

# Using WebSphere MQ V7 as JMS Provider for WebSphere Application Server V7, V8.0 and V8.5, and MQ 9.0 for WAS V9.0

IBM Techdoc: 7016505

<http://www.ibm.com/support/docview.wss?uid=swg27016505>

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+++ Objective +++

To demonstrate the use of a simple but functional Message Driven Bean (MDB) in WebSphere Application Server V7, V8.0, V8.5 and V9.0, which interacts with WebSphere MQ as the Java™ Messaging Service (JMS) provider.

Shipped version of MQ RA with WAS:

- WAS 7.x and 8.0 ship MQ 7.0 Resource Adapter
- WAS 8.5 ships MQ 7.1 Resource Adapter
- The MQ V7.5 and V8 JMS clients are NOT shipped with any version of WAS.
- WAS 9.0 ships MQ 9.0 Resource Adapter.

The MDB was created with Rational Application Developer (RAD) 7.5 and the Enterprise Archive File (EAR) file which contains the MDB can be downloaded from this techdoc.

The main scenario is to show how to configure both WebSphere Application Server and WebSphere MQ V7.x, in order for an MDB to get messages from MQ, using a WebSphere Application Server Listener Port from a Queue (Point to Point).

++ What is new in this update:

- On Apr-2017, the procedures were tested with a queue manager running on MQ 9.0.2.0 and a WAS server 9.0.0.0 (using MQ RA 9.0.0.0), in Windows 10
- On Aug-2016, the procedures were tested with a queue manager running on MQ 9.0.0.0 and a WAS server 9.0.0.0 (using MQ RA 9.0.0.0)
- On May-2013, the procedures in this techdoc were successfully tested with a queue manager running on MQ 7.5.0.1 and a WAS server 8.5.0.2 (using MQ RA 7.1.0.2).

- On Aug-2012, the procedures in this techdoc were successfully tested with a queue manager running on MQ 7.0.1.9 and a WAS server 8.0.0.4 (using MQ RA 7.0.1.7).

- When using MQ 7.1 or 7.5 queue managers, if the MQ JMS client in WAS gets a RC 2035, one possibility is that the "channel authentication records" are enabled. For more details see the following technote:

<http://www.ibm.com/support/docview.wss?uid=swg21577137>

WMQ 7.1 / 7.5 / 8.0 / 9.0 queue manager RC 2035 MQRC\_NOT\_AUTHORIZED or AMQ4036 or JMSWMQ2013 when using client connection as an MQ Administrator

++ Additional scenarios are provided to illustrate the following:

- How to use MQ Topics to exploit Publish/Subscribe from MQ.

- How to use a WebSphere Application Server Activation Specification, instead of a WebSphere Application Server Listener Port.

This document shows all screen shots needed for beginners. The chapters are:

Chapter 1: MQ V7 configuration: queue and topic

Chapter 2: WebSphere Application Server configuration: JNDI objects

Chapter 3: WebSphere Application Server deployment and testing of MDB

Chapter 4: Additional scenarios: Topic, Activation Specification

+++ Related techdocs +++

The MDB used in this presentation, was created with IBM Rational Application Developer (RAD) 7.5 as part of an Enterprise Java Bean, which is provided in an EAR file. The steps for its creation and testing are documented in a related techdoc:

<http://www.ibm.com/support/docview.wss?uid=swg27016507>

**Developing and testing an MDB using RAD 7.5, WebSphere Application Server V7 and MQ V7 as JMS Provider**

Additional techdocs:

<http://www.ibm.com/support/docview.wss?uid=swg27016581>

**Using an MDB with JMS message selectors with WebSphere MQ V7 and WebSphere Application Server V7**

Includes sample code to create a message property "color"

Sample MDB: SampleJMSSelectorMdbEjbEAR.ear

Sample Java code: SampleJMSMsgProperty.java

<http://www.ibm.com/support/docview.wss?uid=swg27016582>

Using an MDB that always rolls back a message to test the handling of poison messages

(WebSphere MQ V7.x, V8, V9, WebSphere Application Server V7, V8.x, V9)

<http://www.ibm.com/support/docview.wss?uid=swg21248089>

Which version of WebSphere MQ Resource Adapter (RA) is shipped with WebSphere Application Server ?

+++ Requisite software +++

The following software was used:

SUSE Linux Enterprise Server (SLES) 9:

WebSphere Application Server 7.0.0.5

WebSphere MQ 7.0.0.2

Firefox (also known as Mozilla)

Windows:

Initial Version of this techdoc:

Windows XP SP3: Internet Explorer

04-Apr-2017:

Windows 10, with Firefox

+++ Downloadable files +++

The following files are included as attachments to this techdoc

EAR file with MDB:

SampleMDBEJB.ear

Text file with code excerpt:

onMessage.txt

+++ About the EAR file and the MDB +++

The MDB used in this presentation, was created with IBM Rational Application Developer (RAD) 7.5 as part of an Enterprise Java Bean, which is provided in an EAR file. The steps for its creation and testing are documented in the techdoc: **Developing and testing an MDB using RAD 7.5, WebSphere Application Server V7 and MQ V7 as JMS Provider**

The Deployment Descriptor for the EAR already specifies the need to have a Listener Port for an MQ Queue. In that way, it is possible to do a “fast path” deployment of the application in WebSphere Application Server. In addition, to facilitate such fast deployment, the necessary MQ and JMS WebSphere Application Server objects will be defined and configured in the first chapters of this techdoc.

The onMessage() method of this MDB has the following source code which displays the type of contents (payload) and an “eye catcher string” (+++ SAMPLE MDB) which can let you find quickly the output of the MDB in the SystemOut.log file.

The whole source for this method is available in the following text file associated with this techdoc: `onMessage.txt`

```
public void onMessage(javax.jms.TextMessage msg) {
    try {
        if (msg instanceof javax.jms.TextMessage) {
            System.out.println("+++ SAMPLE MDB: Text Message
=> " + ((javax.jms.TextMessage)msg).getText());
        }
        else if (msg instanceof javax.jms.BytesMessage) {
            System.out.println("+++ SAMPLE MDB: Bytes Mes-
sage ");
            ...
            ...
        }
    }
    catch(javax.jms.JMSException e) {
        System.out.println("+++ SAMPLE MDB: Error occurred ");
        e.printStackTrace();
    }
}
```

For a Text Message, the actual text of the message is displayed, such as “TESTING”. Thus, upon receiving a message the MDB will display the following in the SystemOut.log:

```
+++ SAMPLE MDB: Text Message => TESTING
```

```
+++++
+++ Chapter 1: MQ V7 configuration: create queue and topic
+++++
```

The purpose of this chapter is to show the MQ commands and the steps to take using the MQ Explorer to create a new queue manager, a local queue (for Point to Point) and a topic (for Publish/Subscribe).

+ Summary of objects:

```
Queue Manager name:   QM_MDB
Queue name:           Q_MDB
Topic name:           T_MDB           => Topic String: sports
MQ Listener name:     TCP_LISTENER    => Port: 1420
```

Note that in this example the port 1420 was used to avoid a conflict with an existing queue manager in my test host that already uses the default 1414 port number. You can use specify another port number for the MQ Listener for your queue manager.

+ Summary of MQ commands to create these objects:

This is a summary intended for intermediate and advanced MQ users. If you are a beginner, you could just browse this section and skip to the next one.

**Create queue manager, with a Dead Letter Queue (DLQ)**

```
$ crtmqm -u SYSTEM.DEAD.LETTER.QUEUE QM_MDB
```

**Start the queue manager**

```
$ strmqm QM_MDB
```

**Invoke the administration utility**

```
$ runmqsc QM_MDB
```

**Within runmqsc, define and start an MQ Listener:**

```
DEFINE LISTENER(TCP.LISTENER) TRPTYPE(TCP) CONTROL(QMGR)
PORT(1420)
```

```
START LISTENER(TCP.LISTENER)
```

**Define a channel to be used with the MQ Explorer (optional but very useful!):**

```
DEFINE CHANNEL(SYSTEM.ADMIN.SVRCONN) CHLTYPE(SVRCONN)
```

**Define a local queue:**

```
DEFINE QLOCAL(Q_MDB)
```

Define a topic object:

```
DEFINE TOPIC(T_MDB) TOPICSTR('sports')
```

For MQ 7.1 and later, and if desiring to allow remote connections by an MQ Administrator:

```
set CHLAUTH(*) TYPE(BLOCKUSER) USERLIST('nobody','*MQADMIN')
set CHLAUTH(SYSTEM.ADMIN.*) TYPE(BLOCKUSER) USERLIST('nobody')
```

For MQ 8.0 and later, and if desiring to have the same behavior as in MQ 7.x in which passwords are not required, issue:

```
ALTER AUTHINFO(SYSTEM.DEFAULT.AUTHINFO.IDPWOS) AUTHTYPE(IDPWOS) +
    CHCKCLNT(OPTIONAL)
REFRESH SECURITY TYPE(CONNAUTH)
.
```

Exit runmqsc:

```
END
```

+ Detailed instructions using the MQ Explorer.

These instructions assume that you do not have yet a queue manager for testing the MDB. Thus, this section provides the detailed steps to create one and the necessary objects (queue and topic)

- Login as an MQ Administrator.
- Start the MQ Explorer:

Windows:

a) Short version:

Start > All Programs > IBM WebSphere MQ > WebSphere MQ Explorer

b) Longer version:

Right click on the MQ Icon on the System Tray (right bottom corner). Select WebSphere MQ Explorer.

Linux:

Open a command prompt and issue:

```
/opt/mqm/bin/strmqcfg
```

You could add an icon to your Linux desktop to run the command:

```
/opt/mqm/bin/strmqcfg
```

For KDE users:

On the desktop wallpaper, click on the right mouse to bring the context menu. Then select: Create New > File > Link to Application ...

You will see a new window:

- In the tab “General” enter the title for the icon.
- In the tab “Application” enter in the field “Command”:

`/opt/mqm/bin/strmqcfg`

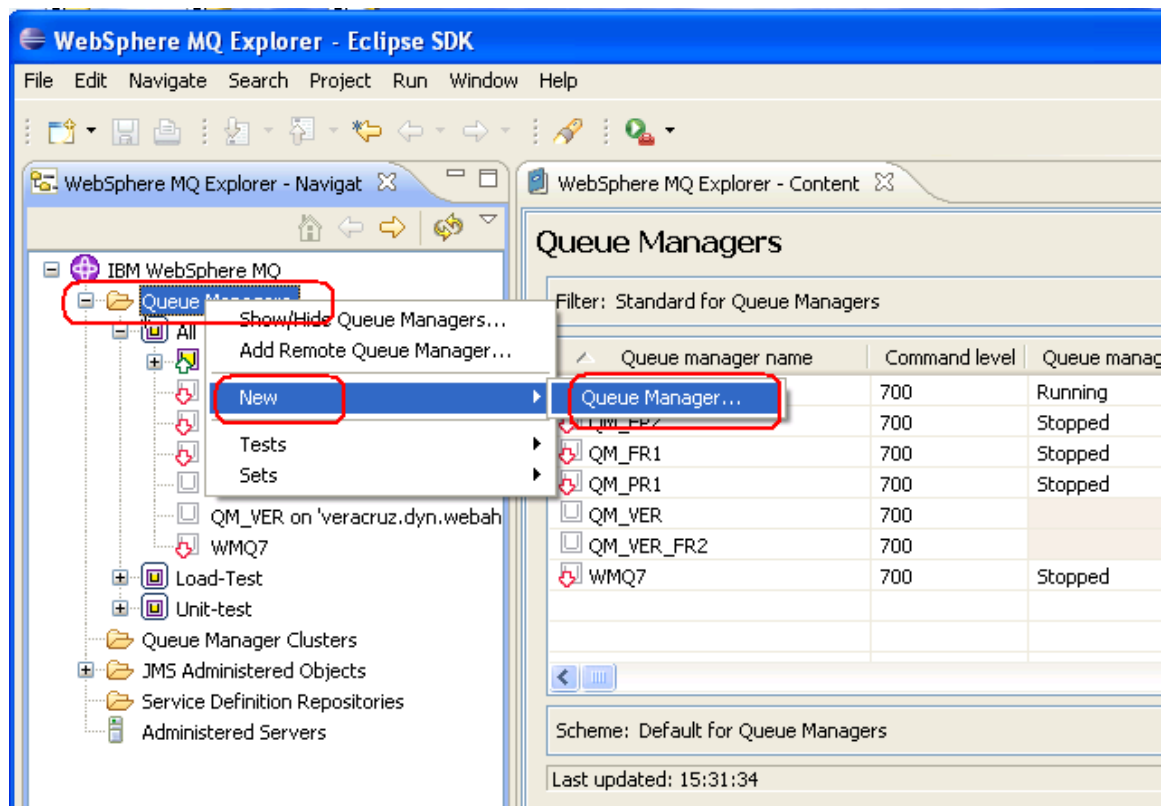
For Gnome users:

The main mouse option for creating an icon is "Create Launcher..."

The field where the pathname goes is also labeled "Command":

`/opt/mqm/bin/strmqcfg`

- From the MQ Explorer, invoke the wizard to create a new queue manager: from the left navigation panel (Navigator), right click on the folder “Queue Managers”, then “New”, then “Queue Manager...”



- From the first screen of the wizard “Create Queue Manager”, specify:
  - + The name of the queue manager, in this case is: QM\_MDB
  - + The dead letter queue (DLQ): SYSTEM.DEAD.LETTER.QUEUE

**Create Queue Manager**

**Queue Manager**  
Enter basic values (Step 1)

**Queue manager name:** QM\_MDB

Make this the default queue manager

Default transmission queue:

**Dead-letter queue:** SYSTEM.DEAD.LETTER.QUEUE

Max handle limit: 256

Trigger interval: 999999999

Max uncommitted messages: 10000

Then click on Next.

- Because this is a test Queue Manager, accept the defaults for the transactional and recovery logs (Step 2).



- In the next screen, accept the defaults, but indicate that you want to interact with the wizard to “Create server-connection channel”, to allow MQ clients, either local (bindings) or remote (via TCP/IP) to access the queue manager.

Note: The channel to be created is named: `SYSTEM.ADMIN.SVRCONN`

**Create Queue Manager**

**Queue Manager**  
Enter configuration options (Step 3)

Queue manager name:

Start queue manager after it has been created

Select type of queue manager startup

Automatic

...

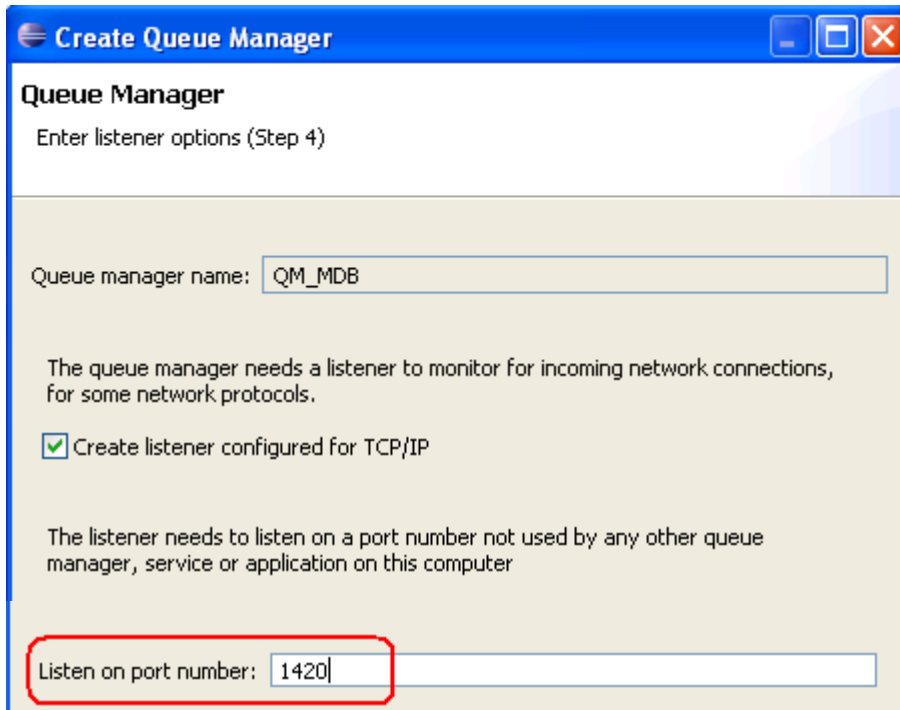
Create server-connection channel to allow remote administration of the queue manager over TCP/IP

Create server-connection channel:

- In the next screen, accept the default to “Create listener configured for TCP/IP”.

The default port number is “1414”, but for the purposes of this exercise, the port “1420” is used.

This is the MQ Listener and it is not related to the Listener Port from the WebSphere Application Server.



**Create Queue Manager**

**Queue Manager**  
Enter listener options (Step 4)

Queue manager name:

The queue manager needs a listener to monitor for incoming network connections, for some network protocols.

Create listener configured for TCP/IP

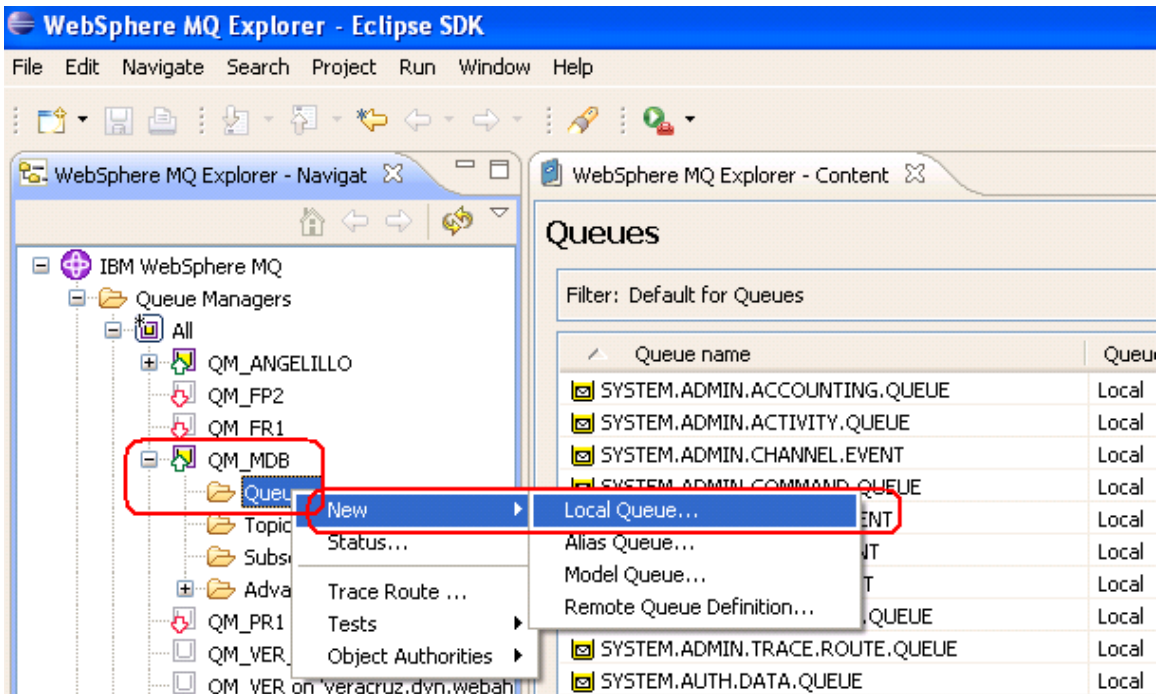
The listener needs to listen on a port number not used by any other queue manager, service or application on this computer

Listen on port number:

Click on Next.

- In the next screen, accept the defaults and click on Finish.
- The new queue manager QM\_MDB will be created.

- Create a local queue, named “Q\_MDB”. From the Navigator (left panel), expand the queue manager “QM\_MDB” and right click on the folder for “Queues”. Select: New > Local Queue...



- From the wizard “New Local Queue” enter the name for the queue: Q\_MDB. Accept the defaults.

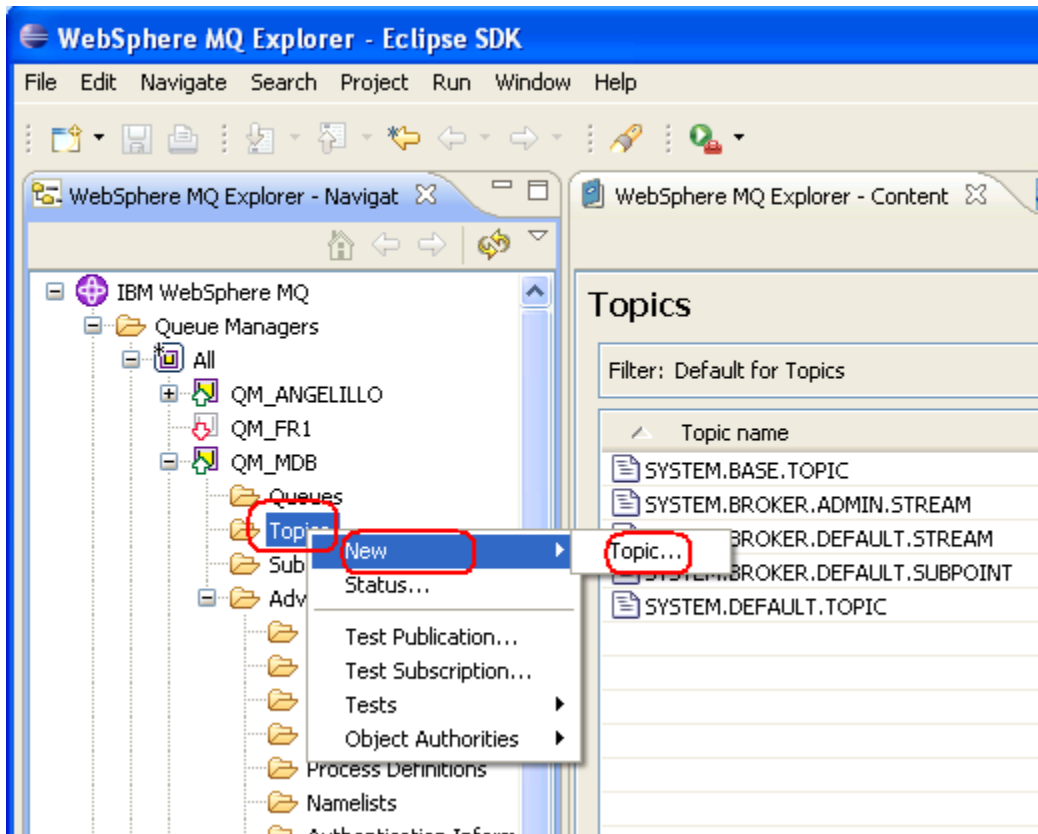
Applications running in WebSphere Application Server use JNDI objects defined in the application server, not in WebSphere MQ. Therefore we will not check the box "Start Wizard to create matching JMS Queue".

However, If you plan to run JMS programs outside WebSphere Application Server, you may want to check this box and proceed with the wizard to create the corresponding JNDI objects for MQ.

The screenshot shows the 'New Local Queue' wizard dialog box. It has a title bar 'New Local Queue' and a main title 'Create a Local Queue'. Below the title, it says 'Enter the details of the object you wish to create'. There is a text input field labeled 'Name:' containing the text 'Q\_MDB'.

Click on Finish.

- Create a topic object, named “T\_MDB”, with topic string “sports”.  
From the Navigator (left panel), expand the queue manager “QM\_MDB” and right click on the folder for “Topics”. Select: New > Topic...



- From the wizard “New Topic” enter the name for the topic object: T\_MDB

The screenshot shows the 'New Topic' wizard in the 'Create a Topic' step. The title bar reads 'New Topic'. Below the title, it says 'Create a Topic' and 'Enter the details of the object you wish to create'. There is a text input field for 'Name:' containing 'T\_MDB', which is highlighted with a red box. Below this is a section for selecting an existing object to copy attributes from, with a dropdown menu showing 'SYSTEM.DEFAULT.TOPIC'. At the bottom, there is a checkbox labeled 'Start wizard to create a matching JMS Topic' which is currently unchecked.

Click on Next.

Then specify the topic string of “sports”

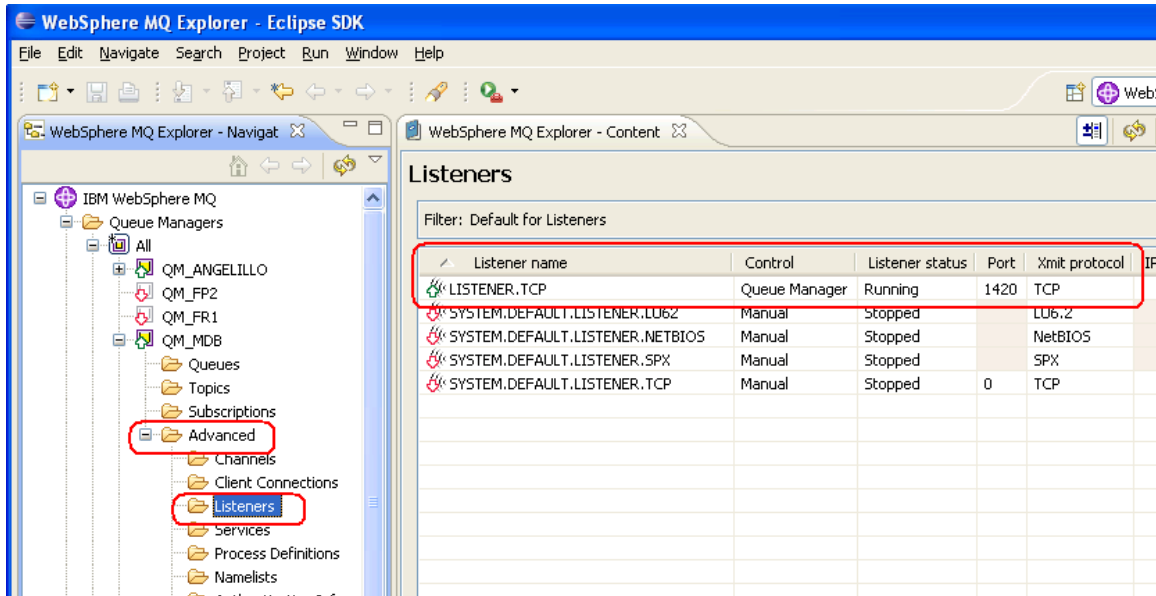
The screenshot shows the 'New Topic' wizard in the 'Change properties' step. The title bar reads 'New Topic'. Below the title, it says 'Change properties' and 'Change the properties of the new Topic'. On the left, there is a tree view with 'General' selected. The main area shows the 'General' properties: 'Topic name:' is 'T\_MDB', 'Topic string:' is 'sports' (highlighted with a red box), and 'Description:' is empty.

Accept the defaults.  
Click on Finish.

Verify that the MQ Listener “LISTENER.TCP” has been defined.

The wizard for create a queue manager already asked us if we wanted to create a listener. To confirm, expand the folders “Advanced” and then “Listeners”. Notice that the listener “LISTENER.TCP” using Port 1420 was created and it is shown in green to indicate that it is active.

NOTICE: An MQ Listener is NOT the same as a WebSphere Application Server Listener Port. They are NOT related at all!



That is all for the configuration of MQ!

Proceed with the next chapter to configure the JNDI objects within WebSphere Application Server.

+++++ Chapter 2: WebSphere Application Server configuration: JNDI objects +++++

The purpose of this chapter is to show you how to use the WebSphere Application Server Administrative Console to create JMS administration objects which will be stored in the Java Naming and Directory Interface (JNDI) directory service provided by WebSphere Application Server.

The defaults will be used as much as possible, in order to keep this example simple but functional.

+ Summary of the characteristics of the JNDI and other objects.

WebSphere Application Server server name: server1  
URL of WebSphere Application Server Administrative console:  
<http://localhost:9060/ibm/console/unsecureLogon.jsp>

Connection Factory:

Name: SampleMDBConnectionFactory  
JNDI Name: jms/SampleMDBConnectionFactory  
Queue Manager: QM\_MDB  
Transport: Bindings, then client  
Hostname: localhost  
Port: 1420  
Server connection channel: SYSTEM.DEF.SVRCONN

Destination: Queue

Name: SampleMDBQueue  
JNDI Name: jms/SampleMDBQueue  
Queue Name in MQ: Q\_MDB  
Queue Manager: QM\_MDB

Destination: Topic

Name: SampleMDBTopic  
JNDI Name: jms/SampleMDBTopic  
Topic Name in MQ: sports  
Broker publication queue manager: QM\_MDB

Note:

The WebSphere Application Server field “Topic Name” refers to the Topic String, and not to the name of the MQ Topic Object.

Activation Specification for a Queue:

Name: SampleMDBQueueActivationSpec  
JNDI Name: jms/SampleMDBQueueActivationSpec  
Destination JNDI name: jms/SampleMDBQueue  
Destination Type: Queue  
Queue manager: QM\_MDB  
Transport : Bindings, then client  
Hostname: localhost  
Port: 1420  
Server connection channel: SYSTEM.DEF.SVRCONN

Activation Specification for a Topic:

Name: SampleMDBTopicActivationSpec  
JNDI Name: jms/SampleMDBTopicActivationSpec  
Destination JNDI name: jms/SampleMDBTopic  
Destination Type: Topic  
Type of subscription: Nondurable subscription  
Queue manager: QM\_MDB  
Transport : Bindings, then client  
Hostname: localhost  
Port: 1420  
Server connection channel: SYSTEM.DEF.SVRCONN

Listener Port for Queue:

Name SampleMDBQueueLP  
Initial State Started  
Connection factory JNDI name jms/SampleMDBConnectionFactory  
Destination JNDI name jms/SampleMDBQueue

Listener Port for Topic:

Name SampleMDBTopicLP  
Initial State Stopped  
Connection factory JNDI name jms/SampleMDBConnectionFactory  
Destination JNDI name jms/SampleMDBTopic

NOTICE: A Listener Port in WebSphere Application Server is not the same as an MQ Listener. They are NOT related at all!



+ Instructions for creating the JMS Administrative objects.

Login with a user that has the authority to start the WebSphere Application Server server. We are using the default name of “server1”.

Open a command prompt. Issue the following WebSphere Application Server command:

```
$ startServer.sh server1
```

Wait for the server to be active:

```
ADMU3000I: Server server1 open for e-business: process id is XXXX
```

Start a web browser and specify the URL for the WebSphere Application Server Administrative Console, such as:

<http://localhost:9060/ibm/console/unsecureLogon.jsp>

Integrated Solutions Console - Welcome

View: All tasks

- Welcome
- Guided Activities
- Servers
- Applications
- Services
- Resources
- Security
- Environment
- System administration
- Users and Groups
- Monitoring and Tuning
- Troubleshooting
- Service integration
- UDDI

Welcome

Integrated Solutions Console provides a common administrative console for multiple products. The table lists the product suites that can be administered through this installation. Select a product suite to view more information.

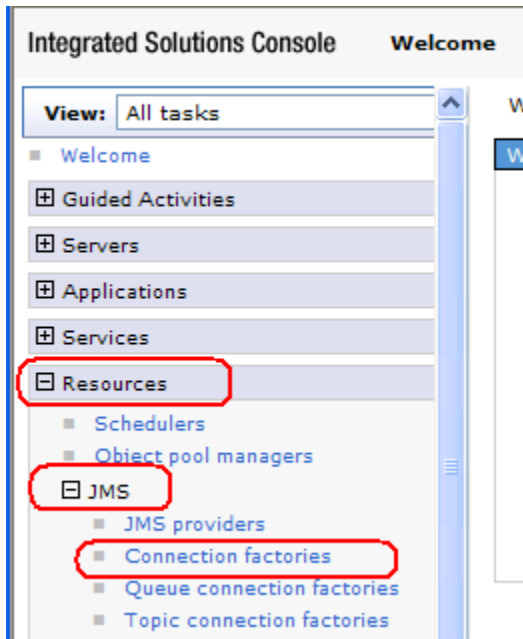
Suite Name	Version
<a href="#">WebSphere Application Server</a>	7.0.0.3

About this Integrated Solutions Console

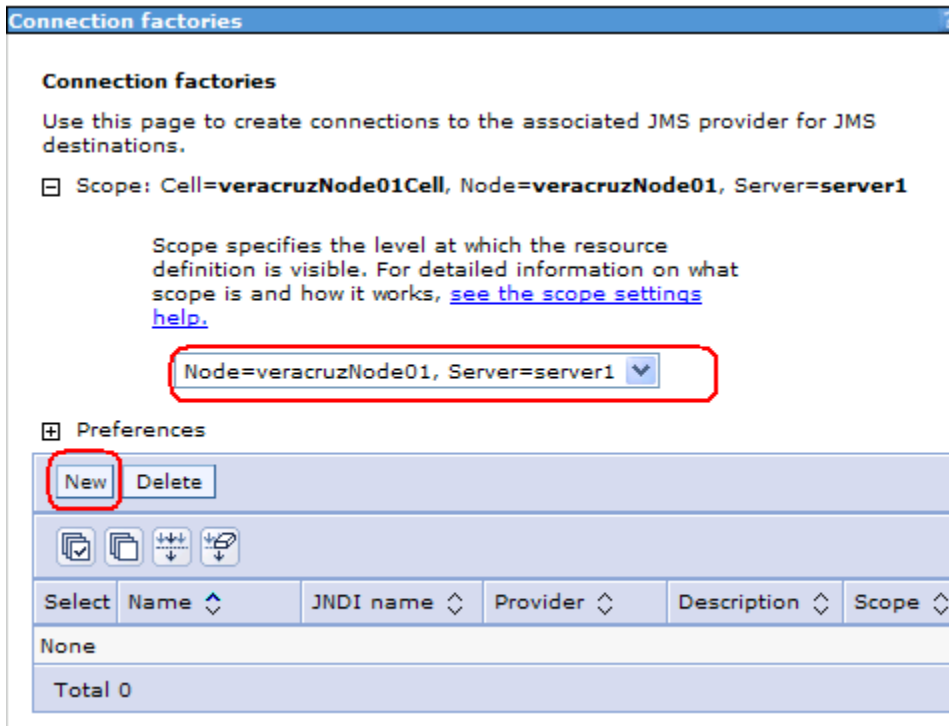
Integrated Solutions Console,  
7.0.0.3  
Build Number: cf030911.09  
Build Date: 3/17/09

-----  
LICENSED MATERIALS PROPERTY OF  
IBM  
5724-J08, 5724-163, 5724-H88,

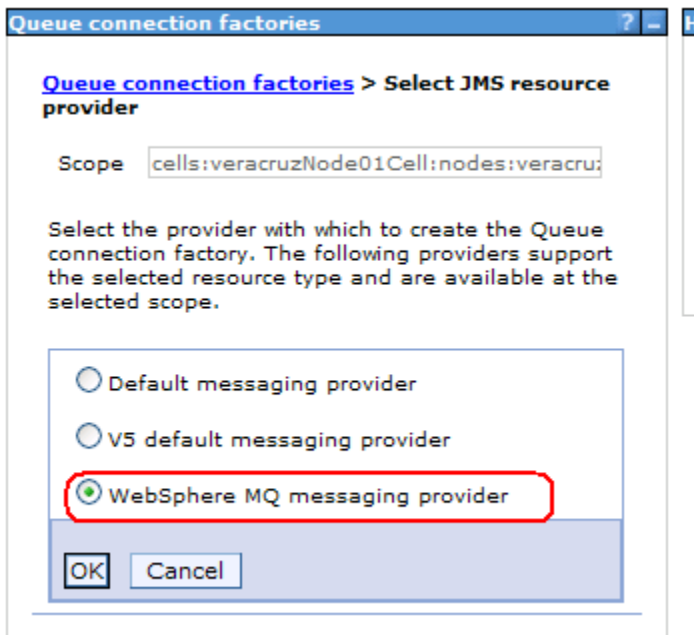
- Create the following JMS admin object: Connection Factory  
From the left panel, select: Resources > JMS > Connection factories



- The console will be refreshed. In the middle panel called “Connection factories” do:  
1: Ensure that the scope is: Node=, Server=  
2: Click on “New”



For the “JMS resource provider” specify:  
WebSphere MQ messaging provider



Click OK

In the “Step 1: Configure basic attributes” specify:  
Name: SampleMDBConnectionFactory  
JNDI Name: jms/SampleMDBConnectionFactory

The screenshot shows the 'Create WebSphere MQ JMS resource' wizard. The title bar reads 'Create WebSphere MQ JMS resource'. Below the title bar, it says 'This wizard creates a WebSphere MQ JMS resource'. On the left, a navigation pane lists four steps: 'Step 1: Configure basic attributes' (highlighted with a yellow arrow), 'Step 2: Select connection method', 'Step 3: Test connection', and 'Step 4: Summary'. The main content area is titled 'Configure basic attributes' and contains the instruction 'Configure the basic attributes to use for the WebSphere MQ JMS resource'. There are three input fields: '\* Name' with the value 'SampleMDBConnectionFactory', '\* JNDI name' with the value 'jms/SampleMDBConnectionFactory', and 'Description' which is empty. Red boxes highlight the Name and JNDI name fields.

Click Next

In the “Step 2: Select connection method” accept the default:  
Enter all the required information into this wizard

The screenshot shows the 'Create WebSphere MQ JMS resource' wizard at Step 2. The title bar reads 'Create WebSphere MQ JMS resource'. Below the title bar, it says 'This wizard creates a WebSphere MQ JMS resource'. On the left, a navigation pane lists four steps: 'Step 1: Configure basic attributes', 'Step 2: Select connection method' (highlighted with a yellow arrow), 'Step 3: Test connection', and 'Step 4: Summary'. The main content area is titled 'Select connection method' and contains the instruction 'Decide what information to enter to determine how to connect to WebSphere MQ'. There are two radio button options: 'Enter all the required information into this wizard' (which is selected and highlighted with a red box) and 'Use a client channel definition table'. At the bottom, there are three buttons: 'Previous', 'Next', and 'Cancel'.

Click Next

In “Step 2.1: Supply queue connection details” (notice that it really means: supply details for the connection to the queue manager) specify:  
Queue manager => QM\_MDB

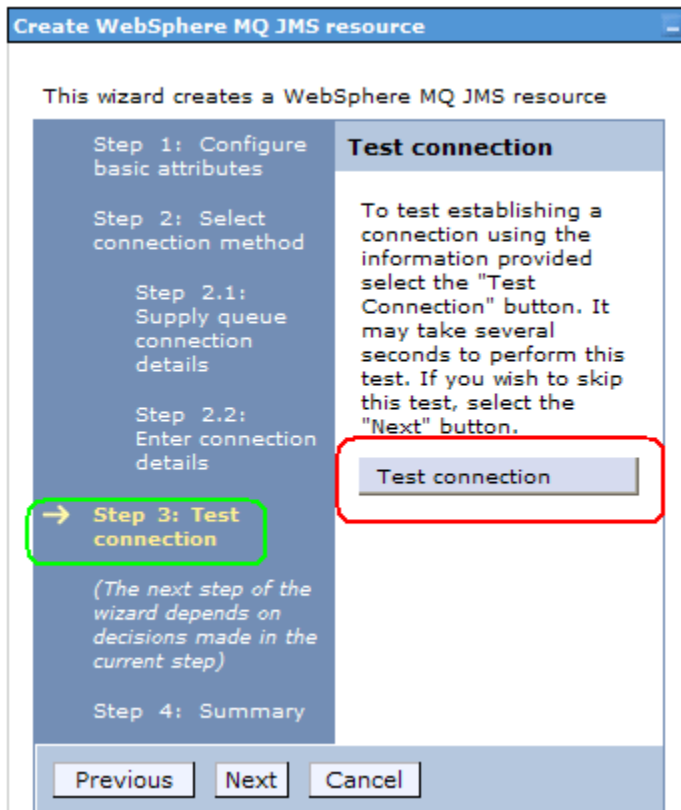
The screenshot shows the 'Custom WebSphere MQ connection' dialog box. On the left, a vertical sidebar lists four steps: Step 1: Configure basic attributes, Step 2: Select connection method, Step 2.1: Supply queue connection details (highlighted with a yellow arrow), and Step 2.2: Enter connection details. The main area is titled 'Supply queue connection details' and contains the instruction: 'Enter details about the queue manager or queue sharing group that you wish to connect to.' Below this is a text input field labeled 'Queue manager or queue sharing group name' with the value 'QM\_MDB' entered. A red rectangle highlights this input field.

In “Step 2.2: Enter connection details” specify:  
Transport => Bindings, then client  
Hostname => localhost  
Port => 1420  
Server connection channel => SYSTEM.DEF.SVRCONN

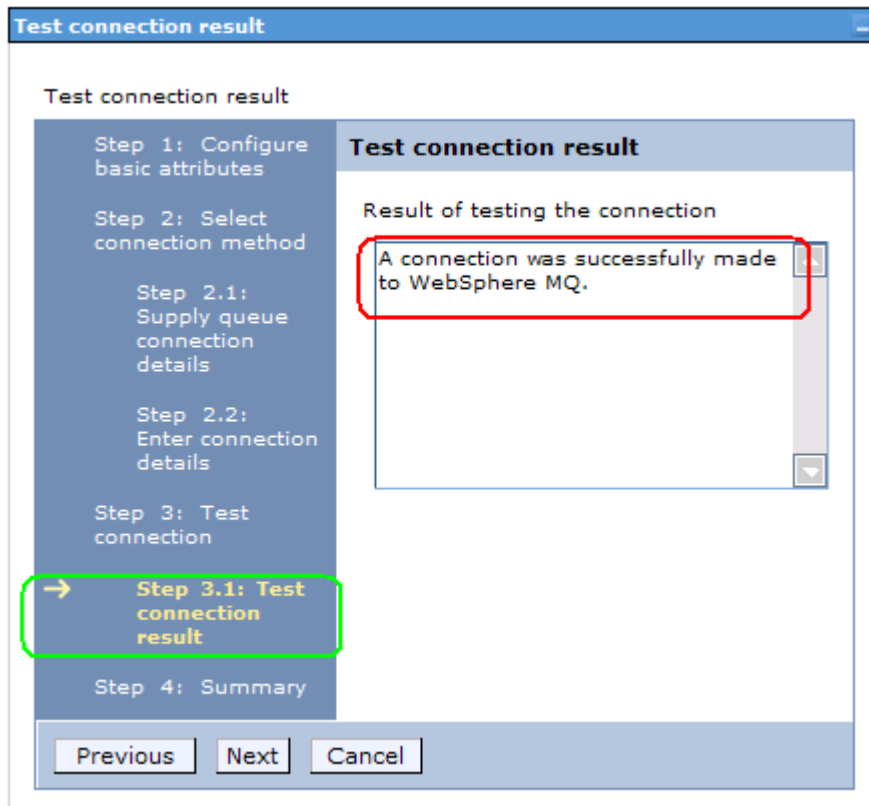
Note: the default port number for MQ is 1414. The port 1420 is used here as an example.

The screenshot shows the 'Custom WebSphere MQ connection' dialog box at Step 2.2: Enter connection details. The sidebar on the left shows Step 2.2: Enter connection details highlighted with a green arrow. The main area is titled 'Enter connection details' and contains the instruction: 'Enter the details required to establish a connection to the queue manager or queue sharing group.' Below this are four input fields: 'Transport' (a dropdown menu set to 'Bindings, then client'), '\* Hostname' (a text input field with 'localhost'), 'Port' (a text input field with '1420'), and 'Server connection channel' (a text input field with 'SYSTEM.DEF.SVRCONN'). A red rectangle highlights the Transport, Hostname, and Port fields. At the bottom, there are three buttons: 'Previous', 'Next', and 'Cancel'.

In “Step 3: Test Connection” click on the button “Test connection”



In “Step 3.1: Test connection result”, you should see a successful report:  
“A connection was successfully made to WebSphere MQ”



Note:  
If you do NOT have a successful result at this point, then STOP!  
Fix any problems before you proceed.

In “Step 4: Summary” you should see the data to be used to create the object.

**Create WebSphere MQ JMS resource**

This wizard creates a WebSphere MQ JMS resource

<p>Step 1: Configure basic attributes</p> <p>Step 2: Select connection method</p> <p>Step 2.1: Supply queue connection details</p> <p>Step 2.2: Enter connection details</p> <p>Step 3: Test connection</p> <p>Step 3.1: Test connection result</p> <p>→ <b>Step 4: Summary</b></p>	<p><b>Summary</b></p> <p>Summary</p> <p>Creating a resource of type Connection Factory-</p> <ul style="list-style-type: none"><li>Name "SampleMDBConnectionFactory"</li><li>- JNDI name "jms/SampleMDBConnectionFactory"</li><li>- Queue manager or queue sharing group name "QM_MDB"</li><li>- Server type "QMGR"</li><li>- Channel name "SYSTEM.DEF.SVRCONN"</li></ul>
---	--

Previous **Finish** Cancel

Click on Finish.



After this JMS object is created, you should see a new connection factory. Click on “Save”.

**Connection factories**

Messages

- ⚠ Changes have been made to your local configuration. You can:
  - **Save** directly to the master configuration.
  - [Review](#) changes before saving or discarding.
- ⚠ The server may need to be restarted for these changes to take effect.

**Connection factories**

Use this page to create connections to the associated JMS provider for JMS destinations.





Scope: Cell=**veracruzNode01Cell**, Node=**veracruzNode01**, Server=**server1**

Scope specifies the level at which the resource definition is visible. For detailed information on scope is and how it works, [see the scope settings help](#).

Node=veracruzNode01, Server=server1

Preferences

New Delete

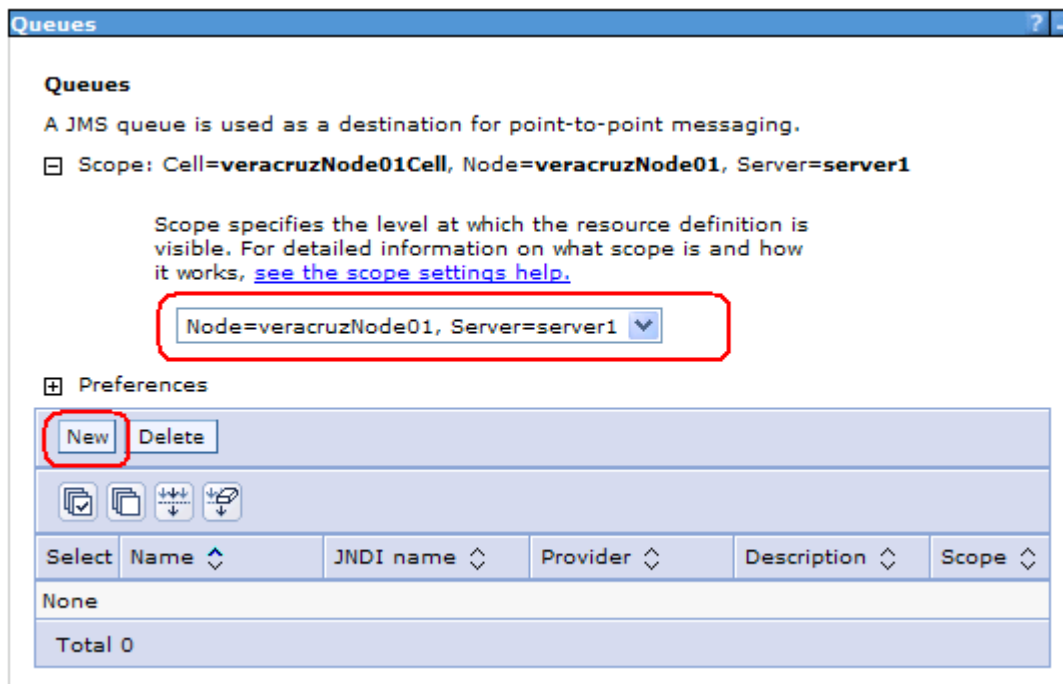
Select	Name	JNDI name	Provider	Description
You can administer the following resources:				
<input type="checkbox"/>	<b>SampleMDBConnectionFactory</b>	jms/SampleMDBConnectionFactory	WebSphere MQ	

- Create the new Queue Destination by clicking on:  
Resources > JMS > Queues



From the “Queues” window:

- 1: Ensure that the scope is: Node=, Server=
- 2: Click on “New”



For the “JMS resource provider” specify:  
WebSphere MQ messaging provider  
Click on OK.

In the Configuration tab, specify:  
Name: SampleMDBQueue  
JNDI Name: jms/SampleMDBQueue  
Queue Name in MQ: Q\_MDB  
Queue Manager: QM\_MDB

[Queues](#) > [WebSphere MQ messaging provider](#) > **New**

Queue destinations provided for point-to-point messaging by the WebSphere MQ messaging provider. Use WebSphere MQ queue destination administrative objects for the WebSphere MQ messaging provider.

Configuration

**General Properties**

**Administration**

Scope  
Node=veracruzNode01,Server=server1

Provider  
WebSphere MQ messaging provider

\* Name  
SampleMDBQueue

\* JNDI name  
jms/SampleMDBQueue

Description

**WebSphere MQ Queue**

\* Queue name  
Q\_MDB

Queue manager or Queue sharing group name  
QM\_MDB

Apply **OK** Reset Cancel

Click OK.

You will see a new JMS Queue:

**Messages**

- ⚠ Changes have been made to your local configuration.
- [Save directly](#) to the master configuration.
- [Review](#) changes before saving or discarding.
- ⚠ The server may need to be restarted for these changes.

**Queues**

A JMS queue is used as a destination for point-to-point messaging.

Scope: Cell=**veracruzNode01Cell**, Node=**veracruzNode01**, Server=**server1**

Scope specifies the level at which the resource definition is visible. For more information on what scope is and how it works, [see the scope s](#)

Node=veracruzNode01, Server=server1

**Preferences**

New Delete

Select	Name	JNDI name	Provider	Description
<input type="checkbox"/>	<a href="#">SampleMDBQueue</a>	jms/SampleMDBQueue	WebSphere MQ messaging provider	

Total 1

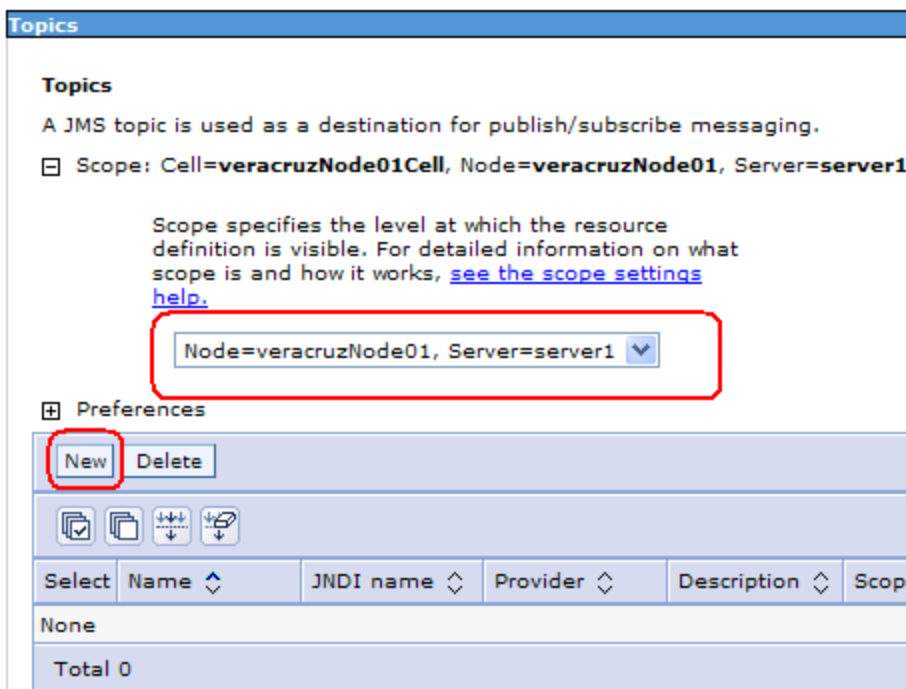
Click on Save.

- Create the new Topic Destination by clicking on:  
Resources > JMS > Topics



From the “Topics” window:

- 1: Ensure that the scope is: Node=, Server=
- 2: Click on “New”



For the “JMS resource provider” specify:

WebSphere MQ messaging provider

Click on OK.

In the Configuration tab, specify:

Name: SampleMDBTopic

JNDI Name: jms/SampleMDBTopic

Topic Name in MQ: sports

Broker publication queue manager: QM\_MDB

Note:

Notice that the WebSphere Application Server field “Topic Name in MQ” refers to the Topic String (in this example, “sports”) and not to the Topic Object (in this example “T\_MDB”).

[Topics](#) > [WebSphere MQ messaging provider](#) > [New](#)

Topic destinations provided for publish and subscribe messaging b provider. Use WebSphere MQ topic destination administrative obje for the WebSphere MQ messaging provider.

Configuration

---

**General Properties**

**Administration**

Scope  
Node=veracruzNode01,Server=server1

Provider  
WebSphere MQ messaging provider

\* Name  
SampleMDBTopic

\* JNDI name  
jms/SampleMDBTopic

Description

**WebSphere MQ topic**

\* Topic name  
sports

Broker durable subscription queue

Broker durable subscriber connection consumer queue

Click OK.

You will see a new JMS Topic:

**Topics**

Messages

- ⚠ Changes have been made to your local configuration.
  - [Save](#) directly to the master configuration.
  - [Review](#) changes before saving or discarding.
- ⚠ The server may need to be restarted for these changes.

**Topics**

A JMS topic is used as a destination for publish/subscribe messaging.

Scope: Cell=**veracruzNode01Cell**, Node=**veracruzNode01**, Server=**server1**

Scope specifies the level at which the resource definition is visible. For more information on what scope is and how it works, [see the scope section](#).

Node=veracruzNode01, Server=server1

Preferences

New Delete

☑ ☒ ⬆ ⬇

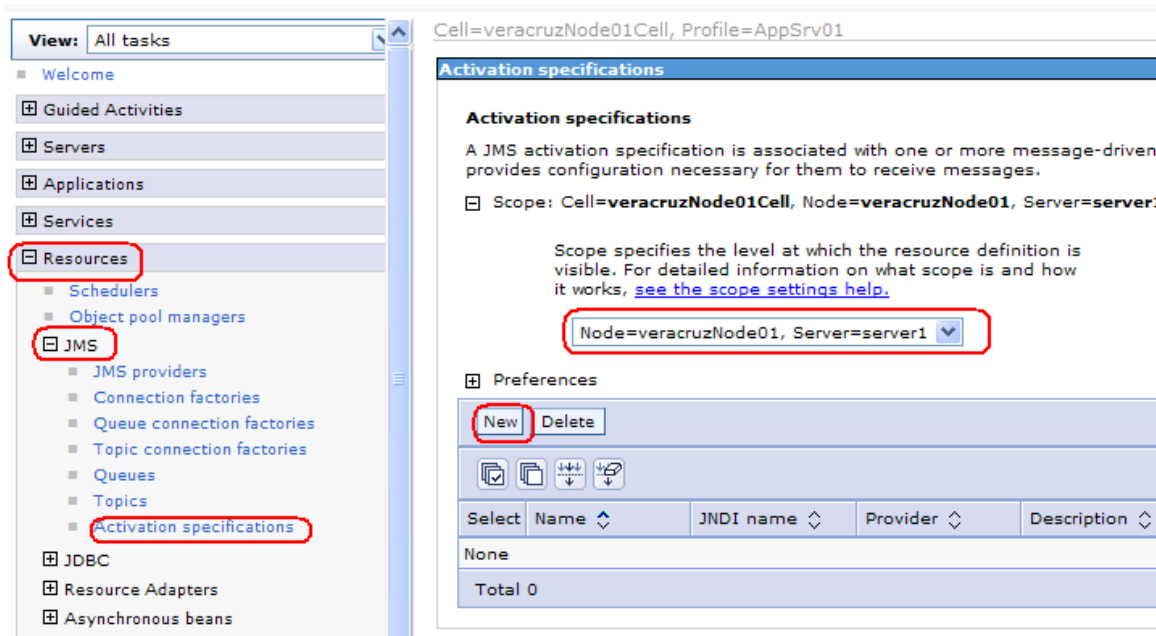
Select	Name	JNDI name	Provider	Description
You can administer the following resources:				
<input type="checkbox"/>	<a href="#">SampleMDBTopic</a>	jms/SampleMDBTopic	WebSphere MQ messaging provider	

Click on Save.

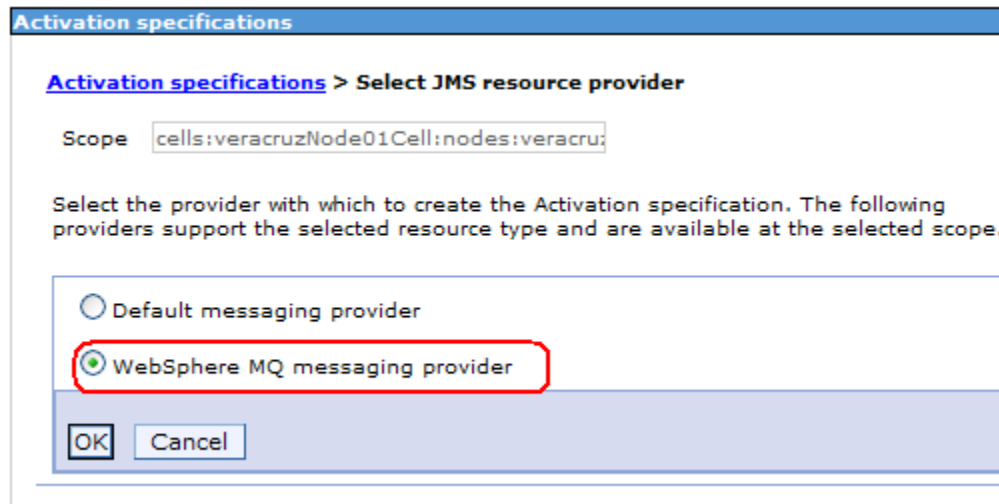
- Create the Activation Specifications.

From the left panel, select: Resources > JMS > Activation specifications

Then in the "Activation specifications" window, select the scope of "Node,Server" and click on New.



Ensure that the JMS resource provider is:  
WebSphere MQ messaging provider



Click on OK.



Specify the following for the new Activation Specification for a Queue:  
Name: SampleMDBQueueActivationSpec  
JNDI Name: jms/SampleMDBQueueActivationSpec

The screenshot shows the 'Create WebSphere MQ JMS resource' wizard. The title bar reads 'Create WebSphere MQ JMS resource'. The main content area is titled 'Configure basic attributes' and includes the instruction: 'Configure the basic attributes to use for the new WebSphere MQ JMS resource'. On the left, a vertical pane shows four steps: 'Step 1: Configure basic attributes' (highlighted with a green box and an arrow), 'Step 2: Select connection method', 'Step 3: Test connection', and 'Step 4: Summary'. The main area contains three fields: '\* Name' with the value 'SampleMDBQueueActivationSpec', '\* JNDI name' with the value 'jms/SampleMDBQueueActivationSpec', and a 'Description' text area. At the bottom, there are 'Next' and 'Cancel' buttons.

Destination JNDI name: jms/SampleMDBQueue  
Destination Type: Queue

Specify MDB destination data

The screenshot shows the 'Specify MDB destination data' wizard. The title bar reads 'Specify MDB destination data'. The main content area is titled 'Specify MDB destination data' and includes the instruction: 'Enter information about the destination from which messages will be delivered to Message Driven Beans that are associated with the new activation specification.' On the left, a vertical pane shows four steps: 'Step 1: Configure basic attributes', 'Step 1.1: Specify MDB destination data' (highlighted with a green box and an arrow), 'Step 2: Select connection method', 'Step 3: Test connection', and 'Step 4: Summary'. The main area contains three fields: '\* Destination JNDI name' with the value 'jms/SampleMDBQueue', 'Message selector' (empty), and 'Destination type' with a dropdown menu set to 'Queue'. At the bottom, there are 'Previous', 'Next', and 'Cancel' buttons.

Specify:

Queue manager:

QM\_MDB

**Create WebSphere MQ JMS resource**

This wizard creates a WebSphere MQ JMS resource

Step 1: Configure basic attributes

Step 1.1: Specify MDB destination data

→ **Step 2: Select connection method**

Step 3: Test connection

Step 4: Summary

**Select connection method**

Decide what information to enter to determine how to connect to WebSphere MQ

Enter all the required information into this wizard

Use a client channel definition table

Previous Next Cancel

**Custom WebSphere MQ connection**

Custom WebSphere MQ connection

Step 1: Configure basic attributes

Step 1.1: Specify MDB destination data

→ **Step 2.1: Supply queue connection details**

Step 2.2: Enter connection details

Step 3: Test connection

Step 4: Summary

**Supply queue connection details**

Enter details about the queue manager or queue sharing group that you wish to connect to.

Queue manager or queue sharing group name

QM\_MDB

Previous Next Cancel

Transport : Bindings, then client  
Hostname: localhost  
Port: 1420  
Server connection channel: SYSTEM.DEF.SVRCONN

Custom WebSphere MQ connection

Custom WebSphere MQ connection

Step 1: Configure basic attributes

Step 1.1: Specify MDB destination data

Step 2: Select connection method

Step 2.1: Supply queue connection details

→ Step 2.2: Enter connection details

Step 3: Test connection

Step 4: Summary

**Enter connection details**

Enter the details required to establish a connection to the queue manager or queue sharing group

Transport  
Bindings, then client

\* Hostname  
localhost

Port  
1420

Server connection channel  
SYSTEM.DEF.SVRCONN

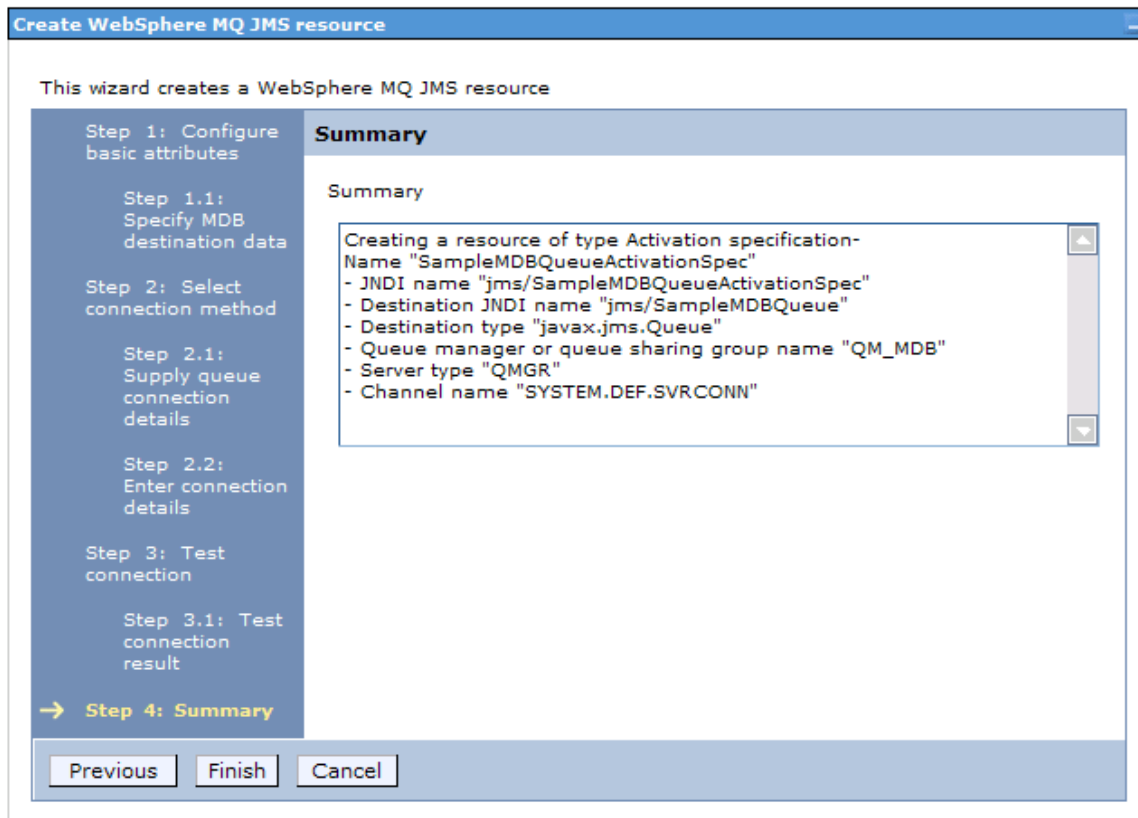
Previous Next Cancel

In “Step 3: Test Connection” click on the button “Test connection”.

In “Step 3.1: Test connection result”, you should see a successful report:  
“A connection was successfully made to WebSphere MQ”

+++ Note: If you do NOT have a successful result at this point, then STOP!  
Fix any problems before you proceed.

You should see the summary for the object to be created:



Click on Finish.

Once the Activation Specification is created, it will be added to the list:

**Activation specifications**

Messages

⚠ Changes have been made to your local configuration. You should **Save directly** to the master configuration.

- [Review](#) changes before saving or discarding.

⚠ The server may need to be restarted for these changes.

**Activation specifications**

A JMS activation specification is associated with one or more message-driven beans.

Scope: Cell=**veracruzNode01Cell**, Node=**veracruzNode01**, Server=**server1**

Scope specifies the level at which the resource definition is visible. For details on scope settings and how it works, [see the scope settings help](#).

Node=veracruzNode01, Server=server1

Preferences

New Delete

Select Name JNDI name

You can administer the following resources:

Select	Name	JNDI name	Package
<input type="checkbox"/>	<a href="#">SampleMDBQueueActivationSpec</a>	jms/SampleMDBQueueActivationSpec	VeracruzNode01

Click on Save.

Repeat the steps to create another Activation Specification, but this time for the topic.

#### Activation Specification for a Topic:

Name: SampleMDBTopicActivationSpec  
JNDI Name: jms/SampleMDBTopicActivationSpec  
Destination JNDI name: jms/SampleMDBTopic  
Destination Type: Topic  
Type of subscription: Nondurable subscription  
Queue manager: QM\_MDB  
Transport : Bindings, then client  
Hostname: localhost  
Port: 1420  
Server connection channel: SYSTEM.DEF.SVRCONN

For simplicity, only the screenshots relevant for a topic be shown.

**Specify MDB destination data**

Specify MDB destination data

Step 1: Configure basic attributes

→ **Step 1.1: Specify MDB destination data**

Step 1.2: Configure Durable Subscription

Step 2: Select connection method

Step 3: Test connection

Step 4: Summary

**Specify MDB destination data**

Enter information about the destination from which messages will be delivered to Message Driven Beans that are associated with the new activation specification.

\* Destination JNDI name  
jms/SampleMDBTopic

Message selector

Destination type  
Topic

Accept the default of “Nondurable subscription”

**Configure Durable Subscription**

Configure Durable Subscription

Step 1: Configure basic attributes

Step 1.1: Specify MDB destination data

→ **Step 1.2: Configure Durable Subscription**

Step 2: Select connection method

**Configure Durable Subscription**

Enter information about the type of subscription to use when delivering messages to the Message Driven Beans that are associated with the new activation specification.

**Nondurable subscription**

Durable subscription

Subscription name

... continue with the rest of the screens.

**Create WebSphere MQ JMS resource**

This wizard creates a WebSphere MQ JMS resource

Step 1: Configure basic attributes

Step 1.1: Specify MDB destination data

Step 1.2: Configure Durable Subscription

Step 2: Select connection method

**Summary**

Summary

Creating a resource of type Activation specification-

- Name "SampleMDBTopicActivationSpec"
- JNDI name "jms/SampleMDBTopicActivationSpec"
- Destination JNDI name "jms/SampleMDBTopic"
- Destination type "javax.jms.Topic"
- Queue manager or queue sharing group name "QM\_MDB"
- Server type "QMGR"
- Channel name "SYSTEM.DEF.SVRCONN"

Click on Finish then Save.

You should see now 2 activation specifications:

You can administer the following resources:

<input type="checkbox"/>	<a href="#">SampleMDBQueueActivationSpec</a>	jms/SampleMDBQueueActivationSpec
<input type="checkbox"/>	<a href="#">SampleMDBTopicActivationSpec</a>	jms/SampleMDBTopicActivationSpec

Total 2

- Create a Listener Port in WebSphere Application Server.

A WebSphere Application Server Listener Port is not a JMS administrative object and thus, it is not stored in the JNDI directory service. Rather, it is an object under the WebSphere Application Server “server”.

From the left panel, select:

Servers > Server Types > WebSphere application servers

The screenshot shows the WebSphere Administration Console interface. On the left, a navigation tree is visible with the following structure:

- View: All tasks
- Welcome
- Guided Activities
- Servers (highlighted with a red box)
- Server Types (highlighted with a red box)
- WebSphere application servers (highlighted with a red box)
- WebSphere MQ servers
- Web service engines
- Applications
- Services
- Resources
  - Schedulers
  - Object pool managers
- JMS

A tooltip for "WebSphere application servers" is visible over the navigation item. The main content area shows the "Application servers" page for the cell "veracruzNode01Cell, Profile=AppSrv01".

**Application servers**

Use this page to view a list of the application server of each of these servers. You can also use this page to create a new application server.

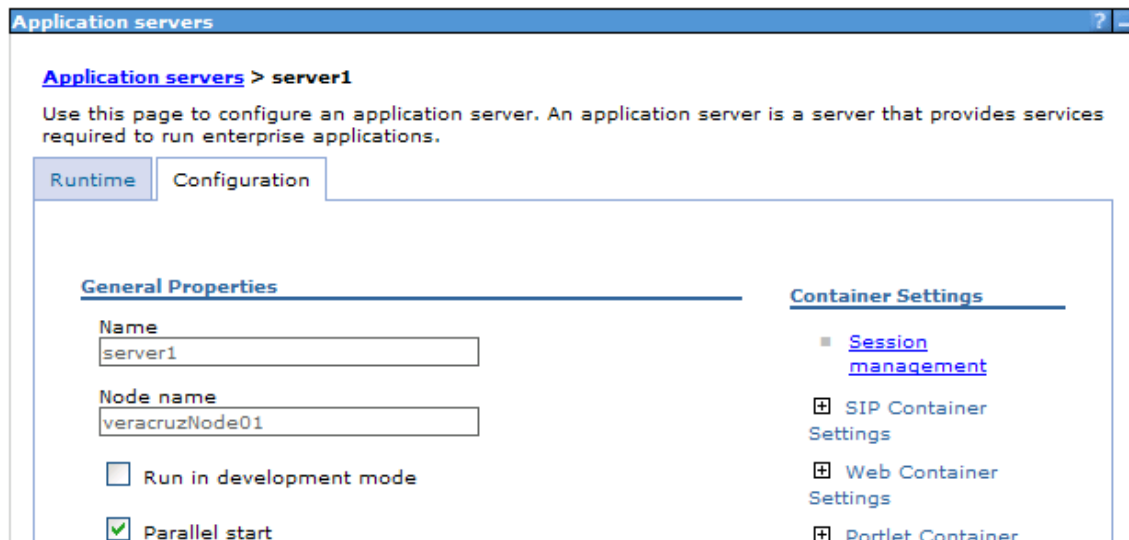
Preferences

Name	Node	Host Name
You can administer the following resources:		
<a href="#">server1</a> (highlighted with a red box)	veracruzNode01	veracruz.dyn.v
Total 1		

Click on “server1”.



The Configuration tab will display the main information on the server:



You need to scroll down to reach the section “Communications”

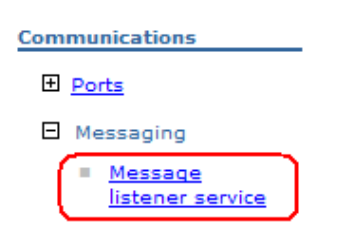
In WAS 7, the section of the screen looks like this:



In WAS 8.x, the section of the screen looks like this:



Click on “Messaging”

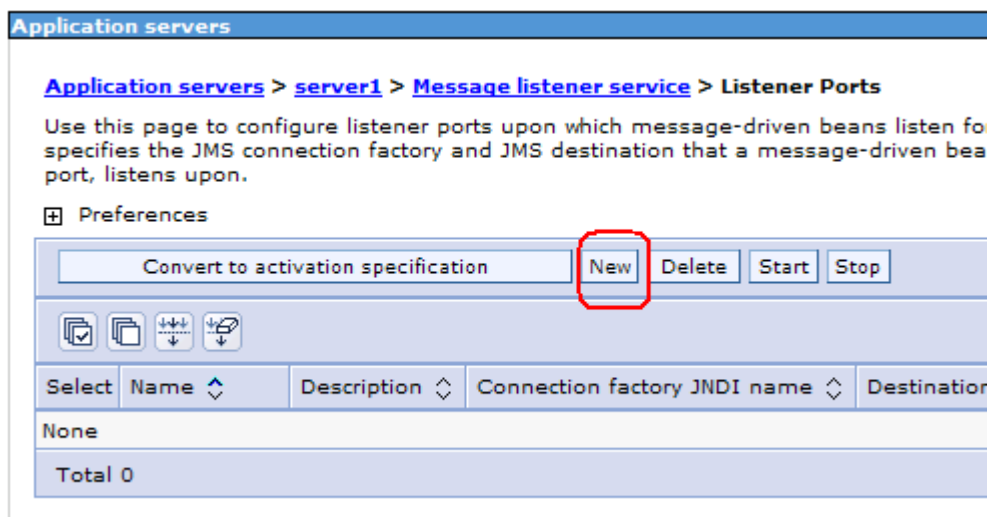


Click on “Message listener service”

In the “Message listener service” specify: Listener Ports



From the window for “Listener Ports” click on New.





Once the Listener Port is created, you will see it in the list.  
Click on Save.

#### Application servers

[-] Messages





- ⚠ The server may need to be restarted for these changes to take effect.
- ⚠ Changes have been made to your local configuration. You can:
  - **Save** directly to the master configuration.
  - [Review](#) changes before saving or discarding.
- ⚠ The server may need to be restarted for these changes to take effect.

#### [Application servers](#) > [server1](#) > [Message listener service](#) > **Listener Ports**

Use this page to configure listener ports upon which message-driven beans listen for messages from a message connection factory and JMS destination that a message-driven bean, deployed against the

#### [-] Preferences

Convert to activation specification    New    Delete    Start    Stop

Select	Name	Description	Connection factory JNDI name	Destination
You can administer the following resources:				
<input type="checkbox"/>	<b>SampleMDBQueueLP</b>		jms/SampleMDBConnectionFactory	jms/

Click on Save.



Good! We have finished adding all the JMS administration objects in the JNDI controlled by WebSphere Application Server, as well as the Listener Port.

**Note:**

Any additions/deletions to the JNDI directory service of the App Server require a reboot of the server: thus, logout from the Administrative Console.

Then login as root and stop and restart the server:

```
# stopServer.sh server1
```

```
# startServer.sh server1
```

Look at the SystemOut.log and SystemErr.log files to see if there are any warnings or error related to the JMS objects or the listener ports that we defined. The default location for these logs is:

```
/opt/IBM/WebSphere/AppServer/profiles/AppSrv01/logs/server1
```

Even though we are not going to use the listener ports right away, let's verify that the Listener Port for a Queue (SampleMDBQueueLP) is shown as running.

From the WebSphere Application Server Administrative Console, follow the steps mentioned earlier to access the screen for the Listener Ports for server1. In this example, one listener port is started (SampleMDBQueueLP) and the other is stopped (SampleMDBTopicLP).

Select	Name	Description	Connection factory JNDI name	Destination JNDI name	Status
You can administer the following resources:					
<input type="checkbox"/>	<a href="#">SampleMDBQueueLP</a>		jms/SampleMDBConnectionFactory	jms/SampleMDBQueue	+
<input type="checkbox"/>	<a href="#">SampleMDBTopicLP</a>		jms/SampleMDBConnectionFactory	jms/SampleMDBTopic	✘
Total 2					

**Note:**

In case that SampleMDBQueueLP is not running, then look at the WebSphere Application Server logs (mentioned above) for errors. One possible situation is that the MQ queue manager for which the Listener Port is trying to connect ("QM\_MDB" in this example) is not running, in which case, start the queue manager and restart the WebSphere Application Server Listener Port (select the check box and then click on Start from the screen mentioned above).

Once you have verified that there are no errors and that the Listener Port SampleMDBQueueLP is running, proceed to deploy and test the MDB.

+++++  
+++ Chapter 3: WebSphere Application Server V7 deployment and testing of  
MDB  
+++++

The purpose of this chapter is to show the steps to deploy an EAR file that has a simple MDB and to test the MDB: we will put a message into the queue and the MDB should receive the message and write the message contents into the SystemOut.log:

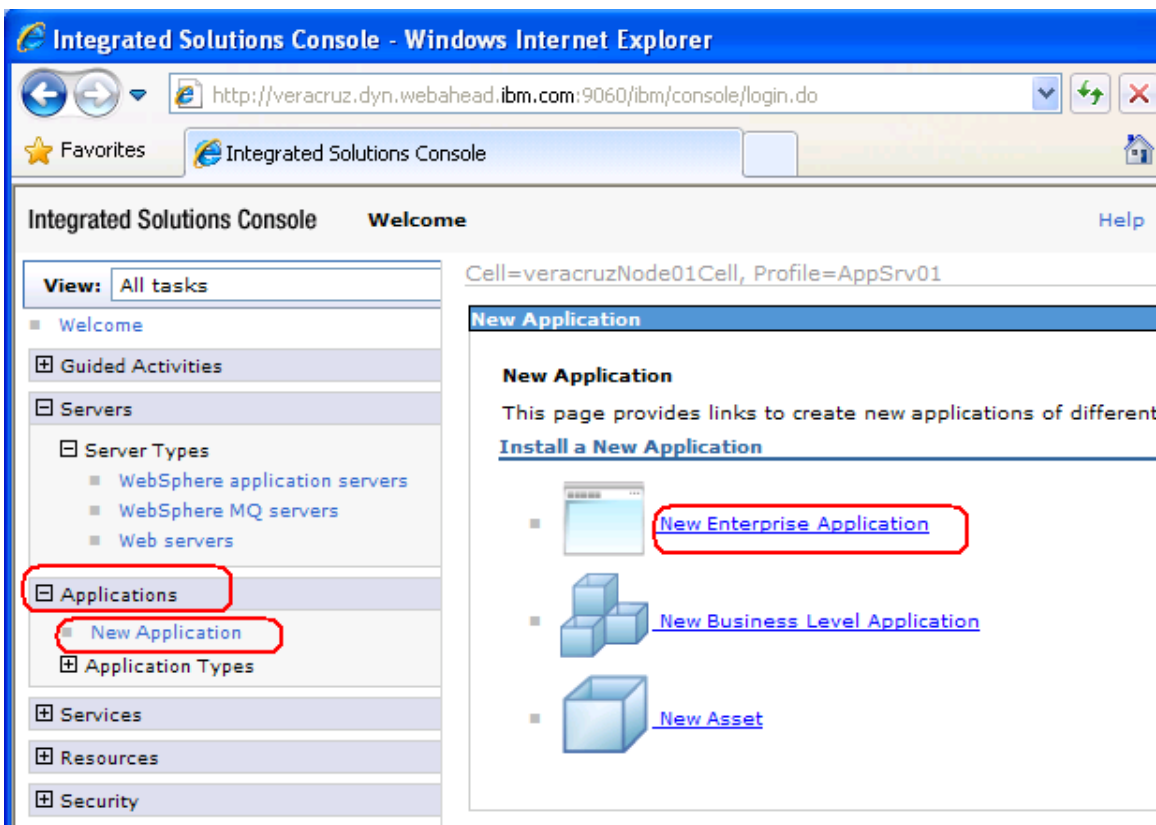
+++ SAMPLE MDB: Text Message => TESTING MDB

From the WebSphere Application Server Administrative Console, in the left panel, select:

Applications > New Application

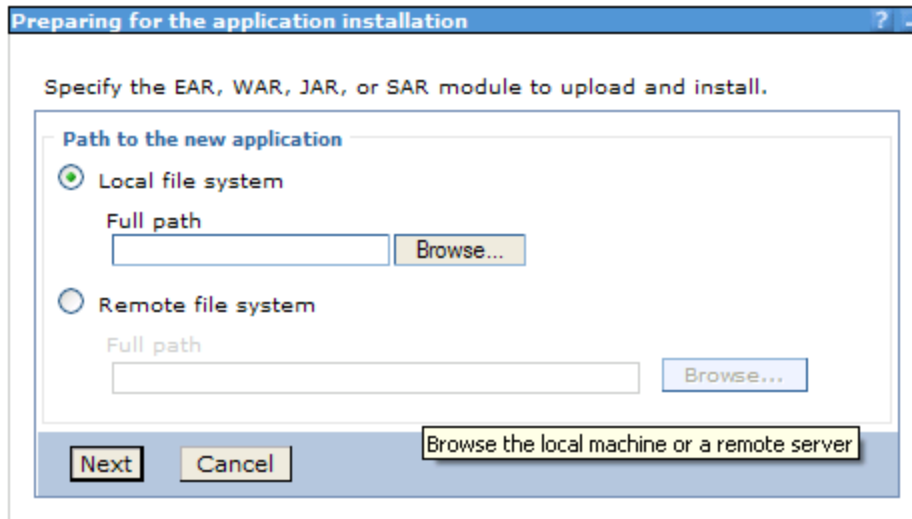
Then from the center window “New Application” select:

New Enterprise Application



You will see a dialog “Preparing for the application installation”.  
Specify the location where you have downloaded the ear file:  
SampleMDBEJB.ear

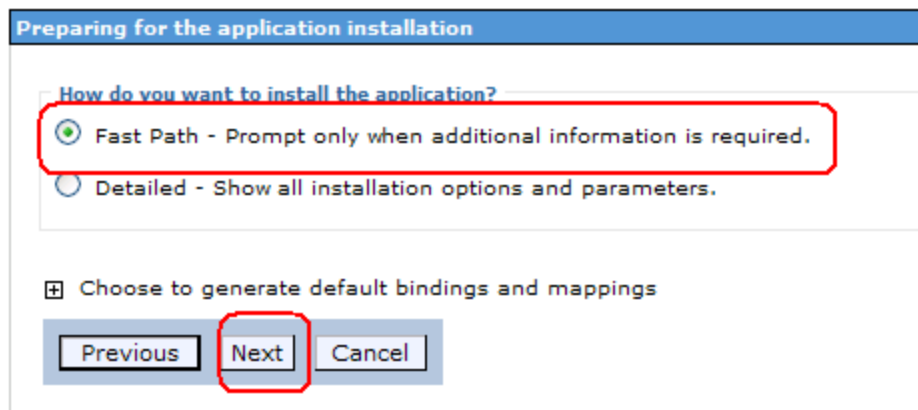
Click Next.



Because we have defined already the Listener Port, the JNDI objects and specified in the EAR Project in RAD which objects we were going to use, then accept the default on how to install the application:

Fast Path - Prompt only when additional information is required

Click Next





In “Step 1: Select installation options” ensure to select the checkbox:  
Deploy enterprise beans  
Click Next

Note: For more information on this checkbox, consult:  
[http://www.ibm.com/support/knowledgecenter/SSEQTP\\_7.0.0/com.ibm.websphere.base.doc/info/aes/ae/urun\\_rapp\\_installoptions.html](http://www.ibm.com/support/knowledgecenter/SSEQTP_7.0.0/com.ibm.websphere.base.doc/info/aes/ae/urun_rapp_installoptions.html)

WebSphere Application Server V7

Reference > Settings

> Select installation options settings

> Deploy enterprise beans

Specify options for installing enterprise applications and modules.

The screenshot shows the 'Select installation options' dialog box. On the left, a navigation pane lists three steps: 'Step 1: Select installation options' (highlighted with a green box and an arrow), 'Step 2: Map modules to servers', and 'Step 3: Summary'. The main area is titled 'Select installation options' and contains the following options:

- Precompile JavaServer Pages files
- Directory to install application:
- Distribute application
- Use Binary Configuration
- Deploy enterprise beans (highlighted with a red box)
- Application name:
- Create MBeans for resources

In “Step 2: Map modules to servers” just click Next.

**Install New Application**

Specify options for installing enterprise applications and modules.

Step 1 Select installation options  
→ **Step 2: Map modules to servers**  
Step 3 Summary

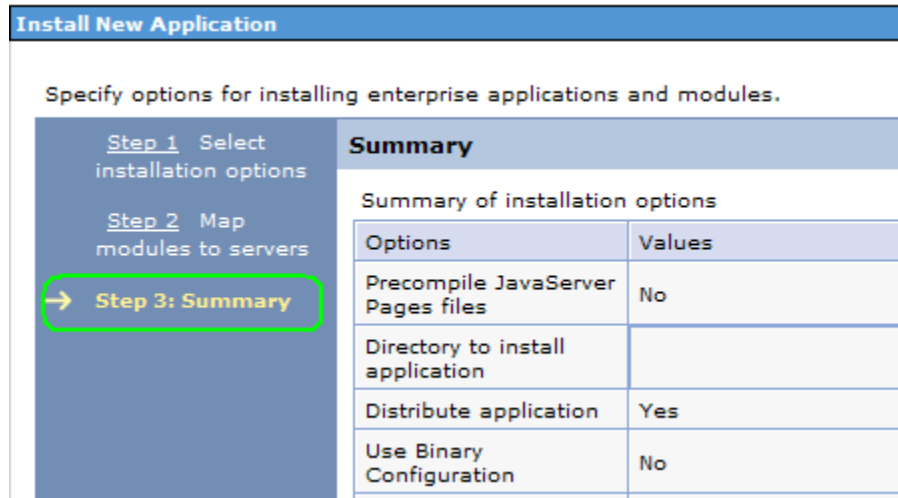
**Map modules to servers**

Specify targets such as application servers contained in your application. Modules are mapped to application servers. Also, specify the WebSphere configuration file (plugin-cfg.xml) for each module.

Clusters and servers:  
WebSphere:cell=veracruzNode01Cell,  
WebSphere:cell=veracruzNode01Cell,

Select	Module	URI
<input type="checkbox"/>	SampleMDBEJB	SampleMDBEJB-INF/ejb-jar.xml

In “Step 3: Summary” just click Finish.



Install New Application

Specify options for installing enterprise applications and modules.

Step 1 Select installation options

Step 2 Map modules to servers

→ Step 3: Summary

**Summary**

Summary of installation options

Options	Values
Precompile JavaServer Pages files	No
Directory to install application	
Distribute application	Yes
Use Binary Configuration	No

You will see the activity of the deployment:

Installing...

If there are enterprise beans in the application, the EJB deployment process can take several minutes. Do not save the configuration until the process completes.

Check the SystemOut.log on the deployment manager or server where the application is deployed for specific information about the EJB deployment process as it occurs.

ADMA5016I: Installation of SampleMDBEJBEAR started.

ADMA5067I: Resource validation for application SampleMDBEJBEAR completed successfully.

...

ADMA5011I: The cleanup of the temp directory for application SampleMDBEJBEAR is complete.

ADMA5013I: Application SampleMDBEJBEAR installed successfully.

Application SampleMDBEJBEAR installed successfully.

To start the application, first save changes to the master configuration.

Changes have been made to your local configuration. You can:

- [Save](#) directly to the master configuration.
- [Review](#) changes before saving or discarding.

Ensure that you see the successful messages:

ADMA5013I: Application SampleMDBEJBEAR installed successfully  
Application SampleMDBEJBEAR installed successfully

Then click “Save” to save the master configuration.

This deployment process does NOT start the application. You need to start manually the application:

From the console, in the left panel, select:  
Applications > Application Types > WebSphere enterprise applications

From the “Enterprise Applications” window, select “SampleMDBEJBEAR” and click on the box to the left of the name. Then click “Start”.

In MQ V7:

The screenshot displays the Integrated Solutions Console interface. The left-hand navigation pane is expanded to show the path: Applications > Application Types > WebSphere enterprise applications. The main content area is titled 'Enterprise Applications' and contains a table of installed applications. The 'SampleMDBEJBEAR' application is selected, and the 'Start' button in the top toolbar is highlighted with a red box.

Select	Name	Application Status
<input type="checkbox"/>	<a href="#">DefaultApplication</a>	✘
<input type="checkbox"/>	<a href="#">IBMUTC</a>	✘
<input checked="" type="checkbox"/>	<a href="#">SampleMDBEJBEAR</a>	✘
<input type="checkbox"/>	<a href="#">ivtApp</a>	✘
<input type="checkbox"/>	<a href="#">query</a>	✘

In WAS 8.x:

WebSphere, software

View: All tasks

Cell=ANGELITONode01Cell, Profile=AppSrv01

Enterprise Applications

**Enterprise Applications**

Use this page to manage installed applications. A single application

Preferences

Start Stop Install Uninstall Update Rollout Update Ren

Select	Name	Applic
<input type="checkbox"/>	<a href="#">DefaultApplication</a>	➔
<input checked="" type="checkbox"/>	<a href="#">SampleMDBEJBEAR</a>	✖

Once the application is started, notice that the icon with a red-cross (Stopped) is changed to a green arrow (Started):

Start Stop Install Uninstall Update Rollout Update Remove File Export

Select	Name	Application Status
<input type="checkbox"/>	<a href="#">DefaultApplication</a>	✖
<input type="checkbox"/>	<a href="#">IBMUTC</a>	✖
<input checked="" type="checkbox"/>	<a href="#">SampleMDBEJBEAR</a>	➔
<input type="checkbox"/>	<a href="#">ivtApp</a>	✖
<input type="checkbox"/>	<a href="#">query</a>	✖

Let's test the MDB. We will need 2 command prompt windows:

+ Window 1: One for watching the recent entries in the WebSphere Application Server SystemOut.log. We can watch for the output from the MDB that indicates that a message was received.

+ Window 2: The other for entering an MQ command that places one message into the queue that is monitored by the WebSphere Application Server Listener Port and which passes the message to the MDB.

Step A: From Window 1:

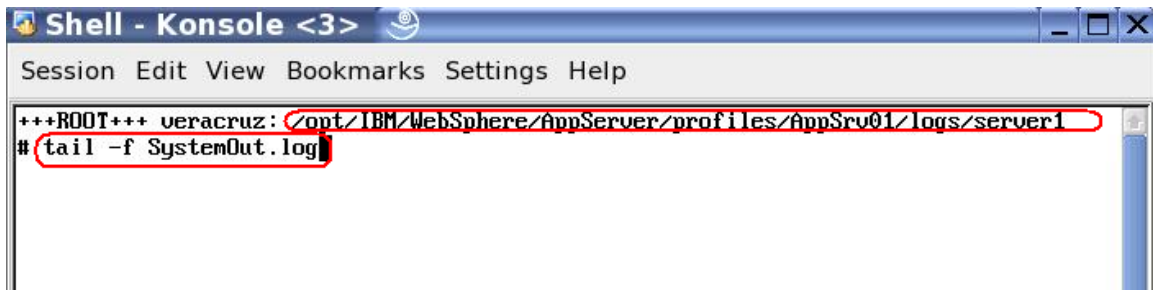
Change to the directory where the WebSphere Application Server server logs reside. In this case it is:

```
$ cd /opt/IBM/WebSphere/AppServer/profiles/AppSrv01/logs/server1
```

Issue the command to watch constantly the recent lines into the SystemOut.log file.

Unix:

```
$ tail -f SystemOut.log
```



The screenshot shows a terminal window titled "Shell - Konsole <3>". The window has a menu bar with "Session", "Edit", "View", "Bookmarks", "Settings", and "Help". The terminal content shows the user is at the root of a system named "veracruz" and is in the directory "/opt/IBM/WebSphere/AppServer/profiles/AppSrv01/logs/server1". The command "# tail -f SystemOut.log" has been entered and is highlighted with a red box.

Step B: From Window 2:

Login as user “mqm” (or another user who has access to MQ).

Enter the command to put a message into the queue Q\_MDB from the queue manager QM\_MDB.

This sample uses a bindings connection type and it needs to be run in the same host that has the queue manager.

```
$ amqsput Q_MDB QM_MDB
```

Enter a text that you could easily identify from the SystemOut.log, such as:

```
TESTING MDB
```

Example snapshot:

```
mqm@veracruz: /home/mqm
(448) amqsput Q_MDB QM_MDB
Sample AMQSPUT0 start
target queue is Q_MDB
TESTING MDB
```

Press Enter to end amqsput.

Step C: From Window 1:

Notice the text at the bottom of the SystemOut.log file:

```
+++ SAMPLE MDB: Text Message => TESTING MDB
```

```
has not been defined.
[6/24/09 14:09:52:521 EDT] 00000016 webcontainer E com.ibm.ws.webcontainer.WebC
ontainer handleRequest SRVE0255E: A WebGroup/Virtual Host to handle /favicon.ico
has not been defined.
[6/24/09 14:09:56:451 EDT] 00000018 webcontainer E com.ibm.ws.webcontainer.WebC
ontainer handleRequest SRVE0255E: A WebGroup/Virtual Host to handle /favicon.ico
has not been defined.
[6/24/09 14:11:15:890 EDT] 0000004f SystemOut      0 +++ SAMPLE MDB: Text Message
=> TESTING MDB
```

Press Ctrl-C to end the “tail” command on the SystemOut.log.

This is the end of the main scenario.

+++++  
 +++ Chapter 4: Additional scenarios: Topics, Activation Specification  
 +++++

The purpose of this chapter is to explore additional related scenarios:  
 - How to use MQ Topics to exploit Publish/Subscribe from MQ.  
 - How to use a WebSphere Application Server Activation Specification, instead of a WebSphere Application Server Listener Port.

4.1: How to use MQ Topics to exploit Publish/Subscribe from MQ.

Assuming that you are continuing from the preceding chapter, it is necessary to stop the application and the WebSphere Application Server listener port.

Go to the screen:

Servers > Server Types > WebSphere application servers  
 Select “server1” and follow the instructions mentioned in Chapter 2 to go to:  
 Application servers > server1 > Message listener service > Listener ports  
 Stop “SampleMDBQueueLP” and start “SampleMDBTopicLP”.  
 The new status should look like this:

Select	Name	Description	Connection factory JNDI name	Destination JNDI name	Status
You can administer the following resources:					
<input type="checkbox"/>	<a href="#">SampleMDBQueueLP</a>		jms/SampleMDBConnectionFactory	jms/SampleMDBQueue	✖
<input type="checkbox"/>	<a href="#">SampleMDBTopicLP</a>		jms/SampleMDBConnectionFactory	jms/SampleMDBTopic	➕

Go to the screen:

Applications > Application Types > WebSphere enterprise applications  
 Select the sample application and click on Stop.

**Enterprise Applications**  
 Use this page to manage installed applications. A single application can be deployed onto multiple

⊕ Preferences

Start Stop Install Uninstall Update Rollout Update Remove File Export Export

Select Name Application Status

You can administer the following resources:

<input type="checkbox"/>	<a href="#">DefaultApplication</a>	✖
<input checked="" type="checkbox"/>	<a href="#">SampleMDBEJBEAR</a>	➕
<input type="checkbox"/>	<a href="#">ivtApp</a>	✖
<input type="checkbox"/>	<a href="#">query</a>	✖



Once it is stopped, click on “SampleMDBEJBEAR”:

You can administer the following resources:		
<input type="checkbox"/>	<a href="#">DefaultApplication</a>	✘
<input type="checkbox"/>	<a href="#">SampleMDBEJBEAR</a>	✘
<input type="checkbox"/>	<a href="#">ivtApp</a>	✘
<input type="checkbox"/>	<a href="#">query</a>	✘

Click on “Message Driven Bean listener bindings”:

## Enterprise Applications ?

### [Enterprise Applications](#) > **SampleMDBEJBEAR**

Use this page to configure an enterprise application. Click the links to access pages for further configuring of the application or its modules.

Configuration

---

#### General Properties

\* Name

Application reference validation

#### Detail Properties

- [Target specific application status](#)
- [Startup behavior](#)
- [Application binaries](#)
- [Class loading and update detection](#)
- [Request dispatcher properties](#)

#### Modules

- [Manage Modules](#)

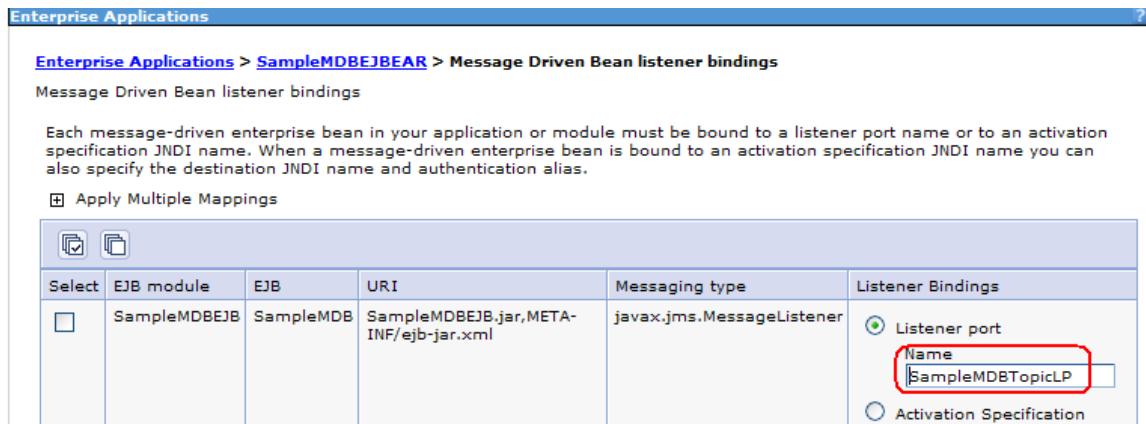
#### Enterprise Java Bean Properties

- [Default messaging provider references](#)
- [Application profiles](#)
- [Message Driven Bean listener bindings](#)

#### Database Profiles

- [SQLJ profiles and pureQuery bind files](#)

Under the Listener Bindings column (the right most)  
Replace: SampleMDBQueueLP  
For: SampleMDBTopicLP



Click on OK then click on Save.

Restart the application.

Perform a similar test of the MDB as described in Chapter 3: open 2 Windows:

a) In one window show the last entries of SystemOut.log by issuing:

```
tail -f SystemOut.log
```

b) In the other window, instead of using “amqspub” (which puts a message into a queue), you can use the following MQ sample that publishes a message into a topic string. In this case the message text is: TESTING TOPIC

```
$ amqspub sports QM_MDB
Sample AMQSPUBA start
target topic is sports
TESTING TOPIC
```

```
Sample AMQSPUBA end
```

c) Notice that in the window for SystemOut.log, the MDB will write the following:

```
+++ SAMPLE MDB: Text Message => TESTING TOPIC
```

## 4.2 - How to use a WebSphere Application Server Activation Specification, instead of a WebSphere Application Server Listener Port.

### 4.2.1 - Using Queues

Stop the application. See previous section for details.

Actually, there is no need to stop the application in order to change the listener bindings.

Change the listener bindings for the MDB:

Go to the screen: Enterprise Applications > SampleMDBEJBEAR > Message Driven Bean listener bindings

Uncheck “Listener Port”.

Check “Activation Specification” and specify the Activation Spec for Queues.

Target Resource JNDI Name: `jms/SampleMDBQueueActivationSpec`

[Enterprise Applications](#) > [SampleMDBEJBEAR](#) > [Message Driven Bean listener bindings](#)

Message Driven Bean listener bindings

Each message-driven enterprise bean in your application or module must be bound to a listener port name or to an activation specification JNDI name. When a message-driven enterprise bean is bound to an activation specification JNDI name you can also specify the destination JNDI name and authentication alias.

Apply Multiple Mappings

Select	EJB module	EJB	URI	Messaging type	Listener Bindings
<input type="checkbox"/>	SampleMDBEJB	SampleMDB	SampleMDBEJB.jar,META-INF/ejb-jar.xml	javax.jms.MessageListener	<input type="radio"/> Listener port Name <input type="text" value="SampleMDBTopicLP"/> <input checked="" type="radio"/> Activation Specification Target Resource JNDI Name <input type="text" value="jms/SampleMDBQueueActivationSpec"/> Destination JNDI name <input type="text"/> ActivationSpec

Click on OK then click on Save.

Restart the application.

Repeat the testing:

a) Use “amqsput” to put a message in the queue Q\_MDB:

```
$ amqsput Q_MDB QM_MDB
Sample AMQSPUT0 start
target queue is Q_MDB
TESTING QUEUE USING ACT SPEC
Sample AMQSPUT0 end
```

b) The bottom of the SystemOut.log will look like this:

```
+++ SAMPLE MDB: Text Message => TESTING QUEUE USING ACT SPEC
```

#### 4.2.2 - Using Topics

Change the listener bindings for the MDB:

Check “Activation Specification” and specify the Activation Spec for Topics.

Target Resource JNDI Name:     jms/SampleMDBTopicActivationSpec

Repeat the testing:

a) Use “amqspub” to publish a message in the topic string “sports”:

```
$ amqspub sports QM_MDB
Sample AMQSPUBA start
target topic is sports
TESTING TOPIC USING ACT SPEC
Sample AMQSPUBA end
```

b) The bottom of the SystemOut.log will look like this:

```
+++ SAMPLE MDB: Text Message => TESTING TOPIC USING ACT SPEC
```

This is the end of the techdoc.