

FCUBS JMS Configuration Using Websphere Default Messaging
Provider

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1. Purpose

The purpose of this document is to explain the steps required for JMS Configuration in cluster mode using WEBSPHERE DEFAULT MESSAGING PROVIDER for Websphere 8.5.5

2. Introduction

The default messaging provider is installed and runs as part of WebSphere Application Server, and needs no further administration. WebSphere administrative console is used to configure JMS resources for applications and can manage messages and subscriptions associated with JMS destinations.

The default messaging provider is the Java™ Message Service (JMS) API implementation for messaging (connection factories, JMS destinations, and so on). The concrete destinations (queues and topic spaces) behind the default messaging provider interface are implemented in a service integration bus.

The default messaging provider is based on service integration technologies., this document deals with

- Service Bus Creation
A service integration bus consists of one or more bus members. A bus member can be an application server or a cluster. Each bus member will have one (or possibly more in the case of clusters) messaging engine that manages connections to the bus and messages.
- JMS connection factories and service integration
A JMS connection factory is used to create connections to JMS resources on a service integration bus.
- JMS queue resources and service integration
Creation of JMS queue resources provided by the default messaging provider for JMS point-to-point messaging and supported by a service integration bus.
- Application access to JMS resources
Describes the application access to Java Message Service (JMS) resources provided by the default messaging provider.

3. Pre-Requisites

The document assumes that the below are created before proceeding JMS creation.

3.1 Nodes

2 nodes are created

Select	Name	Host Name	Version	Discovery Protocol	Status
<input type="checkbox"/>	ofss220239Node02	ofss220239.in.oracle.com	Base 8.5.5.0	TCP	
<input type="checkbox"/>	ofss222565CellManager01	ofss222565.in.oracle.com	ND 8.5.5.0	TCP	
<input type="checkbox"/>	ofss222565Node03	ofss222565.in.oracle.com	ND 8.5.5.0	TCP	

3.2 Node Agents

Both the Node Agents are started.

Select	Name	Node	Host Name	Version	Status
<input type="checkbox"/>	nodeagent	ofss220239Node02	ofss220239.in.oracle.com	Base 8.5.5.0	
<input type="checkbox"/>	nodeagent	ofss222565Node03	ofss222565.in.oracle.com	ND 8.5.5.0	

3.3 Cluster

The screenshot shows the 'WebSphere application server clusters' page. The left sidebar has 'Server Types' expanded, showing options like WebSphere application servers, WebSphere proxy servers, On Demand Routers, PHP servers, etc. The main panel displays a table with one row for 'CLUSTER_1'. The table columns are Select, Name, Status, and a green plus sign icon.

Select	Name	Status	
	CLUSTER_1		

Total 1

3.4 Managed Servers

The screenshot shows the 'Application servers' page. The left sidebar has 'Server Types' expanded. The main panel displays a table with four rows. The table columns are Select, Name, Node, Host Name, Version, Cluster Name, and Status. The status for all servers is shown as green plus signs.

Select	Name	Node	Host Name	Version	Cluster Name	Status
	MS_1	ofss220239Node02	ofss220239.in.oracle.com	Base 8.5.5.0	CLUSTER_1	
	MS_2	ofss222565Node03	ofss222565.in.oracle.com	ND 8.5.5.0	CLUSTER_1	
	server1	ofss220239Node02	ofss220239.in.oracle.com	Base 8.5.5.0		
	server2	ofss222565Node03	ofss222565.in.oracle.com	ND 8.5.5.0		

Total 4

3.5 DataSource

Ensure that DataSource required for the MDB ear is created with Target as Cluster_1

Select	Name	JNDI name	Scope	Provider	Description	Category
<input checked="" type="checkbox"/>	FLEXTEST.WORLD	FLEXTEST.WORLD	Cluster=CLUSTER_1	Oracle JDBC Driver (XA)	New JDBC Datasource	

3.6 Shared Folder

Shared folders for File Store Creation are required and this folder should be accessible across both the servers (eg, NFS mount). For fail over of messaging engines to another, all servers in cluster require a separate folder. If there are 4 Managed Servers in the clusters then 4 separate folders are required.

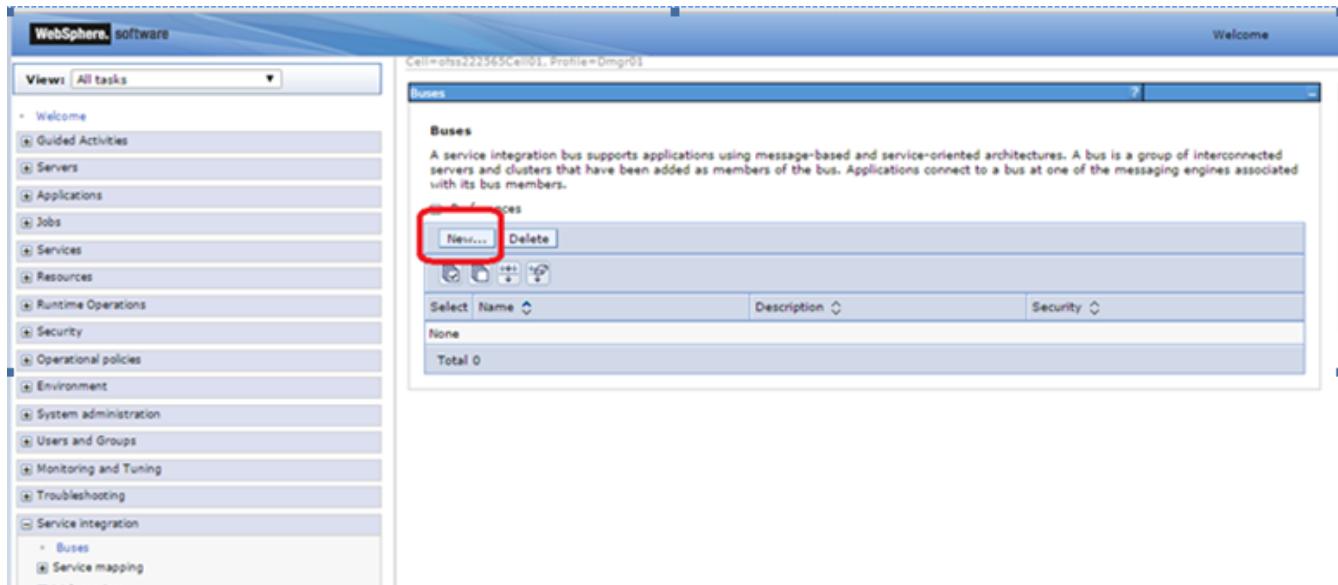
Eg,

```
/scratch/MessageStore/JMS_1/  
/scratch/MessageStore/JMS_2/  
/scratch/ MessageStore /JMS_3/
```

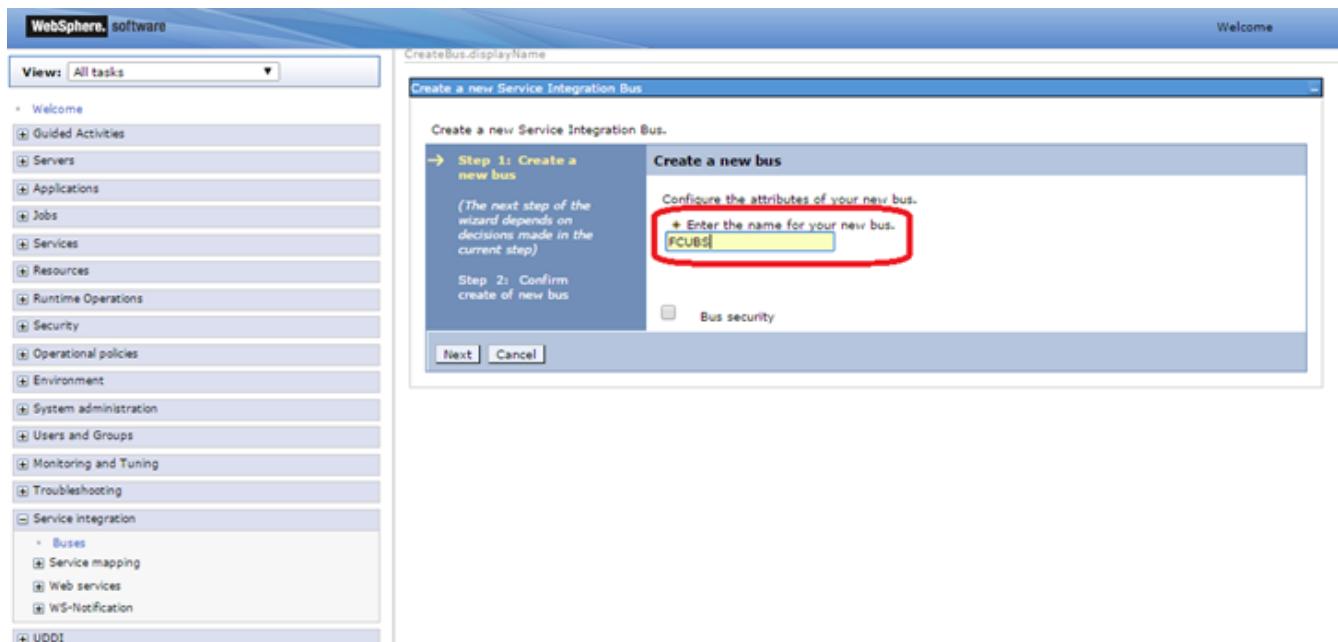
4. JMS Configuration

4.1 Service Integration Bus Creation

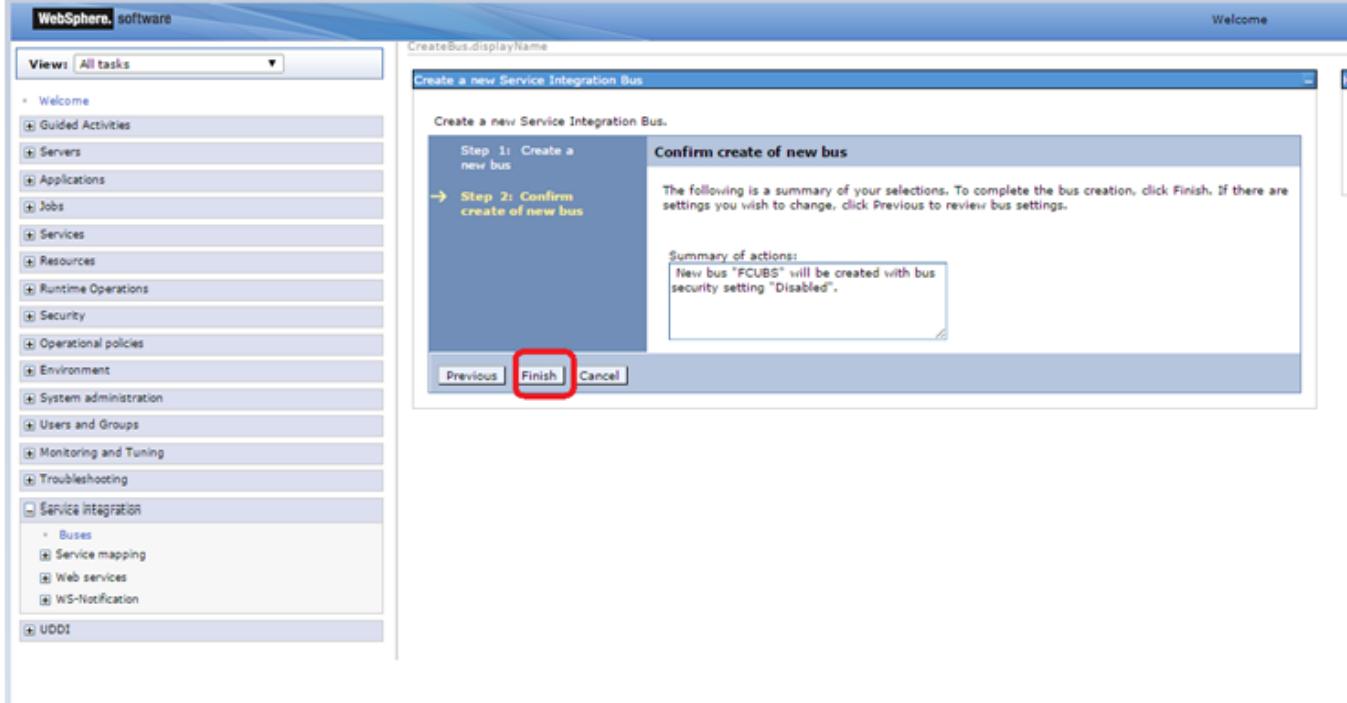
- 1) Navigate to Service Integration > Buses > Click on New



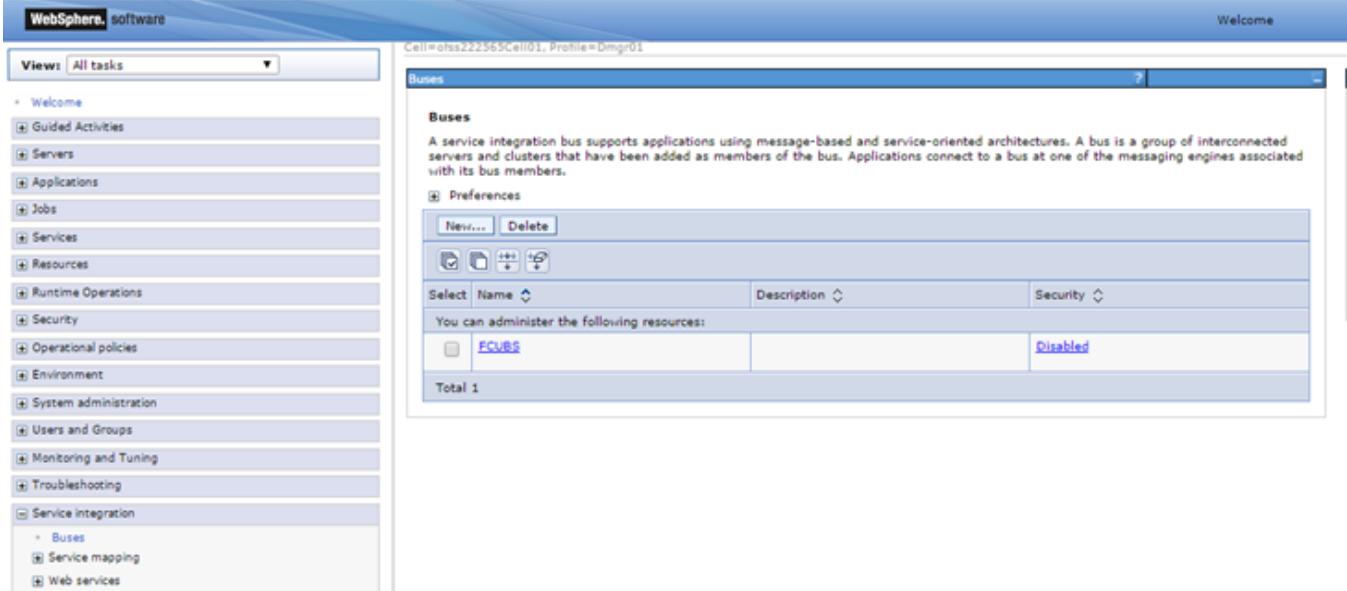
- 2) Enter Name for the new Bus, Uncheck "Bus Security" if security is not enabled during FCUBS property file build and click on Next



3) Click on Finish



4) New Bus FCUBS is created



4.2 Bus Member(File Store Creation)

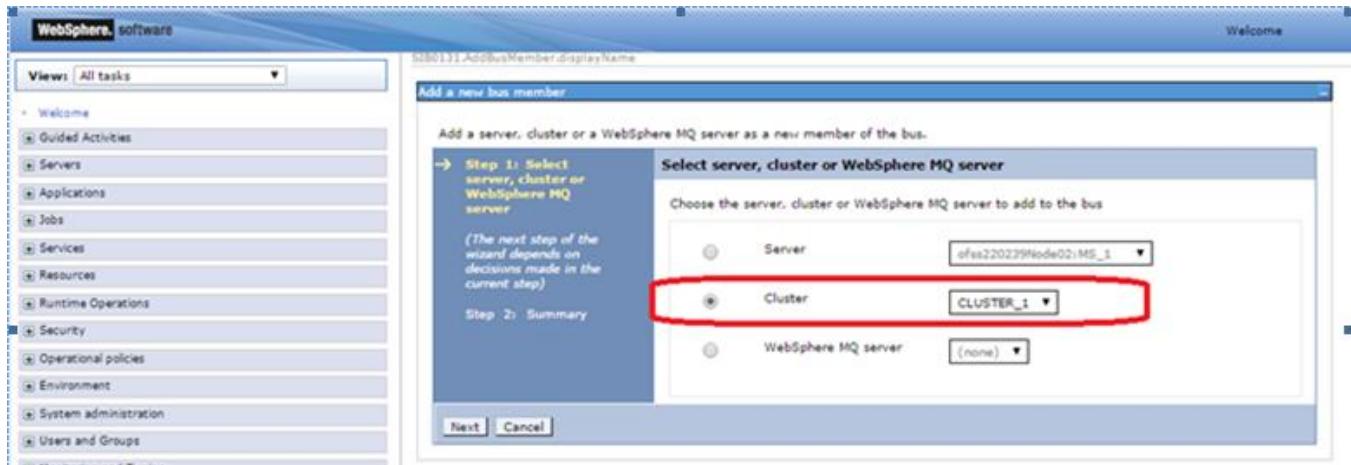
- 1) Navigate to Service Integration > Buses > Click on FCUBS(new bus Created) > Click on Bus Member under Topology

The screenshot shows the WebSphere software interface. On the left, there's a navigation tree with various categories like Welcome, Guided Activities, Servers, Applications, Jobs, Services, Resources, Runtime Operations, Security, Operational policies, Environment, System administration, Users and Groups, Monitoring and Tuning, Troubleshooting, Service integration (with Buses selected), Service mapping, Web services, WS-Notification, and UDDI. The main panel shows a bus configuration for 'Cell=ohs222565Cell01, Profile=Dmgr01'. It has tabs for Configuration and Local Topology, with Configuration selected. Under Configuration, there's a 'General Properties' section with fields for Name (FCUBS), UID (D4AFF53950380C28), Description (empty), Inter-engine transport chain (empty), Discard messages (unchecked), Configuration reload enabled (checked), and Default messaging engine high message threshold (50000). To the right, there's a 'Topology' section with a red box around the 'Bus members' link. Other sections include Destination resources (Destinations, Mediations), Services (Inbound services, Outbound services, WS-Notification services, Reliable messaging state), and Additional Properties (Custom properties, Security, Web service gateway instances).

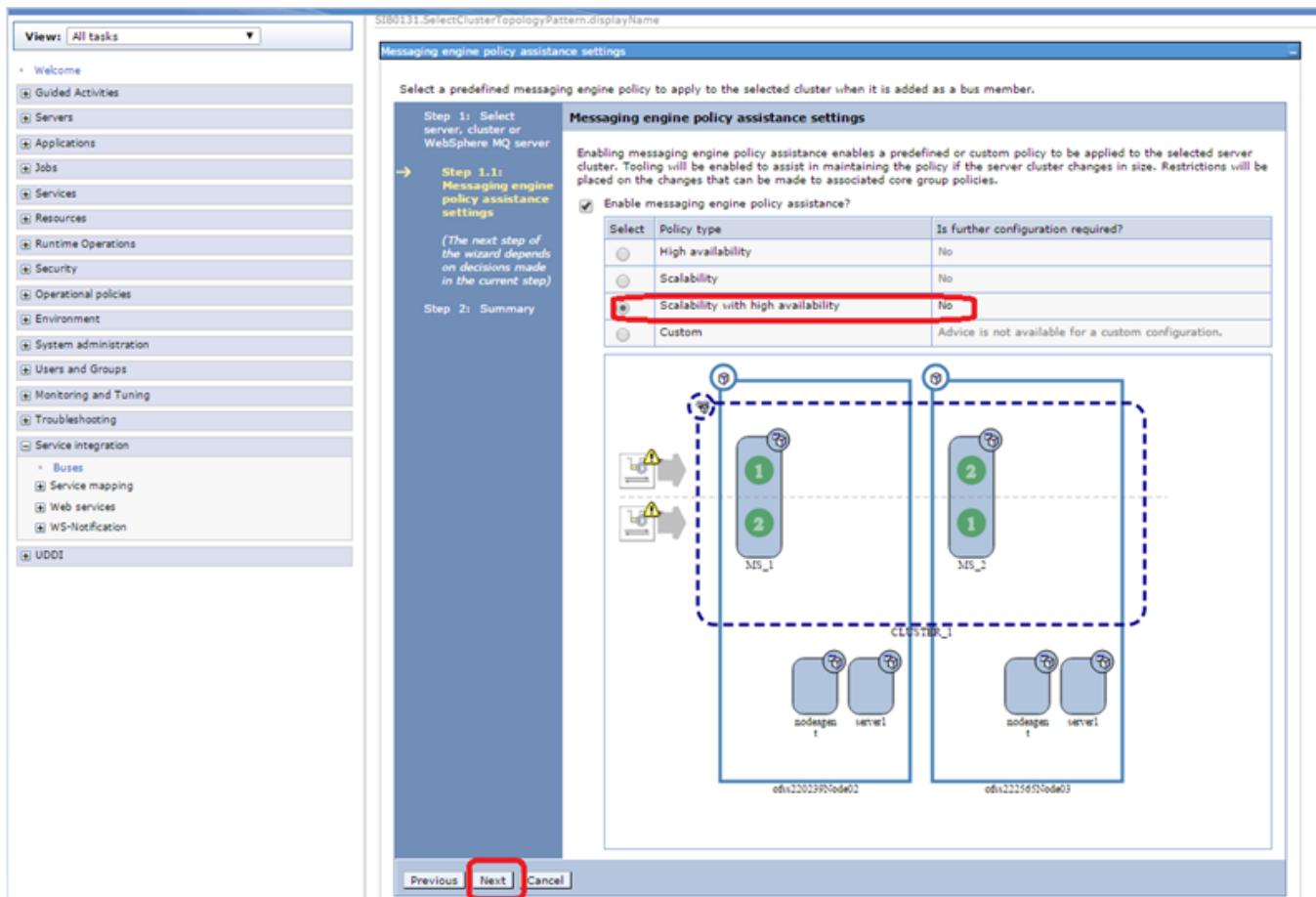
- 2) Click On Add

The screenshot shows the 'Buses > FCUBS > Bus members' page. The left sidebar is identical to the previous screenshot. The main area displays a table with columns for Select, Name, Type, and Messaging engine policy assistance. The table shows one entry: 'None'. At the top of the table, there are 'Add' and 'Remove' buttons, with the 'Add' button highlighted by a red box.

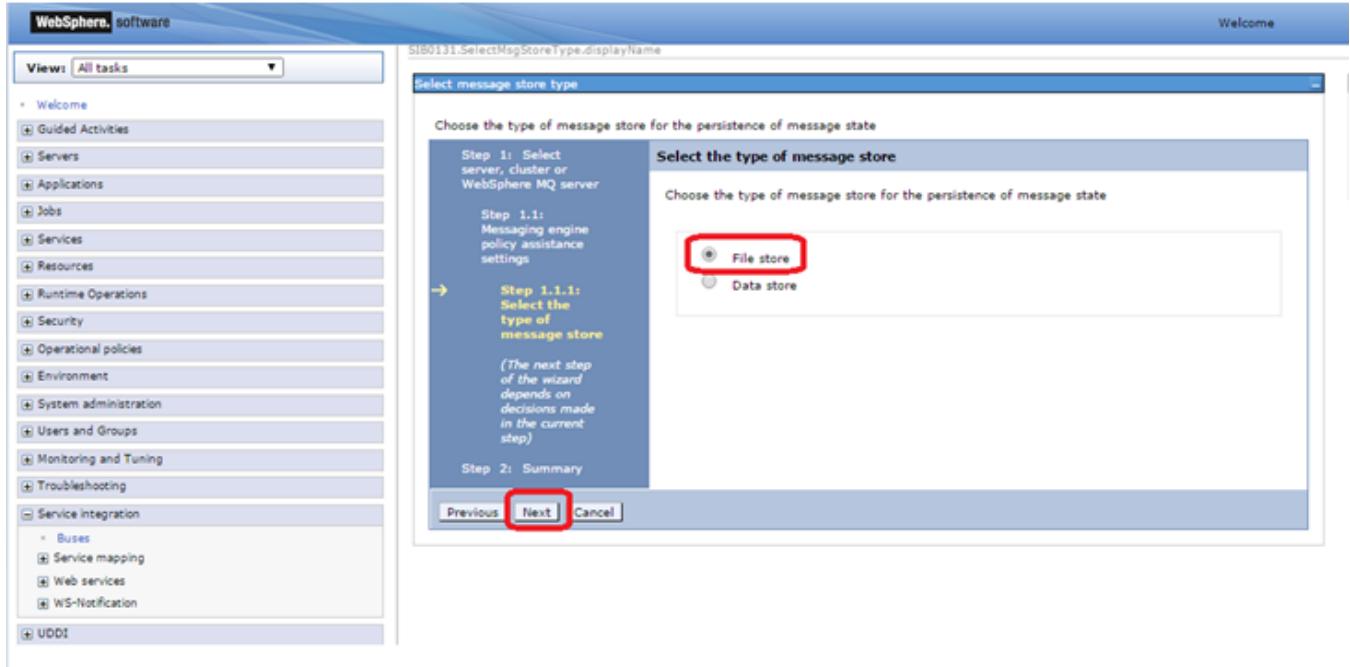
3) Select Cluster and Click on Next



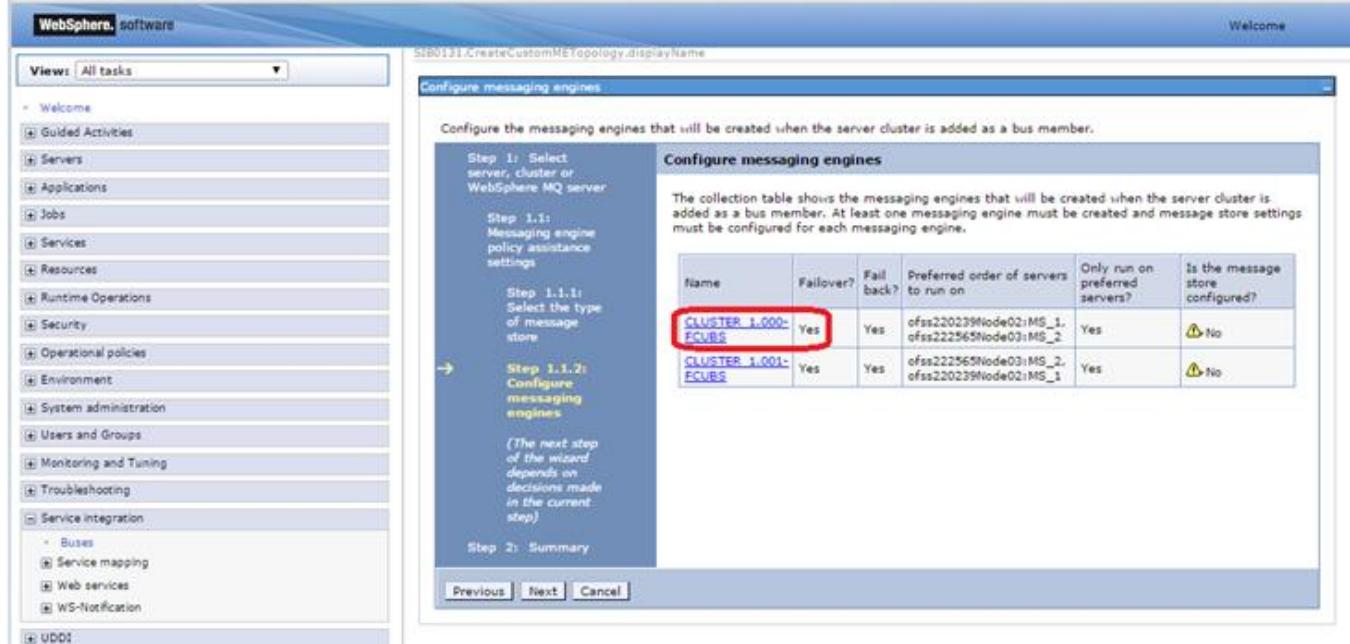
4) Select Scalability and High Availability Policy Type and Click on Next.



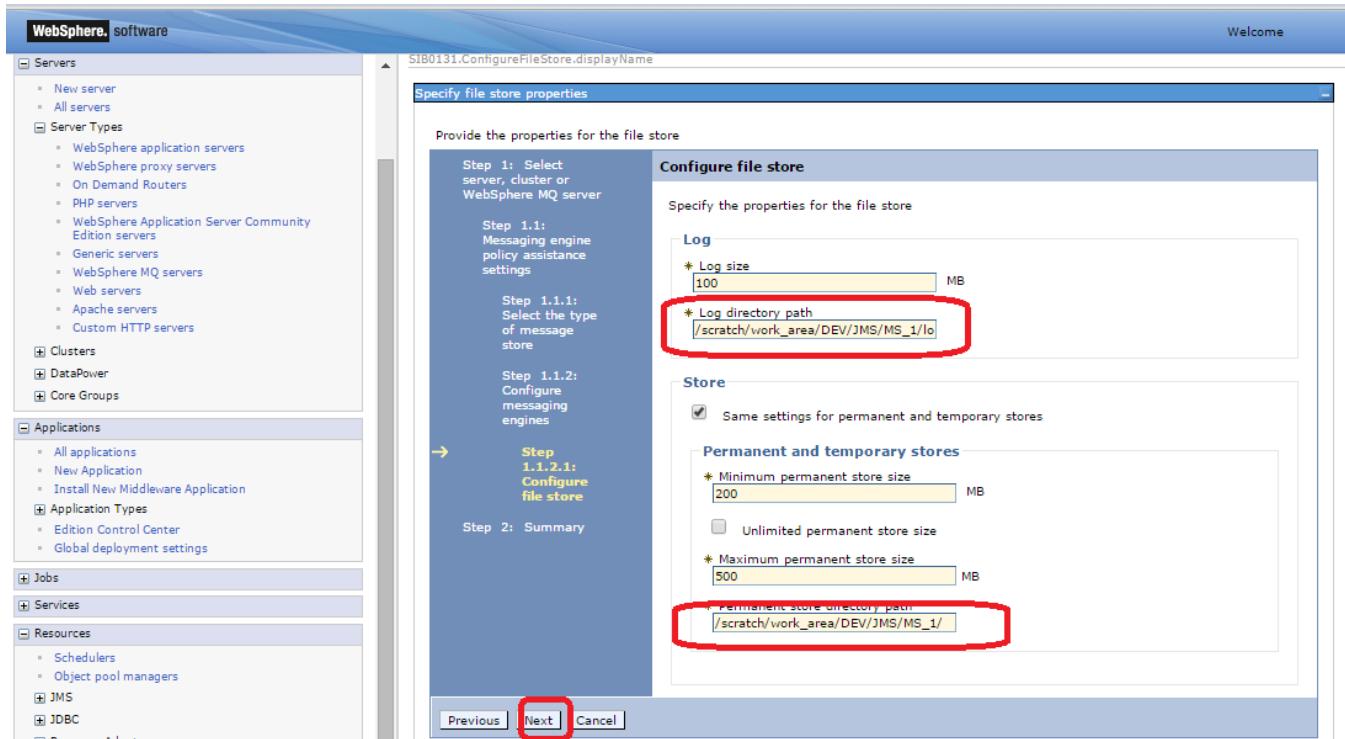
5) Select File Store and Click on Next



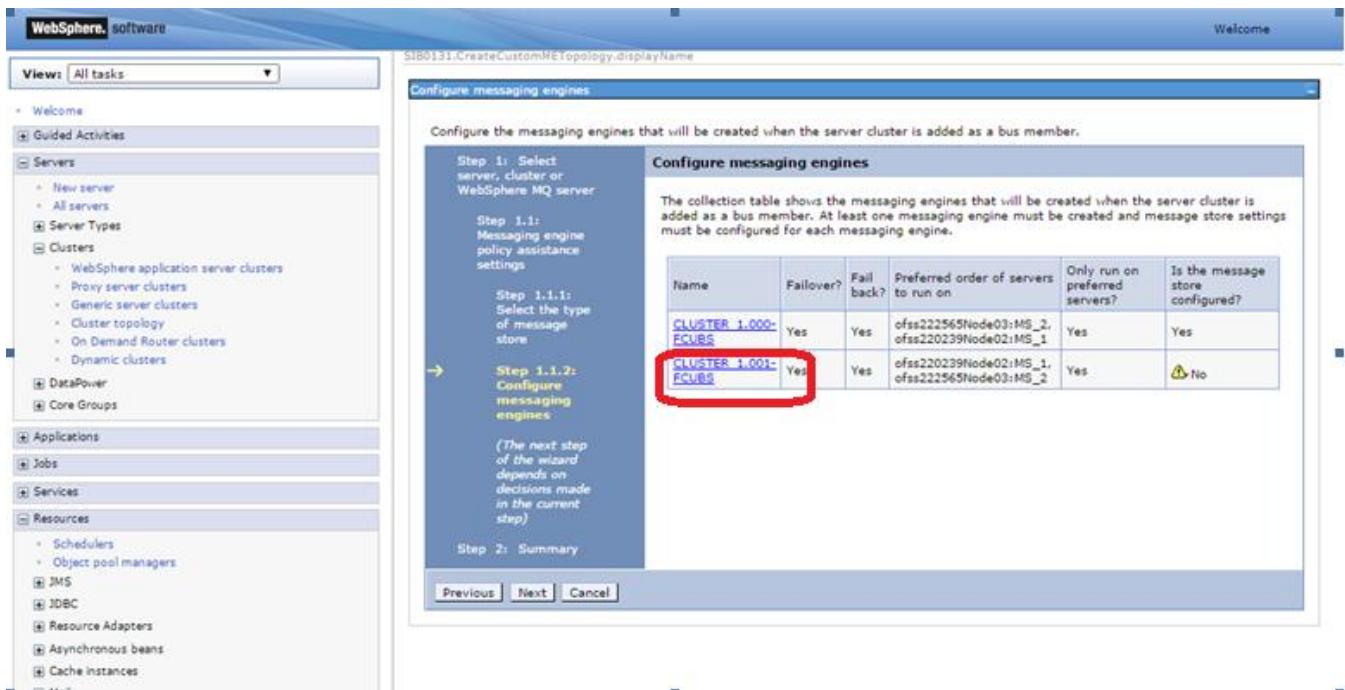
6) Select the Node 1 Message Engine



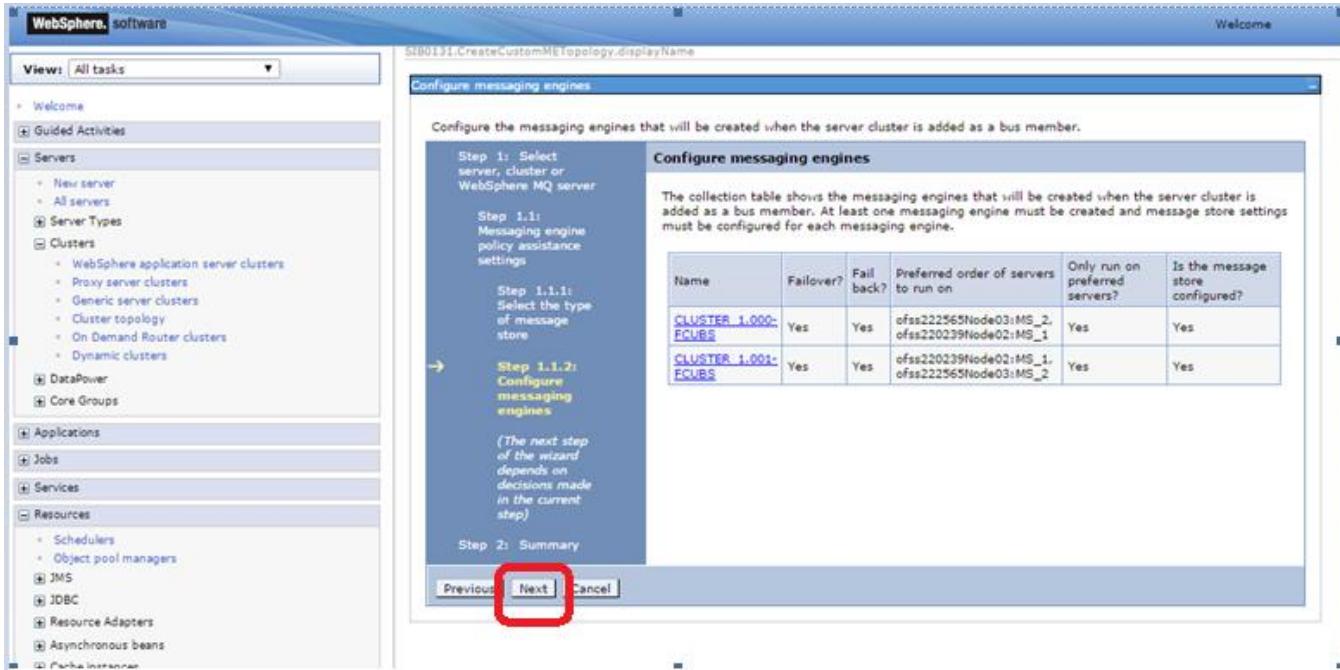
- 7) Enter the Log Directory Path and Permanent store directory path(shared path across the nodes) and Click on Next



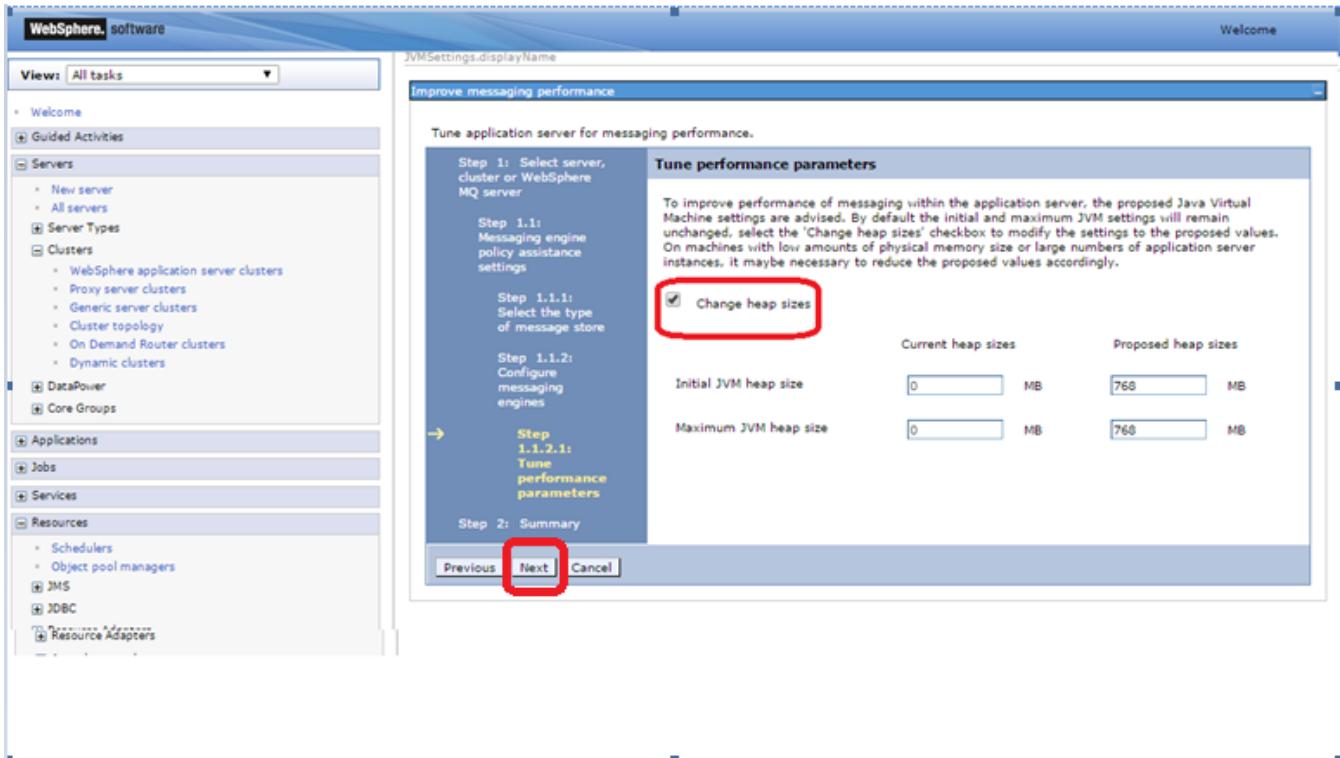
- 8) Click on other message engine and set the FileStore



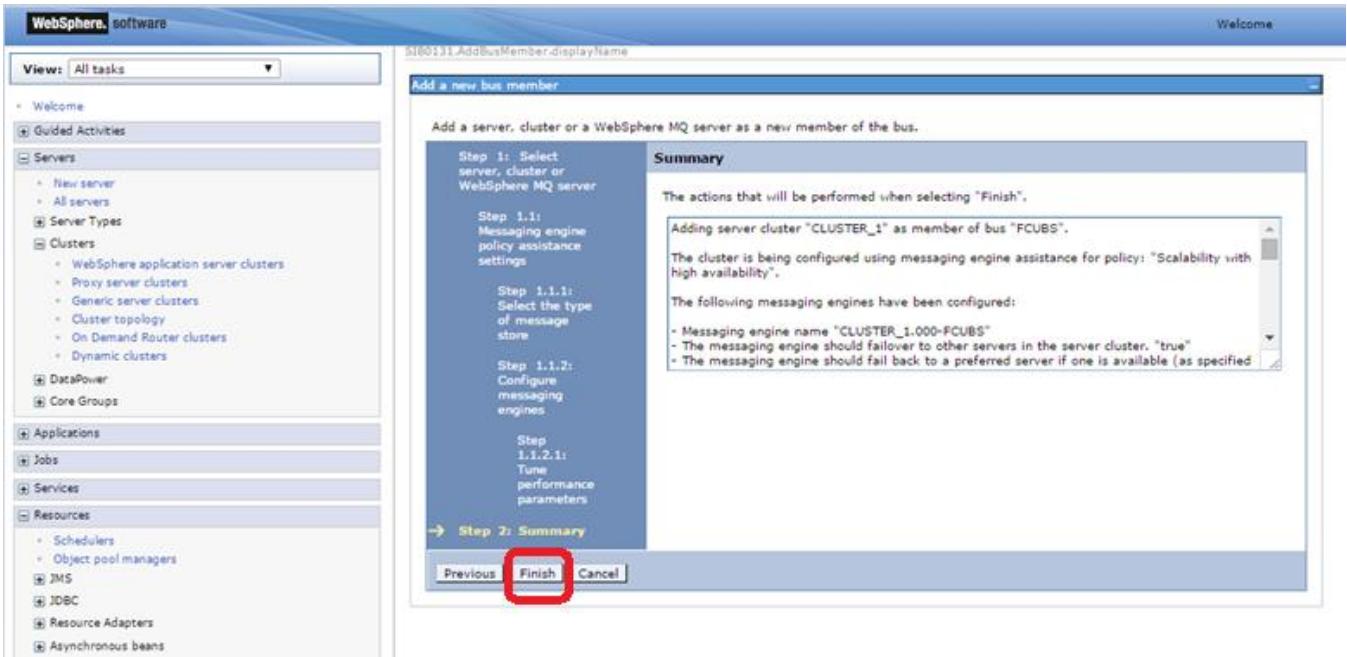
9) Click on Next after Setting FileStore for all messaging engines



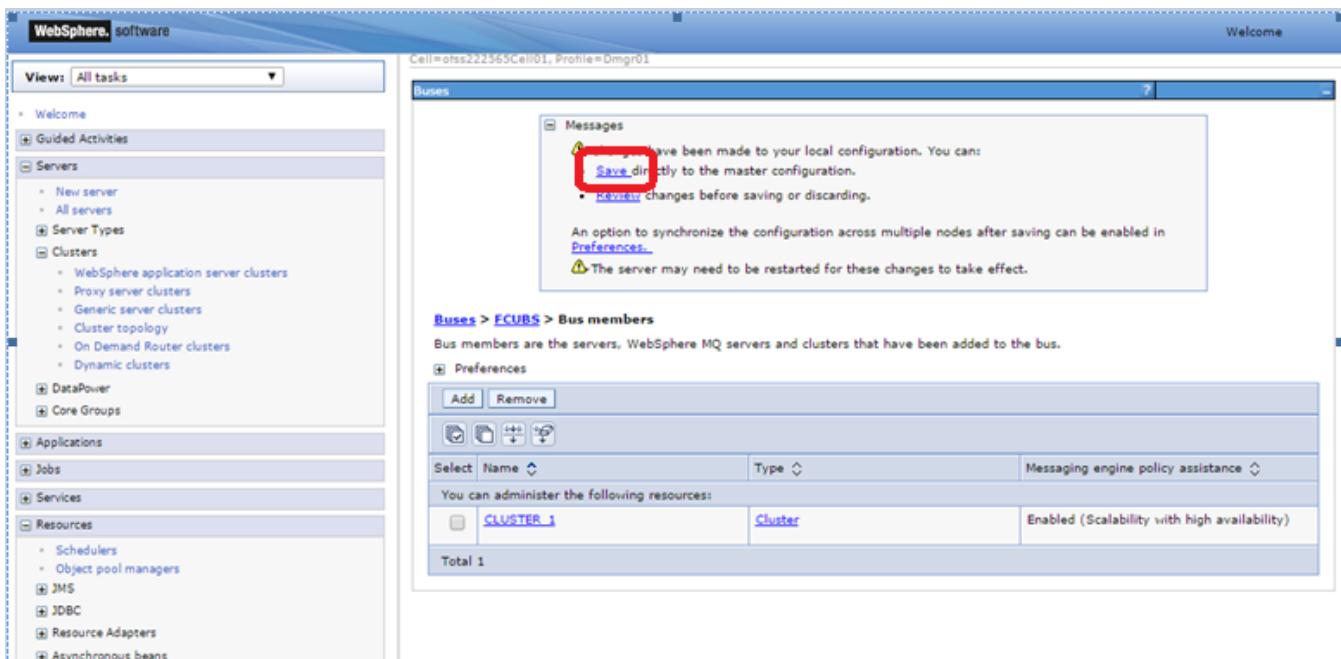
10) Select Change Heap Sizes and Click on Next



11) Click on Finish



12) Click on Save



4.3 Destination Queue Creation

- 1) Navigate to Service Integration > Buses > Click on FCUBS(new bus Created) > Click on Destination under Destination Resources

The screenshot shows the WebSphere software interface. On the left, there is a navigation tree with categories like New server, All servers, Server Types, Clusters, DataPower, Core Groups, Applications, Jobs, Services, and Resources. Under Resources, the JMS category is expanded, showing JMS providers, Connection factories, Queue connection factories, Topics, Activation specifications, and INRC.

The main panel shows the 'Buses' configuration for the 'FCUBS' bus. It includes sections for General Properties (Name: FCUBS, UUID: D4AFF53950380C28), Topology (Bus members, Messaging engines, Foreign bus connections, Bootstrap members), and Destination resources (Destinations, Mediations). The 'Destination resources' section is circled in red.

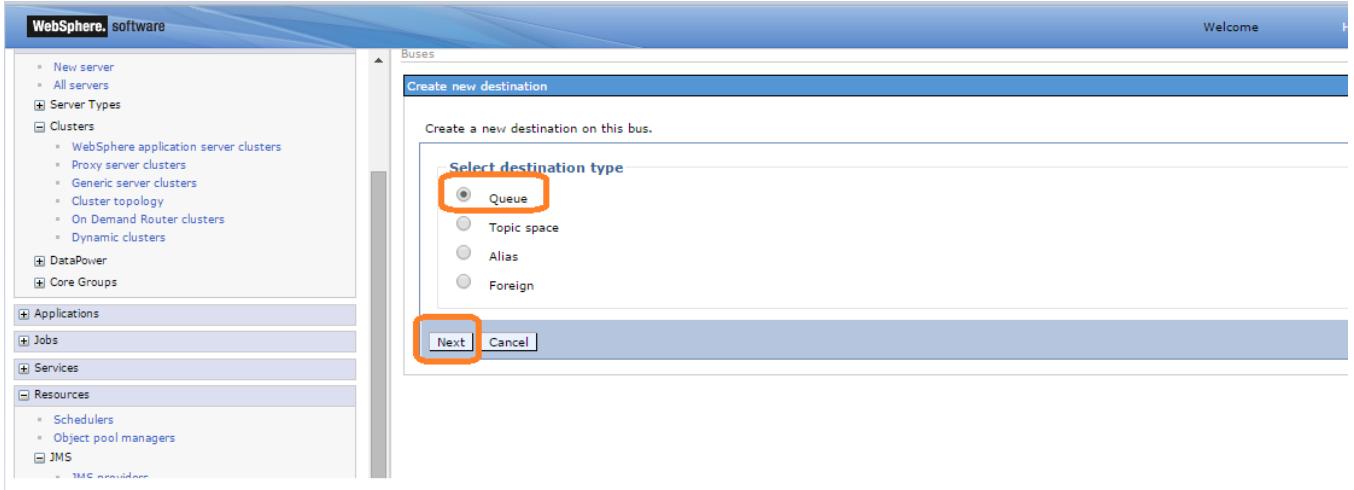
- 2) Click on New

The screenshot shows the 'Destinations' tab for the 'FCUBS' bus. The top navigation bar shows 'Buses > FCUBS > Destinations'. The main area displays a table of existing destinations:

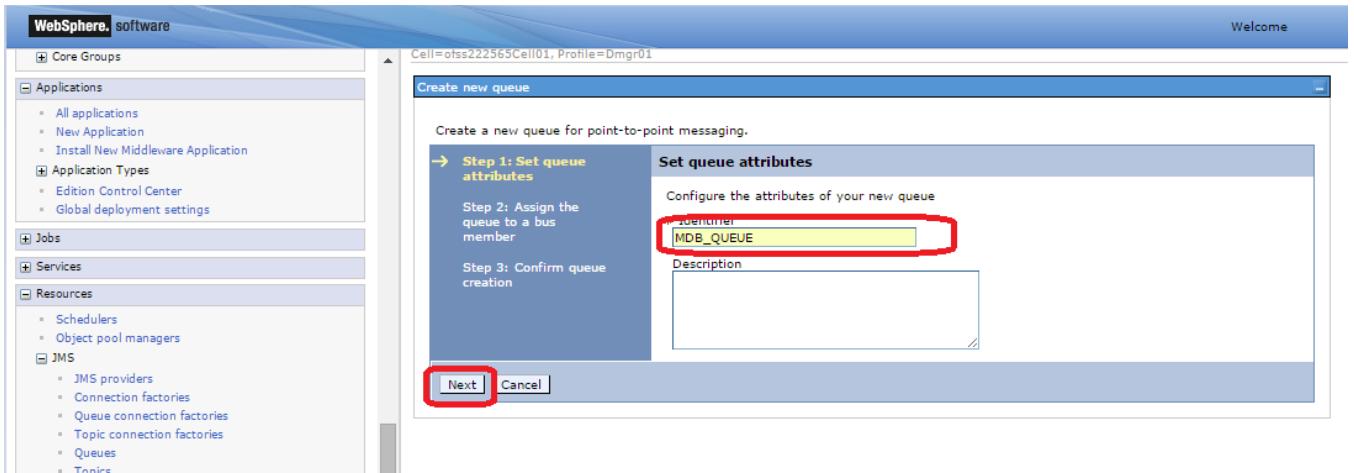
Select	Identifier	Bus	Type	Description	Mediation
<input type="checkbox"/>	Default.Topic.Space	FCUBS	Topic space		
<input type="checkbox"/>	SYSTEM.Exception.Destination.CLUSTER_1.000-FCUBS	FCUBS	Queue		
<input type="checkbox"/>	SYSTEM.Exception.Destination.CLUSTER_1.001-FCUBS	FCUBS	Queue		

A red box highlights the 'New...' button in the toolbar above the table.

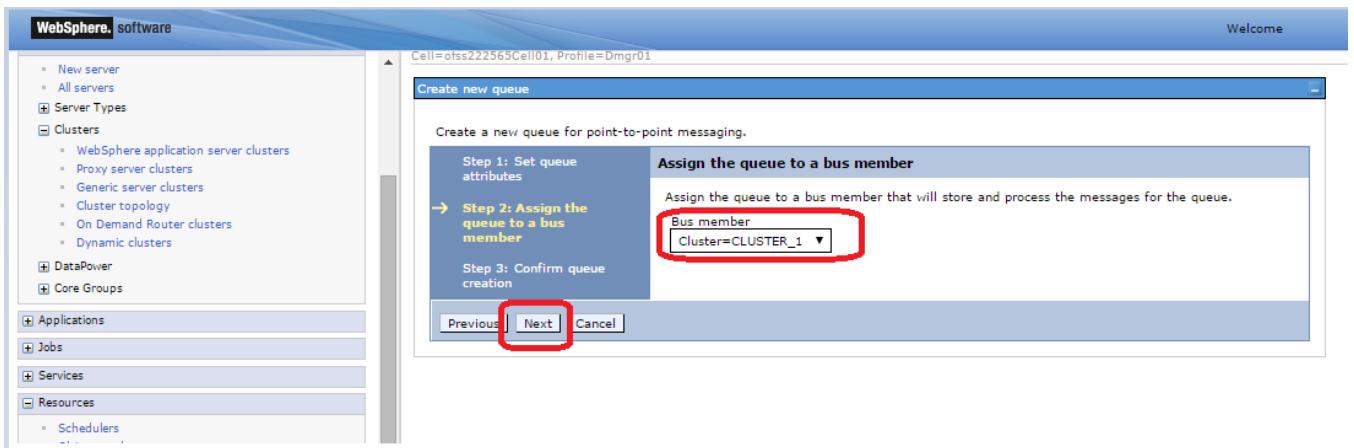
3) Select Queue and Click on Next



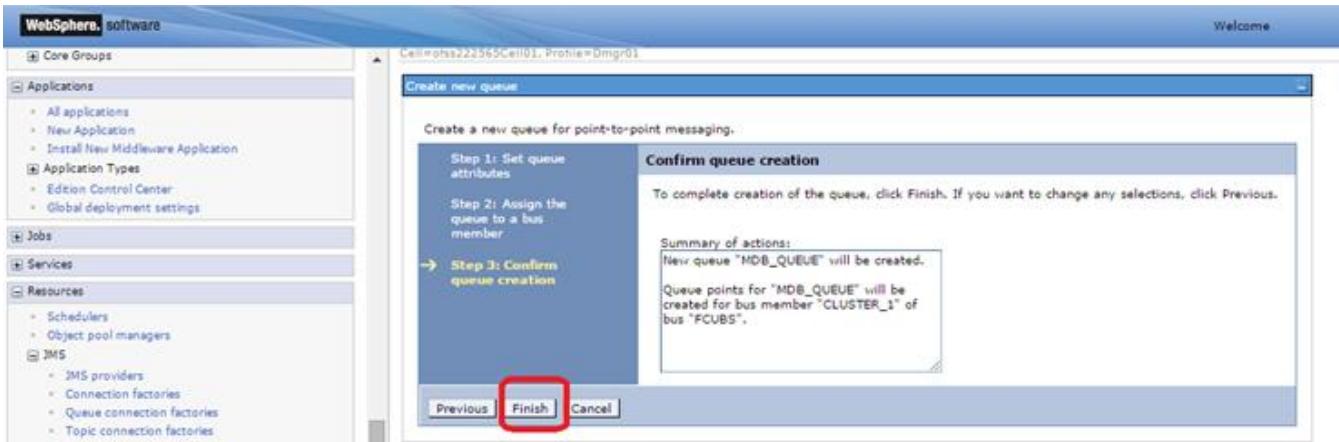
4) Enter Identifier as MDB_QUEUE and Click on Next



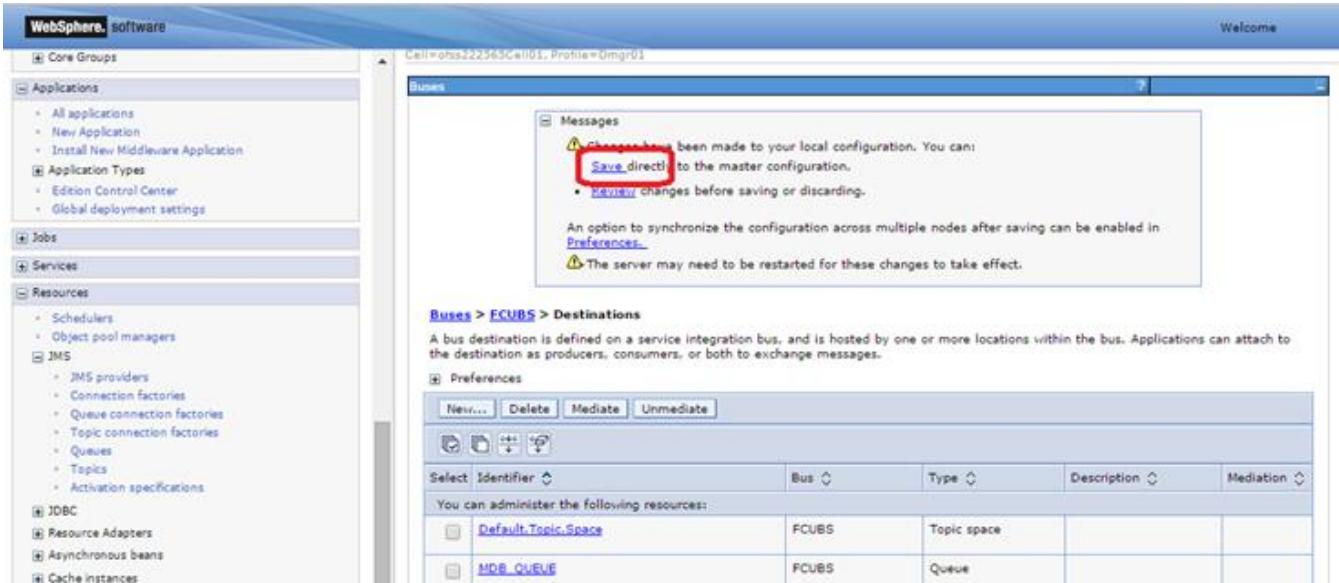
5) Select Bus Member as Cluster and Click on Next



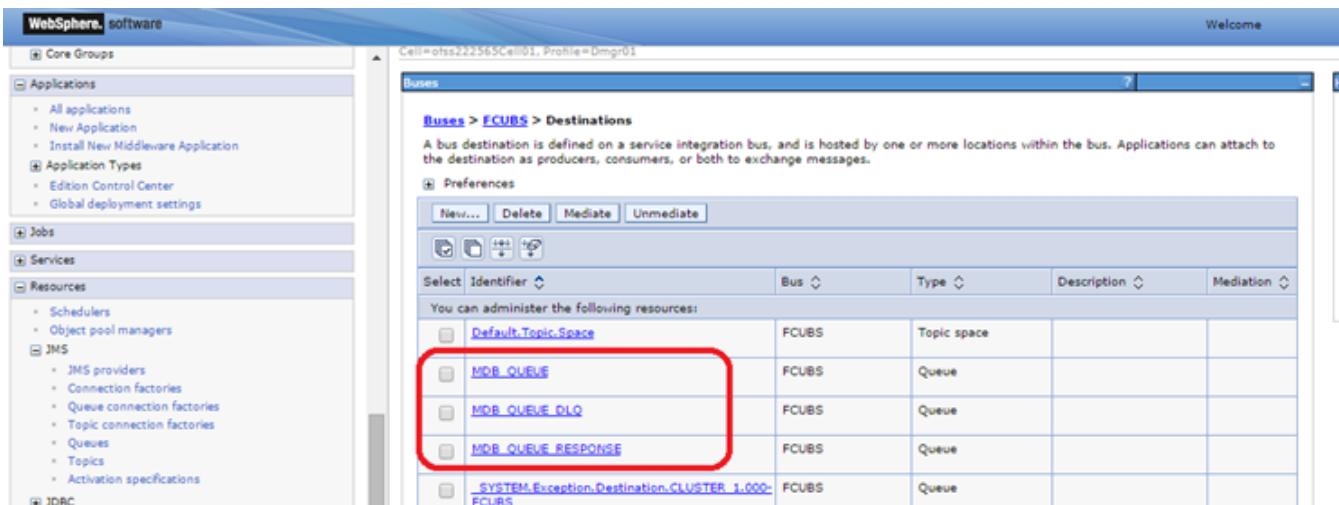
6) Click on Finish



7) Click on Save



8) Similarly create Destinations for all the other Queue's required



5. Resource Creation

5.1 Queue Creation

- 1) Navigate to Resources > JMS > Queues > Select Scope as Cluster and Click on New

The screenshot shows the 'Queues' creation dialog in the WebSphere Application Server Administration Console. The 'Scope' dropdown menu is open, showing 'Cell=ofss222565Cell01, Cluster=CLUSTER_1' and other options like 'Show scope selection drop-down list with the all scopes option'. Below the dropdown is a table with columns for Select, Name, JNDI name, Provider, Description, and Scope. The 'Name' column has a dropdown arrow. The 'Scope' column has a dropdown arrow. The 'New' button in the toolbar is highlighted with a red box.

- 2) Select “Default messaging provider” and Click on OK

The screenshot shows the 'Select JMS resource provider' dialog. It displays two options: 'Default messaging provider' (selected) and 'WebSphere MQ messaging provider'. At the bottom are 'OK' and 'Cancel' buttons, with 'OK' highlighted with a red box.

3) Enter The Name, JNDI Name. Select Bus and Queue Name accordingly and Click on OK

The screenshot shows the 'Queues' configuration page for a JMS queue named 'MDB_QUEUE'. The 'Name' and 'JNDI name' fields are both set to 'MDB_QUEUE' and are highlighted with a red box. In the 'Connection' section, the 'Bus name' is set to 'FCUBS' and the 'Queue name' is set to 'MDB_QUEUE', which is also highlighted with a red box.

4) Similarly create other Queue's required

Select	Name	JNDI name	Provider	Description	Scope
<input type="checkbox"/>	MDB_QUEUE	MDB_QUEUE	Default messaging provider		Cluster=CLUSTER_1
<input type="checkbox"/>	MDB_QUEUE_DLQ	MDB_QUEUE_DLQ	Default messaging provider		Cluster=CLUSTER_1
<input type="checkbox"/>	MDB_QUEUE_RESPONSE	MDB_QUEUE_RESPONSE	Default messaging provider		Cluster=CLUSTER_1

5.2 Connection Factory Creation

- 1) Navigate to Resources > JMS > Queue Connection Factory > Select Scope as Cluster and Click on New

The screenshot shows the 'Queue connection factories' configuration page. The left sidebar has 'Resources' expanded, with 'JMS' selected. Under 'JMS', 'Connection factories' is selected and highlighted with a red box. The main panel shows the 'Queue connection factories' section with a note about scope. A dropdown menu shows 'Cluster=CLUSTER_1' selected. Below it, there's a 'Preferences' section with 'New' and 'Delete' buttons, and a table for managing connection factories.

- 2) Select “Default messaging provider” and Click on OK

The screenshot shows the 'Select JMS resource provider' dialog. It lists two options: 'Default messaging provider' (selected) and 'WebSphere MQ messaging provider'. At the bottom are 'OK' and 'Cancel' buttons, with 'OK' highlighted with a red box.

3) Enter Name, JNDI Name, Select Bus Name and Click on OK

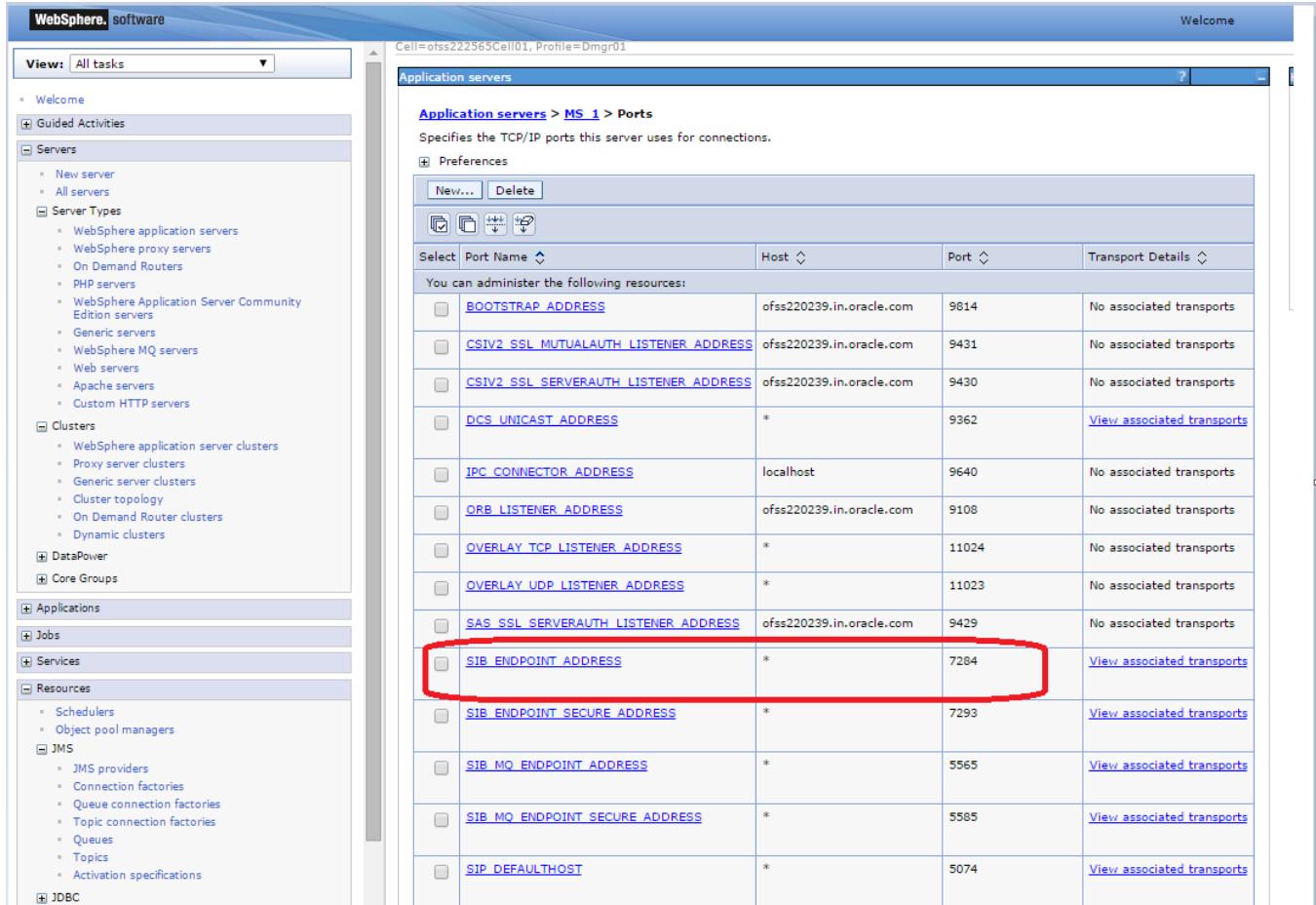
The screenshot shows the 'Queue connection factories' configuration page in WebSphere. On the left, there's a navigation tree with 'Resources' expanded, showing 'JMS' and its sub-options like 'JMS providers', 'Connection factories', etc. The main panel shows 'Queue connection factories > MDBQCF'. It has two tabs: 'Configuration' (selected) and 'General Properties'. Under 'General Properties', there are sections for 'Administration' (Scope: Cluster=CLUSTER_1, Provider: Default messaging provider), 'Additional Properties' (Connection pool properties), 'Related Items' (JAAS - J2C authentication data, Buses), and 'Category'. The 'Connection' section contains fields for 'Name' (MDBQCF), 'JNDI name' (MDBQCF), 'Bus name' (FCUBS), 'Target' (empty), and 'Target type' (Bus member name). The 'Name' and 'JNDI name' fields are highlighted with a red box, and the 'Bus name' field is also highlighted with a red box.

4) Click on Save

The screenshot shows the 'Queue connection factories' configuration page again, but now with a message box open. The message says: 'Changes have been made to your local configuration. You can: Save directly to the master configuration. Review changes before saving or discarding.' Below this, it says 'An option to synchronize the configuration across multiple nodes after saving can be enabled in Preferences.' and 'The server may need to be restarted for these changes to take effect.' A checkbox for 'Save directly to the master configuration' is highlighted with a red box.

5.2.1 Managed Servers SIB Ports

- 1) Navigate to Servers > Websphere Application Servers > SERVER_NAME > Click on Ports under Communications > Note down the port of SIB_ENDPOINT_ADDRESS



The screenshot shows the WebSphere Application Server administration console. On the left, the navigation tree is expanded to show 'Servers' and 'Server Types'. In the main panel, the title is 'Application servers > MS_1 > Ports'. The sub-header says 'Specifies the TCP/IP ports this server uses for connections.' Below this, there is a table with columns for Port Name, Host, Port, and Transport Details. The 'SIB_ENDPOINT_ADDRESS' row is circled in red. The table data is as follows:

Select	Port Name	Host	Port	Transport Details
BOOTSTRAP_ADDRESS	ofss220239.in.oracle.com	9814	No associated transports	
CSIV2_SSL_MUTUALAUTH_LISTENER_ADDRESS	ofss220239.in.oracle.com	9431	No associated transports	
CSIV2_SSL_SERVERAUTH_LISTENER_ADDRESS	ofss220239.in.oracle.com	9430	No associated transports	
DCS_UNICAST_ADDRESS	*	9362	View associated transports	
IPC_CONNECTOR_ADDRESS	localhost	9640	No associated transports	
ORB_LISTENER_ADDRESS	ofss220239.in.oracle.com	9108	No associated transports	
OVERLAY_TCP_LISTENER_ADDRESS	*	11024	No associated transports	
OVERLAY_UDP_LISTENER_ADDRESS	*	11023	No associated transports	
SAS_SSL_SERVERAUTH_LISTENER_ADDRESS	ofss220239.in.oracle.com	9429	No associated transports	
SIB_ENDPOINT_ADDRESS	*	7284	View associated transports	
SIB_ENDPOINT_SECURE_ADDRESS	*	7293	View associated transports	
SIB_MQ_ENDPOINT_ADDRESS	*	5565	View associated transports	
SIB_MQ_ENDPOINT_SECURE_ADDRESS	*	5585	View associated transports	
SIP_DEFAULTHOST	*	5074	View associated transports	

- 2) Similarly navigate to all other managed servers in the cluster and note down the port of SIB_ENDPOINT_ADDRESS

- 3) Prepare the "Provider Endpoint" String as below

<hostname1/IP Address1>:<PORT ofSIB_ENDPOINT_ADDRESS>:BootstrapBasicMessaging

In this case the Provider Endpoint String would be

ofss222565:7281:BootstrapBasicMessaging,ofss220239:7284:BootstrapBasicMessaging

4) Navigate to Resources > JMS > Queue Connection Factory > Click on newly created connection factory

The screenshot shows the 'Queue connection factories' page in the WebSphere software interface. The left sidebar shows navigation options like 'Welcome', 'Guided Activities', 'Servers', 'Applications', 'Jobs', 'Services', 'Resources' (expanded to show 'Schedulers', 'Object pool managers', 'JMS' with 'JMS providers', 'Connection factories', 'Queue connection factories', 'Topic connection factories', 'Queues', 'Topics', 'Activation specifications'), 'JDBC', 'Resource Adapters', 'Asynchronous beans', and 'Carbs instances'. The main panel title is 'Cell=ofss222565Cell01, Profile=Dmgr01' and 'Queue connection factories'. It displays a table with one row:

Select	Name	JNDI name	Provider	Description	Scope
<input type="checkbox"/>	MDBQCF	MDBQCF	Default messaging provider		Cluster=CLUSTER_1

Total 1

5) Update the Provider endpoints as prepared above and Click on OK

The screenshot shows the 'Connection' configuration page in the WebSphere software interface. The left sidebar shows navigation options like 'Welcome', 'Guided Activities', 'Servers' (expanded to show 'New server', 'All servers', 'Server Types' with 'WebSphere application servers', 'WebSphere proxy servers', 'On Demand Routers', 'PHP servers', 'WebSphere Application Server Community Edition servers', 'Generic servers', 'WebSphere MQ servers', 'Web servers', 'Apache servers', 'Custom HTTP servers'), 'Clusters' (expanded to show 'WebSphere application server clusters', 'Proxy server clusters', 'Generic server clusters', 'Cluster topology', 'On Demand Router clusters', 'Dynamic clusters'), 'DataPower', 'Core Groups', 'Applications', 'Jobs', 'Services', 'Resources' (expanded to show 'Schedulers', 'Object pool managers', 'JMS' with 'JMS providers', 'Connection factories'). The main panel has sections for 'Category', 'Connection' (with fields for 'Bus name' (FCUBS), 'Target', 'Target type' (Bus member name), 'Target significance' (Preferred), 'Target inbound transport chain', 'Provider endpoints' (containing 'ofss222565:7281:BootstrapBasicMessaging,ofss220239:7284:BootstrapBasicMessaging')), 'Connection proximity' (Bus), and 'Quality of Service' (with dropdowns for 'Nonpersistent message reliability' (Express nonpersistent) and 'Persistent message reliability' (Reliable persistent)).

5.3 JMS Activation Specifications for Cluster

- 1) Navigate to Resources > JMS > JMS Providers > Click Default messaging provider for the cluster created

The screenshot shows the WebSphere software interface. On the left, there's a navigation tree with categories like Welcome, Guided Activities, Servers, Applications, Jobs, Services, and Resources. Under Resources, JMS is expanded, showing JMS providers, Connection factories, Queue connection factories, Topic connection factories, Queues, Topics, and Activation specifications. The JMS providers page is displayed on the right. It has a header 'Cell=ofss222565Cell01, Profile=Dmgr01'. Below the header, there's a section titled 'JMS providers' with a description: 'A JMS provider enables messaging based on the Java Message Service (JMS). It provides J2EE connection factories to create connections for JMS destinations.' There's a checkbox for 'Scope: All scopes' which is checked. Below that is a note about scope settings. A dropdown menu shows 'All scopes'. Underneath is a 'Preferences' section with 'New' and 'Delete' buttons, and icons for add, edit, and delete. A table follows with columns 'Select', 'Name', 'Description', and 'Scope'. The table lists several 'Default messaging provider' entries, each with different Node and Server values. One entry in the last row, 'Default messaging provider' with 'Node=ofss222565Cell01, Server=dmgr', has its entire row highlighted with a red box.

- 2) Under Additional Properties, click Activation specifications

The screenshot shows the configuration of a 'Default messaging provider'. The left sidebar is identical to the previous screenshot. The main area shows the 'Configuration' tab for the 'Default messaging provider'. It has two sections: 'General Properties' and 'Additional Properties'. In 'General Properties', there are fields for 'Scope' (set to 'Cluster=CLUSTER_1'), 'Name' ('Default messaging provider'), and 'Description' ('Default messaging provider'). In 'Additional Properties', there are links for 'Connection factories', 'Queue connection factories', 'Topic connection factories', 'Queues', 'Topics', and 'Activation specifications'. The 'Activation specifications' link is highlighted with a red box.

3) Click on New

The screenshot shows the WebSphere software interface. On the left, there's a navigation tree with categories like Welcome, Guided Activities, Servers, Applications, Jobs, Services, Resources (which is expanded to show Schedulers, Object pool managers, JMS providers, Connection factories, Queue connection factories, Topic connection factories, Queues, Topics, Activation specifications), JDBC, Resource Adapters, and Asynchronous beans. The main panel title is "Cell=otss222565Cell01, Profile=Dmgr01" and "JMS providers". Below it, the sub-path is "JMS providers > Default messaging provider > Activation specifications". A message states: "A JMS activation specification is associated with one or more message-driven beans and provides configuration necessary for them to receive messages." There are tabs for Preferences, New (highlighted with a red box), and Delete. Below these are icons for creating and deleting files. A table lists activation specifications with columns for Select, Name (dropdown), JNDI name (dropdown), Provider (dropdown), Description (dropdown), and Scope (dropdown). The table shows "None" and "Total 0".

4) Enter Name, JNDI Name, Select Destination Type as Queue and Enter Queue Name, Select Bus and Click on OK

The screenshot shows the "New..." configuration dialog for an activation specification. The left sidebar is identical to the previous screenshot. The main area has a title "JMS providers > Default messaging provider > Activation specifications > New...". A message says: "A JMS activation specification is associated with one or more message-driven beans and provides the configuration necessary for them to receive messages." The dialog is divided into sections: "Configuration", "General Properties", and "Related Items". In "General Properties", fields include "Scope" (Cluster=CLUSTER_1), "Provider" (Default messaging provider), "Name" (MDB_Listener, highlighted with a red box), and "JNDI name" (MDB_Listener, highlighted with a red box). The "Related Items" section lists JAAS - J2C authentication data and Buses. The "Destination" section is also highlighted with a red box and contains fields: "Destination type" (Queue, dropdown), "Destination JNDI name" (MDB_QUEUE, highlighted with a red box), "Message selector" (empty input field), "Bus name" (FCUBS, dropdown), "Acknowledge mode" (Auto-acknowledge, dropdown), and "Target" (empty input field).

5) Click on Save

The screenshot shows the WebSphere administrative console interface. The left sidebar contains a navigation tree with categories like Welcome, Guided Activities, Servers, Applications, Jobs, Services, Resources (expanded to show 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, and Resource Environment. The main content area is titled 'JMS providers' and shows a 'Messages' panel with a message about changes made to local configuration. A red box highlights the 'Save directly' link. Below the messages, there's a note about enabling synchronization in Preferences and a warning about restarting the server. The path 'JMS providers > Default messaging provider > Activation specifications' is shown at the top of the main content. A table lists one activation specification: 'MDB Listener' with JNDI name 'MDB Listener', Provider 'Default messaging provider', and Scope 'Cluster=CLUSTER_1'. A total of 1 resource is listed.

Select	Name	JNDI name	Provider	Description	Scope
<input type="checkbox"/>	MDB Listener	MDB Listener	Default messaging provider		Cluster=CLUSTER_1

6. Application Deployment

- 1) Deploy the EAR with Target as Cluster_1. Except below step rest is usual way of deploying the EAR.
- 2) During deployment give the Activation Specification Created above in the Activation Specification.

The screenshot shows the WebSphere Application Server Administration Console interface. The left sidebar navigation pane includes 'View: All tasks', 'Welcome', 'Guided Activities', 'Servers' (with sub-options like 'New server', 'All servers', 'Server Types' including 'WebSphere application servers', 'WebSphere proxy servers', etc.), 'Clusters', 'DataPower', 'Core Groups', and 'Applications' (with sub-option 'All applications'). The main content area is titled 'All Applications > MDB Gateway > Message Driven Bean listener bindings'. It displays a table with one row for 'GW_MDB_Bean.jar' (Module: GWMDB, Bean: GW_MDB_Bean, URI: GW_MDB.Bean.jar,META-INF/ejb-jar.xml, Messaging type: javax.jms.MessageListener). The 'Listener Bindings' column contains fields for 'Listener port Name' (radio button selected), 'Activation Specification' (radio button selected, highlighted with a red box), 'Target Resource JNDI Name' (input field: MDB_Listener), 'Destination JNDI name' (input field), and 'ActivationSpec authentication alias' (input field). Buttons at the bottom are 'OK' and 'Cancel'.

6.1 Restart Servers

Restart the Admin and Managed Servers.

7. Frequently Asked Questions

7.1 How to Test the Deployment

- 1) Send a sample message from the any third party application by connecting to
iiop://<hostname or ip>:<BOOTSTRAP_ADDRESS>
eg: iiop://ofss222565:9811
- 2) Verify at backend or in the MDB log if the message is processed successfully.

Or

- 1) Use the below java program to send a sample message.
- 2) Set Java Home
- 3) Set \$WAS_HOME/runtimes/com.ibm.ws.ejb.thinclient_8.5.0.jar,
\$WAS_HOME/runtimes/com.ibm.ws.sib.client.thin.jms_8.5.0.jar and javaee.jar in the CLASSPATH.
- 4) Change the URL, USER, PASSWORD, messageText in the Java Program and Compile.
- 5) Run the program and verify at backend or in MDB log.

```

import java.util.Hashtable;
import javax.jms.JMSException;
import javax.jms.Queue;
import javax.jms.QueueConnection;
import javax.jms.QueueConnectionFactory;
import javax.jms.QueueSender;
import javax.jms.QueueSession;
import javax.jms.Session;
import javax.naming.Context;
import javax.naming.InitialContext;
import javax.naming.NamingException;
import javax.jms.TextMessage;

public class JMSQueueTest {
    public JMSQueueTest() {
        super();
    }
    private Context ctx;
    private InitialContext initialContext;
    private QueueConnectionFactory queueCF;
    private QueueConnection queueConn;
    private QueueSession queueSession;
    private Queue queue;
    private QueueSender queueSender;
    private final static String JNDI_FACTORY =
"com.ibm.websphere.naming.WsnInitialContextFactory";
    private final static String JMS_FACTORY = "MDBQCF";
    private final static String QUEUE = "MDB_QUEUE";
    private final static String URL = "iiop://ofss222565:9811";
    private TextMessage txtMessage;
}

```

```

private static String USER = "wasadmin";
private static String PASSWORD = "wasadmin123";
private static String messageText = "Hello!";
private InitialContext getInitialContext(String url) throws Exception {
    Hashtable envHash = new Hashtable();
    envHash.put(Context.INITIAL_CONTEXT_FACTORY, JNDI_FACTORY);
    envHash.put(Context.PROVIDER_URL, url);
    envHash.put(Context.SECURITY_PRINCIPAL, USER);
    envHash.put(Context.SECURITY_CREDENTIALS, PASSWORD);
    try {
        return new InitialContext(envHash);
    } catch (NamingException e) {
        e.printStackTrace();
        return new InitialContext(envHash);
    }
}
private void init(Context ctx, String queueName) {
    try {
        ctx = getInitialContext(URL);
        queueCF = (QueueConnectionFactory)ctx.lookup(JMS_FACTORY);
        queueConn = queueCF.createQueueConnection();
        queueSession =
queueConn.createQueueSession(false, Session.SESSION_TRANSACTED);
        queue = (Queue)ctx.lookup(queueName);
        queueSender = queueSession.createSender(queue);
        txtMessage = queueSession.createTextMessage();
        queueConn.start();
    } catch (Exception e) {
        e.printStackTrace();
    }
}
private void close() throws JMSException {
    queueSender.close();
    queueSession.close();
    queueConn.close();
}
private void sendMessage(String message) throws JMSException {
    txtMessage.setText(messageText);
    queueSender.send(txtMessage);
}
public static void main(String[] args) throws Exception {
    JMSQueueTest jmsq = new JMSQueueTest();
    InitialContext ico = jmsq.getInitialContext(URL);
    try {
        jmsq.init(ico, QUEUE);
        jmsq.sendMessage(messageText);
    } catch (JMSException jmse) {
        jmse.printStackTrace();
    } finally {
        jmsq.close();
    }
}
}

```

7.2 Warning during Bus Member Creation

During Bus member creation Warning is shown in “Is Further configuration Required?”

Examine the resulting diagram and the messages for the selected messaging engine policy type. Act on the messages as follows:

- 1) To add a server or a node, go back and change the cluster topology before you continue with the current procedure.
- 2) To add or remove messaging engines, under Additional Properties, click Messaging engines and use the options on the resulting pane.
- 3) To correct messaging engine policies, under Additional Properties, click Messaging engine policy maintenance and use the options on the resulting pane.

When the "Is further configuration required" column for the selected messaging engine policy type displays No, the configuration is complete.

7.3 Message Engines Not Getting Started

Message engine fail to start and gives SIB Service Bus Unavailable error.

- 1) Ensure that shared folders are empty
- 2) Restart the Managed Servers
- 3) Check the Status of message engines

7.4 Cannot Establish Connection Error

When a message is received on the Queue it throws below error

Caused by: com.ibm.websphere.sib.exception.SIResourceException: CWSIC1001E: A client attempted to connect with a remote messaging engine but the connection cannot be completed. Ensure the messaging engine is started: exception com.ibm.ws.sib.jfapchannel.JFapConnectFailedException: CWSIJ0063E: A network connection to host name localhost/127.0.0.1, port 7,276 cannot be established.

- 1) Ensure that Provider EndPoint contains the SIB_ENDPOINT_ADDRESS of all the servers comma separated
- 2) Eg: <hostname1>:<port1>:BootstrapBasicMessaging, <hostname2>:<port 2>:BootstrapBasicMessaging,
- 3) Restart the servers after making changes

7.5 How to setup for Scheduler/Notifications

The above document can be used for setting up JMS for scheduler/notifications but additional queues and connection factory needs to be created. Also the FCUBS application needs to be deployed.

7.6 What other modules uses JMS Queue's

JMS is used by following modules, relevant queues and factories needs to be created additionally

- EMS for swift messages
- GI for upload
- ELCM
- BIP

8. References

- 1) GATEWAY_Applications_WAS.doc
- 2) Resource_Creation_WAS.doc
- 3) FCUBS_Application_WAS.doc
- 4) http://129.33.205.81/support/knowledgecenter/SSAW57_8.5.5/com.ibm.websphere.nd.iseries.doc/ae/welc6topmanaging.html
- 5) http://publib.boulder.ibm.com/infocenter/wsdoc400/v6r0/index.jsp?topic=/com.ibm.websphere.pmc.iseries.doc/tasks/tjn9999_.html



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