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# BI Publisher 11g Scheduling & Apache ActiveMQ as JMS Provider

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## Introduction

With the introduction of Oracle Business Intelligence Publisher 11g, the Oracle Business Intelligence Publisher scheduler uses the Java Messaging Service (JMS) queue technology. This allows BI Publisher to dedicate one or more BI Publisher servers exclusively for particular functions such as report generation, document generation or high demand delivery channels (FTP, Fax, WebDAV etc.). The default JMS provider for Oracle Business Intelligence Publisher 11g is Weblogic JMS. Alternatively Apache ActiveMQ can be configured as JMS provider.

This white paper describes the following in detail:

- Adding managed BI Publisher Servers
- Configuring cluster instances
- Procedure to use Apache ActiveMQ as JMS provider
- Failover process

## BI Publisher 11g Scheduler Architecture

BI Publisher 11g scheduler is a highly scalable, highly performing and robust report scheduling and delivery system. From submitting the job to delivery of the reports it's a multi step process which also supports failover. The scheduler architecture is depicted through the following diagram.

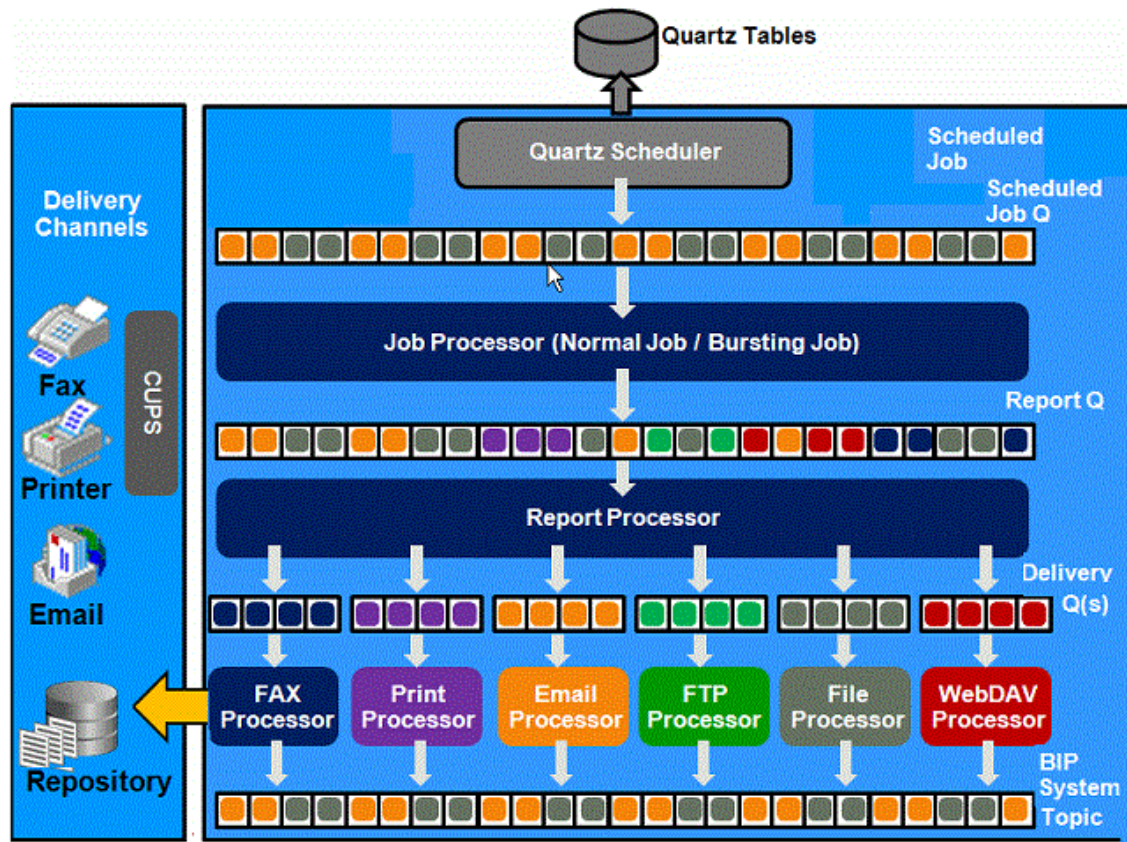


Figure1. Scheduler Architecture

As soon as the user submits a job, the job information is stored in the Quartz tables. Also the necessary triggers are created to run the job, depending on the date, time and frequency at which the job needs to be executed.

A scheduled job is then executed by the Quartz trigger. The job then moves into the scheduler job queue. The job processor then determines whether a particular job needs to be handled by bursting engine or batch job process. This solely depends on whether the job was scheduled for bursting or batch processing. At this stage the job is picked up by the respective engine/process and the business logic is executed. The report metadata is generated and captured into Report Queue.

JMS messages are used  
for job submission,  
generation and delivery.

Once the report metadata is captured into Report Queue, the Report Processor comes into action. The job of the Report Processor is to keep listening to the Report Queue and generate the reports based on the metadata available. Once the report is generated it then passes on the delivery related information to Delivery Queue.

The job of the Delivery Processors is to listen to the Delivery Queue and then deliver the report using respective Delivery API(S).

## Apache ActiveMQ as JMS Provider

Oracle Business Intelligence Publisher 11g uses Weblogic JMS by default. The scheduler database is installed through Repository Creation Utility (RCU), and the reports are ready for scheduling. Depending on the need, Apache ActiveMQ can be used as JMS provider as well. Oracle recommends to use Apache ActiveMQ 5.2.0 or later. All the examples used in this white paper are for Oracle Business Intelligence Publisher 11g (11.1.1.5) and Apache ActiveMQ 5.5.0.

### Download & Install ActiveMQ

Download and install the ActiveMQ software for the respective platform from Apache. Once installed ensure that ActiveMQ is running. The installation and startup steps are available at <http://activemq.apache.org/>

ActiveMQ queues are accessed using JNDI by default. All the examples in this whitepaper use the default JNDI URL. To alter this default configuration, make modifications to *activemq.xml* found in the *<ActiveMQ\_Home>/conf* directory (example: apache-activemq-5.5.0/conf)

If ActiveMQ is chosen as alternative JMS provider, Oracle recommends to use Apache ActiveMQ 5.2.0 or later.

### Configure ActiveMQ for BI Publisher

Log into Business Intelligence as administrator (example: weblogic) using *<server\_name>:port/xmlpserver* (example: *http://orabizint:9704/xmlpserver*). Click on Administration and Manage BI Publisher. Under System Maintenance click on Scheduler Configuration. The default JMS configuration can be viewed from this page.

The screenshot displays the 'JMS Configuration' interface. It features a dropdown menu for 'JMS Provider' set to 'WebLogic'. Below it is a text input field for 'WebLogic JNDI URL' containing 't3://xpone:9704'. The 'Threads Per JMS Processor' is set to '5' in a text input field. There is an empty text input field for 'Shared Directory'. At the bottom of the configuration area is a 'Test JMS' button.

**Figure2. Default JMS Configuration**

To change the JMS provider click on JMS Provider drop down list and choose ActiveMQ. Click on Test JMS button and ensure JMS test completes successfully. Click on Apply button to apply the changes. Log out of Oracle BI and restart.

The screenshot displays the Oracle BI Publisher Enterprise Administration console. The page title is "Administration > Scheduler Configuration". A confirmation message at the top states "Confirmation: JMS test successfully.". The "System Maintenance" section includes tabs for "Server Configuration", "Scheduler Configuration", and "Scheduler Diagnostics". The "Scheduler Selection" section shows the "Scheduler" dropdown set to "Quartz" and the "Quartz Clustering" checkbox unchecked. The "Database Connection" section shows "Database Connection Type" as "jndi", "JNDI Name" as "jdbc/bip\_datasource", and buttons for "Test Connection" and "Install Schema". The "JMS Configuration" section shows "JMS Provider" as "ActiveMQ", "ActiveMQ URL" as "failover://tcp://localhost:61616", "Threads Per JMS Processor" as "5", and "Shared Directory" as an empty field. The "Test JMS" button is highlighted with a red box and a red arrow pointing to it.

Figure3. Configuring ActiveMQ as JMS



## ActiveMQ Console

Start ActiveMQ Console to check whether the configuration done in the BI Publisher is recognized in ActiveMQ. When everything is setup correctly, the ActiveMQ Console lists the BI Server host name and the Broker details here.

ActiveMQ

The Apache Software Foundation  
<http://www.apache.org/>

Home | Queues | Topics | Subscribers | Connections | Network | Scheduled | Send Support

### Welcome!

Welcome to the ActiveMQ Console of **localhost** (ID:OraBizInt-2378-1317661291250-0:1)

You can find more information about ActiveMQ on the [Apache ActiveMQ Site](#)

### Broker

Name	localhost
Version	5.5.0
ID	ID:OraBizInt-2378-1317661291250-0:1
Store percent used	0
Memory percent used	0
Temp percent used	0

Queue Views

- Graph
- XML

Topic Views

- XML

Useful Links

- Documentation
- FAQ
- Downloads
- Forums

Copyright 2005-2011 The Apache Software Foundation. ([printable version](#))

**Figure4. ActiveMQ Console**

The next step is to check whether all the queues are created properly in the ActiveMQ.

From the ActiveMQ Console home page, click on Queues to view the default queues created for BI Publisher scheduler integration. Notice the queues created for Bursting, Report, Email, Fax etc.

The screenshot displays the ActiveMQ console interface. At the top, there is a navigation bar with links: Home | Queues | Topics | Subscribers | Connections | Network | Scheduled | Send. Below this is a search bar for 'Queue Name' and a 'Create' button. The main content area is titled 'Queues' and contains a table with the following data:

Name ↑	Number Of Pending Messages	Number Of Consumers	Messages Enqueued	Messages Dequeued	Views	Operations
BIP.Burst.Job.Q	0	0	0	0	Browse Active Consumers atom rss	Send To Purge Delete
BIP.Burst.Report.Q	0	0	0	0	Browse Active Consumers atom rss	Send To Purge Delete
BIP.Delivery.Email.Q	0	0	0	0	Browse Active Consumers atom rss	Send To Purge Delete
BIP.Delivery.Fax.Q	0	0	0	0	Browse Active Consumers atom rss	Send To Purge Delete
BIP.Delivery.File.Q	0	0	0	0	Browse Active Consumers atom rss	Send To Purge Delete
BIP.Delivery.FTP.Q	0	0	0	0	Browse Active Consumers atom rss	Send To Purge Delete
BIP.Delivery.Print.Q	0	0	0	0	Browse Active Consumers atom rss	Send To Purge Delete
BIP.Delivery.WebDAV.Q	0	0	0	0	Browse Active Consumers atom rss	Send To Purge Delete
example.A	0	1	0	0	Browse Active Consumers atom rss	Send To Purge Delete

On the right side of the console, there is a sidebar with the following sections:

- Queue Views**
  - Graph
  - XML
- Topic Views**
  - XML
- Useful Links**
  - Documentation
  - FAQ
  - Downloads
  - Forums

At the bottom of the console, there is a footer: Copyright 2005-2011 The Apache Software Foundation. (editable version)

Figure5. ActiveMQ BI Publisher Scheduler Queues

The next section describes the process of adding a managed server to Weblogic.

## Add Managed Server

Log into Weblogic Administration Console using `<server_name>:port/console` (example: `http://orabizint:7001/console`) with an admin account (example: `weblogic`). Under Environment choose Servers. Click on Lock & Edit. Click on New. Enter the details such as Machine Name, Server Name (example: `bi_server2`), Server Listen Port (example: `9705`) etc.

There are 3 options under “Should this server belong to a cluster?” section. To leave the server as a stand-alone server, choose: “No, this is a stand-alone server”. To make this server member of an existing cluster choose an existing cluster name by selecting: “Yes, make this server a member of an existing cluster”. To create a new cluster and make this server first member of the new cluster choose: “Yes, create a new cluster for this server”.

This example uses the existing default cluster “`bi_cluster`”. Click Next button. Review the choices made and click on Finish. The filled in details should look similar to the following screen





<b>Name:</b>	<code>bi_server2</code>	An alphanumeric name for this server instance. <a href="#">More Info...</a>
 <b>Machine:</b>	<code>OraBizInt</code>	The WebLogic Server host computer (machine) on which this server is meant to run. <a href="#">More Info...</a>
 <b>Cluster:</b>	<code>bi_cluster</code>	The cluster, or group of WebLogic Server instances, to which this server belongs. <a href="#">More Info...</a>
 <b>Listen Address:</b>		The IP address or DNS name this server uses to listen for incoming connections. <a href="#">More Info...</a>
<input checked="" type="checkbox"/> <b>Listen Port Enabled</b>		Specifies whether this server can be reached through the default plain-text (non-SSL) listen port. <a href="#">More Info...</a>
<b>Listen Port:</b>	<code>9705</code>	The default TCP port that this server uses to listen for regular (non-SSL) incoming connections. <a href="#">More Info...</a>
<input type="checkbox"/> <b>SSL Listen Port Enabled</b>		Indicates whether the server can be reached through the default SSL listen port. <a href="#">More Info...</a>
<b>SSL Listen Port:</b>	<code>7002</code>	The TCP/IP port at which this server listens for SSL connection requests. <a href="#">More Info...</a>
<input type="checkbox"/>  <b>Client Cert Proxy Enabled</b>		Specifies whether the HttpClusterServlet proxies the client certificate in a special header. <a href="#">More Info...</a>
<b>Java Compiler:</b>	<code>javac</code>	The Java compiler to use for all applications hosted on this server that need to compile Java code. <a href="#">More Info...</a>
<b>Diagnostic Volume:</b>	<code>Low</code>	Specifies the volume of diagnostic data that is automatically produced by WebLogic Server at run time. Note that the WLDLF diagnostic volume setting does not affect explicitly configured diagnostic modules. For example, this controls the volume of events generated for JRockit Flight Recorder. <a href="#">More Info...</a>

Figure6. Managed Server Details

## Start Managed Server

Once the new server is created click on Release Configuration. Click on the Control tab to select the server. Notice that the default state is Shutdown. Click on Start button to start the new server. The state then changes to Starting. Once the server is up and running the state changes to Running.

For further details on how to add a managed server, refer to Adding Managed Server section of Oracle Fusion Middleware Administrator's Guide for Oracle Business Intelligence Publisher.

The screenshot shows the Administration Console interface. At the top, there's a navigation bar with 'Home', 'Log Out', 'Preferences', 'Record', and 'Help'. The user is logged in as 'weblogic' and connected to 'bifoundation\_domain'. The breadcrumb trail indicates the current location: 'Home > Summary of Clusters > Summary of Servers > Summary of Machines > Summary of JMS Servers > BipJmsServer > Summary of JMS Servers > BipJmsServer > Monitoring > BipJmsServer > Summary of Servers'.

The main content area is titled 'Summary of Servers' and has two tabs: 'Configuration' and 'Control'. Below the tabs, there's a warning message: 'Use this page to change the state of the servers in this WebLogic Server domain. Control operations on Managed Servers require starting the Node Manager. Starting Managed Servers in Standby mode requires the domain-wide administration port.'

There's a 'Customize this table' link and a section for 'Servers (Filtered - More Columns Exist)'. This section includes a toolbar with buttons for 'Start', 'Resume', 'Suspend', 'Shutdown', and 'Restart SSL'. Below the toolbar is a table with the following data:

Server	Machine	State	Status of Last Action
AdminServer(admin)	OraBizInt	RUNNING	None
bi_server1	OraBizInt	RUNNING	None
<input checked="" type="checkbox"/> bi_server2	OraBizInt	RUNNING	TASK COMPLETED

At the bottom of the table, there's another toolbar with 'Start', 'Resume', 'Suspend', 'Shutdown', and 'Restart SSL' buttons. The 'Start' button for the selected 'bi\_server2' row is highlighted with a red box. The page also shows 'Showing 1 to 3 of 3' and 'Previous | Next' navigation options.

Figure7. Starting Managed Server

## Configuring BI Publisher Cluster Instances

Log into Business Intelligence as administrator (example: weblogic). Click on Administration and Manage BI Publisher. Under System Maintenance click on Scheduler Configuration. Notice the second instance added under Cluster Instances. For this example the first instance is used exclusively for JobProcessor and ReportProcessor. The second instance is used exclusively for FTPProcessor. The JobProcessor and ReportProcessor are both allocated with two threads each. The FTPProcessor is allocated with 5 threads.

JMS Provider:

ActiveMQ URL:

Threads Per JMS Processor:

Shared Directory:

---

**Cluster Instances**

Instance Name:

Instance ID:

JMS Processor	Enable	Number Threads
JobProcessor	<input checked="" type="checkbox"/>	2
ReportProcessor	<input checked="" type="checkbox"/>	2
EmailProcessor	<input type="checkbox"/>	
FileProcessor	<input type="checkbox"/>	
FTPProcessor	<input type="checkbox"/>	
PrintProcessor	<input type="checkbox"/>	
WebDavProcessor	<input type="checkbox"/>	
FaxProcessor	<input type="checkbox"/>	

Instance Name:

Instance ID:

JMS Processor	Enable	Number Threads
JobProcessor	<input type="checkbox"/>	
ReportProcessor	<input type="checkbox"/>	
EmailProcessor	<input type="checkbox"/>	
FileProcessor	<input type="checkbox"/>	
FTPProcessor	<input checked="" type="checkbox"/>	5
PrintProcessor	<input type="checkbox"/>	
WebDavProcessor	<input type="checkbox"/>	
FaxProcessor	<input type="checkbox"/>	

Figure8. Configuring The Cluster Instances

## Test Scheduler Configuration

The next step is to test the configuration by running two different jobs one without delivery option and the other with FTP as delivery option. Schedule a report (this example uses Product Listing). Ensure the job is completed successfully. Open ActiveMQ Console and click on Queues tab. Notice that the Job/Report queues have messages Enqueued/Dequeued.

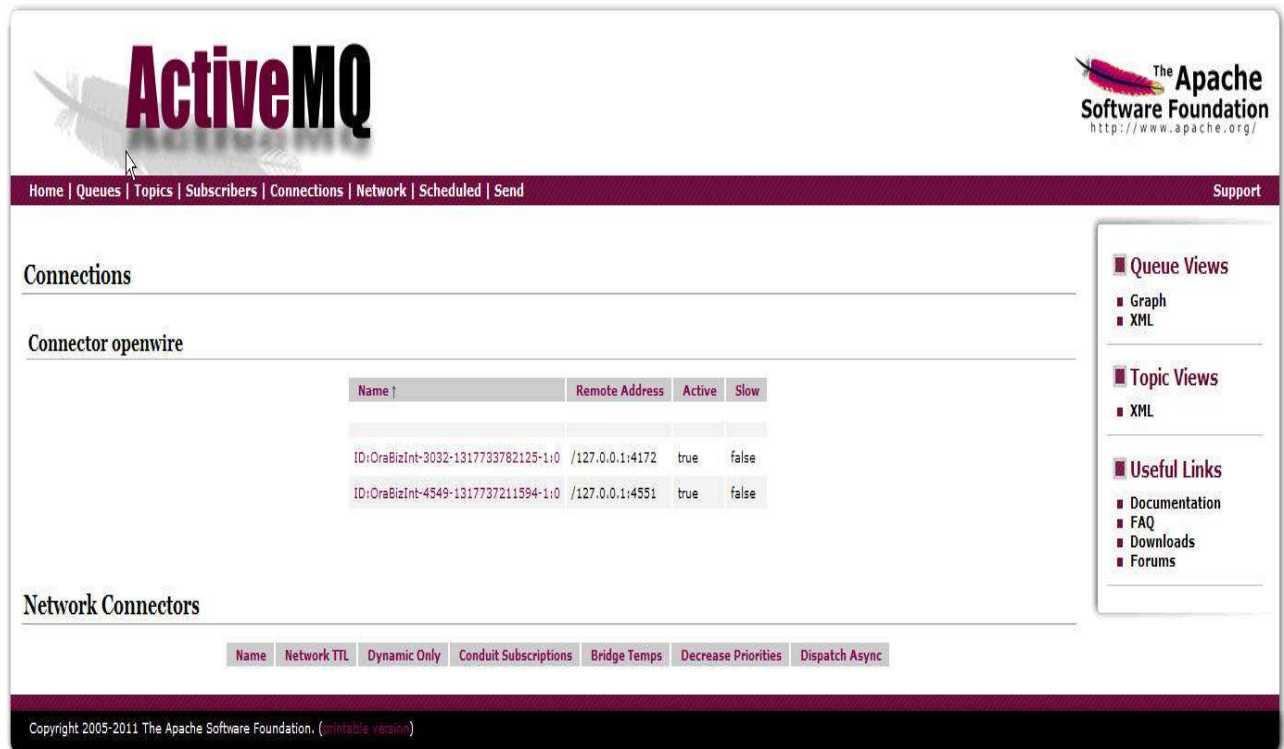
The screenshot displays the ActiveMQ console interface. At the top, there is a navigation bar with links for Home, Queues, Topics, Subscribers, Connections, Network, Scheduled, and Send. A search bar for Queue Name is present. The main content area shows a table of queues with the following data:

Name	Number Of Pending Messages	Number Of Consumers	Messages Enqueued	Messages Dequeued	Views	Operations
BIP.Burst.Job.Q	0	1	1	1	Browse Active Consumers atom rss	Send To Purge Delete
BIP.Burst.Report.Q	0	1	1	1	Browse Active Consumers atom rss	Send To Purge Delete
BIP.Delivery.Email.Q	0	0	0	0	Browse Active Consumers atom rss	Send To Purge Delete
BIP.Delivery.Fax.Q	0	0	0	0	Browse Active Consumers atom rss	Send To Purge Delete
BIP.Delivery.File.Q	0	0	0	0	Browse Active Consumers atom rss	Send To Purge Delete
BIP.Delivery.FTP.Q	0	1	0	0	Browse Active Consumers atom rss	Send To Purge Delete
BIP.Delivery.Print.Q	0	0	0	0	Browse Active Consumers atom rss	Send To Purge Delete
BIP.Delivery.WebDAV.Q	0	0	0	0	Browse Active Consumers atom rss	Send To Purge Delete
example.A	0	1	0	0	Browse Active Consumers atom rss	Send To Purge Delete

The sidebar on the right contains sections for Queue Views (Graph, XML), Topic Views (XML), and Useful Links (Documentation, FAQ, Downloads, Forums). The footer indicates Copyright 2009-2011 The Apache Software Foundation.

Figure9. ActiveMQ Queues

Click on Connections to verify that two active connections are now available representing the two nodes of bi\_cluster. The next step is to schedule the report with FTP as delivery option.



The screenshot displays the Apache ActiveMQ web console interface. At the top, the ActiveMQ logo is on the left, and the Apache Software Foundation logo with the URL <http://www.apache.org/> is on the right. A navigation bar below the logos contains links: Home | Queues | Topics | Subscribers | Connections | Network | Scheduled | Send. The 'Connections' link is highlighted. On the far right of the navigation bar is a 'Support' link.

The main content area is titled 'Connections'. Below this title, there is a sub-section for 'Connector openwire'. A table lists active connections:

Name ↑	Remote Address	Active	Slow
ID:OraBizInt-3032-1317733782125-1:0	/127.0.0.1:4172	true	false
ID:OraBizInt-4549-1317737211594-1:0	/127.0.0.1:4551	true	false

Below the table, there is a section for 'Network Connectors' with several filter buttons: Name, Network TTL, Dynamic Only, Conduit Subscriptions, Bridge Temps, Decrease Priorities, and Dispatch Async.

On the right side of the page, there is a sidebar with three sections: 'Queue Views' (with links for Graph and XML), 'Topic Views' (with a link for XML), and 'Useful Links' (with links for Documentation, FAQ, Downloads, and Forums).

At the bottom of the page, a footer contains the text: Copyright 2005-2011 The Apache Software Foundation. (printable version)

Figure10. ActiveMQ Connections

Schedule the report Product Listing by choosing the delivery option as FTP. Ensure the job is completed successfully. The next step is to check the ActiveMQ Console for the queues. The queues now depict that there are two messages Enqueued/Dequeued for Job/Report queues. One message is Enqueued/Dequeued for FTP.

The screenshot shows the ActiveMQ console interface. At the top, there is a navigation bar with links for Home, Queues, Topics, Subscribers, Connections, Network, Scheduled, and Send. Below this is a search bar for Queue Name and a Create button. The main content area is titled 'Queues' and contains a table with the following data:

Name ↑	Number Of Pending Messages	Number Of Consumers	Messages Enqueued	Messages Dequeued	Views	Operations
BIP.Burst.Job.Q	0	1	2	2	Browse Active Consumers atom rss	Send To Purge Delete
BIP.Burst.Report.Q	0	1	2	2	Browse Active Consumers atom rss	Send To Purge Delete
BIP.Delivery.Email.Q	0	0	0	0	Browse Active Consumers atom rss	Send To Purge Delete
BIP.Delivery.Fax.Q	0	0	0	0	Browse Active Consumers atom rss	Send To Purge Delete
BIP.Delivery.File.Q	0	0	0	0	Browse Active Consumers atom rss	Send To Purge Delete
BIP.Delivery.FTP.Q	0	1	1	1	Browse Active Consumers atom rss	Send To Purge Delete
BIP.Delivery.Print.Q	0	0	0	0	Browse Active Consumers atom rss	Send To Purge Delete
BIP.Delivery.WebDAV.Q	0	0	0	0	Browse Active Consumers atom rss	Send To Purge Delete
example.A	0	1	0	0	Browse Active Consumers atom rss	Send To Purge Delete

On the right side of the console, there are sections for Queue Views (Graph, XML), Topic Views (XML), and Useful Links (Documentation, FAQ, Downloads, Forums).

Figure11. ActiveMQ Queues After FTP is Used



Click on Connections and check both the connections to understand that the FTP is handled by the newly added managed server.

**ActiveMQ** The Apache Software Foundation <http://www.apache.org/>

Home | Queues | Topics | Subscribers | Connections | Network | Scheduled | Send Support

**Connection ID: OraBizInt-1927-1316709440768-2:0**

Connection ID: ID:OraBizInt-1927-1316709440768-2:0  
 Remote Address: /127.0.0.1:4493  
 Active: true  
 Connected: true  
 Blocked: false  
 Slow: false

**Consumers**

Destination ↓	SessionId	Selector	Enqueues	Dequeues	Dispatched	Dispatched Queue	Max pendingPrefetch	RetroactiveExclusive
Queue BIP.Burst.Job.Q	14		2	2	2	0	1000 0	false false
Queue BIP.Burst.Report.Q	15		2	2	2	0	1000 0	false false
Topic BIP.System.T	2		962	963	962	-1	32766 0	false false
Topic topic://ActiveMQ.Advisory.TempQueue.topic://ActiveMQ.Advisory.TempTopic	-1		0	0	0	0	1000 0	false false

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- Queue Views
  - Graph
  - XML
- Topic Views
  - XML
- Useful Links
  - Documentation
  - FAQ
  - Downloads
  - Forums

Figure12. ActiveMQ Queues for Report/Job Queues

**ActiveMQ** The Apache Software Foundation <http://www.apache.org/>

Home | Queues | Topics | Subscribers | Connections | Network | Scheduled | Send Support

**Connection ID: OraBizInt-2285-1316710596409-1:0**

Connection ID: ID:OraBizInt-2285-1316710596409-1:0  
 Remote Address: /127.0.0.1:4492  
 Active: true  
 Connected: true  
 Blocked: false  
 Slow: false

**Consumers**

Destination ↓	SessionId	Selector	Enqueues	Dequeues	Dispatched	Dispatched Queue	Max pendingPrefetch	RetroactiveExclusive
Queue BIP.Delivery.FTP.Q	14		1	1	1	0	1000 0	false false
Topic BIP.System.T	2		951	951	951	0	32766 0	false false
Topic topic://ActiveMQ.Advisory.TempQueue.topic://ActiveMQ.Advisory.TempTopic	-1		0	0	0	0	1000 0	false false

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- Queue Views
  - Graph
  - XML
- Topic Views
  - XML
- Useful Links
  - Documentation
  - FAQ
  - Downloads
  - Forums

Figure13. ActiveMQ Queues for FTP

## Failover Process

The BI Publisher clustering mechanism allows administrators to add more nodes to the required processes on demand. By adding nodes to the cluster, BI Publisher ensures that no report fails to deliver due to server unavailability.

The administrators have to arrive at the number of nodes required for each process for load balancing. The Scheduler Diagnostics page provides good help in arriving at this. In the event of failure of a node in the cluster the other node assigned for the same process will take over. In the above example, if more managed servers are added for FTP, this process will continue even after failure of a particular node.

From the Oracle Business Intelligence home page, click on Administration and Manage BI Publisher. Under System Maintenance click on Scheduler Diagnostics.

<b>--Cluster</b>		Passed
<b>----Instance - OraBizInt.1316707787581</b>		Passed
-----JMS Instance Config	E:\BI11G\user_projects\domains\bifoundation_domain\servers\bi_server1\tmp\_WL_user\bipublisher_11.1.1\to5gma\war\WEB-INF\jms_config.xml	Passed
-----JMSWrapper	Started (Tue Oct 04 10:06:54 EDT 2011)	Passed
-----JMSClient - system	Started; BIP.System.T: 894 sent, 0 failed	Passed
-----JMSProcessor - ClusterMessageListener	Started; BIP.System.T; 1 threads; 1787 received, 0 failed, 0 running	Passed
-----JMSClient - jmsclient_producer	Started; BIP.Burst.Job.Q: 2 sent, 0 failed; BIP.Burst.Report.Q: 2 sent, 0 failed; BIP.Delivery.FTP.Q: 1 sent, 0 failed	Passed
-----JMSClient - jmsclient_schedule	Started	Passed
-----JMSProcessor - JobProcessor	Started; BIP.Burst.Job.Q: 2 threads; 2 received, 0 failed, 0 running	Passed
-----JMSProcessor - ReportProcessor	Started; BIP.Burst.Report.Q: 2 threads; 2 received, 0 failed, 0 running	Passed
<b>----Instance - OraBizInt.1316710596237</b>	Status updated (Tue Oct 04 13:53:48 EDT 2011)	Passed
-----JMS Instance Config	E:\BI11G\user_projects\domains\bifoundation_domain\servers\bi_server2\tmp\_WL_user\bipublisher_11.1.1\zh0bkz\war\WEB-INF\jms_config.xml	Passed
-----JMSWrapper	Started (Tue Oct 04 09:48:18 EDT 2011)	Passed
-----JMSClient - system	Started; BIP.System.T: 965 sent, 0 failed	Passed
-----JMSProcessor - ClusterMessageListener	Started; BIP.System.T; 1 threads; 1858 received, 0 failed, 0 running	Passed
-----JMSClient - jmsclient_producer	Started	Passed
-----JMSClient - jmsclient_delivery	Started	Passed
-----JMSProcessor - FTPProcessor	Started; BIP.Delivery.FTP.Q: 5 threads; 1 received, 0 failed, 0 running	Passed
<b>--Database</b>		Passed
<b>----Database Config</b>	E:\BI11G\user_projects\domains\bifoundation_domain\config\bipublisher/repository/Admin/Scheduler/database-config.xml	Passed
-----Connection Type	jndi	Info
-----JNDI Name	jdbc/bip_datasource	Info
<b>----Toplink Config</b>	E:\BI11G\user_projects\domains\bifoundation_domain\config\bipublisher/repository/Admin/Scheduler/database-config.xml	Passed

Figure14. Scheduler Diagnostics Page

## Conclusion

BI Publisher 11g provides advanced and robust scheduling mechanism. Load balancing and failover processes are supported by adding Weblogic managed servers and managing the clusters. The report repository and the scheduler database are shared across the multiple instances. JMS is used for report job submission, report generation and report delivery to different destinations. In addition to the default Weblogic JMS provider, BI Publisher 11g also supports Apache ActiveMQ.

Oracle consulting has had many experiences in implementing customized scheduling needs for various customers. If you're interested in Oracle consulting to discuss more in detail about the implementation and review of your reporting or scheduling needs, please contact Shankar Duvvuri (shankar.duvvuri@oracle.com), Senior Principal Consultant, Oracle ATS BI Delivery & BI Advanced Reporting group.



BI Publisher 11g Scheduling & Apache  
ActiveMQ as JMS Provider  
October 2011  
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