GlassFish ESB v2.x Field Notes Preparing Basic JeOS Appliance for GlassFish ESB LB and HA Testing Michael.Czapski@sun.com December 2009, Release 1.0.0.3

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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 frequently a wrong 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 building a Base OpenSolaris-based VMware Virtual Appliance, based on the JeOS Prototype. It will be used as the underlying infrastructure in future Notes discussing building GlassFish ESB, Java MQ, MySQL and other appliances used in LB and HA testing. The major advantage of this infrastructure is that, as well as being fully functional, if is free (as in free beer).

At the end of the Note we will have a basic VMware Appliance, running the minimal, headless OpenSolaris Operating System (based on June 2009 JeOS Prototype), configured to use NAT networking, and ready to use as the basis of GlassFish ESB and other infrastructure. To accomplish this we will download the JeOS Prototype, configure machine name and NAT networking and test network connectivity. We will also discuss the steps required to clone this appliance.

Obtain JeOS 2009/06

The OpenSolaris Project, <u>www.OpenSolaris.org</u>, builds the Free and Open Source OpenSolaris Operating System. This Operating System, which includes Gnome-based Desktop and other creature comforts, is available for download from the Project site. This distribution is fairly large as it contains a lot of software which will not be used in LB and HA testing.

The distribution that will be used in the Note is built through the OpenSolaris JeOS Prototype Project, <u>http://hub.opensolaris.org/bin/view/Project+jeos/</u>. The JeOS Project "... is focused on delivering examples of heavily reduced, text-based, headless server-oriented forms of the Sun-managed OpenSolaris distribution such that developers and administrators can more easily realize application-tailored installations of OpenSolaris in virtual appliance, cloud and bare metal environments.". The appliance configured in this Note is based on the 2009.06 Prototype Image. This image comes in a variety of form factors, <u>http://hub.opensolaris.org/bin/view/Project+jeos/200906+Prototype</u>. This Note discusses configuration of the VMware image.

Let's download the 2009.06 JeOS VMare image from the JeOS Prototype Download page: <u>http://hub.opensolaris.org/bin/view/Project+jeos/200906+Prototype</u>.



le updates to recent versions of the
products to avoid a system time of
ue.
ne VMX filed through "File -> Open"

Direct link, <u>http://dlc.sun.com/osol/jeos/2009/osol-0906-jeos-proto-vmware.zip</u>, points to the osol-0906-jeos-proto-vmware.zip archive.

Unzip the archive into a suitable directory. I used C:\VMwareDisks. Directory OSOL0906JeOSProto was created by the Unzip process.

Address C:\VMwareDisks\OSOL0906JeOSProto					
Name 🔺	Size	Туре			
🚔 instance.vmdk	3,392 KB	VMware virtual disk			
JeOS-0906-Proto.vmx	2 KB	VMware virtual mac			
🚔 JeOS-0906-proto-x86-b002-preview-v10.vmdk	667,584 KB	VMware virtual disk			
platforms.txt	1 KB	Text Document			
README.txt	1 KB	Text Document			
🗐 sshlogin.txt	1 KB	Text Document			
🖳 sshvmkeys.virtdisks.zip	1,124 KB	WinZip File			

Please note that this distribution gives a minimal, headless installation. There is no graphical environment. All work needs to be done through the console window or using a SSH Client.

VMware Environment

The Host environment for this Note is Windows XP SP3. I see no reason why the discussion should not be applicable to any other platform on which VMware Player, VMware Workstation or VMware Server of one sort or another is supported.

If you have a VMware Player 2.5 or better, VMware Worksstation 5.5 or better or a recent VMware Server infrastructure (other then ESX) you are ready to boot the VM. If not, one of the VMware infrastructure components is required.

I use VMware Player 3.0 for this work. It can be downloaded from <u>http://www.vmware.com/products/player/</u>. It is a free download, though it requires registration and responses to a questionnaire. The Player is available for 32 and 64 bit Windows and 32 and 64 bit Linux. See FAQ for additional information if this is of interest to you: <u>https://www.vmware.com/products/player/faqs.html</u>. See VMware <u>Player 3.0</u>. See Release Notes for supported Hosts and Guests: <u>http://www.vmware.com/support/player30/doc/releasenotes_player3.html</u>.

Installation of VMware Player will require re-boot on Windows.

Re-configure JeOS VM Image

This discussion is VMware Player 3.0-specific. Older versions of VMware Player don't support GUI-based reconfiguration. VMware Workstation and VMware Servers do. To re-configure the VM for VMware Player 2.5 or earlier consider using the VMX Builder tool, <u>http://vmxbuilder.com/</u>.

Start VMware Player, "File" \rightarrow "Open Virtual Machine...", locate the configuration file, JeOS-0906-Proto.vmx, in the directory to which JeOS was unzipped.



Click the "Edit Virtual Machine Settings" link.

Increase the amount of memory allocated to the machine if you have sufficient host memory. Changes the number of processors the machine is to use, if you have more then one. Change the networking from Bridged to NAT.

Virtual Machine Settings			×
Hardware Options			
Device Sur Memory 100 Processors 2 Hard Disk (SCST) 8 6 Hard Disk 2 (SC 80 Hoppy Au Network Adapter NA	mmary 24 MB 38 MB to detect 17	Device status ⊆ <u>Connected</u> ✓ <u>Connect at power on</u> Network connection © <u>Bridged: Connected directly to the physical network</u> ∏ <u>Replicate physical network connection state</u> © <u>MAT: Used to share the host's IP address</u> © <u>Host-only: A private network shared with the host</u>	
	Add <u>R</u> emove		
		OK Cancel Help	

Make any other changes you may need to make, for example to switch from 64-bit to 32-bit architecture if this is the host architecture.

Click the "Play the virtual machine" link. When the GRUB menu appears choose the first option.

	OSOLO)906Je 0	SPro	to - VM	ware	e Play	rer <u>F</u> ile	• <u>v</u> M • <u>H</u> elp •				-	□ ×
	GNU	GRUB	vei	rsion	0.9	17 ((638K	lower / 1	346464X uppo	er memor	À)		
	1 Op 2 Op 3 Op 4 Op 5 Op 5 Op 6 Op 8 Op	enSola enSola enSola enSola enSola enSola enSola	aris aris aris aris aris aris aris	2009. 2009. 2009. 2009. 2009. 2009. 2009. 2009.	06 06 06 06 06 06	×86 ×86 ×86 ×86 ×86 ×86 ×86 ×86	JeOS JeOS JeOS JeOS JeOS JeOS JeOS	Prototype Prototype Prototype Prototype Prototype Prototype Prototype	(Auto 32 or (Auto 32 or (AutoArch) (AutoArch) (AutoArch) (AutoArch) (Force 32 or (Force 32 or	r 64 bit r 64 bit +SERIA +SERIA -IDE DM -IDE DM bit Boot) +SSH) -SSH L -SSH L -SSH A +SSH A -SSH) +SSH		
	U: P: C:	se the ress e ommand	eîte ente ls be	and ↓ r to l efore	key boot boo	vs to the ting) sele sele (, or	ect which d ected OS, 'c' for a	entry is hiq 'e' to edit соммаnd-lin	ghlighte the ne.	d .		
To di	ect inpu	t to this vir	tual ma	chine, pre	ss Ctrl	+G.					- 🖫	www.are	

Wait for the machine to boot and display its DHCP-acquired IP address. Note down this address, for me 192.168.47.129. We will use it later to configure the PuTTY SSH Client.



Log in as osol/justone1

As root, using pfexec, edit the GRUB boot menu to remove "Press any key to continue" screen by deleting the two lines indicated in the file.

```
$ pfexec vi /rpool/boot/grub/menu.lst
```

😵 OSOL0906JeOSProto - VMware Player 🖽 🔹 🕅 👻 Help 👻	- 🗆 ×
timeout 20 default 0	
# Comment this 2 lines with #, if you want to remove msg "Press any serialport=0x3f8speed=9600word=8parity=nostop=1 terminaltimeout=5 console serial	key" on boot
# Each GRUB menus are paired SSH on [+SSH] / SSH off [-SSH] Daemon # SSH off [-SSH] variant is used for generating SSH access keys in	respectively secure manner
# Default menu pair - Will boot JeOS in 32 bit or 64bit mode automa title 1 OpenSolaris 2009.06 x86 JeOS Prototype (Auto 32 or 64 bit) findroot (pool_rpool.0.a) bootfs rpool/ROOT/opensolaris kernel% vplatform/i86pc/kernel/\$ISADIR/unix -B \$2FS-BOOTFS.sshd=ena	tically +SSH ble,console=t
ext module\$ /platform/i86pc/\$ISADIR/boot_archive	
title 2 OpenSolaris 2009.06 x86 JeOS Prototype (Auto 32 or 64 bit) findroot (pool_rpool,0,a) bootfs rpool/ROOT/opensolaris	-SSH
kernel\$ /platform/i86pc/kernel/\$ISADIR/unix -B \$2FS-BOOTFS,sshd=dis text nodula\$ /nlatform/i86pc/\$ISADIR/boot_archive	able,console=
"/rpool/boot/grub/menu.lst" 66 lines, 3124 characters	
To direct input to this virtual machine, press Ctrl+G.	🗊 vmware'

Reduce the number of options in the boot menu by commenting out or deleting those boot entries that you don't need.

Reduce boot timeout value by setting menu timeout to a lower value, for example 5 seconds.

```
$ pfexec bootadm set-menu timeout=5
```

Reboot the machine to test the changes.

```
$ pfexec reboot
```

Configure SSH Terminal Client

While the JeOS can be managed through the local Console, remote access to the standard JeOS installation can be gained using SSH as user osol. SSH root access is disabled. SSH access will make it easier to work with the machine.

I use PuTTY, Release 0.6 for Windows,

<u>http://www.chiark.greenend.org.uk/~sgtatham/putty/</u>. Feel free to use a SSL Client of your choice. The configuration discussion in this section assumes the use of PuTTY. If you use a different SSH client you will need to figure this out for yourself.

Assume PuTTY is installed to "C:\Program Files\PuTTY". Assume JeOS is unzipped to "C:\VMwareDisks\OSOL0906JeOSProto".

To configure access to the JeOS for PuTTY it is necessary to convert the JeOS distribution-provided OpenSSH sample key, sshvmrsa.key, to the PuTTY ppk format using the PuTTY puttygen tool.

Extract the OpenSSH key, sshvmkeyrsa.key, from the JeOS-provided archive sshvmkeys.virtdisks.zip, to the same directory whether the archive is located. Run the PuTTY puttygen application. Click the Load button.

PuTTY Key Generator	<u>?</u> ×
Elie Key Conversions Help Key - No key.	
Actions	Generate
Load an existing private key file Save the generated key	Save public key
Parameters Type of key to generate: C SSH-1 (RSA) Number of bits in a generated key:	C SSH-2 <u>D</u> SA

Locate the sshvmkeyrsa.key, which was just extracted to the JeOS directory.

oad private key	/:					?
Look in:	OSOL0906	6JeOSProto	•	00	🤒 🎛 •	
My Recent Documents Desktop My Documents	instance.vm JeOS-0906- JeOS-0906- platforms.b README.bd sshlogin.bd	idk Proto.vmx proto-x86-b002-preview ct t : a.key virtdisks.zip	w-v 10. vmdk			
	File name:	sshvmkeyrsa.key			•	<u>O</u> pen
My Network	Files of type:	All Files (*.*)			•	Cancel
Places		Open as read-or	nly			

A dialogue box will confirm successful import.

PuTTYge	n Notice X
١	Successfully imported foreign key (OpenSSH SSH-2 private key). To use this key with PuTTY, you need to use the "Save private key" command to save it in PuTTY's own format.
	<u> </u>

Click "Save public key" and "Save private key" buttons to save the keys in PuTTY-acceptable format.

😴 PuTTY Key Generato	or			? ×
<u>File Key Conv</u> ersions	Help			
Key				
Public key for pasting in	to OpenSSH authorized	_keys file:		
ssh-rsa AAAAB3NzaC1yc2EA/ cbAVLz0zeB6V+IW6/7 a5zLe3/QFp0b5dAHQ imported-openssh-key	VAABIwAAAIEAIjkcAIAO Tr4nFi4oZq5lpTJld9+y3r 5r5dxsaPfYP98/07LCe(Mb6DrqYkc4v32HWl npC7EHS6sogl8ldf8hE Inn1PHUW4Rlx61UH	N50EQBJxvvEkFP BzSv2i3uACYD/JT I3do18Eb2zM=	* *
Key fingerprint:	ssh-rsa 1024 d8:b8:06:4	4c:c5:13:c9fc:bc:84:2	2d:c9:12:ce:69:5e	
Key comment:	imported-openssh-key			
Key p <u>a</u> ssphrase:				
Confirm passphrase:				
Actions				
Generate a public/priva	te key pair		<u>G</u> enerate	
Load an existing private	key file	1	Load	
Save the generated key	۲	Save p <u>u</u> blic key	Save private ke	у
Parameters) 	
Type of key to generate C SSH- <u>1</u> (RSA)	:	O SS	H-2 <u>D</u> SA	
Number of <u>b</u> its in a gene	erated key:		1024	

Name the public key something like "sshvmkeyrsa.key.pub" and the private key something like "sshvmkeyrsa.key.ppk", ignoring the security warning. This Note is intended to get a VM configured, running and accessible as easily as possible. Security implications and other matters are beyond the scope of this note.

Exit puttygen once both keys are saved.

Start PuTTY to create a Session Document, which save session configuration for future sessions.

Enter Host Address and session name. Click the Save button.

E Session	Basic options for your PuTTY session
Logging Logging Logging Logging Logland Selu Features Window Appearance Behaviour Translation Selection Colours Colours Connection Data Proxy Tehet Blogin	Specify the destination you want to connect to Host Name (or IP address) Port 192.168.60.129 22 Connection type: Cannection type: Saved Sessions JeOS_192.168.60.129 Default Settings 192.168.60.11 SGApplance gfesb01_11 hercules01 icag1 x11 tunnel Delete
Telnet Riogin ⊞-SSH Serial	Intercules()1 Intercules()1 Iccalhost Intercules()1 Close window on exit: C C Always C Never

Expand the SSH \rightarrow Auth configuration category, Browse to where the sshvmkeyrsa.key is located and select it.



Select the Session category and click the Save button to save configuration again.

Real PuTTY Configuration	<u>? ×</u>
Category:	
📮 Session 🖌 🔺	Basic options for your PuTTY session
 ⇒ Session Logging ⇒ Terminal ⇒ Keyboard ⇒ Bell ⇒ Features ⇒ Window ⇒ Appearance ⇒ Behaviour ⇒ Translation ⇒ Selection ⇒ Connection ⇒ Data ⇒ Proxy ⇒ Telnet ⇒ Rlogin ⇒ SSH ⇒ Kex → Auth → TTY 	Basic options for your PuTTY session Specify the destination you want to connect to Host Name (or IP address) Port 192.168.60.129 22 Connection type: © Raw C Raw Telnet Raw Telnet Saved Sessions Serial JeOS_192.168.60.129 Load Default Settings Load 192.168.60.11 Save JeOS_192.168.60.129 Save Default Settings Load gfesb01_11 Delete hercules01 Delete Close window on exit: Only on clean exit
X11 	<u>O</u> pen <u>C</u> ancel

Click the Open button.

The first time PuTTY connects to the virtual machine an Alert dialogue box may appear.



Provide the username of osol to log in.



Reconfigure PuTTY session appearance as you see fit.

On Windows, create a shortcut to a command similar to the following, replacing the host address and session name as appropriate:

"C:\Program Files\PuTTY\putty.exe" -load "JeOS_192.168.47.129" osol@192.168.47.129

This shortcut will start PuTTY with the correct saved session, the correct username and the correct (at least for a while) address.

Configure SSH SFTP/SCP Client

At some point \one might need to exchange files between the host and the guest. While the ftp client in the JeOS can used for this, there is a need to have an FTP server on the host. Since the JeOS guest already has a SSH server it is more convenient, perhaps, on the host, to use the SCP to transfer files to/from guest.

I use WinSCP, Version 4.2.4 for Windows, <u>http://winscp.net/eng/index.php</u>. Feel free to use another SSH file transfer client.

Assume WinSCP is installed to "C:\Program Files\WinSCP3". Assume JeOS is unzipped to "C:\VMwareDisks\OSOL0906JeOSProto".

Start WinSCP and click New button.

New Ledit

Enter host name/address, username: osol, password: justone1 and browse to the keyfile, sshvmkeyrsa.key.ppk, in the JeOS directory.

WinSCP Login				<u>? ×</u>
Session Stored sessions Logging Environment Directories SFTP SCP/Shell Connection Proxy Tunnel SSH Key exchange Authentication Bugs Preferences	Session <u>H</u> ost name: 192.168.47.12 <u>U</u> ser name: osol Private <u>k</u> ey file: :\\VMwareDisks Protocol <u>F</u> ile protocol:	9 \OSOL0906Je	Password:	Po <u>r</u> t number: 22 : yrsa key.ppk fallback Select c <u>o</u> lor
Advanced options				
About Langu	ages	Login	<u>S</u> ave	Close

Click the Save button and save the session properties.

Save session as		<u>? ×</u>			
Save session as:					
osol@192.168.47.129					
Save password (not recom	mended)				
ОК	Cancel	<u>H</u> elp			

Choose the session and click Login.

You may get an Alert dialogue warning of a potential security breach. Choose to Add the key.



Now we can conveniently transfer files between Windows and JeOS using WinSCP.

🔂 osol - osol@192.168.47.129 - WinSCP	
<u>File Commands Mark Session View H</u> elp	
Address 🗁 /export/home/osol	
↔ - → - 🖻 🙋 🚮 🙋 📝 🗁 🗙 💣 🖋 🖉	* 🗈 🔤 🧬 😫 🐟 🐘
🔹 💿 🔹 🏥 🗊 🔹 📴 Default 🔹	3 -
🖃 🚞 / <root></root>	Name 🔺 Ext
⊡ (<u>i</u> iii) export	inks 🔁
🖻 🗁 home	🛅 .ssh
i osol	.bash history
inks 	B.bashrc

Increase swap space on Guest

Almost inevitably the VM will run out of swap space once anything of substance gets installed, for example GlassFish ESB runtime. To anticipate this add an extra swap file using commands like the following, where the extra swap space will be 1G.

```
pfexec swap -sh # find out how big your swapdevice is
pfexec zfs get volsize rpool/swap # find out how big your ZFS swapdevice is
pfexec zfs set volsize=2G rpool/swap # enlarge it to (eg:) 2G, 2048M
pfexec reboot
```

Install JDK 1.6.0_16 on Guest

In most cases this virtual machine will be used to host software which requires Java Virtual Machine to run, and possibly, the JDK. Let's download JDK 1.6.0_16 for Solaris x86 or x64 (depending on your host platform architecture) from the Sun download site, <u>https://cds.sun.com/is-bin/INTERSHOP.enfinity/WFS/CDS-CDS_Developer-Site/en_US/-/USD/ViewProductDetail-Start?ProductRef=jdk-6u16-oth-JPR@CDS-CDS_Developer</u>, to a convenient directory.

In this Note the shell variant is used - <u>http://cds.sun.com/is-</u> bin/INTERSHOP.enfinity/WFS/CDS-CDS_Developer-Site/en_US/-/USD/VerifyItem-Start/jdk-6u16-solarisi586.sh?BundledLineItemUUID=uR9IBe.oEgEAAAEl_lsxcEip&OrderID=.7JIBe.oL <u>oAAAEl4FsxcEip&ProductID=VWFIBe.prNkAAAEisRcTvuC_&FileName=/jdk-6u16-solaris-i586.sh</u>

Start a WinSCP session to the VM. Create a new directory called "downloads" in osol user's home directory.

🔹 💿 🔹 📑 👘 🔹 📴 Defau	lt		- 🛛 🍕 -					
🖂 🧰 / <root></root>	Nar	ne 4	⊾ Ext				Size	Char
🖻 🖓 🧰 export		.links						09-C
⊡ in home		.ssh						02-D
itio osol		.bash	n_history				64	02-D
		.bash	nrc				280	09-C
		.prof	ile				611	09-C
		READ	ME.txt				828	09-C
			<u>G</u> о То	•				
		1	<u>R</u> efresh	F5				
		۲	Add to Bookmarks	Ctrl+B				
			Copy Path to Clipboard	Shift+Ctrl+P				
			New	•	📝 Eile	Shit	ft+Ctrl+E	
					🖄 Dire	ectory	Ctrl+D	
					📓 Lin			

Copy the JDK download to the "downloads" directory.

🔹 💿 🔹 🏥 🕋 📲 📴 Defau	lt 🔹 🐼 🗸		
🖃 🧰 / <root></root>	Name 🔶 Ext	Size	Changed
È (È) export	jdk-6u16-solaris-i586.sh	80,634,243	01-Dec-2009 4:18:01 PM
⊡⊖ osol			
inks			
downloads			

Terminate the WinSCP session and start a SSH Client (PuTTY) session to the virtual machine.

Execute the following in the SSH Client window:

```
cd /
pfexec /bin/sh /export/home/osol/downloads/jdk-6u16-solaris-i586.sh
```

Answer yes to the License question. Once the installation is finished execute the following command to verify installation:

/jdk1.6.0_16/bin/java -version

Edit osol user's .bashrc and add the path to the JDK bin directory to the osol user's path.



Shut down the machine using a command like:

pfexec shutdown -y -i0 -g0

The VM image is now ready for cloning.

Clone the VM Image

What we have so far is a template base JeOS appliance image which can be cloned as needed.

Let's create clone called gfesbv21, with the host name of gfesbv21, based on the template.

Create a directory called gfesbv21 in a convenient location. Copy all file form directory OSOL0906JeOSProto to that new directory. Rename the following:

From	То
JeOS-0906-proto-x86-b002-preview-v10.vmdk	gfesbv21.vmdk
JeOS-0906-Proto.vmsd	gfesbv21.vmsd
JeOS-0906-Proto.vmx	gfesbv21.vmx
JeOS-0906-Proto.vmxf	gfesbv21.vmxf
instance.vmdk	instance.vmdk

Using a text editor, for example Notepad, edit gfesbv21.vmx and change the following strings:

From	То
JeOS-0906-proto-x86-b002-preview-v10.vmdk	gfesbv21.vmdk
OSOL0906JeOSProto	gfesbv21
JeOS-0906-Proto.vmxf	gfesbv21vmxf

Delete or comment out (using # as a comment line marker) the lines starting with the following:

ethernet0.generatedAddress
uuid.location
uuid.bios

Save the gfesbv21.vmx configuration file.

Use this configuration file to open the virtual machine in the VMware Player.

Take note of the assigned IP address.



Create a new SSH Client session document to point to this machine or use the Console to modify host name in various startup files.

Log in as user osol.

As root, edit /etc/nodename and set the new host name there:

```
pfexec vi /etc/nodename
```

As root, edit /etc/hosts and set host name there. Make sure that the non-FQDN host name <u>does not</u> resolve to 127.0.0.1

pfexec vi /etc/hosts

By default the hosts file has the following content:

```
# Internet host table
#
::1 osol-jeos osol-jeos.local localhost loghost
127.0.0.1 osol-jeos osol-jeos.local localhost loghost
```

Change it to read:

```
# Internet host table
#
::1 gfesbv21.local localhost loghost
127.0.0.1 gfesbv21.local localhost loghost
192.168.47.130 gfesbv21
```

192.168.47.130 is the DHCP address that was displayed on the Console at boot. This address is likely to be retained until you remove the assigned ethernet0.generatedAddress entry from the vmx file or reinstall VMware infrastructure. Add a fully-qualified domain name variant, for example gfesbv21.aus.sun.com, following gfesbv21, if you know what your domain name is, if you care for DNS-based name resolution and if sendmail host name errors don't concern you.

As root, create a file /etc/hostname.el000g0 and add to it a single line containing the literal "inet gfesbv21", where gfesbv21 is the host name

```
pfexec vi /etc/hostname.e1000g0
```

Reboot the virtual machine, for example using this command:

pfexec reboot

Notice the changed host name and the same IP address:

🥸 gfesbv21 - VMware Player Eile ▾ ⊻M ▾ Help ▾
SunOS Release 5.11 Version snv_111b 32-bit Copyright 1983-2009 Sun Microsystems, Inc. All rights reserved. Use is subject to license terms. Hostname: gfesbv21 PReading ZFS config: done. Mounting ZFS filesystems: (6/6)
IP address from NWAM DHCP backgroud process will be printed in max 30 seconds. IP: 192.168.47.130 , Got ssh key , sshd online gfesbv21 console login: _

The JeOS clone, gfesbv21, is ready.

Use this method to create as many clones as you need for LB and HA testing, and whatever else you need a basic OpenSolaris-based server image.

When the IP Address Changes

VMware generates the MAC address for the VM image. DHCP infrastructure "remembers" this MAC address and endeavors to issue the same IP address each time a vm image is booted. If you re-install VMware Player, or in similar circumstances, the next time you boot your vm image it may be issued a different IP Address. This tends to cause problems as /etc/hosts has the IP Address embedded.

As root, edit /etc/hosts and change the IP Address to what the console shows at boot, if the two are different.

Summary

This note walked through the process of building a Base OpenSolaris-based VMware Virtual Appliance, based on the JeOS Prototype. To accomplish this we downloaded the JeOS Prototype, configured machine name and NAT networking and tested network connectivity. We also discussed the steps required to clone this appliance.

We now have a basic VMware Appliance template, running the minimal, headless OpenSolaris Operating System (based on June 2009 JeOS Prototype), configured to use NAT networking, and ready to use as the basis of GlassFish ESB and other infrastructure. We also have a single clone of the template, ready for installation of additional software.