

Oracle GL Adapter IBM WebSphere MQ Installation
Oracle FLEXCUBE Universal Banking
Release 12.2.0.0.0
[May] [2016]



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1. Configuring IBM WebSphere MQ

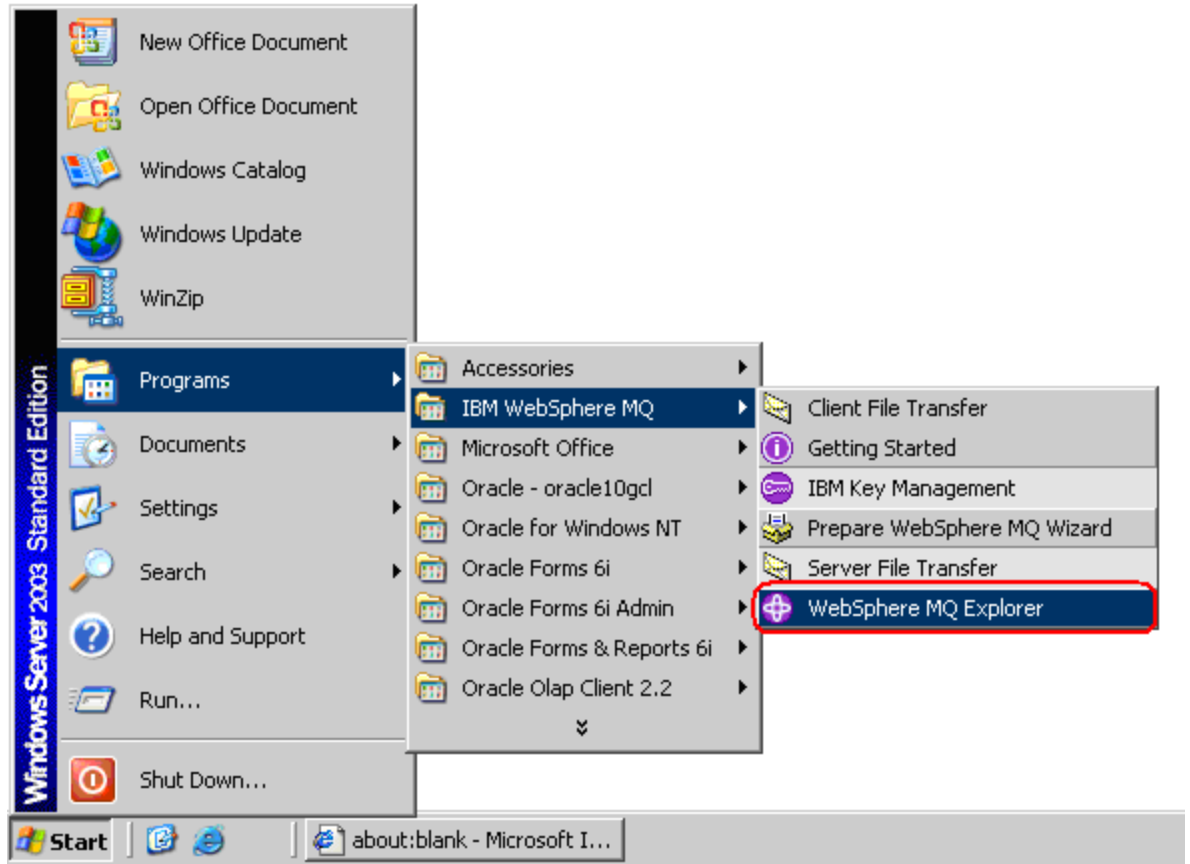
1.1 Prerequisite

- ✓ 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.

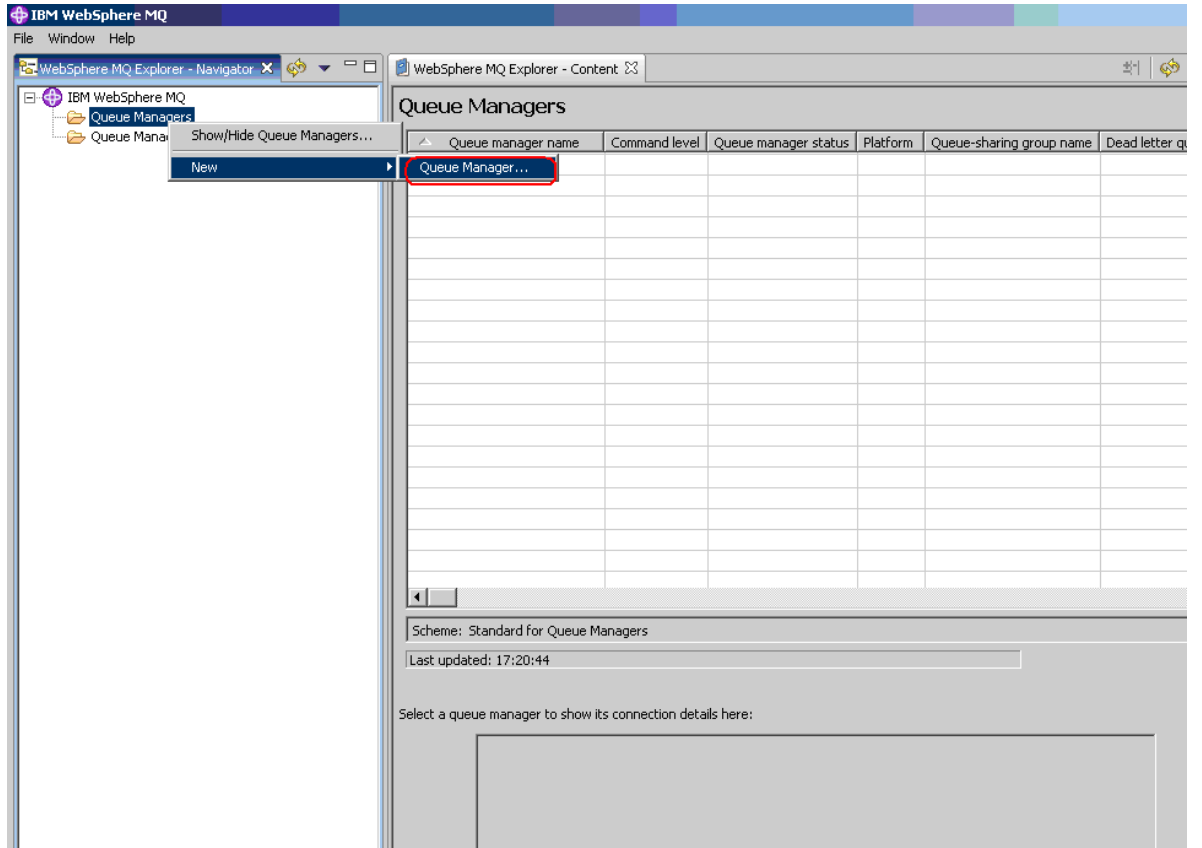
1.2 Creating Queue Manager

1.2.1 Using WebSphere MQ Explorer

1. Go to Start→Programs→IBM WebSphere MQ→ WebSphere MQ Explorer.



2. Right-click on the queue manager's icon, from the popup menu select New, and select Queue Manager.



3. Give the name of the Queue Manager

- ✓ Click on the check box specifying Make this the default Queue Manager
- ✓ Click on Finish

Create Queue Manager

Queue Manager
Enter basic values (Step 1)

Queue manager name: QM_cvrhp1455

Make this the default queue manager

Default transmission queue:

Dead letter queue:

Max handle limit: 256

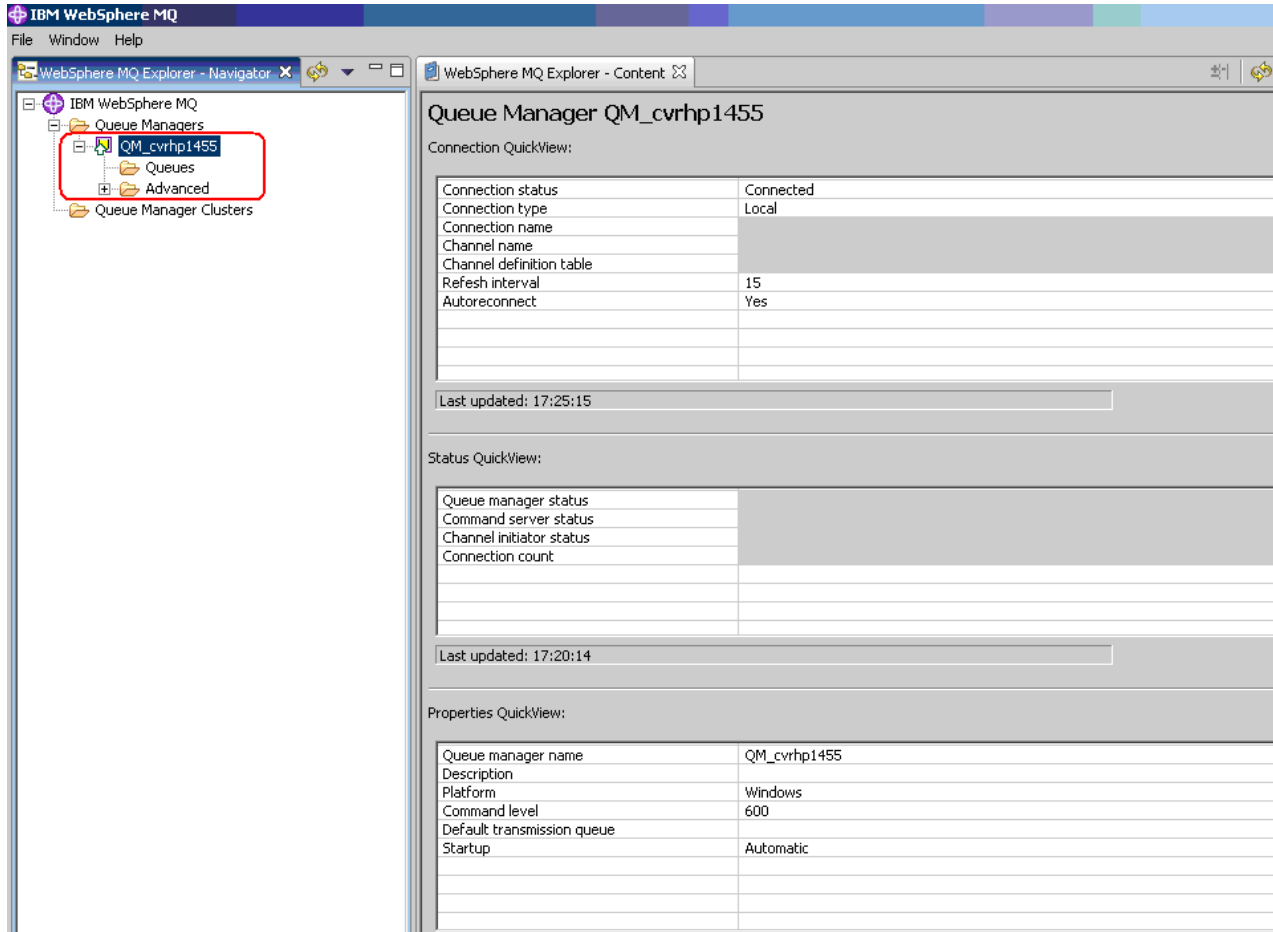
Trigger interval: 999999999

Max uncommitted messages: 10000

< Back Next > **Finish** Cancel

4. Following screen shall be displayed

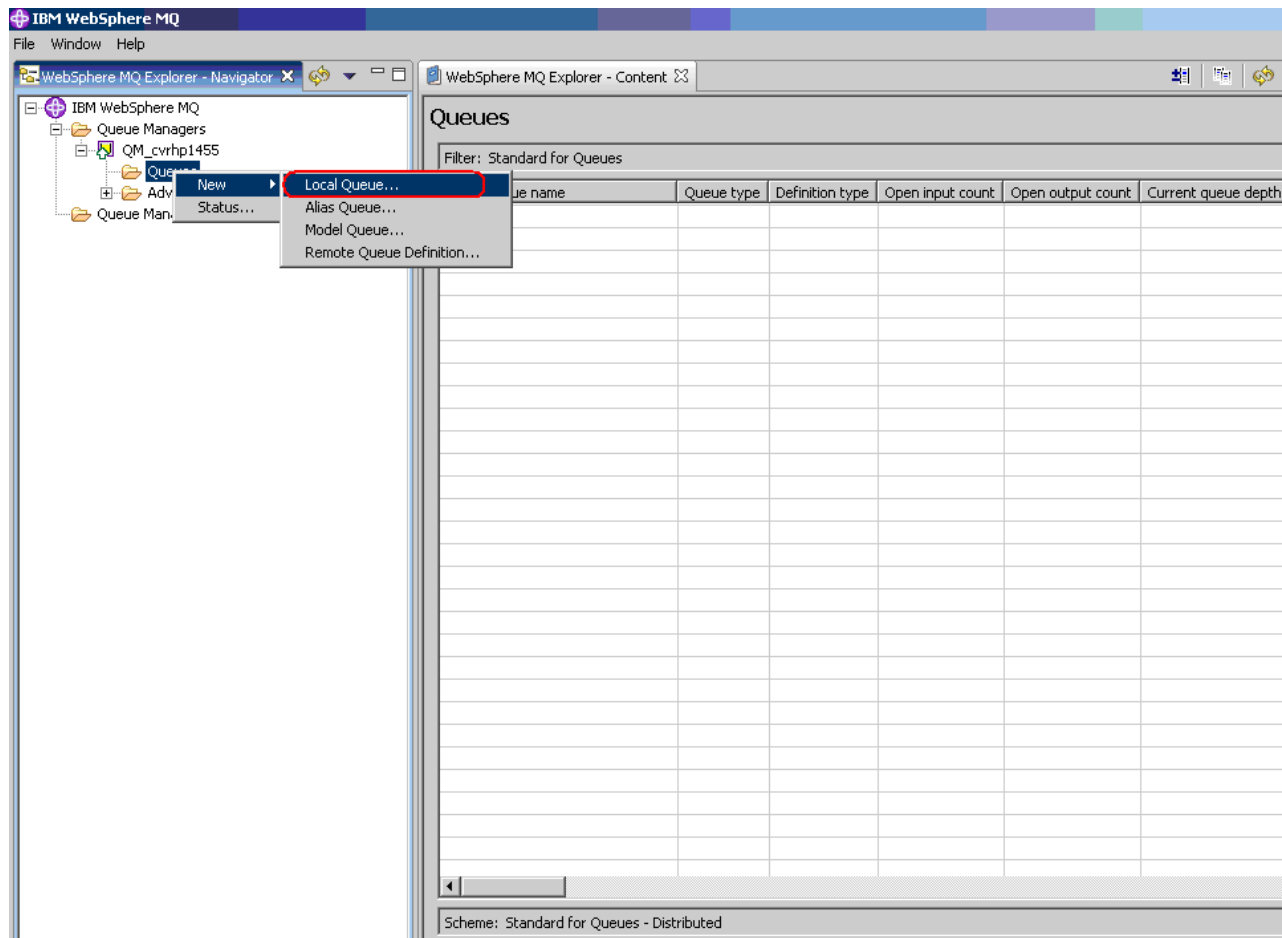
[Note: Make sure that the Queue Manager is started and Running]



1.3 Creating Queues in that Queue manager

1.3.1 Using WebSphere MQ Explorer

1. Open the queue manager in the explorer which was created as in section 1.2
 - ✓ Right-click on the queues icon.
 - ✓ From the popup menu select New, and then select Local Queue as shown bellow.



2. Following screen will be displayed. Type the Name of the Queue and then Click on Next.

New Local Queue

Create a Local Queue
Enter the details of the object you wish to create

Name:

Create it with the attributes like:

< Back **Next >** Finish Cancel

3. Following screen will be displayed.

- ✓ In General Properties Tab for Persistence Attribute, select **Persistent** from drop down list.

The screenshot shows a window titled "New Local Queue" with a sub-header "Change properties". Below the sub-header is the instruction "Change the properties of the new Local Queue". On the left, a tree view shows "General" selected and circled in red. The main area is titled "General" and contains several fields:

- Queue name: NOTIFY_DEST_QUEUE
- Queue type: Local
- Description: (empty)
- Put messages: Allowed
- Get messages: Allowed
- Default priority: 0
- Persistence: Persistent (circled in red)
- Scope: Queue manager
- Usage: Normal

At the bottom right, there are four buttons: "< Back", "Next >", "Finish", and "Cancel".

4. Click on Extended on the Left Hand side. Following screen will be displayed.

- ✓ For **Max queue depth**, enter **999999999**.
- ✓ For **Max message length**, enter **104857600**.
- ✓ Click on Finish.

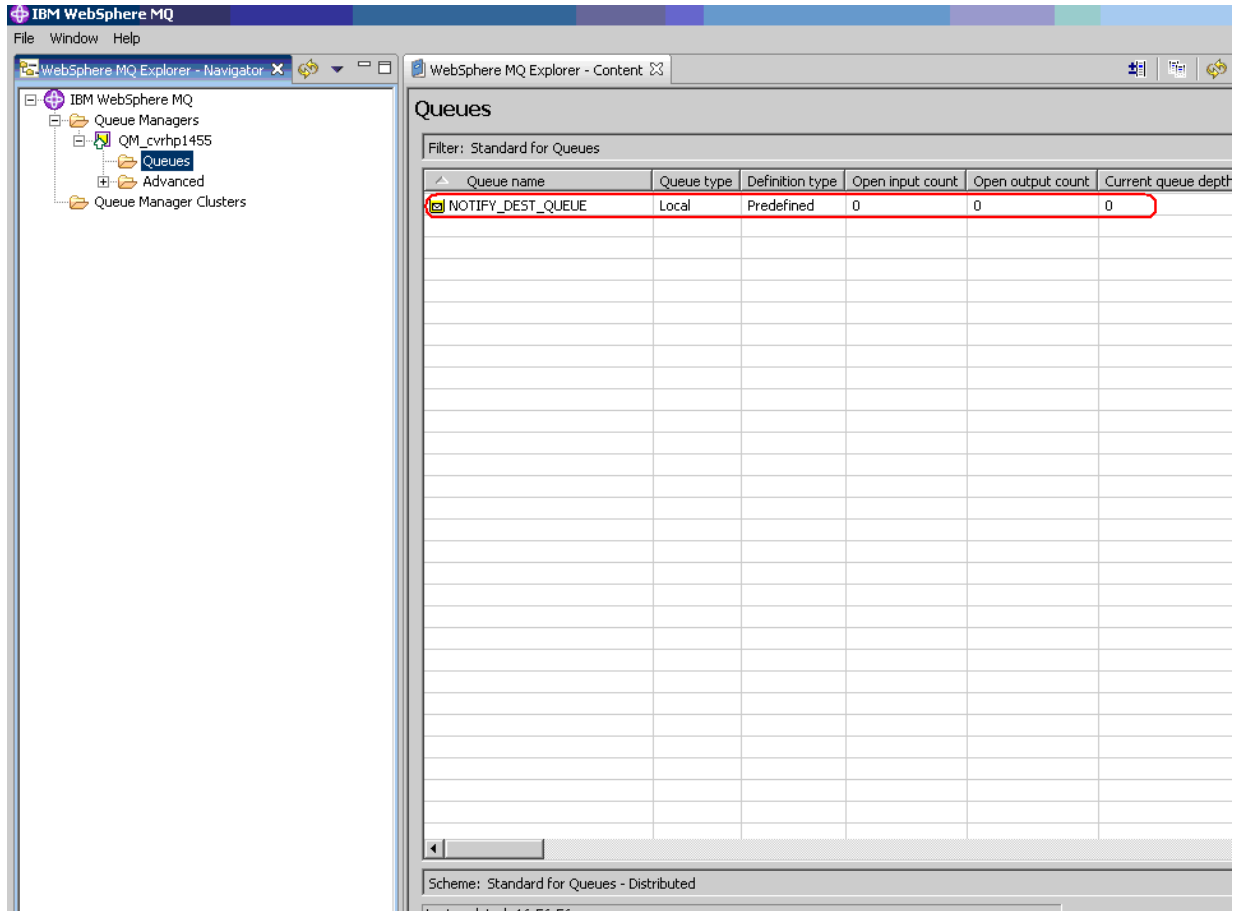
The screenshot shows a window titled "New Local Queue" with a sub-header "Change properties" and the instruction "Change the properties of the new Local Queue". On the left, a tree view shows "Extended" selected. The main area displays the "Extended" tab with the following settings:

Max queue depth:	999999999
Max message length:	104857600
Shareability:	Shareable
Default input open option:	Input shared
Message delivery sequence:	Priority
Retention interval:	999999999
Definition type:	Predefined
Distribution lists:	Not Supported

At the bottom, there are four buttons: "< Back", "Next >", "Finish", and "Cancel". The "Finish" button is highlighted with a red box.

5. Following screen will be displayed.

- ✓ Make sure that the Queue is displayed in Contents Window.



1.4 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.

JmsAdmin tool can be found under,

<WEBSHERE_MQ_HOME>\java\bin (On Windows as well as on UNIX)

where,

WEBSHERE_MQ_HOME is the directory where IBM WebSphere MQ is installed.

1.4.1 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 <WEBSHERE _HOME>\java\bin.
2. Make sure that all the jar files inside the folder <WEBSHERE _HOME>\java\lib is listed in the classpath.
3. Go to the folder <WEBSHERE _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. This parameter indicates context factory of the Messaging Server and same property is supposed to be maintained in the properties file.

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:/C:/jmsobj (Windows)

PROVIDER_URL=file:/home/KERNEL/jmsobj (UNIX)

This parameter indicates a directory on the local disc where the JMS binding file is to be created. Same property is supposed to be maintained in the KERNEL properties file. 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. C:\IBM\WebSphereMQ\java\bin>jmsadmin (windows)

\$ jmsadmin (UNIX)

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

InitCtx>

Here the bindings for the Queue manager and the queues will be created.

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

```
define qcf(<JNDI_MAPPING_OF_QUEUE_MANAGER>) qmgr(<QUEUE_MANAGER_NAME>)  
host(<IP_ADD_OF_MQ_SERVER_MACHINE>) port (<PORT_OF_QUEUE_MANAGER>)  
tran (CLIENT)
```

e.g. InitCtx>define qcf (ADOGL_MDBQCF) qmgr(QM_cvrhp1453) host (10.80.4.102) port(1414) tran(CLIENT)

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

This defines the JNDI mapping (ADOGL_MDBQCF) for the queue manager (QM_cvrhp1455) running on machine (10.70.4.56) and port (1414)

This JNDI mapping (ADOGL_MDBQCF) should be the same as that maintained in the properties file (ADOGL_MDB_Prop.properties) parameter (ADOGL_MDB_JMS_QCF) value.

e.g. ADOGL_MDB_JMS_QCF= ADOGL_MDBQCF

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

```
DEFINE Q(<QUEUE_NAME>) QUEUE(<QUEUE_NAME>) QMGR(<QUEUE_MANAGER_NAME>)
```

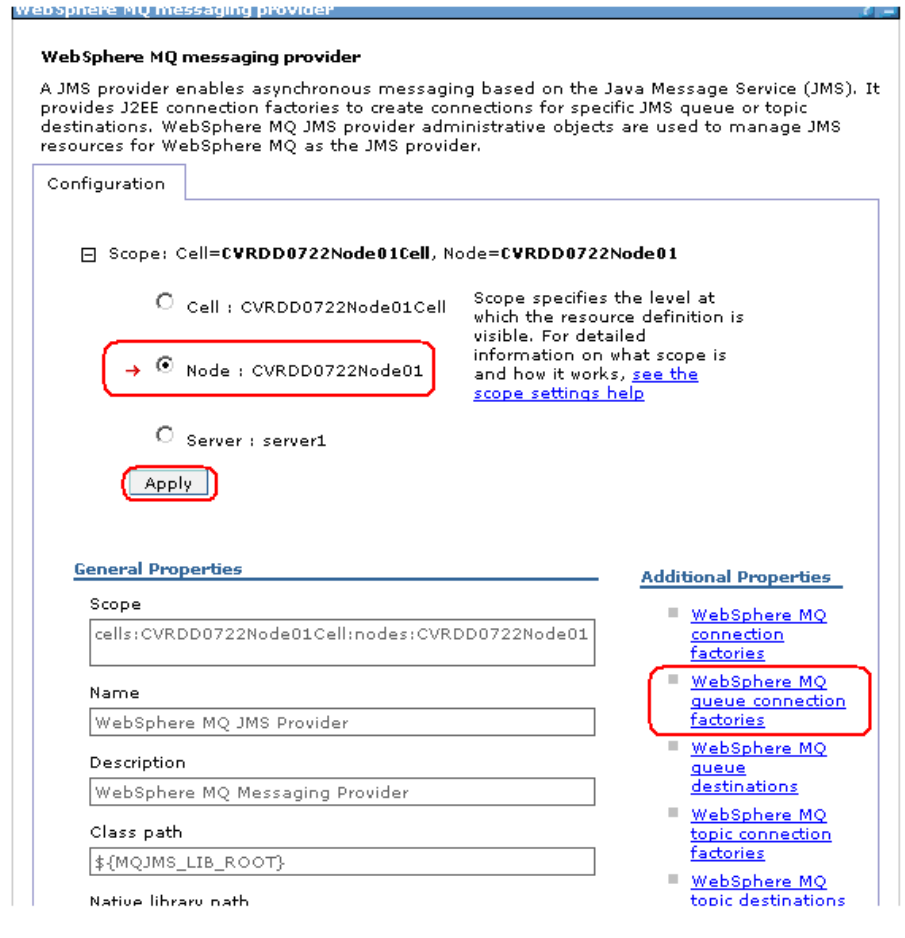
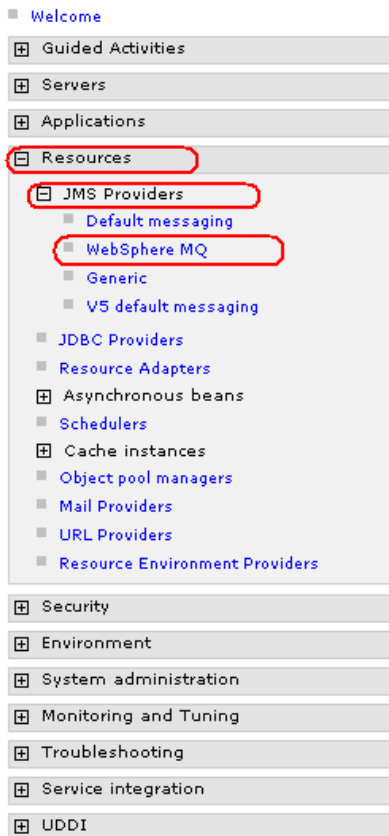
e.g.: InitCtx> DEFINE Q(NOTIFY_DEST_QUEUE) QUEUE(NOTIFY_DEST_QUEUE) QMGR(QM_cvrhp1455)

This will bind the queue called "NOTIFY_DEST_QUEUE" by the binding name "NOTIFY_DEST_QUEUE" to the queue manager "QM_cvrhp1455". Normally the binding name and the queue name should be the same as shown in this example.

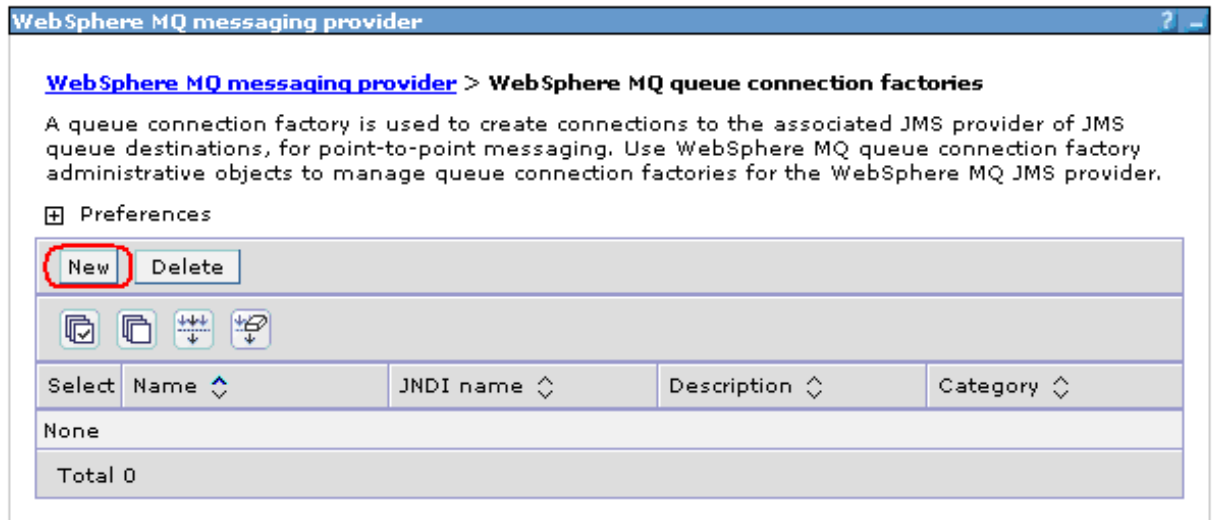
2. Creating and Mapping JMS Resources in WebSphere Application Server

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



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



6. Following screen will be displayed.

- ✓ Configure the details as mentioned below:

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

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:cvrhp1455Node01Cell:nodes:cvrhp1455Node01

* Name

ADOGL_MDBQCF

* JNDI name

ADOGL_MDBQCF

Description

Queue Connection Factory for
Oracle GL Adapter

Category

Component-managed authentication alias

(none)

Container-managed authentication alias

(none)

Mapping-configuration alias

(none)

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

Queue manager
QM_cvrhp1455

Host
10.80.4.138

Port
1414

Channel

Transport type
CLIENT

Model queue definition

Client ID

CCSID

- Enable message retention
- XA enabled
- Enable return methods during shutdown

Local server address

Polling interval
5000 milliseconds

Rescan interval
5000 milliseconds

SSL cipher suite

SSL CRL

SSL peer name

Temporary queue prefix

7. Make sure following two are selected,

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

Then click on **Apply**

The screenshot shows a configuration dialog box with the following elements:

- Client ID: []
- CCSID: []
- Enable message retention
- XA enabled
- Enable return methods during shutdown
- Local server address: []
- Polling interval: 5000 milliseconds
- Rescan interval: 5000 milliseconds
- SSL cipher suite: []
- SSL CRL: []
- SSL peer name: []
- Temporary queue prefix: []
- Enable MQ connection pooling
- Buttons: Apply, OK, Reset, Cancel

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](#) > **ADOGL_MDBQCF**

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:cvrhp1455Node01Cell:nodes:cvrhp1455Node01
- * Name: ADOGL_MDBQCF
- * JNDI name: ADOGL_MDBQCF
- Description: Queue Connection Factory for Oracle GL Adapter
- Category:
- Component-managed authentication alias: (none)
- Container-managed authentication alias: (none)
- Mapping-configuration alias: (none)

Additional Properties

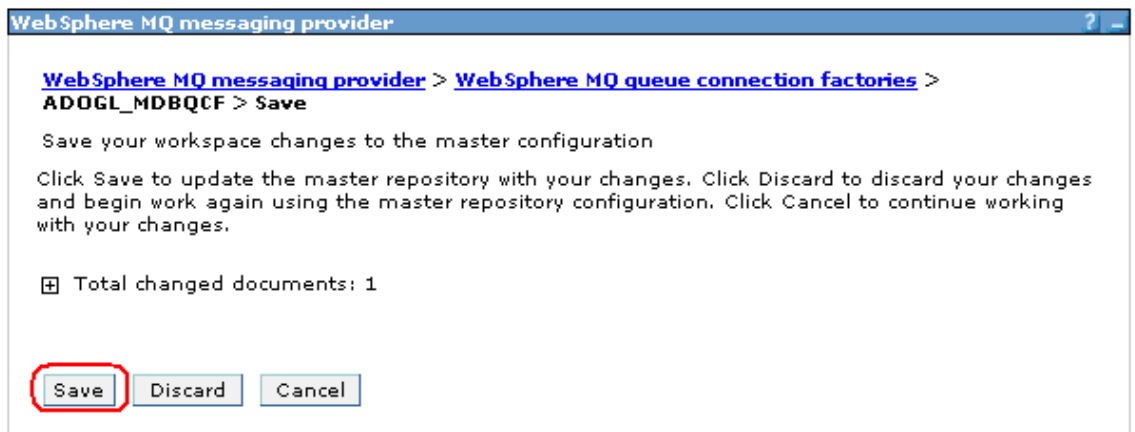
- [Custom properties](#)
- [Connection pool](#)
- [Session pools](#)

Related Items

- [J2EE Connector Architecture \(J2C\) authentication data entries](#)

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

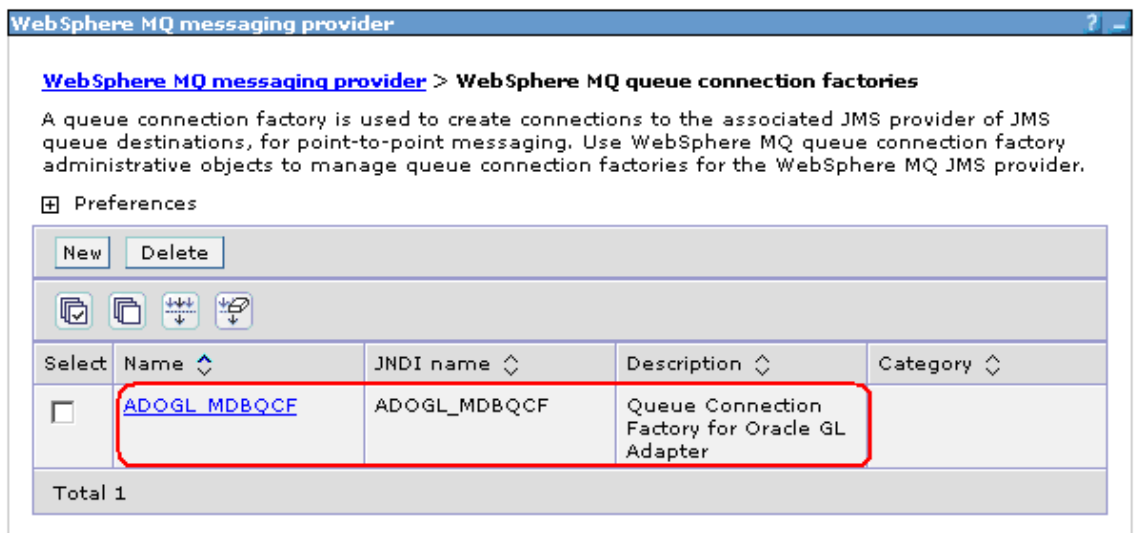
WebSphere MQ messaging provider



10. Following screen will be displayed.

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

WebSphere MQ messaging provider



2.2 Creation of WebSphere MQ Queue Destinations

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 destinations** listed under Additional Properties

WebSphere MQ messaging provider

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=**CVRDD0722Node01Cell**, Node=**CVRDD0722Node01**

Cell : CVRDD0722Node01Cell 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 : CVRDD0722Node01

Server : server1

General Properties

Scope
cells:CVRDD0722Node01Cell:nodes:CVRDD0722Node01

Name
WebSphere MQ JMS Provider

Description
WebSphere MQ Messaging Provider

Class path
\${MQJMS_LIB_ROOT}

Native library path
\${MQJMS_LIB_ROOT}

Additional Properties

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

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

WebSphere MQ messaging provider



- Following screen will be displayed. Configure with the details as mentioned below and click on **Apply**.

Name:	NOTIFY_DEST_QUEUE (Name of the queue as specified)
JNDI Name:	NOTIFY_DEST_QUEUE (Name of the queue as specified)
Base Queue Name:	NOTIFY_DEST_QUEUE (Name of the queue as specified)
Queue Manager Host:	IP Address of the Machine where the IBM MQ server is installed.
Port:	1414. MQ Port (CONFIGURABLE AS PER REQUIREMENT)

[Note: The Rest of the fields are optional and some are de-faulted automatically and hence can be ignored.]

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 destinations](#) > **New**

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

Configuration

General Properties

* Scope
cells:cvrhp1455Node01Cell:nodes:cvrhp1455Node01

* Name
NOTIFY_DEST_QUEUE

* JNDI name
NOTIFY_DEST_QUEUE

Description
Incoming Queue for ADOGL_MDB

Category

Persistence
APPLICATION DEFINED

Priority
APPLICATION DEFINED

Specified priority
0

Expiry
APPLICATION DEFINED

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

Additional Properties

- Custom properties
- MQ Config

Specified expiry
0 milliseconds

* Base queue name
NOTIFY_DEST_QUEUE

Base queue manager name
QM_cvrhp1455

CCSID

Use native encoding

Integer encoding
Normal

Decimal encoding
Normal

Floating point encoding
IEEENormal

Target client
JMS

WebSphere MQ Queue Connection Properties

Queue manager host
10.80.4.138

Queue manager port
1414

Server connection channel name

User ID

Password

Apply OK Reset Cancel

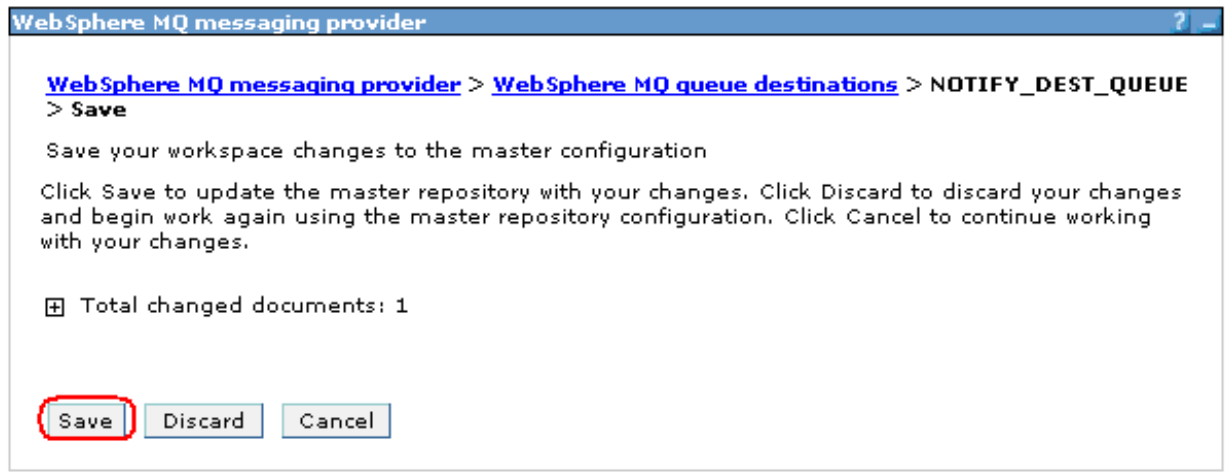
7. Following screen will be displayed. Click on **Save**.

WebSphere MQ messaging provider

The screenshot shows the configuration page for a WebSphere MQ messaging provider. At the top, there is a title bar "WebSphere MQ messaging provider" with a help icon. Below it is a "Messages" box containing a warning icon and text: "Changes have been made to your local configuration. Click **Save** to apply changes to the master configuration." and an information icon with text: "The server may need to be restarted for these changes to take effect." Below the messages box is a breadcrumb trail: "WebSphere MQ messaging provider > WebSphere MQ queue destinations > NOTIFY_DEST_QUEUE". A paragraph explains: "Queue destinations provided for point-to-point messaging by the WebSphere MQ JMS provider. Use WebSphere MQ queue destination administrative objects to manage queue destinations for the WebSphere MQ JMS provider." The main configuration area is titled "Configuration" and is divided into two sections: "General Properties" and "Additional Properties". Under "General Properties", there are fields for "Scope" (cells:cvrhp1455Node01Cell:nodes:cvrhp1455Node01), "Name" (NOTIFY_DEST_QUEUE), "JNDI name" (NOTIFY_DEST_QUEUE), "Description" (Incoming Queue for ADOGL_MDB), "Category", "Persistence" (APPLICATION DEFINED), "Priority" (APPLICATION DEFINED), "Specified priority" (0), and "Expiry". Under "Additional Properties", there are links for "Custom properties" and "MQ Config".

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

WebSphere MQ messaging provider



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

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

WebSphere MQ messaging provider

WebSphere MQ messaging provider > **WebSphere MQ queue destinations**

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

⊕ Preferences

New Delete

☑ ☒ ↕ ↻

Select	Name	JNDI name	Description	Category
<input type="checkbox"/>	NOTIFY_DEST_QUEUE	NOTIFY_DEST_QUEUE	Incoming Queue for ADOGL_MDB	

Total 1

2.3 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, a navigation tree shows the following items: Welcome, Guided Activities, Servers, Application servers, Web servers, Applications, Resources, Security, Environment, System administration, Monitoring and Tuning, Troubleshooting, Service integration, and UDDI. The 'Servers' and 'Application servers' items are highlighted with red circles. The main content area is titled 'Application servers' and contains the following information:

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

Preferences

Select	Name	Node	Version
<input type="checkbox"/>	server1	CVRDD0722Node01	6.0.2.0
Total 1			

3. Following screen will be displayed.

- ✓ Expand **Messaging** under **Communications** and then click on **Message Listener Service**.

Application servers

The screenshot shows the 'Application servers' configuration window for 'server1'. The window has a title bar 'Application servers' and a breadcrumb 'Application servers > server1'. Below the breadcrumb is a description: 'An application server is a server which provides services required to run enterprise applications.' There are two tabs: 'Runtime' and 'Configuration'. The 'Configuration' tab is active. The configuration is divided into several sections:

- General Properties:** Name: 'server1'. 'Run in development mode' is unchecked. 'Parallel start' is checked.
- Server-specific Application Settings:** 'Classloader policy' is set to 'Multiple'. 'Class loading mode' is set to 'Parent first'.
- Container Settings:** Includes 'Web Container Settings', 'EJB Container Settings', 'Container Services', and 'Business Process Services'.
- Server messaging:** Includes 'Messaging engines', 'Messaging engine inbound transports', 'WebSphere MQ link inbound transports', and 'SIB service'.
- Server Infrastructure:** Includes 'Java and Process Management' and 'Administration'.
- Communications:** Includes 'Ports', 'Messaging', and 'Message Listener Service'. 'Messaging' and 'Message Listener Service' are highlighted with red boxes.
- Performance:** (Section header visible at the bottom).

At the bottom of the configuration area are buttons for 'Apply', 'OK', 'Reset', and 'Cancel'.

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

Application servers



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

Application servers



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

Name:	OGL_MDB_LISTENER (Name of the Listener can be anything. But remember to give the same name while deploying corresponding MDB)
Initial State:	Started.
Description:	JMSListener Description
Connection Factory JNDI Name:	ADOGL_MDBQCF(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)
Destination Name:	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)

[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.

General Properties

* Name

* Initial State

Description

* Connection factory JNDI name

* Destination JNDI name

Maximum sessions

Maximum retries

Maximum messages

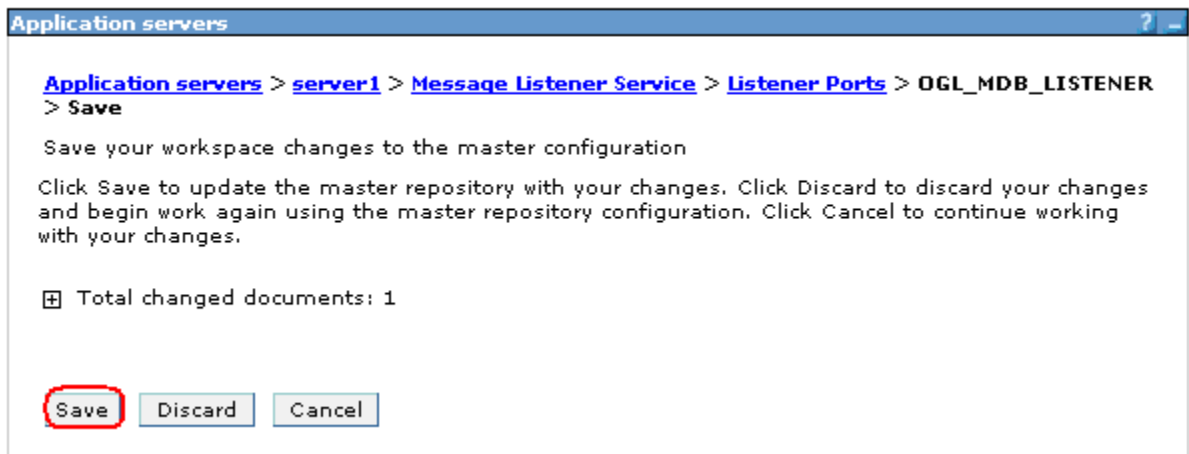
7. Following screen will be displayed. Click on **Save**.

Application servers

The screenshot shows a web-based configuration interface for 'Application servers'. At the top, there is a navigation breadcrumb: **Application servers > server1 > Message Listener Service > Listener Ports > OGL_MDB_LISTENER**. Below this, a message box 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.' The 'Save' button is circled in red. The main configuration area has two tabs: 'Runtime' and 'Configuration', with 'Configuration' selected. Under the 'General Properties' section, the following fields are visible: 'Name' (OGL_MDB_LISTENER), 'Initial State' (Started), 'Description' (empty), 'Connection factory JNDI name' (ADOGL_MDBQCF), 'Destination JNDI name' (NOTIFY_DEST_QUEUE), 'Maximum sessions' (1), 'Maximum retries' (0), and 'Maximum messages' (1). At the bottom, there are buttons for 'Apply', 'OK', 'Reset', and 'Cancel'.

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

Application servers

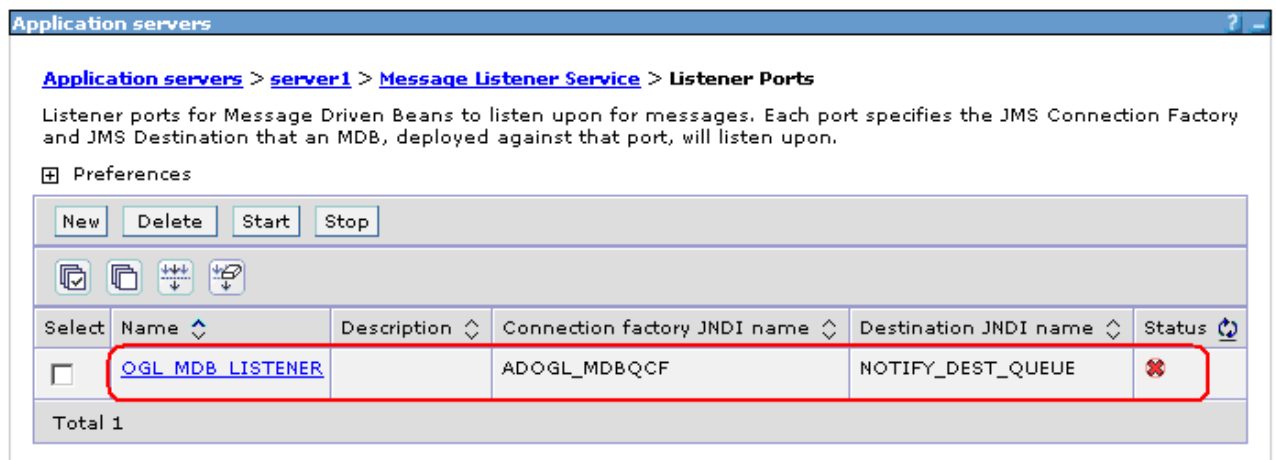


9. Following screen will be displayed.

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

Application servers

Clos



- 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


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"/>	OGL MDB LISTENER		ADOGL_MDBQCF	NOTIFY_DEST_QUEUE	

Total 1

3. Appendix

3.1 Oracle GL Adapter Installation Documents

Please refer [ADOGL_Installation_FCUBSV.UM7.2.0.0.0.0.doc](#).



Oracle GL Adapter IBM WebSphere MQ Installation
[May] [2016]
Version 12.2.0.0.0

Oracle Financial Services Software Limited
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