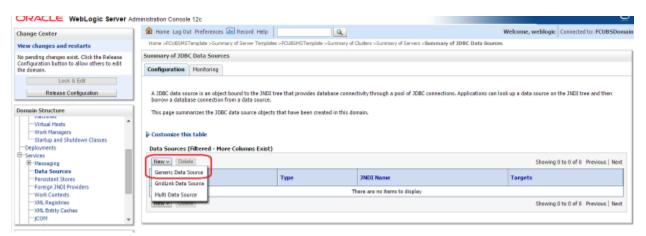
7) Select Target as **FCUBSCluster** and click on **Finish**.

ORACLE WebLogic Server A	dministration Console 12c		9
Change Center	🔞 Home Log Out Preferences 🚾 Record Help	<u>R</u>	Welcome, weblogic Corrected to: FCUBSDomain
View changes and restarts	Rome >FCUBSHSTemplate >Summary of Server Templates >FCUBSHST	emplate >Summary of Clusters >Summary of Servers	-Summary of 10BC Data Sources
No pending changes exist. Click the Release Configuration button to allow others to edit the domain.	Create a New JDBC Data Source		
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FCUSDonain	Servers AdminiServer		
- Calverine Clubber - Calverne Clubber - Nachines - Vetal Mode Work Planagers - Starty and Shuddwin Closes - Deplayments E:- Santase - It research	Back Hert Frink Cancel		



6.2 XA Datasource

1) Navigate to FCUBSDomain → Services → Data Sources → select New > Generic Data Source.



2) Enter the Name and JNDI Name and Click on Next.

ORACLE WebLogic Server A	Aministration Console 12c	9
Change Center	Home Lug Out Preferences Record Help	Welcome, weblogic Corrected to: FOUBSDoma
View changes and restarts	Hane >FCU85HSTerplate >Summary of Server Template >FCU85HSTemplate >Summary of Outlane >Summary of Servere >Sameneary	of 30BC Duta Sources
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Unde All Chunges	308C Data Source Properties	
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How do 1_		
Create IDBC generic data sources Create IDB-enabled IDBC data sources	What database type would you like to select? Database Type: Oracle •	
System Status		
Health of Ranning Servers	Bain Hent Finish Carcel	
Failed (8)		



3) Select the Driver as **Oracle's Driver(thin XA) for Instance connection: Versions: Any** and Click on **Next.**

ORACLE WebLogic Server Ad	iministration Console 12c		0
Change Center	(1) Hore Lag Out: Preferences Ged Record Help	A.	Welcome, weblogic Connected to: FOUBSDomain
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Funding changes exist. They must be activated to take effect.	Greate a New JDBC Data Source		
Activale Charges	Back Next Pinish Cancel		
Undo All Changes	30BC Data Source Properties		
Domain Structure	The following properties will be used to identify your new 1080	C data seurce.	
FOURSDomain	Detabase Type: Cracle What dotabase finer would you like to use to create database Database Dence: Concels Driver (Thin XA) for Back Plent: Plants Concel	connections? Note: * indicates that the driver is expli Instance connections: Versions Any	Killy supported by Orade Weblogi: Server.

4) Click on Next.

ORACLE WebLogic Server A	dministration Console 12c	<u> </u>
Change Center	🏦 Home Log Out Preferences 🔛 Record Help	Welcome, weblogic Connected to: FCU8SDomain
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Undo All Changes	Transaction Options	
Domain Structure	You have selected an XA IDBC driver to use to create database connection in your new data source. The data source v transaction protocol. No other transaction configuration options are available.	will support global transactions and use the "Two-Phase Commit' global
COUSConsil Construction Construction Construction Construction Construction Construction Construction Paddimets Work Managers	Back Heat Prints Cancel	



5) From this step to target setting step follow as mentioned in non-xa.

URACLE WebLogic Server Ad	ministration Console 12c	¥.
Change Center	🙆 Home Log Out Preferences 🖂 Record Help	Welcome, weblogic Connected to: FCUBSDomain
View changes and restarts	Home >PCUESHSTemplate >Summary of Server Templates >PCUESHSTemplate >Summary of Clusters >S	armary of Servers >Summary of JDBC Data Sources
Pending changes exist. They must be activated to take effect.	Create a New JOBC Data Source	
Undo All Changes	Connection Properties	
Domain Structure	Define Connection Properties.	
Clustern Contern Servers Contern Server Templates Marchaller	What is the name of the database you would like to connect to? Database Name: What is the name or 3P address of the database server?	
Coherence Clusters Wachines Without Hosts	Host Reme:	
Work Managers Startup and Shutdown Classes Deployments B-Services	What is the port as the database server used to connect to the database? Port: 1621	
How do L. Elements	What database account user name do you want to use to create database conerctions? Database User Name:	
Create LLR-enabled JDBC data sources	What is the database account password to use to create database connections?	
System Status 🖂	Password:	
Health of Running Servers	Confirm Password:	
Failed (0) Critical (0) Overleaded (0) Warning (0) OK (5)	Additional Connection Properties: onacle_jdlrc.DRCPConnectionClass:	
	Back Next Finish Cancel	I

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🧳 Activale Changes	Test Configuration Back Next Finish Care	la.	
Undo All Changes	Test Database Connection		
Domain Structure	Test the database availability and the connection prope	rties you provided.	
PCUBSDumain +	What is the full package name of JDBC driver class used	to create database connections in the connection pool?	
B Entimenent Servers B-Clusters	(Note that this driver class must be in the classpath of an	n nerver to which it is deployed.)	
-Server Templates 	Driver Class Name:	oracle.jdbc.xa.client.OracleX.	
-Hachines	What is the URL of the database to connect to? The form	at of the UPL varies by 30BC driver.	
	URL:	jdbc.anacle.oci @IDESCRIP	
Deplayments	What database account user name do you want to use to	create database connections?	
B-Senios B-Neccoltz *	Database User Name:	FC121DB	
How do I			
Create 30BC generic data sources	What is the database account password to use to create		
Create LLK-enabled 108C data sources	(Hate) for secure paceword surveyersent, extending pace	which is the Plasoward field instead of the Properties (reld below)	
System Status 🗉	Password:		
Health of Running Servers			
Failed (0)	Confirm Password:		
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OK(5)	user=FCUBS121User		



ORACLE WebLogic Server Ad	tesinistration Console 12c		
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Startup and Shutdown Classes			
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6) Upon Activate Changes would create the XA Datasource.

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Click the Lock & Edit button to modify, add or	Summary of JOBC Data Sources						
delete items in this domain. Lock & Edit	Configuration Plantaring						
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7) Similarly create all the other Data Source required for the FCUBS Application and Gateway Deployments.

Jhange Center	1 Home Log Out Preferences 🔤 Record Help		Welcome, weblogic Connected to: FCUBSDome
Wew changes and restarts	Home >FCUBSHSTemplate >Summary of Clusters >Summary of Servers >Summary of 3DBC Data S	ources >POUBSDS >Summary of 3DBC Data Sources >PO	JESDomein >Summary of JDBC Data
-	Sources >FOUESBranchOS >Semimary of 3DBC Data Seurces		
lick the Lock & Edit button to modify, add or elete items in this domain.	Mennagen		
Lock & Edit	All changes have been activated. No restarts are necessary.		
	Summary of JDBC Data Sources		
Release Configuration			
omein Structure	Configuration Honitoring		
Startup and Shutdown Classes Deployments	This page summarizes the 3DBC data source objects that have been created in this doma	p.	
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6.3 JDBC Parameters Tuning

Below JDBC parameters needs to updated for all the Datasources.

	VALUE	Navigate To
PARAMETER		
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	Based on Site Requirement	Connection Pool
Capacity Increment	5	Connection Pool
Shrink Frequency	900	Connection Pool->Advance
Test Connection on Reserve	Checked	Connection Pool->Advance
Statement Cache Size	50	Connection Pool



7. JMS Resource Creation

JMS Resource Creation involves various steps:

- Persistence Store Creation
- JMS Server Creation
- JMS Module Creation
- Resource Creation: Connection Factory and Queue's

Refer to the Configuring JMS on Weblogic Server for further details on JMS setup.



8. Oracle WebLogic Load Balancing

For Weblogic Load balancing, use

- 1) Oracle HTTP Server: Refer to Configuration for Oracle HTTP Server for setup.
- 2) Apache: Refer to Configuration for Apache for setup.



9. Frequently Asked Questions

9.1 Machine status is Unreachable

If the machine status is unreachable, means that machine is not reachable and from console you cannot start/stop the managed servers.

In the console, navigate through Domain structure \rightarrow Machines \rightarrow machine1 \rightarrow Monitoring \rightarrow Node Manager Status will be **Unreachable.**

To change the status, you need to start the node manager on that server. Refer to start node manager section on steps to start the node manager.

9.2 How to restart node manager?

- 1) Locate node manager pid using ps -ef|grep weblogic.nodemanager.javaHome
- 2) Change directory to \$DOMAIN_HOME/bin
- 3) Kill the unix process using kill -9 <pid>
- 4) Verify that the node manager is killed by *tail –f nohup.out*
- 5) Start node manager using nohup ./startNodeManager.sh &
- 6) Verify nodemanager is started using tail -f nohup.out

9.3 Scaling Up Dynamic Cluster

When the capacity is insufficient and you need to scale-up, you can add dynamic servers on demand. It requires only a few clicks.

1) Navigate to **FCUBSDomain** \rightarrow **Environment** \rightarrow **Clusters**.

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Change Center	1 10 H	tome Log Out P	references 🔛 Neco	eit Help	9			Welcone, weblogic Co	method to: FCUBSDomain
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Lock & Edit		a sale summaris	es the clusters that I	have been configured in the cu	went Weblanis Serve	e domain.			
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Domain Structure	1								
Environment Servers Server Templates Higratable Targets	Che	ALC: NO DE LA COMPANY		ent) ope Center to activate all the b	uttons on this page.			Showing 1 to	1 of 1 . Previous Next
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- Werk Hanagers Startup and Shutdown Classes - Deployments	6	PCUBSChuter		Unicast	Detabase	Pound Robin	(None)		POUBSH53, POUBSH52, POUBSH53, POUBSH54
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2) Click FCUBSCluster → Configuration → Servers tab.

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Change Center	🏦 Home Log Out Preferences 🖾 Record Help									ic Connected to: FCUBSDomain				
View changes and restarts	Home >Su Clusters >I			urces >Sum	mary of Clusters >	Summary of I	Machines >MAC-1 >Su	mmary of Machine	s >Summary (of Servers >Summary of	Server Te	emplates >Sumn	ary of Machines >Summary of	
No pending changes exist. Click the Release Configuration button to allow others to edit	Settings for FCUBSCluster													
Lock & Edit	Configuration		Monitoring Control		Deployments	Services	Notes							
Release Configuration	General	JTA	Messaging	Servers	Replication	Migration	Singleton Service	s Scheduling	Overload	Health Monitoring	нттр	Coherence		
Domain Structure	Save													
FCUBSDomain	This page is used to configure the servers that are assigned to this cluster. Clusters can contain both explicitly configured and dynamically created servers. The following settings are used to determine the number and characteristics for these dynamic servers.													
Server Templates Migratable Targets Coherence Clusters Machines	Server Template:				FC	FCUBSMSTemplate •				Specifies the server template that is to be used to configure the dynamic servers in this cluster. Only templates that specify this cluster are valid choices. More Info				
Virtual Hosts Work Managers Startup and Shutdown Classes	Maximum Number of Dynamic Servers:				: 4	4				Specifies the maximum number of dynamic servers in this cluster. More Info				
Deployments Services	E Server Name Prefix:				FC	FCUBSMS				Specifies the prefix to be used when naming new dynamic servers in this cluster. More Info				

3) Change the Maximum Number of Dynamic Servers to 8. Click Save.

ORACLE WebLogic Server Administration Console 12c														
Change Center	🏦 Home Log Out Preferences 🔤 Record Help									Welcome, weblogic Connected to: FCUBSDomai				
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No pending changes exist. Click the Release Configuration button to allow others to edit the domain.	Settings for FCUBSCluster													
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Virtual Hosts Work Managers Startup and Shutdown Classes	Maximum N	umber of Dynan	ic Servers	5: 8		J			pecifies the maximum fo	number	of dynamic ser	vers in this cluster.	More	
EDeployments E-Services ⊡-Messaning ▼	街 Server N	lame Prefix:		FC	UBSMS				pecifies the prefix to b uster. More Info	oe used v	/hen naming n	ew dynamic servers i	n this	

4) Activate changes in the **Change Center** of the Weblogic Console. After activation, 4 new Dynamic Servers are added to the Dynamic Cluster.

Name 🖗	Туре	Machine	Listen Port
FCUBSM51	Dynamic	MAC-1	7101
FCUBSM52	Dynamic	MAC-2	7102
FCUBSM53	Dynamic	MAC-1	7103
FCUBSM54	Dynamic	MAC-2	7104
FCUBSMS5	Dynamic	MAC-1	7105
FCUBSMS6	Dynamic	MAC-2	7106
FCUBSMS7	Dynamic	MAC-1	7107
FCUB5M58	Dynamic	MAC-2	7108

5) Start the 4 new Dynamic Servers and you have doubled you capacity.



9.4 Session Timeout

Session timeouts occur intermittently during load condition. Verify the following:

- 1. Clock Synchronization: Time across the nodes/machines is same.
- 2. Session Stickiness in load balancer: Persistence Type in load balancer should be set to SOURCE IP and should not be cookie.





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