Configuring Weblogic Server 12c Oracle Banking Enterprise Limits and Collateral Management Release 14.5.0.0.0 Part No. F42399-01 [May] [2021]

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

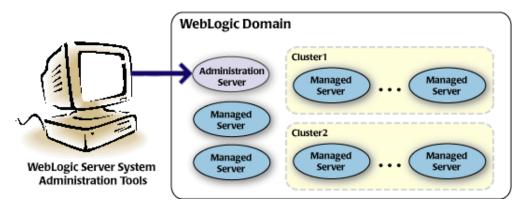
This section of the document provides brief explanation on the main components involved in WebLogic server.

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.

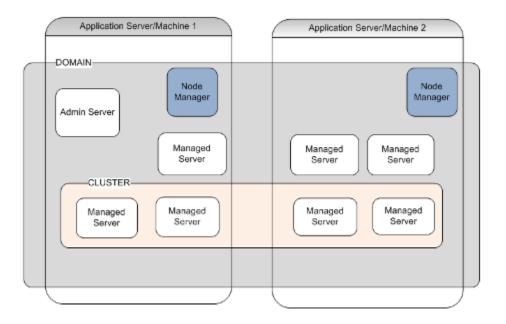
Each WebLogic Server domain must have one server instance that acts as the Administration Server. Administration Server can be used via the Administration Console or using the command line for configuring all other server instances and resources in the domain.

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.



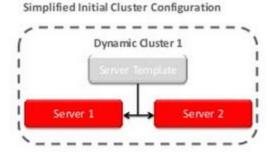
Server Templates

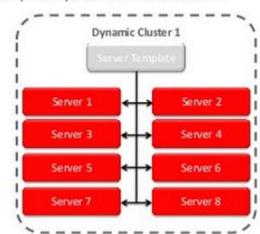
A single server template provides the basis for the creation of the dynamic servers. Using this single template provides the possibility of every member being created with exactly the same attributes. Where some of the server-specific attributes like Servername, listen-ports, machines, etc. can be calculated 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	
Create Domain Templates Administrator Account Domain Mode and JDK Advanced Configuration Configuration Summary Configuration Progress End Of Configuration	What do you want to do? • Create a new domain • Update an existing domain Domain Location: /scratch/app/w12c/user_projects/domains/FCUBSDomain Browse Create a new domain.
Help	<u>Back</u> <u>Next ></u> <u>Finish</u> 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 [wlserver] * 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 [wlserver] 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 he the same as the nassion	ord. Password must contain at least 8 alphanume	ric characters with at least
	one number or special characte		ric criaracters with at least
Help		< <u>B</u> ack <u>N</u> ext >	Finish Cancel

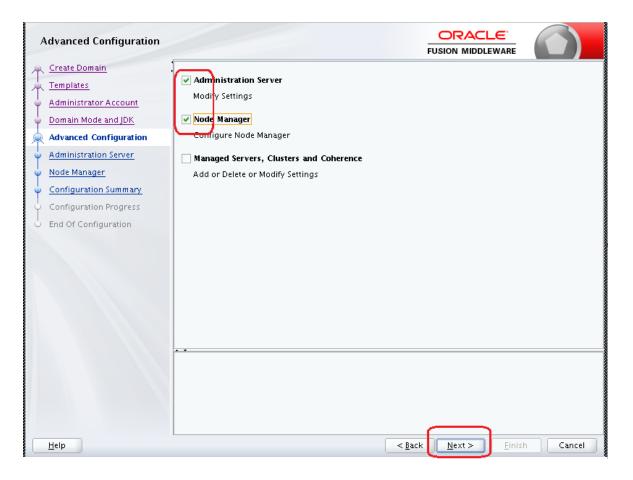


4) Select Server Startup as **Production Mode** and the available **JDKs**. Click **Next**.

Domain Mode and JDK	
Create Domain Templates Administrator Account Domain Mode and JDK Advanced Configuration Administration Server Node Manager	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
Configuration Summary Configuration Progress End Of Configuration	Oracle HotSpot 1.7.0_75 /usr/java/jdk1.7.0_75 Other JDK Location: Browse
Help	Einish Cancel



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		_
Administration Server	SSL Listen Port	AdminServer All Local Addresses 7001 7101 st be between 1 and 655	535, and differ		JSION MIDDLEWA	RE
Help				< <u>B</u> ack	Next >	inish 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	Node Manager Type	
Administration Server	Pr <u>D</u> omain Default L	Location
Node Manager	○ Per Domain <u>C</u> ustom	Location
Configuration Summary	Node Manager Home	:: [pp/w12c/user_projects/domains/FCUBSDomain/nodemanager] Brows
Configuration Progress	🔿 <u>M</u> anual Node Manag	er Setup
O End Of Configuration	Node Manager Credentia	als
	Username:	weblogic
	Password:	•••••
	Confirm Password:	•••••
	Must be the same as the n	assword. Password must contain at least 8 alphanumeric characters with at leas
	one number or special ch	
Help		<back next=""> Finish Cance</back>
Пењ		< <u>Back</u> <u>Next</u> <u>Finish</u> Cance



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 Progress End Of Configuration	View. Deployment	Name Description Author Location	Oracle Corporation	Logic Server domair
Halp	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 config o back to the re	elevant page by selec	ting its name in
		< <u>B</u> ack	<u>√</u> ext > <u>C</u> reate	Cancel



9) Click Next.





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

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

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	Q
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.	
Domain Structure	This page displays key information about each machine that has been configured in the current WebLogic Server dom	ain.
FCUBSDomain FCUBSDomain FCUBSDomain FcUsters Coherence Clusters Hchorence Clusters Virtual Hosts Virtual Hosts Startup and Shutdown Classes Foeployment	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.	Showing 0 to 0 of 0 Previous Next Type
	New Clone Delete	Showing 0 to 0 of 0 Previous Next
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	Q
Change Center	A Home Log Out Preferences and Record Help	Welcome, weblogic Connected for POJBSDomain
View changes and restarts	Hore -Summary of Machines	
Ro pending changes exist. Click the Release Configuration button to allow others to edit the domain.	Create a New Machine Back: New! Cancel	
Release Configuration	Machine Identity The following properties will be used to identify your new Machine. * Industries reported fields	
Consess Structure FCIBSCenses FCIBSCenses FCIBSCenses FCIBSCenses Cohemac Clutters FCIBSCenses Voit Natragess Voit Natragess Scrutes Scrutes Scrutes Scrutes Scrutes Scrutes Scrutes Scrutes Totoregenability Know do L. E	What would you like to name your new Machine? * Marne: Machine! Specify the type of machine operating cytlers. Machine OS: Other Bioth Jamas Presity (Cancel))



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 Final Finan Cancel	
System Status		
Health of Running Servers		

4) Machine is created.

ORACLE WebLogic Server A	Idministration Console 12c			<u> </u>
Change Center	1 Henre Lag Out. Preferences 🖾 House Help	9	Welcome, weblogic	Connected for PCUBSDomain
View changes and restarts Click the Lock & Edit button to modify, add or	Harte - Sammary of Hackines Hessages			
delete iterss in this domain.	All changes have been activated. No restarts are necessary.			
Lock & Edit	Summary of Hachines			
Domain Structure	A machine is the logical representation of the computer that ho server in a cluster to which certain tasks, such as HTTP session i	sits one or more WebLogic Server instanc replication, are delegated. The Administr	tes (servers). WebLogic Server uses configured machine names to ration Server uses the machine definition in conjunction with Node	determine the optimum Manager to start remote
PCUBDensin -	servers. This page displays key information about each machine that has	s been configured in the current WebLag	ic Server domain.	
Coherence Clusters Machinesi Vartual Hosts	ir Customize this table			
-Work Panagers Work Panagers Startup and Stutdown Classes	Hachines Click the Lock & Edit button in the Charge Center to activate a	all the buttors on this page.		
Deployments	Tiese Deads		Shoving	1tolofl Previous Next
Security Realism	🔝 Name 🖧		Туре	
E:Datastics	Nachine1		Machine	
How do I 🗄	New Clene Dubrie		Showing	1 to 1 of 5 Previous Next
Create and configure machines Assign server instances to machines Gene machines Delete machines				
STRATIC CONTROL OF THE STRATE				



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".

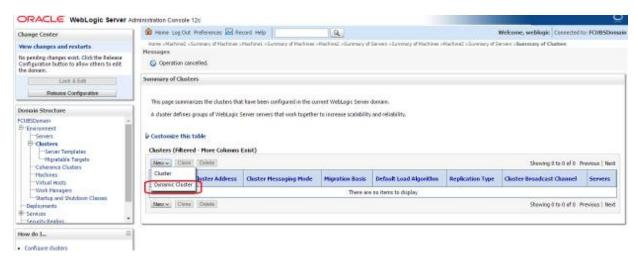
In the console, navigate through **Domain structure** \rightarrow **Machines** \rightarrow **machine1** \rightarrow **Monitoring** \rightarrow **Node Manager Status**. Status should be **Reachable**.

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 >Machine2>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.

ORACLE WebLogic Server Adn	ninistration Console 12c		<u>Q</u>
Change Center	🖬 Home Log Out Preferences 🔤 Record Help 🗌	Q	Welcome, weblogic Connected to: FCUBSDomain
View changes and restarts	Home >Machine2 >Summary of Machines >Machine1 >Sum	nmary 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 the domain. Lock & Edit Release Configuration	51.1	new dynamic cluster and specify how cluster members sho	uld communicate with each other to coordinate work.
Domain Structure	* Indicates required fields		
FCUBSDomain FCUBSDomain FCUBSDomain FGErenronent FGErenronent FGErenrone FGErenrone FGERenrone FGERenrone FGERenrone FGERenrone FGERenrone FGEREN FGERENF FGERENFFGERENF FGERENFFGERENFFGER FGERENFFGERENFFGERENFFGER FGERENFFGERE	What would you like to name your new dynamic cluster * Name: Clusters use messaging for sharing session, lead balan simple broadcast technology that enables multiple app does not have these requirements. What messaging m Messaging Mode: Unicast Broadcast Channel:	FCUBSCluster	ter members, Clusters can use either unicast or multicast messaging. Multicast is a er and listen for messages, but requires hardware configuration and support. Unicast
How do I	Multicast Address:	239.192.0.0	
Create dynamic clusters Configure clusters Configure server migration in a cluster Configure cross-cluster replication	Multicast Port:	7001	
Create server templates			



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	tministration Console 12c		<u>Š</u>
Change Center	🏦 Home Log Out Preferences 🖂 Record	d Help	Welcome, weblogic Connected to: PCUBSDomain
View changes and restarts	Home >Machine2 >Summary of Machines >Mach	hinet >Summary of Machines >Machine2 >Summary of Servers >Summ	ary of Plachines >Plachine2 >Summary of Servers >Sommary 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 Machine Bindings		
	Associating dynamic servers with machines	s is essential if you intend to use Node Hanager and the Administ	ration Console (or WLST) to start server instances.
Domain Structure	How do you want to distribute dynamic serve	ers across machines?	
PCUBSDomain A III-Environment Servers	B Use any machine configured in this	domain	
B-Clusters Server Templates	🛞 Use a single machine for all dynami	k servers	
	Selected Machine:	Machine1 •	
Wittual Hests Work Nanagers	Use a subset of machines in this do	main	
Constantup and Shutdown Classes	Hachine Name Match Expression:		
B-Services v 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 Out: Preferences 🔛 Record Help	9	Welcome, weblagic Connected to: PCUBSDemain
View changes and restarts	Hore sMartine2 stemmery of Martines sMartine1 stemmery of P	lections structure2 «Summery of Servers »Summery of No	datas -Machinal -Summary of Servers >Summary of Clusters
No pending changes exist. Click the Refease Configuration button to allow others to solit the domain.	Create a New Dynamic Cluster Back Next Front Carcel		
Lock & Edit			
Release Configuration	Specify Listen Port Bindings Select how these dynamic servers should be bound to listen po	dı.	
Donaits Structure	Listen ports for dynamic servers can be specified in a server ten	where we can be descentially several ed to be unique.	
PCUBSDemain +		And a router statement for statement of	
B-Endroorwert	Assign each dynamic server unique listen ports	\frown	
Chostens Server Templates Migratable Targets	Listen Port for First Server:	2002	
Coherence Clusters Flechines	SSL Listen Part for First Server:	7102	
Virtual Hosts Work Managers Startup and Stutdown Classes	Assign each dynamic server fixed listen ports		
- Deployments	Listen Port:	7100	
8-Services			
Senath Realms	SSL Listen Parti	8100	
How do 1_		VECTS	
Create dynamic clusters Configure dusters	Each Next Prink Cancel		

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

ORACLE WebLogic Server	Idministration Console 12c		9
Change Center	🏠 Harne Log Out: Preferences 🖂 Record Help		Welcome, weblagic Corrected to: PCUBSDomain
View changes and restarts	Home sMachine2 stemmary of Machines sMachine1 stemmary of I	Nathenas >Plathena2 >Summary of Servers >Summary of	Nethins Mechinel Summery of Servers Summary of Clasters
No pending changes exist. Chick the Refease Configuration button to allow others to edit the domain.	Create a New Dynamic Cluster		
Lock & Pate Release Configuration	Review Your Dynamic Cluster Configuration You have elected to create a new dynamic cluster with the fol	lewing certiguration.	
Domain Structure	Configuration details for new dynamic cluster:		
PCURDensin + Britesment			
Servers	Name of New Dynamic Cluster:	5	CUBS Clutter
El Clusters Server Templates	Maximum Number of Dynamic Servers:	*	5
	Server Name Prefix:	R	DUBSMS
Plachines Virtual Hosts	Enable Calculated Listen Ports	tr	ue
-Work Managers 	Enable Calculated Machine Associations:	6	ue .
Deployments Br-Services	Configuration details for new server template:		
Sengity Realms	Name of New Server Templater	R	DUBSHISTemplate
How do 1_	Listen Port:	77	102
· Create dynamic clusters			075
· Configure dusters	SSL Listen Port:	71	102
· Configure server migration in a duster	Back Next Finish Cancel		
Configure cross-duster replication	Leave Press		
Create server templates			



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

Change Center	😰 Hume Lig Out Preferences 🔛 Record	trely	A		V	Velcome, well-logic Connected to	FOIRSDone
New changes and restarts Verding changes exist. They must be activated in take effect. ## Activate Changes	Items offsactional - Commany of Rectines - Hach Hessages A server template samed PCUBDR/Temp Cluster created successfully.					vers - Seemary of Chebox	
Undo All Changes	Summary of Ousters						
Customen Customen - Servers	This page summarizes the clusters that hav A cluster defines groups of WebLogic Serve						
Contern Conver Templates Higratable Targets Converse Clusters	© Customize this table Clusters (Filtered - More Columns Exist	0					
Server Templates Higratable Targets		0				Showing 1 to 1 of 1 Pro	wout Next
Server Templates Higratable Targets Caherence Clusters Hactores	Clusters (filtered - More Colorens Exist Jeeu v.] [Dimit: [Dente]	() Cluster Hessaging Hode	Magnation Basis	Default Load Algorithm	Replication Type	Showing 1 to 1 of 1 Pro- Cluster Broadcast Channel	vious liest
Server Templates - Hightable Targets - Caherooc Clusters - Mutukes - Victual Nots - Work Nanagers - Work Nanagers - Deployments	Chatters (Fibered - Hore Columns Exist Jime v. Chatter Chatter Rame v. Chatter Address		Magnation Basis Database	Default Load Algorithms Round Robin	Reglication Type (None)	The second s	P.S. CONTRACT
Server Templates - Hightrable Targets - Caheveroce Clusters - Machices - Virtual Hoxts - Work Nanagers - Starting and Shubborn Classes	Chatters (Fibered - Hore Columns Exist Jime v. Chatter Chatter Rame v. Chatter Address	Cluster Nessaging Node	10000 AND		Contraction of the	The second s	Servers

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

inge Center	1 A H	one lagout P	ofermon 🔛 📖	-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 1	tions and the second	on the clusters that h	ave been configured in the cur	and the later former	- Armen			
Halease Configuration				ner seners 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 Charaonnant Servers 10 Cheters Thypatalia Tarpets Thypatalia Tarpets	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 in 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	🙆 Pame Log Out Preferences 🗟	Treasure Party	9			Welcome, web	Rogik: Connected to: PCORSDoorse
View changes and restarts	Here a PELROPETemplete advances	of Server Templates (PDJRD)	Eteralists clummary of Ou	ters charactery of her			
Child the Lock & Edit buttor to modify, add or delate items in this durate.	Summary of Servers						
Leck & Ealt	Configuration Control						
Remann Carrigoration	A server is an instance of VietGag	ic Server that runs in its ann	Jeva Virtual Mechine (3V	C and has its more cord	iporation.		
Domain Mnucture	This page summarizes each server	that has been configured in	the current litebLags: Ser	wer domain.			
Cuttiburan -	0						
Custers	@ Contempre this table						
Highester Targets Collectory Clusters Hachines	Servers (Filtered - Hure Color Ord: The Lock & Edit Sutton in 1		e all the buttons on this pe	ça.			
- Caherator Gusters - Hactories - Victual Hosts - Stock Hanagers	In the second state of the second		e all the bullions on this pr	ųs.		She	ning 1 to 5 of 5. Previous New!
- Coherencer Clusters - Nuclinery - Vision Prests - Usion Hamagers - Starting and Shutdwork Classes - Orginerwants	Out the Lock & Edit Sutton in t		e all the bufferes on this pa Chaster	ije. Plachane	State	Ste	uing 1 to 5 of 5 Prentuue Next
Coherence Clusters Hachares Victual Hosto Hards Handgers Tachia and Shatdown Classes Coployments Farvices	Old the Lock & Edit beller in t	le Change Center to activat			State		
- Coherence Clusters - Hachinen - Vitual Hotages - Stehl and Shatavek Classes - Copiloraments - Services - S	Old the Lock & Lidt Sutter in t	he Change Center to activat			1000	Health	Linten Port
- Coherecce Clusters - Hachsen - Wold Hods - With Hanges - Borby and Stations Classes - Copionents - Services - Service	Old the Lock & Lidt Sutter in t	Type Certificated	Owter	Plachase	RUMONS	Health # CK	Linten Port 7001
Order Port Distans Historien Historien Historien Historien Historien Schultzen Sc	Octo the Lock & Add Latter in 1 Tome: Clean: Domin: Denne: Vi AdamsServer(adres) PCUED451	te Change Center to activat Type Configured Dynamic	Ouster FOIESOuter	Pachase Factors	PUMING SHERDOWN	Health 4 ⁴ CR Tait reachable	Easten Port 2001 2003
- Collement Clusters - Hachines - Victual Heats - Tachines (Statistics Classes - Copiloramits - Services - S	Old the Code & Zidd Latter in t Termini Cleans, Desine Advertiserer (advert) PCUEDP51 PCUEDP51	Type Configured Dynamic Dynamic	Chater FOIESOuter FOIESOuter	Plachine Plachine2 Plachine2	PUMING SHERDOWN SHERDOWN	Health If Cit Nat reschable Nat reachable	Linten Port 2001 2002 2004



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** \rightarrow **Environment** \rightarrow **Clusters**.

	Administration Console 120				<u> </u>
Change Center	🔒 Home Log Out Preferences 🔤 Recor	d Help		We	lcome, 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



3)	Under Advanced tab,	update the	below par	rameters ar	nd click on	Save.

— ♥ Advanced —		
鑦 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
4을 Logger severity propertia	es:	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 🔹	The minimum severity of log messages going to the server log file. By default all messages go to the log file. More Info
ilter:	None v	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
ilter:	None v	The filter configuration for log events being sent to the standard out. More Info
omain log broadcaster :		
ieverity 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
ilter:	None T	The filter configuration for log events being sent to the domain log. More Info
uffer 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
tdout 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	is 🗠 Reci	ord Help	Q	Welcome, weblogic Connected to: FCUBSDo
Home >FCUESI	ISTemplate >Sur	mary of Ser	ver Templates :	>FCUBSMSTemplate	
ettings for FG	UBSMSTempl	ate			
Configuration	Protocols	Logging	Debug No	otes	
General H	TP Data Sou	rce Diag	nostic Image	1	
Save					
	to configure H or the domain		for the serve	r. 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 fil		log file.	for the serve	r. 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 fil	ess log file en	log file.	for the serve	r. By default, HTTP logging is enabled and th logs/access.log	Indicates whether this server logs HTTP requests. (The remaining fields on
server log fil HTTP acc	ess log file en	log file.	for the serve		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 fil	e or the domain ess log file en ame:	log file.	for the serve		Indicates whether this server logs HTTP requests. (The remaining fields on this page are relevant only if you select this check box.) More 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 Proferences 🐼 Nacial Help			Welcome, weblogic	Connected for FCUBSDoew
View changes and restarts	Hare +POJ85HS7emplate +Summary of Server Temp	labe >PCUEDHSTamplate >Summary	of Outlets - 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	The Manual Annual Manual Advances	a this Webbarry Canada America C		ers require starting the Node Manager, Starting Manag	
Domain Structure	mode requires the domain-wide administration p		none obstanting on userable bein	ers require starting the nove neoager, planting name,	AR NUMBER OF STREET
Cuttionan	(8)				
	0				
Contens Contens Contens Contens Contens Contens Contensector Contensector Contensector	C3 ir Contonsize this table Servers (Filtered - Hore Columns Exist) Statt Resume Suspend v Shuttown v	< (Restart SSL)		Shaving 11	a 5 of 5 Previous Rest
Br Devisionent Servers Cauters Caberence Ousters Caberence Ousters 	© Customize this table Servers (Filtered - Hore Columns Exist)	rj Restart 304 Machine	State	Shaving 11 Skatus of Last Action	o S of S. Previous Red
Devicement Server Templates Devicer Templates Devicer Templates Devicer Clusters Devicer Clusters Device Templates Device T	© Centomire this table Servers (Filtered - Hore Columns Exist) Statt Amoune Suspend v Shattawa v	Contraction of the second	Skabe PUNVDNG	And the second s	o 5 of 5 Previous Next
Environment Servers Couters Couters Templates Telever Templates Telever Templates Televers Template Televers Template Templates T	Contornite this table Servers (Filtered - Hore Columns Exist) Statt Amount Suspend v Shattawa v	Contraction of the second	A COLOR	Status of Last Action	of of 5 Previous Rest
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Devicement 'Server'semplates 'Server'semplates 'Server'semplates 'Obtenence Quarters 'Obtenence Quarters 'Notad Prests 'Notad Prests 'Notad Prests 'Starting and Shadhown Classes 'Deployments Services Services	Contornire this table Servers (Villered - Hore Columns Exist) Stati. Resume: Suspend v. Shattave s Server riv AdvanServer(salmar) R rc 82451 R rc 82451 R rc 82452	Machine Hachine1	PUNNING SHUTDOWN	Status of Last Action None Trone	o S of S Previous Rent

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	Administration Console 12c	<u> </u>
Change Gester	🙆 Horse Log Dat Preferences 🖾 Record Help	Welcome, weblagic Connected to: PCUBSDomain
Wese changes and restarts	Home >PCU83MSTamplate =Summary of Server Tamplates >PCU85HSTamplate >Summary of Ce	others >5commery of Servers >5envenuery of 308C Data Severes
No pending changes exist. Click the Release Configuration batton to allow others to edit the domain.	Create a New JOBC Data Source Back, Next Print Cancel	
Lack & Edd	Comment and a subsection of the second	
Release Configuration	108C Data Source Properties The following properties will be used to identify your new 108C data source.	
Domain Structure	 International and the second seco	
PCUBStansen B- Stankonsent - Servers Clasters - Servers - Servers - Servers - Servers - Sections - Visual Heats - Wiskins - Visual Heats - Visual He	Detabase Type: Oracle What database driver would you like to use to create database connections? Note: * indic Database Driver: Cracle's Driver (Thin) for Instance connections; Ve Back (Reat) Princh Cancel	
- Startup and Shutdown Oasses Deployments B-Services R-Manual A		

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

ORACLE WebLogic Server Ad	ministration Console 12c		<u>Š</u>
Change Center	🙆 Home Log Out Preferences 🔤 Record Help	Q	Welcome, weblogic Connected to: FCUBSDomain
View changes and restarts	Home >FCUBSMSTemplate >Summary of Server Template	s >FCUBSMSTemplate >Summary of Clusters >Summary of Serv	ers >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 Finish Cancel Transaction Options You have selected non-XA JDBC driver to create data	abase 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 s	purce.
FCUBSOmain ▲ Defenvironment →Servers Clusters →Server Templates →Migratable Targets →Coherence Clusters →Machines	Supports Global Transactions Select this option if you want to enable non-XA JDBC Recommended in place of Emulate Two-Phase Comm Logging Last Resource		ransactions using the <i>Logging Last Resource</i> (LLR) transaction optimization.
Pacunites Virtual Hests Virtual Hests Startua and Shutdown Classes Deployments ⊡-Services ⊕-Services	heuristic conditions.	connections from the data source to participate in global	in global transactions using JTA. Select this option only if your application can tolerate
How do I 🖂			
Create JDBC generic data sources	One-Phase Commit		
Create LLR-enabled JDBC data sources	Back Next Finish Cancel		
System Status 🖂			



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

Change Center	😰 Home Log Out Preferences 🐼 Record Help	9.	Welcome, weblogic Connected ba: FCUBSDonnah
View changes and restarts	Harve -PCUESHSTamplate -Summary of Server Templates -PCUESH1	Template stummery of Clusters interviewy of Servers -Se	insury of 200C Data Sources
No pending changes exist. Click the Release Configuration butters to allow others to edit the domain. Lock & Edit	Create a New 308C Data Source Back (Next) (Finish) Careel Consection Properties		
Release Configuration	Define Connection Properties.		
Domain Structure CUBSDomain CuBSDomain Contracted Servers	What is the name of the database you would like to connect to? Database Name:		
B-Clusters -Server Templates -Nigratable Targets Coherence Clusters -Pitch/ses	What is the name or IP address of the database server? Host Names	1	1
Withail Hosts Work Managers Startup and Stubdown Classes Deployments Services	What is the port on the detebase server used to connect to the d Poet:	1521	i l
B-Hestation *	What database account user name do you want to use to create	database connections?	
How do I	Database User Name:		1
Create IDBC generic data sources Create UR-enabled JDBC data sources	What is the database account password to use to create database Password:	ie connections?	
System Status 🖂	Contraction and the second	1	÷
Health of Running Servers	Confirm Password:	10 m	1
Failed (0) Critical (0) Crectoaded (0) Warming (0)	Additional Connection Properties: oracle_ddsc.DRCPConnectionClass:		1

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=xxxxxx.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 Adm	inistration Console 12c		<u> </u>
Change Center	🙆 Home Lag Out Preferences 🔤 Recard Help	Q	Welcome, weblogic Connected to: FOUBSDomain
View changes and restarts	Home SPCURSHSTemplate Summary of Server Templates SPC	UBSHSTemplate >Summary of Clusters >Summary of Servers >S	iummary of 3DBC Data Sources
No pending changes exist. Click the Release Configuration bottom to allow others to exist the densitie. Lock & Edit Roleane Configuration	Create a New JDBC Data Source Test Configuration Back Nect Painth Cancer Test Database Connection Test the database availability and the connection proper Test the database availability 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?	
FOUBSDomain A Environment	(Note that this driver class must be in the classpath of any		
GClusters Server Templates Ngratable Targets	Driver Class Name:	oracle.jdbc.OracleDriver	
Coherence Clusters Machines	What is the URL of the database to connect to? The format	of the URL varies by JDBC driver.	
Virtual Hosts Work Managers	URL:	idbc:oracle.oc/@(DESCRIP'	
Startup and Shutdown Classes Deployments	What database account user name do you want to use to o	eate database connections?	
E-Services	Database User Name:	FCUBS121DB	
How do L	What is the database account password to use to create d	tabase connections?	
Create JDBC generic data sources Create LDR-enabled JDBC data sources	(Note: for secure password management, enter the passw	rd in the Password field instead of the Propertie: field bel	ow)
System Status 🖂	Password:		
Health of Running Servers	Confirm Password:		
Patied (8) Critical (0) Overloaded (8) Warring (0) Or: (5)	What are the properties to pass to the 2080 driver when o Properties: USER + <u>FOURS222USER</u>	reading cistabate connections	

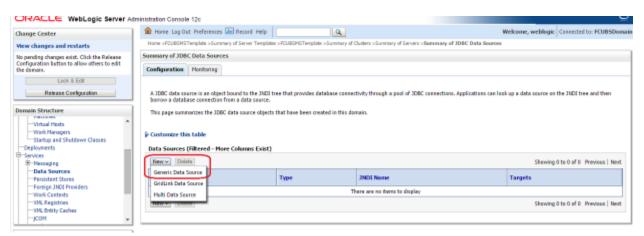
7) Select Target as **FCUBSCluster** and click on **Finish**.

ORACLE WebLogic Server A	dministration Console 12c		Q
Change Center	伦 Haine Lug Out. Preferences 🔤 Record Help	8	Welcome, weblogic Corrected to: FOUBSDomain
View changes and restarts	Rane >FCUESHSTemplate >Summary of Server Templates >FOUESHST	mplate >Semmery of Ocatero >Semmery of Server	1 -Summary of 10BC 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 bata Source Back New! Pank! Cancel Select Targets Cancel Can		
Donalo Structure	 You can select one or more targets to deploy your new JDBC data later time. 	source. If you don't select a target, the data o	ource will be created but not deployed. You will need to deploy the data cource at a
FCI95Demain FCI95Demain FCI95Demain FCI030en FCI	Servers AdminServer Choters FOBSClaster Add servers in the claster Back Net Frank Cancel		



6.2 XA Datasource

 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		
Change Center	Home Lag Out Preferences Wei Record Help	Welcome, weblogic Corrected to FOUBSDoma
View changes and restarts	Hane >FCU8SHSTemplate >Summary of Server Template >FCU8SHSTemplate >Summary of Clustere >Summary of Server	1 -Sammary of 30BC Duta Sources
Pending changes exist. They must be activated to take effect.	Create a New JOBC Data Source	
🗳 Activate Changes	Back Hent Finish Cancel	
Undo All Changes	308C Data Source Properties	
Domain Structure	The following properties will be used to identify your new JDBC data source.	
PCUBSDomain *	* Indicates required fields	
Servers	What would you like to name your new JDBC data counte?	
Clusters Server Templates Planatable Torgets	de * Names FCUBSBranchDS	
	What JNDI name would you like to assign to your new JDBC Data Source?	
	(INDE Name:	
Startap and Shutdown Classes	jdbc/fcjdev0SBranch	
B-Services		
El Hestation		
How do 1		
Create IDBC generic data sources	What database type would you like to select?	
Create UR-enabled 308C data sources	Database Type: Oracle v	
System Status 🛛		
Health of Ramping Servers	Bain Flext Finish Gancel	
Failed (0)		



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

ORACLE WebLogic Server Ad	ministration Console 12c		0
Change Center	(1) Hore Lag Out: Preferences Likel Record Help	a	Welcome, weblogic Connected to: FCUBSDomain
Wew changes and restarts	Home >PCUBSHSTemplate >Summary of Server Templatee >PCUBSH	STemplete - Summary of Clusters - Summary of Server	a >Summary of JDBC Data Sources
Funding changes exist. They must be activated to take effect.	Greate a New JDBC Data Source		
Activalia Churgea	Back Next Print Cancel		
Undo All Changes	10BC Data Source Properties		
Domain Structure	The following properties will be used to identify your new 1080	: data seurce.	
FOUSDomain FOUSDomain Foundation	Detabase Type: Oracle What dotabase firver weekly wollike to use to treate dotabase Database Devee: Oracle's Driver (Thin XA) for Back Next Press: Cancel	connections? Note: * indicates that the driver is e Instance connections; Versions Any	nglicity supported by Orade WebLogic 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
View changes and restarts	Home >POUBSMSTemplate >Summary of Server Templates >POUBSMSTemplate >Summary of Clusters >Summary of Servers >Se	mmary of 300C Data Sources
Pending changes exist. They must be activated to take effect.	Create a New JDBC Data Source	
Activate Changes	Back Next Frinh Cancel	
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	ninistration Console 12c		<u> </u>
Change Center	🙆 Home Log Out Preferences 🔤 Record Help	Q	Welcome, weblogic Connected to: FOUBSDomain
View changes and restarts	Home >PCUESHSTemplate >Summary of Server Templates >PCUESHSTemplate >	Summary of Clusters >Summary of Servers >Summary of JDBC Data Sou	70HE
Pending changes exist. They must be activated to take effect.	Create a New JDBC Data Source		
Activate Changes	Back Next Finish Cancel		
Undo All Changes	Connection Properties		
Domain Structure	Define Connection Properties.		
EUBSDamain BrEnvironment	What is the name of the database you would like to connect to? Database Name:		
Clusters Server Templates Migratable Targets Coherence Ousters Hoddines	What is the name or 3P address of the database server? Host Neme:		
Virtual Hosts Work Managers Startup and Shutdown Classes Deployments Services	What is the port on the database server used to connect to the database? Ports	1621	
B-Nessacion *	What database account user name do you want to use to create database of	tions?	
How do I	Database User Name:		
Create LLR-enabled JDBC data sources	What is the database account password to use to create database connecti	ons?	
System Status	Pasaword:		
Health of Running Servers	Confirm Password:		
Failed (0) Critical (0) Overfaeded (0) Warning (0) OK (5)	Additional Connection Properties: oracle.jdluc.DRCPConnectionClass: Back Next Timit Cancel		
	THE PARTY CANADA		I

Change Center	1 Have Log Out Preferences Int Record Help	Q.	Welcome, weblogic Connected to: FOUBSDomail
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Fending changes exist. They must be activated to take effect.	Create a New JDBC Data Source		
🧳 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:		
Critical (0) Overloaded (0)	What are the properties to pass to the JDBC driver when	creating canadata contactorer	
Warning (0)	Properties	· · ·	
08(5)	user=FCUBS121User		



ORACLE WebLogic Server Ad	tesinistration Console 12c		
Change Center	1 Home Log Out Preferences and Record Help	4	Welcome, weblogic Connected to: FCUBSDoma
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Pending changes exist. They must be activated to take effect.	Create a New JDBC Data Source		
Activate Changes	(Back) (Trivit) (Family) (Garcet)		
Unde Ad Changes	Select Targets		
Doosain Structure	You can select one or more targets to deploy your new JOBC later time.	data source. If you don't select a target, the data o	surce will be created but not deployed. You will need to deploy the data source at a
PCUBSDomain +	Servers		
B-Outers Server Templates	AdminServer		
Higratable Tergets	Clusters		
Victual Hosts Victual Hosts	PCUISChater		
Startup and Shutdown Classes			
Deployments El Services	Back Freit Freit Cancel		

6) Upon Activate Changes would create the XA Datasource.

Change Center	Anna Log Out. Freierences 🔛 Fire	-d Help	Q.	Welcame, weblogic Canner	ted to: FOURSDoesa
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Click the Lock & Edit button to modify, add or	Summary of 3DBC Data Sources				
delete items in this domain. Lock & Edit	Configuration Plantaring				
Remain Configuration	borrow a database connection from a da	ata source.		s. Applications can look up a data source on the 3400	I tree and then
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7) Similarly create all the other Data Source required for the FCUBS Application and Gateway Deployments.

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hange Center	1 Home Log (Dut. Preferences 🔤 R	econd Help	Q.		Welco	me, weblogic Connected t	o: FCUBSDoma
New changes and restarts		STemplate >Summary of BranchOS >Semimary of		es >Summary of 3DBC Data	Sources >POUBSDS >Summary of 2	IDBC Data Sources >FCUBSDomain >S	summary of 3DBC Data	
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Work Contexts 10L Registries 10L Entity Caches	Click the Lock New De	leta		Tute	INDI Name		Showing 1 to 6 of 6 P	revious Next
Work Contexts XML Registries XML Entity Caches 	New Co	deta .		Туре	JNDI Name		Targets	revious Next
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Wink Contexts 	New De	leta le aed:05 5		Generic Generic	JNDI Name jdbc/fgdevDSBranch jdbc/fgdevDS		Targets FCUBSCluster FCUBSCluster	vevious Next
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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** → **Environment** → **Clusters**.

WebLogic Server				CONTRACTOR OF STREET, STRE					
Change Center	1 10 H	tome Log Out P	references 🔛 Pres	eit Help	9			Welcone, weblogic Co	method to: FCUBSDomain
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Click the Lock 5 Edit button to modify, add or delete items in this domain.	Same	sary of Cluster							
Lock & Edit		a sale summaris	es the clusters that I	have been configured in the cu	went Weblanis Serve	e domain.			
Release Configuration				over servers that work together					
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
Coherence Clusters Hachines Virtual Peets	16	Name -	Christer Address	Cluster Hessaging Hode	Migration Basis	Default Load Algorithm	Replication Type	Guster Broadcast Channel	Servers
- Werk Hanagers Startup and Shutdown Classes - Deployments	6	PCUBSChuter		Unicast	Detabase	Pound Robin	(None)		POUBSH53, POUBSH52, POUBSH53, POUBSH54
H Services Security Realm	IN	nr+ One	Deinte			2		Showing 1 to	1 of 1 Previous Next
How do L. II									



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 TemplatesMigratable TargetsCoherence ClustersCoherence ClustersMachines	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	n 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				
View changes and restarts Home -Summary of Debt Data Sources -Summary of Clusters -Summary of Machines -MAC-1 -Summary of Machines -Summary of Servers -Summary of Servers -Summary of Machines -Summary of Clusters -Summary of Servers -Summary -Servers -Summary -Servers -Summary -Servers -Summary -Servers -Summary -Servers -Su										mary of				
No pending changes exist. Click the Release Configuration button to allow others to edit the domain.	Settings for FCUBSCluster													
Lock & Edit	Configuration Monitoring Control Deployments Services Notes													
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Domain Structure Save														
FCUBSDomain		used to configure I contain both expl				ster. I servers. The following	g settings are u	used to deter	mine the number and	characte	ristics for thes	e dynamic servers.		
Server Templates Migratable Targets Coherence Clusters Machines									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 N	umber of Dynan	ic Servers	5: 8]			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.





FCUBS Weblogic 12c Middleware Practices [May] [2021] Version 14.5.0.0.0

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