GlassFish ESB v2.2 Field Notes Installig GlassFish ESB on the Basic JeOS Appliance for LB and HA Testing Michael.Czapski@sun.com

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Introduction

It seems frequently assumed that architecting and deploying Highly Available (HA) solutions requires Application Server and/or Operating System clustering. When it comes to SOA and Integration solutions this is not necessarily a correct assumption. Load Balanced (LB) and Highly Available HA) SOA and Integration solutions may not require that degree of complexity and sophistication. Testing LB and HA solutions requires infrastructure consisting of multiple hosts and the ability to "crash" hosts at will. With virtualization technologies available now it is far easier to use multiple virtual machines then to use physical machines. It is also easier and potentially less destructive to "crash" virtual machines then it is to do so with physical machines.

This note walks through the process of installing a GlassFish ESB v2.2 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

http://blogs.sun.com/javacapsfieldtech/entry/glassfish_esb_v2_x_field.

At the end of the Note we will have a GlassFish ESB VMware Appliance with GlassFish ESB Runtime infrastructure, ready to use for GlassFish ESB Load Balancing and High Availability testing, or any other purpose for which a GalssFish ESB runtime appliance might be appropriate.

Obtain GlassFish ESB v2.2

Download GlassFish ESB v2.2 Solaris x86 distribution from the OpenESB site, <u>https://open-esb.dev.java.net/Downloads.html</u>.



GlassFish ESB distribution should be available by the end of January 2010. If you are impatient you could try to use the v2.1 distribution.

Install GlassFish ESB On the Appliance

In this Note the JeOS VMware Appliance named gfesbv22, 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.

Start the gfesbv22 VMware Appliance.

Using the WinSCP (as I do) or another means of transferring files using SSH, copy the downloaded GlassFish ESB installer, glassfishesb-v2.2-full-installer-solaris-x86.sh, to the gfesbv22's /export/home/osol/downloads directory.

downloads - osol@192.168.47.130	- WinSCP		
Eile Commands Mark Session View	Help		
Address 🗁 /export/home/osol/downloa	ds		
	🗅 🗙 🐨 🖌 📑 🖀 🖝 🔗 😫 🥹	-	
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🖂 🚞 / <root></root>	Name - Ext	Size C	hanged
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downloads		ڬ 🛌	Cancel
			Minimize
	File: C:\\glasstishesb-v2.1full-ins Target: /export/home/osol/download	italler-solaris-x86.sh s/	Once <u>fi</u> nished:
			Stay idle 💌
	Time left: 0:01:06 Time e	lapsed: 0:00:04	4
	Bytes transferred: 10,742 KiB Speed	2,726 KiB/s	s Speed (KiB/s):
2			Unlimited 💌

Start a SSH session on the gfesbv22, login as osol.

As root, create a directory GFESB22 as a subdirectory to /opt, owned by osol.

pfexec mkdir /opt/GFESB22
pfexec chown osol:staff /opt/GFESB22

Prepare the GlassFish ESB installer for execution.

```
chmod a+x /export/home/osol/downloads/glassfishesb-v2.2-full-
installer-solaris-x86.sh
```

Create a silent install options file, /export/home/osol/downloads/gfesbsolaris-options_osol0x.xml.

```
cat > /export/home/osol/downloads/gfesb-solaris-options_osol0x.xml
<<-eof
<?xml version="1.0" encoding="UTF-8"?>
<state xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"</pre>
xsi:noNamespaceSchemaLocation="state-file.xsd">
<components>
        cproduct platform="windows linux solaris-sparc solaris-x86 macosx-
ppc macosx-x86" status="to-be-installed" uid="nb-base">
             <properties>
                 <property name="minimum.jdk.version">1.5.0.6</property></property>
                 <property name="maximum.jdk.version">10.0.0</property></property>
                 <property name="jdk.location">/jdk1.6.0_16</property></property>
                 <property
name="installation.location">/opt/GFESB22/netbeans</property>
             </properties>
        </product>
        cproduct platform="windows linux solaris-sparc solaris-x86 macosx-
ppc macosx-x86" status="to-be-installed" uid="nb-soa">
             <properties>
                 <property
name="installation.location">/opt/GFESB22/netbeans</property>
             </properties>
        </product>
        cproduct platform="windows linux solaris-sparc solaris-x86 macosx-
ppc macosx-x86" status="to-be-installed" uid="glassfish">
             <properties>
                 <property name="jdk.location">/jdk1.6.0_16</property></property>
                 <property name="minimum.jdk.version">1.5.0</property></property>
                 <property name="maximum.jdk.version">1.6.99</property></property>
                 <property name="vendor.jdk.allowed.pattern">Sun
Microsystems.*</property>
                 <property name="username">admin</property></property>
                 <property name="password">adminadmin</property></pro>
                 <property name="http.port">8080</property></property>
                 <property name="https.port">8181</property></property>
                 <property
name="preferred.jdk.version.macosx">1.5.0.13.0</property>
                 <property name="admin.port">4848</property></property>
                 <property name="iiop.port">3100</property></property>
                 <property
name="vendor.jdk.allowed.pattern.aix">IBM.*</property>
                 <property name="iiop.mutualauth.port">3920</property></property>
                 <property name="iiop.ssl.port">3820</property></property>
                 <property name="jmx.admin.port">8086</property></property>
                 <property name="jms.port">8076</property></property>
                 <property
name="installation.location">/opt/GFESB22/glassfish</property>
             </properties>
        </product>
        cproduct platform="windows linux solaris-sparc solaris-x86 macosx-
ppc macosx-x86" status="to-be-installed" uid="openesb">
             <properties>
                 <property
name="installation.location">/opt/GFESB22/glassfish/addons/jbi-
components</property>
             </properties>
        </product>
        cproduct platform="windows linux solaris-sparc solaris-x86 macosx-
ppc macosx-x86" status="to-be-installed" uid="jbicomponents">
             <properties>
```

Perform headless installation. Because this is a headless installation any issues there are, as might be the case if the silent installer options file is invalid, will not be reported. The installer will "complete" without installing anything or providing any feedback. This lack of feedback is a know bug. Because there is no feedback this is the most fragile part of this walkthrough and there is no way I can help if you can't get it to work. To avoid the most obvious pitfalls, make sure your Java executable is in the PATH and that the target directory exists and has the correct ownership (osol:staff).

```
pfexec mkdir /opt/GFESB22
pfexec chown osol:staff /opt/GFESB22
chmod a+x /export/home/osol/downloads/glassfishesb-v2.2-full-
installer-solaris-x86.sh
export PATH=$PATH:/jdk1.6.0_16/bin
/export/home/osol/downloads/glassfishesb-v2.2-full-installer-solaris-
x86.sh --silent --state /export/home/osol/downloads/gfesb-solaris-
options_osol0x.xml
```

Once the installation completes, and does so successfully, remove unnecessary and unusable netbeans directory.

```
cd /opt/GFESB22
rm -R netbeans
rm start_netbeans
```

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/GFESB22/passwd

```
cat > /opt/GFESB22/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/GFESB22/glassfish/bin
pfexec ./asadmin create-service --passwordfile=/opt/GFESB22/passwd
/opt/GFESB22/glassfish/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/domainl

Type of the service:Domain

Configuration location of the service:/opt/GFESB22/glassfish/domains

Manifest file location on the

system:/var/svc/manifest/application/SUNWappserver/domain1_opt_GFESB22_glassfish_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/GFESB22/glassfish/domains/domain1/logs/server.log

```
[#|2009-12-03T09:25:32.826+0000|INF0|sun-
appserver2.2|javax.enterprise.system.container.web|_ThreadID=10;_ThreadName=main;80
80;|WEB0712: Starting Sun-Java-System/Application-Server HTTP/1.1 on 8080|#]
[#|2009-12-03T09:25:32.911+0000|INF0|sun-
appserver2.2|javax.enterprise.system.container.web|_ThreadID=10;_ThreadName=main;81
81;|WEB0712: Starting Sun-Java-System/Application-Server HTTP/1.1 on 8181|#]
[#|2009-12-03T09:25:32.924+0000|INF0|sun-
appserver2.2|javax.enterprise.system.container.web|_ThreadID=10;_ThreadName=main;48
48;|WEB0712: Starting Sun-Java-System/Application-Server HTTP/1.1 on 4848|#]
[#|2009-12-03T09:25:34.147+0000|INF0|sun-
appserver2.2|javax.enterprise.system.core.selfmanagement|_ThreadID=10;_ThreadName=m
ain;|SMGT0007: Self Management Rules service is enabled|#]
[#|2009-12-03T09:25:34.171+0000|INF0|sun-
appserver2.2|javax.enterprise.system.core|_ThreadID=10;_ThreadName=main;|Applicatio
n server startup complete.|#]
```

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 gfesbv22:

http://192.168.47.130:4848

Sun GlassFish Enterprise Server v2.1 Admin Consol	e - Hozilla Firefox							
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Common Tasks	Application Server							
Application Server Applications Enterprise Applications Web A Web A	General JT General Info Stop Instance	VM Settings ormation View Log Files	Logging Rotate Log	Monitor JNDI Browsing	Diagnostics Add Cluster S	Admin	istrator Password	Advanced
	wer/logviewer.jsf?ins sing basic and advar ille: server/og • se: • • • Do not inclu ed to those stored in 1	tanceName=ser nced options. Re ude more servi the log file. Set i	verSloglevel=IN efer to the Log Le ere messages	FOBIOgFic=serve	r log&viewResults ormation about log vel page to ensure	s -true ≠opt ; levels you ; leata is log	tions : can fiter here; :god.	

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.

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onnection <u>v</u>	Judow Helb		
	Subscription	×	
	New Connection	Java [*]	
	C Local Process:		
	Name	PID	
	sun.tools.jconsole.JConsole	4864	
	Tuuguucauncher.jai	3130	
	G. Demote Process:		
	Keniote Process.		
	Usage: <hostname>:<cont> OR service:imx:<crotocol></crotocol></cont></hostname>	1<580>	
	Username: admin Password: a	******	
	<u>C</u> onnect	Cancel	
		Connect to Java Virtual	Machine

Image: Connector Image: Connector Image: Consum-appserv Image: Consum-appserv Image: Constance Consum-appserv Image: Consum-appserv Image: Consum-appserv: Consum-appserv: Consum-appserv: Consum-appserv: Consum-appserv: Consum-appserv: Consum-appserv: Consum-appserv: Consum-appserv: Cons	🛃 Java Monitoring & Manag	jement Console		
Admin@192.168.47.130:8086 Overview Memory Threads Classes VM Summary MBeans Image: Construction of the second secon		02,652		
Overview Memory Threads Classes VM Summary MBeans + EventManagement • Attribute values + JMImplementation • Name Value + JMImplementation • backgroundProcessorDelay 10 + amx backgroundProcessorDelay 10 baseDir /opt/GFESB21/glassfish/domains/domain1 + Cache • /opt/GFESB21/glassfish/domains/domain1 • • + Connector false • • • • • DomainDiagnostic • • • • • • • DomainDiagnostic • • • • • • • DomainDiagnostic • • • • • • • • DomainDiagnostic • • • • • • • DomainDiagnostic • • • • • • • EJBModule • • • •	admin@192.168.47.130:8	3086		
+ EventManagement Attribute values + JMImplementation Name Value + amx backgroundProcessorDelay 10 + amx-support /opt/GFESB21/glassfish/domains/domain1 - com.sun.appserv false + Connector false + DomainDiagnostic javax.management.ObjectName[2] + EJBModule 0 + EJBModule 0 + Attributes org.apache.catalina.core.StandardEngine/1.0 im/Name com.sun.appserv: im/Name com.sun.appserv:	Overview Memory Threads	Classes VM Summary MBeans		
Name Value Image: Support Value Value Image: Support Value Value Image: Support Value Value Image: Support Image: Support Value Image: Support Image: Support Value Image: Support Image: Support Value Image: Support Im	🗄 🛅 EventManagement 🔺	Attribute values		
+ amx backgroundProcessorDelay 10 + amx-support backgroundProcessorDelay 10 - com.sun.appserv baseDir /opt/GFESB21/glassfish/domains/domain1 + acche connector false - DomainDiagnostic javax.management.ObjectName[2] - EJBModule 0 - Attributes debug 0 + Attributes org.apache.catalina.core.StandardEngine/1.0 imxName - Notifications imxName com.sun.appserv:type=Engine	IMImplementation	Name	f -	Value
+	+ amx	backgroundProcessorDelay	10	
com.sun.appserv checkIfRequestIsSecure false children javax.management.ObjectName[2] containerSuffix containerSuffix debug 0 defaultHost debug domain com.sun.appserv domain com.sun.appserv mfo org.apache.catalina.core.StandardEngine/1.0 jmxName com.sun.appserv:type=Engine	+ amx-support	baseDir	/opt/GFESB21/glassfish/domains/domain1	
Image: Connector children javax.management.ObjectName[2] Image: DomainDiagnostic containerSuffix containerSuffix Image: DomainDiagnostic debug 0 Image: DomainDiagnostic defaultHost domain Image: DomainDiagnostic info org.apache.catalina.core.StandardEngine/1.0 Image: DomainDiagnostic image.ute image.ute	Com.sun.appserv	checkIfRequestIsSecure	false	
Image: Connector containerSuffix Image: DomainDiagnostic debug 0 Image: DomainDiagnostic domain com.sun.appserv Image: DomainDiagnostic jmxName com.sun.appserv:type=Engine Image: DomainDiagnostic image: DomainDiagnostic image: DomainDiagnostic Image: DomainDiagnostic image: DomainDiagnostic com.sun.appserv:type=Engine	± Cacne	children	javax.management.ObjectName[2]	
Image: State of the state		containerSuffix		
Image: Bagine defaultHost defaultHost Image: Bagine domain domain Image: Bagine domain com.sun.appserv Image: Bagine domain info Image: Bagine domain org.apache.catalina.core.StandardEngine/1.0 Image: Bagine domain info Image: Bagine domain org.apache.catalina.core.StandardEngine/1.0 Image: Bagine domain info Image: Bagine domain com.sun.appserv Image: Bagine domain info Image: Bagine domain		debug	0	
Image: Second	Demonstrate Demonstrate Demonstrate Dependions Demonstrate	defaultHost		
Info org.apache.catalina.core.StandardEngine/1.0 jmXName com.sun.appserv:type=Engine ivmBoute		domain	com.sun.appserv	
immove immo		info	org.apache.catalina.core.StandardEngine/1.0	
± Notifications jymRoute		jmxName	com.sun.appserv:type=Engine	
The California California		jvmRoute		



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

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Applications 40	× Start Page × 🔚 Broker (pid 465) × 💏 admin@192.168.47.130:8086 ×				
	Overview Monitor				
🚽 VisualVM 🔬 YuuguuLauncher.jar (pid 5156)	O admin@192.168.47.130:8086				
E Remote	Monitor				
	Uptime: 2 hrs 13 min 42 sec				
admin@192.168.47.130:8086	CPU X	Heap	PermGen		
Doker (bid 403)	CPU Usage: 1% Heap		p size: 79,597,568		
	GC Activity: 0%	Used heap: 55,921,			
Producers	100%-	0014			

The GlassFish ESB v2.2 Runtime Appliance is ready for use.

To develop solutions to be deployed to this runtime environment you will need a GlassFish ESB Design Time installation, with the NetBeans IDE. Do this installation to a machine that has a screen, keyboard and mouse

If you only need to deploy existing Composite Application Service Assemblies 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 GlassFish ESB v2.2 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".

We now have a GlassFish ESB VMware Appliance with the GlassFish ESB Runtime, ready to use for GlassFish ESB Load Balancing and High Availability testing, or any other purpose for which a GalssFish ESB runtime appliance might be appropriate.