Oracle Banking Trade Finance Configuring Weblogic Server 12c



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ORACLE

Oracle Banking Trade Finance Configuring Weblogic Server 12c, Release 14.7.3.0.0

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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

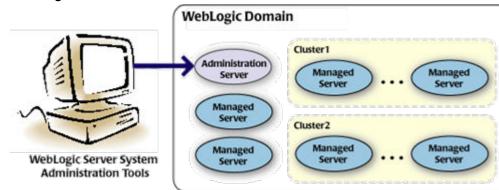
1.2 WebLogic Server Overview

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

Domain

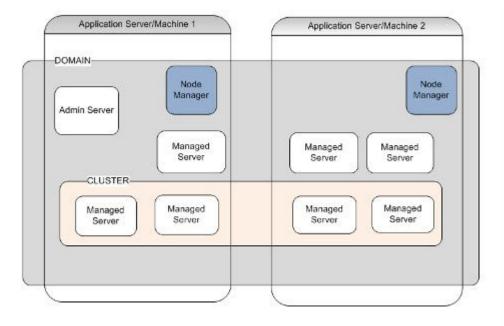
A domain is the basic administration unit for WebLogic Server instances. A domain consists of one or more WebLogic Server instances (and their associated resources) that is managed with a single Administration Server. Multiple domains can be defined based on different system administrators' responsibilities, 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.

Machine

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.

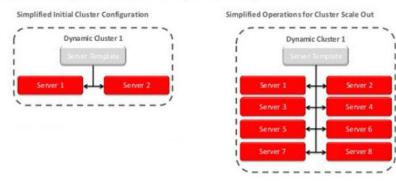
You can pre-create server templates and let Weblogic clone one when a Dynamic Cluster is created.

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



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 Progress End Of Configuration	What do you want to do? Create a new gomain Update an existing domain Domain Location //scratch/app/w12c/us Create a new domain.	er_projects/domains/FCUBSDomain	Browse
Help		< Back Next > Einish	Cancel



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	Create Domain Using Custom Template: Template location: //scratch/app/wt12c] [Browse	

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

- 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.**

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Templates				
Administrator Account				
Domain Mode and JDK				
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End Of Configuration	Name	weblogic		
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	Confirm Password	•••••		
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	one number or spec		num a reast o apriarian ere enaracers i	and at rease
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- ORACLE Domain Mode and JDK FUSION MIDDLEWARE T Create Domain Domain Mode Templates O Development Administrator Account Utilize boot properties for username and password, and poll for applications to deploy. Domain Mode and JDK Production Advanced Configuration Require the entry of a username and password, and do not poll for applications to deploy. Administration Server JDK Node Manager Oracle HotSpot 1.7.0_75 /usr/java/jdk1.7.0_75 Configuration Summary Browse Other JDK Location: **Configuration Progress** End Of Configuration Help < <u>B</u>ack Next > Cancel
- 4. Select Server Startup as Production Mode and the available JDKs. Click Next.

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

Advanced Configuration			
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Help	••	< Back Next > E	ush Cancel



Administration Server			Ā		ē (
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Help			<gack< td=""><td>Next > E</td><td>nish</td><td>Cancel</td></gack<>	Next > E	nish	Cancel

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

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	Node Manager Type			
Configuration Summary Configuration Progress End Of Configuration	Node Manager Home: Manual Node Manager : Node Manager Credentials Username: Password: Confirm Password:	Setup	omains/FCUBSDomain/nodeman	ager Browse
Help	Must be the same as the pas: one number or special chara		ain at least 8 alphanumeric chara	

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

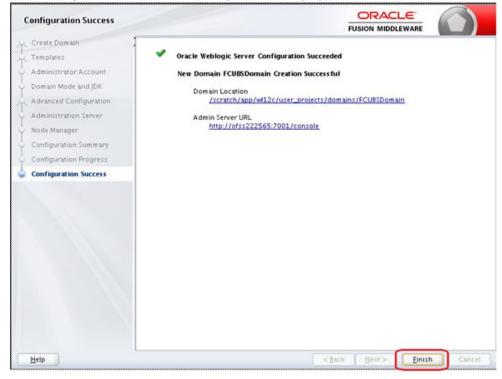
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	above	Create to accept the above op configuration before starting pane, or by using the Back b	Domain Creation, go				
Help				< §ack	gext >	⊆reate	Cancel



9. Click Next.



10. The Configuration Success message will be displayed as follows:



The Admin Server console URL is as indicated below:

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

a. <IP address >: Host on which domain was created.



b. <admin console port> : Port specified in Administration Server configuration page.

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

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"

Unpack

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 manager 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
- 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 Oracle Banking Trade Finance users require one managed server of size 8GB. i.e. for 300 logged in Oracle Banking Trade Finance 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.

- Machines Configuration
- Dynamic Cluster Creation
- Managed Server Template configuration

3.1 Machines Configuration

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

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Change Center	A Home Log Out Preferences 🚾 Record Help	Q. Welcome, weblogic Connected for FCUE
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Click the Lock & Edit button to modify, add or delete items in this domain.	Summary of Machines	
Lock & EdB Retease Configuration	server in a cluster to which certain tasks, such as HTTP session replication, a servers.	more Welkops Senar instances (servers). Welkops Server uses configured machine names to determine the optimum are delegated. The Administration Server uses the machine definition in conjunction with Node Hamager to start rem
Domain Structure	This page displays key information about each machine that has been config	igured in the current WebLogic Server domain.
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Create and configure machines Assign server instances to machines Clone machines		



2. Enter the Machine Name and click Next.

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iner da L		

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

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4. Machine is created.

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

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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**.

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3.2 Dynamic Cluster Creation

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

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2. Enter the Cluster Name and click on Next.

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No pending changes exist. Click the Palease Configuration button to allow others to edit the domain. Lock & Exist Release Configuration	Greate a New Dynamic Chotter BitRit Menti Cancel Specify Cluster Identity and Properties The following properties will be used to identify your new do	namic cluster and specify how cluster members should c	annuncete with each other to coordinate work.
Domain Structure	* Indicates required fields		
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Create dynamic clusters Configure clusters Configure cluster Configure cross-duster in a cluster Configure cross-duster inplication Create server templates	Hultcast Port: (Balk Beet) (Paint) [Carcel	7001	

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

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View changes and restarts	Hane >Hacking >Summary of Machines >Hackines >Summary of Machines >Nachrine >Summary of Servers >Summary	y of Nachines (Machine) >Sommary of Servers (Semimary of Chellers
No pending changes exist. Click the Release Configuration button to allow others to edit the domain. Lock & Edit Release Configuration	Create a New Dynamic Cluster Back Itematic [Final] Specify Dynamic Server Properties The following properties will be used to specify the size and characteristics of your new dynamic cluster.	
Dosab Structure FCORDoran FCORDoran PCORTORNAT Content Content Formers PContent Formers PContent Formers PContent Formers PContent PCONTEN	How many dynamic servers will you need at peak load? Number of Dynamic Servers: 4 What naming convection would you like to use for new dynamic servers in this cluster? Server Raine Prefix: FOURSMS Server Raine Prefix: Cancel Real, Real, Real, Cancel	. Server templates are unique to a cluster and cannot be shared across clusters, so a
How do I		

 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	Idministration Concole 12c		0
Charge Conter	🏟 Harna Log Cut Preferences 🔛 Record Hely	1.9.	Welcome, weblingte Connected to: PCUD5Doma
View changes and restarts	Hore (Hachina) (Scremery of Machines (Machines) (Scremery	of Plachons: Hacking -Summary of Services -Summery	d Hielman Hielmal charmary of Servers charactery of Charless
No pending changes exist. Click the Refease Coefiguration botton to allow others to edit the domain.	Create a New Dynamic Cluster		
Lock & Fall Release Configuration	Specify Hachine Bindings Autocrating dynamic servers with machines is essential if	you infand to see Node Heneger and the Administratio	in Concole (or UAST) to start server instances.
Domain Structure	Wow do you want to distribute duranic servers across reach	(au)	
POUTDenare A	. Up any machine configured in this domain		
B-Outers Server Templates	😳 Use a single machine for all-dynamic servers		
	Selected Machine:	[Machine1 •]	
-Victual Hests Wark Managers	Use a subset of machines in this domain		
Startup and Sheldown Classes Deployments IP Services	Hadoos Name Match Expression:		
Seath Boles	Back Next; Frimi (Canod)		
How do L. B			
Create durantic 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.
--	-----------------------	----------------	--------------	-------------

ORACLE WebLogic Server	Admetization Console 12c		Q
Change Center	Anne Lag Cut Preferences 🔛 Record Help	(9)	Welcome, weblagic Convected to: PCURSDemain
Wew changes and restarts	Anna Matterial durinary of Bachman (Market), charmery of Ha	china shahara) -Summy al Senain (Sumara di Ne	damp idealants -Servery of Servers Statements of Chatters
No pending changes exist. Club the Release Configuration lutter for aftern sthem to sold the domain.	Create a New Dynamic Claster		
Lock A Pat			
Release Configuration	Specify Listen Port Bindings Select han these dynamic servers should be bound to laten part	ti.	
Densels Menderer FCUEDensen Densensen Cuters -Servers -Servers -Servers -Serv	Uster ports for dynamic servers can be specified in a server temp # Assign each dynamic server unique listes ports Linten Part for Part Server: 50. Linten Part for Part Server:	Vide or can be deversually generated to be unique.	
- Placknes Workal Reads Web Placegem - Startug and Shutdown Classes - Deplements E- Senses - Sensets - Sensets	Assign each dynamic server fixed listen ports Linten Port: SSL Listen Port:	7100	
How do 1		12.12	
Conte Aneres dates Configure dates	[Rest.] Next. Fresh [Canod.		

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

ORACLE WebLogic Server	Administration Censole 120		<u> </u>
Change Center	😰 Here Lag Dat Andrewces 🔝 Record Help	A.	Welcom, weblagic Encoded to POUBSDemain
Wew changes and restarts	Here, Machinel - Screwery of Histories - Harbinel, - Screwery of I	National Advertising of Servers Adver	ners of Hadrons (Hadron) -bermary of bevors ; Bannary of Claders
No pending changes exist. Outs the fectore Configuration buffers to allow others to all the docum.	Create a New Dynamic Chatter [data] [Weith] [Pench] [Garon]		
Falence Configuration	Bosten Your Dynamic Cluster Configuration You have elected to crude a new dynamic cluster with the ful	lowing configuration.	
Donaite Structure FCURZeenaire	Configuration datals for new dynamic dusta:		
E-Endrannert -Servers	Name of New Dynamic Claster:		PCL85Chatter
Sever Templates	Maximum Number of Dynamic Servers		•
- Haratable Targets - Calierence Custers - Harbergs	Server Name Prefix:		POURSES
-Virtual Hosts -Work Planapers	Enable Caksaleted Listen Ports:		tive
- Startup and Shubborn Classes - Depforments References	Enable Calculated Machine Associations: Configuration details for new server templates		tue
interativitation (*	Name of New Server Templates		FCI86PETerrylote
How do I	Listen Portz		7072
Coulor Annexis clusters Configure clusters Configure clusters Configure server inspection in a duster Configure server inspectives Coulor annexis cluster registration Coulor annexis temptates	555 Linkes Forts (Reck) (New Exam) (Cancel)		7982)

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

DIRACLE WebLogic Server Ad	iministrat	ton Console 12	¢					Sector and s	<u> </u>
Bange Center		Name Ling Out P	eferences 🐼 Record	Inde	4			Pelcome, weblogic Connected to	FOURSDoma
Vew changes and restarts Perding changes exist. They must be activated to take effect. gP. Activate Changes Unios Al Changes	Hest O	ages	e named FCUBDHITem successfully.			e one - Commery of Hachima - H configure the servers in this d		ure -Samnay of Chahan	
Annualis Structure OUBCOmmen Conformation Conformation Control Structure Structure Structure Structure Structure Structure Structure Structure Structure Structure Structure Structure Structure Structure Structur	PO	duster defines gr informare this ta	oups of WebLogic Serve	e been configured in the curre in servers that work together to 0					
Machines Victual Houts	1.0	mew [Dame]	Dviete					Showing 1 to 1 of 1 Pr	evicus Next
-Work Managers Startup and Shutdown Classes		Name in	Chester Address	Cluster Hessaging Hode	Higration Basis	Default Load Algorithm	Replication Type	Cluster Broadcast Channel	Servers
Deployments Services		FCUBSCluster		Oricant	Detabase	Found Robin	(Name)	Showing 1 to 1 of 1 Pr	evous tiest
New do L. D.			ntertailais 17						free control escale



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

hange Center	1 A 11	une LagOut P	oferences 🔛 Kass	-i hely	1.8.1			Welcome, weblogic Con	rented to: FCMISDome
erse changes and restarts	Parts	ADDING WITH	risks a furnitury of fur-	ve Tenglates >PCLBCPCTenglate	-Summary of Class	fami			
Ics the Lock & Edit Sutton to modify, add or riste items in this domain.	Second	ary of Oastern							
Look & Edit Rokase Configuration				ave been configured in the car ner seners that work together					
onain Structure	1								
Servers B Chaters	Ges		- More Columns Ex	out) ge Center to activate all the b	dtors on this page.				
Concerned Servers Servers Server Templates Seputation Tempton	Ches Ches	ters (Filtered	- More Columns Ex	NAME OF CONTRACTOR OF CONT	dtors on this page.			Shewing 1 to 1	of 1. Previous Next
Chesters Server Templates	Ches Ches	ters (Filtered	- Hore Columns Ex Relation in the Char (Deater)	NAME OF CONTRACTOR OF CONT	More or the pape.	Default Lauf Algorithm	Replication Type	Stewing 1 to 1 Oenter Broadcast Channel	

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

Ownge-Center	Rome Log Out Pheferences	Treini Palp	9			Webzew, web	Idegia: Connected to: FCS/B5/Doorse
Were changes and restarts	Neta (#0)80857argiste chore	wy of Serve Templetes (PD.80)	Changlide -Summary of Os	mes charactery of fee			
Chik the Lock & Edit Sutton to modify, add or delete items in this domain.	Summary of Servers						
Lack & Ecil	Configuration Control						
Reliana Configuration	A server is an instance of the	Lagic Server that name in its and	n Java Vintual Machine (21/	C and has its most cord	Iguration.		
Donaia Mnacture	The page summarizes each to	rver that has been configured o	n the current linebLags; Ser	wer domain.			
Entrement	0						
G Ousters - Server Templates - Highdalle Targets - Coherence Clusters - Highdalle	ir Contomire this table Servers (Filtered - More C Old the Lock & Edition	damen Exist) in the Change Center to activat	e all the buttoes on this p	yr.			
-Victual Horts - Stark Hanagers	(New) (Chern) (Delete)					She	noing 3 to 5 of 5. Previous Bent
- Virtual Haragen Startug and Studiowit Cleanes Deployments	Next (Gene) (Denn)	Type	Chaster	Plachase	State	thealth .	Lates Port
Virtual Hanapers Work Hanapers Starting and Shutdown Classes	Name ris	Type Configured	Ouster	Plachase	State INVADUS		
Vidual Pada Vidual Pada Stahuj and Shubavin Classes Coglianeets Ri Services Services	Name ris	1277	Cluster FOUESDuster	Plachase Plachase1	172-0	Nealth	Lates Port
- Vidual Rends - Binki Hanagen - Sankija and Shatkenn Classes - Dagkonents - Senceth Baston - Senceth Baston - Senceth Baston	Name ris	Configured			RUNADING	realth af ce	Listen Port 7001
- Votad Henda - Votad Henden - Stanke and Shatherin Cleases - Deployments - Senarby Breites - Senarby B	Admitiscraticalmer	Configured Dynamic	POIESDater	Plating	PUNDING SHITCOWN	Health 4 ⁴ Cr. Tut reschable	Lakes Port 7982 7983
- Virtual Hangen - Stattig and Statemen Cleaner - Deployments - Senote Readon - Senote Readon - Senote Readon	Name vic Advertarcer(advac) Postovar(advac) Postovar(advac) Postovar(advac)	Configured Dynamic Dynamic	POIBSDather POIBSDather	Hachine1 Hachine2	PUMING SHITDOWN SHITDOWN	Nealth of ox Not reachable Not reachable	Ealter Port 7081 7082 7084

3.3 Managed Server Template configuration

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

- Logging
- HTTP Logging
- Stuck Tread Max Time

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.

y of Machinas -Machina2 -Summ	wry of Servers >Surrenery of Glober	s Summery of Servers Summery of	Server Templetex >PCUESHS1	emplate - Summary of Server
ault attributes that you can ap	ply to a set of server instances, i		ofiguration. Server templates	a enable you to easily
			Shawing	1ts1of1 Previous Newt
Cluster	Hachine	Listen Port	Listen Address	
FCUBSCluster		7002		
	-915 -	and the	Showing	1 to 1 of 1 Previous Next
	fault attributes that you can ap instances in one centralized los Ounter	Auft actributes that you can apply to a set of server instances, w natances in one centralized location. Cluster Hackase	Instances in one centralized locition.	Auth actributes that you can apply to a set of server instances, which then inherit the template configuration. Server template instances in one centralized location. Server template Shaving Claster Hachine Linten Port Linten Address #CUBSCluster 2002

2. Select FCUBSTemplate and navigate to Logging \rightarrow General.

A Home Log Out Preference	ces 🐼 Record Help	Q	Welcome, weblogic Connected to: FCUBSDomain
Home >PCUBSMSTemplate >Su	mmary of Server Templates >FCUB5PHST	Template	
Settings for FCUBSMSTemp	slate		
Configuration Protocols	Logging Debug Notes		
General HTTP Data Sc	ource Diagnostic Images		
Save			
Use this page to define the	general logging settings for this serve	er.	
de name:	logs/FCUBSMSTempla	te 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_JNARE.log. More Info
- Rotation			
C Deservice Barry	10000		And the second state of the second state of the second state of the state of the second state of the secon

3. Under Advanced tab, update the below parameters and click on Save.



3.3.2 HTTP Logging

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

	Out Preferen	nces 🔤	tecord Help	Q	Welcome, weblogic Connected to: FCUBSDom
Home >FCUESI	NSTemplate >0	lummery d	Server Templ	ates >FCUBSMSTemplate	
ettings for Fo	CUBSMSTen	plate			
Configuration	Protocols	Loggin	Debug	Notes	
General H	TTP Data S	iource (Nagnostic Im	ages	
Save					
	ess log file o	in log file. enabled			Indicates whether this server logs MTIP requests. (The remaining fields on this page are relevant only if you select this check box.) Hore Info
	ess log file o	_		logs/access.log	
HTTP acc	ess log file o	_		logs/access.log	this page are relevant only if you select this check box.) More Info
HTTP acc	ess log file (ame:	_		logs/access log By Size 💌	this page are relevant only if you select this check box.) More Info

3.3.3 Stuck Tread Max Time

FCUBSDomain \rightarrow **Environment** \rightarrow **Clusters** \rightarrow **FCUBSTemplate** \rightarrow **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 Banking Trade Finance 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.

ORACLE WebLogic Server A	anaxistration Console 12c			
Change Center	A Harre Lag Out Preferences 🐼 Nacod	HO Q		Welcome, weblogic Corrected to: POVBSDue
Vew changes and restarts	Hore (HD/85HSTanglate clummary of Server	Terglates -PELIEDHETerglate >Summary	Outers channers of tervers	
Click the Lock & Edit button to modify, add or delete items in this domain.	Summary of Servers			
Lock & Edit	Configuration Control			
Policese Configuration	Use this page to change the state of the se mode requires the domain-orde administrat		ntral operations on Hanaged Serv	ers require starting the Node Hanaper. Starting Hanaped Servers in Standby
COlfDomain Colformain Carven Contex Contex	C) P Continuer this table Servers (Piltered - Hore Columns Exist (Dat) (Persone, Sospent+, Dusti			Showing 1 to 5 of 5. Previous Sect.
Virtual Hosts	G Server A	Machine	State	Status of Last Action
Startup and Shutdown Classes	III Adverter(admin)		PUNNENG	New
Deployments 8 Services	PC 85453	Pachinet	SHI/TDOWN	Rore
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New do L. II	R 10 85953	Hethine1	SHE/TDOWN	Fare .
 Start and dog series 	R PC BSN54	Hachine2	SHUTDOWNS	faire
Start Managed Servers from the	(Stat) Reserve) (Sequentic) (Shake	net v. Restart 156.		Showing 1 to 5 of 5 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 Oracle Banking Trade Finance application.

jdbc/fcjdevDS - This datasource is used by Oracle Banking Trade Finance 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
- Data source creation: non XA
- XA Datasource
- JDBC Parameters Tuning

6.1 Data source creation: non XA

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 /	diministration Console 12c		0
Change Center	😰 Herne Lag Out. Preferences 🔤 Record Help	9	Welcome, weblogic Connected to: FOUBSDonain
View changes and restarts	more vPO/RSHSTengible vSummary of Server Tengibles vPO/RSHSTeng	late >Sammary of Outless >Sammary of Servers >Sam	smary of JDBC Data Sources
tis panding changes wort. Click the Release Configuration button to allow others to edit the domain.	Create a New JDBC Data Source		
Lock & Eff	30BC Data Source Properties		
Relaine Configuration	A DEPART OF THE STATE OF THE ST		
Domais Structure	The following properties will be used to identify your new JOBC data * Indicates responsed fields	004708	
FOUBSDamain -			
Encloseret Servers Servers Coheren Cherene Cherene Cherene Cherene Cherene Servers Servers	Vitet would you like to none your new XBC (bits yours?)		
How do I			
Create 200C generic data seames Create UR-enabled 300C data sources	What database type would you like to select? Outabase Type: Cracle		
System Status 8 Health of Passary Servers Failed (10)	Time Times Gamma		

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

ORACLE WebLogic Server /	dministration Console 12c		Q
Change Genter	🏟 Nora Lug Dut Profesences 🚾 Racard Halp	4	Welcome, weblagic Connected to: PCUBSDensar
New changes and restarts	Hank VED/85MSTampilala v5ormary of Server Yangilates VED/85MSTampilal	is stormery of Clobes stormery of tensors strengther	y of XMC Data Seames
No pending changes exist. Click the Refease Configuration button to allow others to add	Create a New JOBC Data Source		
the domain.	(Beck) (Next) (Feath) (Cercel)		
Release Configuration	3DBC Data Source Properties The following properties will be used to identify your new 3DBC data to	satta,	
Donwin Structure			
COLEGonatio Concernent Concernent	Database Type: Orade What dictase driver would you like to use to create database concerts Database Driver: (Thin) for instance of Itach, (Itan), (Thini); (Carcol)		pland by Discle WebLigk Server.
Ratia and Rations Cases Orginoments			
- Services			

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

Charles Henrogie seiter	Additionalized Compose LSC		
Change Center	🙆 Hume Log Out Preferences 🔄 Record Help	9	Welcome, weblogic Convected to: FCUBSDoesain
View changes and restarts	Home >FC/85HSTemplate >Summary of Server Templates.>FC/85	PGTemplete >Summery of Clusters >Summery of Servers	Summary of 300C Data Suaron.
tio pending changes exist. Click the Release Configuration button to allow others to edit the domain.	Create a New JOBC Data Source		
Release Configuration	Transaction Options You have selected non-XA 208C driver to create database co	enection in your new data source.	
Donsain Structure	Does this data source support global transactions? If yes, plas	are choose the transaction protocol for this data sour	x.
Clutters Control Control Control Control Servers Conters Server Templates Monable Targets	Supports Global Transactions Select this option if you want to enable non-XA JOBC connect Recommended in place of Emulate Two-Phase Commit.	ons from the data source to participate in global tran	actions using the Logging Last Resource (LLR) transaction optimization.
Coherence Clusters - Nachines - Victual Nots - Victual Nots - Victual Nots - Victual Nots - Statup and Swidown Classes - Deployments - Deployments - Statup and Swidown Classes - Deployments - Statup and Swidown Classes - Statup and Sw	eurotic conditions.		ploted transactions using 27.5. Select this uptor only if your application can talende sections using the one-phase commit transaction processing. With this uptoo, no
How do 1_	other resources can participate in the global transaction.		
Create 108C generic data sources Create U.R-enabled 308C data sources	Back Ment With Cancel		
System Status	10 10 10 10 10 10 10 10 10 10 10 10 10 1		



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

ORACLE WebLogic Server A	animoteon control izc		
Change Center	😰 Home Log Det Preferences 🐼 Record Help	9	Welcone, weblogic Connected to: PCUBSDomail
View changes and restarts	Home >PCURSHSTemplate >Summary of Server Templates >PCURSHSTe	replain »Surveyary of Clusters »Surveyary of Servers »Surveya	ry of JDBC Data Sources
No pending changes exist. Click the Release Configuration button to allow others to edit the domain.	Create a New JOBC Data Source Bash Next Finsh Garcel		
Release Configuration	Connection Properties Define Connection Properties.		
Domain Structure	What is the name of the database you would like to connect to?	(
Environment Servers	Database Name:	E	
El-Closters -Server Templates -Highstable Targets Coherence Closters Highdrees	What is the name or IP address of the database server? Host Name:		
	What is the port on the detabase server used to connect to the deta	1521	
Deployments Deployments Denices Bit Hestacion	What database account user name do you want to use to create da	1000	
How do L 🖯	Database User Name:		
Create 100C generic data sources Create LLR-enabled 300C data sources	What is the database account password to use to create database o	connections?	
System Status 🖂			
Health of Russing Servers	Confirm Password:		
Failed (0) Critical (0)	Additional Connection Properties:	<u></u>	
Overlaaded (0) Warning (0) 0K (5)	eracle.jdbc.DRCPConnectionClass:		

 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:

dbc:oracle:thin:@(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=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.



Change Center	🔒 Home Lag Out: Preferences 🖾 Recard: Hel	a la	Welcome, weblogic Connected to: FOUBSDoma
View changes and restarts	Hone >FCURSHSTemplate >Summary of Server Temp	Dates >FCLRSHSTeingbile >Summary of Chatters >Summary of Servers >Sum	nary of 3DBC Data Sources
No pending changes exist. Click the Release Configuration button to allow others to exit the domain.	Create a New JDBC Data Source	Cancel	
Look & Edit			
Release Configuration	Test Database Connection Test the database availability and the connection	e properties you pravided.	
Domain Structure	What is the full earliese name of 3DBE driver class	a used to create database connections in the connection pool?	
FOUESDomain · · · · · · · · · · · · · · · · · · ·	(Note that this driver class must be in the classpa		
B-Clusters Server Templates Higratable Targets	Driver Class Name:	oracle.jdbc.OracleDriver	
Coherence Clusters	What is the URL of the database to connect to? The	he format of the URL varies by JDBC driver.	
Virtual Hosts Work Managers	URL:	idbc.oracle.oc/ @IDESCRIP	
Startup and Shatdown Classes 	What database account user name do you want to	use to cleate database connections?	
B-Services B-Stemation	Database User Name:	FCUBS12108	
How do L_	what is the database account password to use to	create detabase connections?	
Create JDBC generic data sources Create LDR-enabled JDBC data sources	(Note: Tor secure password management, enter th	te password in the Password field instead of the Properties field below)	
System Status	Password:	()	
Health of Running Servers	Confirm Password:		
Pailed (8) Critical (0) Overloaded (5) Warring (0) OK (5)	What are the properties to pass to the JDBC drive Four ties: USEr - FOURS121USER	r when coefficie definitive constitutes?	

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

7. Select Target as FCUBSCluster and click on Finish.

ORACLE WebLogic Server A	dministration Console 12c	0
Change Center	🙆 Hame Log Out Preferences 🔛 Record Help	Q Welcome, weblogic Connected to: FOUBSDomain
View changes and restarts	Home >FCU05HSTemplate >Summary of Servier Templates >FCU05HSTemplate >Summ	immary of Outlies >Summary of Servers >Summary of JDBC Data Sources
No pending changes exist. Click the Release Configuration button to allow others to edit	Create a New JDBC Data Source	
the domain.	Back Not Field Carcal	
Lock & Edit	Select Targets	
Release Configuration		
Donuain Structure	 You can select one or more targets to deploy your new JDBC data source. If you later time. 	you don't select a target, the data source will be created but not deployed. You will need to deploy the data source at a
FCUBSDemain -	Servers	
Servers	AdminServer	
HI-Clusters Server Templates		
Migratable Targets	Chaters	
Coherence Clusters Nachines	₹ FOL®SCluster	
- Virtual Hosto	All servers in the cluster	
Work Managers Startup and Shubdown Classes		-
*** Deplayments	Back Next Field Cancel	
B-Senton -		
How do L_		

6.2 XA Datasource

1. Navigate to FCUBSDomain \rightarrow Services \rightarrow Data Sources \rightarrow select New > Generic Data Source.

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

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

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4. Click on Next.

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5.	From this	step to	target	setting	step	follow	as r	nentioned	in non-x	a.
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7. Similarly create all the other Data Source required for the FCUBS Application and Gateway Deployments.

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6.3 JDBC Parameters Tuning

Below JDBC parameters needs to updated for all the Datasources.

PARAMETER	VALUE	Navigate To
Connection Reserve time out	30	Connection Pool->Advance
Test Frequency	60	Connection Pool->Advance
Inactive connection time out	30	Connection Pool->Advance
Initial Capacity	1	Connection Pool
Max capacity	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.



9.1 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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2. Click FCUBSCluster \rightarrow Configuration \rightarrow Servers tab.

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

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Deployments Services Reviews	Server Na	me Prefix:		FC	FCUBSMS			Specifies the prefix to be used when naming new dynamic servers in this duriter. Here $2 M_{\Phi,\infty}$				

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	
FCUBSHS1	Dynamic	MAC-1	7101	
FCUBSMS2	Dynamic	MAC-2	7102	
FCUBSINS3	Dynamic	MAC-1	7103	
FCUBSH54	Dynamic	MAC-2	7104	
FCUBSMSS	Dynamic	MAC-1	7105	
FCU85M56	Dynamic	MAC-2	7106	
ECUBSINS7	Dynamic	MAC-1	7107	
EUBSM58	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.

