# Using Rhapsody 4.01 with WebLogic JMS for 10.3

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# Introduction

I had an occasion, recently, to work on an integration project which required the Rhapsody 4.01-based integration solution to receive messages from a WebLogic-based JMS Topic. Product documentation and Internet searches did not offer assistance in terms of how the Rhapsody JMS Adapter needs to be configured to support this. While there are a number of articles which discuss the topic of configuring JMS Client to interact with WebLogic JMS Server, none of the solutions described in these articles worked for me. A degree of experimentation and creative adaptation resulted in a working configuration. This article discusses this solution for the benefit of these who will be faced with this problem and for my own benefit if I need to do this again in the future.

# **On the WebLogic Side**

In the olden days one would need to collect a specific set of WebLogic JAR archives, needed to support JMS integration, and make them available to the client application. My article on configuring the QBrowser JMS Browser for interaction with WebLogic JMS, "Using QBrowser v2 with WebLogic JMS for 10.3", at <u>http://blogs.czapski.id.au/2011/05/using-qbrowser-v2-with-weblogic-j</u>ms-for-10-3, is an example of how this would have been done in the olden days. The method seems to have changed between then and now. The new method involves explicit creation of a client JAR, **wlfullclient.jar**, discussed amongst others in "Using the

WebLogic JarBuilder Tool", http://docs.oracle.com/cd/E12840\_01/wls/docs103/client/jarbuilder.html.

To summarise:

On WebLogic host, change directory to the WebLogic Server's server/lib directory.

```
cd $WL_HOME/server/lib # or cd $WL_HOME$¥server¥lib or some such
Use the following command to create wlfullclient.jar in the server/lib directory:
```

java -jar wljarbuilder.jar

Copy the resulting **wlfullclient.jar** to the client application development area and bundle it with the client application, however these need be done for a particular client application. Add the wlfullclient.jar to the client application's classpath, however that needs be done for the particular client application. (Notes on how to do this for the Rhapsody JMS Adapter are provided later in this document).

The above gives you the Java Archive containing all Java classes necessary to support JMS interaction between the client application and the WebLogic Server JMS.

To make the discussion more concrete, let's assume that we have a JMS Topic Connection Factory, with a JNDI reference of "jms/MyTopicCF" and a JMS topic with a JNDI reference of "jms/MyTopic".

The following steps walk through the process of creating these objects using the WebLogic Admin Console.

□ Log into the WebLogic Admin Console, <u>http://{WLJMSHost}:{WLJMSPort}</u>

C Oracle WebLogic Server Administration Cons +		
localhost:7001/console/login/LoginForm.jsp	☆ - C	🖞 🚼 🗝 Google 🛛 🔎
Share Browser WebEx*		
ORACLE		
WebLogic Server <sup>®</sup> 11g Administration Console		
		Welcome
and the second second second	Log in to work with th	e WebLogic Server domain
	Username:	weblogic
	Password:	•••••
		Login

### **Create JMS Server**

□ Navigate the hierarchy "Services"  $\rightarrow$  "Messaging" and click the "JMS Server" node



□ Click "New" (This is not really necessary if there is an existing JMS Server which can be used. I don't know what your environment looks like so I am assuming you don't have a convenient JSM Serve to use)

Su	nmary of JMS Servers				
	JMS servers act as management containers for th	ne queues and topics in JMS modules that	are targeted to them.		
	This page summarizes the JMS servers that have	been created in the current WebLogic Se	erver domain.		
	Customize this table				
	MS Servers (Filtered - More Columns Exist	<b>n</b>			
	New Delete	-		Showing 1 to 7 of	7 Previous   Next
[	🗖 Name 🗠	Persistent Store	Target	Current Server	Health
	BPMJMSServer	BPMJMSFileStore	AdminServer	AdminServer	≪ок
	JRFWSAsyncJmsServer	JRFWSAsyncFileStore	AdminServer	AdminServer	🖋 ок
	Enter "MyJMSServer" as r	new server name and	click "Next"		
Cre	eate a New JMS Server				
	Back Next Finish Cancel				
	JMS Server Properties				
	The following properties will be used to identif	y your new JMS Server.			
*	indicates required fields				
٧	'hat would you like to name your new JMS Sei	rver?			
6	# Name: MyJMS	Server			
s	pecify persistent store for the new JMS Serve	r.			
Р	ersistent Store: (none)	✓ Create a Ne	w Store		
	((ione)				
	Choose the target from the	ne target list and click	"Finish"		
C	eate a New JMS Server				
	Back Next Finish Cancel				
	Select targets				
	Select the server instance or migratable	e target on which you would like to	deploy this JMS Ser	ver.	
	Target:	AdminServer 🝷			
		(none)			
	Back Next Finish Cancel	AdminServer			

### Create JMS Module

 $\Box$  Navigate the hierarchy "Services"  $\rightarrow$  "Messaging" and click the "JMS Modules" node

Domain Structure	
single_server_domain	
Environment	
Deployments	
🕂 Services	
🕂 🕀 Messaging	
JMS Servers	
Store-and-Forward Agents	
JMS Modules	
Path Services	

□ Click "New" (strictly speaking creation of a JMS Module may not be necessary if you have one, for example the "SOAJMSModule" created by the installation of the SOA Suite. I don't know what your environment has so I have to assume that it does not have a JMS Module which can be used)

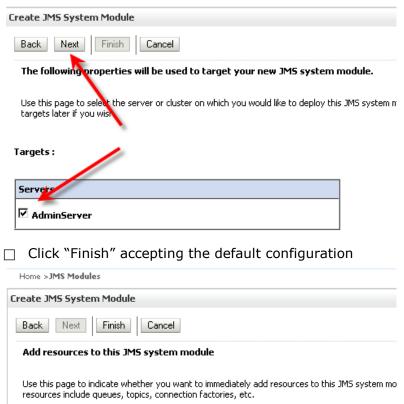
	Modules	
Ne	w Delete	Showing 1 to 7 of 7 Previous   Ne>
	Name 🚕	Туре
Π	BPMJMSModule	System
	JRFWSAsyncJmsModule	System
Π	PatientJMSModule	System
	SOAJMSModule	System
	UMSJMSSystemResource	System

□ Name the module "MyJMSModule" and click "Next"

Home >JMS Modules	
Create JMS System M	odule
Back Next Fi	nish Cancel
The following prope	erties will be used to identify your new module.
topics, connection fact	are configured and stored as modules similar to standard J2E cories, templates, destination keys, quota, distributed queues d (SAF) parameters. You can administratively configure and m
* Indicates required field	ls
What would you like to i	name your System Module?
*Name:	MyJMSModule

 $\hfill\square$  Check the "AdminServer" target and click "Next"

Home >JMS Modules



□ Would you like to add resources to this JMS system module?

### **Create JMS Connection Factory**

□ Click the link "MyJMSModule"

#### JMS Modules

	Ne	w Delete Showin	gito8of8 Pre
		Name 🔅	Туре
		BPMJMSModule	System
		JRFWSAsyncJmsModule	System
	Г	MyJMSModule	System
۲	Г	PatientJMSMooule	System

### □ Click "New"

Customize this table						
New Delete			Showing 0 to 0	of 0 Previous   Next		
□ Name ↔	Туре	JNDI Name	Subdeployment	Targets		
There are no items to display						
New Delete			Showing 0 to 0	of 0 Previous   Next		

### □ Select the "Connection Factory" radio button and click "Next"

Home >JMS Modules > <b>MyJMSModule</b>		
Create a New JMS System Module Resource		
Back Next Finish Cancel		
Choose the type of resource you want to create.		
Use these pages to create resources in a JMS system module, such as q	ueues, topics, templates, and connection factorie	s.
Depending on the type of resource you select, you are prompted to enti- targetable resources, like stand-alone queues and topics, connection fac servers, and JMS SAF destinations, you can also proceed to targeting p can also associate targetable resources with subdeployments, which is a resources and the members to server resources.	tories, distributed queues and topics, foreign ages for selecting appropriate server targets. You	
© Connection Factory	Defines a set of connection configuration parameters that are used to create connections for JMS clients. More Info	
Name the connection factory "MyTopic click "Next"	CF", set the JNDI Name to `	`jms/MyTopicCF" and
Create a New JMS System Module Resource		
Back Next Finish Cancel		
Connection Factory Properties		
The following properties will be used to identify your new connection fact * Indicates required fields	ory. The current module is MyJMSModule.	

JNDI Name:

\* Name:

□ Accept default target by clicking "Finish"

What JNDI Name would you like to use to look up your new connection factory?

MyTopicCF

jms/MyTopicCF

What would you like to name your new connection factory?

### **Create JMS Topic**

- Click the link "MyJMSModule"

  Home Log Out Preferences Record Help

  Welcome, weblogic Conr
  Home >JMS Modules >MyJMSModule >JMS Modules >MyJMSModule >J
  Environment >JMS Modules
- □ Click "New"

hhimme Fou blue 1										
ttings for My]	MSModule				_					
Configuration	Subdeployr	nents Target	s Security	Notes						
This page displa	ays general inl	formation about	: a JMS syste	m module a	and its resources. It a	lso allows you	u to configure n	ew resources a	nd access existing	resources.
			•			•	-		-	
lame:			MyJMSM	1odule			The name of this	s JMS system m	odule. More Info	•••
escriptor File	Name:		jms/myji	msmodule-j	jms.×ml	1	The name of the	e JMS module de	escriptor file. Mor	e Info
This page summ	narizes the JM	5 resources tha	at have been	created fo	r this JMS system mo	lule, including	i queue and top	oic destinations.	connection factori	es, JMS
					tinations, foreign serv					
Customize th	is table									
5ummary of R	esources									
New Dela	ete							sH	iowing 1 to 1 of 1	Previous   N
□ Name ↔	,	Туре			JNDI Name	s	ubdeployme	nt	Targets	
MyTopicCF	: .	Connection Fac	tory		jms/MyTopicCF	D	efault Targettin	g	AdminServ	/er
Check	the "T	opic" ra	idio bu	itton a	and click "	Next"				
Check	the "T	opic" ra	idio bu	itton a	and click "	Next"				
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Back Ne	ext Finis	sh <b>Cance</b>	el							
Choose the										
	type of re	esource you	want to c	reate.						
Use these pa					ule, such as queue	s, topics, te	mplates, and			
Depending of	ages to crea n the type c	te resources i of resource yo	in a JMS sys ou select, yo	stem modi ou are pro	ompted to enter ba	sic informat	ion for creati			
Depending of queues and t	ages to crea n the type c topics, conn	te resources i of resource yo ection factorie	in a JMS sys ou select, yo es, distribut	stem mod ou are pro ted queue	ompted to enter ba es and topics, forei	sic informat gn servers,	ion for creati and JMS SAF			
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Create a New JMS System Module Resource
Back Next Finish Cancel
The following properties will be used to target your new JMS system module resource
Use this page to select a subdeployment to assign this system module resource. A subdeployment is a mechanisi a server instance, cluster, or SAF agent. If necessary, you can create a new subdeployment by clicking the <b>Cre</b> reconfigure subdeployment targets later by using the parent module's subdeployment management page.
Select the subdeployment you want to use. If you select (none), no targeting will accur.
Subdeployments: (none)  Create a New Subdeployment

□ Enter "MyTopicSubdeployment" as subdeployment name and click "OK"

Create a New Subdep	oloyment			
OK, Cancel				
Subdeployment Pi	roperties			
The following propert	ies will be used to identify your ne	w subdeployment.		
Subdeployment Na	me:	MyTopicSubde	ploymer	
] Check the rac	lio button next to the `	`MyJMSServer" JN	1S Server name	and click "Finish
reate a New JM5 System	Module Resource			
Back Next Finish	Cancel			
The following propertie	诊 s will be used to target your new JM	5 system module resource		
a server instance, cluster, c	ubdeployment to assign this system module or SAF agent. If necessary, you can creat : targets later by using the parent module'	e a new subdeployment by clickir	ig the (	
Select the subdeployment yo	ou want to use. If you select (none), no ta	argeting will occur.		
Subdeployments:	MyTopicSubdeployment	Create a New Subdeployment		
What targets do you want to	o assign to this subdeployment?			
Targets :				
JM5 Servers				
C BPMJMSServer	-			
C JRFWSAsynconsServ	ver			

□ Inspect the list of objects under our JMS Module then close the web browser – we are done here

### **On the Rhapsody Side**

• MyJMSServer

If the JMS Client Application which needs to communicate with the WebLogic JMS is the Rhapsody 4.01

then its JMS Adapter must be correctly configured to support this communication, including making the wlfullclient.jar available to the JMS Adapter. The following discuss the process.

Unlike what is shown in a number of articles which deal with configuring a JMS Client for integration with the WebLogic JMS, the protocol to use is not the "t3" protocol, but the "iiop" protocol. This is what works for Rhapsody. In summary, here are the key configuration options for Rhapsody 4.01 and their settings. Some settings, like the WebLogic JMS Host and JMS Destination name and type, will vary.

Property Name	Property Value
InitialContextFactory	weblogic.jndi.WLInitialContextFactory
ProviderURL	iiop://{WLJMSHost}:{WLJMSPort}
Topic Connection Factory	jms/{JMSTopicCopnnectionFactory}
Queue Connection Factory	jms/{JMSQueueConnectoinFactory}
Connection Username	{WLUsername}
Connection Password	{WLPassword}
Input Destination	jms/{MyTopicOrQueueName}
Input Destination Type	Topic (or Queue, depending on what you use)
Receiving Mode	Listening

In the table above values in {}, including {} themselves, must be replaced with the actual names from your configuration. For example, as shown in the picture below, my {WLJMSHost} would be replaced with localhost or some more appropriate host name or IP Address. My {WLJMSPort} would be replaced with 7001.

Rhapsody JMS Adapter configuration panel has an annoying idiosyncrasy where one must specify a Queue Connection Factory even if one uses a JMS topic. This does not have to be a Queue Connection Factory, as long as it is a connection factory. Without this the configuration cannot be saved.

	Property	Value		*
	Implementation	JNDI 👻		
*	InitialContextFactory	weblogic.jndi.WLInitialContextFactory		
*	ProviderURL	iiop://localhost:7001		
*	Topic Connection Factory	jms/MyTopicCF		
*	Queue Connection Factory	jms/MyTopicCF		
*	Host Name			
*	Host Port			
*	Queue Manager			
*	Channel			
	Broker Queue Manager			
	ClientID			
	Connection Username	weblogic		
	Connection Password	****		
*	Use SSL		·	
*	Cipher Suite			
	Secure Keys			
	Trusted Certificates			
	Additional Parameters			
	Custom Parameters			
	Message Selector			
*	Input Destination	jms/MyTopic		
*	Input Destination Type	Topic		
*				
*	JMS Input Properties User Input Properties			

The creation of a wlfullclient.jar results in a JAR which if around 58Mb in size. The Communication Point wizard seems unable to deal with a JAR this size, when adding it through the "Auxiliary Files" tab. To get around this issue, copy the wlfullclient.jar renaming the copy and the original so that you have two JARs – wlfullclient\_p1of2.jar and wlfullclient\_p2of2.jar. From the former delete the "weblogic" hierarchy, using 7-zip or some other archiver which can cope with JAR archives. From the later delete everything \_except\_ the "weblogic" hierarch. Add both archives to Auxiliary Files for the JMS Communication Point.

	Filename	Engine Version	Local Version
1	📓 wlfullclient_p1of2.jar	Identical	Identical
2	📓 wlfullclient_p20f2.jar	Identical	Identical
ļ	<u>R</u> etrieve <u>S</u> end	Add Dela	te <u>O</u> pen

Now create a route with whatever additional communication points you might need and start the lot. Expect, if all is configured correctly, to receive messages from the topic hosted by the WebLogic JMS.

For the JMS objects, whose creation on the WebLogic Server side was discussed earlier, the settings would be:

Property Name	Property Value
InitialContextFactory	weblogic.jndi.WLInitialContextFactory
ProviderURL	iiop://localhost:7001
Topic Connection Factory	jms/MyTopicCF
Queue Connection Factory	jms/MyTopicCF
Connection Username	Weblogic
Connection Password	weclome1
Input Destination	jms/MyTopic
Input Destination Type	Торіс
Receiving Mode	Listening

# **Summary**

In this article I walked through the process of setting up JMS Topic and its dependencies on WebLogic 10.3 platform and configuring Rhapsody 4.01 JMS Communication Point to receive messages from the JMS Topic hosted by the WebLogic 10.3 Server. Perhaps this will save you the time I spent figuring out how to do this.