Websphere Configuration Oracle Banking Treasury Management Release 14.5.0.0.0 [May] [2021]



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6.3	IBM WEBSPHERE SERVER – ORB SERVICE CONFIGURATION	



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 Banking Treasury Management. 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.

Example

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
SHA1withRSA -validity 365 -keystore
D:\keystores\OBTRMKeyStore.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
```



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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× Sync encountered an error while sy	vncing: Failed to connect to the server. Sync	will automatically retry this action.	ices				

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

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Velospicita sontware Velospicita sontware Velocme Guided Activities Guided Activities Servers Applications Services Resources Global security Global security Global security Global security Security domains Administrative Authorization Groups SSL certificate and key management Security auditing Bus security Security auditing Bus security System administration Global security System administration Guided Security Troubleshooting Genetic integration	Celleofss220137Node01Cell, Profile=AppSrv01 SSL certificate and key management The Secure Sockets Layer (SSL) protocol provides secure 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 entre application-serving environment. This capability enables you to certailly 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 migrated a secured environment to this version using the migrated a secured for the various endpoints. However, it is necessary for you to re-configure SSL to take advantage of the centralized management capability.	Related Items SSL configurations Dynamic outbound endpoint SSL configurations Key stores and certificates Key stores Key sets Key sets Key sets Key sets Cartificate Authority (CA) client configurations	Help Logout Legat. 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
@ UDDI < [!!!] +	Configuration settings Manage endpoint security configurations Manage certificate expiration Manage FIPS		



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=ofss220137Node01Cell, Profile=AppSrv01 SSL certificate and key management ? -	Close page
Welcome	SSL certificate and key management > Key stores and certificates	Field help
Guided Activities	Defines keystore types, including cryptography, RACF(R), CMS, Java(TM), and all truststore types.	For field help information,
E Servers	bennes keystole types, including typtography, kwcr(k), cms, sava(1m), and an duststole types.	select a field label or list marker when the help
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Services	SSL keystores	Page help
	Preferences	More information about this page
Security		
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SSL certificate and key management	Select Name 🗘 Description 🗘 Management Scope 🗘 Path 🗘	action
 Security auditing Bus security 	You can administer the following resources:	
Environment	NodeDefaultKeyStore Default key store (cell):ofss220137Node01Cell: \${CONFIG_ROOT}/cells	
-	for (node):ofss220137Node01 /ofss220137Node01Cell ofss220137Node01	
System administration	/nodes /ofss22013/Node01 /ofss220137Node01	
Users and Groups	/key.p12	
Monitoring and Tuning	NodeDefaultTrustStore Default trust store (cell):ofss220137Node01Cell: \${CONFIG_ROOT}/cells	
Troubleshooting	for (node):ofss220137Node01 /ofss220137Node01Cell	
	ofss220137Node01 /nodes /ofss220137Node01	
± UDDI	/trust.p12	
	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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Users and Groups Monitoring and Tuning	CMSKS PKCS12	
Troubleshooting	JKS Cryptographic Token Device (PKCS11)	
Service integration	Enable cryptographic operations on hardware device	
∎ UDU	Apply OK Reset Cancel	-
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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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View: All tasks 🔹	Cell=ofss220137Node01Cell, Profile=AppSrv01	2	Close page
Welcome	SSL certificate and key management		Field help
Guided Activities Servers			For field help information, select a field label or list
	SSL configurations	Related Items	marker when the help cursor is displayed.
+ Services + Resources	The Secure Sockets Layer (SSL) protocol provides secure communications between remote server processes or endpoints.	SSL configurations	Page help More information about
Security Security Security Security Security Security Security Security Security Environment Security Users and Groups Security	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 variations of this product, it was necessary to manually configure each endpoint for Sacure Socket 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 configuration. If you have migrated a secured environment to this varian using the migration utilities, the old Secure Sockets Layer (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. <u>Configuration settings</u> <u>Manage entraint security configurations</u>	Dynamic outbound sndpourtions Key stores and certificates Key sata Key sata Key sataroups Key managers Trust managers Certificate Authority (CA) client configurations	this page
()	Dynamically update the run time when SSL configuration		



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

The following screen is displayed:

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WebSphere. software		Welcome websphere	Help Logout IBM.
View: All tasks	Cell=ofs=220137Node01Cell, Profile=AppSrv01 SSL certificate and key management		Close page
Welcome Guided Activities Servers	<u>SSL certificate and key management</u> > SSL co Defines a list of Secure Sockets Layer (SSL) co		Field help For field help information, select a field label or list
Applications Services	Preferences New Delete		marker when the help cursor is displayed. Page help
	D D +++ +P Select Name ≎	Management Scope 🗘	Page help More information about this page Command Assistance View administrative
Security domains Administrative Authorization Groups SSL certificate and key management Security auditing	You can administer the following resources: NodeDefaultSSLSettings	(cell):ofss220137Node01Cell: (node):ofss220137Node01	View administrative scripting command for last action
Bus security	Total 1		
 			
Monitoring and Tuning Troubleshooting			
Service integration UDDI			
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2. Click 'New' button. The following screen is displayed.

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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 the general properties for
Security Global security		this item are applied or saved.
 Global security Security domains 	Trust store name NodeDefaultKeyStore ((cell):ofss220137Node01Cell:(node):ofss220137Node01)	Additional Properties
Administrative Authorization Groups	NodeDeraultKeyStore ((cell):0rss22013/Node01Cell:(node):0rss22013/Node01)	Quality of
 SSL certificate and key management Security auditing 	Keystore name	protection (QoP)
Bus security	NodeDefaultKeyStore ((cell):ofss220137Node01Cell:(node):ofss220137Node01)	settings Trust and key
+ Environment	Default server certificate alias	 Irust and key 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	
4 III >>>		Þ

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.

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WebSphere. software View: All tasks Welcome	Cell=ofrs220137Kode01Cell, Profile=AppSrv01 SSL.certificate and key management	Welcome websphere	Help Logout IBH, Close page A - Help - Field help
Guided Activities Servers	SSL certificate and key management		For field help information, select a field label or list marker when the help
(a) Applications (a) Services (b) Resources (c) Security (c) Global security (c) Global security (c) Security domains (c) Security auditing (c) Security auditing (c) Security auditing (c) Security (c)	SSL configurations 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 includes the security configuration of the security configuration must be specified for the endpoint. In previous versions of this product, it was necessary to manually configure each endpoint for Secure Sockats Layer (SSL). In this version, you can define a single configuration for the entrie application-serving environment. This capability enables you to controlly mability enables you to controlly mabilities, the old Secure Sockats Layer (SSL). If you have migrated a secured environment to this version using the migration are restored for the version serving environment are conformed to the version using the migration using the migration are restored for the version services and to be supported in the version and prevent of the default. However, it is necessary for you to re-configure SSL to take advantage of the central environment capability.	Related Items SSL configurations SSL configurations cutoficity configurations sconfigurations Key stores and cettificates Key sats Key sats Key sats Key sats Key managers Configurations configurations	cursor is displayed. Page help More information about this page E
Service integration UDDI	Configuration settings Manage endpoint security configurations Manage certificate expiration Manage FIPS Ø Dynamically update the run time when SSL configuration		-

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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WebSphere, software	Welcome websphere Help Logout IBM.
View: All tasks	Cell=ofss220137Node01Cell, Profile=AppSrv01 Close page SSL certificate and key management P Halp
Guided Activities Servers	SSL certificate and key management > Manage endpoint security configurations Field help Displays Secure Sockets Layer (SSL) configurations for selected scopes, such as a cell, node, server, or cluster. Secure Sockets Layer (SSL) configurations for selected scopes, such as a cell, node, server, or select a field label or list
Applications Services	duster. marker when the help Local Topology Page help Page help
in Resurces Clobal security Clobal security Security domains Administrative Authorization Groups SEL, certificate and key management Security auditing Bus security	Inbound I
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2. Click the first link under 'Inbound tree'. The following screen is displayed:

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Applications			marker wh cursor is d
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Security	ofss220137Node01	SSL configurations	this page
Global security Security domains Administrative Authorization Groups SSL certificate and key management Security auditing Beus security Environment	Direction Inbound Specific SSL configuration for this endpoint SSL configuration NodeFaultSSL Stating Update certificate alias list Manage certificates	 <u>Dynamic</u> outbound andoint SSL configurations <u>Kay stores and</u> certificates Kay sets 	
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Monitoring and Tuning		Trust managers Certificate	
Troubleshooting		Authority (CA)	
	Apply OK Reset Cancel	client configurations	
Service integration			

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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Web servers	***				More information about				
Applications	Name 🗘	Node 🗘	Host Name 🗘	Version 🗘	this page				
Services	You can adminis	ter the following resources:			Command Assistance				
Resources	server1	ofss220137Node01	ofss220137.in.oracle.com	Base 8.5.5.0	View administrative scripting command for las				
Security	Total 1				action				
Global security									
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 SSL certificate and key management Security auditing 									
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Users and Groups									
Monitoring and Tuning									
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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	
Week All tacks Welcom South Activities Galact Activities Galact Activities Galact Activities South Activities Kapilications Kapilica	Ansilication servers > server1 Use this page to configure an application server. An application server resulted to une networks explications. Runtime Configuration Configuration Name server1 Node name of sezol37mode01 Run in development mode Parallel tant Start components as needed Access to internal server classes Allow Server specific Application Settings Classicader policy		Vela Field help For field help information salest a field bale or lin marker when the help curver is displayed. Page help More information about this page
Menitoring and Tuning Troublehotting Service Integration UDD1	Multiple V Class loaded with parent class loader first Classes loaded with parent class loader first Apply OK Reset Cancel	Business Process Services Applications Installed applications Server messaging Massaging engine Messaging engine	

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

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Guided Activities	Арр	lication servers > <u>server1</u> > Web co	ntainer transport	chains			Field		nformation		
- Servers		this page to view and manage a tran		sport chains rep	resent network	protocol stacks	selec	t a field la	abel or list		
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3. Against their respective names, the secured connection is available under the column 'SSL Enabled'. Click 'WCInboundDefaultSecure'.

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WebSphere. software	Welcome websphere Help Logout IBM,
View: All tasks 🗸	Call=ofs:220137Node01Call, Profile=App5rv01 Close page Application servers 7 Help
Welcome Guided Activities	Application servers > server1 > Web container transport chains > HttpQueueInboundDefaultSecure For field help For field help information
Servers Server Types WebSphere application servers WebSphere MO servers	Use this page to view and manage a transport chain. Transport chains represent network protocol stacks that are operating within a client or server.
Web servers Applications	General Properties
Services Resources	* Name http://ueueInboundDefaultSecure
E Security	Enabled
Global security Security domains Administrative Authorization Groups SSL certificate and key management Security auditing Bus security	Transport Channels TCP inboard channel (TCP 4) Host Port 9443
Environment	Thread pool WebContainer Maximum open connections 20000
System administration Users and Groups	Inactivity timeout 60 seconds
Monitoring and Tuning Troubleshooting Service integration	SSL inbound channel (SSL 2) SSL configuration (Centrally managed) HTTP inbound channel (HTTP. 4)
100U	Use parsistent keep alive connections Enabled Hawmun parsistent requests per connection 180 Red Withing Control (Control
	ITTP aues inbound shannel (HTTPS 2) Web container inbound channel (WCC 6)
< >	Apply_OK_Reset_Cancel

The following screen is displayed:

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

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	Apply OK Reset Cancel	
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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 <u>Certificate Exchange for Two Ways SSL</u>

1.8.1 Extracting Certificate for Server1

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

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Global security				OU=ofss220137Node(O=IBM, C=US)1,	OU=ofss220137 OU=ofss220137 O=IBM, C=US				2015 to Jun 21, 2016.		
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 SSL certificate and key management Security auditing Bus security 				OU=Root Certificate, OU=ofss220137Node(OU=ofss220137Node(U=Root Certificate, U=ofss220137Node01Cell,		OU=Root Certificate, OU=ofss220137Node01Cell, OU=ofss220137Node01,			Jun 22, 2015 to Jun 18, 2030.		
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- 1. 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 Cell=ofss220137Node01Cell, Prohle=AppSrv01	Logout IBM.
View: All tasks	Cell=0iss220137N08001Cell, Prolite=Apparo11 SSL certificate and key management SSL certificate and key management > Key stores and certificates > NodeDefaultKeyStore > Personal certificates > Extract certificate Extracts a certificate Extracts a certificate	Close page Help Field help For field help inform select a field label o
Server Types WebSphere application servers WebSphere MQ servers WebSphere MQ servers Web servers	Central Properties Certificate alias to extract default	marker when the he cursor is displayed. Page help More information ab this page
Applications Services Resources	* Certificate file name D:\Keystores\myKeysore.cer Data type	
Security Global security Security domains Administrative Authorization Groups SSL certificate and key management Security auditing Bus security	Base64-encoded ASCII data	
Environment System administration		
Gervice integration UDDI ✓ III	4 [W	

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).



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WebSphere. software	Welcome websphere	Help Logout IBM.
View: All tasks	l=ofss220137Node01Call, Profila=AppSrv01 L. certificate and key management	Close page
Welcome	SSL certificate and key management > Key stores and certificates > NodeDefaultKeyStore	
 	Defines keystore types, including cryptography, RACF(R), CMS, Java(TM), and all truststore types.	
Server Types WebSphere application servers WebSphere MQ servers Web servers	General Properties	Additional Properties
Applications	Name NodeDefaultKeyStore	Signer certificates Personal
Services Resources	Description Default key store for ofss220137Node01	certificates Personal
Security	Management scope	<u>certificate</u> requests
 Global security Security domains Administrative Authorization Groups 	(cell):ofsz20137Node01Cell:(node):ofss220137Node01 Path \$(CONFIG ROOT)/cells/ofss220137Node01Cell/nodes/ofss220137Node01/kev.p12	Custom properties
 SSL certificate and key management Security auditing Bus security 	S(CUNTIG_COT)/Cells/Diss22013/Node0/Celly/Nodes/Diss22013/Node0//key.p12 * Password	J
Environment System administration	Type PKCS12	
Users and Groups Monitoring and Tuning	Read only	
Monitoring and Tuning Troubleshooting	Initialize at startup	
Service integration UDDI	Enable cryptographic operations on hardware device	_
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1. Click 'Signer Certificates'.

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■ Welcome		SSL certificate and key manac certificates	ement > <u>Key stores an</u>	<u>id certificates</u> > <u>NodeDefault</u>	KeyStore > Signer		Field help For field help information,
Servers Server Types WebSphere application servers		Manages signer certificates in Preferences 		select a field label or list marker when the help cursor is displayed.			
WebSphere MQ servers Web servers Web servers Applications		Add Delete Extract	Retrieve from port				Page help More information about this page
Services		Select Alias 🗘	Issued to 🗘	Fingerprint (SHA Digest) 🗘 Expiration 🗘		Command Assistance View administrative
Resources		None					scripting command for last action
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2. Click 'Add' button to add the certificate of the other server.



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View: All tasks	Cell=ofss220137Node01Cell, Profile=AppSrv01 SSL certificate and key management 7	Close pag Help
Welcome Guided Activities Servers	<u>SSL certificate and key management > Key stores and certificates > NodeDefaultKeyStore > Signer certificates > Add signer certificate</u> Add signer certificate Adds a signer certificate to a key store.	Field help For field help informatio select a field label or lis marker when the help
 Server Types WebSphere application servers WebSphere MQ servers Web servers 	General Properties	cursor is displayed. Page help More information about
Applications	+ File name D:\Keysores\myKeysore.cer	this page
Services	Data type	
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Security 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		
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 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>

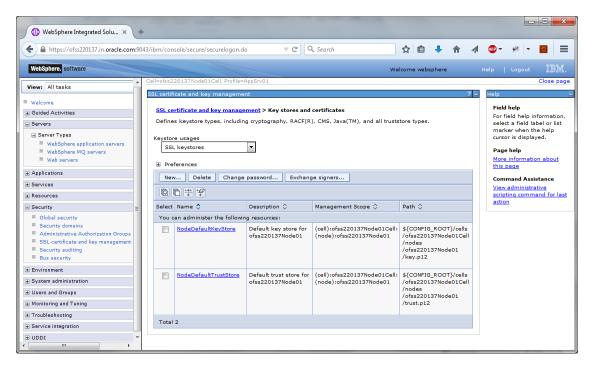
1.8.4 Importing Certificate into Keystore for Server2

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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Welcome		
Guided Activities	General Properties	Additional Properties
Servers	Name	Signer certificates
Server Types	NodeDefaultKeyStore	Personal
 WebSphere application servers WebSphere MQ servers 	Description	certificates
 Websphere MQ servers Web servers 	Default key store for ofss220137Node01	Personal
+ Applications	Management scope	<u>certificate</u> requests
Services	(cell):ofss220137Node01Cell:(node):ofss220137Node01	Custom
+ Resources	Path	properties
-	\${CONFIG_ROOT}/cells/ofss220137Node01Cell/nodes/ofss220137Node01/key.p12	
Security Global security	* Password	
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Administrative Authorization Groups	Туре	
 SSL certificate and key management Security auditing 	PKCS12	
 Security auditing Bus security 		
+ Environment	Read only	
System administration	Initialize at startup	
Users and Groups	Enable cryptographic operations on hardware device	
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1. Click 'Signer Certificates'.

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Servers Server Types WebSphere application servers		Manages signer certificates in Preferences	marker when the help cursor is displayed.			
WebSphere MQ servers Web servers Web servers Applications		Add Delete Extract	Retrieve from port			Page help More information about this page
Applications Services		Select Alias 🗘	Issued to \Diamond	Fingerprint (SHA Digest)	Expiration \$	Command Assistance View administrative
Resources		None				scripting command for last action
Security Global security	=	Total 0				
Group security Security domains Administrative Authorization Groups SSL certificate and key management Security auditing Bus security						
Environment						
System administration Users and Groups						
 the Users and Groups the Monitoring and Tuning Troubleshooting 						
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2. Click 'Add' button to add the extracted certificate of the second server.



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Welcome Guided Activities Servers Server Types	SEL certificate and key management > Key stores and certificates > NodeDefaultKeyStore > Signer certificates > Add signer certificate Add signer certificate Adds a signer certificate to a key store.	Field help For field help information select a field label or lis marker when the help
WebSphere application servers WebSphere MQ servers WebSphere MQ servers Web servers	General Properties + Alias ELCM	cursor is displayed. Page help More information about this page
Applications Services	+ File name D:\Keysores\myKeysore.cer	
+ Resources	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		
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אססע	urity.SignerCertsCollectionForm')	

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.

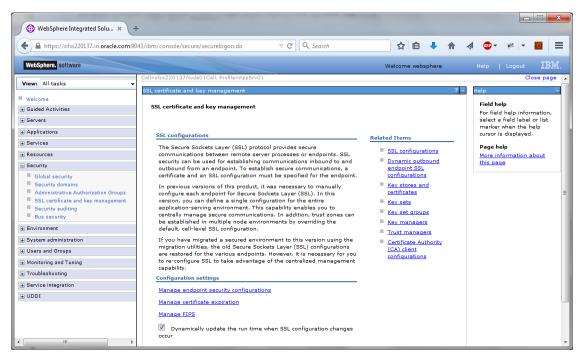
1.8.6 Importing Certificate into Truststore for Server2

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'.

WebSphere. software Welcome websphere Help Logout IBM View: All tasks Calledsu220137Node01Call. Profile=AppSrv01 Close particle	WebSphere Integrated Solu × + Multiple Https://ofss220137.in.oracle.com:9043	/ibm/console/secure/securelogon.do	₄ @•- ** - 0 =
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View: All tasks SSL certificate and key management SSL certificate and key management Heip View: One SSL certificate and key management Manage endpoint security configurations Field heip Guided Activities Displays Secure Sockets Layer (SSL) configurations for selected scopes, such as a cell, node, server, or cluster. Field heip information select affold heip information heip information select affold heip information select affo	WebSphere. software	Welcome websphere	Help Logout IBM.
■ Welcoms SSL certificate and key management > Manage endpoint security configurations Field help information selected scopes, such as a cell, node, server, or cluster. © Servers Displays Secure Sockets Layer (SSL) configurations for selected scopes, such as a cell, node, server, or cluster. For field help information select a field help or field hel	View: All tasks +		Close pag
	Welcome Guided Activities Genvers Genvers Fasting Resources Security Genvers Genvery Genvers Genvery Genvers Genvery Genvers Genvery Genvers Genvery Genvers	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. Local Topology Inbound Stat201371tode01Cell © Index B © Index201371tode01(Vide>DefaultSoLDetrings) © Curbound © Index201371tode01(Vide>DefaultSoLDetrings)	Field help For field help information, select a field label or list marker when the help cursor is displayed. Page help More information about
	Monitoring and Tuning		
	Troubleshooting Service integration		
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2. Change the inbound node settings. Expand 'Inbound' and click link highlighted in blue color.



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View: All tasks Welcome Guided Activities	Cell=ofss220137Node01Cell, Profile=AppSrv01 SSL certificate and key management SSL certificate and key management > Manage endpoint security configurations > ofss2	2 -	Close page Help Field help
Servers Applications Services	Displays Secure Sockets Layer (SSL) configurations for selected scopes, such as a cell, no	de, server, or cluster.	For field help inform select a field label of marker when the he cursor is displayed.
Resources Global security Global 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	General Properties Name ofss220137Node01 Direction Inbound Specific SSL configuration for this endpoint SSL configuration NodeDefaultSSLSettings Update certificate alias list Manage certificates Certificate alias in key store default Apply OK	Related Items SSL configurations Dynamic outbound endpoint SSL configurations Key stores and certificates Key set Key set groups Key managers Trust managers Certificate Authority (CA)	Page help More information al this page
Service integration UDDI	Apply OK Reset Cancel	<u>client</u> <u>configurations</u>	,

- 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'.



WebSphere. software	Welcome websphere	
		Help Logout
/iew: All tasks 🗸 🗸	ell=ofss220137Node01Cell, Profile=AppSrv01 SSL certificate and key management ? -	Close pa
Welcome Guided Activities Servers	SSE 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.	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 SSLL certificate and key management Security auditing Bus security	□ Inbound □ ofss220137Node01Cell □ nodes □ 0 ofss220137Node01(NodeDefaultSSLSettings) ○ Outbound □ ofss220137Node01Cell □ nodes □ nodes □ 0 ofss220137Node01(NodeDefaultSSLSettings)	More information about this page
Environment		
System administration Users and Groups		
Monitoring and Tuning		
Service integration 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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+ttps://ofss220137.in.oracle.com:90	M3/ibm/console/secure/securelogon.do 🤍 C 🔍 Search 🏠 🖨 🗍 🗍	🐠 - 🌸 - 🧿 🚍
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 > SSL configurations > NodeDefaultSSLSettings	
Guided Activities Servers	Defines a list of Secure Sockets Layer (SSL) configurations.	
Applications		
Services	General Properties	
	* Name	Additional Properties
Security	NodeDefaultSSLSettings	Quality of protection (QoP)
Global security Security domains Administrative Authorization Groups SSL certificate and key management Security auditing Bus security	Trust store name NodeDefaultTrustStore ((cell):ofss220137Node01Cell:(node):ofss220137Node01) Keystore name NodeDefaultKeyStore ((cell):ofss220137Node01Cell:(node):ofss220137Node01)	settings Trust and key managers Custom properties
 	Default server certificate alias	Related Items Key stores and certificates
	Default client certificate alias (none)	
Troubleshooting	Management scope	
Service integration	(cell):ofss220137Node01Cell:(node):ofss220137Node01	
UDDI €	Apply OK Reset Cancel	
۰	€	•

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

The following screen is displayed.

() WebSphere Integrated Solu ×	and the second to do the do the second states to the	
← ▲ https://ofss220137.in.oracle.com:9	کا ایک کو ایک کو	🖪 🐵 ▾ 🥐 ▾ 🔯
WebSphere. software	Welcome websphere	e Help Logout 🔢
View: All tasks	SSL certificate and key management	? - Help
Welcome G Guided Activities G Servers A Applications Services G Services G Security Global security Global security Gouthy domains Administrative Authorization Groups Security auditing Bus security Secur	SSL certificate and key management > SSL configurations > NodeDefaultSSLSettings > Quality of proto (QoP) settings Specifies the security level, ciphers, and mutual authentication settings. General Properties Client authentication None Protocol SSL_TLS © Provider Select provider Select provider Select provider © Custom JSSE provider Custom JSSE provider	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 action
Honitoring and Tuning Croubleshooting Service integration CUDDI	Cipher suite settings Cipher suite groups Strong V Cipher suites Cipher suites Cipher suites Cipher suites Cipher suites Cipher suites Cipher suites Selected ciphers Selected cipher	

3. Under 'Client authentication' choose 'Supported' from the drop-down list.



- 4. Click 'Apply' and save the changes.
- 5. 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.

🚯 WebSphere Integrated Solu 🗙 🕂			
https://ofss220137.in.oracle.com:904	3/ibm/console/secure/securelogon.do ⊽ C \	☆ 自 🖡 🏦	a 💩 - 🦗 - 🔯 🚍
WebSphere. software		Welcome websphere	Help Logout IBM.
View: All tasks Welcome ③ Guided Activities ○ Servers □ Server Types ■ WebSphere application servers ■ WebSphere MQ servers ■ Web servers	Parallel start Start components as needed Access to internal server classes Allow Server-specific Application Settings Classloader policy Multiple	 E3B Container Settings Container Services Business Process Services Applications Installed applications	 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
Web servers Applications Services Generotes Security Genvironment System administration	Classe loaded with parent class loader first v	Server messaging Messaging engines Messaging engine inbound transports WebSphere MO link inbound transports SIB service	this page
Users and Groups Monitoring and Tuning Troubleshooting Service integration UDDI		Server Infrastructure Java and Process Management Administration Java SDKs	
		Communications Ports Messaging Communications Enabled Applications (CEA)	
< >		Performance Performance Monitoring Infrastructure (PMI)	Ŧ

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



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				wc	defaultho	st			9080	
Security				DCS	UNICAST	ADDR	ess		9353	
Environment				wc	adminhos	st_secu	e		9043	
System administration				wc	defaultho	st_secu	ire		9443	
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Monitoring and Tuning				SIP	DEFAULTH	IOST_S	ECURE		5061	
Troubleshooting				SIB		_ADDR	ESS		7276	
Service integration				SIB		LSECU	RE_ADDR	ESS	7286	
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				SIB	MQ_ENDP	OINT_S	ECURE_A	DDRESS	5578	
				IPC		OR_AD	DRESS		9633	
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				OVE	RLAY_TCP	LISTE	NER_ADD	RESS	11004	
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				II Dorfo	manco Me	nitorin	n Tofracte	ucture (DMT)		Þ

1.11.1 Default JAXRS provider settings

- 1. Navigate to Websphere home page.
- 2. Expand Servers > Server Types and click 'Websphere application servers'.



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WebSphere, software				Welcome websoh			Logo	
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Guided Activities						or field help		
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Resources	Total 1							
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Object pool managers Java EE default resources								
E JMS								
I JMS providers								
Connection factories								
Queue connection factories								
Topic connection factories								
Cueves								
Topics								
Activation specifications								
i 3DBC								
Resource Adapters								
Concurrency								
Cache instances								
Mail								
I URL								
Resource Environment								
E Security								
. Environment								
System administration								
Users and Groups								
Monitoring and Tuning								
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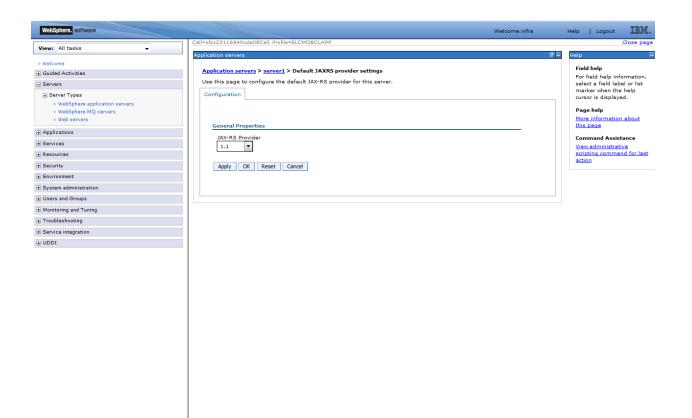
3. Click 'server1'.



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			Java and Process Management	

4. Expand 'Container Services' under Communications and select 'default JAX-RS provider settings'.





- 5. Select JSX_RS Provider version 1.1 from the drop-down list.
- 6. Click 'Apply' and 'Save' the changes. It is recommended to restart the servers after making the changes.



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		- 7 🛛
Ele Window Help		
👫 MQ Explorer - Navigator 🙁 👔 🗇 🗘 🏟 🌣 🖓	MQ Explorer - Content 🕅	# ⊗ ~ - □
Grading Control Contro Control Control Control Control Control Control Control Control Co	WebSphere. MQ	IBM.
	Welcome to MQ Explorer In MQ Explorer you can administer local and remote queue managers and their	
	resources, such as queues, channels, and listeners. Help on MQ Explorer	
	Help on MO Explorer icons	
	MO Explorer Preferences	
	Queue manager icons	
	The following icons are used in the Navigator view to indicate queue manager status: Rs Local queue manager; running and connected to MQ Explorer	
	ο Local queue manager; running but disconnected from MQ Explorer	
	Local queue manager; stopped and disconnected from MQ Explorer Remote queue manager; connected to MQ Explorer	
	Remote queue manager; disconnected from MQ Explorer	
	O Local queue manager; running as standby and disconnected from MQ Explorer	
L		

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



MQ Explorer - Navigator BIN WebSphere MQ Queue Menage Queue Manage Queue Manage Q	Show/Hide Queue Managers Add Remote Queue Manager		MQ Explorer - Content Queue Manager Filter: Standard for Que	s						케			
- 🗁 Queue Manage - 🇀 JMS Administer	Add Remote Queue Manager New Tests		Filter: Standard for Que										
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🧀 Service Definiti	Tests +	Queue Ma											
Ĺ			nager ue manag	Command level	Queue manager status	Platform	Queue-sharing group name	Dead-letter queue	Description	Default bind ty			
L,	Sets +												
			<										
			Scheme: Standard for G	ueue Managers									
			Last updated: 16:47:03										
			case appaced. 10.47.05										
			Select a queue manager to	show its connecti	on details here:								



🕀 Create Queue Manager		
Queue Manager		
Enter basic values		
Queue manager name:	QM_DDHP0520	
Make this the default que	ue manager	
Default transmission queue:		
Dead-letter queue:		
Max handle limit:	256	*
Trigger interval:	999999999	*
Max uncommitted messages:	10000	*
0	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 Queue Manager 📃 🗖		
Queue Manager Enter data and log values		
Queue manager name:	QM_DDHP0520 • Use circular logging • Use linear logging	
Log file size: (×4KB)	4096	*
Log primary files:	3	*
Log secondary files:	2	*
	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
O 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: Concel Cancel

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		
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		
? < Back		

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
Image: Section of the section of t

8. Click 'Finish'.



Details	e in die eler ender	
***************************** * Command: crtmqm -sa - ********************************** WebSphere MQ queue mar Directory 'D:\Program Files' The Queue Manager ended exitvalue = 268455953	q QM_DDHP0520 ***********************************	s\QM_DDHP0520' creat
<		>
Print	Save As	Close

Close the message. The following screen is displayed:

Q Explorer - Navigator 🕄 🛛 🏠 🗇 🔿 🧔 😨 🗖 🗖	MQ Explorer - Content 😒							배 🚸 🏱 🗖	
BM WebSphere MQ									
🖃 🗁 Queue Managers	Queue Managers Fiter: Standard for Queue Managers								
JMS Administered Objects Service Definition Repositories	 Queue manager name 				Queue-sharing group name	Dead-letter queue	Description		
	6 (M_DOHPOS20	701	Stopped	Windows				Shared	
	Scheme: Standard for Queue Mi	anaders						<u>5</u>	
	Last updated: 16:50:26								
	Select a queue manager to show its	connection details h	ene:						

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



🕀 IBM WebSphere MQ Explorer		
File Window Help		
🔂 MQ Explorer - Navigator 🛛 👘 🗇 🗇 🏟 🍸 🗖 🗖	MQ Explorer - Content 🕺	
BIM WebSphere MQ Geue Managers Got DOHR0522 Start	Queue Manager QM_DDHP0520 Connection QuickView:	
Course Marager C Hade Properties	Connection status Connection hype Connection name Channel name Channel definition table Refresh interval Autoreconnect	Disconnected Local 15 Yes
	Last updated: 16:50:53 Status Quick/iew: Queue manager status Command server status	Stopped Stopped

10. 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

11. Click 'OK'.



W WebSphere MQ Explorer Mindow Help			
	- D 🖉 MQ Explorer - Content 🖾		왜 🛷 🗸 🕯
IBM WebSphere MQ	Queue Manager QM_DDHP	3520	
Queue Managers			
	Connection Quick/liew:		
Queue Manager Clusters	Connection status	Connected	
2MS Administered Objects	Connection type	Local	
Service Definition Repositories	Connection name		
	Channel name		
	Channel definition table		
	Refresh interval	15	
	Autoreconnect	Yes	
	Last updated: 17:16:07		
	0.1.1.0.1.1.1		
	Status Quick/New:		
	Queue manager status	Running	
	Command server status	Running	
	Channel initiator status	Stopped	
	Connection count	4	
	Standby	Not permitted	
	Last updated: 17:16:07		
	Car aparto. 17.10.07		
	Properties Quick/liew:		
	Queue manager name	QM_DDHP0520	
	Description	-9- Qear 20000	
	Platform	Windows	
	Command level	701	
	Default transmission queue		
	Startup	Automatic	
	Last updated: 17:16:07		

2.2.2 Creating Queues

To create queues, follow the steps given below:

1. Start MQ server console.



IBM WebSphere MQ Explorer File Window Help							
	🗖 🗖 MQ Explorer - Content 💈		≝ 🙆 ▽ ⊓ 🖬				
EM WebSphere MQ EM WebSphere MQ Cueue Managers E→ Queue Managers		Queue Manager QM_DDHP0520					
Cuole Mangar (Lucters 2014) Service Definition Repositores Service Definition Repositores	Connection status Connection type Connection name Charmel anne Charmel definition table Refrech interval Autoreconnect	Connected Local 15 Yes					
	Last updated: 17:16:07						
	Status Quidk/lew: Queue manager status Command server status Channel Initistor status Connection count Standby	Running Running Stopped 4 Not permitted					
	Last updated: 17:16:07						
	Properties QuickWew:						
	Queue manager name Description Platform Command level Default transmission queue Startup	QM_DDHP0520 Windows 701 Automatic					
	Last updated: 17:16:07						
I			:				

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 E	plorer - Content 🕅						
G IBM WebSphere MQ G ← Queue Managers A _ QM_DOHP0520 H QM_DOHP0520 H ← QUEUES	Queu Filter:	es Standard for Queues						
Corics Rever Corics Corics	efinition	North United	Queue type	Open input count	Open output count	Current queue depth	Max queue dopth	



Noto:- Ouque Name should be ALL CAPS, also issue will occur at listener level in WAS.

🕀 New Local Queue		
Create a Local Queue		
Enter the details of the object you wish to create		
Name:		
NOTIFY_QUEUE		
Select an existing object from which to copy the attributes for the new obje	ct.	
SYSTEM.DEFAULT.LOCAL.QUEUE		Select
		Delection
When this wizard completes, another wizard can be started automatically t	o create a matching object.	
Start wizard to create a matching JMS Queue		
0	< Back Next > Finish	Cancel

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

\varTheta 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		< <u>B</u> ack Next > Einish	Cancel

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



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	🗢 🗖 🖪 MQ Explorer - Content 🙁				# # 19	• 🗇 🏱 🗖			
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Advanced									
Queue Manager Clusters JMS Administered Objects									
Service Definition Repositories									
						>			
	Scheme: Standard for Queues - Distributed					~			
	Last updated: 18:38:00								

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

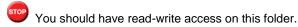
Example

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



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.



a 10	.180.196.51 - PuTTY		
InitC	tx> dis ctx		^
Con	atents of InitCtx		
	.bindings	java.io.File com.ibm.mg.jms.MQQueue	
a a	SFMS_DEST_QUEUE NOTIFY QUEUE DLQ	한 비행에 위해 방법을 얻는 것이 같은 것이 많은 것이 같이 많이 많이 많이 많이 많이 했다.	
a		com. 1bm.mg. jms. NQQueue	
a	SWIFT IN QUEUE	com.ibm.mg.jms.MQQueue	
a	EMSOUT QUEUE	com.ibm.mg.jms.MQQueue	
а	NOTIFY DEST QUEUE	com.ibm.mq.jms.MQQueue	
a	RTGS DEST QUEUE	com.ibm.mq.jms.MQQueue	
a	SFMS IN QUEUE	com.ibm.mq.jms.MQQueue	
a	fc_qcf	com.ibm.mq.jms.MQQueueConnectionFactory	
а	NOTIFY_QUEUE	com.ibm.mq.jms.MQQueue	
а	EMSOUT_QUEUE_DLQ	com.ibm.mq.jms.MQQueue	
a	RTGS_IN_QUEUE	com.ibm.mq.jms.MQQueue	
a	EMSIN_QUEUE	com.ibm.mq.jms.MQQueue	
14	Object(s)		
0) Context(s)		
1	4 Binding(s), 13 Adminis	stered	
InitC	itx>		~

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 Banking Treasury Management 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
	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
DINOTIFY_QUEUE_DLQ	Local	0	0	0
D RTGS_INQUEUE	Local	1	0	0
	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 - Con	tent 🗙					41 3	1 🧇 🔻				
IBM WebSphere MQ Oueue Managers	Queues	Queues Fitter: Standard for Queues										
FC_QMGR on '10.180.196.51(1415)'	Filter: Standard for Queues											
E 😂 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				
🗁 Services	FCQMGR	Local	Predefined	0	0	0	5000	Allowed				
Process Definitions Namelists	MDB_QUEUE	Local	Predefined	1	0	0	999999999	Allowed				
	MDB_QUEUE_DLQ	Local	Predefined	0	0	6	999999999	Allowed				
LC_QMGR	MDB_QUEUE_RESPONSE	Local	Predefined	0	0	12	999999999	Allowed				
SWIFT on 'fichw-ap-21(1414)'	NOTIFY_DEST_QUEUE	Local	Predefined	0	0	1	5000	Allowed				
TEST on 'flchw-ap-21(1415)'	NOTIFY_QUEUE	Local	Predefined	3	0	0	5000	Allowed				
WINOM	NOTIFY_QUEUE_DLQ	Local	Predefined	0	0	19	5000	Allowed				
Cueue Manager Clusters	RTGS_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'.



4. Navigate to the Websphere home page . Expand 'Security' and select 'Global Security'. The following screen is displayed.

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♦ A https://ofss220137.in.oracle.com:9043	/ibm/console/secure/securelogon.do \triangledown C ^d \square Q. Search	☆自 ♣ 斋 ∢ ◎- ≉ - 0 目
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View: All tasks 🗸	Cell=ofss220137Node01Cell, Profile=AppSrv01	Close page
I Welcome ⊕ Guided Activities ⊕ Servers ⊕ Applications ⊕ Services	Global security Use this panel to configure administration and the default application security pol functions and is used as a default security policy for user applications. Security de applications.	
+ Resources	Security Configuration Wizard Security Configuration Report	
Security Global security Security domains Administrative Authorization Groups SSL certificate and key management Security auditing	Administrative security Image: Construction of the security Administrative user roles Administrative aroup roles Administrative authentication	Authentication Authentication mechanisms and expiration
Bus security Environment System administration	Application security Enable application security	SWAM (deprecated): No authenticated communication Authentication cache settings Web and SIP security
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	RMI/IIOP security Java Authentication and Authorization Service Enable Java Authentication SPI (JASPI)
+ UDDI	User account repository	Providers Use realm-qualified user names
	Realm name defaultWIRileBasedRealm 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
	· · · · · · · · · · · · · · · · · · ·	

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



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+ https://ofss220137.in.oracle.com:904	43/ibm/console/secure/securelogon.do	▼ C Q Search	☆ 自 🕹 ⋒ 🤞	🛛 🐵 - 🧇 - 🔯 📃									
WebSphere. software			Welcome websphere	Help Logout IBM.									
View: All tasks 🗸	Cell=ofss220137Node01Cell, Profile=AppSrv01			Close page									
Welcome Guided Activities Servers	Global security Global security > JAAS - J2C authentication d Specifies a list of user identities and password		ry to use.	 Help Field help For field help information, select a field label or list marker when the help 									
Applications Services	Prefix new alias names with the node nam												
Services Resources Security	Apply	Page help More information about this page											
Global security Security domains Administrative Authorization Groups SSL certificate and key management Security auditing Bus security	New Delete	User ID 🗘	Description 🗘	Command Assistance View administrative scripting command for last action									
+ Environment	ofss220137Node01/FC121ASK	FC121ASK	FC121ASK										
 	ofss220137Node01/FCUBS121_DEV	FCUBS121_DEV	FCUBS121_DEV										
 	Total 2		1										
 ⊕ Service Integration ⊕ UDDI 													
4													



6. Click 'New'.

The following screen is displayed.

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WebSphere. software		Help Logout 📴 👬 .
WebSphere, software WebSphere, software Guided Activities Services Applications Services Global security Global security Global security Global security Services and key management Security authing Bus security Bus security Bus security Whitemathistration Wass and Groups Wass and Truing Troubleshooting Service integration UDDI	Cell=ofss220137Node01Cell_Profile=AppSrv01	Help Logout ISM. Close page Help - Field help Information, select a field help 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
۰ III ا		

- 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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A https://ofss220137.in.oracle.com:904	3/ibm/console/secure/securelogon.do	⊽ C Search	☆ 自 🖡 ⋒	a 🐵 - 🦗 - 🔯 🚍		
WebSphere. software			Welcome websphere	Help Logout IBM.		
View: All tasks	Cell=ofss220137Node01Cell, Profile=AppSrv JDBC providers	/01		Close page		
	JDBC providers Use this page to edit properties of a 1 driver implementation class for access this task in a <u>guided activity</u> . A guided the topic.	ut cursor is displayed.				
Resources Schedulers Object pol managers DibC JDBC JDBC providers Data sources	Scope: Cell=ofss220137Node01Ce Scope specifies the level at detailed information on wha settings.help. Cell=ofss220137Node01C Preferences	Page help More information about this page Command Assistance View administrative scripting command for las action				
Data sources (WebSphere Applica Server V4) Resource Adapters Asynchronous beans	New Delete					
Asynchronous beans Cache instances Mail	Select Name 🗘	Scope 🗘	Description 🗘			
URL Resource Environment	None Total 0					
Security Environment System administration Users and Groups						
Monitoring and Tuning Troubleshooting III						

3. Select 'Node' from the dropdown list.

Click New, The following screen is displayed:

💮 WebSphere Integrated Solu × +			
← ▲ https://ofss220137.in.oracle.com:9043/	/ibm/console/secure/securelo	igon.do 🔻 C 🔍 Search 👌 🖨 🖊 🏫	- ∢ ⊚- ⊮ - 🖬 ≡
WebSphere. software		Welcome websphere	Help Logout
View: All tasks	ell=ofss220137Node01Cell, P Create a new JDBC Provider	ofile=AppSrv01	Close page
Welcome Guided Activities	Create a new JDBC Provide	er	Field help For field help information,
Servers	→ Step 1: Create new JDBC provider	Create new JDBC provider	select a field label or list marker when the help
Applications Services	Step 2: Enter	Set the basic configuration values of a JDBC provider, which encapsulates the specific vendor JDBC driver implementation classes that are required to access	cursor is displayed.
	database class path information Step 3: Summary	the database. The wizard fills in the name and the description fields, but you can type different values. Scope [cells:ofss220137Node01Cell:nodes:ofss220137Node01:servers:server1 Database type Oracle Provider type Oracle JDBC Driver Provider DBC Driver Description Oracle JDBC Driver	E



4. Specify the following details:

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

5. Click 'Next'.

The following screen is displayed:

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+ https://ofss220137.in.oracle.co	om :904	3/ibm/console/secure/se	cur ⊽ C ^I	Q Search		☆	Ê	÷	^		ABP 👻	₩ -	0	Ξ
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View: All tasks		fss220137Node01Cell, P	ofile=AppSi	rv01									Close p	age
Welcome	Creat	te a new JDBC Provider												
Guided Activities	Cr	eate a new JDBC Provid	er											
Servers		Step 1: Create new	Enter da	atabase class pa	ath infor	mation	ı							
Applications			Set the	class path for the	1DBC driv	er class	files. 1	which W	ebSobe	ere(R)	Applic	ation Sen	ver uses tr	o def
Services	→	Step 2: Enter	your JDE	BC provider. This v	vizard pag	je displa	ays a d	efault li	ist of ja	ars and	d allows	s you to s	et the	
- Resources		database class path information		ment variables tha u type the JDBC d										ths
Schedulers				db2inst1/sqllib/jav			s. FOI e	:Xample	er Cr (a	QLLID	Java O	in whiteow	(K) 01	
Object pool managers		Step 3: Summary												
± JMS				are separated by u). If a value is spe									aracters (such
∃ JDBC			, 01 .)	, il a value is spe	cined for	you, yo	a may	CIICK NE	XI 10 8	ccept	the van	ue.		
JDBC providers			Class p	ath.										
 Data sources Data sources (WebSphere A 			Class p	atri:										
Server V4)			\${ORA	CLE_JDBC_DRIVER	PATH}/o	jdbc6.ja	r							
Resource Adapters														
Asynchronous beans														
Mail													at	Арр
± URL														
Resource Environment			Director	ry location for "ojd	lbc6.iar" w	hich is s	saved a	as Web	Sohere	varial	ble			
Security			\${ORAC	LE_JDBC_DRIVER_	PATH}									
+ Environment			D:Soft	wares\Application :	Server\IBM	M\Webp	shere∖	AppSen	ver\Opt	tionalL	.ibrarie:	s\oracle\J	DBC\	
Users and Groups						_	_				_			
Monitoring and Tuning		Previous Next C	ancel											
Troubleshooting ▼														
	•													Þ

6. Provide the location of ojdbc6.jar. Click 'Next'.

Note : If ojdbc6.jar is not available at your Websphere server, then copy them into your server (eg: path: /scratch/app/WAS9/lib) and run an export of the jar .

(Eg.in putty run a command

export ORACLE_JDBC_DRIVER_PATH=/scratch/app/WAS9/lib;)Then give the "Directory location for ojdbc6.jar which is saved as Websphere variable



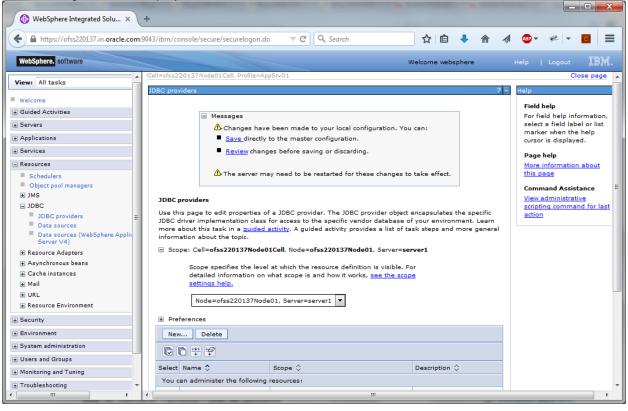
{ORACLE JDBC DRIVER PATH}" as /scratch/app/WAS9/lib

() WebSphere Integrated Solu × -	+									
https://ofss220137.in.oracle.com:90	043/ibm/console/secure/secure/	ogon.do 🛛 🧟 🔍 Search	☆ 自 🖡 斎 🦪 🚭▼	🦗 🔻 📴 🚍						
WebSphere. software			Welcome websphere Help	Logout IBM.						
View: All tasks	Cell=ofss220137Node01Cell, Pro	ofile=AppSrv01		Close page						
Welcome	Create a new JDBC Provider			<u>ne</u>						
Guided Activities Servers	Create a new JDBC Provide									
Applications	Step 1: Create new JDBC provider	Summary		s r						
± Services	Step 2: Enter	Summary of actions:								
- Resources	database class path information	Options	Values							
Schedulers		Scope	cells:ofss220137Node01Cell:nodes:ofss220137Node01:	servers:server1						
Object pool managers	→ Step 3: Summary	JDBC provider name	Oracle JDBC Driver							
JMS JDBC		Description	Oracle JDBC Driver							
JDBC providers =		Class path	\${ORACLE_JDBC_DRIVER_PATH}/ojdbc6.jar							
Data sources		\${ORACLE_JDBC_DRIVER_PATH}	$C:\label{eq:c:local_local} C:eq:c:local_local$	ib\ojdbc6.jar						
Data sources (WebSphere Applic Server V4)		Implementation class name	oracle.jdbc.pool.OracleConnectionPoolDataSource							
Resource Adapters	Previous Finish C	ancel								
Cache instances										
Hail URL										
Resource Environment										
+ Security										
Environment										
System administration										
Users and Groups										
Monitoring and Tuning										
Troubleshooting ▼										
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7. Click 'Finish'.

The following screen is displayed.



8. Click 'Save'.

3.3.3 Creating Non XA Data Source

Follow the steps given below:

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

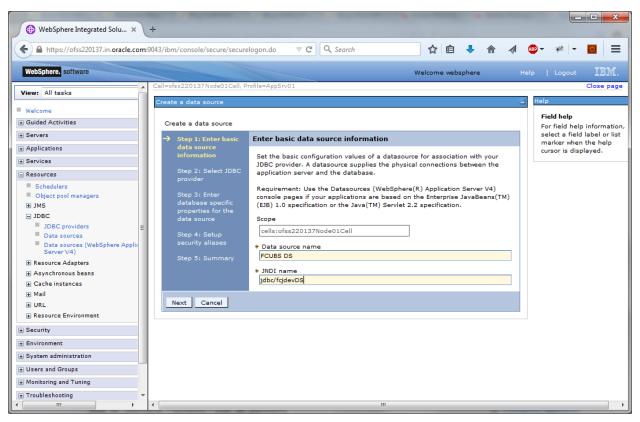


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https://ofss220137.in.oracle.com:904)43/ibm/console/secure/sec	urelogon.do 🛛 🛡	C Q Search		☆	ê 🤚		A	ABP 🔫	* -	•
WebSphere. software					Welcome	websphe	re		Help	Logout	IBM.
View: All tasks	Cell=ofss220137Node01Cel	2			Close pag						
Welcome Guided Activities Servers Applications Services Schedulers Object pool managers JDBC JDBC JDBC JDBC Data sources E	detailed infor settings help.	ilies your applicatior ctivity. A guided acti 0137Node01Cell as the level at which mation on what sco	n with connections vity provides a lis the resource def	for accessing the t of task steps ar inition is visible. F	database nd more g	. Learn	more ab	out	selec mark curso Page <u>More</u> <u>this c</u> Comu <u>View</u>	ield help i it a field l cer when t r is displi help informat page mand Ass administri ting comm	ion about
 Data sources (WebSphere Applic Server V4) Resource Adapters Asynchronous beans 		Test connection	Manage state								
	Select Name 🗘	JNDI name 🗘	Scope 🗘	Provider 🗘	Descripti	on O C	ategory	0			
Mail URL	None	·		·							
Resource Environment	Total 0										
Security Environment System administration Users and Groups Monitoring and Tuning Troubleshooting											

11. Select "Scope' from the drop-down list.

Click New, The following screen is displayed.



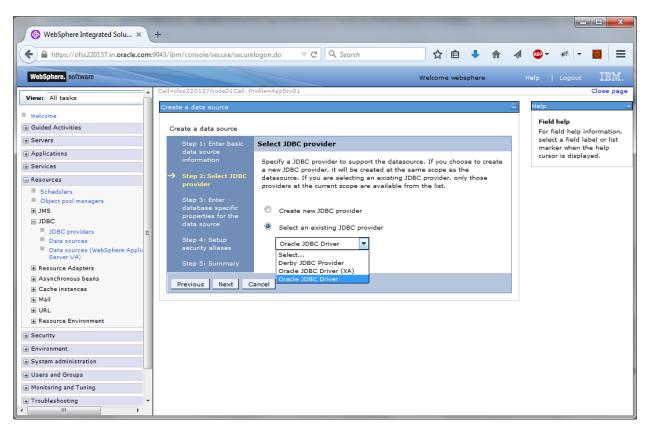


12. Specify the data source name as 'OBTR DS'.

13.Specify the JNDI name as 'jdbc/fcjdevDS'.

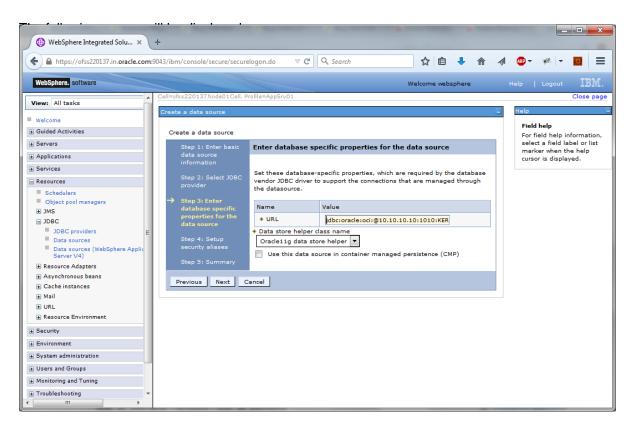
14.Click 'Next'.





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





16. Specify the URL of the Database

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

Example

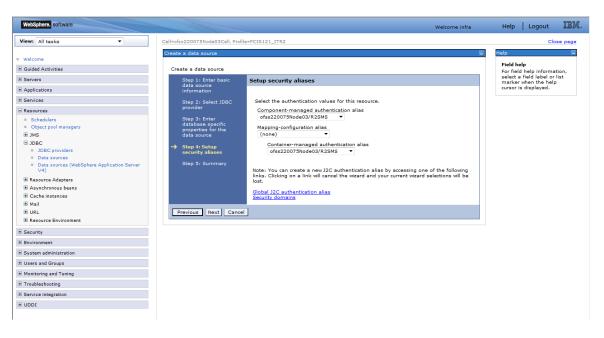
jdbc:oracle:thin: @ @//10.10.10.10:1010/KERDEV2

Here, 10.10.10.10 is the hostname where the database is installed, 1010 the port number and KERDEV2 the instance name.

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

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





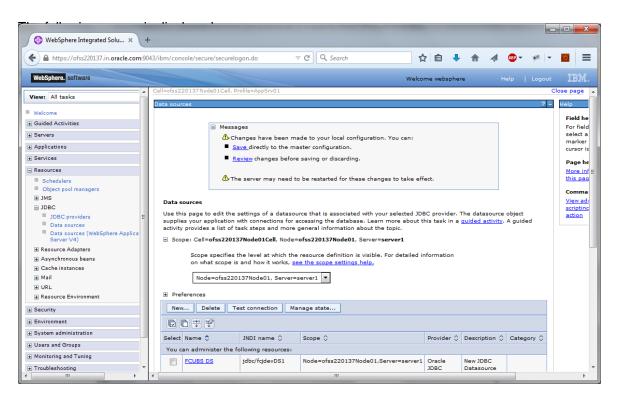
19. Click 'Next'.

The following screen is displayed.

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WebSphere. software			Welcome websphere	Help Logout <u>IBM.</u>
View: All tasks 🗸	Step 1: Enter basic data source	Summary		Help
Welcome	information	Summary of act	ions:	
Guided Activities	Step 2: Select JDBC	Options	Values	Field help For field help inform
Servers	provider	Scope	cells:ofss220137Node01Cell:nodes:ofss220137Node01:servers:server	
⊕ Applications	Step 3: Enter database specific	Data source	FCUBS DS	marker when the hel cursor is displayed.
Services	properties for the	JNDI name	jdbc/fcjdevDS	
- Resources	data source	Select an	Japo (Japo)	
 Schedulers Object pool managers 	Step 4: Setup security aliases	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		name		
Asynchronous beans Cache instances		Use this data source in		E
Mail		container	true	
1 URL		managed persistence		
Resource Environment		(CMP)		
Security Security		Component- managed	ofss220137Node01/FCUBS121_DEV	
Environment		authentication alias		
		Mapping-		
Users and Groups Monitoring and Tuning		configuration	(none)	
Monitoring and Luning Troubleshooting		Container-		
Troubleshooting Service integration		managed	(none)	
		alias		
		Cancel		•
×				

20. Click 'Finish'.





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



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WebSphere, software	Welcome saravanan Help Logout IBM.
View: All tasks	Cell=ofss220239Node01Cell, Profile=FPCFL Close page
■ Welcome Guided Activities	Data sources > Default Datasource
Servers	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.
Applications Services	Configuration
- 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 	Test connection General Properties Additional Properties + Scope © Connection pool properties cells:ofss220239Node01Cell:nodes:ofss220239Node01:servers:server1 © Connection pool properties + Provider WabSphere Application Server data source properties * Name © Custo DS JND1 name JND1 name
Security Security System administration Users and Groups Monitoring and Tuning Troubleshooting	Use this data source in container managed persistence (CMP) Description Datasource for the WebSphere Default Application
Service integration	Category

24. 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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View: All tasks	Cell=ofss220239Node01Cell, Profile=FPCFL Data sources	Close page 🔺
Guided Activities Servers Applications Services	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. Configuration	Field help For field help infori select a field label marker when the h cursor is displayed
Resources Schedulers Object pool managers JDBC JDBC providers DBC providers Data sources Data sources Data sources Data sources Asynchronous beans Cache instances Mail URL Resource Environment Security	General Properties Statement cache size 10 statements 10 statements 10 statements 11 Enable multithreaded access detection 12 Enable database reauthentication 13 Enable JMS one-phase optimization support 14 Log missing transaction context 15 Itom-transactional data source Error detection model 14 Use WebSphere Application Server exception checking model 15 Use WebSphere Application Server exception mapping model	Page help More information a this page E
Environment System administration Users and Groups Monitoring and Tuning Troubleshooting Service integration	Connection validation properties	



- 25. Select the checkbox "Non-transactional data source".
- 26. Click Apply button and Click Save link.

Note the following

- You need to create another data source for Oracle OBTR with the JNDI name '<Non-XA OBTR HOST JNDI name>_ASYNC'. For example, if the Oracle OBTR HOST Non XA data source JNDI name is 'jdbc/fcjdevDS', then you need to create another data source for OBTR 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 OBTR BRANCH JNDI name>_ASYNC'.
- You need to create another data source for Oracle ELCM with the JNDI name '<ENTITY_ID JNDI name>_EL'. For example, if the Oracle OBTR HOST Non XA data source JNDI name is 'jdbc/fcjdevDS', then you need to create another data source for OBTR with the JNDI name 'jdbc/fcjdevDS_EL'. Ensure that the check box "Non-transactional data source" is unchecked for ELCM data source.
- Tthe following are the list of datasources that can be created depending on the requirement. Please refer to the document Resources_to_ be_created.docx for more information -

Purpose	Datasource Name	JNDI Name
OBTR	OBTR Data source	jdbc/fcjdevDS
SMS	SMS_Datasource	jdbc/fcjdevDSSMS
Gateway	FLEXTEST.WORLD	FLEXTEST.WORLD
Async data source	OBTR DS_ASYNC	jdbc/fcjdevDS_ASYNC
Scheduler	Scheduler_Datasource	jdbc/fcjSchedulerDS

•

3.3.4 Testing Data Source

Follow the steps given below:



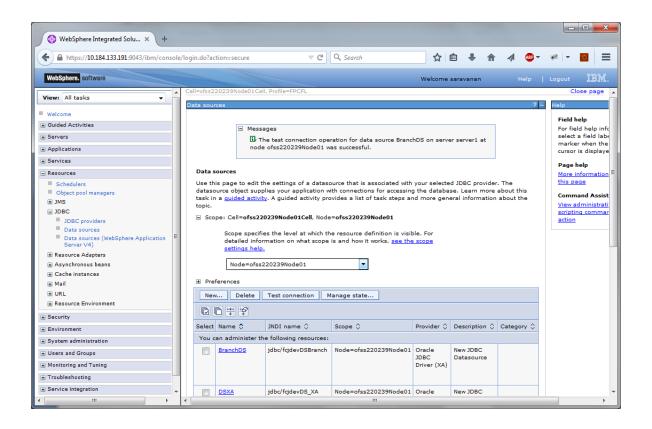
1. Select the data source as shown in the figure.

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WebSphere. software						Welcome	saravanan		Logout IBM.
View: All tasks Welcome @ Guided Activities @ Services @ Applications @ Services @ Resources Schedulers @ DBC # JDBC # JDBC # JDBC # Data sources (WebSphere Application Server V4)		Data sou Data : Use th datase task in topic. Sco	sources his page to edit th surce object supp a guided activit oppe: Cell=ofss22I Scope specifi detailed infor aettings help, Node=ofss2 iferences	he settings of a dataso lies your application w y. A guided activity pro D239Node01Cell , Node as the level at which th mation on what scope (20239Node01	burce that is associated with th connections for accessing vides a list of task steps ar =ofss220239Node01 e resource definition is visit is and how it works, <u>see the</u>	g the databa nd more gen ble. For	se. Learn more	e about this	Close page
 ★ Resource Adapters ★ Asynchronous beans 			6 👯 🗐						
		Select	Name 🛟	JNDI name 🗘	Scope 🗘	Provider 🗘	Description 🗘	Category 🗘	
		You	an administer th	e following resources:			,		
Resource Environment		V	BranchDS	jdbc/fcjdevDSBranch	Node=ofss220239Node01	JDBC	New JDBC Datasource		
						Driver (XA)			
 ★ System administration ★ Users and Groups 			DSXA	jdbc/fcjdevDS_XA	Node=ofss220239Node01	Oracle JDBC Driver (XA)	New JDBC Datasource		
Monitoring and Tuning Troubleshooting									
E Service integration	-		FPPATCHSTAGE	jdbc/FPPATCHSTAGE	Node=ofss220239Node01	NONXA DS	New JDBC Datasource		-
۰ III +	•				m				•

2. Click 'Test connection' button.

On successful creation, the following message is displayed.







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			Welcome websphere	Help Logout IBM.		
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 ➡ Servers ➡ Applications ➡ Services 	driver implementation class for acc this task in a <u>guided activity</u> . A gui the topic.	cess to the specific vendor database of ided activity provides a list of task ste	object encapsulates the specific JDBC of your environment. Learn more about aps and more general information about	select a field label or list marker when the help cursor is displayed. Page help		
Resources Schedulers Object pool managers JMS JDBC JDBC JDBC	Scope specifies the level detailed information or v settings help.	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, <u>see the scope settings help.</u> Cell=ofss220137Node01Cell				
 ■ Data sources ■ Data sources (WebSphere Applica Server V4) ■ Resource Adapters ■ Asynchronous beans 	Preferences New Delete	New Delete				
	Select Name \$	Scope 🗘	Description 🗘			
Mail URL Resource Environment	None Total 0					
Security Environment System administration Users and Groups Monitoring and Tuning Troubleshooting m				·		

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, Pr	rohie=AppSrv01	Close page
Welcome Guided Activities	Create a new JDBC Provide		Field help
Servers	→ Step 1: Create new	create new JDBC provider	For field help information, select a field label or list marker when the help
Applications Services	JDBC provider Step 2: Enter	Set the basic configuration values of a JDBC provider, which encapsulates the	cursor is displayed.
	Step 2: Enter database class path information Step 3: Summary	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 can type different values. Scope cellsiofss220137Node01Cell:nodes:ofss220137Node01:servers:server1 * Database type Oracle JDBC Driver * Implementation type XA data source * Implementation type Toracle JDBC Driver (XA) Description Oracle JDBC Driver (XA)	E
Troubleshooting ▼ ✓ III ►		<u>ا</u> د.	-

4. Specify the following details:

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

Click next, the following message is displayed.



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WebSphere, software	Welcome websphere Help Logout	M.
View: All tasks	Cell=ofss220137Node01Cell,Profile=AppSrv01 Close ; Create a new JDBC Provider _ Help	
Welcome		
Guided Activities Guided Activities Guided Activities Subscript Activities Guided Activities Subscript Activities Subscrite Subscript	Out to a set 1000 Desides	eld helı r field
Servers		lect a f
Applications	JDBC provider ma	arker w rsor is
Services	→ Step 2: Enter Set the class path for the JDBC driver class files, which WebSphere(R) Application Server uses to define your JDBC provider. This wizard page displays a default list of iars and allows you to set the	
Resources	database class path environment variables that define the directory locations of the files. Use complete directory paths	
Schedulers	information when you type the JDBC driver file locations. For example: C:\SQLLIB\java on Windows(R) or /home/db2inst1/sqllib/java on Linux(TM).	
Object pool managers	Step 3: Summary	
I JMS	Entries are separated by using the ENTER key and must not contain path separator characters (such as ';' or ':'). If a value is specified for you, you may click Next to accept the value.	
∃ JDBC	; or :). If a value is specified for you, you may click next to accept the value.	
JDBC providers E	Class path:	
 Data sources Data sources (WebSphere Applica) 	Class path:	
Server V4)	\${ORACLE_JDBC_DRIVER_PATH}/ojdbc6.jar	
+ Resource Adapters		
Mail	Apply	
H URL		
Resource Environment	Directory location for "ojdbc6.jar" which is saved as WebSphere variable	
Security	\${ORACLE JDBC DRIVER PATH}	
Environment	m Files/IBM/WebSphere/AppServer/optionalLibraries/Oracle/jdbc	
System administration		
Monitoring and Tuning	Previous Next Cancel	
Troubleshooting ▼		
4 III >>	< III	F.

5. Specify the location of ojbc6.jar and click next.

Note :If ojdbc6.jar is not available at your Websphere server, then copy them into your server (path: /scratch/app/WAS9/lib) and run an export of the jar .

(Eg.in putty run a command

export ORACLE_JDBC_DRIVER_PATH=/scratch/app/WAS9/lib;)

Then give the "Directory location for ojdbc6.jar which is saved as Websphere variable

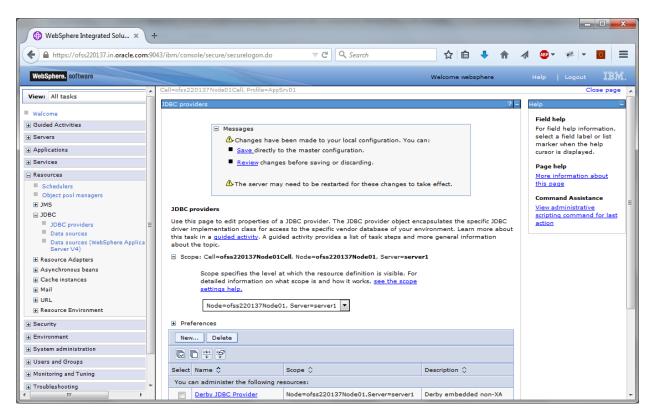
6. \${ORACLE JDBC DRIVER PATH}" as /scratch/app/WAS9/lib



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WebSphere. software			Welcome websphere Help Logou	t IBM.			
View: All tasks	Cell=ofss220137Node01Cell, Pro	ofile=AppSrv01		Close pag			
Welcome	Create a new JDBC Provider			Field			
Guided Activities	Create a new JDBC Provide	r		For f			
± Servers	Step 1: Create new	Summary		sele			
+ Applications	JDBC provider			mark curso			
+ Services	Step 2: Enter	Summary of actions:					
Resources	database class path information	Options	Values				
Schedulers	Information	Scope	cells:ofss220137Node01Cell:nodes:ofss220137Node01:servers:server1				
Object pool managers	→ Step 3: Summary	JDBC provider name	Oracle JDBC Driver (XA)				
± JMS		Description	Oracle JDBC Driver (XA)				
∃ JDBC		Class path	\${ORACLE_JDBC_DRIVER_PATH}/ojdbc6.jar				
JDBC providers			C:\Oracle\app\sarrathi\product\12.1.0\dbhome_1\jdbc\lib\ojdbc6.jar	-			
 Data sources Data sources (WebSphere Applica Server V4) 		Implementation class name	oracle.jdbc.xa.client.OracleXADataSource				
Resource Adapters	Previous Finish C	ancel					
+ Asynchronous beans	PreviousC	ancei					
Gache instances Gache instances Cache instance Cach							
🛨 Mail							
± URL							
Resource Environment							
E Security							
Environment							
System administration							
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Troubleshooting							
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7. Click 'Finish'.





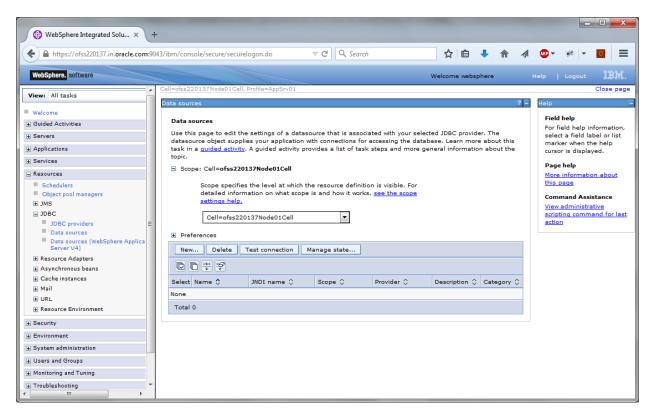
8. Click 'Save'.

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'.





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



The following screen is displayed.

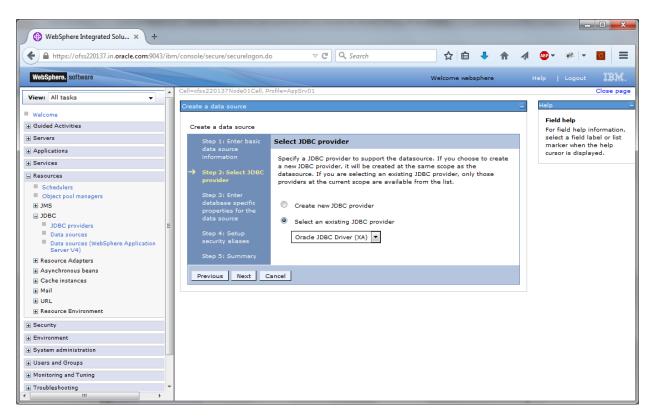
() WebSphere Integrated Solu × +				
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WebSphere. software				Help Logout IBM.
View: All tasks 👻	Â	Cell=ofss220137Node01Cell, Pr	rotile=AppSrv01	Close page
Welcome		Create a data source	-	Field help
Guided Activities		Create a data source		For field help information,
Servers		→ Step 1: Enter basic	Enter basic data source information	select a field label or list marker when the help
Applications Services		data source information	Set the basic configuration values of a datasource for association with your	cursor is displayed.
Resources Schedulers Object pool managers JMS JDBC JDBC providers Data sources Data sources (WebSphere Application Server V4)	II	Step 2: Select JDBC provider Step 3: Enter database specific properties for the data source Step 4: Setup security aliases Step 5: Summary	JDBC provider. A datasource supplies the physical connections between the application server and the database. Requirement: Use the Datasources (WebSphere(R) Application Server V4) console pages if your applications are based on the Enterprise JavaBeans(TM) (EIB) 1.0 specification or the Java(TM) Servlet 2.2 specification. Scope	
 ★ Resource Adapters ★ Asynchronous beans ★ Cache instances ★ Mail ★ URL ★ Resource Environment 		Next Cancel	+ JNDI name jdbc/fcjSchedulerDS	
Security Since the security System administration Users and Groups Monitoring and Tuning Trubleshooting Monitoring			"	

4. Specify the following details:

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

Click next, the following screen is displayed.





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



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WebSphere. software			Welcome websphere	Help Logout IBM.
View: All tasks	Cell=ofss220137Node01Cell, Pr	rofile=AppSrv01		Close pag
Welcome Guided Activities	Create a data source Create a data source			Field help For field help information,
Servers Applications Services Schedulers Object pool managers JDBC JDBC	Step 1: Enter basic data source information Step 2: Select JDBC provider → Step 3: Enter database specific properties for the data source	Enter database specific properties Set these database-specific properties, v vendor JDBC driver to support the connect the datasource. Name Value URL Data store helper class name	select a field label or list marker when the help cursor is displayed.	
 Data sources Data sources (WebSphere Applic Server V4) Resource Adapters Asynchronous beans Cache instances Mail URL Resource Environment 	Step 4: Setup security aliases Step 5: Summary Previous Next C	Oracle11g data store helper 💌	anaged persistence (CMP)	
Security 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

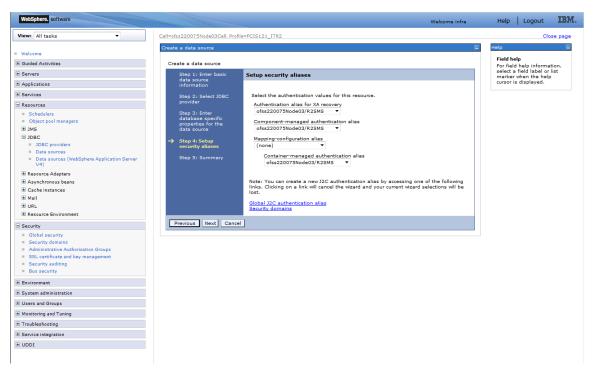
Here, 10.10.10.10 is the hostname where the database is installed, 1010 is the port number, KERDEV2 is the instance name.

- 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	-	Create a data source	ione-Apportor	Welcome websphere Help	Logout IBM Close page				
■ Welcome ∓ Guided Activities		Create a data source			Field help				
Guided Activities Servers		Step 1: Enter basic data source	Summary		For field help select a field marker when				
+ Applications		information	Summary of act	ions:	cursor is displ				
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 properties for the	Data source name	FCUBS DS	:				
		data source	JNDI name	jdbc/fcjSchedulerDS1					
 JDBC providers Data sources Data sources (WebSphere Application 	Е	Step 4: Setup security aliases	Select an existing JDBC provider	Oracle JDBC Driver (XA)					
Server V4)		→ Step 5: Summary	Implementation class name	oracle.jdbc.xa.client.OracleXADataSource					
			URL	jdbc:oracle:oci:@10.10.10.10:1010:KERDEV2					
 			Data store helper class name	com.ibm.websphere.rsadapter.Oracle11gDataStoreHelper					
Resource Environment Security			Use this data source in container managed	true					
Environment System administration			managed persistence (CMP)						
€ Users and Groups € Monitoring and Tuning			Authentication alias for XA recovery	ofss220137Node01/FCUBS121_DEV					
Troubleshooting	-	<pre></pre>	Component		•				



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Welcome Guided Activities Servers	E Messages										
Applications											
Services	 Review changes before saving or discarding. 										
- Resources	 <u>Nevrey</u> changes berole saving or discarding. 										
Schedulers Object pool managers Object pool managers Main Schedulers Main Schedulers Data sources Data sources Data sources Cache instances Cache instances Main URL Resource Environment	▲ 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 yorvides a list of task steps and more general information about the topic. Scope: Cell=ofss220137Node01Cell, Node=ofss220137Node01, Server=server1 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										
Security	New Delete Test connection Manage state										
	Image: Select Name ◊ JNDI name ◊ Scope ◊ Provider ◊ Description ◊ Category ◊										
	You can administer the following resources:										

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

11. Click 'Save'.

The following are the list of XA datasources that can be created depending on the requirement.Please refer to the document Resources_To_ Be_Created.docx for more information-

Purpose	Datasource Name	JNDI Name
Schedular	Schedular_XA	jdbc/fcjSchedulerDS
OBTR	OBTR_DS_XA	jdbc/fcjdevDS_XA
Branch	OBTR DSBranch	jdbc/fcjdevDSBranch



3.3.7 Testing Data Source

Follow the steps given below:

Select data source as given below.

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Welcome		+ Pre	Robe=ors22013/Nobe01, Server=server1									
Guided Activities												
Servers				st connection Mar	nage state							
			ē # \$									
± Services		Select	Name 🗘	JNDI name 🗘	Scope 🗘	Provider 🗘	Description 🗘	Category 🗘				
Resources		You	can administer the fo	llowing resources:								
 Schedulers Object pool managers JMS 			FLEXTEST.WORLD	FLEXTEST.WORLD	Node=ofss220137Node01,Server=server1	Oracle JDBC Driver	New JDBC Datasource					
JDBC JDBC providers Data sources Data sources (WebSphere Application Server V4)			POSSTEST.WORLD	POSSTEST.WORLD	Node=ofss220137Node01,Server=server1	Oracle JDBC Driver (XA)	New JDBC Datasource					
 B Resource Adapters B Asynchronous beans Cache instances Mail B URL 		7	fcjSchedulerDS	jdbc/fcjSchedulerDS	Node=ofss220137Node01,Server=server1	Oracle JDBC Driver (XA)	New JDBC Datasource					
Resource Environment			fcidevDS	jdbc/fcjdevDS	Node=ofss220137Node01,Server=server1	Oracle JDBC Driver (XA)	New JDBC Datasource					
) Environment) System administration		Total										
Users and Groups	-	Iotal	4									
4												

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						
Guided Activities	🖃 Messages					
Servers	The test connection operation for data source fcjSchedulerDS on server server1 at	node .				
Applications	ofss220137Node01 was successful.					
Services						
- Resources	Data sources > fcjSchedulerDS					
Schedulers	Use this page to edit the settings of a datasource that is associated with your selected JDBC provider. The	datasource object supplies your				
Object pool managers	application with connections for accessing the database.					
JMS E	Configuration					
⊒ JDBC						
JDBC providers						
Data sources	Test connection					
Data sources (WebSphere Application Server V4)						
Resource Adapters	General Properties	Additional Properties				
+ Asynchronous beans	* Scope	Additional Properties				
		Connection pool				
Mail	cells:ofss220137Node01Cell:nodes:ofss220137Node01:servers:server1	properties				
_	* Provider	WebSphere				
± URL	Oracle JDBC Driver (XA) Application Ser data source					
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Resource Environment Security	* Name	data source properties <u>Custom</u>				
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Resource Environment Security Environment	+ Name fcjSchedulerDS	data source properties <u>Custom</u>				



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'.

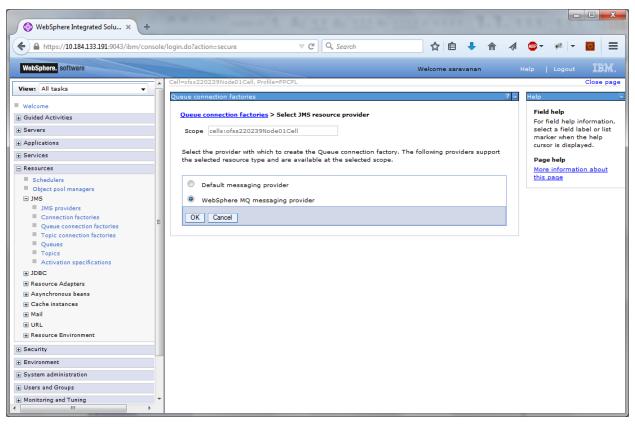


4. Navigate to Websphere Home page .Expand 'Resources' and select 'JMS'. Click 'Queue connection factories'. The following screen is displayed.

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WebSphere. software	Welcome saravanan Help Logout IBM.
View: All tasks	Cell=ofss220239Node01Cell, Profile=FPCFL Close page Queue connection factories ? - Help -
Welcome	Field help
Guided Activities	Queue connection factories For field help information.
± Servers	A queue connection factory is used to create connections to the associated JMS provider of the JMS queue select a field label or list marker when the help
Applications	Scope: Cell=ofss220239Node01Cell cursors displayed.
Services	Page help
Resources Schedulers Object pool managers JMS JMS providers Connection factories Queue connection factories Queues Topic connection factories Topics Activation specifications JDBC 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, <u>see the scope</u> <u>settings helps</u> Cell=ofss220239Node01Cell Preferences Preferences New Delete Select Name JNDI name Provider Description Scope Scope None Total 0
wash wash	H

5. Select 'Scope' from the drop down list and click 'New' button.





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



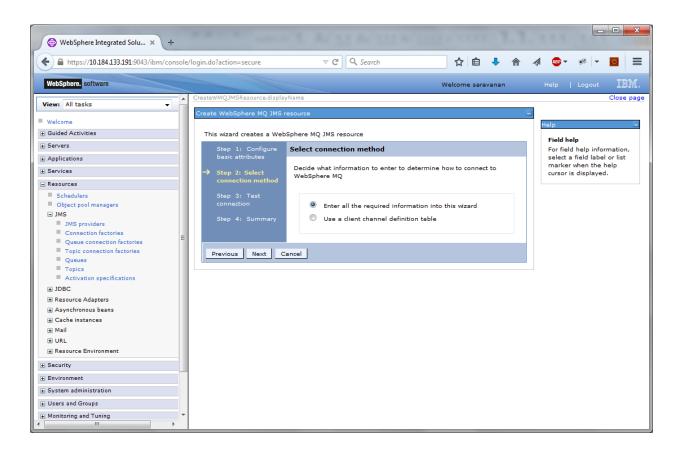
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WebSphere software View: All tasks Welcome		Create We This wiz → Ste bas Ste con	p 1: Configure ic attributes p 2: Select nection methor p 3: Test nection p 4: Summar	MS reso WebSpl e Ci d * *		c attributes asic attributes t rider resource	o use for the					Help Field h For fiel select a marker		Close page - rmation, I or list help
Monitoring and Tuning III														

7. Specify the following details:

Name	NotifyDestQCF
JNDI Name	NotifyDestQCF
Description	NotifyDestQCF

Click 'Next'. The following screen is displayed.

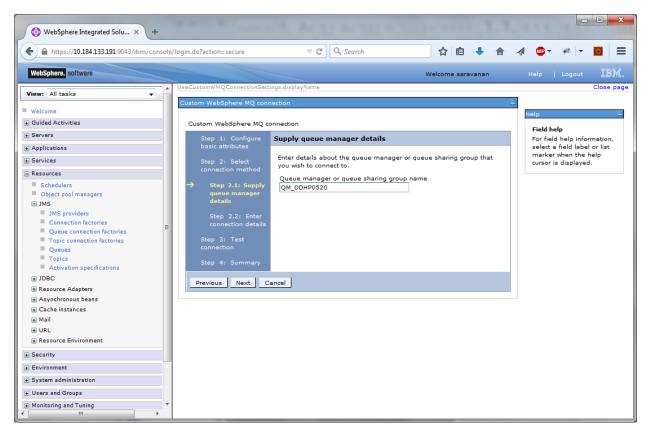






8. Set the options as shown in the figure. Click 'Next'.

The following screen is displayed.



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

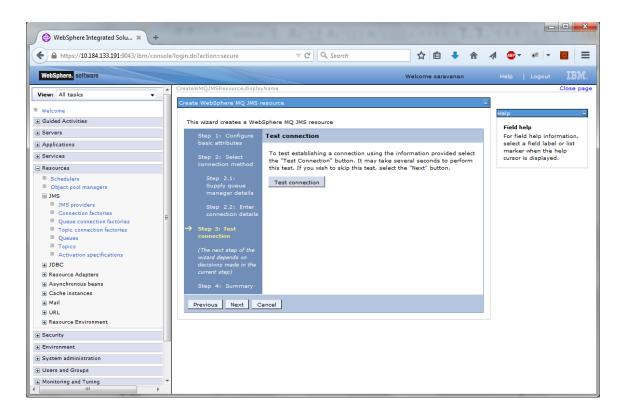


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View: All tasks	UseCustomWMQConnectionSettings.di	n			E	Help		Close page
Guided Activities Servers Applications	basic attributes	er connection details				select a	lp help inform field label o when the he	or list
Services Resources Schedulers Object pool managers JMS JMS providers Connection factories Queue connection factories Queues Topic connection factories Queues Topics Activation specifications JDBC Resource Adapters Asynchronous beans Gache instances	Step 2: Select connection method Step 2.1: Supply queue manager details Step 2.2: Enter connection details Step 3: Test connection Step 4: Summary Step 4: Summary	l port values ostname 10.10.10 rt 110 Enter host and port informa	p ation in the form of se	aparate hostna			displayed.	
Control Mail Control Mail URL CRESSION CENVIRONMENT CRESSION CENV		STEM.DEF.SVRCONN						

9. 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





10. Click 'Test Connection' button.

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



11. 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	CreateWMQJMSResource.displayName Close page Create WebSphere MQ JMS resource
 Guided Activities Servers Applications 	This wizard creates a WebSphere MQ JMS resource Step 1: Configure basic attributes Summary Summary
	Step 2: Select connection method Step 2.1: Supply queue manager details Step 3: Test connection Step 3: 1 Test connection result → Step 4: Summary
Arynchronous beans Cache instances Mail URL Resource Environment CEnvironment Environment System administration Users and Groups	Previous Finish Cancel
Monitoring and Tuning	• •

12. Click 'Finish'.

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WebSphere. software	Welcome saravanan	Help Logout 1911.
View: All tasks 👻	Cell=ofss220239Node01Cell, Profile=FPCFL Queue connection factories ?	Close page
Welcome		Field help
Guided Activities	Messages	For field help information
+ Servers	Changes have been made to your local configuration. You can:	select a field label or list
	Save directly to the master configuration.	marker when the help cursor is displayed.
	Review changes before saving or discarding.	Page help
Resources		More information about
 Schedulers Object pool managers 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 	The server may need to be restarted for these changes to take effect. Queue connection factories A queue connection factory is used to create connections to the associated JMS provider of the JMS queue destinations, for point-to-point messaging. 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, see the scope settings help. Cell=ofss220239Node01Cell Preferences New Delete Delete Delete Delete Delete Dele	this page Command Assistance View administrative scripting command for las
Security	Select Name 🗘 JNDI name 🗘 Provider 🗘 Description 🗘 Scope 🗘	
+ Environment	You can administer the following resources:	
System administration	NotifyDestQCF NotifyDestQCF WebSphere NotifyDestQCF Cell=ofss220239Node01Cell	
Users and Groups	MQ	
Monitoring and Tuning	messaging provider	-
	< III	•



- 13. Click 'Save'.
- 14. Similarly, you need to create the all queue connection factories mentioned in the document "Resource To be Created"
- 15. 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

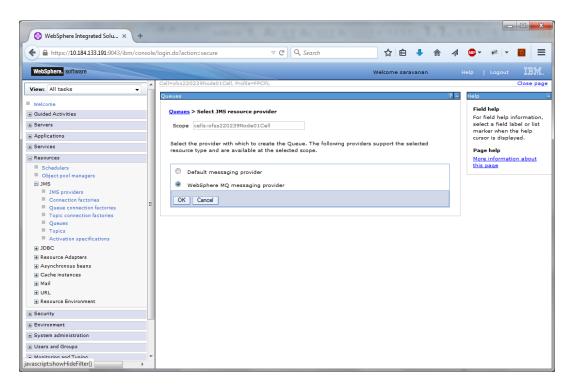
Follow the steps given below:

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

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	Close page
View: All tasks	
Welcome Queues Guided Activities A JMS queue is used as a destination for point-to-point messaging.	Field help For field help information,
Applications Scope: Cell=ofss220239Node01Cell	select a field label or list marker when the help cursor is displayed.
© Services 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. Schedulers Schedulers	Page help More information about this page
Object pool managers Cell=ofss220239Node01Cell JMS JMS providers Connection factories Preferences Queue connection factories New Delete Opieces Cell +++ +>	
■ Topics ■ Activation specifications ③ JDBC Total 0	
Resource Adapters Asynchronous beans Acche instances Mail URL Resource Environment Security Environment System administration	
System doministration Users and Groups Monitoring and Tuning	4

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





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

The following screen is displayed.

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Schedulers Object pool managers JMS JMS providers Connection factories Queue connection factories Topic connection factories Queues	NOTIFY_QUEUE + JNDI name NOTIFY_QUEUE Description NOTIFY_QUEUE		
 ■ Topics ■ Activation specifications ③ JDBC ④ Resource Adapters 			
 Asynchronous beans Cache instances Mail URL Resource Environment 	WebSphere MQ Queue + Queue name NOTIFY_QUEUE Queue manager or Queue sharing group name		E
Security	QM_DDHP0520		
Environment			
System administration	Apply OK Reset Cancel		
⊕ Users and Groups ■			
Monitoring and Tuning Tuning			▼ 4

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'.

The following screen is displayed.

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Integrated Solutions Console Welcome admin	Help Logout	IBM.
View: All tasks	Messages	
= Welcome	A-Changes have been made to your local configuration. You can: Help	
Guided Activities	Save directly to the master configuration. Review changes before saving or discarding. Field	i help —
Servers	Forf	field help information, ct a field label or list
Applications	mark	ker when the help or is displayed.
E Services	Ourses > Markenberg MO executive equidae > NOTEX, OURSE	
Resources	Queue destinations provided for point-to-point messaging by the WebSphere MO messaging provider. Use WebSphere MO More	e help information about
= Schedulers	queue destination administrative objects to manage queue destinations for the WebSphere MQ messaging provider.	page
 Object pool managers JMS JMS providers Connection factories Ouese connection factories 	General Properties Additional Properties action	mand Assistance administrative ting command for last in
 Topic connection factories 	- Automoted properties	
= Queues	Node=DDHP0520Node01 Properties	
 Topics Activation specifications 	Provider = Custom properties	
E JDBC	WebSphere MQ messaging provider	
Resource Adapters	* Name	
H Asynchronous beans	NOTIFY_QUEUE	
🗄 Cache instances	* JNDI name	
III Mail	NOTIFY_QUEUE	
URL Resource Environment	Description	
Security		
Environment		
System administration		
Users and Groups	WebSphere MQ Queue	
Monitoring and Tuning	+ Queue name	
Troubleshooting	NOTIFY_QUEUE	
Service integration	Queue manager or Queue sharing group name OM DDHP0320	
E UDDI	Salesta	
	Apply OK Reset Cancel	*
Done	Second Intranet	🕢 • 🔍 100% • .:

5. Click 'Websphere MQ Queue Connection Properties'.



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Integrated Solutions Console Welcome admin	Help Logout	IBM.
View: All tasks	Cell=DDHP0520Node01Cell, Profile=AppSrv01	Close page
= Welcome	Queues ? -	Help –
Guided Activities	Messages	Field help
E Servers	Changes have been made to your local configuration. You can:	The name of the channel
Applications	 <u>Save</u> directly to the master configuration. 	to use to connect to the queue manager.
Applications Services	<u>Review</u> changes before saving or discarding.	Page help
	⚠ The server may need to be restarted for these changes to take effect.	More information about
Resources = Schedulers		this page
 Schedulers Object pool managers 	Queues > WebSphere MQ messaging provider > NOTIFY_QUEUE > WebSphere MQ connection properties	
E JMS	Use this panel to specify how to connect to the queue manager that hosts the queue. The system uses these connection properties to retrieve, display and update the queue configuration details that are shown on the WebSphere MQ queue	
 JMS providers 	settings panel.	
 Connection factories 	Configuration	
 Queue connection factories Topic connection factories 		
 Topic connection factories Oueues 		
= Topics	General Properties Additional Properties	
 Activation specifications 	Quaya magazar bat	
H JDBC	10.10.10.10	
Resource Adapters	Queue manager port	
Asynchronous beans	1010	
E Cache instances	Server connection channel name	
🖽 Mail		
I URL	User ID	
Resource Environment	User 10	
E Security	Password	
E Environment		
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🖽 Users and Groups	Apply OK Reset Cancel	
Monitoring and Tuning		
I Troubleshooting		
Service integration		
H UDDI		
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6. Specify the following details:

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

7. Click 'Save'.



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ntegrated Solutions Console Welcome admin					Help Logout	
View: All tasks	Cell=DDHP0520Node01Cell, Pro	file=AppSrv01				Close page
Welcome	Queues				? -	Help –
E Guided Activities	Queues					Field help
■ Servers	A JMS queue is used as a de:	stination for point-to-	point messaging.			For field help information, select a field label or list
Applications	Scope: Cell=DDHP0520No					marker when the help
E Services						cursor is displayed.
3 Resources	Scope specifies the	level at which the res	source definition is visible works, <u>see the scope set</u>	a. For detailed		Page help
Schedulers				angs neip.		More information about this page
 Schedulers Object pool managers 	Node=DDHP0520	DNode01	~			
E IMS	Preferences					
= JMS providers						
 Connection factories 	New Delete					
 Queue connection factories 						
 Topic connection factories Queues 						
= Queues = Topics	Select Name 🗘	JNDI name 🗘	Provider 🛇	Description 🗇	Scope 🗘	
 Activation specifications 	You can administer the follo	wing resources:				
DBC	NOTIFY QUEUE	NOTIFY_QUEUE	WebSphere MQ	NOTIFY_QUEUE	Node=DDHP0520Node01	
Resource Adapters			messaging provider			
Asynchronous beans	Total 1					
E Cache instances						
🖽 Mail						
I URL						
Resource Environment						
Security						
Environment						
E System administration						
∄ Users and Groups						
■ Monitoring and Tuning						
∄ Troubleshooting						
E Service integration						
E UDDI						
9 UDDI						

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 .Expand 'Servers > Server Types' and click 'Websphere application servers'.

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5. Click 'server1'.

The following screen is displayed.

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View: Al tasks View: Al tasks View: Al tasks View: Al tasks View:	Start components as needed Access to internal server classes Allow Server-specific Application Settings Cassed rolley Multiple Casses loading mode Classes loaded with parent class loader first Acoby OK Reset Cance	Business Process Services Applications Installed applications Berver messaging Beasaging engine inbound transports Beasaging engine inbound transports Beasaging engine inbound transports Bits service Bits service Bits and Process Management Bits Applications Communications	bophere Help Logout 1337. *
Queue connection factories Queues Queues Queues Queues Tarici Activation specifications DBCC Resource Adoptors Concurrency Concurrency Concurrency Resource Revisionment Beaurity Concurrency Concurr		Easts East Easts East East	-
a Environment S System Andministration (a) Users and Groups (a) Users and Groups (a) Monitoring and Tuning (b) Sarvice Integration (c) Sarvice Integration (c) UDD1		Troubleshooting	
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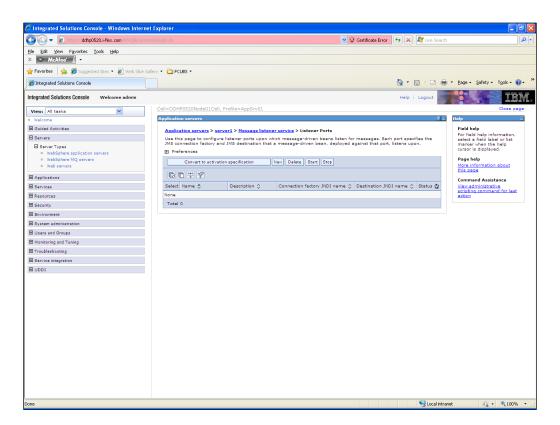
6. Expand 'Messaging' under Communications and select 'Message listener service'.



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WebSphere. software	Welcome saravanan Help Log	out IBM.
View: All tasks 🗸	Cell=ofss220239Node01Cell, Profile=FPCFL Application servers	Close page
Welcome Guided Activities Gervers Servers WebSphere application servers WebSphere MQ servers	Application servers > server1 > Message listener service Field Use this page to configure the message listener service. This service provides the message-driven bean (MDB) listening process, in which message-driven beans are deployed against listener ports that define the JMS destination to listen upon. These listener ports are defined within this service along with settings for its thread pool. Field Configuration Open configuration Page	eld help information t a field label or lis ter when the help tr is displayed.
Web servers Applications	Connguration More this :	information about page
 B Services B Security 	Additional Properties	
Environment System administration Users and Groups	Custom properties	
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7. Click 'Listener Ports'.





8. Click 'New'.



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	Maximum retries 0 Maximum messages 1		
۰	Apply OK Reset Cancel		+

9. 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

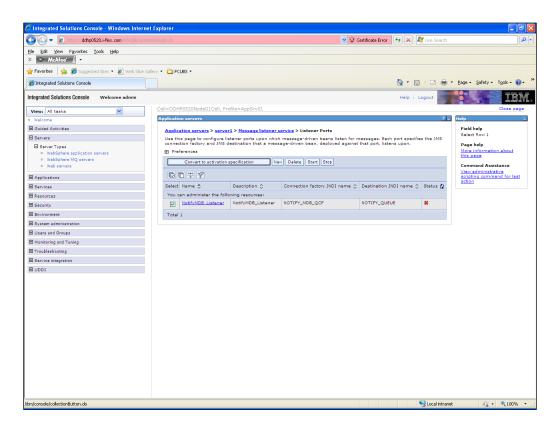
10. Click 'Apply'.



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Users and Groups Monitoring and Tuning Troubleshooting	General Properties	
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	Started Description NotifyMDB_Listener * Connection factory JNDI name NotifyMDB_Listener	
< <u> </u>	Pestination JNDI name	+

11. Click 'Save'.





12. Select 'Notify MDB_Listener'. Click 'Start'.



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Users and Groups	Total 3						
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E UDDI							
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13. 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

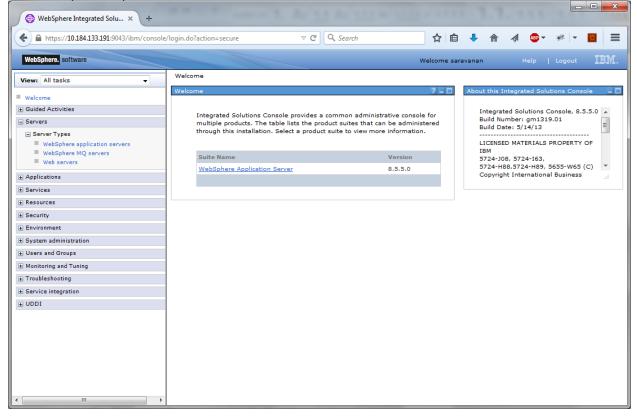
5.1 Introduction

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:

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



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



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■ Welcome Guided Activities	Mail Sessions Field help 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 marker when the help and protocol must be provided. Configure mail sessions only after you configure the necessary protocol cursor is displayed.
	providers. Page help Page help
Resources Schedulers Object pool managers JMS JDBC 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> <u>settings help</u> . All scopes All scopes Image: Im
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2. Click 'New' button to create a new mail session.



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 Schedulers Object pool managers 			this page
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JDBC JDBC			
	Enable debug mode		
Asynchronous beans			
	Enable strict Internet address parsing		
Mail providers	Outgoing Mail Properties		
Mail sessions	Server		
URL	10.10.10.10		
Resource Environment	* Protocol		
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3. Provide the required information. Sample details are given below for your reference.

General Prope	General Properties			
Name	OBTRMMail			
JNDI Name	mail/OBTRMMail			
Outgoing Mail	Properties			
Server	< HOST_MAIL_SERVER >			
Protocol	Smtps			

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



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Welcome	Mail Providers	Help -
Guided Activities	Mail Providers > Built-in Mail Provider > Mail Sessions > FCUBSMail	Field help For field help information, select a
Servers	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	For field help information, select a field label or list marker when the
Server Types	mail session, an outgoing or incoming server and protocol must be provided. Configure mail sessions only after you configure the necessary protocol providers.	help cursor is displayed.
WebSphere application servers	Configuration	Page help
WebSphere MQ servers		More information about this page
Web servers	General Properties Additional Properties	
+ Applications	Additional Properties	
Services	scope = custom properties = custom properties	
Resources		
	Provider	
Schedulers Object pool managers	Built-in Mail Provider	
Java EE default resources	+ Name	
⊟ JMS	FCUBSMail	
JMS providers	* JIDI name	
Connection factories Queue connection factories	* JINJ Italia [mail/FCUBSMail	
Queue connection factories Topic connection factories		
Oueues	Description	
Topics		
Activation specifications		
■ JDBC		
Resource Adapters		
Concurrency		
Cache instances	Category	
Mail Mail providers		
 Mail providers Mail sessions 	Enable debug mode	
URL		
Resource Environment	Enable strict Internet address parsing	
Security	Outgoing Mail Properties	
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∃ System administration	+ Protocol	
Users and Groups	* HYTORCOL	
Monitoring and Tuning		
Troubleshooting	User	
Service integration	abinaya.jayaprakasam@oracle.com	
UDDI	Password	
	Verify Password	
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Done	1						<u> </u>

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



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messaging ∧ ✓ Highlight <u>A</u> ll Match Case 1 of	5 matches	×

6. 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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Schedulers	⚠ The server m	ay need to be restarted fo	r these changes to take e	ffect.		this page	
Object pool managers						Command As	
⊞ JMS	<u>Mail Sessions</u> > <u>FCUBSMail</u> > Custo	om properties				View adminis scripting com	mand for last
JDBC Resource Adapters	Use this page to specify custom p resource providers and resource fa					action	
Resource Adapters Asynchronous beans	additional custom properties for d	ata sources that access the	adatabase.	Jase vendors req	Jire		
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🗆 Mail	New Delete						
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I URL	Select Name 🔿	Value 🔿	Description ()	Required ()			
Resource Environment	You can administer the following	•					
Security	mail.smtps.host	10.10.10.10		false			
Environment	Total 1						
System administration	I OTAL 1						
⊞ Users and Groups							
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 Banking Treasury Management 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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Services	Node name	Web Container	
± Resources	ofss220239Node01	Settings	
Security Environment	Run in development mode	Portlet Container Settings	
+ System administration	Parallel start	EJB Container Settings	
Users and Groups	Start components as needed	Container Services	
Monitoring and Tuning Troubleshooting	Access to internal server classes	Application profiling service Transaction service	
Service integration UDDI	Server-specific Application Settings	Dynamic cache service	
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2. E	Expand	'Container	Services'	and click	ORB Service'
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Services Resources		properties	
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= 1	* Request retries delay		
Environment	0 milliseconds		
System administration	* Connection cache maximum		
Users and Groups	240 connections		
Monitoring and Tuning	* Connection cache minimum		
	100 connections		
Service integration	ORB tracing		
UDDI			
	* Locate request timeout 180 seconds		
	Force tunnel		
	NEVER		
	Tunnel agent URL		
	Tunnel agent UKL		
	Pass by reference		
	Thread Pool Settings		
	Use the <u>ORB.thread.pool</u> settings associated with the Thread Pool Manager (recommended).		
	Output Use the <u>Thread Pool Settings</u> 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

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