Active MQ Install – Linux

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Introduction

ActiveMQ is one of many Open Source Java Messaging implementation that supports multiple platforms as well as multiple languages.
Another notable Open JMS implementations are OpenMQ which is the reference implementation for JMS by Sun Microsystems/Oracle, which I have used for several years under my work at Sun, but its time to explore what else is out there.

This tutorial forms the basis of my exploration of the Apache implementations of Open Source Enterprise Service Buses. The first being Apache Camel.

As I learn how to do implementations within the Open Source ESB products, I will be posting tutorials of my findings.

Messaging software forms the basis of an ESB implementation. It provides the capability divide and process asynchronously transactions. It also provides a method to scale implementations horizontally depending on the architecture of your solution.
It also provides one method to take advantage of multiprocessing capabilities of todays systems where we have multi-cores, multi-processors and multiple systems.

This tutorial is a first step tutorial and goes through the installation of ApacheMQ onto your system and verifying that the system works.

Installation of ActiveMQ

Requirements : Java JDK 1.6 or higher.

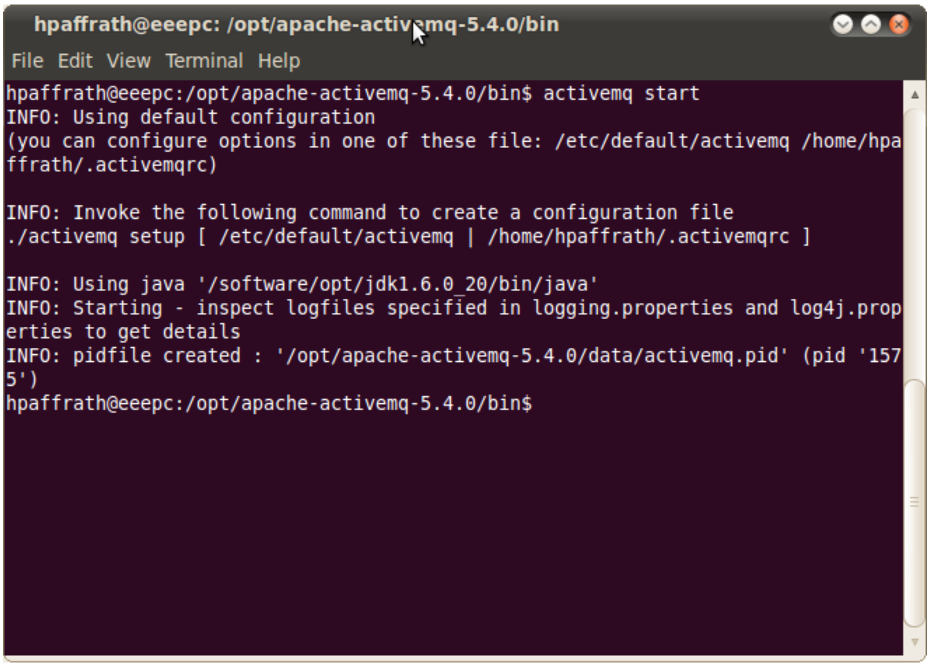
Download a copy of ActiveMQ from the Active MQ web site : http://activemq.apache.org/

Unzip the file, currently the latest version of ActiveMQ has the filename apache-activemq-5.4.0-bin.tar.gz for linux.

Place this extracted directory into the directory where you would like to run ActiveMQ. My preference is in the /opt directory on Linux.

Change to the “/opt/apache-activemq-5.4.0/bin/ directory and run “activemq start”.

You should get the following output.

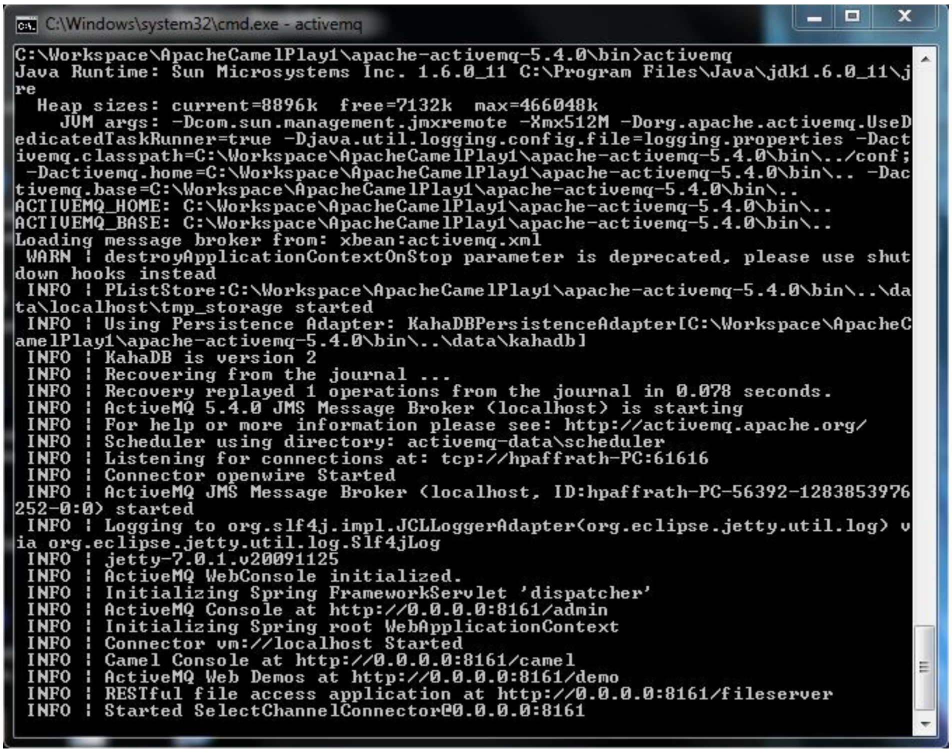

hpaffrath@eeepc: /opt/apache-activemq-5.4.0/bin
File Edit View Terminal Help

```
hpaffrath@eeepc:/opt/apache-activemq-5.4.0/bin$ activemq start
INFO: Using default configuration
(you can configure options in one of these file: /etc/default/activemq /home/hpa
ffrath/.activemqrc)

INFO: Invoke the following command to create a configuration file
./activemq setup [ /etc/default/activemq | /home/hpaffrath/.activemqrc ]

INFO: Using java '/software/opt/jdk1.6.0_20/bin/java'
INFO: Starting - inspect logfiles specified in logging.properties and log4j.prop
erties to get details
INFO: pidfile created : '/opt/apache-activemq-5.4.0/data/activemq.pid' (pid '157
5')
hpaffrath@eeepc:/opt/apache-activemq-5.4.0/bin$
```

For Windows, things are a little different, you just need to run “activemq” without the start option. This will start ActiveMQ in a terminal window. You will also not get the prompt back.
about:home



```
C:\Workspace\ApacheCamelPlay1\apache-activemq-5.4.0\bin>activemq
Java Runtime: Sun Microsystems Inc. 1.6.0_11 C:\Program Files\Java\jdk1.6.0_11\j
re
  Heap sizes: current=8896k  free=7132k  max=466048k
    JVM args: -Dcom.sun.management.jmxremote -Xmx512M -Dorg.apache.activemq.UseD
edicatedTaskRunner=true -Djava.util.logging.config.file=logging.properties -Dact
ivemq.classpath=C:\Workspace\ApacheCamelPlay1\apache-activemq-5.4.0\bin\../conf;
 -Dactivemq.home=C:\Workspace\ApacheCamelPlay1\apache-activemq-5.4.0\bin\.. -Dac
tivemq.base=C:\Workspace\ApacheCamelPlay1\apache-activemq-5.4.0\bin\..
ACTIVEMQ_HOME: C:\Workspace\ApacheCamelPlay1\apache-activemq-5.4.0\bin\..
ACTIVEMQ_BASE: C:\Workspace\ApacheCamelPlay1\apache-activemq-5.4.0\bin\..
Loading message broker from: xbean:activemq.xml
 WARN | destroyApplicationContextOnStop parameter is deprecated, please use shut
down hooks instead
 INFO | PListStore:C:\Workspace\ApacheCamelPlay1\apache-activemq-5.4.0\bin\..\da
ta\localhost\tmp_storage started
 INFO | Using Persistence Adapter: KahaDBPersistenceAdapter[C:\Workspace\ApacheC
amelPlay1\apache-activemq-5.4.0\bin\..\data\kahadb]
 INFO | KahaDB is version 2
 INFO | Recovering from the journal ...
 INFO | Recovery replayed 1 operations from the journal in 0.078 seconds.
 INFO | ActiveMQ 5.4.0 JMS Message Broker (localhost) is starting
 INFO | For help or more information please see: http://activemq.apache.org/
 INFO | Scheduler using directory: activemq-data\scheduler
 INFO | Listening for connections at: tcp://hpaffrath-PC:61616
 INFO | Connector openwire Started
 INFO | ActiveMQ JMS Message Broker (localhost, ID:hpaffrath-PC-56392-1283853976
252-0:0) started
 INFO | Logging to org.slf4j.impl.JCLLoggerAdapter(org.eclipse.jetty.util.log) v
ia org.eclipse.jetty.util.log.Slf4jLog
 INFO | jetty-7.0.1.v20091125
 INFO | ActiveMQ WebConsole initialized.
 INFO | Initializing Spring FrameworkServlet 'dispatcher'
 INFO | ActiveMQ Console at http://0.0.0.0:8161/admin
 INFO | Initializing Spring root WebApplicationContext
 INFO | Connector vm://localhost Started
 INFO | Camel Console at http://0.0.0.0:8161/camel
 INFO | ActiveMQ Web Demos at http://0.0.0.0:8161/demo
 INFO | RESTful file access application at http://0.0.0.0:8161/fileserver
 INFO | Started SelectChannelConnector@0.0.0.0:8161
```

100%about:home
ActiveMQ has now been installed.

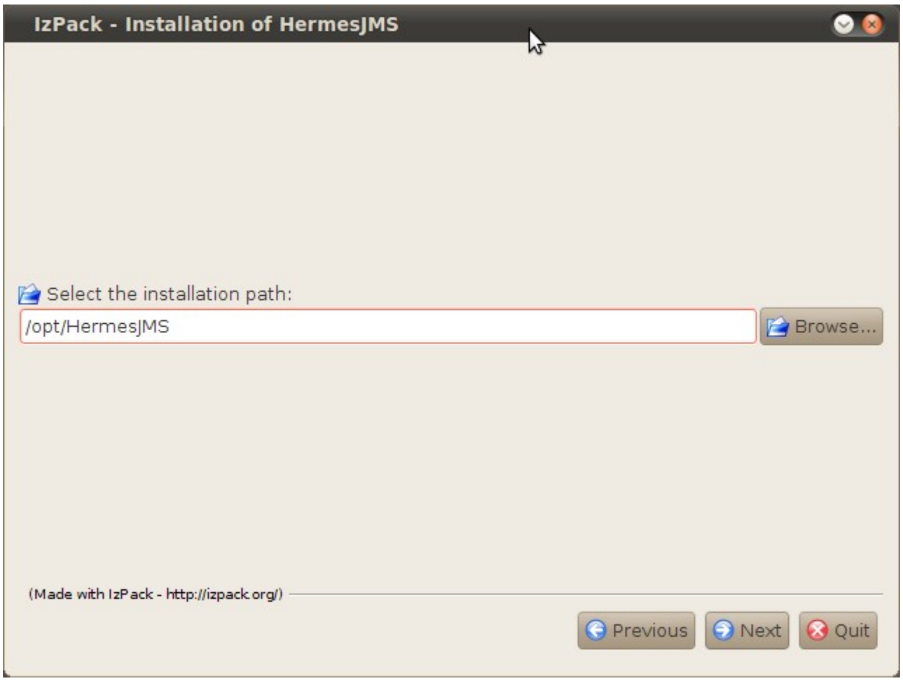
Installation of HermesJMS

The next thing that we are going to install is a program called HermesJMS.
HermesJMS is an open source JMS queue viewer and is compatible with qute a number of JMS queue implementations.

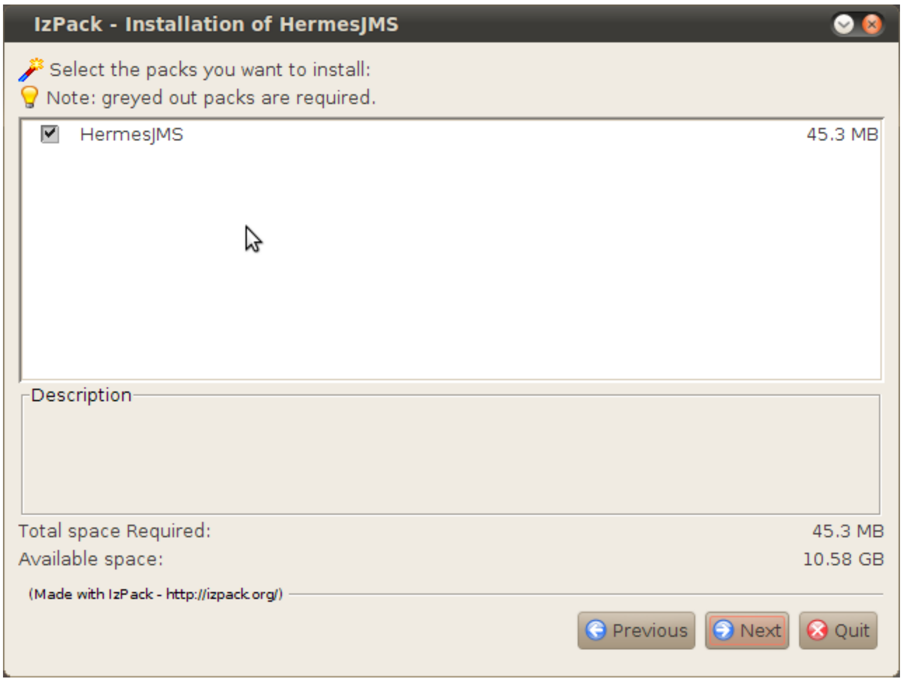
HermesJMS can be found at http://www.hermesjms.com

Once you have downloaded a copy of HermesJMS, run the installation wizard by executing...

```
java -jar hermes-installer-1.13.jar
```



IzPack - Installation of HermesJMS
Select the installation path:
/opt/HermesJMS
Browse...
(Made with IzPack - http://izpack.org/)
Previous
Next
Quit



IzPack - Installation of HermesJMS

Select the packs you want to install:

Note: greyed out packs are required.

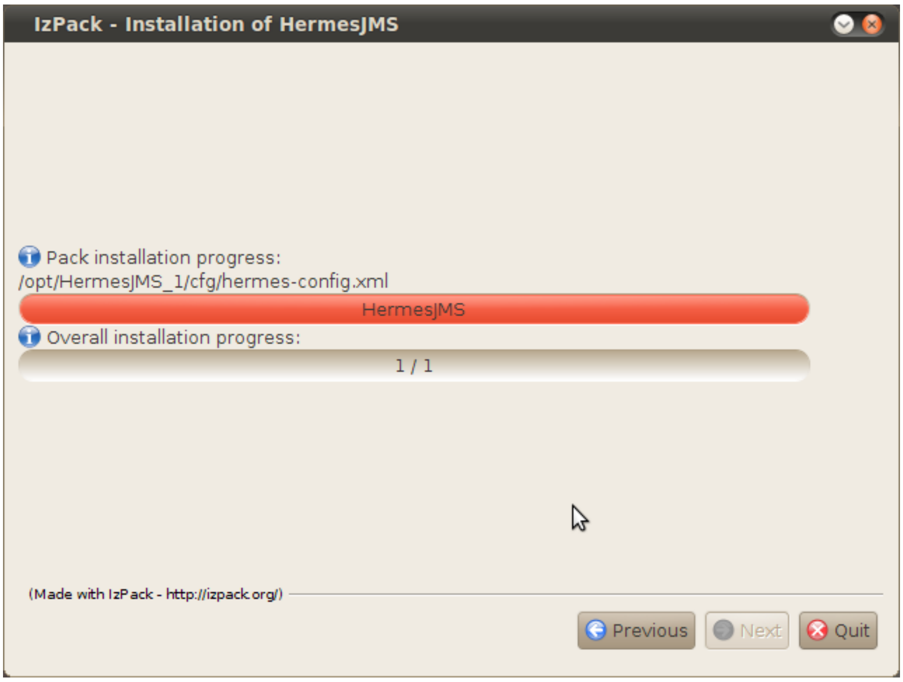
☑ HermesJMS 45.3 MB

Description

Total space Required: 45.3 MB

Available space: 10.58 GB

(Made with IzPack - http://izpack.org/)



IzPack - Installation of HermesJMS

Pack installation progress:

/opt/HermesJMS_1/cfg/hermes-config.xml

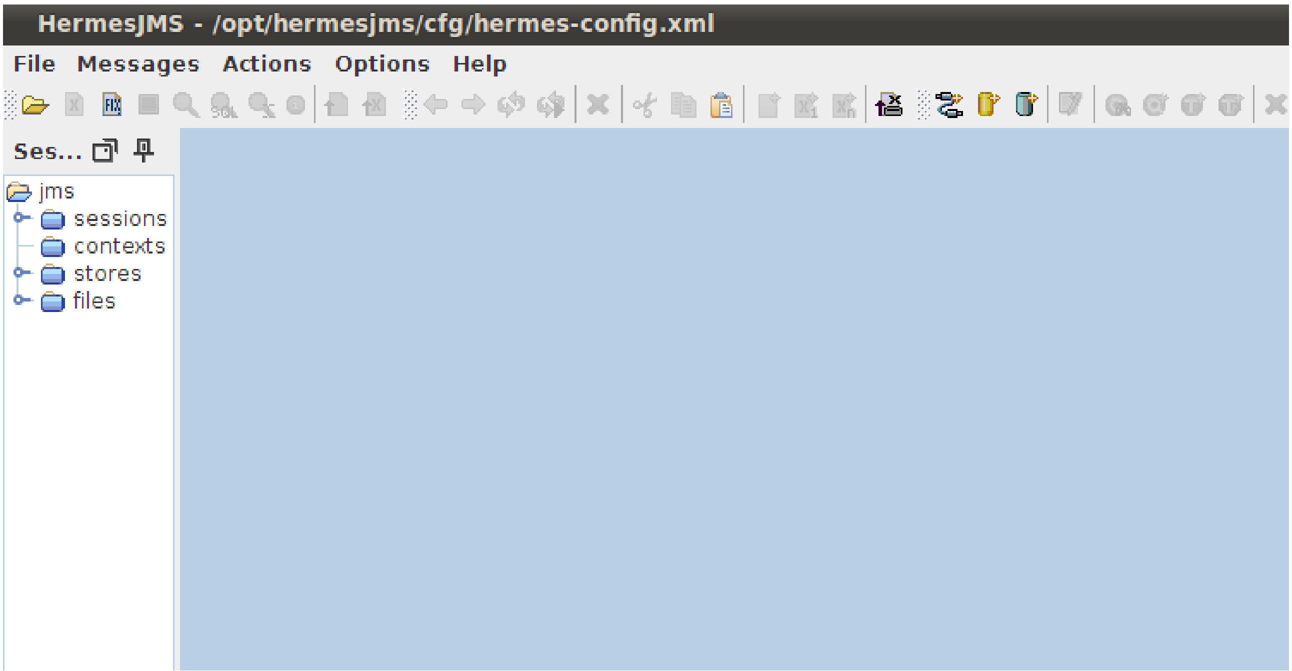
HermesJMS

Overall installation progress:

1 / 1

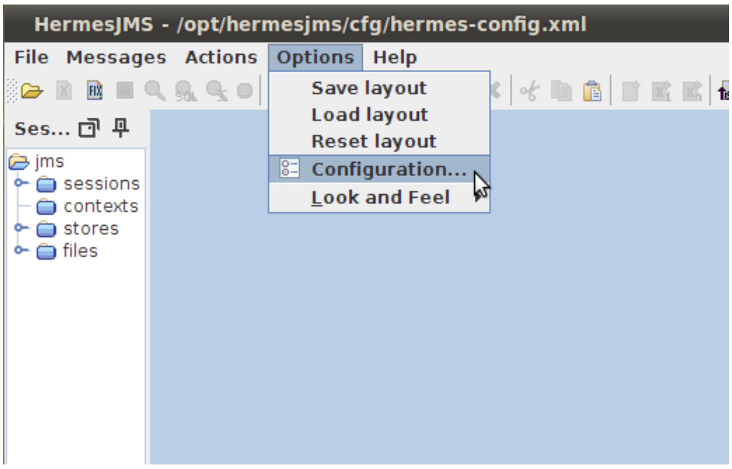
(Made with IzPack - http://izpack.org/)

To execute, run the hermes.bat in Windows or hermes.sh in Unix.

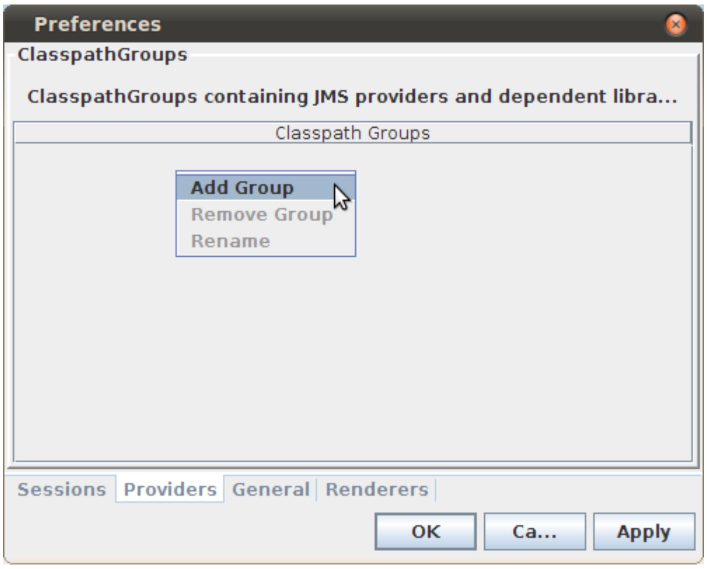


To configure HermesJMS to connect to ActiveMQ.

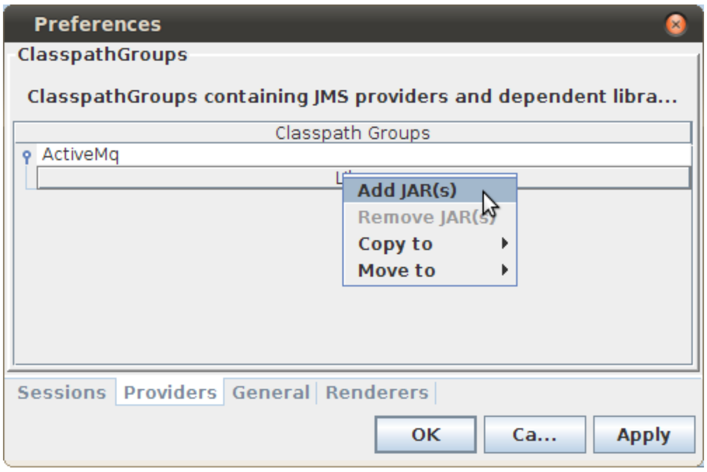
Select, Options, then Configuration



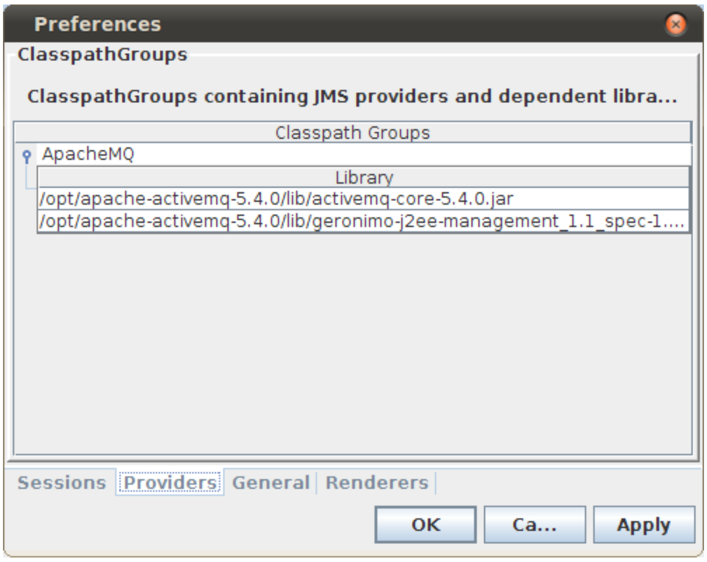
click on the “Providers” tab and then right click on the “Classpath Groups” area and select “Add Group”



Give the group, the name “ActiveMQ” and right click on the Library and click on “Add JAR(s)”.



Here we need to add the JARS required to communicate with Apache ActiveMQ.



Preferences

ClasspathGroups

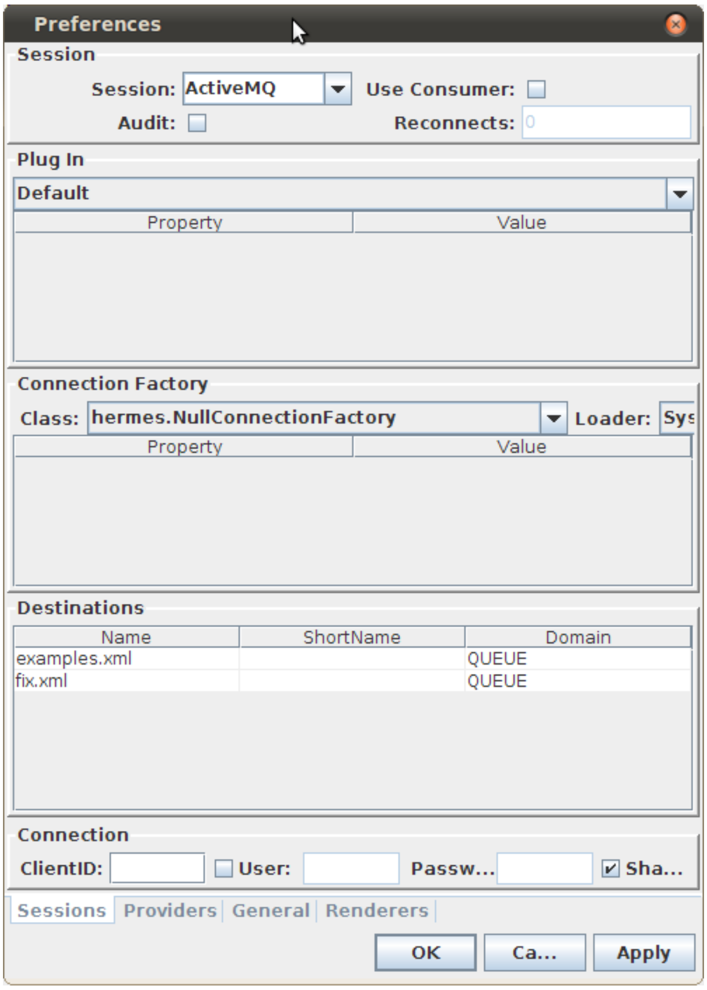
ClasspathGroups containing JMS providers and dependent libra...

Classpath Groups
ApacheMQ

Library
/opt/apache-activemq-5.4.0/lib/activemq-core-5.4.0.jar
/opt/apache-activemq-5.4.0/lib/geronimo-j2ee-management_1.1_spec-1....

Add the activemq-core-5.4.0.jar and the geronimo-j2ee-management_1.1_spec-1.0.1.jar files found in your activemq/lib directory.
These versions of the files are for ActiveMQ 5.4.0 and may differ depending on the version of ActiveMQ you have installed.

Next, select the Session tab and in the Session drop down box, enter a new session name called “ActiveMQ”.



Preferences

Session

Session: ActiveMQ Use Consumer: □
Audit: □ Reconnects: 0

Plug In

Default

Property	Value

Connection Factory

Class: hermes.NullConnectionFactory Loader: Sys

Property	Value

Destinations

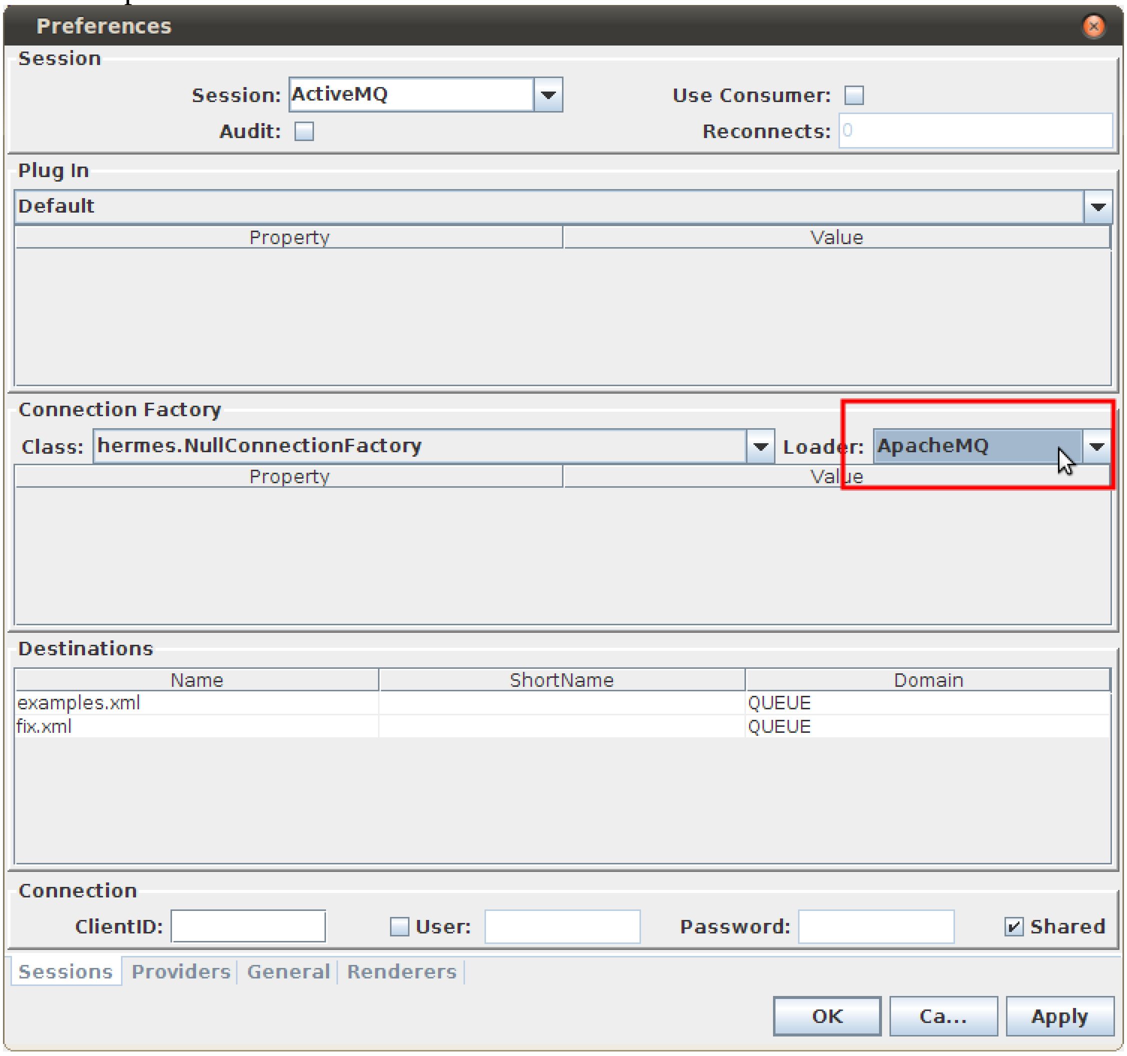
Name	ShortName	Domain
examples.xml		QUEUE
fix.xml		QUEUE

Connection

ClientID: □ User: Passw... ☑ Sha...

Under the “Loader”, select the ActiveMQ provider that we created above.

Under Connection Factory,
Select the org.apache.activemq.ActiveMQSslConnectionFactory and enter property brokerURL = tcp://localhost:61616



Session

Session: ActiveMQ
Use Consumer: □
Audit: □
Reconnects: 0

Plug In

Default

Property	Value

Connection Factory

Class: hermes.NullConnectionFactory
Loader: ApacheMQ

Property	Value

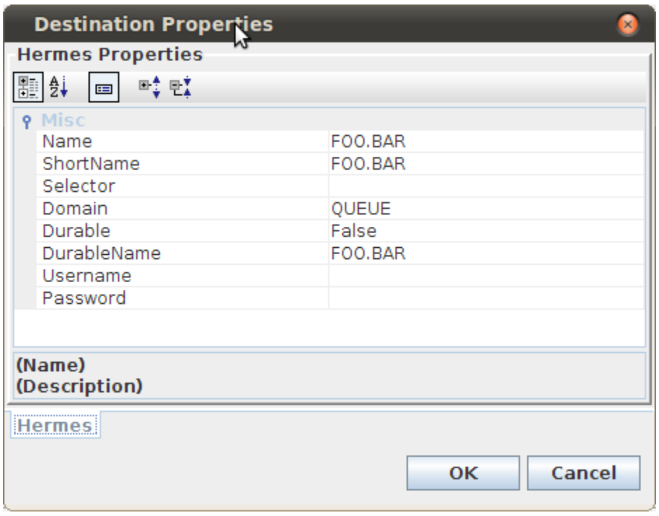
Destinations

Name	ShortName	Domain
examples.xml		QUEUE
fix.xml		QUEUE

Connection

ClientID:
□ User:
Password:
☑ Shared

Under Destinations, add the FOO.BAR queue



Hermes Properties

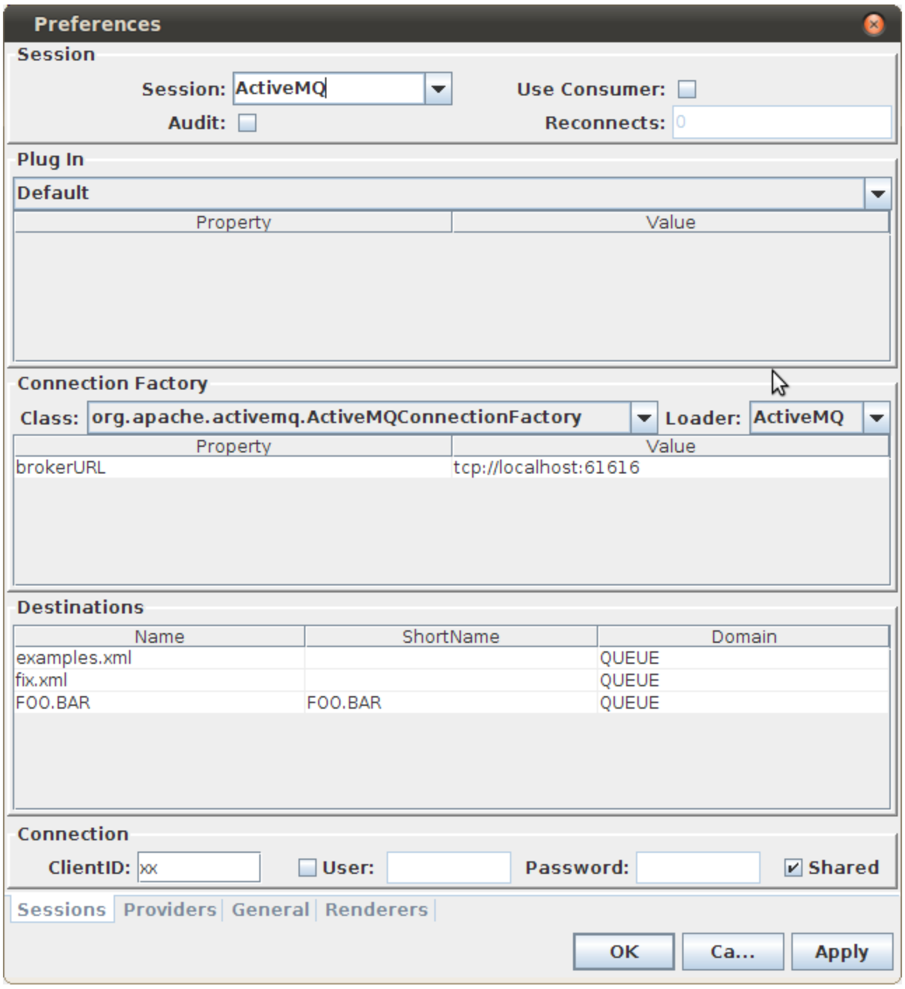
Misc

Name	FOO.BAR
ShortName	FOO.BAR
Selector	
Domain	QUEUE
Durable	False
DurableName	FOO.BAR
Username	
Password	

(Name)
(Description)

Finally, enter something in “client”. In this case “xx” We just need a value here. Anything will do.

You should now have a configuration that looks like the following.



Session

Session: ActiveMQ

Use Consumer: □

Audit: □

Reconnects: 0

Plug In

Default

Property	Value

Connection Factory

Class: org.apache.activemq.ActiveMQConnectionFactory

Loader: ActiveMQ

Property	Value
brokerURL	tcp://localhost:61616

Destinations

Name	ShortName	Domain
examples.xml		QUEUE
fix.xml		QUEUE
FOO.BAR	FOO.BAR	QUEUE

Connection

ClientID: xx

□ User:

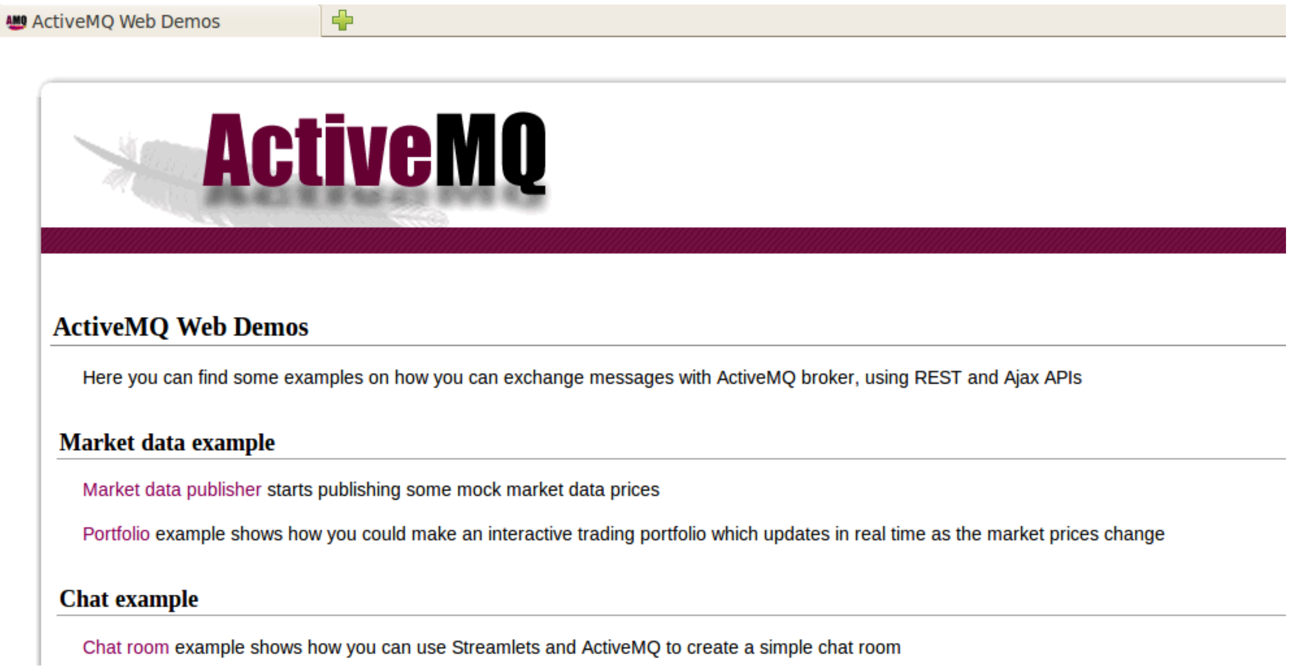
Password:

☑ Shared

Now that ActiveMQ and Hermes has been installed, it is now time to test it.

Go to the URL http://localhost:8161/demo

You should now see the screen below.



ActiveMQ Web Demos

Here you can find some examples on how you can exchange messages with ActiveMQ broker, using REST and Ajax APIs

Market data example

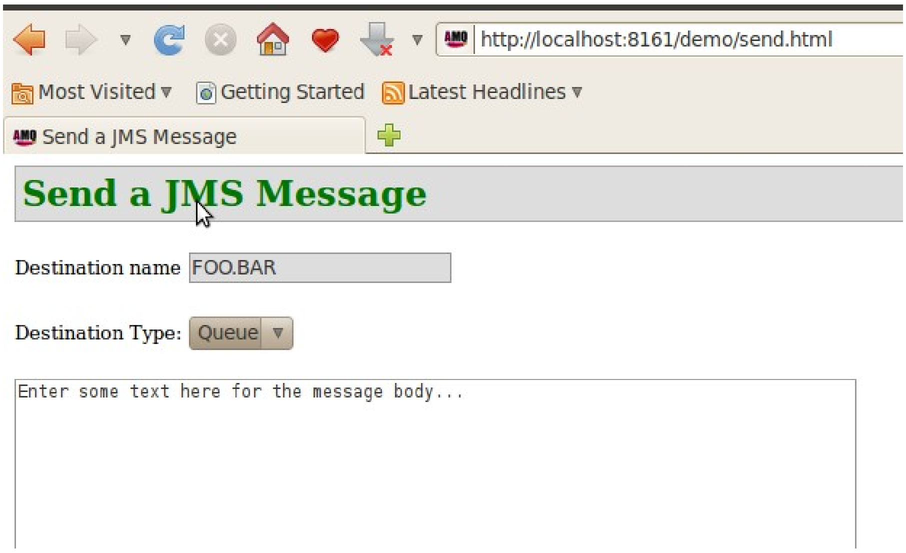
Market data publisher starts publishing some mock market data prices

Portfolio example shows how you could make an interactive trading portfolio which updates in real time as the market prices change

Chat example

Chat room example shows how you can use Streamlets and ActiveMQ to create a simple chat room

Click on the “Send a Message” link.



Send a JMS Message

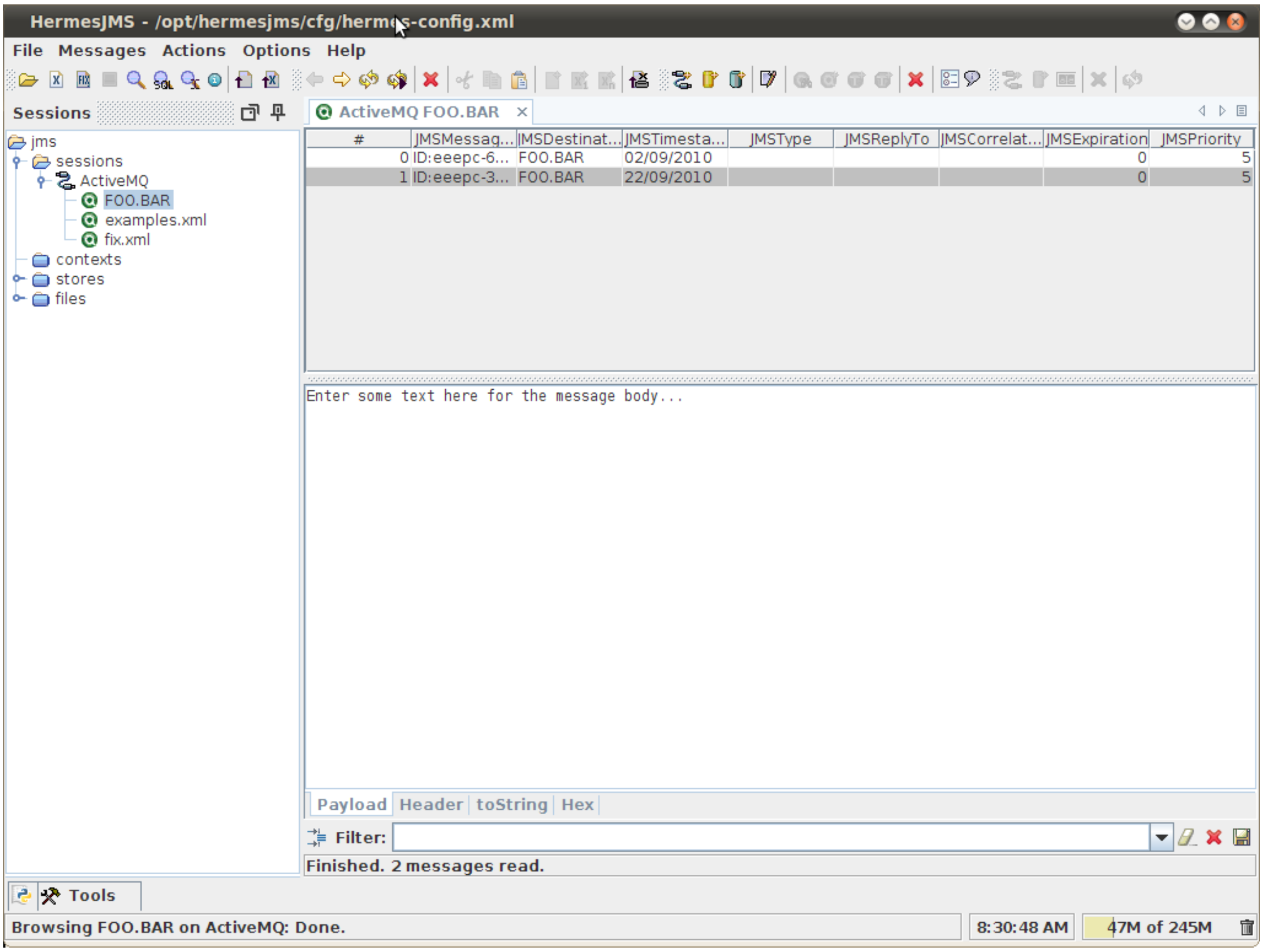
Destination name FOO.BAR

Destination Type: Queue

Enter some text here for the message body...

Enter a message, and click Send.

Bring up Hermes. Navigate to the FOO.BAR queue



#	JMSMessag...	JMSDestinat...	JMSTimesta...	JMSType	JMSReplyTo	JMSCorrelat...	JMSExpiration	JMSPriority
0	ID:eeepc-6...	FOO.BAR	02/09/2010				0	5
1	ID:eeepc-3...	FOO.BAR	22/09/2010				0	5

```
Enter some text here for the message body...
```

Finished. 2 messages read.

Browsing FOO.BAR on ActiveMQ: Done. 8:30:48 AM 47M of 245M

And you will see your message.

References

Hermes JMS
http://www.hermesjms.com
http://www.hermesjms.com/confluence/display/HJMS/Installing

Apache ActiveMQ
http://activemq.apache.org/

Wikipedia
http://en.wikipedia.org/wiki/Activemq