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1. Configuring SSL on Websphere

1.1 Introduction

This chapter guides you through the process of configuring SSL on IBM Websphere application server.

1.2 Certificates

1.2.1 Creating SSL Connection between Application Server and Client

To establish SSL connection between Websphere and client work stations, follow the steps given below:

- Create SSL certificate (this certificate is required during real time production)
- Self signed certificate (SSL) will be used for testing purpose

1.2.2 Creating Self Signed Certificate

To create a self signed certificate, you may use various tools including IBM (Keyman). For illustration purpose, this guide explains the method of generating SSL using a tool available in JAVA. The keytool is available in the folder 'JAVA_HOME\jdk\bin'.

Go to the folder 'bin' of JRE from command prompt and type the following command.

```
keytool -genkeypair -alias alias -keyalg keyalg -keysize keysize -
sigalg sigalg -validity valDays -keystore keystore
```

The texts highlighted in blue are placeholders. You need to replace them with the suitable values while running the command.

In the above command,

- *alias* is used to identify the public and private key pair created. This *alias* is required for configuring the SSL attributes for the managed servers in Oracle WebLogic application server.
- *keyalg* is the key algorithm to generate the public and private key pair. The RSA key algorithm is recommended.
- **keysize** is the size of the public and private key pair generated. A key size of 1024 or more is recommended. Consult your CA on the key size support for different types of certificates.
- *sigalg* is the algorithm used to generate the signature. This algorithm must be compatible with the key algorithm. This has to be one of the values specified in the Java Cryptography API Specification and Reference.
- **valdays** is the number of days for which the certificate is considered to be valid. Consult your CA on this period.



• *keystore* is to specify the location of the JKS file. If JKS file is not present in the path provided, this will create it.

The command will prompt for the following attributes of the certificate and keystore:

- **Keystore password**: Specify a password that will be used to access the keystore. This password needs to be specified later, when configuring the identity store in Oracle WebLogic Server.
- **Key password**: Specify a password that will be used to access the private key stored in the keystore. This password needs to be specified later, when configuring the SSL attributes of the managed server(s) in Oracle WebLogic Server.
- First and last name (CN): Specify the domain name of the machine used to access Oracle FLEXCUBE UBS. For instance, www.example.com.
- **Name of your organizational unit**: Specify the name of the department or unit making the request. For example, BPD. Use this field to identify the SSL Certificate you are creating. For example, by department or by physical server.
- **Name of your organization:** Specify the name of the organization making the certificate request. For example, Oracle Financial Services Software. It is recommended to use the formal name of the company or organization. This name must match the name in the official records.
- **Name of your City or Locality**: Specify the name of the city in which your organization is physically located. For example Mumbai.
- **Name of your State or Province**: Specify the state/province in which your organization is physically located. For example Maharashtra.
- **Two-letter country code for this unit**: Specify the country in which your organization is physically located. For example, US, UK, IN etc.

<u>Example</u>

Listed below is the result of a sample execution of the command:

```
C:\Program Files\IBM\Websphere\AppServer\bin>keytool -
genkeypair -alias cvrhp0729 -keyalg RSA -keysize 1024 -sigalg
SHAlwithRSA -validity 365 -keystore
D:\keystores\FCUBSKeyStore.jks
Enter keystore password:<Enter a password to protect the
keystore>
Re-enter new password:<Confirm the password keyed above>
What is your first and last name?
[Unknown]: cvrhp0729.i-flex.com
What is the name of your organizational unit?
[Unknown]: BPD
What is the name of your organization?
[Unknown]: Oracle Financial Services
What is the name of your City or Locality?
```



```
[Unknown]: Mumbai
What is the name of your State or Province?
[Unknown]: Maharashtra
What is the two-letter country code for this unit?
[Unknown]: IN
Is CN=cvrhp0729.i-flex.com, OU=BPD, O=Oracle Financial
Services, L=Mumbai, ST=Maharashtra, C=IN correct?
[no]: yes
Enter key password for <cvrhp0729>
(RETURN if same as keystore password):<Enter a
password to protect the key>
Re-enter new password:<Confirm the password keyed above>
```

The self signed certificate needs to be added to the web server.

1.2.3 Path Details

You need to copy or move the keystore file *<name of the file>.jks* to the application server location given below:

/oracle1/WAS61/Appserver_ND/profiles/AppSrv01/config/cells/ips014dorCell01/nodes/ips014dor Node02

ips014dorCell01 --> <ips014dor> name of the machine and < Cell01>

ips014dorNode02 --> < ips014dorNode > name of the machine and <Node02>

1.3 Adding Key Store to Application Server

To add keystore to the Websphere application server, follow the instructions given below.

1. Log in to the WAP console as the user 'admin'.



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VebSphere outware VebSphere User ID: Password User ID: User ID: User ID: VebSphere Indiana VebS	TBM Corp. 1997, 2011 All WebSphere are trademarks or Jachines Corp. registered in arvice names might be list of TBM trademarks is _information.

2. Specify the user ID of the administrator and the password set while installing the software. Click 'Log In'.

The following screen is displayed:

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WebSphere. software		Welcome websphere	Help Logout IBM.
View: All tasks 🔹	Cell=ofss220137Node01Cell, Profile=AppSrv01	2	Close page
■ Welcome Guided Activities	SSL certificate and key management		Field help For field help information,
			select a field label or list marker when the help cursor is displayed.
	SSL configurations The Secure Sockets Layer (SSL) protocol provides secure	Related Items SSL configurations	Page help
Resources Security Global security Security domains Administrative Authorization Groups SSL certificate and key management Security auditing Bus security Environment System administration Users and Groups Monitoring and Tuning Troubleshooting Service integration UDDI	communications between remote server processes or endpoints. SSL security can be used for establishing communications inbound to and outbound from an endpoint. To establish secure communications, a certificate and an SSL configuration must be specified for the endpoint. In previous versions of this product, it was necessary to manually configure each endpoint for Secure Sockets Layer (SSL). In this version, you can define a single configuration for the entire application-serving environment. This capability enables you to centrally manage secure communications. In addition, trust zones can be established in multiple node environments by overriding the default, cell-level SSL configurations are restored for the various endpoints. However, it is necessary for you to re-configure SSL to take advantage of the centralized management capability. Configuration settings <u>Manage endpoint security configurations</u> <u>Manage certificate expiration</u> <u>Manage FIDS</u>	Society Control Society S	More information about this page



On the left pane, expand 'Security' and click 'SSL certificate and key management'. The screen displays the details of SSL.

3. Under 'Related items' on the right side, click 'Key stores and certificates'.

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WebSphere. software	Welcome websphere	Help Logout IBM.
View: All tasks	Cell=ofs220137Node01Cell, Profile=App5rv01 SSL certificate and key management ? -	Close page
Welcome Guided Activities Servers	SSL certificate and key management > Key stores and certificates Defines keystore types, including cryptography, RACF(R), CMS, Java(TM), and all truststore types.	Field help For field help information, select a field label or list
Applications Services	Keystore usages	marker when the help cursor is displayed.
		Page help More information about this page
Security Global security Security domains Administrative Authorization Groups	New Delete Change password Exchange signers	Command Assistance View administrative scripting command for last
 SSL certificate and key management Security auditing 	Select Name Description Management Scope Path You can administer the following resources:	action
Bus security Environment System administration Users and Groups Monitoring and Tuning	NodeDefaultXevStore Default key store (cell):ofss220137Node01Cell: \$(CONFIG_ROOT)/cells //ofss220137Node01 //ofss220137Node01 //ofss220137Node01 //ofss220137Node01	
 → Monitoring and Funning → Troubleshooting → Service integration → UDDI 	NodeDefaultTrustStore Default trust store for ofss220137Node01 (cell):ofss220137Node01Celli: \${CONFIG_ROOT}/cells /ofss220137Node01 //nodes /ofss220137Node01 //nodes //ofss220137Node01	
	Total 2	
4		

The following screen is displayed:

This screen is used for attaching the key store to the application server.

4. Click 'New' button to add a new key to store.

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■ Welcome Guided Activities	+ Name		will not be availat the general prope this item are appl
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Applications Services Resources	Management scope (cell):ofss220137Node01Cell:(node):ofss220137Node01	•	Signer certPersonal
Security Global security Security domains Administrative Authorization Groups SSL certificate and key management Security auditing Bus security	Path Password Confirm password		certificates Personal certificate requests Custom properties
Environment System administration Users and Groups Monitoring and Tuning Troubleshooting Service integration UDD1	Type FXC512 CEKS CMSKS FXC512 FXS Cryptographic Token Device (PKC511) Enable cryptographic operations on hardware device Apply OK Reset Cancel		E
<)	Apply OK Reset Cancel		



5. Specify the following details:

Name

Specify the key store name.

Path

Specify the location of the key store generated.

This has to be a relative path.

<u>Example</u>

\${CONFIG_ROOT}/cells/ips014dorCell01/nodes/ips014dorNode02/jf3sslstore.jks

Password

Specify the password given in the 'store pass' parameter during key store generation.

6. Click 'Apply' and save the changes.

1.4 Creating SSL Configuration

To create SSL configuration, on the left pane, click 'SSL certificate and key management'.

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WebSphere. software		Welcome websphere	Help Logout IBM.
View: All tasks 💌	Cell=ofss220137Node01Cell, Profile=AppSrv01 SSL certificate and key management	2	Close page
Welcome Guided Activities	SSL certificate and key management		Field help For field help information,
Servers Applications Services	SSL configurations	Related Items	select a field label or list marker when the help cursor is displayed.
Services Resources Security	The Secure Sockets Layer (SSL) protocol provides secure communications between remote server processes or endpoints. SSL security can be used for establishing communications	SSL configurations	Page help More information about this page
Global security Security domains Administrative Authorization Groups SSL cartificate and key management Security auditing Bus security	Inbound to and outbound from an endpoint. To establish secure communications, a certificate and an SSL configuration must be specified for the endpoint. In previous versions of this product, it was necessary to manually configure each endpoint for Secure Sockets Layer (SSL). In this version, you can define a single configuration for the entire application-serving environment. This capability enables you to	endpoint SSL configurations Key stores and certificates Key sets Key sets	E
Environment System administration Users and Groups Monitoring and Tuning	centrally manage secure communications. In addition, trust zones can be established in multiple node environments by overriding the default, cell-level SSL configuration. If you have migrated a secured environment to this version using the migration utilities, the old Secure Sockets Layer (SSL) configurations are restored for the various endpoints. However, it	 Key managers Trust managers Certificate Authority (CA) client configurations 	
Troubleshooting Service integration	is necessary for you to re-configure SSL to take advantage of the centralized management capability. Configuration settings		
UDDI	Manage endpoint security configurations Manage certificate expiration Manage FIPS		
()	Dynamically update the run time when SSL configuration		-

1. Under the section 'Related items', click 'SSL configurations'.



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Welcome	SSL certificate and key management > SSL certifi	configurations	Field help
	Defines a list of Secure Sockets Layer (SSL) of		For field help information, select a field label or list
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Applications			cursor is displayed.
Services	New Delete		Page help
+ Resources			More information about
Security	Select Name 🗘	Management Scope 🗘	this page
Global security	You can administer the following resources:		Command Assistance
Security domains Administrative Authorization Groups		(cell):ofss220137Node01Cell:	View administrative scripting command for last
SSL certificate and key management	NodeDefaultSSLSettings	(node):ofss220137Node01Cell! (node):ofss220137Node01	action
Security auditing			
Bus security	Total 1		
Environment			
System administration			
Users and Groups			
Monitoring and Tuning			
Troubleshooting			
+ Service integration			

2. Click 'New' button. The following screen is displayed.

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WebSphere, software	Welcome websphere Help	Logout IBM.
View: All tasks 🔹	Cell=ofss220137Node01Cell, Profile=AppSrv01 SSL certificate and key management	Close page
Welcome		
Guided Activities	SSL certificate and key management > SSL configurations > New	
Servers	Defines a list of Secure Sockets Layer (SSL) configurations.	
Applications		
Services	General Properties	The additional properties
+ Resources	* Name	will not be available unti
Security	* Name	the general properties for this item are applied or
Global security	Trust store name	saved.
Security domains	NodeDefaultKeyStore ((cell):ofss220137Node01Cell:(node):ofss220137Node01)	Additional Properties
Administrative Authorization Groups SSL certificate and key management		Quality of
 SSL certificate and key management Security auditing 	Keystore name NodeDefaultKeyStore ((cell):ofss220137Node01Cell:(node):ofss220137Node01)	protection (QoP) settings
Bus security	NodeDeraultKeyStore ((cell):ofss22013/Node01Cell:(node):ofss22013/Node01)	Trust and key
Environment	Default server certificate alias	managers
+ System administration	(none) 💌	Custom
+ Users and Groups	Default client certificate alias	properties
Monitoring and Tuning	(none) 🔻	Related Items
Troubleshooting	Management scope	Key stores and
	(cell):ofss220137Node01Cell:(node):ofss220137Node01	certificates
Service integration		
+ UDDI	Apply OK Reset Cancel	
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3. Specify the following details:

Name

Specify the name of the SSL configuration.

Trusted Store Name

Select the added key store.

Key Store Name

Select the added key store.



4. Click the button 'Get Certificate aliases'. Further, click 'Apply' and save the changes.

1.5 Managing Endpoint Security Configurations

This section explains the process of managing endpoint security configurations.

View: All tasks Image: Stress of tasks Walcome Stress of tasks @ Guided Activities Stress of tasks @ Servers Assignment	ole/secure/secure/secure/open.do v C Q Q, Search ofss220137Node01Cell, Profile=App5rv01 certificate and key management SL certificate and key management	☆ 自 ♣ 余 Welcome websphere	Help Logout IBM.
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Troubleshooting	SSL configurations The Secure Sockets Layer (SSL) protocol provides secure communications between remote server processes or endpoints. SSL security can be used for establishing communications communications, a certificate and a SSL configuration must be specified for the endpoint. In previous versions of this product, it was necessary to manually configure each andpoint for Secure Sockets Layer (SSL). In this application-serving environment. This capability enables you to centrally manage secures communications. In addition, trust zones can be established in multiple node environment by overriding the default. cell-well SSL configuration.	Related Items SSL configurations Configurations Revisions Key stores and certificates Key rats Key rats Key rats Key rats Certificate Authority (CA) clent configurations	select a field label or list marker when the help cursor is displayed. Page help More information about this page
Escrice integration	centralized management capability. Configuration settings Manage endpoint security configurations		

1. On the left pane, expand 'Security' and click 'SSL certificate and key management'. Under 'Configuration settings', click 'Manage endpoint security configurations'.

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View: All tasks View: All tasks View: All tasks View: Services Guided Activities Services Applications Security Guided Activities Security Guided Security Guided Security Security domins Administrative Authorization Groups SSL certificate and key management SsL certificate and key management Subsecurity Bus security Eusescurity Eusescurity	Cellendsr220137Node01Cell Close pag S5L certificate and key management 7 = S6L certificate and key management 7 = S5L certificate and key management 7 = S6L certificate and key management 7 = S6L certificate and key management 7 = Local Topology 1 S6 offsz20137Node01(NodeDefaultS5LSettics) 1 S7 offsz20137Node01(NodeDefaultS5LSettics) 1 S7 offsz20137Node01(NodeDefaultS5LSettics) 1
System administration Users and Groups Wenitoring and Tuning Troubleshooting Service integration UDDI	
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The following screen is displayed:

2. Click the first link under 'Inbound tree'. The following screen is displayed:



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WebSphere. software	Welcome we	absphere Help	Logout IBM.
View: All tasks	Cell=ofs220137Node01Cell, Profile=App5rv01 55L certificate and key management		Close page
Guided Activities Servers	<u>SSL certificate and key management</u> > <u>Manage endpoint security configurations</u> > ofse2 Displays Secure Sockets Layer (SSL) configurations for selected scopes, such as a cell, noc		Field help For field help select a field marker when
Applications Services	General Properties	 Related Items 	cursor is displ
Resources Security	Name	SSL	More informat this page
Security domains Citabi security Security domains Administrative Authorization Groups St. certificate and key management Security auditing Bus security Environment Users and Groups Varian and Tuning District integration Security UDD1	ofss220137Hode01 Direction Inbound Specific SSL configuration for this endpoint SSL configuration NodeDefaultSSLSettings Certificate alias in key store (none) Apply OK Reset Cancel	configurations Dynamic outbound endpoint SB, configurations Key stars and certificates Key sets Key set groups Key managers Dynamics Configurations Configurations	
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Under SSL configurations, select the configured SSL from the drop-down list.

3. Click the button 'Update certificate alias list'. Click 'Apply' and save the changes.



1.6 SSL Settings at Application Server Level

Go to the servers available on the left and click the application servers link which will refresh the window on the right side to display the details pertaining to application servers

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Server Types WebSphere application servers WebSphere MO servers		servers. You can also us	e this page to change the s	status of a specific application	server.			marker cursor is Page he	s displa						
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Global security Security domains Administrative Authorization Groups SL certificate and key management Security auditing Bus security															
± Environment															
System administration															
Users and Groups Monitoring and Tuning Troubleshooting															
Service integration	-														

1. Click the server to which SSL configuration has to be applied. The following screen is displayed.

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WebSphere. software		Welcome websphere	
View: All tasks Vielone Golded Activities Servers Servers WebSphore application servers WebSphore NQ servers WebSphore	Application servers > server1 Use this page to configure an application server. An application server required to ran enterprise applications. Runtime Configuration General Properties Name	ver is a server that provides services Container Settings © Session	Help For field help For field help informatio select a field label or list marker when the help cursor is displayed. Page help More information about
Applications Services Resources	server1 Node name ofss220137Node01	management B SIP Container Settings	this page
Security Global security Global security Administrative Authorization Groups SGL certificate and key management Security auditing Bus security	Run in development mode Parallel start Start components as needed Access to internal server classes Autor	Web Container Settings Web container Web container Veb container Promport diving Profilet Container Settings	
Environment System administration Users and Groups Monitoring and Tuning Troubleshooting	Server-specific Application Settings Classloader policy Multiple Class loading mode	EDB Container Settings Container Services Business Process Services	
Service Integration	Classes loaded with parent class loader first	Applications Installed applications Server messaging Messaging engines	
		Messaoing engine	

2. Go to Configuration tab and click 'Web container transport chains' under 'Container settings'.

The following screen is displayed.



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WebSphere, software						Welcome we	h		elp I		77	BM.
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Welcome		ipplicatio	il servers									
Guided Activities		Applic	ation servers > <u>server1</u> > Web co	ntainer transport	chains				Field For fi		informa	tion.
Servers	Use this page to view and manage a transport chain. Transport chains represent network protocol stacks select a field help information, select a field belo or list marker when the help											
 Server Types 			ferences							er when t r is displa		•
WebSphere application servers									Page	help		
WebSphere MQ servers		Nev	v Delete							informat	ion abo	ut
Applications		D	6 # #						this p			-
+ Applications		Select	Select Name C Enabled Host C Port C SSL Enabled Command Assistance									
t Services	=	You	an administer the following resour	es:					View administrative scripting command for last			
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Security Global security												
Global security Security domains Administrative Authorization Groups			HttpQueueInboundDefaultSecure	Enabled	•	9443	Enabled					
SSL certificate and key management Security auditing			WCInboundAdmin	Enabled	*	9060	Disabled					
Bus security			WCInboundAdminSecure	Enabled	*	9043	Enabled					
 Environment System administration 			WCInboundDefault	Enabled	*	9080	Disabled					
 Users and Groups 			WCInboundDefaultSecure	Enabled	•	9443	Enabled					
 Monitoring and Tuning 												
Troubleshooting		Total	6									
- · · · ·	Ť											
trans 🔨 🖌 🖌 High	nlight <u>A</u> l	ll Mat	ch Case 2 of 2 matches									2

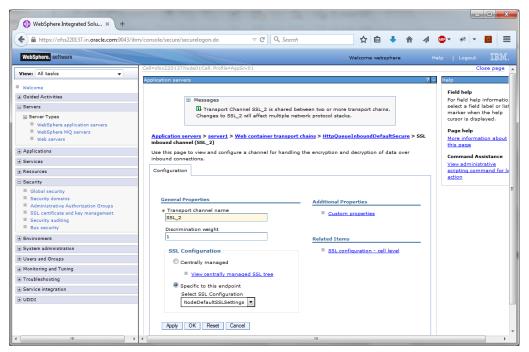
3. Against their respective names, the secured connection is available under the column 'SSL Enabled'. Click 'WCInboundDefaultSecure'.

The following screen is displayed:

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A https://ofss220137.in.oracle.com:9043/it	om/console/secure/securelogon.do 🔍 C 🔍 Search 👌 🖨 🦂 🖨	o- * - 🖬 =
WebSphere, software	Welcome websphere	elp Logout IBM.
View: All tasks	Cell=ofss220137Node01Cell, Profile=AppSrv01	Close page
	Application servers ? -	Help
Welcome	Application servers > server1 > Web container transport chains > HttpQueueInboundDefaultSecure	Field help
E Guided Activities	Use this page to view and manage a transport chain. Transport chains represent network protocol stacks that	For field help information select a field label or list
Server Types	are operating within a client or server.	marker when the help
WebSphere application servers	Configuration	cursor is displayed.
WebSphere MQ servers		Page help
Web servers		More information about this page
Applications	General Properties	
Services	* Name	
Resources	HttpQueueInboundDefaultSecure	
Security	Enabled	
Global security	Transport Channels	
 Security domains Administrative Authorization Groups 		
SSL certificate and key management	TCP inbound channel (TCP 4)	
Security auditing	Host *	
Bus security	Port 9443 Thread pool WebContainer	
Environment	Maximum open connections 20000	
System administration	Inactivity timeout 60 seconds	
Users and Groups	SSL inbound channel (SSL 2)	
Monitoring and Tuning		
Troubleshooting	SSL configuration (Centrally managed)	
Service integration	HTTP inbound channel (HTTP 4)	
UDDI	Use persistent keep alive connections Enabled	
	Maximum persistent requests per connection 100	
	Read timeout 60 seconds Write timeout 60 seconds	
	Persistent timeout 30 seconds	
	HTTP queue inbound channel (HTTPQ_2)	
	Web container inbound channel (WCC_6)	
	Apply OK Reset Cancel	
		,

4. Click 'SSL Inbound channel (SSL 2).





5. Select the configured SSL from the list of SSL configurations. Click 'Apply' and save the changes.

1.7 Running Application with SSL

To run the application with SSL, use the following syntax:

https://<<ip address or host name>>:<<port number>>/<<context>>>

1.8 Certificate Exchange for Two Ways SSL

1.8.1 Extracting Certificate for Server1

The process of extracting certificate for Server 1 is described below.



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				Welcome websphere		IBM
			1			Close pa
SSL certifi	cate and key m	lanagement				
SSL ce	rtificate and ke	y management >	Key stores and certificates > Noc	leDefaultKeyStore > Personal ce	ertificates	
Manag	es personal cer	tificates.				
± Pret	ferences					
Cre	ate Delete	Receive from a	a certificate authority Replace	Extract Import	Export Revoke	Renew
Select		Alias	Issued To	Issued By	Serial Number	Expiration
You c	an administer t	he following reso	urces:			
	Q =	default	CN=ofss220137.in.oracle.com,	CN=ofss220137.in.oracle.com,	3446736556526576	
						Jun 22, 2015 to J
			O=IBM, C=US	OU=ofss220137Node01,		21, 2016.
				O=IBM, C=US		
	1		CN=ofss220137.in.oracle.com,	CN=ofss220137.in.oracle.com/	3446736182480725	Valid from
			OU=Root Certificate,	OU=Root Certificate,		Jun 22,
						2015 to Ju 18, 2030.
			O=IBM, C=US	O=IBM, C=US		
Total	2					
	SSL certifi SSL ce Manag @ Prel Cre Select You c	SSL certificate and key m SSL certificate and ke Manages personal cer	SSL certificate and key management SSL certificate and key management > Manages personal certificates. Preferences Create Delete Receive from a Select Alias You can administer the following reson Image default	SSL certificate and key management > Key stores and certificates > Nor Manages personal certificates. Preferences Create Delete Receive from a certificate authority Replace Select Alias Issued To You can administer the following resources: Image: Delete CN=ofss220137.in.oracle.com, OU=ofss220137Node01Cell, OU=ofss220137Node01, O=IBM, C=US Image: Delete CN=ofss220137.in.oracle.com, OU=Root Certificate, OU=ofss220137Node01, O=IBM, C=US	Cell=ofss220137Node01Cell, Profile=App5rv01 SSL certificate and key management Select Alias Issued To Issued By You can administer the following resources: Image: CN=ofss220137.in.oracle.com, OU=ofss220137.in.oracle.com,	Cell=ofss220137Node01Cell, Profile=App5rv01 SSL certificate and key management SSL certificate and key management > Key stores and certificates > NodeDefaultKeyStore > Personal certificates Manages personal certificates. Preferences Create Delete Receive from a certificate authority Replace Extract Import Extract Import Select Alias Issued To Issued By You can administer the following resources: OU=ofss220137.in.oracle.com, OU=ofss220137.in

- On the left pane of the screen, expand 'Security'. Go to 'SSL certificate and key management > Key stores and certificates > {YOUR KEYSTORE NAME} > Personal certificates.
- 2. Select the installed certificate and click 'Extract' button.

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WebSphere. software		Welcome websphere Help		
View: All tasks		Cell=ofss220137Node01Cell, Profile=App5rv01 SSL certificate and key management 7	Help	Close page
Welcome Guided Activities Servers Server Types		SSL certificate and key management > Key stores and certificates > NodeDefaultKeyStore > Personal certificates > Extract certificate Extracts a certificate from the key store to be added to another key store.	Field For f selec mark	help ield help inform it a field label o cer when the he
WebSphere application servers WebSphere MQ servers Web servers		General Properties Certificate alias to extract default	Page More	or is displayed. • help • information ab page
Applications Services		* Certificate file name D:\Keystores\myKeysore.cer		
Resources		Data type Base64-encoded ASCII data		
Security Global security Global security domains Administrative Authorization Groups SSL certificate and key management Sscurity auditing Bus security	Ш	Apply OK Reset Cancel		
Environment				
System administration				
Users and Groups Monitoring and Tuning				
 ∃ Troubleshooting Service integration 				
UDDI (Ŧ			•



3. Specify the location to save the certificate. This will be used to add in the other server. Ensure that the file has been created in the location.

Eg: \<localfolder>\<server1.cer>

- 4. Similarly extract the certificate for the second server.
- Eg: \<localfolder>\<server2.cer>

1.8.2 Extracting Certificate for Server2

You can follow the steps for server 1 described under 'Extracting Certificate for Server1' to extract the certificate for Server2.

1.8.3 Importing Certificate into Keystore for Server1

Note: The trust certificates also needs to be added in the cacerts of the Java Runtime Environment

Go to the other server. Expand 'Security > SSL certificate and key management > Key stores and certificates > Server7Keystore (which is created now).

WebSphere Integrated Solu ×	+	
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WebSphere. software	Welcome websphere	Help Logout IBM.
View: All tasks	l=ofss220137Node01Cell, Profile=AppSrv01 L. certificate and key management	Close page
Welcome	SSL certificate and key management > Key stores and certificates > NodeDefaultKeyStore	
Guided Activities Servers	Defines keystore types, including cryptography, RACF(R), CMS, Java(TM), and all truststore types.	
Server Types WebSphere application servers		
WebSphere Application servers WebSphere MQ servers Web servers	General Properties	Additional Properties
Applications	Name NodeDefaultKeyStore	Signer certificates Personal
± Services	Description	certificates
+ Resources	Default key store for ofss220137Node01	Personal E
Security Global security	Management scope (cell):ofss220137Node01Cell:(node):ofss220137Node01	custom
Security domains	Path	properties
 Administrative Authorization Groups SSL certificate and key management 	\${CONFIG_ROOT}/cells/ofss220137Node01Cell/nodes/ofss220137Node01/key.p12]
 Security auditing Bus security 	+ Password	
Environment	Туре	
System administration	PKCS12	
Users and Groups	Read only	
Monitoring and Tuning Troubleshooting	Initialize at startup	
Service integration	Enable cryptographic operations on hardware device	
UDDI		

1. Click 'Signer Certificates'.



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WebSphere. software		Help Logout IBM.
View: All tasks	Cell=ofss220137Node01Cell, Profile=AppSrv01 SSL certificate and key management ? =	Close page
Welcome Guided Activities Servers	SSL certificate and key management > Key stores and certificates > NodeDefaultKeyStore > Signer certificates Manages signer certificates in key stores.	Field help For field help information, select a field label or list marker when the help
Server Types WebSphere application servers WebSphere MQ servers	Preferences Add Delete Extract Retrieve from port	cursor is displayed. Page help
Web servers		<u>More information about</u> <u>this page</u>
± Services	Select Alias Issued to Fingerprint (SHA Digest) Expiration Expiration	Command Assistance View administrative
Resources Security	None Total 0	scripting command for last action
Security Global security Security domains Administrative Authorization Groups SSL certificate and kay management Security auditing Seuse administration Users and Groups Monitoring and Tuning Service integration UDDI M		

2. Click 'Add' button to add the certificate of the other server.

The following screen is displayed:

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https://ofss220137.in.oracle.com:90	43/ibm/console/secure/securelogon.do 🔍 🤁 🔍 Search 🟠 🖨 4	● * * 0 =
WebSphere. software		elp Logout IBM.
View: All tasks	Cell=ofss220137Node01Cell, Profile=AppSrv01	Close page
Welcome Guided Activities Servers Server Types	SSL certificate and key management ? SSL certificate and key management > Key stores and certificates > NodeDefaultKeyStore > Signer certificates > Add signer certificate Adds a signer certificate to a key store.	Help Field help For field help information, select a field label or list marker when the help
VebSphere application servers WebSphere MQ servers Web servers Web servers	ELCM_Keystore + Rise	cursor is displayed. Page help More information about <u>this page</u>
Applications Services	D:\Keysores\myKeysore.cer	
Besources Security	Data type Base64-encoded ASCII data	
Global security Security domains Administrative Authorization Groups SSL certificate and key management Security auditing Bus security	Apply OK Reset Cancel	
Environment		
System administration		
Users and Groups		
Monitoring and Tuning		
Troubleshooting		
Service integration		
UDDI T	4	
		4

3. The extracted certificate of the second server has to be imported to the key-store and truststore of first server. This has to be done using the same local path where the extract certificate was generated for the first server.



Eg: \<localfolder>\<server1.cer>

1.8.4 Importing Certificate into Keystore for Server2

You can follow the steps for server 1 described under 'Importing Certificate into Keystore for Server1' to import the certificate into keystore for Server2.

1.8.5 Importing Certificate into Truststore for Server1

Expand 'SSL certificate and key management > Key stores and certificates and click 'NodeDefaultTrustStore'.

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WebSphere, software			We	lcome websphere	Help Logout IBM .
View: All tasks	Cell=ofss220137Node01Cell, Profile= SSL certificate and key manageme			?	Close page
Welcome Guided Activities Servers Server Types WebSphere application servers WebSphere MQ servers WebSphere MQ servers Web servers	SSL certificate and key manage Defines keystore types, includir Keystore usages SSL keystores B Preferences	-		itore types.	Field help For field help information, select a field label or list marker when the help cursor is displayed. Page help More information about this page
Applications Services	New Delete Change	password Exchang	e signers		Command Assistance
Resources					View administrative scripting command for last
Security	Select Name 🗘	Description 🗘	Management Scope 🗘	Path 🗘	action
Global security Security domains	You can administer the following	ng resources:			
Security domains Administrative Authorization Groups SSL certificate and key management Security auditing Bus security	NodeDefaultKeyStore	Default key store for ofss220137Node01	(cell):ofss220137Node01Cell: (node):ofss220137Node01	\${CONFIG_ROOT}/cells /ofss220137Node01Cell /nodes /ofss220137Node01 /key.p12	
Environment System administration Users and Groups	NodeDefaultTrustStore	Default trust store for ofss220137Node01	(cell):ofss220137Node01Cell: (node):ofss220137Node01	\${CONFIG_ROOT}/cells /ofss220137Node01Cell /nodes /ofss220137Node01	
Monitoring and Tuning Troubleshooting				/trust.p12	
Service integration	Total 2				
UDDI					



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Theps://orsszzors/inionacte.com/s	
WebSphere. software	Welcome websphere Help Logout
View: All tasks	Defines keystore types, including cryptography, RACF(R), CMS, Java(TM), and all truststore types.
Welcome	
Guided Activities	General Properties Additional Properties
Servers	Name Signer certificates
Server Types	NodeDefaultKeyStore Personal
 WebSphere application servers WebSphere MQ servers 	Description certificates
Web servers	Default key store for ofss220137Node01 Personal certificate
Applications	Management scope requests [rel]):ofs<220137Node01Cell:(node):ofs<220137Node01
Services	properties
Resources	Path \${CONFIG_ROOT}/cells/ofss220137Node01Cell/nodes/ofss220137Node01/key.p12
Security Global security	* Password
Security domains	=
 Administrative Authorization Groups SSL certificate and key management 	Туре
 Security auditing Bus security 	PKCS12
+ Environment	Read only
System administration	Initialize at startup
Users and Groups	Enable cryptographic operations on hardware device
Monitoring and Tuning	And Off Burt Court
Troubleshooting	Apply OK Reset Cancel
Service integration	
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1. Click 'Signer Certificates'.

The following screen is displayed.

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WebSphere, software				We	lcome websphere	Hel	p Logout	IBM.
View: All tasks		Cell=ofss220137Node01Cell, Profile SSL certificate and key managem				Р — н	elp	Close page
Welcome Guided Activities Servers Server Types		SSL certificate and key manage certificates Manages signer certificates in Preferences		<u>certificates</u> > <u>NodeDefaultKey</u>	r <u>Store</u> > Signer		Field help For field help ir select a field la marker when th cursor is displa	ibel or list he help
WebSphere application servers WebSphere MQ servers Web servers Web servers		Add Delete Extract	Retrieve from port				Page help More information this page	on about
Services		Select Alias 🗘	Issued to \diamondsuit	Fingerprint (SHA Digest) 🗘	Expiration 🗘		Command Assi	ative
Resources Security	=	Total 0					scripting comm action	and for last
Global security Security domains Administrative Authorization Groups SSL certificate and key management Security auditing Bus security Environment								
System administration Users and Groups								
 Monitoring and Tuning Troubleshooting Ervice integration 								
	*							

2. Click 'Add' button to add the extracted certificate of the second server.



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WebSphere. software	Welcome websphere H	elp Logout IBM.
View: All tasks	Cell=ofss220137Node01Cell, Profile=App5rv01 SSL certificate and key management 7	Close page
Welcome Guided Activities	SSL certificate and key management > Key stores and certificates > NodeDefaultKeyStore > Signer certificates >	Field help
Servers Server Types	Add signer certificate Adds a signer certificate to a key store.	For field help information, select a field label or list marker when the help
VebSphere application servers WebSphere MQ servers WebSphere MQ servers Web servers	General Properties + Alias ELCM	cursor is displayed. Page help <u>More information about</u>
Applications Services	+ File name [D:\Keysore\myKeysore.cer	this page
Resources Security	Data type Base64-encoded ASCII data 💌	
Global security Security domains Administrative Authorization Groups SSL certificate and key management Security auditing	Apply OK Reset Cancel	
Bus security		
System administration		
Users and Groups		
Monitoring and Tuning		
Troubleshooting		
Service integration		
	urity.SignerCertsCollectionForm) m	•

3. Specify the 'alias' name to identify the other server.

Eg: For server1, you can give the alias name 'server2Alias'.

4. Further, specify the location of the extracted certificate.

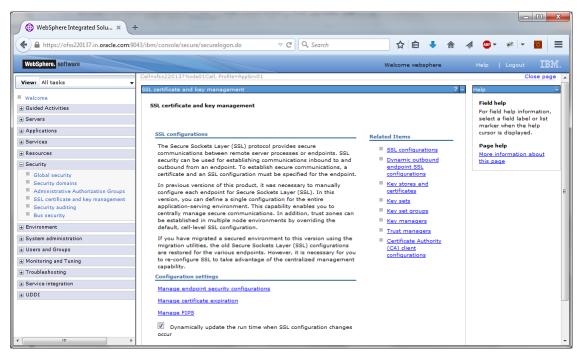
1.8.6 Importing Certificate into Truststore for Server2

You can follow the steps for server 1 described under 'Importing Certificate into Truststore for Server2' to import the certificate into Truststore for Server2.



1.9 Managing Endpoint Security Configurations

To manage the endpoint security configurations, follow the instructions given below.



1. Expand 'Security > SSL certificate and key management' and click 'Manage endpoint security configurations'.

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WebSphere. software	Welcome websphere	Help Logout IBM.
View: All tasks 🗸	Cell=ofss220137Node01Cell, Profile=AppSrv01 SSL certificate and key management ?	Close page
Welcome	SSL certificate and key management > Manage endpoint security configurations	Field help
Guided Activities	Displays Secure Sockets Layer (SSL) configurations for selected scopes, such as a cell, node, server, or cluster.	For field help information,
Servers		select a field label or list marker when the help
Applications	Local Topology	cursor is displayed.
Services		Page help
Resources	Inbound	More information about this page
Security	ofss220137Node01Cell m nodes	this page
Global security Security domains	E ADDES ModeDefaultSSLSettings)	
 Security domains Administrative Authorization Groups 	Outbound	
SSL certificate and key management	ofss220137Node01Cell	
Security auditing	E in nodes	
Bus security	of <u>ofss220137Node01(NodeDefaultSSLSettings)</u>	
Environment		
System administration		
Users and Groups		
Monitoring and Tuning		
Troubleshooting		
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2. Change the inbound node settings. Expand 'Inbound' and click link highlighted in blue color.



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WebSphere. software		ome websphere Help	Logout IBM.
View: All tasks 🗸	Cell=ofss220137Node01Cell, Profile=AppSrv01 SSL certificate and key management	2 -	Close page Help
Welcome Guided Activities	SSL certificate and key management > Manage endpoint security configurations > ofss2	220137Node01	Field help
Guided Activities Eservers	Displays Secure Sockets Layer (SSL) configurations for selected scopes, such as a cell, no		For field help inform select a field label (
Applications			marker when the he cursor is displayed.
Services Resources	General Properties	Related Items	Page help More information at
Global security Global security Global security Security domains Administrative Authorization Groups SSL certificate and key management Security auditing Bus security the Environment System administration Users and Groups Monitoring and Tuning Troubleshooting Service integration	Name ofss220137Node01 Direction Inbound Specific SSL configuration for this endpoint SSL configuration NodeDefaultSSLSettings Certificate alias in key store default Apply OK Reset Cancel	SSL configurations Dynamic outbound endpoint SSL configurations Key stores and certificates Key sets Key set groups Key managers Trust managers Certificate Authority (CA) client configurations	this page
	<		,

- 3. Select the 'SSL Configuration' created which you just created. Click 'Update certificate alias list ' button.
- 4. Ensure that the proper certificate and SSL configuration are selected. Further, click 'Apply' and save the settings.

You can view the settings under 'Inbound'.



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WebSphere. software	Welcome websphere	Help Logout
View: All tasks 🗸	Cell=ofss220137Node01Cell, Profile=AppSrv01 SSL certificate and key management ? -	Close pay
I Welcome	SSL certificate and key management SSL certificate and key management Manage endpoint security configurations Displays Secure Sockets Layer (SSL) configurations for selected scopes, such as a cell, node, server, or cluster.	Help Field help For field help information select a field label or list
± Applications	Local Topology	marker when the help cursor is displayed.
+ Services		Page help
Resources Security Global security Security domains Administrative Authorization Groups SEL certificate and key management Security auditing Bus security	Inbound □ ofss220137Node01Cell □ nodes □ 0 ofss220137Node01(NodeDefaultSSLSettings) ○ Outbound □ ofss220137Node01Cell □ nodes □ nodes □ nodes □ nodes □ nodes □ nodes □ nodes	More information about this page
Environment		
System administration Users and Groups Monitoring and Tuning Troubleshooting		
Bervice integration B UDDI		

- 5. Repeat the above steps for 'Outbound' as well.
- 6. You need to repeat the above steps for server2 also.

1.10 Protection Quality

1. Expand 'SSL certificate and key management > SSL configurations > {YOUR SERVER CONFIG }.



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WebSphere. software	Welcome websphere Help Logout
View: All tasks 🗸	Cell=ofss220137Node01Cell, Profile=App5rv01 Close particles and key management
Welcome Guided Activities	SSL certificate and key management > SSL configurations > NodeDefaultSSLSettings
Servers	Defines a list of Secure Sockets Layer (SSL) configurations.
Services	General Properties Additional Properties
Resources Security Security domains Administrative Authorization Groups SSL certificate and key management Security auditing Bus security	Name NodeDefaultSSLSettings Trust store name NodeDefaultTrustStore ((cell):ofss220137Node01Cell:(node):ofss220137Node01) ▼ Get certificate aliases Settings Custom properties Related Items
Environment System administration Users and Groups Monitoring and Tuning Troubleshooting Service integration	Default server certificate alias (none) Image: Key stores and certificate alias Default client certificate alias certificates (none) Image: Key stores and certificates Management scope (cell):ofss220137Node01Cell:(node):ofss220137Node01
UDDI	Apply OK Reset Cancel
• •	< III

2. On the right side, click 'Quality of protection (QoP) settings'.



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WebSphere. software		Welcome websphere	Help Logout
 View: All tasks ▼ Welcome Guided Activities Servers Applications Services Resources Security Global security Security domains Administrative Authorization Groups SSL certificate and key management Security auditing Bus security Environment System administration Users and Groups Monitoring and Tuning Troubleshooting Service integration UDDI 	SSL_DHE_R << Remove SSL_DHE_D SSL_RSA_W	tion settings.	tion Field help For field help information, select a field label or list marker when the help cursor is displayed. Page help More information about this page Command Assistance View administrative scripting command for last action

- 3. Under 'Client authentication' choose 'Supported' from the drop-down list.
- 4. Click 'Apply' and save the changes.
- You need to repeat these steps for the second server. Once you have made the changes to both the servers, restart the servers. It is recommended to restart the servers after making the changes.

// New Changes

1.11 Importing or Adding Server Certificates using Batch

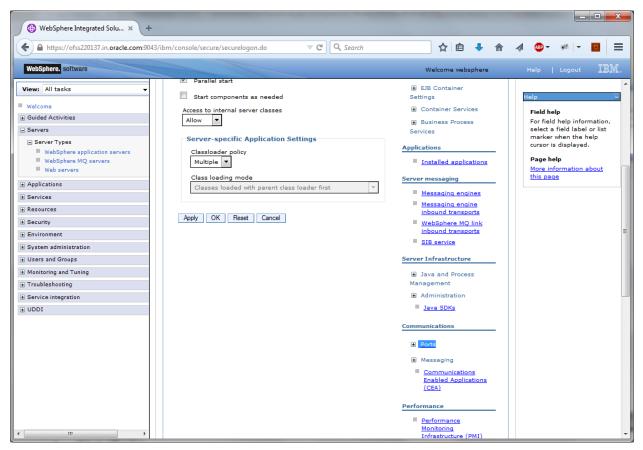
Alternatively, you can import or add the server certificates using *ikeyman.bat*. This batch is available at the following location:

<InstalledLocatio>\IBM\Websphere\AppServer\bin

For security reasons, change the password for 'defaultTruststore' (trust.p12). The default password is 'WebAS'.

SSL port information is available in the following screens.





- 1. Click 'Ports'.
- 2. The details are displayed as follows.



me vebsphere Help Log ons ame STRAP_ADDRESS _CONNECTOR_ADDRESS LISTENER_ADDRESS LISTENER_ADDRESS SL_SERVERAUTH_LISTENER_ADDRESS LSSL_MUTUALAUTH_LISTENER_ADDRESS LSSL_MUTUALAUTH_LISTENER_ADDRESS dminhost efaulthost UNICAST_ADDRESS dminhost_secure	Port 2809 8880 9100 9401 9403 5 9402 9060 9080 9353	Details
ame CONNECTOR_ADDRESS _CONNECTOR_ADDRESS LISTENER_ADDRESS SU_SERVERAUTH_LISTENER_ADDRESS LSSL_SERVERAUTH_LISTENER_ADDRESS LSSL_MUTUALAUTH_LISTENER_ADDRESS dminhost efaulthost JNICAST_ADDRESS	2809 8880 9100 9401 9403 9403 9402 9060 9080 9353	Detail
STRAP_ADDRESS _CONNECTOR_ADDRESS LISTENER_ADDRESS SIL_SERVERAUTH_LISTENER_ADDRESS L_SSL_SERVERAUTH_LISTENER_ADDRESS L_SSL_MUTUALAUTH_LISTENER_ADDRESS dminhost efaulthost JNICAST_ADDRESS	2809 8880 9100 9401 9403 9403 9402 9060 9080 9353	Detail
STRAP_ADDRESS _CONNECTOR_ADDRESS LISTENER_ADDRESS SIL_SERVERAUTH_LISTENER_ADDRESS L_SSL_SERVERAUTH_LISTENER_ADDRESS L_SSL_MUTUALAUTH_LISTENER_ADDRESS dminhost efaulthost JNICAST_ADDRESS	2809 8880 9100 9401 9403 9403 9402 9060 9080 9353	Detail
CONNECTOR_ADDRESS LISTENER_ADDRESS ISL_SERVERAUTH_LISTENER_ADDRESS I_SSL_SERVERAUTH_LISTENER_ADDRESS I_SSL_MUTUALAUTH_LISTENER_ADDRESS dminhost efaulthost JNICAST_ADDRESS	8880 9100 9401 9403 9402 9060 9080 9353	
LISTENER_ADDRESS ISL_SERVERAUTH_LISTENER_ADDRESS LSSL_SERVERAUTH_LISTENER_ADDRESS LSSL_MUTUALAUTH_LISTENER_ADDRESS dminhost efaulthost JNICAST_ADDRESS	9100 9401 9403 9402 9060 9080 9353	
ISL_SERVERAUTH_LISTENER_ADDRESS SSL_SERVERAUTH_LISTENER_ADDRESS SSL_MUTUALAUTH_LISTENER_ADDRESS dminhost efaulthost JNICAST_ADDRESS	9401 9403 9402 9060 9080 9353	
:_SSL_SERVERAUTH_LISTENER_ADDRESS :_SSL_MUTUALAUTH_LISTENER_ADDRESS dminhost efaulthost JNICAST_ADDRESS	 9403 9402 9060 9080 9353 	
_SSL_MUTUALAUTH_LISTENER_ADDRESS dminhost efaulthost JNICAST_ADDRESS	5 9402 9060 9080 9353	
dminhost efaulthost JNICAST_ADDRESS	9060 9080 9353	
efaulthost JNICAST_ADDRESS	9080 9353	
JNICAST_ADDRESS	9353	
dminhost_secure		
	9043	
efaulthost_secure	9443	
EFAULTHOST	5060	
EFAULTHOST_SECURE	5061	
NDPOINT_ADDRESS	7276	
NDPOINT_SECURE_ADDRESS	7286	
IQ_ENDPOINT_ADDRESS	5558	
IQ_ENDPOINT_SECURE_ADDRESS	5578	
CONNECTOR_ADDRESS	9633	
LAY_UDP_LISTENER_ADDRESS	11003	
LAY_TCP_LISTENER_ADDRESS	11004	
	NDPOINT_SECURE_ADDRESS IQ_ENDPOINT_ADDRESS IQ_ENDPOINT_SECURE_ADDRESS :ONNECTOR_ADDRESS IAY_UDP_LISTENER_ADDRESS	NDPOINT_SECURE_ADDRESS 7286 IQ_ENDPOINT_ADDRESS 5558 IQ_ENDPOINT_SECURE_ADDRESS 5578 NONNECTOR_ADDRESS 9633 IAY_UDP_LISTENER_ADDRESS 11003 IAY_TCP_LISTENER_ADDRESS 11004



2. Creating Resources on Websphere

2.1 Introduction

This document explains the steps to create resources on Websphere application server and Queues in Websphere MQ server.

2.2 Creating Queues on Websphere MQ Server

The process of creation of queues on Websphere is explained under the following headings.

2.2.1 Creating Queue Manager through Console

To create queue manager through console, follow the steps given below:

1. Start MQ server console.

🖶 IBM WebSphere MQ Explorer		■ 🖬 🔀
	MQ Explorer - Content 🖾	# @ ~ - D
Co. MQ Explorer - Manipator 23 Co. MQ Explorer - Manipator 23 Co. MQ Explorer - Manipator 24 C. MQ Explorer - Manipator 24 Co. MQ Explo	WebSphere. MQ	IBM.
EM WebSphere MQ		1

2. On the left pane, go to 'IBM Websphere MQ > Queue Manager > New > Queue Manager' as shown below:



😍 IBM WebSphere MQ E	voloror									
File Window Help	Aptorer									
MQ Explorer - Navigator	x h c c ø v =		MQ Explorer - Content	2						411 6
B () IBM WebSphere MQ										
Cueue Manager		0	Queue Manager	s						
🗁 Queue Manage 🧀 JMS Administer	Show/Hide Queue Managers Add Remote Queue Manager		Filter: Standard for Que	ue Managers						
🗁 🗁 Service Definiti	New 🕨 Qu	ieue Mai	nager ue manag	Command level	Queue manager status	Platform	Queue-sharing group name	Dead-letter queue	Description	Default bind type
	Tests									
			<							
			Scheme: Standard for Q	ueue Managers						
			Last updated: 16:47:03							
		5	ielect a queue manager to	show its connection	on details here:					



🕀 Create Queue Manage	er	
Queue Manager		
Enter basic values		
_	[
Queue manager name:	QM_DDHP0520	
Make this the default que	ue manageri	
Default transmission queue:		
Dead-letter queue:		
Max handle limit:	256	*
Trigger interval:	999999999	*
Max uncommitted messages:	10000	*
?	: Back Next > Finish	Cancel

- 3. Specify the 'Queue manager name'. Check the box 'Make this the default queue manager'.
- 4. Click 'Next'. The following screen is displayed:



🕀 Create Q	ueue Ma	nager	
Queue Man Enter data ar	-	es	
Queue manag	jer name:	QM_DDHP0520 Use circular logging Use linear logging	
Log file siz	e: (x4KB)	4096	*
Log prin	hary files:	3	
Log second	dary files:	2	< > < >
Data and Lo Use defa Data path: Log path:	D:\Progra	am Files\IBM\WebSphere MQ\qmgrs am Files\IBM\WebSphere MQ\log	Browse Browse
0		< <u>B</u> ack <u>N</u> ext > <u>Finish</u>	Cancel

5. Click 'Next'.



🕀 Create Queue Manager 📃 🗖 🔀
Queue Manager
Enter configuration options
Queue manager name: QM_DDHP0520 Start queue manager after it has been created Multi-instance Queue Manager: Permit a standby instance Select type of queue manager startup Automatic Service (manual)
O Interactive (manual)
Configures the queue manager to start automatically when the machine starts up.
Create server-connection channel to allow remote administration of the queue manager over TCP/IP Create server-connection channel
Image: Second



^{6.} Click 'Next'.

💠 Create Queue Manager 📃 🗖 🔀						
Queue Manager						
Enter listener options						
Queue manager name: QM_DDHP0520						
The queue manager needs a listener to monitor for incoming network connections, for some network protocols.						
✓ Create listener configured for TCP/IP						
The listener needs to listen on a port number not used by any other queue manager, service or application on this computer						
Listen on port number: 1414						
Image: Concel Cancel						

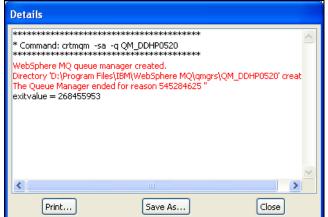
7. Specify the 'Listen on port number' as '1414' (default). Click 'Next'



🕀 Create Queue Manager	
Queue Manager	
Enter explorer options	
Queue manager name: QM_DDHP0520	
Autoreconnect	
Automatic Refresh	
Automatically refresh information shown for this queue manager	
Interval (seconds): 15 Apply Default	
? < Back	Cancel

8. Click 'Finish'.





9. Close the message. The following screen is displayed:

BM WebSphere MQ Explorer								- 7 2		
e <u>Wi</u> ndow <u>H</u> elp										
🖬 MQ Explorer - Navigator 🕺 🛛 🟠 🗇 🌍 🧳 🍸 🗖	🗖 🚺 MQ Explorer - Content 🛛							# ∲ ∑ □ □		
IBM WebSphere MQ E Queue Managers	Queue Managers	Queue Managers								
	Filter: Standard for Queue Mana	Filter: Standard for Queue Managers								
- 🗁 JMS Administered Objects	 Queue manager name 	Command level	Queue manager status	Platform	Queue-sharing group name	Dead-letter queue	Description	Default bind typ		
Service Definition Repositories	O (M°DE+60250	701	Stopped	Windows				Shared		
	<									
	Last updated: 16:50:26	Scheme: scandard for Queue Managers								
	Select a gueue manager to show to	s connection details h	ere:							

10. Right click 'Queue Manager' and select 'Start'.



🕀 IBM WebSphere MQ Explorer							
File Window Help							
🐨 MQ Explorer - Navigator 👔 👔 🗇 🗇 🎼 🤣 🖓 🗢 🗖 📓 MQ Explorer - Content 🕄							
BM WebSphere MQ Geue Managers Comparison Comparis	Diartin	Queue Manager QM_DDH Connection QuickView:	20520				
Odece Manager C JMS Administered	Hide	Connection status	Disconnected				
Service Definition (Delete	Connection type	Local				
		Connection name Channel name					
	Tests 🕨	Channel definition table					
	Connection Details 🔸	Refresh interval	15				
	Properties	Autoreconnect	Yes				
L	Propercies						
		Last updated: 16:50:53					
		Last updated. 10:00:00					
		Status QuickView:					
		Queue manager status	Stopped				
		Command server status	Stopped				

11. Right click 'Queue Manager QM_DDHP0520' and select 'Start'. The following screen is displayed:

Start Queue Manager - "QM_DDHP0520"	
Choose Start Method:	
• Start as created	
Start as service	
O Start interactive	
Multi-instance Queue Manager:	
0	OK Cancel

12. Click 'OK'.



Ter Window Hels CHO Explorer Hollpair 20 (1) (1) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2	Mo Duplore - Context Mo Duplore - Context Connection guidation Connection gu		Ø * •
BM WebSphere MQ Course Managers B Course Managers Course Manager Clusters Course Manager Clusters Monager Clusters	Queue Manager QM_DDHPC Connection Quikiteer Connection Status Connection Status Connection status Connection and Perfeta National Address Andressonest Last updated 17/16-07	S20 corrected uccal 15	
Course Managers Course Manager Clusters Course Manager Clusters Course Manager Clusters	Connection Qualifiere: Connection status Connection sales Connection sales Channel donate Channel donate Autoreconnect Last updated: 17/16-07	Connected Local 15	
- 🗁 3MS Administered Objects	Correction type Correction main Charmel definition table Perferite hiterarial Autoreconnect	Local 15	
	Status Ouidólean		
	and a second sec		
	Queue manager status Command server status Channel initiator status Connection count Standby	Running Running Scopped 4 Not cermitted	
	Last updated: 17:16:07		
	Properties QuickView:		
	Queue manager name Description Platform Command level Default transmission queue Startup	QM_DEHMOSED Windows 701 Automatic	
	Last updated: 17:16:07		

2.2.2 Creating Queues

To create queues, follow the steps given below:

1. Start MQ server console.



BM WebSphere MQ Explorer			a 🗙			
File Window Help						
	🗢 🗖 📓 MQ Explorer - Content 🛛	相 🗞 2				
IBM WebSphere MQ		Queue Manager QM_DDHP0520				
Cueue Managers B - Queue Managers CM_DDHP0520	Connection QuickView:					
Cyune Manager Clusters MS Administered Objects Service Definition Repositories	Connection status Connection type Connection name Charnel aname Charnel definition table Refresh interval Autoreconnect	Cornected Local 15 Ves				
	Last updated: 17:16:07					
	Status QuickWew:					
	Queue manager status Command server status Channel initiator status	Running Running Stopped				
	Connection count Standby	4 Not permitted				
	Last updated: 17:16:07					
	Properties QuickView: Queue manager name	QM_DDHP0520				
	Description Platform	Windows 701				
	Command level Default transmission queue Startup	701 Automatic	-			
	Last updated: 17:16:07					

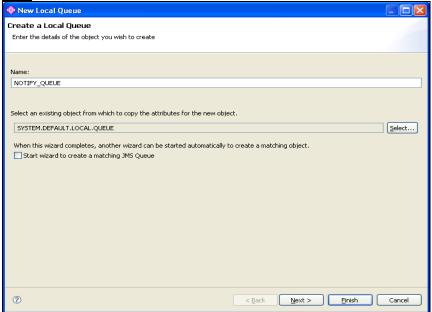
2. On the left pane, go to 'IBM Websphere MQ > Queue Managers > QM_DDHP0520 > Queues > New > Local Queue' as shown below.

🖶 IBM WebSphere MQ Explorer					
File Window Help					
🔁 MQ Explorer - Navigator 🛛 👘 🗇 🔿 🛷 🏷	🗖 🗖 🗐 MQ Explorer - Content 🛛				
□ I M Websphere Mg □ Cause Managers □ Reserved Managers □ Reserved Managers □ Topics ■ Status ■ Status ■ Status ■ Status	Queues Fiter: Standard for Queue Je	25	input court Open output court	Current queue depth	Max queue depth

The following screen is displayed:



Note:- Queue Name should be ALL CAPS, else issue will occur at listener level in WAS.



3. Specify the queue name. Click 'Next'. The following screen is displayed:

🕀 New Local Queue			
Change properties Change the properties of the new L	.ocal Queue		
General Extended Cluster Triggering Events Storage Statistics	General Queue name: Queue type: Description: Put messages: Get messages: Default priority: Default persistence: Scope: Usage:	NOTIFY_QUEUE Local NOTIFY_QUEUE Allowed Allowed 0 Persistent Queue manager Normal	
0		< Back Next > Finish	Cancel
			Cancer

4. Specify the description. Select 'Persistent' as the 'Default persistence'.



Select 'Queues' on the left pane.

xplorer - Navigator 🕴 💧 🗇 🧇	T 🗖 🔲 MQ Explorer - Content 🛛				2 11 19	• 🔅 🖓		
BM WebSphere MQ	Queues							
Queue Managers QM_DDHP0520_NEW	Filter: Standard for Queues	Filter: Standard for Queues						
QM_DDHP0520 Queues	Queue name Queue type Open input count Open output count Current queue depth Max que							
Topics	NOTIFY_QUEUE				0	5000		
Subscriptions Advanced								
Queue Manager Clusters								
JMS Administered Objects Service Definition Repositories								
Service Definition Repositories								
						~ >		
	Scheme: Standard for Queues - Distributed							

5. You can find the new queue name in the list.

2.3 <u>Creating Queue Manager and Queue using UNIX</u> <u>Commands</u>

You need to create, configure, post and view messages in IBM MQ queues. The method is described under the following headings.

For this, first you need to open 'Putty' and connect it to the MQ server installed box.

2.3.1 Creating Queue Manager

Change the directory to '<Websphere_MQ_HOME>'. Here, 'Websphere_MQ_HOME' is the MQ server software installation directory.

The command to create Queue Manager is given below:

crtmqm <queue_manager_name>

Example

crtmqm FC_QMGR

This command creates the queue manager 'FC_QMGR' in the MQ server.



2.3.2 Starting Queue Manager

Once the queue manager is created, you need to start the queue manager using the following command:

strmqm <queue_manager_name>

<u>Example</u>

strmqm FC_QMGR

This command starts the 'FC_QMGR' queue manager.

2.3.3 Starting MQ Service to Create Queues under FC_QMGR

After stating the queue manager, run the MQSC service (for creating queues and other objects) of queue manager. You can use the following command:

runmqsc <queue_manager_name>

<u>Example</u>

runmqsc FC_QMGR

This command starts the MQ service for 'FC_QMGR'.

2.3.4 Creating Queues

After starting the MQSC issue, you need to create the required queues using the following command:

DEFINE QLOCAL (<QUEUE_NAME>)

Example

DEFINE QLOCAL (EMSOUT_QUEUE)

This command creates all the necessary queues.

2.3.5 Creating Channel

After creating the queues, you need to create a channel for queue manager using the following command:

DEFINE CHANNEL (<CHNL_NAME>) CHLTYPE(<CHANNEL_TYPE>)

Here, 'CHNL_NAME' is the name of the channel and 'CHANNEL_TYPE' is the type of channel such as server connection, sender, receiver, etc. You can create the server connection channel using the following command:

DEFINE CHANNEL (FC_CNL) CHLTYPE (SVRCONN)

Here, SVRCONN stands for the 'Server Connection' channel type.

2.3.6 Ending MQSC

You can use the command 'END' to end the MQSC service.



2.3.7 Creating Bindings

After creating the queues and the channel, you need to bind them using the JMSAdmin. To do this, start Putty and connect it to the MQ server installed box.

Move to the directory '<Websphere_MQ_HOME>/java/bin'. Here, 'Websphere_MQ_HOME' is the MQ server software installation path.

In this folder, you will find the file 'JMSAdmin.config'. You need to give the PROVIDER_URL to which the *.bindings* files need to be created.

PROVIDER_URL=file: <Websphere_MQ_HOME>/JNDI

Example

PROVIDER_URL=file: /var/mqm/JNDI

Below environment variables need to be set before creating queue/connection factory configurations.

PATH=\$PATH:\$HOME/bin export MQ_JAVA_INSTALL_PATH=/opt/mqm/java export MQ_JAVA_DATA_PATH=/var/mqm export MQ_JAVA_LIB_PATH=/opt/mqm/java/lib L=\$MQ_JAVA_INSTALL_PATH/lib CLASSPATH=\$CLASSPATH:\$L/com.ibm.mq.jar:\$L/com.ibm.mqjms.jar export CLASSPATH=\$CLASSPATH:/opt/mqm/samp/jms/samples:/opt/mqm/samp/wmqjava/samp export PATH

Launch JMSAdmin



You should have read-write access on this folder.

2.3.8 Creating QCF

After creating the queues and channel, you need to create a queue connection factory in the MQ server. Complete the above steps and make above changes to the 'JMSAdmin.config' file. Move to the directory '<Websphere_MQ_HOME>/java/bin' in Putty. Type 'JMSAdmin' as shown in the figure.





This will take you to the 'InitCtx>' section. Use the following command to create queue connection factory:

define qcf (<qcf_name>) qmgr(<queue_mgr_name>) host (<ip-address>) port(1010)
tran(CLIENT)

Example

define qcf (fc_qcf) qmgr(FC_QMGR) host (10.10.10.10) port(1010) tran(CLIENT)

This creates the queue connection factory for the queue manager 'FC_QMGR' in 10.10.10.10 server.

Now, you need to create the bindings for each queue. Use the following command in 'InitCtx>'.

DEFINE Q(EMSOUT_QUEUE) QUEUE(EMSOUT_QUEUE) QMGR(FC_QMGR)

Use the same command for other queues also.

You can use the following command to view the binding details:

InitCtx> display ctx

The binding details are displayed as shown in the figure below.



💣 10.180.196.51 - PuTTY		X
InitCtx> dis ctx		^
Contents of InitCtx		
.bindings a SFMS_DEST_QUEUE a NOTIFY_QUEUE_DLQ a SWIFT_DEST_QUEUE a SWIFT_IN_QUEUE a EMSOUT_QUEUE a NOTIFY_DEST_QUEUE a RTGS_EST_QUEUE a fc_qcf a NOTIFY_QUEUE a EMSOUT_QUEUE_DLQ a RTGS_IN_QUEUE a EMSIN_QUEUE	<pre>java.io.File com.ibm.mq.jms.MQQueue com.ibm.mq.jms.MQQueue com.ibm.mq.jms.MQQueue com.ibm.mq.jms.MQQueue com.ibm.mq.jms.MQQueue com.ibm.mq.jms.MQQueue com.ibm.mq.jms.MQQueue com.ibm.mq.jms.MQQueue com.ibm.mq.jms.MQQueue com.ibm.mq.jms.MQQueue com.ibm.mq.jms.MQQueue com.ibm.mq.jms.MQQueue com.ibm.mq.jms.MQQueue</pre>	
14 Object(s) O Context(s) 14 Binding(s), 13 Admi	nistered	(IT)
InitCtx>		~

Once this is created, you need to check whether the *.bindings* file is available in the path given in 'JMSAdmin.config' (PROVIDER_URL).

Now, you need to create JMS queues for DIRECT queues to post messages. DIRECT queues require connection to Oracle FLEXCUBE application.

<u>Example</u>

Following are the DIRECT queues:

- NOTIFY_QUEUE
- EMSIN_QUEUE
- EMSOUT_QUEUE
- SFMS_INQUEUE
- SFMSOUT_QUEUE
- RTGS_INQUEUE
- INTERNAL_BIPREPORT_QUEUE
- INTERNAL_BIP_QUEUE_DLQ
- INTERNAL_BIPADVREPORT_QUEUE
- INTERNAL_BIP_ADVICE_QUEUE_DLQ
- INTERNAL_GI_UPLOAD_QUEUE
- INTERNAL_GI_UPLOAD_DLQ
- EMS_QUEUE_DLQ



You need to create JMS queues for the above queues as shown in the figure:

 Queue name 	Queue type	Open input count	Open output count	Current queue depth
DEFFERED_DEST_QUEUE	Local	0	0	0
EL_NOTIFY_DLQ	Local	0	0	0
EL_NOTIFY_REQ_Q	Local	0	0	0
EL_NOTIFY_RES_Q	Local	0	0	0
🔁 ELMDB_DLQ	Local	0	0	0
ELMDB_REQ_Q	Local	0	0	0
ELMDB_RES_Q	Local	0	0	0
EMS_EXTQUEUE	Local	0	0	0
EMS_INQUEUE	Local	2	0	0
EMS_OUTQUEUE	Local	1	0	0
MDB_QUEUE	Local	0	0	0
MDB_QUEUE_DLQ	Local	0	0	0
MDB_QUEUE_RESPONSE	Local	0	0	0
NOTIFY_DEST_QUEUE	Local	0	0	0
D NOTIFY_QUEUE	Local	1	0	0
DVDTIFY_QUEUE_DLQ	Local	0	0	0
RTGS_INQUEUE	Local	1	0	0
SFMS_INQUEUE	Local	1	0	0

2.3.9 MQ Channel Authentication

MQ Channel Authentication can be managed using following set of MQSC Commands

• Enable Channel Authentication

>ALTER QMGR CHLAUTH(ENABLE)

• b) Allow MQ Privileged Users to access Channel

>SET CHLAUTH(*) TYPE(BLOCKUSER) USERLIST(*MQADMIN) ACTION(REMOVE)

• c) Allow all client addresses to access Channel

>SET CHLAUTH(SYSTEM.*) TYPE(ADDRESSMAP) ADDRESS(*) ACTION(REMOVE

2.4 Viewing IBM MQ Queues

Through MQ explorer, you can view the queues created in IBM MQ. If the IBM MQ server sits on a Unix box, an MQ client needs to be setup in a client machine in Windows operating system.

Follows the below steps to view the queues created in server, from an MQ client:

- 1. Install IBM MQ client in a client terminal.
- 2. Open the client MQ explorer.
- 3. Right click 'Queue Managers' on the left pane and select 'Show/Hide Queue Managers'.
- 4. Click 'Add' in the Show/Hide Queue Managers window.
- 5. Specify the name of Queue Manager which is created in the MQ server. Click 'Next'.
- 6. Specify the IP address of the IBM MQ server in the Host name or IP address field.



- 7. Specify the Port number in which the Queue manager is created in MQ server.
- 8. Specify the server connection channel created in the MQ server. Click 'Finish'.

Under the Queue Manager menu, the queue manger created in the server is displayed with its IP address and port number in braces.

WebSphere MQ Explorer - Navigator 🛛 🔅 👘	🕶 🗖 📳 WebSphere MQ Explorer - Conl	ent ×					1 3	• 🧇 🔻
1BM WebSphere MQ	Queues							
FC_QMGR on '10.180.196.51(1415)'	Filter: Standard for Queues							•
😑 🗁 Advanced	Queue name	Queue type	Definition type	Open input count	Open output count	Current queue depth	Max queue depth	Put message
Channels	EMSIN_QUEUE	Local	Predefined	1	0	0	5000	Allowed
Client Connections	EMSOUT_QUEUE	Local	Predefined	1	0	12	5000	Allowed
🗁 Listeners	EMSOUT_QUEUE_DLQ	Local	Predefined	0	0	0	5000	Allowed
	FCQMGR	Local	Predefined	0	0	0	5000	Allowed
	MDB_QUEUE	Local	Predefined	1	0	0	999999999	Allowed
Warelists With the second s	MDB_QUEUE_DLQ	Local	Predefined	0	0	6	999999999	Allowed
	MDB_QUEUE_RESPONSE	Local	Predefined	0	0	12	999999999	Allowed
SWIFT on 'ifichw-ap-21(1414)'	NOTIFY_DEST_QUEUE	Local	Predefined	0	0	1	5000	Allowed
TEST on 'flchw-ap-21(1415)'	MOTIFY_QUEUE	Local	Predefined	3	0	0	5000	Allowed
WINOM	NOTIFY_QUEUE_DLQ	Local	Predefined	0	0	19	5000	Allowed
🗁 Queue Manager Clusters	RTG5_DEST_QUEUE	Local	Predefined	0	0	0	5000	Allowed
	RTGS_IN_QUEUE	Local	Predefined	1	0	0	5000	Allowed
	SFMS_DEST_QUEUE	Local	Predefined	0	0	32	5000	Allowed
	SFMS_IN_QUEUE	Local	Predefined	1	0	3	5000	Allowed
	SFMSOUT_QUEUE	Local	Predefined	1	0	3	5000	Allowed



3. Creating JDBC Resources on Web Sphere

3.1 Introduction

This chapter guides you through the process of JDBC resource creation on IBM Websphere application server.

3.2 **Prerequisite:**

If OCI configuration needs to be used in data sources, please refer the vendor specific support manual and make the configuration changes before creating datasources.

3.3 Creating JDBC Sources

3.3.1 Creating Global Security

- 1. Specify the Websphere administrator username and password.
- 2. Click 'Log In'.



3. Navigate to Websphere home page.

WebSphere Integrated Solu × +	
← ▲ https://ofss220137.in.oracle.com:90	43/ibm/console/secure/secure/gon.do 🔍 🥙 🔍 Search 🏠 🖨 🗍 🔹 👘 🛷 🚳 🖛 🦉
WebSphere. software	Welcome websphere Help Logout IBM.
View: All tasks 🗸	Welcome
Welcome Guided Activities Servers Applications Services	Welcome About this Integrated Solutions Console Image: Console provides a common administrative console for multiple products. The table lists the product suites that can be administered through this installation. Select a product suite to view more information. Integrated Solutions Console, 8.5.5.0 Image: Console provides a common administrative console for multiple products. The table lists the product suite to view more information. LICENSED MATERIALS PROPERTY OF IBM
	Suite Name Version IBM WebSphere Application Server 8.5.5.0 5724-108, 5724-163,
Security Global security Global security Global security Administrative Authorization Groups SSL certificate and key management SSL certificate and key management SSL certificate and key management Global Security Security Security Global Security Security Global Secur	Copyright International Business
IDDU	



4. Expand 'Security' and select 'Global Security'. The following screen is displayed.

(WebSphere Integrated Solu × +					
← https://ofss220137.in.oracle.com:904					
WebSphere, software		Welcome websphere Help Logout			
View: All tasks 🗸	Cell=ofss220137Node01Cell, Profile=AppSrv01	Close page			
Welcome Guided Activities Servers	Global security Global security Use this panel to configure administration and the default application security po functions and is used as a default security policy for user applications. Security d				
Applications	applications.				
Services	Security Configuration Wizard Security Configuration Report				
Security	Administrative security	Authentication			
Global security Security domains Administrative Authorization Groups SSL certificate and key management Security auditing	Enable administrative security Administrative user roles Administrative group roles Administrative authentication	Authentication mechanisms and expiration LTPA Kerberos and LTPA Kerberos configuration			
Bus security Environment System administration	Application security Enable application security	SWAM (deprecated): No authenticated communication Authentication cache settings			
Users and Groups Monitoring and Tuning Troubleshooting Service integration	Java 2 security Use Java 2 security to restrict application access to local resources Warn if applications are granted custom permissions Restrict access to resource authentication data	Web and SIP security RMI/IIOP security Java Authentication and Authorization Service Enable Java Authentication SPI (JASPI)			
€ UDDI	User account repository Realm name	Providers Use realm-qualified user names			
	defaultWIMFileBasedRealm Current realm definition Federated repositories Available realm definitions Federated repositories Configure Set as current	 Security domains External authorization providers Programmatic session cookie configuration Custom properties 			
4	< III	•			

5. Expand 'Java Authentication', go to 'Authorization Service' and click 'J2C authentication data'.



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+ https://ofss220137.in.oracle.com:90)43/ibm/console/secure/securelogon.do	▼ C Q Search	☆ 自 🕹 🏫	📣 🐠 • 🥐 🔹 🧧 🚍
WebSphere. software			Welcome websphere	Help Logout IBM.
View: All tasks Welcome Guided Activities Servers Applications Services	Cell=ofs220137 Node01Cell, Profile=AppSrv01 Global security Global security > JAAS - J2C authentication Specifies a list of user identities and passwo Prefix new alias names with the node na Apply	rds for Java(TM) 2 connector sec		Close page Field help For field help information, select a field label or list marker when the help cursor is displayed. Page help
Resources Security Global security Security domains Administrative Authorization Groups	Preferences New Delete			More information about this page Command Assistance View administrative scripting command for last
SSL certificate and key management Security auditing Bus security	Select Alias You can administer the following resources: ofss220137Node01/FC121ASK	User ID 🗘	Description 🗘	action
System administration Users and Groups Monitoring and Tuning	ofss220137Node01/FCUBS121_DEV	FCUBS121_DEV	FCUBS121_DEV	
Troubleshooting Service integration UDDI	Total 2			
4				

6. Click 'New'.



🚯 WebSphere Integrated Solu 🗙 -		
https://ofss220137.in.oracle.com:90	13/ibm/console/secure/securelogon.do 🔍 🧭 🍳 Search 🔄 🛧 🏚 🔺	@ - 🖗 - 🖸 🚍
WebSphere. software		Help Logout IBM.
Views: All tasks Welcome © Guided Activities ⊕ Servers ⊕ Applications ⊕ Services ⊕ Resources © Security ■ Global security ■ Global security ■ Security domains Administrative Authorization Groups ■ SSL certificate and key management ■ Security auditing ■ Bus security ● Environment ● System administration ● Uses and Groups ● Monitoring and Tuning ● Troubleshooting ● Survice integration ● UDDI	Cell=ofss220137Node01Cell, Profile=AppSrv01	Close page Close page Field help For field help information, select a field label or list marker when the help cursor is displayed. Page help More information about this page Command Assistance Yiew administrative action
4		

- 7. You need to define the connection properties. Specify the following details.
 - Alias
 - User ID of the Database
 - Password of the Database
 - Description
- 8. Once you have specified the above details, click 'Apply' and then click 'Save' link appears in the top.

3.3.2 JDBC Provider for Non XA Data Source

Follow the steps given below:

1. Login to the application server administration console.



2. Expand 'Resources > JDBC' and select 'JDBC Providers'.

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WebSphere. software			Welcome websphere	Help Logout IBM.
View: All tasks	Cell=ofss220137Node01Cell, Profile=App5rv0:		?.	Close page
Welcome Guided Activities Servers Applications Services	JDBC providers Use this page to edit properties of a JD driver implementation class for access t this task in a <u>quided activity</u> . A guided a the topic.	o the specific vendor database of you	ur environment. Learn more about	Field help For field help information, select a field label or list marker when the help cursor is displayed.
Resources Schedulers Object pool managers JMS JDBC JDBC JDBC DBC DBta sources E		ich the resource definition is visible. cope is and how it works, <u>see the sco</u>		Page help More information about this page Command Assistance View administrative scripting command for last action
Data sources (WebSphere Applica Server V4) Resource Adapters Asynchronous beans	New Delete			
Cache instances Mail	Select Name 🗘	Scope 🗘	Description 🗘	
URL Resource Environment	None Total 0			
Security Environment System administration Users and Groups Monitoring and Tuning Troubleshooting				

3. Select 'Node' from the dropdown list.



4. Click New, The following screen is displayed:

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WebSphere. software		Welcome websphere	Help Logout IBM.
View: All tasks	Cell=ofss220137Node01Cell, Pr	ofile=AppSrv01	Close page 🔺
Welcome	Create a new JDBC Provider		Field help
Guided Activities	Create a new JDBC Provide	er	For field help information,
€ Servers	→ Step 1: Create new	Create new JDBC provider	select a field label or list marker when the help
Applications	JDBC provider		cursor is displayed.
Services	Step 2: Enter database class path	Set the basic configuration values of a JDBC provider, which encapsulates the specific vendor JDBC driver implementation classes that are required to access	
Resources	information	the database. The wizard fills in the name and the description fields, but you can type different values.	
Schedulers			
Object pool managers	Step 3: Summary	Scope	
∎ JMS		cells:ofss220137Node01Cell:nodes:ofss220137Node01:servers:server1	
JDBC JDBC providers =		* Database type	
Data sources		Oracle	=
 Data sources Data sources (WebSphere Applica) 			
Server V4)		* Provider type	
Resource Adapters		Oracle JDBC Driver	
		* Implementation type	
Cache instances		Connection pool data source	
Mail			
URL		* Name Oracle JDBC Driver	
Resource Environment		Oracle JDBC Driver	
Security		Description Oracle 10BC Driver	
Environment			
System administration			
Monitoring and Tuning			
Troubleshooting ▼		h.	
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5. Specify the following details:

Database Type	Oracle
Provider Type	Oracle JDBC Driver
Implementation Type	Connection pool data source
Name	FCUBS
Description	FCUBS JDBC Driver

6. Click 'Next'.



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WebSphere. software			Welcome websphere		IBM.
View: All tasks	Cell=ofss220137Node01Cell, P	Profile=AppSrv01			Close page
	Create a new JDBC Provider				
Welcome					
Guided Activities	Create a new JDBC Provid	ler			
Servers	Step 1: Create new	Enter database class path info	rmation		
Applications	JDBC provider				
Services	→ Step 2: Enter	Set the class path for the JDBC dri your JDBC provider. This wizard pa			
- Resources	database class path information	environment variables that define			
Schedulers		when you type the JDBC driver file /home/db2inst1/sqllib/java on Lin		(SQLLIB/Java on Windo	ws(R) or
Object pool managers	Step 3: Summary	Fabrica and a second at her with a the	SWITCH Law and such as have		
JMS JDBC		Entries are separated by using the ';' or ':'). If a value is specified for			naracters (such a
JDBC providers =					
Data sources		Class path:			
Data sources (WebSphere A Server V4)		\${ORACLE_JDBC_DRIVER_PATH}/	ojdbc6.jar		
Resource Adapters					
Cache instances					
Mail URL					Appl
OKL Resource Environment					
		Directory location for "ojdbc6.jar" \${ORACLE_JDBC_DRIVER_PATH}	which is saved as WebSpher	re variable	
Security		D:Softwares Application Server/IE	3M\Webpshere\AppServer\O	ptionalLibraries\oracle\	JDBC\
Environment					
System administration					
Users and Groups	Previous Next C	Cancel			
	Previous wext C	Januar			
🛨 Troubleshooting 👻					
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7. Provide the location of ojbc6.jar. Click 'Next'.

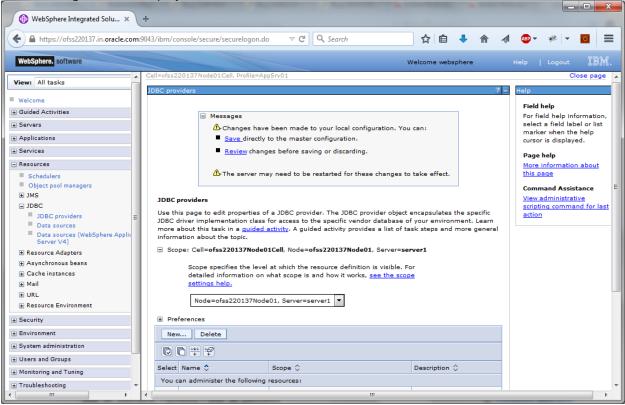
The following screen is displayed.



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WebSphere. software			We	lcome webs	phere				IBN	×.
View: All tasks	Cell=ofss220137Node01Cell, Pro	file=AppSrv01							Close pa	a
Welcome	Create a new JDBC Provider									
Guided Activities	Create a new JDBC Provide	r								
Servers	Step 1: Create new	Summary								
Applications	JDBC provider	Summary of actions:								
Services	Step 2: Enter database class path	Options	Values							
Resources	information	Scope	cells:ofss220137	Inde01Cellur	odesto	ee22013	R7Node01		over1	
Schedulers Object pool managers	→ Step 3: Summary	JDBC provider name	Oracle JDBC Drive		lodes.o	352201.	, NODEOI	.5017015.50	IVEII	
± JMS		Description	Oracle JDBC Drive							
= JDBC		Class path	\${ORACLE_JDBC_	-	'HV/oidb	c6 jar				
JDBC providers		\${ORACLE_JDBC_DRIVER_PATH}		_		-	o 1\idbc\	lib\oidbc£ i	75	
 Data sources Data sources (WebSphere Applic Server V4) 		Implementation class name	oracle.jdbc.pool.C					10 (0]0000.]		
± Resource Adapters	Previous Finish C	ancel								
	Previous Prinsit C	ancer								
Cache instances										
Mail URL										
Resource Environment										
Security										
Environment										
System administration										
Users and Groups										
Monitoring and Tuning										
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8. Click 'Finish'.





9. Click 'Save'.

3.3.3 Creating Non XA Data Source

Follow the steps given below:

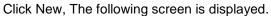
- 10. Login to the application server administration console.
- 11. Expand 'Resources > JDBC' and click 'Data sources'.



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WebSphere, software Welcome websphere Help) Logout IBM.
View: All tasks Cell=ofss220137 Node01Cell, Profile=AppSrv01 Welcome Data sources	Close page

12. Select 'Node' from the drop-down list.

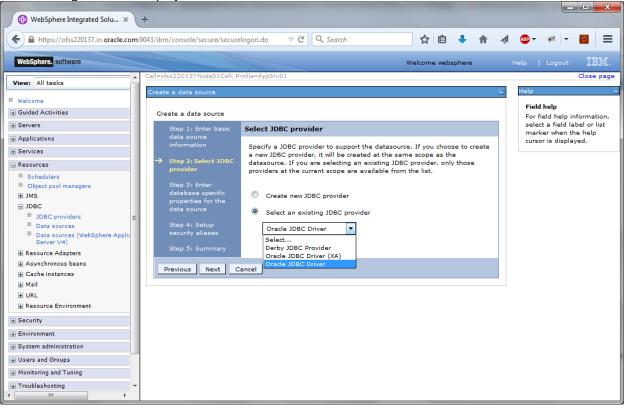




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WebSphere. software	Welcome websphere Help Logout IBM,
View: All tasks	Cell=ofss220137 Node01Cell, Profile=AppSrv01 Close page
Welcome	Create a data source - Help Field help
Guided Activities Guided Activities Subscript Activities Subscrite Subscript Activities Subscript Activities Subs	Create a data source For field help information,
Servers	→ Step 1: Enter basic data source information select a field label or list
Applications	data source cursor is displayed.
Services	JDBC provider. A datasource supplies the physical connections between the
- Resources	Step 2: Select JDBC application server and the database.
 Schedulers Object pool managers JDBC JDBC providers Data sources Data sources (WebSphere Applic Server V4) Resource Adapters Asynchronous beans Cache instances Mail Full 	Step 3: Enter database specific properties for the data source Requirement: Use the Datasources (WebSphere(R) Application Server V4) console pages if your applications are based on the Enterprise JavaBeans(TM) (EB) 1.0 specification or the Java(TM) Servlet 2.2 specification. Step 4: Setup security aliases Cells:ofss220137Node01Cell Step 5: Summary * Data source name FCUBS DS * JNDI name jdbc/fcjdevDS
Resource Environment Security Environment System administration Users and Groups Monitoring and Tuning	
Troubleshooting ▼ III III III	<[)

- 13. Specify the data source name as 'FCUBS Data source'.
- 14. Specify the JNDI name as 'jdbc/fcjdevDS'.
- 15. Click 'Next'.





16. Select the option 'Select an existing JDBC provider'. From the drop-down list, choose 'Oracle JDBC Driver' and click next.



The following screen will be displayed:

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WebSphere. software			Welcome websphere	Help	Logout	IBM.
View: All tasks	Cell=ofss220137Node01Cell, P	rofile=AppSrv01			Cle	ose page
Welcome	Create a data source			_ Help		-
Guided Activities	Create a data source				l help ield help inforr	mation.
	Step 1: Enter basic	Enter database specific properties for th	e data source	selec	t a field label or when the h	or list
Applications	data source information				or is displayed	
Services	Step 2: Select JDBC	Set these database-specific properties, which a				
Resources Schedulers	provider	vendor JDBC driver to support the connections t the datasource.	that are managed through			
Object pool managers	→ Step 3: Enter database specific	Name Value				
JMS JDBC	properties for the	* URL dbc:oracle:oci:@10.10.:	10 10:1010:KER			
JDBC providers	data source	* Data store helper class name				
Data sources Data sources (WebSphere Applic	Step 4: Setup security aliases	Oracle11g data store helper 🔻				
Server V4)	Step 5: Summary	Use this data source in container managed	persistence (CMP)			
Resource Adapters Asynchronous beans	Step 5. Summary					
Asynchronous beans Cache instances	Previous Next C	Cancel				
⊕ Mail				_		
⊞ URL						
Resource Environment						
+ Security						
Environment System administration						
Users and Groups						
Monitoring and Tuning						
Troubleshooting ▼						
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17. Specify the URL of the Database

Uncheck "Use this data source in container managed persistence (CMP)"

<u>Example</u>

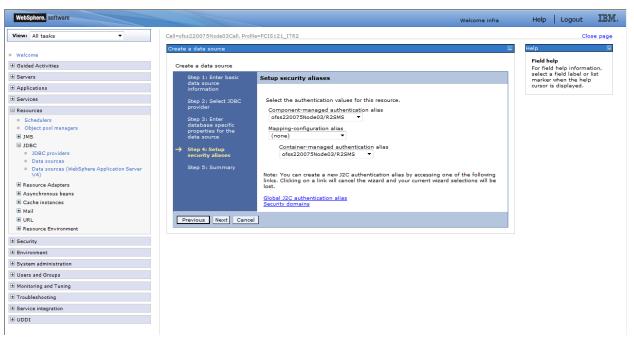
jdbc:oracle:thin:@10.10.10.10:1010:KERDEV2

Here, 10.10.10.10 is the *hostname* where the database is installed, 1010 the *port number* and *KERDEV*2 the *instance name*.

- 18. Select the data store helper class as 'Oracle11g data store helper'.
- 19. Click 'Next'. The following screen is displayed.

Select user alias from Component-managed authentication alias and Container-managed authentication alias dropdown.





20. Click 'Next'.

The following screen is displayed.

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WebSphere. software			Welcome websphere H	elp Logout IBM
View: All tasks 🗸	Step 1: Enter basic data source	Summary		Help
Welcome	information	Summary of act	ions:	
Guided Activities Guided Activi	Step 2: Select JDBC	Options	Values	Field help For field help inform
+ Servers	provider	Scope	cells:ofss220137Node01Cell:nodes:ofss220137Node01:servers:server1	select a field label o
Applications Services	Step 3: Enter database specific	Data source name	FCUBS DS	marker when the he cursor is displayed.
Resources	properties for the data source	JNDI name	jdbc/fcjdevDS	
Schedulers Object pool managers	Step 4: Setup security aliases	Select an existing JDBC provider	Oracle JDBC Driver	
JMS JDBC	→ Step 5: Summary	Implementation class name	oracle.jdbc.pool.OracleConnectionPoolDataSource	
JDBC providers Data sources		URL	jdbc:oracle:oci:@10.10.10.10:1010:KERDEV2	
 Data sources (WebSphere Application Server V4) 		Data store helper class	com.ibm.websphere.rsadapter.Oracle11gDataStoreHelper	
Resource Adapters Asynchronous beans		name Use this data		
Asynchronous beans Cache instances		use this data source in		
± Mail		container managed	true	
URL		persistence		
Resource Environment		(CMP)		
Security Environment		Component- managed authentication	ofss220137Node01/FCUBS121_DEV	
System administration		alias		
Users and Groups		Mapping- configuration	(none)	
Monitoring and Tuning		alias		
Troubleshooting Service integration		Container- managed authentication	(none)	
± UDDI		alias		



21. Click 'Finish'.

The following screen is displayed.

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WebSphere. software	Welcome websphere Help Logout	IBM.
View: All tasks	Cell=ofss220137Node01Cell, Profile=App5rv01 Clo Data sources ? -	se page 🔺
■ Welcome Guided Activities	Messages	Field he
€ Servers	A Changes have been made to your local configuration. You can:	select a marker
Applications Services	 <u>Save</u> directly to the master configuration. <u>Review</u> changes before saving or discarding. 	cursor is Page he
Resources Schedulers Object pool managers	The server may need to be restarted for these changes to take effect.	<u>More inf</u> ≣ <u>this pag</u>
Opecciposi managers JMS JDBC JDBC JDBC providers Data sources Data sources (WebSphere Applica Server V4)	Data sources Use this page to edit the settings of a datasource that is associated with your selected JDBC provider. The datasource object supplies your application with connections for accessing the database. Learn more about this task in a <u>guided activity</u> . A guided activity provides a list of task steps and more general information about the topic. Scope: Cell=ofss220137Node01Cell, Node=ofss220137Node01, Server=server1	Comma <u>View adı</u> scriptinc action
 Resource Adapters Asynchronous beans Cache instances Mail 	Scope specifies the level at which the resource definition is visible. For detailed information on what scope is and how it works, see the scope settings help.	
URL Resource Environment		
Security Environment	New Delete Test connection Manage state	
	Select Name ① JNDI name ② Scope ③ Provider ③ Description ③ Category ③	
Users and Groups Monitoring and Tuning	You can administer the following resources:	
Monitoring and Funing Troubleshooting Time	FCUBS DS jdbc/fcjdevDS1 Node=ofss220137Node01,Server=server1 Oracle New JDBC Datasource	

- 22. Click 'Save'.
- 23. Following steps need to be followed only for Non-XA datasources
- 24. Click on the newly created Non-XA datasource, in our example "FCUBS DS". The following screen is displayed



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WebSphere. software	Welcome saravanan	Help Logout
View: All tasks	Cell=ofss220239Node01Cell, Profile=FPCFL Data sources	Close page
■ Welcome Guided Activities	Data sources > Default Datasource	
	Use this page to edit the settings of a datasource that is associated with your selected JDBC provider. T application with connections for accessing the database.	The datasource object supplies your
Services Resources	Configuration	
Kesolices Schedulers Object pool managers JMS JDBC	Test connection General Properties	Additional Properties
JDBC providers Data sources Data sources (WebSphere Application	<pre>* Scope cells:ofss220239Node01Cell:nodes:ofss220239Node01:servers:server1 * Provider</pre>	Connection pool properties WebSphere
Server V4)	JDBC Provider	Application Server data source properties
	* Name FCUBS DS JNDI name	Custom properties
	jdbc/fgdevDS	Related Items
Security Environment	Use this data source in container managed persistence (CMP) Description	JAAS - J2C
System administration	Datasource for the WebSphere Default Application	<u>authentication</u> <u>data</u>
Users and Groups Monitoring and Tuning		
Troubleshooting		
Service integration	Category	

25. Make sure that the checkbox "Use this data source in container managed persistence (CMP)" is unchecked. Then click on the link "Webpshere Application Server data source properties" on the right side.



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WebSphere. software	Welcome saravanan Help	Logout IBM.
View: All tasks	Cell=ofss220239Node01Cell, Profile=FPCFL Data sources ? -	Close page 🔺
Welcome Guided Activities Servers Applications	Data sources > Default Datasource > WebSphere Application Server data source properties Use this page to set WebSphere(R) Application Server connection management-specific properties that affect a connection pool.	Field help For field help infori select a field label marker when the h
Services Resources	Configuration	cursor is displayed Page help More information a
Schedulers Object pool managers Did Schedulers Object pool managers Did Schedulers Did Schedule	General Properties Statement cache size 10 statements Enable multithreaded access detection Enable database reauthentication Enable database reauthentication Enable JMS one-phase optimization support ✓ Log missing transaction context ✓ Mon-transactional data source Error detection model O Use WebSphere Application Server exception checking model ④ Use WebSphere Application Server exception mapping model Connection validation properties ✓ Validate new connections	this page
Monitoring and Tuning Troubleshooting	Number of retries 100 Retry interval	
	3 seconds	

26. Select the checkbox "Non-transactional data source".

27. Click Apply button and Click Save link.

Wote the following

- You need to create another data source for Oracle FCUBS with the JNDI name '<Non-XA FCUBS HOST JNDI name>_ASYNC'. For example, if the Oracle FCUBS HOST Non XA data source JNDI name is 'jdbc/fcjdevDS', then you need to create another data source for FCUBS with the JNDI name 'jdbc/fcjdevDS_ASYNC'.
- While creating a branch using the 'Branch Parameters Maintenance' (STDBRANC) screen, if you have created a data source for the branch, then you need to create a corresponding ASYNC data source with the JNDI name '<Non-XA FCUBS BRANCH JNDI name>_ASYNC'.

3.3.4 Testing Data Source

Follow the steps given below:



1. Select the data source as shown in the figure.

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WebSphere. software				Welcome	saravanan		Logout IBM.
View: All tasks ■ Welcome	datasource object supplie task in a <u>quided activity</u> , topic. Scope: Cell=ofss2202 Scope specifies	a settings of a datasc es your application wi A guided activity pro 239Node01Cell, Node I the level at which th ation on what scope	urce that is associated with th connections for accessiny vides a list of task steps ar =ofss220239Node01 e resource definition is visil is and how it works, <u>see the</u>	the databa d more gen ole. For	se. Learn more	about this	Close page A Help Field help For field help information marker when the cursor is displaye Page help More information this page Command Assist View administrati scripting comman action
Data sources Data sources (WebSphere Application Server V4) Resource Adapters Asynchronous beans Cache instances Mail WIL	00#7	JNDI name 🗘	anage state	Provider 🗘	Description 🗘	Category 🗘	
Security Environment	V BranchDS j	jdbc/fcjdevDSBranch	Node=ofss220239Node01	Oracle JDBC Driver (XA)	New JDBC Datasource		
 ↔ System administration ↔ Users and Groups ↔ Monitoring and Tuning ↔ Troubleshooting 		jdbc/fcjdevDS_XA	Node=ofss220239Node01	Oracle JDBC Driver (XA)	New JDBC Datasource		
Service integration	EPPATCHSTAGE j	jdbc/FPPATCHSTAGE	Node=ofss220239Node01	NONXA DS	New JDBC Datasource		

2. Click 'Test connection' button.



On successful creation, the following message is displayed.

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WebSphere, software	Welcome saravanan Help	Logout IBM.
View: All tasks	Cell=ofss220239Node01Cell, Profile=FPCFL Data sources	Close page
Welcome Guided Activities		Field help
Servers Applications	Messages The test connection operation for data source BranchDS on server server1 at node ofss220239Node01 was successful.	For field help info select a field labe marker when the
Services		cursor is displaye Page help
- Resources	Data sources	More information
Schedulers Object pool managers JDBC JDBC JDBC JDBC providers Data sources Data sources Reasource Adapters Resource Adapters Asynchronous beans Cache instances	Use this page to edit the settings of a datasource that is associated with your selected JDBC provider. The datasource object supplies your application with connections for accessing the database. Learn more about this task in a <u>guided activity</u> . A guided activity provides a list of task steps and more general information about the topic. Scope: Cell=ofss220239Node01Cell, Node=ofss220239Node01 Scope specifies the level at which the resource definition is visible. For detailed information on what scope is and how it works, <u>see the scope settings help</u> . Node=ofss220239Node01 Node=ofss220239Node01	this page Command Assist View administrati scripting commar action
	E Preferences	
URL Resource Environment	New Delete Test connection Manage state	
+ Security		
Environment	Select Name 🗘 JNDI name 🗘 Scope 🗘 Provider 🗘 Description 🗘 Category 🗘	
System administration	You can administer the following resources:	
 	BranchDS jdbc/fcjdevDSBranch Node=ofss220239Node01 Oracle New JDBC Datasource Driver (XA)	
Service integration	DSXA jdbc/fcjdevDS_XA Node=ofss220239Node01 Oracle New JDBC	
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3.3.5 JDBC Provider for XA Data Source

Follow the steps given below:

- 1. Login to the application server administration console.
- 2. Expand 'Resources > JDBC' and click 'JDBC Providers'.

The following screen is displayed.

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WebSphere. software	Cell=ofss220137Node01Cell. Profile=AppSrv01	Help Logout IBM.	
View: All tasks Welcome Guided Activities Servers Applications Services	JDBC providers ? = JDBC providers	Close page Help - Field help information, select a field label or list marker when the help cursor is displayed. Dean 6 telp	
Resources Schedulars Object pool managers JDBC JDBC JDBC JDBC JDBC JDBC Data sources Server V4) Resource Adapters Asynchronous beans	 Scope: Cell=ofss220137Node01Cell Scope specifies the level at which the resource definition is visible. For detailed information on what scope is and how it works, see the scope settings help. Cell=ofss220137Node01Cell Cell=ofss220137Node01Cell Preferences New Delete Cell + GP 	Page help More information about this page Command Assistance View administrative scripting command for last action	
 ☑ Cache instances ☑ Mail ☑ URL ☑ Resource Environment 	Select Name ② Scope ③ Description ③ None		
Security Environment System administration Users and Groups Monitoring and Truing Troubleshooting m h		1	

3. Select 'Node' from the drop-down list and click 'New' button.



The following message is displayed.

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WebSphere. software		Welcome websphere	Help Logout IBM.
View: All tasks	Cell=ofss220137Node01Cell, P	rofile=AppSrvO1	Close page
Welcome	Create a new JDBC Provider		– Help –
Guided Activities Guided Activi	Create a new JDBC Provid	er	Field help For field help information,
€ Servers	→ Step 1: Create new	Create new JDBC provider	select a field label or list marker when the help
Applications	JDBC provider	Set the basic configuration values of a JDBC provider, which encapsulates the	cursor is displayed.
Services	Step 2: Enter database class path	specific vendor JDBC driver implementation classes that are required to access the database. The wizard fills in the name and the description fields, but you	
Schedulers	information	can type different values.	
Object pool managers JMS	Step 3: Summary		
a) JMS a) JDBC a) DBC providers bata sources bata sources (WebSphere Applica Server V4) b) Resource Adapters b) Asynchronous beans b) Cache instances b) Mail b) URL b) Resource Environment b) Security b) Environment c) System administration c) Usters and Groups c) Monitoring and Tuning		cells:ofss220137Node01:servers:server1	E
troubleshooting		h.	-

4. Specify the following details:

Database Type	Oracle
Provider Type	Oracle JDBC Driver
Implementation Type	XA data source
Name	FCUBS Oracle JDBC Driver (XA)
Description	FCUBS Oracle JDBC Driver (XA)



Click next, the following message is displayed.

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WebSphere, software Help Logout	W.
The Children state of	
Step 1: Create new Enter database class path information	lect a f arker w
1DBC provider	rker w sor is
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5. Specify the location of ojbc6.jar and click next.

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WebSphere. software			Welcome websphere	Help Logout IBM.			
View: All tasks	Cell=ofss220137Node01Cell, Pro	ofile=AppSrv01		Close page			
	Create a new JDBC Provider			E Help			
Welcome				Field he			
Guided Activities	Create a new JDBC Provide	ir -		For field			
Servers		Summary		select a marker			
Applications	JDBC provider			cursor i			
Services	Step 2: Enter	Summary of actions:	1				
- Resources	database class path information	Options	Values				
Schedulers		Scope	cells:ofss220137Node01Cell:nodes:ofss220137Nod	e01:servers:server1			
 Object pool managers 	→ Step 3: Summary	JDBC provider name	Oracle JDBC Driver (XA)				
JMS JDBC		Description	Oracle JDBC Driver (XA)				
JDBC providers		Class path	\${ORACLE_JDBC_DRIVER_PATH}/ojdbc6.jar				
Data sources		\${ORACLE_JDBC_DRIVER_PATH}	C:\Oracle\app\sarrathi\product\12.1.0\dbhome_1\jo	dbc\lib\ojdbc6.jar			
 Data sources (WebSphere Applica Server V4) 		Implementation class name	oracle.jdbc.xa.client.OracleXADataSource				
+ Resource Adapters	Previous Finish C	Cancel					
Cache instances							
H Mail URL							
Resource Environment							
Environment							
E System administration							
Monitoring and Tuning							
+ Troubleshooting -							
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The following screen is displayed.

6. Click 'Finish'.



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WebSphere. software			Welcome websphere	Help Logout IBH,		
View: All tasks	Cell=ofss220137Node01Cell, Profile=Ap	Srv01	?	Close page		
Welcome Guided Activities	Messages			Field help For field help information,		
Servers Applications Services	Save_directly	e been made to your local configuration. You (to the master configuration. Jes before saving or discarding.	an:	select a field label or list marker when the help cursor is displayed.		
Resources Schedulers Object pool managers		es perore saving or discarding. ay need to be restarted for these changes to t	ake effect.	Page help More information about this page		
JMS JDBC JDBC providers Data sources Data sources Data sources	JDBC providers Use this page to edit properties of driver implementation class for acc this task in a <u>guided activity</u> . A gu about the topic.	Command Assistance View administrative scripting command for last action				
 Resource Adapters Asynchronous beans Cache instances Mail URL Resource Environment 	Scope specifies the level	1Cell, Node=ofss220137Node01, Server=serv at which the resource definition is visible. For what scope is and how it works, see the scope 01, Server=server1	erl			
€ Security	Preferences					
Environment System administration Users and Groups	New Delete					
Monitoring and Tuning	Select Name 🗘	Scope 🗘	Description 🗘			
Troubleshooting ▼ III ►	You can administer the following Derby JDBC Provider	resources: Node=ofss220137Node01,Server=server1	Derby embedded non-XA	-		

7. Click 'Save'.

3.3.6 Creating XA Data Source

Follow the steps given below:

- 1. Login to the application server administration console.
- 2. Expand 'Resources > JDBC' and click 'Data sources'.



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WebSphere. software	Welcome websphere	Help Logout IBM.
View: All tasks	Cell=ofss220137Node01Cell, Profile=AppSrv01	Close page
View. All tasks	Data sources ? -	Help –
Welcome Guided Activities	Data sources Use this page to edit the settings of a datasource that is associated with your selected JDBC provider. The	Field help For field help information, select a field label or list
Servers	datasource object supplies your application with connections for accessing the database. Learn more about this	select a field label or list marker when the help
Applications	task in a <u>guided activity</u> . A guided activity provides a list of task steps and more general information about the topic.	cursor is displayed.
Services	Scope: Cell=ofss220137Node01Cell	Page help
Resources		More information about
Schedulers	Scope specifies the level at which the resource definition is visible. For detailed information on what scope is and how it works, see the scope	this page
 Object pool managers JMS 	settings help.	Command Assistance
		View administrative scripting command for last
JDBC providers	Cell=ofss220137Node01Cell	action
Data sources	Preferences	
Data sources (WebSphere Applica Server V4)	New Delete Test connection Manage state	
± Resource Adapters		
Cache instances	Select Name 🗘 JNDI name 🗘 Scope 🗘 Provider 🗘 Description 🗘 Category 🗘	
Mail URL	None	
Resource Environment	Total 0	
Environment		
System administration		
± Users and Groups		
Monitoring and Tuning		
Troubleshooting		

3. Select 'Node' from the dropdown list and click 'New' button.



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WebSphere. software	Welcome websphere	Help Logout IBM.
View: All tasks	Cell=ofss220137Node01Cell, Profile=App5rv01 Create a data source	Close page
Guided Activities	Create a data source	Field help For field help information,
Servers	Step 1: Enter basic data source information data source	select a field label or list marker when the help
 	information Set the basic configuration values of a datasource for association with your JDBC provider. A datasource supplies the physical connections between the	cursor is displayed.
	Step 2: Select JDBC provider A datasource supplies the physical connections between the application server and the database. Step 3: Enter A stabase specific properties for the data source Image: Step 4: Setup security aliases Scope Step 5: Summary Cells:ofss220137Node01:servers:server1 Pote Step 5: Summary P bata source name FCUBS DS + JNDI name jdbb/fcgSchedulerDS Next	
Monitoring and Tuning		
Troubleshooting Troubleshooting	۳ •	•

4. Specify the following details:

Data source name	FCUBS Scheduler Data source
JNDI Name	jdbc/fcjSchedulerDS



Click next, the following screen is displayed.

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WebSphere. software		ne websphere Help Logout	
View: All tasks	Cell=ofss220137Node01Cell, Profile=AppSrv01 Create a data source	Close pag	<u>je</u>
■ Welcome	Create a data source	Field help For field help information,	,
Servers	Step 1: Enter basic Select JDBC provider	select a field label or list marker when the help	
	data source information Specify a JDBC provider to support the datasource. If you a new JDBC provider, it will be created at the same scope		_
C Resources C Resource (WebSphere Application Server V4) C Resource Adapters C Resource Adapters C Resource Environment C Resource Environment C System administration C Resource Invironment C System administration C Resource Review Resource C Resource Review Resource C Resource Review Resource Resource Review Resource	 → Step 2: Select JDBC provider, it will be created at the same scoope provider Step 2: Enter database specific properties for the data source Step 4: Setup security aliases Step 5: Summary Previous Next Cancel 	er, only those	
Troubleshooting ↓ III ►	*		

5. Select the option 'Select an existing JDBC provider' and choose 'FCUBS Oracle JDBC Deriver (XA)' from the drop-down list and click next.



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WebSphere, software			Welcome websphere	Help	Logout IB	
View: All tasks	Cell=ofss220137Node01Cell, Pi Create a data source	rofile=AppSrv01		Help	Close p	page -
■ Welcome () Guided Activities	Create a data source			Field	h elp ield help information	ion,
 ➡ Servers ➡ Applications 	Step 1: Enter basic data source information	Enter database specific properties for the	data source	mark	t a field label or lis er when the help or is displayed.	st
Services Resources Schedulers Object pool managers	Step 2: Select JDBC provider → Step 3: Enter	Set these database-specific properties, which are vendor JDBC driver to support the connections the the datasource.				
JM5 JDBC JDBC providers E	database specific properties for the data source	Name Value Value URL Data store helper class name	.10:1010:KER			
 Data sources Data sources (WebSphere Applic Server V4) Resource Adapters 	Step 4: Setup security aliases Step 5: Summary	Oracle11g data store helper 💌	persistence (CMP)			
 Asynchronous beans Cache instances Mail 	Previous Next C	ancel				
■ URL ■ Resource Environment						
Environment						
System administration Users and Groups						
Monitoring and Tuning Troubleshooting ▼						

6. Specify the URL of the Database

Uncheck "Use this data source in container managed persistence (CMP)"

Example

jdbc:oracle: thin:@10.10.10.10:1010:KERDEV2

Here, 10.10.10 is the *hostname* where the database is installed, 1010 is the *port number*, *KERDEV*2 is the *instance name*.

- 7. Select the 'Data store helper class' as 'Oracle11g data store helper'.
- 8. Click 'Next'.

The following screen is displayed.



Select user alias from Authentication alias for XA Recovery, Component-managed authentication alias and Container-managed authentication alias dropdown.



9. Click 'Next'.



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WebSphere. software				Welcome websphere Help	Logout IBM.	
View: All tasks 🔹	Â	Create a data source	ome-Apportor		Help	
Welcome					Field help	
 Guided Activities 		Create a data source			For field help i	
Servers		Step 1: Enter basic data source	Summary		select a field la marker when t	
		information	Summary of act	ions:	cursor is displa	
+ Services		Step 2: Select JDBC	Options	Values		
- Resources		provider	Scope	cells:ofss220137Node01Cell:nodes:ofss220137Node01:servers:server1		
 Schedulers Object pool managers JMS 		Step 3: Enter database specific	Data source name	FCUBS DS		
I JDBC		properties for the data source	JNDI name	jdbc/fcjSchedulerDS1		
 JDBC providers Data sources Data sources (WebSphere Application 	Ξ	Step 4: Setup security aliases	Select an existing JDBC provider	Oracle JDBC Driver (XA)		
Server V4) Resource Adapters		→ Step 5: Summary	Implementation class name	oracle.jdbc.xa.client.OracleXADataSource		
			URL	jdbc:oracle:oci:@10.10.10.10:1010:KERDEV2		
 E Cache instances Mail URL 			Data store helper class name	com.ibm.websphere.rsadapter.Oracle11gDataStoreHelper		
 Resource Environment Security Environment 			Use this data source in container managed persistence	true		
System administration			(CMP)			
Users and Groups Monitoring and Tuning			Authentication alias for XA recovery	ofss220137Node01/FCUBS121_DEV		
Troubleshooting	- 1		Component		•	

10. Click 'Finish', the following screen is displayed.

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WebSphere. software	Welcome websphere Help Logout IBM.
View: All tasks 🔻	Cell=ofss220137Node01Cell, Profile=AppSrv01 Close page Data sources 2 - He
Welcome	Uata sources r = He
∃ Guided Activities	Messages
Servers	⚠ Changes have been made to your local configuration. You can:
Applications	Save_directly to the master configuration.
	Review changes before saving or discarding.
Resources	
 Schedulers Object pool managers JDBC JDBC providers Data sources Data sources (WebSphere Application Server V4) Resource Adapters Asynchronous beans Cache instances Mail URL Resource Environment Security Environment System administration 	The server may need to be restarted for these changes to take effect. Data sources Use this page to edit the settings of a datasource that is associated with your selected JDBC provider. The datasource object supplies your application with connections for accessing the database. Learn more about this task in a <u>guided activity</u> . A guided activity provides a list of task steps and more general information about the topic. Scope specifies the level at which the resource definition is visible. For detailed information on what scope is and how it works, <u>see the scope settings help</u> . Node=ofss220137Node01, Server=server1 Preferences New Delete Test connection Manage state
System administration Users and Groups	Select Name \$ JNDI name \$ Scope \$ Provider \$ Description \$ Category \$
	You can administer the following resources: Image: Comparison of the following resources:

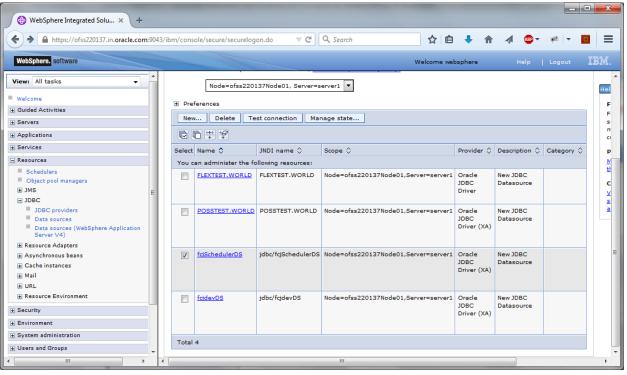
11. Click 'Save'.

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3.3.7 Testing Data Source

Follow the steps given below:

1. Select data source as given below.





2. Click 'Test connection' button. The following screen is displayed on successful creation.

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WebSphere. software	Welcome websphere	Help Logout IBM.
View: All tasks	Cell=ofss220137Node01Cell, Profile=AppSrv01 Data sources	Close page
Welcome	Uata sources	4
Guided Activities	Messages	
Servers	The test connection operation for data source fcjSchedulerDS on server server1 at node	a
Applications	ofss220137Node01 was successful.	
Services		
Resources	Data sources > fcjSchedulerDS	
Schedulers Object pool managers JMS JDBC	Use this page to edit the settings of a datasource that is associated with your selected JDBC provider. The data application with connections for accessing the database. E Configuration	source object supplies your
JDBC providers Data sources Data sources (WebSphere Application Server V4)	Test connection	
Resource Adapters	General Properties A	dditional Properties
	* Scope	Connection pool
	cells:ofss220137Node01Cell:nodes:ofss220137Node01:servers:server1	properties
₩ Mail URL Resource Environment	+ Provider Oracle JDBC Driver (XA)	WebSphere Application Server data source
Security	* Name	properties
Environment	fcjSchedulerDS	Custom properties
	JNDI name idbc/fqSchedulerDS	
Users and Groups		elated Items

3.4 Creating JMS Resources

3.4.1 Creating Queue Connection Factory

Follow the steps given below:

1. Start the administrative console of Websphere application server. Open an internet browser and enter the Websphere admin console URL.

http://{Host}:{Port}/console

Eg: https://10.10.10.10:1010/console

In this example, 10.10.10.10 is the machine IP address on which Websphere is running.



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- 2. Specify the Websphere administrator username and password.
- 3. Click 'Log In'.



4. Navigate to Websphere home page.

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WebSphere, software			7525
webspitere. sortware		Welcome sar	avanan Help Logout IBM.
View: All tasks 🗸	Welcome		
Welcome	Welcome	? - 0	About this Integrated Solutions Console
Guided Activities	Integrated Solutions Console provides a comr	non administrativa concola for	Integrated Solutions Console, 8.5.5.0
	multiple products. The table lists the product s	suites that can be administered	Build Number: gm1319.01 Build Date: 5/14/13
Applications	through this installation. Select a product suite	e to view more information.	
+ Services			LICENSED MATERIALS PROPERTY OF IBM
+ Resources	Suite Name	Version	5724-J08, 5724-I63, 5724-H88,5724-H89, 5655-W65 (C)
+ Security	WebSphere Application Server	8.5.5.0	5724-H88,5724-H89, 5655-W65 (C) Copyright International Business
Environment			
Users and Groups			
Monitoring and Tuning			
Troubleshooting			
Service integration			
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5. Expand 'Resources' and select 'JMS'. Click 'Queue Connection Factories. 'The following screen is displayed.

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WebSphere. software	Welcome saravanan	Help Logout IBM.
View: All tasks	Cell=ofss220239Node01Cell, Profile=FPCFL Queue connection factories ? -	Close page
Welcome Guided Activities	Queue connection factories	Field help For field help information,
	A queue connection factory is used to create connections to the associated JMS provider of the JMS queue destinations, for point-to-point messaging.	select a field label or list marker when the help
Services	Scope: Cell=ofss220239Node01Cell	cursor is displayed.
Resources Schedulers Object pool managers JMS JMS providers Connection factories Queue connection factories Topic connection factories Queues Topics Activation specifications JDBC Resource Adapters Asynchronous beans Cache instances Mail URL Resource Environment System administration Users and Groups	Scope specifies the level at which the resource definition is visible. For detailed information on what scope is and how it works, <u>see the scope</u> settings help. Cell=ofss220239Node01Cell Preferences New Delete Select Name JNDI name Provider Description Scope None Total 0	More information about this page
Monitoring and Tuning III	▼	

6. Select 'Node' from the drop down list and click 'New' button.



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WebSphere, software	Welcome saravanan	Help Logout
WebSphere. software View: All tasks Welcome ① Guided Activities ② Servers ② Applications ① Services □ Resources □ Object pool managers □ JMS □ JMS providers □ Connection factories □ Queue connection factories □ Queues □ Topics □ Activation specifications ④ JDBC	Cell=ofss220239Node01Cell, Profile=FPCFL Queue connection factories Queue connection factories Scope cells:ofss220239Node01Cell Select the provider with which to create the Queue connection factory. The following providers support the selected resource type and are available at the selected scope. Image: Default messaging provider Image: WebSphere MQ messaging provider Image: DK	Help Logout IEM. Close page Help - Field help For field help information, select a field label or list marker when the help cursor is displayed. Page help More information about this page
Resource Adapters Asynchronous beans Cache instances Mail URL Resource Environment Security Environment System administration Users and Groups Monitoring and Tuning m		

7. Select 'Websphere MQ messaging provider' and click 'OK'.



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WebSphere. software			Welcome saravanan	Help Logout IBM.
View: All tasks	CreateWMQJMSResource.displa Create WebSphere MQ JMS		E	Close page
 Guided Activities € Servers 	This wizard creates a Wel → Step 1: Configure	bSphere MQ JMS resource Configure basic attributes		Field help
	basic attributes Step 2: Select	Configure the basic attributes to use for the messaging provider resource	e new WebSphere MQ	select a field label or list marker when the help cursor is displayed.
Resources Schedulers Object pool managers JMS JMS providers Connection factories Queue connection factories Queue connection factories Queue connection factories Activation specifications JDBC Resource Adapters Activation specifications Cache instances Mail Resource Environment Security Environment Security Convertion System administration Users and Groups Miniter Interview	connection method Step 3: Test connection Step 4: Summary Next Cancel	Name NotifyDestQCF JNDI name Description NotifyDestQCF		

8. Specify the following details:

Name	NotifyDestQCF
JNDI Name	NotifyDestQCF
Description	NotifyDestQCF



9. Click 'Next'. The following screen is displayed.

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WebSphere. software	Welcome saravanan	Help Logout IBM.
View: All tasks	CreateWMQJMSResource.displayName Create WebSphere MQ JMS resource	Close page
⊕ Guided Activities	This wizard creates a WebSphere MQ JMS resource	Field help
 Servers Applications 	Step 1: Configure Select connection method basic attributes	For field help information, select a field label or list marker when the help
Services Resources	→ Step 2: Select connection method	cursor is displayed.
Resources Schedulers Schedulers Schedulers JMS JMS providers Connection factories Queue connection factories Queue connection factories Queue s Topic Activation specifications JDBC Resource Adapters Asynchronous beans Cache instances Mail URL Resource Environment Security Environment System administration Uesrs and Groups Minitering and Tuning Time	Step 3: Test connection Step 4: Summary Previous Next Cancel	

10. Set the options as shown in the figure. Click 'Next'.



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WebSphere. software	Welcome saravanan	Help Logout IBM.
View: All tasks	JseCustomWMQConnectionSettings.displayName Custom WebSphere MQ connection	Close page
Guided Activities	Custom WebSphere MQ connection	Help –
Servers Applications	Step 1: Configure Supply queue manager details basic attributes	For field help information, select a field label or list
Services Resources	Step 2: Select connection method	marker when the help cursor is displayed.
Schedulers Schedulers Schedulers Schedulers Structure MS Schedulers Schedule	Step 2.1: Supply queue manager or queue sharing group name QM_DDHP0520 Step 2.2: Enter connection details Step 3: Test connection Step 4: Summary	
Getunity Environment System administration		
Users and Groups Monitoring and Tuning		



12. Specify the queue manager name 'QM_DDHP0520'. Click 'Next'.

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WebSphere. software		Welcome saravanan	Help Logout IBM.
View: All tasks	UseCustomWMQConnectionSettings.displayName Custom WebSphere MQ connection Custom WebSphere MQ connection Step 1: Configure Enter connection details		Close page
Applications Services Resources	basic attributes Step 2: Select Enter the details required to establish a con connection method Transport	nection to the queue	select a field label or list marker when the help cursor is displayed.
 Schedulers Object pool managers JMS MS providers Connection factories Queue connection factories Topic connection factories Queues Topics Activation specifications JDBC Resource Adapters Asynchronous beans Cache instances Mail URL 	Step 2.1: Bindings, then client ▼ Supply queue Bindings, then client ▼ 		
Resource Environment Security Environment System administration Users and Groups Monitoring and Tuning Monitoring and Tuning Monitoring	Previous Next Cancel		

13. Specify the following details:

Host Name	10.10.10.10 (Host where Websphere MQ is installed)
Port	1010 (Web sphere MQ port)
Server Connection Channel	SYSTEM.DEF.SVRCONN



14. Click 'OK'. The following screen is displayed.

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WebSphere. software		We	elcome saravanan	Help Logout IBM.
View: All tasks Welcome ④ Guided Activities ④ Servers ④ Applications ④ Services ● Services ■ Schedulers ■ Object pool managers ■ JMS providers ■ Connection factories ■ Queue connection factories ■ Queue connection factories ■ Queues ■ Topics ■ Activation specifications ঊ JDBC ঊ Resource Adapters ঊ Asynchronous beans ঊ Cache instances ঊ Mail ঊ URL ঊ Resource Environment I System administration I Users and Groups I Monitoring and Tuning	Step 2: Select the "Test Col	tion vlishing a connection using the inform nnection" button. It may take several ou wish to skip this test, select the "M	I seconds to perform	Close page

15. Click 'Test Connection' button.

The following screen is displayed:

Step 1: Configure	Test connection result
basic attributes	
Step 2: Select connection method	Result of testing the connection
Step 2.1: Supply queue connection details	to WebSphere MQ.
Step 2.2: Enter connection details	
Step 3: Test connection	
Step 3.1: Test connection result	



16. Click 'Next'. The following screen is displayed with a message in the summary field.

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WebSphere, software	Welcome saravanan Help Logout	IBM.
View: All tasks	Create WebSphere MQ JMS resource	Close page
Bended Activities Servers Applications	This wizard creates a WebSphere MQ JMS resource Step 1: Configure basic attributes	
Services Schedulars Schedul	Step 2: Select connection method Step 2.1: Supply queue manager details Step 3: Test connection result → Step 4: Summary Summary Creating a resource of type Queue connection factory- Name "NotifyDestQCF" - NDI name "NotifyDestQCF" - Queue manager or queue sharing group name "QM_DDHP0520" - Server type "QMGR" - Hostname "Into 10.10.10" - Port "1010" - Channel name "SYSTEM.DEF.SVRCONN"	ih.
Asynchronous beans Cache instances Anal URL Security Security System administration Users and Groups Monitoring and Tuning	Previous Finish Cancel	

17. Click 'Finish'.



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WebSphere. software	Welcome saravanan Help Logout 百麗.
View: All tasks Welcome Guided Activities Servers Applications	Cell=ofss220239Node01Cell, Profile=FPCFL Close page Queue connection factories ? Help Field help Field help information For field help information Save_directly to the master configuration. You can:
Services Resources Schedulers Object pool managers	Review changes before saving or discarding. Page help The server may need to be restarted for these changes to take effect. More information about this page
 Object pool managers JMS JMS providers Connection factories Queue connection factories Topic connection factories Queues Topics Activation specifications 	Queue connection factories Command Assistance A queue connection factory is used to create connections to the associated JMS provider of the JMS queue destinations, for point-to-point messaging. View administrative associated JMS provider of the JMS queue activation command for las action Scope: Cell=ofss220239Node01Cell Scope specifies the level at which the resource definition is visible. For detailed information on what scope is and how it works, <u>see the scope</u> settings help. For the scope
 DBC € Resource Adapters Asynchronous beans Cache instances Mail 	Cell=ofss220239Node01Cell ▼ Preferences
mail URL Resource Environment	New Delete
Security Environment	Select Name JNDI name Provider Description Scope You can administer the following resources:
Environment System administration Users and Groups Monitoring and Tuning	You can administer the following resources: Image: NotifyDestQCF NotifyDestQCF WebSphere MQ messaging provider NotifyDestQCF Cell=ofss220239Node01Cell
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- 18. Click 'Save'.
- 19. Similarly, you need to create the all queue connection factories mentioned in the document "Resource To be Created"
- 20. Make sure that the checkbox "Support two phase commit protocol" is un-checked when creating FCM_QCF as JNDI name.

3.4.2 Creating Queues

Follow the steps given below:



- 1.
- Expand 'Resources > JMS' and click Queues.

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Activation specifications JDBC Resource Adapters Asynchronous beans Cache instances Mail URL Resource Environment Security Environment System administration Users and Groups Monitoring and Tuning	None Total 0				

2. Select 'Node' from the drop down list. Click 'New'.



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3. Select 'Websphere MQ messaging provider'. Click 'OK'.



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Queue connection factories	NOTIFY_QUEUE		
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Cache instances	WebSphere MQ Queue		
Mail	* Queue name		
1 URL	NOTIFY_QUEUE		
Resource Environment	Queue manager or Queue sharing group name		
	QM_DDHP0520		
Environment			
	Apply OK Reset Cancel		
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Monitoring and Tuning			-
			۱.

Specify the following details:

Name	NOTIFY_QUEUE
JNDI Name	NOTIFY_QUEUE
Description	NOTIFY_QUEUE
Queue Name	NOTIFY_QUEUE on Websphere MQ to which the queue needs to be mapped
Queue Manager or Queue sharing group name	QM_DDHP0520

4. Click 'Apply'.



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Resources	Queue destinations provided for point-to-point mess queue destination administrative objects to manage	saging by the WebSphere MQ messaging provider. Use WebSphere MQ queue destinations for the WebSphere MQ messaging provider.	More information about this page
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I JDBC	WebSphere MQ messaging provider		
Resource Adapters			
Asynchronous beans	* Name NOTIFY_QUEUE		
Cache instances			
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5. Click 'Websphere MQ Queue Connection Properties'.

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View: All tasks	Cell=DDHP0520Node01Cell, Profile=AppSrv01 Close page
= Welcome	Queues ? - Help -
B Guided Activities	E Messages Field help
I Servers	Changes have been made to your local configuration. You can: The name of the channel to use to connect to the
Applications	Save directly to the master configuration. Asview changes before saving or discarding.
Services	The server may need to be restarted for these changes to take effect. Page help More information about
E Resources	More information about this page
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The following screen is displayed.



6. Specify the following details:

Queue manager host	10.10.10.10 (IP address of the MQ server)
Queue manger port	1010
Server Connection Channel	SYSTEM.DEF.SVRCONN

7. Click 'Save'.

The following screen is displayed.

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Servers	A JMS queue is used as a de	stination for point-to-p	point messaging.			For field help information, select a field label or list
Applications	Scope: Cell=DDHP0520N	ode01Cell, Node=DDH	P0520Node01			marker when the help cursor is displayed.
Services	Sama analifian th	- Investigate which they are	ource definition is visible	. Can detailed		Page help
Resources	information on what	at scope is and how it v	vorks, see the scope set	tings help.		More information about
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 Connection factories 	New Delete					
 Queue connection factories 						
 Topic connection factories 						
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Asynchronous beans	Total 1					
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Mail						
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8. Similarly, you need to create all the queues mentioned in the document "Resource To be Created".

3.5 Creating Message Listener

Follow the steps given below:

1. Start the administrative console of Websphere application server. Open an internet browser and enter the Websphere admin console URL.

http://{Host}:{Port}/console

Eg: https://10.10.10.10:1010/console

In this example, 10.10.10.10 is the machine IP address on which Websphere is running.



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- 2. Specify the Websphere administrator username and password.
- 3. Click 'Log In'.



4. Navigate to Websphere home page.

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Services Resources Security	Suite Name WebSphere Application Server	Version 8.5.5.0	IBM 5724-J08, 5724-I63, 5724-H88,5724-H89, 5655-W65 (C) ▼
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5. Expand 'Servers > Server Types' and click 'Websphere application servers'.



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6. Click 'server1'.



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Services Resources Security Environment System administration	Node name ofss220239Node01 Run in development mode Parallel start	 SIP Container Settings Web Container Settings Portlet Container Settings 	
Users and Groups Monitoring and Tuning Troubleshooting Service integration	Start components as needed Access to internal server classes Allow Server-specific Application Settings	 EB Container Settings Container Services Business Process Services 	
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7. Expand 'Messaging' and select 'Message listener service'.



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8. Click 'Listener Ports'.



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9. Click 'New'.



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Server Types WebSphere application servers WebSphere MQ servers Web servers	Configuration	cu Pi M
Applications Services Resources	General Properties + Name NotifyMDB_Listener	<u>th</u>
Security Environment	+ Initial State Started	:
System administration Users and Groups Monitoring and Tuning	Description NotifyMDB_Listener * Connection factory JNDI name	
Monitoring and Luning Troubleshooting Service integration	NotifyMDB_Listener Destination JNDI name	
E UDDI	NOTIFY_MDB_QCF Maximum sessions Maximum retries 0	
	Maximum messages	
< •		•

10. Specify the following details:

Name	NotifyMDB_Listener
Description	NotifyMDB_Listener
Connection factory JNDI name	NOTIFY_MDB_QCF
Destination JNDI name	NOTIFY_QUEUE
Maximum retries	1

11. Click 'Apply'.

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I Services I Resources I Security	Application servers > server1 > Message listener service > Listener Ports > NotifyMDB_Listener Use this page to configure listener ports upon which message-driven beans listen for messages. Each port specifies the JMS connection factory and JMS destination that a message-driven bean, deployed against that port, listens upon.
 Environment System administration Users and Groups Monitoring and Tuning Troubleshooting Service integration 	Configuration General Properties * Name
 A Service integration 	* Name NotifyMDB_Listener * Initial State Started Description NotifyMDB_Listener * Connection factory JNDI name NotifyMDB_Listener * Destination JNDI name
4	* Destination JNDI name

12. Click 'Save'.



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Services	Select Name ♦ Description ♦ Connection factory JNDI name ♦ Destination JNDI name ♦ Status Φ	
Resources	You can administer the following resources:	
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Environment	Total 1	
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Users and Groups		
Monitoring and Tuning		
Troubleshooting		
Service integration		
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13. Select 'NotifyMDB_Listener'. Click 'Start'.



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System administration		NotifyMDB Listener	NotifyMDB Listener	NOTIFY MDB QCF	NOTIFY QUEUE	*	
Users and Groups							
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14. Similarly, you need to create the following listeners:

MDB_Listener
NotifyMDB_Listener
RecordingMDB_Listener
ELMDB_Listener
ELNotifyMDB_Listener

The complete list of listener queue and QCF to be created for Websphere is given below.

Application Name	Listener Name	Listener QCF	Listener QUEUE
GWMDB	MDB_Listener	MDBQCF	MDB_QUEUE
GWNotifyMDB Bean	NotifyMDB_Listener	NOTIFY_MDB_ QCF	NOTIFY_QUEUE
RTGSInMDB	RTGS_Listener	RTGSQCF	RTGS_INQUEUE
SFMSInMDB	SFMS_Listener	SFMSQCF	SFMS_INQUEUE



ELGWMDBBea n	ELMDB_Listener	ELMDBQCF	ELMDB_REQ_Q
ELNotifyMDBB ean	ELNotifyMDB_Listener	EL_NOTIFY_Q CF	EL_NOTIFY_REQ_Q
EMSInMDB	EmsIn_Listener	EmsQcf	EMS_INQUEUE
EMSOutMDB	EmsOut_Listener	EmsQcf	EMS_OUTQUEUE
BipReportMDB	BipReport_Listener	BIPQCF	INTERNAL_BIPREPORT_QUE UE
BipAdviceMDB	BipAdvReport_Listener	BIPQCF	INTERNAL_BIPADVREPORT_ QUEUE
GIUploadMDB	Gi_Upload_Listener	GI_UPLOAD_Q CF	INTERNAL_GI_UPLOAD_QUE UE
PMScheduler	PMSCH_Listener	SchedulerQCF	SchedulerQueue
PMGateway	PMGW_Listener	PM_GW_QCF	PM_GW_REQ_QUEUE
FCMCore	FCM_RECEIVER_ Listener	FCM_QCF	FCM_RECEIVER
FCMCore	FCM_BULKER_ Listener	FCM_QCF	FCM_BULKER
FCMCore	FILE_PROCESSOR_ Listener	FCM_QCF	FILE_PROCESSOR
FCMCore	pymtGatewayResQ_ Listener	FCM_QCF	pymtGatewayResQ

Here,

- MDB_Listener is mandatory for Gateway MDB applications
- PMGW_Listener is mandatory for Payment Gateway MDB applications
- PMSCH_Listener is mandatory for Payment Job framework applications
- FCMCore related listeners are mandatory for FLEXCUBE Messaging.
- All others are required for FCJ Applications embedded with Scheduler and ELCM



4. Default Settings for Web Sphere

4.1 Libraries for PMGateway Application

To deploy the PMGateway application, Following steps need to be performed

- 1. Copy runtime12.jar from database servers ORACLE_HOME/sqlj/lib to application servers library path (WAS_HOME/lib/ext)
- 2. Create a global shared library containing the following file: a. eclipselink.jar

Find this file in the

'TOPLINK_INSTALLATION\oracle_common\modules\oracle.toplink_ver_no' directory created by the TopLink quick installer.

• For step 2 Kindly Refer the document Toplink_IBM_WAS_setup.doc



5. Configuring Mail Session on Websphere

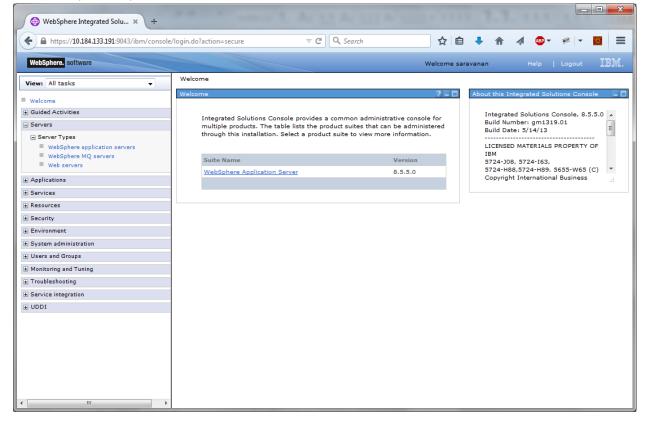
5.1 Introduction

This section describes the method to configure Websphere application server for Oracle FLEXCUBE to generate and send passwords to the users via e-mail.

5.2 Creating Java Mail Session

To create Java mail session, follow the steps given below:

1. On the left pane, expand 'Resources' and select 'Mail'.



2. Click 'Mail Sessions' to invoke the 'Mail sessions' screen.



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Welcome		Field help
	Mail Sessions	For field help information,
	Use this page to create mail sessions, which are collections of properties that define how your application sends mail and accesses the mail store. To create a useful mail session, an outgoing or incoming server	select a field label or list marker when the help
Applications	and protocol must be provided. Configure mail sessions only after you configure the necessary protocol	cursor is displayed.
	providers.	Page help
Resources	Scope: =All scopes	More information about
Schedulers Object pool managers MS DDBC Resource Adapters Asynchronous beans Cache instances Mail Mail providers Mail sessions URL Resource Environment	Scope specifies the level at which the resource definition is visible. For detailed information on what scope is and how it works, <u>see the scope</u> settings help. All scopes Preferences New Delete Select Name \Diamond JNDI name \Diamond Scope \Diamond Provider \Diamond Description \Diamond Category \Diamond None	<u>this page</u>
+ Security	Total 0	
Environment		
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3. Click 'New' button to create a new mail session.



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4. Provide the required information. Sample details are given below for your reference.

General Properties				
Name	FCUBSMail			
JNDI Name	mail/FCUBSMail			
N.B	This has to be maintained in the file 'fcubs.properties' in encrypted format			
Outgoing Mail	Outgoing Mail Properties			
Server	< HOST_MAIL_SERVER >			
Protocol	smtps			



5. Click 'Custom Properties' link to configure the custom properties.

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View: All tasks Welcome Guided Activities	mail and accesses the mail store. To create a useful mail restion, an outgoing or incoming server and protocol must be provided. Configure mail sessions only after you configure the necessary protocol providers. Configuration	Help Field help
⊞ Servers	General Properties Additional Properties	For field help information, select a field label or list
Applications	Scope	marker when the help cursor is displayed.
⊞ Services	cells:CVRZE0138Node01Cellinodes:CVRZE0138Node01:servers:server1	Page help
Resources	Provider	More information about this page
Schoolers Object pool nanagers Object pool nanagers	Built-in Mail Provider * None * RCUBSMail * Minore (mail/FCUBSMail Description	Command Assistance View administrative colubin.command.for.last addice
E Security	Category	
Environment System administration	Enable debug mode	
Users and Groups	Enable strict Internet address parsing	
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E Security	None						
IT Environment	Total 0						
System administration							
Users and Groups							
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Troubleshooting							
Service integration							
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Done							

6. Click 'New' button to create new custom properties.



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Done		

7. Specify the information required for creating custom properties. Sample details are given below:

Name	mail.smtps.host
Value	<host_smtps_mail_server></host_smtps_mail_server>
Туре	java.lang.String

The custom properties are given below:

Name	Value	Туре
mail.smtp.host	<host_smtps_mail_server></host_smtps_mail_server>	java.lang.String
mail.smtp.port	<smtps_server_port></smtps_server_port>	java.lang.String
mail.host	<host_mail_server></host_mail_server>	java.lang.String
mail.smtps.auth	TRUE	java.lang.String



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E Services		nges before saving or discar				Page help	
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Schedulers	🛆 The server	may need to be restarted fo	or these changes to take e	affect.		this page	
Object pool managers						Command Ass	
⊞ JMS	Mail Sessions > ECUBSMail > Custom properties scripting command for last						
IDBC	Use this page to specify custom	properties that your enterpr	ise information system (E	IS) requires for the		action	
Resource Adapters	resource providers and resource additional custom properties for			base vendors requ	re		
	Preferences						
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Resource Environment	You can administer the followin						
E Security	mail.smtps.host	10.10.10.10		false			
Environment	Total 1						
System administration	rocar 1						
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Monitoring and Tuning							
Troubleshooting							

Click 'Save' to complete the configuration.

The file 'fcubs.properties' needs to be updated with the encrypted values of the following components

- SMTP_HOST
- SMTP_USER
- SMTP_PASSWORD
- SMTP_JNDI

You can update this using Oracle FLEXCUBE UBS Installer.



6. Annexure

Ensure the following settings before deploying the application:

6.1 IBM Websphere Server - Increasing Heap Size

- 1. Go to 'Server > Application Servers' and select the 'server_name'
- Under the Configuration tab, navigate to 'Server Infrastructure > Java(TM) and Process Management
 > Process Definition > Additional Properties: Java Virtual Machine'
- 3. Modify the initial heap size and maximum heap size appropriately based on the load size

6.2 IBM Websphere Server - Transaction Service Properties

- 1. Go to' Server > Application Servers' and select the 'server_name'
- 2. Choose 'Container Services > Transaction Service'
- 3. Change the total transaction lifetime timeout appropriately
- 4. Party content, products, or services.

6.3 IBM Websphere Server – ORB Service Configuration

1. Go to' Server > Application Servers' and select the 'server_name'

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2. Expand 'Container Services' and click 'ORB Service'

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	General Properties	Additional Properties	this page
Applications	* Request timeout	Custom	
Services	180 seconds	properties	
Resources	* Request retries count		
Security	1 retries		
Invironment	* Request retries delay		
System administration	0 milliseconds		
Jsers and Groups	* Connection cache maximum		
Aonitoring and Tuning	240 connections		
Froubleshooting	* Connection cache minimum		
Service integration	100 connections		
IDDL	ORB tracing		
	* Locate request timeout		
	180 seconds		
	Force tunnel		
	NEVER .		
	Tunnel agent URL		
	Torrier agent one		
	Pass by reference		
	Thread Pool Settings		
	Use the <u>ORB.thread.pool</u> settings associated with the Thread Pool Manager (recommended).		
	Our mainager (recommended). Our set the Thread Pool Settings directly associated with the ORB service.		
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3. Check 'Pass by reference' and click Apply

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4. Click 'Save'.





Websphere Configuration [May] [2017] Version 12.4.0.0.0

Oracle Financial Services Software Limited Oracle Park Off Western Express Highway Goregaon (East) Mumbai, Maharashtra 400 063 India

Worldwide Inquiries: Phone: +91 22 6718 3000 Fax:+91 22 6718 3001 www.oracle.com/financialservices/

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