

IBM Web Sphere MQ Installation  
Oracle FLEXCUBE Universal Banking  
Release 12.87.06.0.0  
[May] [2020]



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# 1. Configuring IBM WebSphere MQ

## 1.1 Prerequisite

- ✓ Make sure that WebSphere MQ 6.0 (with JMS Bindings) is installed. If it is not installed then please contact WebSphere MQ Administrator for getting it installed on your machine.
- ✓ X-Windows for using WebSphere MQ Explorer on UNIX machines.

## **1.2 Binding the Queue with the JNDI provider**

IBM provides a tool called JmsAdmin tool for binding (JNDI) the queue managers and queues with the JNDI providers. Right now the most popular JNDI provider is file system JNDI provider. This document lists steps for JNDI binding of the queue managers and queues with the file system JNDI provider.

Follow the steps given in this section to install and configure the OC4J JMS Resource Adapter for WebSphere MQ only i.e. if the application server is Oracle 10g AS and the JMS Provider is IBM WebSphere MQ.

JmsAdmin tool can be found under,

<WEBSHERE\_MQ\_HOME>\java\bin (On Windows as well as on UNIX)

where,

WEBPSHERE\_MQ\_HOME is the directory where IBM WebSphere MQ is installed.

### **1.2.1 Binding of the Queues Managers and Queues**

1. Make sure that you have also installed WebSphere MQ client on the server. This can be confirmed by the presence of folder <WEBPSHERE \_HOME>\java\bin.
2. Make sure that all the jar files inside the folder <WEBPSHERE \_HOME>\java\lib are included in the classpath.
3. Go to the folder <WEBPSHERE \_HOME>\java\bin
4. Open file JMSAdmin.config
5. Now modify the parameter "INITIAL\_CONTEXT\_FACTORY". This parameter should be equal to the value com.sun.jndi.fscontext.RefFSContextFactory.

e.g.:

```
INITIAL_CONTEXT_FACTORY=com.sun.jndi.fscontext.RefFSContextFactory
```

For Commenting any line use the symbol #

e.g.:

```
#INITIAL_CONTEXT_FACTORY=com.sun.jndi.fscontext.RefFSContextFactory is the commented line.
```

6. Now modify the parameter called "PROVIDER\_URL" in this file to the required value.

e.g.: PROVIDER\_URL=file:/D:/bindings (Windows)

PROVIDER\_URL=file:/home/KERNEL/ bindings (UNIX)

This parameter indicates a directory on the local disc where the JMS binding file is to be created. This should be an existing directory on the machine.

7. After saving the changes open a new command prompt
8. Go to <WEBPSHERE \_HOME>\java\bin
9. Type "jmsadmin" on the prompt and press enter

e.g. <WEBPSHERE\_HOME>\java\bin>jmsadmin (windows)

<WEBPSHERE\_HOME>/java/bin \$ jmsadmin (UNIX)

10. This should clear the command window and give a prompt like

**InitCtx>**

11. For creating bindings for the connection to the Queue manager type the following command on the command window.

```
define xqcf(<JNDI_MAPPING_OF_QUEUE_MANAGER>) qmanager (<QUEUE_MANAGER_NAME>) host(
<IP_ADD_OF_MQ_SERVER_MACHINE>) port(<PORT_OF_QUEUE_MANAGER>)
tran(CLIENT)
```

e.g. InitCtx>define xqcf(SSIAID\_MDB\_QCF) qmanager(QM\_DDTD0270) host(10.80.161.40) port(1414) tran(CLIENT)

To create bindings for the connection to the Queue manager that uses **Channels**

type the following command:

```
define xqcf(<JNDI_MAPPING_OF_QM>) CHANNEL(<CHANNEL_NAME>) qmanager
(<QUEUE_MANAGER_NAME>) host(<IP_ADD_OF_MQ_SERVER_MACHINE>) port(<PORT_OF_QM>) tran(CLIENT)
```

E.g. InitCtx>define xqcf(SSIAID\_MDB\_QCF) CHANNEL(FLEX.CLIENTS.TCP) qmanager(QM\_DDTD0270) host(10.80.161.40) port(1414) tran(CLIENT)

**[Note: This command has to be given in a single line.]**

- This defines the JNDI mapping (SSIAID\_MDB\_QCF) for the queue manager (QM\_DDTD0270) running on machine (10.80.4.102) and port (1414)
- This JNDI mapping (SSIAID\_MDB\_QCF) should be the same as that is created in MQ.

12. For creating bindings for the queues type the following command on the command window.

**DEFINE Q(<QUEUE\_NAME>) QUEUE(<QUEUE\_NAME>) qmanager (<QUEUE\_MANAGER\_NAME>)**

**[Note: This command has to be given in a single line.]**

e.g.: InitCtx> DEFINE Q(NOTIFY\_DEST\_QUEUE) QUEUE(NOTIFY\_DEST\_QUEUE) qmanager (QM\_DDTD0270)

- This will bind the queue called " NOTIFY\_DEST\_QUEUE " by the binding name " NOTIFY\_DEST\_QUEUE " to the queue manager "QM\_DDTD0270". Normally the binding name and the queue name should be the same as shown in this example.

## 2. Creating and Mapping JMS Resources in WebSphere Application Server

### 2.1 Creation of WebSphere MQ Queue Connection Factories

1. On the Left Hand Side of the WebSphere Application Server Admin Console, click on **Resources** and Expand the **JMS Providers**.
2. Now click on **WebSphere MQ** option.
3. Following screen will be displayed. Select the **Node** Option and then press **Apply**.
4. Now Click on **WebSphere MQ Queue connection factories** listed under Additional Properties

**WebSphere MQ messaging provider**

A JMS provider enables asynchronous messaging based on the Java Message Service (JMS). It provides J2EE connection factories to create connections for specific JMS queue or topic destinations. WebSphere MQ JMS provider administrative objects are used to manage JMS resources for WebSphere MQ as the JMS provider.

**Configuration**

☐ Scope: Cell=DDTD0270Node01Cell, Node=DDTD0270Node01

☐ Cell : DDTD0270Node01Cell Scope specifies the level at which the resource definition is visible. For detailed information on what scope is and how it works, [see the scope settings help](#)

☒ Node : DDTD0270Node01

☐ Server : server1

**Apply**

**General Properties**

Scope  
cells:DDTD0270Node01Cell:nodes:DDTD0270Node01

Name  
WebSphere MQ JMS Provider

Description  
WebSphere MQ Messaging Provider

Class path  
\${MQJMS\_LIB\_ROOT}

Native library path

**Additional Properties**

- [WebSphere MQ connection factories](#)
- [WebSphere MQ queue connection factories](#)**
- [WebSphere MQ queue destinations](#)
- [WebSphere MQ topic connection factories](#)
- [WebSphere MQ topic destinations](#)



5. Following screen will be displayed. Click on **New**.

WebSphere MQ messaging provider






**WebSphere MQ messaging provider** ?

[WebSphere MQ messaging provider](#) > **WebSphere MQ queue connection factories**

A queue connection factory is used to create connections to the associated JMS provider of JMS queue destinations, for point-to-point messaging. Use WebSphere MQ queue connection factory administrative objects to manage queue connection factories for the WebSphere MQ JMS provider.

⊞ Preferences

New Delete



Select	Name ↕	JNDI name ↕	Description ↕	Category ↕
<input type="checkbox"/>	<a href="#">MDBQCF</a>	MDBQCF		
<input type="checkbox"/>	<a href="#">MDB_DQCF</a>	MDB_DQCF		
<input type="checkbox"/>	<a href="#">NOTIFY MDB_QCF</a>	NOTIFY_MDB_QCF	Gateway Notify MDB Queue Connection Factory	

Total 3

○

6. Following screen will be displayed.

✓ Configure the details as mentioned below:

<b>Name:</b>	SSIAD_MDB_QCF (Name of the QCF as specified)
<b>JNDI Name:</b>	SSIAD_MDB_QCF (Name of the QCF as specified)
<b>Queue Manager:</b>	Name of the Queue Manager that we create in IBM MQ.
<b>Host:</b>	IP Address of the Machine where IBM MQ is installed.
<b>Port:</b>	1414. (CONFIGURABLE AS PER REQUIREMENT)
<b>Transport Type:</b>	CLIENT

*[Note: The rest all fields are optional and can be ignored. Some of the fields will have values which will be defaulted automatically. ]*

WebSphere MQ messaging provider
?

Messages

Additional Properties for this object will not be available to edit until its general properties are applied by clicking on either Apply or OK.

[WebSphere MQ messaging provider](#) > [WebSphere MQ queue connection factories](#) > [New](#)

A queue connection factory is used to create connections to the associated JMS provider of JMS queue destinations, for point-to-point messaging. Use WebSphere MQ queue connection factory administrative objects to manage queue connection factories for the WebSphere MQ JMS provider.

Configuration

General Properties

\* Scope  
cells:DDTD0270Node01Cell:nodes:DDTD0270Node01

\* Name  
SSIAD\_MDB\_QCF

\* JNDI name  
SSIAD\_MDB\_QCF

Description  
SSI Adapter MDB Queue Connection Factory

Category

Component-managed authentication alias  
(none)

Mapping-configuration alias  
DefaultPrincipalMapping

Queue manager  
QM\_DDTD0270

Host  
10.80.161.40

Port  
1414

Channel

Transport type  
CLIENT

The additional properties will not be available until the general properties for this item are saved.

Additional Properties

- Custom properties
- Connection pool
- Session pools

Related Items

- J2EE Connector Architecture (J2C) authentication data entries

7. Make sure following two are selected,

- ✓ **XA Enabled**
- ✓ **Enable MQ connection pooling**

Then click on **Apply**

Model queue definition

Client ID

CCSID

☒ Enable message retention

☒ **XA enabled**

☒ Enable return methods during shutdown

Local server address

Polling interval  
 milliseconds

Rescan interval  
 milliseconds

SSL cipher suite

SSL CRL

SSL peer name

Temporary queue prefix

☒ **Enable MQ connection pooling**

8. Following screen will be displayed. Click on **Save**.

WebSphere MQ messaging provider

WebSphere MQ messaging provider

Messages

⚠

Changes have been made to your local configuration. Click **Save** to apply changes to the master configuration.

ℹ

The server may need to be restarted for these changes to take effect.

[WebSphere MQ messaging provider](#) > [WebSphere MQ queue connection factories](#) > **SSIAD\_MDB\_QCF**

A queue connection factory is used to create connections to the associated JMS provider of JMS queue destinations, for point-to-point messaging. Use WebSphere MQ queue connection factory administrative objects to manage queue connection factories for the WebSphere MQ JMS provider.

Configuration

**General Properties**

\* Scope

cells:DDTD0270Node01Cell:nodes:DDTD0270Node01

\* Name

SSIAD\_MDB\_QCF

\* JNDI name

SSIAD\_MDB\_QCF

Description

SSI Adapter MDB Queue Connection Factory

Category

**Additional Properties**

Custom properties

Connection pool

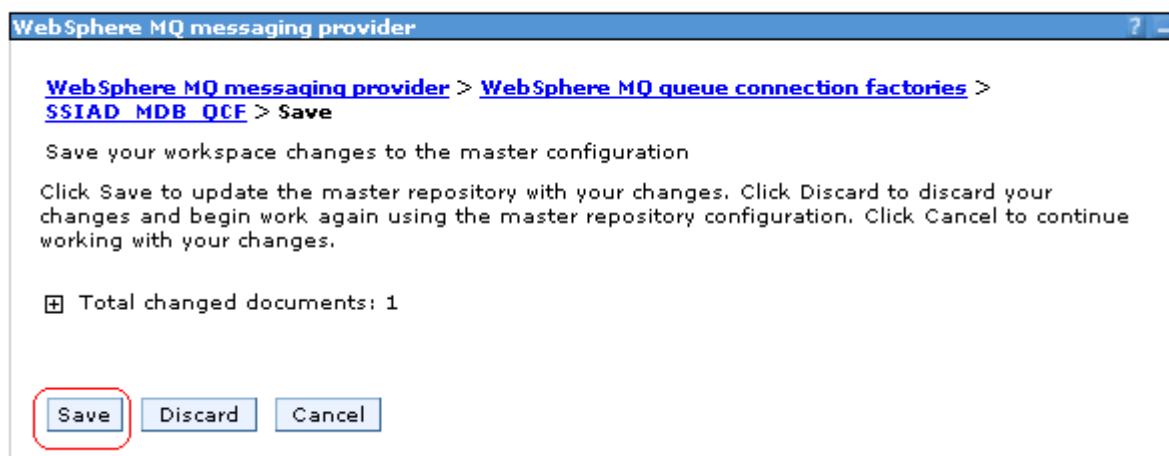
Session pools

**Related Items**

J2EE Connector Architecture (J2C) authentication data entries

9. Following screen will be displayed. Click on **Save**.

WebSphere MQ messaging provider



10. Following screen will be displayed.

- ✓ It should show the Queue Connection Factory that has been created in the above steps as shown below.

WebSphere MQ messaging provider





**WebSphere MQ messaging provider**

**WebSphere MQ messaging provider > WebSphere MQ queue connection factories**

A queue connection factory is used to create connections to the associated JMS provider of JMS queue destinations, for point-to-point messaging. Use WebSphere MQ queue connection factory administrative objects to manage queue connection factories for the WebSphere MQ JMS provider.

Preferences

New Delete



Select	Name	JNDI name	Description	Category
<input type="checkbox"/>	<a href="#">MDBQCF</a>	MDBQCF	Gateway MDB Queue Connection Factory	
<input type="checkbox"/>	<a href="#">MDB_DQCF</a>	MDB_DQCF		
<input type="checkbox"/>	<a href="#">NOTIFY MDB_QCF</a>	NOTIFY_MDB_QCF	Gateway Notify MDB Queue Connection Factory	
<input type="checkbox"/>	<a href="#">SSIAD MDB_QCF</a>	SSIAD_MDB_QCF	SSI Adapter MDB Queue Connection Factory	

Total 4

## 2.2 Creation of Message Listener Ports

1. On the Left Hand Side Click on Servers and then click on Application Servers.
2. Now Click on **Server1** on Right Hand Side.

The screenshot displays the Oracle WebLogic Administration Console interface. On the left, the 'Servers' node is expanded, showing 'Application servers' and 'Web servers'. The 'Application servers' node is selected. The main pane shows the 'Application servers' page, which includes a description and a table of servers. The table has columns for 'Select', 'Name', 'Node', and 'Version'. One server is listed: 'server1' on node 'DDTD0270Node01' with version '6.0.0.1'. The 'server1' name is circled in red.

Select	Name	Node	Version
<input type="checkbox"/>	server1	DDTD0270Node01	6.0.0.1

Total 1

3. Following screen will be displayed.
  - ✓ Expand **Messaging** under **Communications** and then click on **Message Listener Service**.



**Application servers** ?

[Application servers](#) > **server1**

An application server is a server which provides services required to run enterprise applications.

Runtime

Configuration

**General Properties**

Name  
server1

☐ Run in development mode

☒ Parallel start

**Server-specific Application Settings**

Classloader policy  
Multiple

Class loading mode  
Parent first

Apply

OK

Reset

Cancel

**Container Settings**

☐ Web Container Settings

☐ EJB Container Settings

☐ Container Services

☐ Business Process Services

**Server messaging**

☐ [Messaging engines](#)

☐ [Messaging engine inbound transports](#)

☐ [WebSphere MQ link inbound transports](#)

☐ [SIB service](#)

**Server Infrastructure**

☐ Java and Process Management

☐ Administration

**Communications**

☐ [Ports](#)

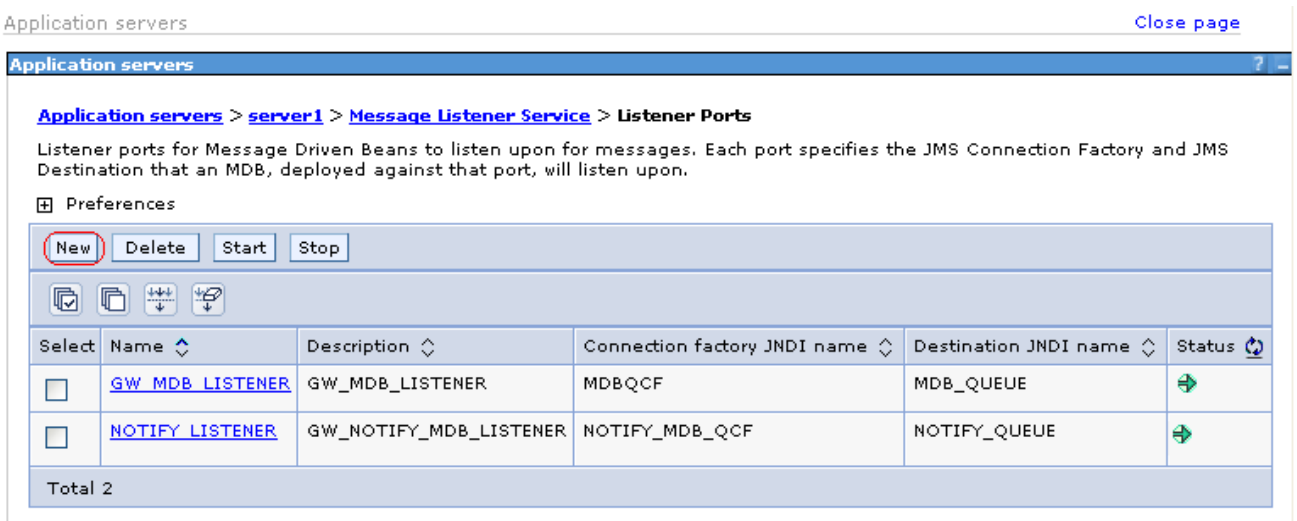
☐ [Messaging](#)

☐ [Message Listener Service](#)

4. Following screen will be displayed. Click on **Listener Ports**.



5. Following screen will be displayed. Click on **New**.



6. Following screen will be displayed. Configure the **Listener Port** with the following details and then click on **Apply**.

<b>Name:</b>	SSIAD_MDB_LISTENER (Name of the Listener can be anything. But remember to give the same name while deploying corresponding MDB)
<b>Initial State:</b>	Started.
<b>Description:</b>	JMSListener Description
<b>Connection Factory JNDI Name:</b>	SSIAD_MDB_QCF (The same name that was created under step 5 for WebSphere MQ queue connection factory. Here specify the name of the Queue Connection Factory of the queue on which Listener has to attached)
<b>Destination Name:</b>	NOTIFY_DEST_QUEUE (The same name that was created under step 8 for Wbsphere MQ queue destinations. Here specify the name of the Queue on which Listener has to attached)
<b>Max Retries</b>	1 (This many number of times message will be re-delivered to MDB before Message Listener port shuts itself down )

*[Note: The rest all values will be de-faulted automatically.]*

**Application servers** ?

[Application servers](#) > [server1](#) > [Message Listener Service](#) > [Listener Ports](#) > [New](#)

Listener ports for Message Driven Beans to listen upon for messages. Each port specifies the JMS Connection Factory and JMS Destination that an MDB, deployed against that port, will listen upon.

**Runtime** Configuration

**General Properties**

\* Name  
SSIAD\_MDB\_LISTENER

\* Initial State  
Started

Description  
SSIAD\_MDB\_LISTENER

\* Connection factory JNDI name  
SSIAD\_MDB\_QCF

\* Destination JNDI name  
NOTIFY\_DEST\_QUEUE

Maximum sessions  
1

Maximum retries  
1

Maximum messages  
1

Apply

OK

Reset

Cancel

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**ORACLE**  
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7. Following screen will be displayed. Click on **Save**.

Application servers

The screenshot shows a web-based configuration interface for 'Application servers'. At the top, there is a blue header bar with the text 'Application servers' and a help icon. Below the header, a message box with a yellow warning icon states: 'Changes have been made to your local configuration. Click **Save** to apply changes to the master configuration. The server may need to be restarted for these changes to take effect.' Below the message box, a breadcrumb trail reads: 'Application servers > server1 > Message Listener Service > Listener Ports > SSIAD\_MDB\_LISTENER'. A paragraph of text explains: 'Listener ports for Message Driven Beans to listen upon for messages. Each port specifies the JMS Connection Factory and JMS Destination that an MDB, deployed against that port, will listen upon.' Below this text are two tabs: 'Runtime' and 'Configuration', with 'Configuration' being the active tab. The main content area is titled 'General Properties' and contains several fields: 'Name' (SSIAD\_MDB\_LISTENER), 'Initial State' (Started), 'Description' (SSIAD\_MDB\_LISTENER), 'Connection factory JNDI name' (SSIAD\_MDB\_QCF), 'Destination JNDI name' (NOTIFY\_DEST\_QUEUE), and four pairs of 'Maximum sessions' and 'Maximum retries' fields, all with the value '1'. At the bottom of the configuration area are four buttons: 'Apply', 'OK', 'Reset', and 'Cancel'.

Application servers

☐ Messages

⚠ Changes have been made to your local configuration. Click **Save** to apply changes to the master configuration.  
ℹ The server may need to be restarted for these changes to take effect.

[Application servers](#) > [server1](#) > [Message Listener Service](#) > [Listener Ports](#) > **SSIAD\_MDB\_LISTENER**

Listener ports for Message Driven Beans to listen upon for messages. Each port specifies the JMS Connection Factory and JMS Destination that an MDB, deployed against that port, will listen upon.

**Runtime** Configuration

**General Properties**

\* Name  
SSIAD\_MDB\_LISTENER

\* Initial State  
Started

Description  
SSIAD\_MDB\_LISTENER

\* Connection factory JNDI name  
SSIAD\_MDB\_QCF

\* Destination JNDI name  
NOTIFY\_DEST\_QUEUE

Maximum sessions  
1

Maximum retries  
1

Maximum messages  
1

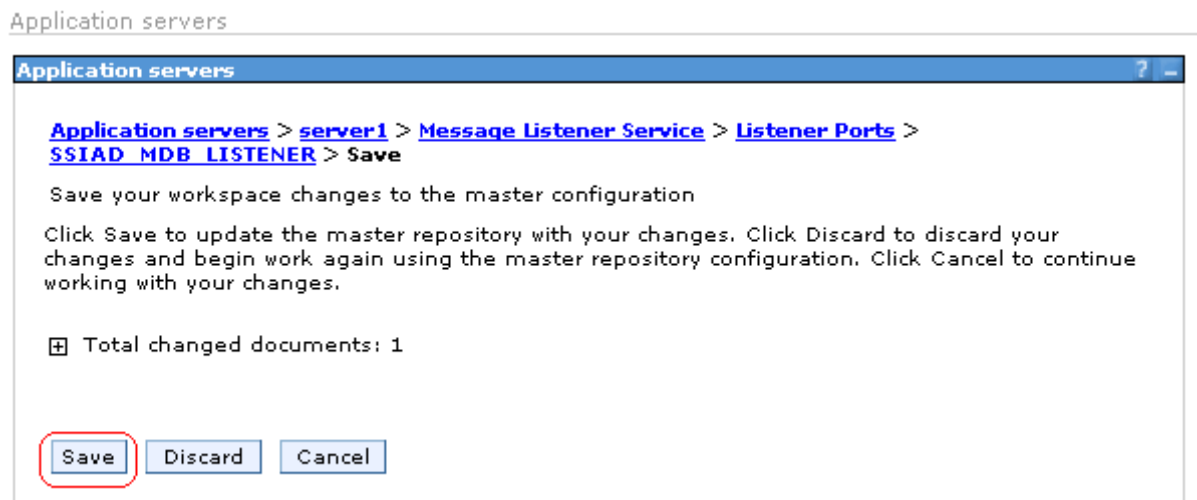
Maximum sessions  
1

Maximum retries  
1

Maximum messages  
1

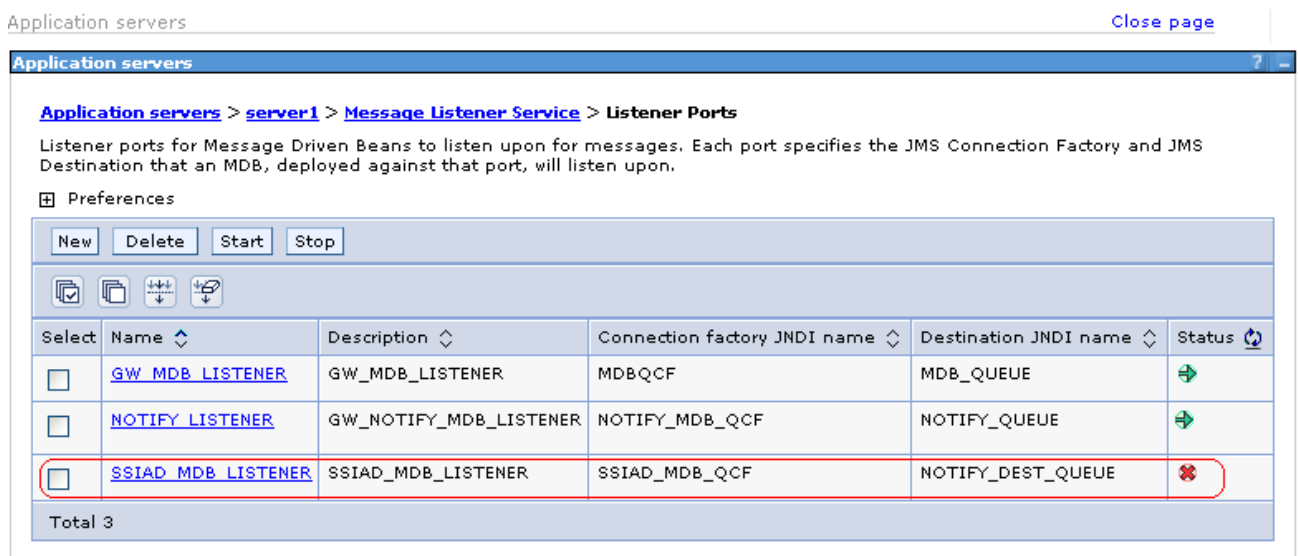
Apply OK Reset Cancel

8. Following screen will be displayed. Click on **Save**.



9. Following screen will be displayed.

- ✓ It should show the Listener Port that has been created in the above steps as shown bellow.



- Restart the Application server then follow steps 1,2,3,4 specified under this section. The Listener Port will be shown as started (as displayed in the following screen).

Application servers

[Close page](#)





**Application servers** 2




[Application servers](#) > [server1](#) > [Message Listener Service](#) > [Listener Ports](#)

Listener ports for Message Driven Beans to listen upon for messages. Each port specifies the JMS Connection Factory and JMS Destination that an MDB, deployed against that port, will listen upon.

Preferences

New Delete Start Stop



Select	Name	Description	Connection factory JNDI name	Destination JNDI name	Status
<input type="checkbox"/>	<a href="#">GW_MDB_LISTENER</a>	GW_MDB_LISTENER	MDBQCF	MDB_QUEUE	
<input type="checkbox"/>	<a href="#">NOTIFY_LISTENER</a>	GW_NOTIFY_MDB_LISTENER	NOTIFY_MDB_QCF	NOTIFY_QUEUE	
<input type="checkbox"/>	<a href="#">SSIAD_MDB_LISTENER</a>	SSIAD_MDB_LISTENER	SSIAD_MDB_QCF	NOTIFY_DEST_QUEUE	

Total 3

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## 3. Appendix

### 3.1 Kernel Installation Documents

Please refer [SSIAD\\_Installation\\_FCUBSV.UM8.0.0.0.0.0.doc](#).





IBM Web Sphere MQ Installation  
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