Oracle Banking Trade Finance Configuring Weblogic Server 12c



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ORACLE

Oracle Banking Trade Finance Configuring Weblogic Server 12c, Release 14.7.6.0.0

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Preface

This manual is designed to help acquaint you with the Oracle Banking Trade Finance Configuring JMS on Weblogic Server 12c.

- Purpose of this Document
- Documentation Accessibility
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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

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Conventions

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

The following text conventions are used in this document:

References

Refer to the Resource To Be Created document for more details.

Screenshot Disclaimer

Personal information used in the interface or documents is dummy and does not exist in the real world. It is only for reference purposes.



1 Introduction

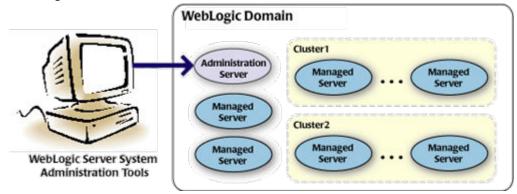
1.1 WebLogic Server Overview

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

Domain

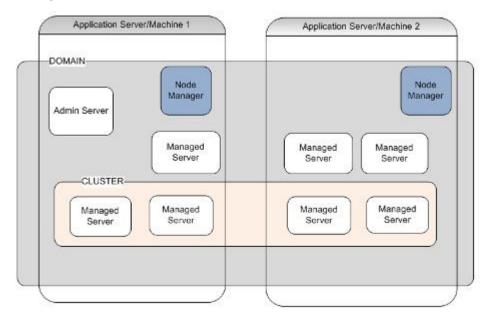
A domain is the basic administration unit for WebLogic Server instances. A domain consists of one or more WebLogic Server instances (and their associated resources) that is managed with a single Administration Server. Multiple domains can be defined based on different system administrators' responsibilities,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

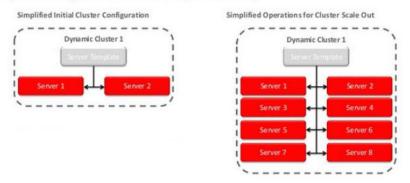
You can pre-create server templates and let Weblogic clone one when a Dynamic Cluster is created.

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



1.2 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



2.1 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**.

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	Create Domain Using Custom Template:				
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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

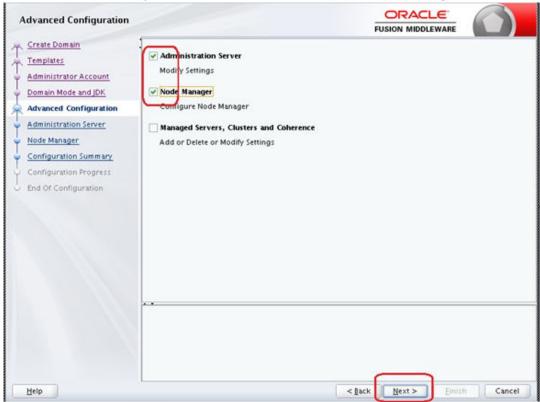
Server. Click Next.

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	one number or special characte	
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4. Select Server Startup as **Production Mode** and the available **JDKs**. Click **Next**.

Domain Mode and JDK	
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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				Ē)
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Help				< <u>B</u> ack	Next >	inith Can	cel





The next screen displays Node Manager Configuration.

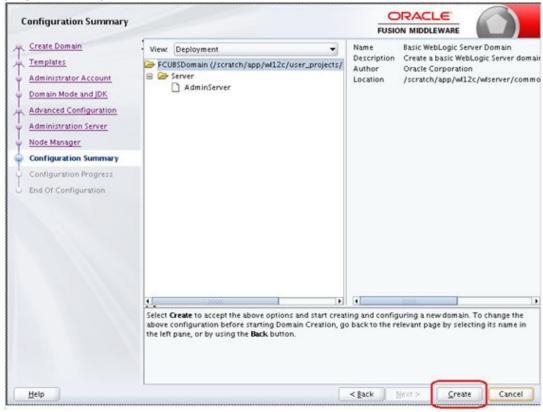
7. Configure Node Manager.

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				
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Help			< Back	Einish Cancel



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

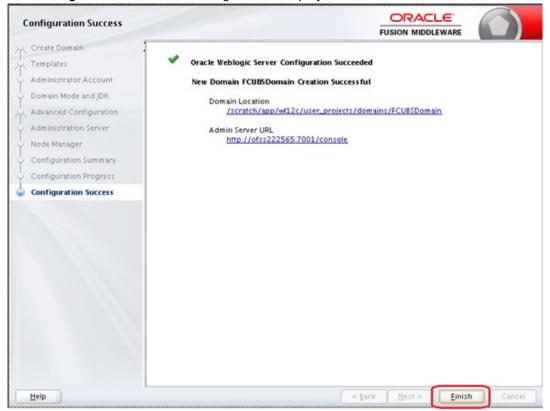


9. Click Next.





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
- 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.
- 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.

ORACLE WebLogic Server	Administration Console 12c		<u> </u>
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Create and configure machines Assign server instances to machines Cloce machines			



2. Enter the Machine Name and click Next.

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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 Release Configuration button to allow others to edit forman. Cock & Elist Release Configuration Domain Structure PCUESContan -	Create a New Dynamic Cluster Bink [Finith] Specify Cluster Meetity and Properties The following properties will be used to identify your new dat * britcates required fields	namic chulter and specify how chuster members should cs	mmunicate with each other to coordinate work.
EF-Environment Southers Southe		s to subscribe to a given IP address and part number and	wenduers. Clusters can use either unicent or multicent messaging. Multicast is a listen for messages, but requires handware configuration and support, Unicast
How do L.	Multicast Address:	239, 192, 0, 0	
Create dynamic clusters Configure clusters Configure server respiration in a cluster Configure cross-cluster replication Create server templates	Multicast Part:	7001	

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

ORACLE WebLogic Server A	dministration Console 12c	Ő.
Change Center	A Home Log Out Preferences 🐼 Record Help	Welcome, weblogic Connected to: PCUBSDomain
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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 Intent Cancel Specify Dynamic Server Properties The following properties will be used to specify the size and characteristics of your new dynamic cluster.	
Donale Structure PCUBDonain PCUBDonain Pchromenet Servers Pcurer Templates Pcurer Templates Pcurer Templates Psofumes Psofumes Psofumes Party and Studion Classes Psofumets Propulations Psofumets P	How many dynamic servers will you need at peakload? Number of Dynamic Servers: Uthat naming convention would you like to use for one dynamic servers in this cluster? Server Name Freflix: Server templates are used to configure the characteristics that are common to all dynamic servers in this of men dynamic servers in this of the men dynamic servers in this of men dynamic servers in this of the men dynamic servers in the of the men dynamic servers in the other server template with the men dynamic servers in the other server template with the men dynamic servers in the other server template with the men dynamic servers in this of the men dynamic servers in the other server template with the men dynamic servers in the other server template with the men dynamic servers in the other server template with the men dynamic servers in the other server template with the men dynamic servers in the other server template with	uster. Server templates are unique to a duster and cannot be shared across dusters, so a
How do L		

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	Administration Console 12c		<u> </u>
Change Center	🏟 Horns Log Out Professorat 🔛 Record Holy	1.9.	Welcome, weblogic Convented for PCUBSConst
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No pending changes exist. Oick the Refease Configuration botton to allow others to edit the domain. Lock & that	Create a New Dynamic Cluster		
Release Configuration	Autocrating dynamic servers with machines is essential if	you articled to use Node Theraper and the Administration	n Console (or WAST) to start perver instances.
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How do L.			
Cirate durantic dustant			

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	dministration Console 12c		<u> </u>
Change Center	A Here Log Cod Breferences Mr Record Fels	(Q.)	Welcome, weblage. Convected to: PCURSDensit
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Look & Pat			
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PCUBIDonain -		and a second signature of the second second second	
E-Dutrament Servers	* Assign each dynamic server unique listen ports	\frown	
EF Chaters -Server Templates -Structule Targets	Lation Part for Pint Server:	7002	
Calumera Chalura	555, Listen Port for First Server:	7102	
- Virtual Murbs - Web Pakagers Startug and Shutdown Classes	© Assign each dynamic server fixed listen piets	10 10 10 10	
Deployments	Listen Port:	7100	
- Security Realms	SSI Listen Parts	8100	
now do 1			
Conte Americ dates	[Rest] Next; [Trint] [Carse]		
 Caofigure dusters 			

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

ORACLE WebLogic Server	Administration Console 124		0
Change Center	🔒 Here Lag Out Andrewces 🖂 Record Help	A.	Weksene, weblagic Encrected to: POUBSDemein
View changes and restarts	Anne (Machine) - Jummary of Machines (Machine) - Summary of P	When Haltes' Summy of Seven 13	courses of Hachines of Salatines' of Service : Sammary of Chaders
Su pending changes exist. Out the Release Configuration butten to allow others to add the domain.	Create a New Dynamic Cluster (dash) (Ninit) (Frank) (Canon)		
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Sover Terubitis 	Server Name Phetic: (nable Calculated Laten Parts) Enable Calculated Machine Associations: Configuration details for new source templates Name of New Source Templates		POUBSHS true true POUBSHSTerryDote
thow do 1	Listen Part:		7102
Create dynamic dusters Configure studens Configure server inspiration in a duster Configure sous-chaster inspiration Create server temptates	SSE Labor Port		7923

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

DIRACLE WebLogic Server A	desistant	ton Console 1	he .							<u> </u>
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Anw changes and restarts Inding changes exist. They must be activated a take effect. ## Activate Changes Units Al Changes	Hesta O O	ages	te samed FCUED#STer successfully.	china) -Surmary of Hachman off rigilate has been created. Use th				one channey of Cha	lars.	
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-Virtual Houts	1.0	eww] [Done]	Dylette					Showing 1 t	tolof1 Pre	viout. Next
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- Deployments - Services		PCUBCOunter		Unicant .	Database	Pound Robin	(None)		and the second	
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And a set of the set										



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

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- Servers								
-Server Templates	Cick the Lock # EdiPlutton in the Charge Center is activate all the buttors on this page.							
	(Here) 3	Clarge [Details]					Shewing 1 to 1	of 1. Previous Next
Hadones	Rame	Chaster Address	Cluster Hessaging Hode	Migration Basis	Default Load Algorithm	Replication Type	Gester Brandcast Channel	Servers
Pactnes Votual media Votual media Votual media Votual media Stantag and Shubbouh Cances Conforments	0 000	Outer	Uncert	Defabase	Found False	(None)		POLISIASI, POLISIASI, POLISIASI,

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

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Wese changes and restarts		tione (PD)80857emplate (Scremery of	Serve Templates (PD.80)	Millergide -Surrowy of Ou	ters charmony of Ser			
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delete items in this durasis. Lock & Edit	1	Configuration Control						
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Domain Mnucture		This page summarizes each server t	at has been carifigured	n the current linebiage: Ser	ver domain.			
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Server Templates High Lable Targets Collevers Chuters Hackings Visual Rods Target Hanagers		Servers (Filtered - Muer Colum Och the Lock & Edif Jutter in the [None] [Class] [Doine]	and a second	te all the buttoes or this pa	ija,		5	noing) to 5 of 5. Previous New
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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.

	A				and the second
Change Center	A Home Log Out Preferences 🔛 Record Help	A CONTRACTOR OF A CONTRACTOR O	9		Welcome, weblogic Connected to: FCUBSDom
View changes and restarts	Home sHackins2 sSummary of Servers sSummary of I Templates	fachines «Hachine2 »Summe	ry of Servers >Surrenery of Cluster	s Summery of Servers >Summery of	Eserver Templates +PCUESHSTemplate +Summary of Server
Pending changes exist. They must be activated to take effect.	Summary of Server Templates				
Activale Charges					
Undo All Changes	This page summarizes each server template that	has been configured in the	current WebLogic Server domain		
PCUB/Demain -	© Contomize this table				
B-Clusters Server Templates	Server Templates				Showing 1 to 1 of 1 Previous Next
	The second s	Guster	Hachine	Listen Port	Shawing 1 to 1 of 1 Previous Next
Server Yenglates Highstable Targets Coherence Clusters	(Jime) (Clinic) (Delete)	Cluster FCUBSCluster	Hachine	Listen Port	The second se
Server Templates Highstable Targets Calvernoe Clusters Naclones Vivitual Nexts	(New) (Chine) (Deble)		Pechane		The second se
Secret Templetes Hendletes Hendletes Vistal Hells Vistal Hells Vistal Hells Vistal Buildeen Classes Deployments Bisfing and Studien Classes Deployments	Jiew; (Cleve) (Deble)		Hechine		Linten Address

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

A Home Log Out Preference	ces 🐼 Record Help	9	Welcome, weblogic Connected to: FCUBSDoma
Home >PCUBSHSTemplate >Su	unmary of Server Templates >FCUBSMST	emplate	
Settings for FCUBSMSTemp	plate		
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	e.	
₫ Log file name:	logs/FCUBSMSTemplat	e 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_NAME.log. More Info
Rotation			
C. C. L.	1 m m		And the first of the second state of the secon

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

Severity level:	Warning •	The minimum severity of log messages going to the server log file. By default all messages go to the log file. Hore Info
Filter:	None *	The filter configuration for the server log file. Hore Info
륝 Log File Buffer:	8	Gets the underlying log buffer size in kilobytes More Info
Standard 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. Here Info
Filter:	None •	The filter configuration for \log events being sent to the standard out. More $\inf \sigma_{\rm m}$
Domain log broadcaster :		
Severity level:	Critical	The minimum severity of log messages going to the domain log from this server's log broadcaster. Messages with a lower severity than the specified value will not be published to the domain log. <u>Nore Info</u>
Filter:	None •	The filter configuration for log events being sent to the domain log. More ${\rm Info}_{\rm co}$
Buffer Size:	10	Broadcasts log messages to the domain log in batch mode. More Info
Stack Traces to stdout		Specifies whether to dump stack traces to the console when included in logged message. Here Info
stdout Stack Trace Depth:	5	Determines the no of stacktrace frames to display on standard out. All frames are displayed in the log file. * -1 means all frames are displayed. More Info
📆 stdout Format:	standard	The output format to use when logging to the console. More Info
Save		



3.3.2 HTTP Logging

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

a nome Log Out Preferences	Record Help	Welcome, weblogic Connected to: FCUBSDor
Home >FCUESHSTemplate >Summ	nery of Server Templates >FCUBSMSTemplate	
ettings for FCUBSMSTempla	te	
Configuration Protocols	oggling Debug Notes	
General HTTP Data Source	Diagnostic Images	
Save		
server log file or the domain lo	g me.	
HTTP access log file enal	-	Indicates whether this server logs HTTP requests. (The remaining fields on this page are relevant only if you select this check box.) Hore Info
HTTP access log file enal	-	
HTTP access log file enal	Hed	this page are relevant only if you select this check box.) Hore Info
_	Hed	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.

	A	101			
Change Center	A Hane Lag Out Preferences 🐼 Harvel Help	9		Welcome, weblogic Corrected to: PCUBSDom	
Wese changes and restarts	Hone HOASHSTangiate clummary of Server Tangiates	ACCERCITY Templake in Summary of	Outers chanomary of Services		
Cick the Lock & Edit button to modify, add or delete items in this domain.	Sammary of Servers				
Lock & Edit	Configuration Control				
Belinese Configeration	Use this page to change the state of the servers in the mode requires the dumain-wide administration port.	s WebLagic Server Burnain. Co	ntral operations on Hanaged Serv	ers require starting the Node Hanager. Starting Hanaged Servers in Standby	
PCUSChuman	C) © Castanaire this table Servers (Hitsred - Hore Caluman Exist)				
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- Coherence Clusters - Hactures	(Stat) (Resonal (Segentia) (Stational) (R	(p.2000)		Showing 1 to 5 of 5 Previous Ned	
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- Colorence Clusters - Hacknes - Vishal Hosts - Wink Response - Stating are Shuthern Cleane - Deployments S - Services - Services	Server vis	Hachine Hachine1	PUNIQNG SH/TDOWN	Status of Last Action Ince Nove	
	Server vis	Plachine Pachnet Plachine2	PUNNING SHUTDOWN SHUTDOWN	Status of Lost Action Inco Inco Nove	

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	dministration Console 12c	Q
Change Center	🔒 Harre Lug Out Andrences 🖾 Record Help	Wekome, weblogic Cannetted to: FOUBSDomain
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No panding changes exort, Click the Release Configuration button to allow others to edit the domain.	Create a New JOBC Data Saurce	
Lock & Elf Robuse Configuration	30BC Data Source Properties The following properties will be used to identify your new 30BC data source.	
Domain Structure	* Indicates respond folds	
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How do L	1	
Create 108C generic data saurues Create UZP-analited 108C data sources	What database type whald you like to select? Database Type: Oracle	
System Datas B Health of Auroing Servers	Itel Ited Trint Great	
Faled (0)		

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

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New changes and restarts	Hank (RD/RDM) herplate (Summary of Sense Tamplates (RD/RDM)) herplate (Summary of Centers (Summary of Senses (Summary of SelEC Bala Senses			
No pending changes exist. Click the Release Configuration bottom to allow others to add the domain. Loom & Cott Release Configuration	Create a New 2000 Data Source Back Next Frinki Center 3000 Data Source Properties The officiency graphics with a used to identify your new			
Control Structure COLICIONAL Control Contro	Database Type: Oracle What database driver would you like to use to create datab		gRictly suggested by Oracle WebLagic Server.	
High Hanagers Statup and Shatdown Casces — Orginyments ⊟ Sanviors — Thursdown			*	

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

ORACLE WebLogic Server /	Administration Console 12c		
Change Center	A Hume Log Out Preferences In Record Help	9	Welcome, weblogic Cnitected to: FCUBSDoesain
View changes and restarts	Hone HOURSHSTemplate -Summary of Server Templates -POURSH	ETemplate >Summery of Clusters >Summery of Ser-	ets >Summary of 300C Data Sources
No pending changes exist. Click the Release Configuration button to allow others to edit the domain. Lock & Exist Release Configuration	Create a New 10BC Data Source Back Itent Cancel Transaction Options Vol. New selected non-NA.30BC driver to create database com	nection in your new data source.	
Donain Structure	Does this data source support global transactions? If yes, please	a choose the inserta-tion protocol for this data :	A1878
PCUBDONALS PCUBDONALS Discovers Discovers Discover Templates Discover Templates Discover Templates Discovers Disc	Select this aginon if you want to enable non-XA JOBC connection Recommended in place of Brudet Two Phase Commit. C Logging Last Resource Select this aginon if you want to enable non-XA JOBC connection heardstic conditions. Emailed Two-Phase Commit	ns from the data source to participate in global ns from the data source to emulate participation	ransactions using the Logping Last Resource(ULR) transaction optimization. In glubal transactions using JTA. Select this sylton only if your application can talerate ransactions using the one-phase commit transaction processing. With this sylton, no
How do I	the restrict to proper a se prose variation.		
Create 108C generic data sources Create U.R-enabled 308C data sources	One Phase Consult Back, Meet, West) (Garcel)		
System Status II			



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

ORACLE WebLogic Server A			Ų
Change Center	😰 Home Log Out Preferences 🚈 Record Help	9	Welcome, weblogic Connected to: PCUBSDomain
View changes and restarts	Home >PCURSMSTemplate >Summary of Server Templates >PCURSMSTemplate	-Survey of Galaxy -Survey of Servers -Survey of	é XURC Data Sources
No pending changes exist. Click the Release Configuratives button to allow others to edit the domain. Lock & Edit Release Configuration	Create a New 2005 Data Source Bailt Rent Finitit Gaseel Censection Properties Define Connection Properties.		
Domain Structure	What is the name of the database you would like to connect to?)
* Environment	Database Name:		
El-Clusters Server Templates - Negnitable Targets - Coherence Clusters - Pladvies	What is the name or IP address of the database server? Host Name:		
- Virtual Hosts Work Managers Startup and Shutdown Classes Deployments	What is the port on the database server used to connect to the database? Port:	1521	
B Hestacion	What database account user name do you want to use to create database	connections?	
How do L. 🛛	Database User Name:		
Creste 100C generic data sources Creste LLR-esabled 100C data sources	What is the database account password to use to create database connect Password:	10067	
System Status	land and the second sec		
Health of Running Servers	Confirm Password:		
Failed (0) Critical (0) Overloaded (0)	Additional Connection Properties: oracle.jdlsc.DRCPCconnectionClass:		
Warning (0) 0K(S)	Bask Next Finit Cancel		

 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.

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

CIEACLE WebLogic server A	B Home Lag Out Preferences Recard Help	101	Welcome, weblogic Connected to: FOUBSDomaik
Change Center			
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FOUESDomain * Environment Servers	(Note that this driver class must be in the classpath of		
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 for	mat of the URL varies by JDBC driver.	
Withail Hosts Work Managers	URL:	idbs oracle oci @IDESCRIP	
Startup and Shatdown Classes	What database account user name do you want to use I	to cleate database connections?	
B-Services B-Newsacing	Database User Name:	FCUBS12108	
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7. Select Target as FCUBSCluster and click on Finish.

ORACLE WebLogic Server	dministration Console 12c		0
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FORSDorrain Forst answert Server Templates Server Templates			
How do 1_			

6.2 XA Datasource

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

ORACLE WebLogic Server A	idministration Console 12c			
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- Foreign JNDI Providers	Hudi Data Source		There are no iterns to display	
116, Registries 106, Britity Caches yCDM +	HENRY (SHORE)			Shawing 0 to 0 of 0 Previous Next

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

ORACLE WebLogic Server Ar	Iministration Console 12c		•
Change Center	🏟 Home Lag Out. Preferences 🔤 Record Help	Q.	Welcome, weblogic Connected to: FCUBSDoma
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Donsin Structure PCUBSOnrain PErvisorent PGrees PCUstorent Sourcest PGruten PG	The following properties will be used to identify your new JDB * Indicates required fields What would you like to name your new JDBC data counce? dig * Name: FCUBSBranchD What JNDI name would you like to assign to your new JDBC Data	\$	
Virtual Hosts Work Hanagen Startspand Shutdown Classes "Deployments Service Br Hessation *	(E) INDE Name: jdbc/fcjdevOSBranch		
How do L			
Create 300C generic data sources Create LLR-enabled 300C data sources	What database type would you like to select? Database Type: Oracle	•	
System Status 🛛	0		
Health of Running Servers	Back (Next) Finnty Cancel		
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	A Home Log Out Preferences 🐼 Record Help	<u>A</u>	Welcome, weblook Connected to: FOUBSDamain			
West changes and restarts	Harrar >P0205HSTemplate >Summary of Server Templates >P0	Hana >PC/00HSTeeglala >Scienceary of Servier Tergilalia >FC/002HSTeeglala >Scienceary of Centers >Scienceary of Service >Samona of Service >Scienceary				
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4. Click on Next.

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Unde All Changes	Transaction Options	
Donain Structure	Yog have selected an XA 100C driver to use to create database connection in your new transaction protocol. No other transaction configuration retions are available.	data source. The data source will suggest global transactions and use the Two-Phase Connett global
NCIRCIDensis	Back, Dent. (Print) Cannel.	

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

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Change Center	Home Lug Out Meteronices 🔤 Record Help	(A)	Welcome, weblogic Connected to: FO005Donain
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Donain Structure	Define Connection Properties.		11
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Chaten Server Templates Hyperable Targets	What is the name or 3P address of the database server?	-	
	Hest Name:	C	1
	what is the port on the database server used to connect to the dat	2028-0-1	
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- Phyrotoble Torgetts	Driver Class Name:	oracle jdbc xa client OracleX	
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6. Upon Activate Changes would create the XA Datasource.

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KOH .	Ci Poussos	Genetic	jilkofigleids	PCUBSCluster
How do 1	[Neww] [Deam]			Shaning 1 to 2 of 2 Previous Next

7. Similarly create all the other Data Source required for the FCUBS Application and Gateway Deployments.

Change Center	👔 Horne Lag Oat. Preferences 🖾 Rocard Help	1.9	4	Weksme, weblopic	Connected to: FOURSDomain
New changes and restarts	Name -PC/401127-emplote classressing of Classes -Camerany of Sourcess (PC/40010-emplote -Seenemary of 2010C Data Second		C Date Searces >POJESDS >Sammary of 3DBC Date S	isaron «PCs850orai» «Sammara of X04C	Data
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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.



Frequently Asked Questions

9.1 Machine status is Unreachable

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

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

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

9.2 How to restart node manager?

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

9.3 Scaling Up Dynamic Cluster

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

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

WebLogic Server A	dministration Console 1	24						ž
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2. Click FCUBSCluster \rightarrow Configuration \rightarrow Servers tab.

Change Center	🔹 Nome Log Out Preferences 🛃 Record Hel	Q Q	Welcome, weblogic Connected to: FCUBSDomain				
view changes and restarts	Home >Summary of XXIC Data Sources >Summary of Clubbrs >FCXRSChaster	Clutters >Summary of Nachinas >MAC-1 >Summary of Nachinas >Su	ommery of Servers >Sommery of Server Templates >Sommery of Machines >Sommery of				
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Lock & Edit	Configuration Monitoring Control Depl	oyments Services Notes					
Release Configuration	General JTA Messaging Servers Rep	plication Higration Singleton Services Scheduling Ov	verload Health Monitoring HTTP Coherence				
Domain Structure	Save						
CutsDomen	This page is used to configure the servers that a Clusters can contain both explicitly configured a	영화 영화 가지 않고 있다. 방송가 전화가 가지 않는 것이 같아.	to determine the number and characteristics for these dynamic servers.				
Never receptors Coherence Clusters Nactures	Server Template:	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 chaices. Here Enfo				
- Virtual Hosts - Work Hanagers - Startup and Shutdown Classes	Maximum Number of Dynamic Servers:	4	Specifies the maximum number of dynamic servers in this cluster. Here before				

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

ORACLE WebLogic Server	Administration Console 12c						<u> </u>	
Change Center	A Home Lag Out Preferences	Record Help	Q.			Welcome, weblogic	Connected to: FCUBSDomain	
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the domain.	Configuration Monitoring	Control Deployments	s Services Notes					
Release Configuration	General JTA Messaging	Servers Replication	Migration Singleton Service	s Scheduling Overlag	ad Health Monitoring H	TTP Coherence		
Domain Structure	Save							
FCUBSDomain Environment Servers EI-Clusters	This page is used to configure Clusters can contain both expl		pred to this cluster. inscally created servers. The follow	ing settings are used to de	etermine the number and cha	racteristics for these d	lynamic servers.	
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Deployments Services Revises	Server Name Prefix:	FO	CUBSMS		Specifies the prefix to be a chister. Here brfo	and when naming new	dynamic servers in 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
60	FCU8SHS1	Dynamic	MAC-1	7101
	FCUBSH52	Dynamic	MAC-2	7102
	FCUBSH53	Dynamic	MAC-1	7103
	FCUBSH54	Dynamic	MAC-2	7104
	FCUBSHSS	Dynamic	MAC-1	7105
	FCUBSM56	Dynamic	MAC-2	7106
63	FCUBSHS7	Dynamic	MAC-1	7107
	FCU85M58	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.
- Session Stickiness in load balancer: Persistence Type in load balancer should be set to SOURCE IP and should not be cookie.

