# Installing Java CAPS 6.2 Runtime on the Basic JeOS Appliance for HL7 Resilience Testing

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## Introduction

From time to time prospective clients ask for a proof that Java CAPS will not loose HL7 messages in the event of machine or network failure.

This note walks through the process of installing a Java CAPS 6.2 runtime on the Base OpenSolaris-based VMware Virtual Appliance, discussed in the Blog Entry "GlassFish ESB v2.x Field Notes - Preparing Basic JeOS Appliance for GlassFish ESB LB and HA Testing" at <u>http://blogs.czapski.id.au/?p=15</u>.

At the end of the Note we will have a Java CAPS 6.2 VMware Appliance with Java CAPS 6.2 Runtime infrastructure, ready to use for reliability testing, or any other purpose for which a Java CAPS 6.2 runtime appliance might be appropriate.

## **Obtain Java CAPS 6.2**

Unlike GlassFish ESB or OpenESB, Java CAPS 6.2 is not freely downloadable software. To get hold of Java CAPS 6.2 you must be a customer or you must have come to an arrangement with Sun / Oracle sales organization to obtain Java CAPS 6.2 as trial software. I don't know how to go about doing that. Speak to the nearest Sun / Oracle software sales person.

### Install Java CAPS 6.2 On the Appliance

In this Note the JeOS VMware Appliance named jc6202, built following the steps discussed in "GlassFish ESB v2.x Field Notes - Preparing Basic JeOS Appliance for GlassFish ESB LB and HA Testing", will be used – see <u>http://blogs.czapski.id.au/?p=15</u>.

Start the jc6202 VMware Appliance.

Using the WinSCP (as I do) or another means of transferring files using SSH, copy the Java CAPS 6.2 installer, Solaris\_ml.tar, to the jc6202's /export/home/osol/downloads directory.

Start a SSH session on the jc6202 and login as osol.

As root, create a directory jcaps62 as a subdirectory to /opt, owned by osol.

```
pfexec mkdir /opt/jcaps62
pfexec chown osol:staff /opt/jcaps62
```

On headless OpenSolaris, which is what we are dealing with here, it is not possible to run the GUI-based Java CAPS installer (<u>http://dlc.sun.com/pdf/820-3207/820-3207.pdf</u>). Document at <u>http://docs.sun.com/app/docs/doc/821-0447/jcapsinstcli\_intro?l=en&a=view</u> discusses how to perform a CLI-based installation. This is what we will do.

In a console window / SSH Session window:

Set the JAVA\_HOME variable to point to your JDK or set it in the /etc/profile for all users, or set it in the .bashrc for the osol user or both.

su cat >> /etc/profile <<-EOF</pre> JAVA\_HOME=/jdk1.6.0\_16 export JAVA\_HOME PATH=\$PATH:/jdk1.6.0 16/bin export PATH EOF exit cat >> ~/.bash\_profile <<-EOF</pre> JAVA HOME=/jdk1.6.0 16 export JAVA\_HOME PATH=\$PATH:/jdk1.6.0 16/bin export PATH EOF . ~/.bash\_profile cat >> ~/.profile <<-EOF</pre> JAVA HOME=/jdk1.6.0 16 export JAVA HOME PATH=\$PATH:/jdk1.6.0 16/bin export PATH EOF . ~/.profile

Prepare the Java CAPS 6.2 installer for execution.

cd /export/home/osol/downloads tar xvf Solaris\_ml.tar

Before running the installation please makes sure there is at least 1024Mb of memory assigned to the guest VM. If possible, assign 1536Mb or more. Once installation is done it will be possible to reduce the amount of memory assigned to the guest to a lesser value.

Run the command shown below. You will be prompted for specific information. Remember that jc6202 is a headless system (No UI) so it is useless to install NetBeans.

```
cd /export/home/osol/downloads
JAVA_HOME=/jdk1.6.0_16
export JAVA_HOME
PATH=$PATH:/jdk1.6.0_16/bin
export PATH
Solaris_ml/Solaris/JavaCAPS.bin -i console
Provide responses:
DO YOU ACCEPT THE TERMS OF THIS LICENSE AGREEMENT? (Y/N): Y
ENTER AN ABSOLUTE PATH, OR PRESS <ENTER> TO ACCEPT THE DEFAULT:
/opt/jcaps62
INSTALL FOLDER IS: /opt/jcaps62 IS THIS CORRECT? (Y/N): Y
ENTER THE NUMBER FOR THE INSTALL SET, OR PRESS <ENTER> TO ACCEPT THE
DEFAULT: 2
Please choose the Features Not to be installed by this installer.:
1,2,4,5,6
Java Developer Kit (JDK) Directory (DEFAULT: /jdk1.6.0_16):
Admin User (DEFAULT: admin):
Admin Password (8-character minimum): adminadmin
Master Password (8-character minimum):changeit
Admin Port (DEFAULT: 4848):
HTTP Port (DEFAULT: 8080):
HTTPS Port (DEFAULT: 8181):
JMS Port (DEFAULT: 7676):
JMX Admin Port (DEFAULT: 8686):
IIOP Port (DEFAULT: 3100):
IIOP SSL Port (DEFAULT: 3820):
IIOP Mutual Auth Port (DEFAULT: 3920):
Pre-Installation Summary
_____
Please review the following before continuing.
Product Name:
    Java CAPS
Install Folder:
    /opt/jcaps62
```

```
Install Set
   Custom
Product Components:
   Sun Java System Application Server,
PRESS <ENTER> TO CONTINUE:
```

The process will start and will continue for some time until finally you get to see:

Installation Complete: "SUCCESS"

To allow the GlassFish Application Server to be automatically started at boot time, and automatically shut down at shutdown time, we need to create a file containing authentication credentials and use the GlassFish Application Server Command Line Console's built-in facility to add GlassFish to the OpenSolaris' Service Management Facility.

Create a text file, /opt/jcaps62/passwd

```
cat > /opt/jcaps62/passwd <<-eof
AS_ADMIN_USER=admin
AS_ADMIN_ADMINPASSWORD=adminadmin
AS_ADMIN_PASSWORD=adminadmin
AS_ADMIN_MASTERPASSWORD=changeit
eof
```

Change directory to GlassFish's bin and run the appropriate asadmin command:

```
cd /opt/jcaps62/appserver/bin
pfexec ./asadmin create-service --passwordfile /opt/jcaps62/passwd
/opt/jcaps62/appserver/domains/domain1
```

Successful execution of this command will show something along the lines of:

```
The Service was created successfully. Here are the details:
Name of the service:application/SUNWappserver/domain1
Type of the service:Domain
Configuration location of the service:/opt/jcaps62/appserver/domains
Manifest file location on the
system:/var/svc/manifest/application/SUNWappserver/domain1_opt_jcaps62_appserver_do
mains/Domain-service-smf.xml.
The service could be enabled using svcadm command.
Command create-service executed successfully.
```

To enable this service execute the following command:

```
pfexec svccfg -s domain1 setprop start/user = astring: osol
pfexec svccfg -s domain1 setprop start/group = astring: staff
pfexec svcadm enable domain1
```

The service will be started. The server.log will show the message to that effect.

tail -f /opt/jcaps62/appserver/domains/domain1/logs/server.log

[#|2010-04-08T16:02:49.645+0000|INFO|sunappserver2.1 | com.sun.caps.jms.resource | ThreadID=18; ThreadName=Thread-30; [EventForwarderMBean MBean is ready]#] [#|2010-04-08T16:02:49.646+0000|INFO|sunappserver2.1 | com.sun.caps.jms.resource | ThreadID=18; ThreadName=Thread-30; [EventForwarderMBean MBean is ready #] [#|2010-04-08T16:02:49.804+0000|INFO|sunappserver2.1 | javax.enterprise.system.core |\_ThreadID=10;\_ThreadName=main; | Applicatio n server startup complete. [#] [#|2010-04-08T16:02:50.710+0000|INFO|sunappserver2.1 | com.sun.caps.jms.resource | ThreadID=18; ThreadName=Thread-30; [AlertEventListener is ready ] #] [#|2010-04-08T16:02:56.330+0000|WARNING|sunappserver2.1|org.apache.coyote.tomcat5.CoyoteRequest|\_ThreadID=19;\_ThreadName=httpS SLWorkerThread-8080-0;\_RequestID=79247cf7-fbdc-4c58-b71b-c90cd429db03;|PWC4011: Unable to set request character encoding to UTF-8 from context /amserver, because request parameters have already been read, or ServletRequest.getReader() has already been called [#] [#|2010-04-08T16:03:09.560+0000|INFO|sunappserver2.1|javax.enterprise.system.stream.out|\_ThreadID=20;\_ThreadName=httpSSLWor kerThread-8080-1; Realm Request: Create Realm: sunamhiddenrealmdelegationservicepermissions in Realm / | # 1 [#|2010-04-08T16:03:10.516+0000|INFO|sunappserver2.1|javax.enterprise.resource.webservices.rpc.server.http|\_ThreadID=19;\_Th readName=httpSSLWorkerThread-8080-0; | JAXRPCSERVLET56: JAX-RPC servlet: init | #] [#|2010-04-08T16:03:15.592+0000|INF0|sunappserver2.1 | javax.enterprise.system.stream.out | \_ThreadID=20; \_ThreadName=httpSSLWor kerThread-8080-1; Realm Request: Set Attributes for Service sunIdentityRepositoryService in Realm / | # 1 [#|2010-04-08T16:03:19.771+0000|INFO|sunappserver2.1 | javax.enterprise.system.stream.out |\_ThreadID=21;\_ThreadName=Thread-31; |INFO: Access Manager post configuration successful. [#] [#|2010-04-08T16:07:49.676+0000|INFO|sunappserver2.1 | com.sun.eventmanagement.webapp.EventManagementChannelSupportMBean |\_Thr eadID=22;\_ThreadName=eManager Startup Alerter; |Enterprise Manager channel is not ready to send start up notification Alert [#]

To delete the service, if needs be, issue the following commands, bearing in mind that disabling the service will cause it to be shut down, which takes some time:

```
svcadm disable domain1
svccfg delete domain1
```

Once these commands are executed the service will no longer be started at boot.

#### Manage the GlassFish Application Server

Use a web browser on the VMware Host, or another machine with a functioning modern web browser, to connect to the GlassFish Application Server Admin Console on jc6202:

http://192.168.47.129:4848 or http://jc6202:4848

Edit ⊻iew Higtory Bookmarks	Tools Help								
🗩 C 🗙 🏠 🛅	http://192.168.	47.130:4848/						ය · 🖸	Google
Most Visited 🗭 Getting Started 🔊 Lat	est Headlines	SOA/BI Planet	t - English 🔊 NEH	TARSS					
Homo Vereier									
ser: admin Domain: domain1 Server:	192 168 47 130								
un Class Fish"Enternuise	Com. 00. 11. 100								
un Glassrish Enterprise	Server v2	61L)		1					
Common Tasks	*	Application Ser	rver	1					
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Enterprise Applications EIB We A EIB W Conne EIB Servic Search Criteria Instance Name: ESBare Count EIB Share ESBare Count EIB Share EISB	Firefox 130:4848/logViev server log file u ver • Log F Most Recent Specific Rang	General In Stop Instance wer/logViewer.jst sing basic and a ile: server/log	Mormation Wew Log Files PrinstanceName =ser dvanced options. Re	Rotate Log	JNDI Browsing	Add Cluster S er.log8viewResult	s=true #op	Recover Transaction	
	Firefox 130:4949/ogViev server log fle u ver 💌 Log F Most Recent Specific Range	General II Stop Instance wer/logViewer.jsf sing basic and a ille: server.log ] we: wer [	formation Wew Log Files	Rotate Log	JNDI Browsing FOSlogFie =serv	er.log&viewResult	s=true#op	Recover Transaction	

If you have a JDK 1.6 on another machine you can exploit the JMX instrumentation to look at the GlassFish Application Server in the Appliance, using the jconsole and the jvisualvm (uses port 8686 in Java CAPS).

約 Java Moni	itoring & Management Console	-03
onnection <u>V</u>	Mindow Help	
	JConsole: New Connection	1
	New Connection	
	C Local Process:	
	Name PID	
	sun.tools.jconsole.JConsole 4864	
	YuuguuLauncher.jar 5156	
	• <u>R</u> emote Process:	
	192.168.47.130:8086	
	Usage: <hostname>:<port> OR service:jmx:<protocol>:<sap></sap></protocol></port></hostname>	
	Username: admin Password: *********	
	Connect , Cancel	
	Connect to Java Vir	tual Machine

🏄 Java Monitoring & Manage	ement Console		
Connection Window Help			
🛃 admin@192.168.47.130:80	)86		
Overview Memory Threads	Classes VM Summary MBeans		
🕀 🛅 EventManagement 🔺	Attribute values		
IMImplementation	Name		Value
+ amx	backgroundProcessorDelay	10	
+ amx-support	baseDir	/opt/GFESB21/glassfish/domains/domain1	
- com.sun.appserv	checkIfRequestIsSecure	false	
	children	javax.management.ObjectName[2]	
± Connector	containerSuffix		
	debug	0	
E E BIMOQUIE	defaultHost		
Generations	domain	com.sun.appserv	
	info	org.apache.catalina.core.StandardEngine/1.0	
	jmxName	com.sun.appserv:type=Engine	
	jvmRoute		



Use port 8686.

崔 Add JMX Conn	ection	×
		_
Connection:	Usage: <hostname>:<port> OR service:imx:<protocol>:<sap></sap></protocol></port></hostname>	
Display name:	admin@192.168.47.130:8086	
Use security cr	edentials	
<u>U</u> sername:	admin	
Password:	*****	
🔽 Save se	curity credentials	
	OK Cancel	

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Eile Applications View Tools Window Help					
1 <b>45</b> 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					
Applications	Start Page × 🗐 Broker (pid 465) × 💏 admin@192,168,47,130:8086 ×				
	Overview Monitor E Threads				
🦾 VisualVM 🦾 🎂 YuuguuLauncher.jar (pid 5156)	O admin@192.168.47.130:8086				
Emote Remote	Monitor				
	Uptime: 2 hrs 13 min 42 sec				
admin@192.168.47.130:8086	CPU	Heap	PermGen		
Broker (pid 465)	CPU Usage: 1%	Heap	size: 79,597,568		
	GC Activity: 0%	Used	heap: 55,921,768		
Producers	100%	0004			

The Java CAPS 6.2 Runtime Appliance is ready for use.

To develop solutions to be deployed to this runtime environment you will need a Java CAPS 6.2 Design Time installation, with the NetBeans IDE. Do this installation to a machine that has a screen, keyboard and mouse <sup>(2)</sup> I will not discuss how to get and install regular Java CAPS.

If you only need to deploy existing applications you don't need the design time environment. All that is required is a modern web browser on a machine with a network connection to the appliance. GlassFish Application Server's command line tools on the appliance itself can also be used.

#### Summary

This note walked through the process of installing a Java CAPS 6.2 runtime on the Base OpenSolaris-based VMware Virtual Appliance, discussed in the Blog Entry "Preparing Basic JeOS Appliance for GlassFish ESB LB and HA Testing" - <u>http://blogs.czapski.id.au/?p=15</u>.

We now have a Java CAPS 6.2 VMware Appliance with the Java CAPS 6.2 Runtime, ready to use for Java CAPS 6.2 HL7 resilience testing, or any other purpose for which a Java CAPS 6.2 runtime appliance might be appropriate.