Motorola NBBS
3rd Party Software Installation Guide

Version 5.1

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INTRODUCTION

This document provides the procedure to install the operating system and 3rd party software necessary to correctly operate Motorola's NBBS platform. This includes steps to install a new OS image and apply a complete site-specific configuration.

Note: In the case of the specific market, the account teams use this document as a starting place to build their Method of Procedure (MOP) and not as a MOP.

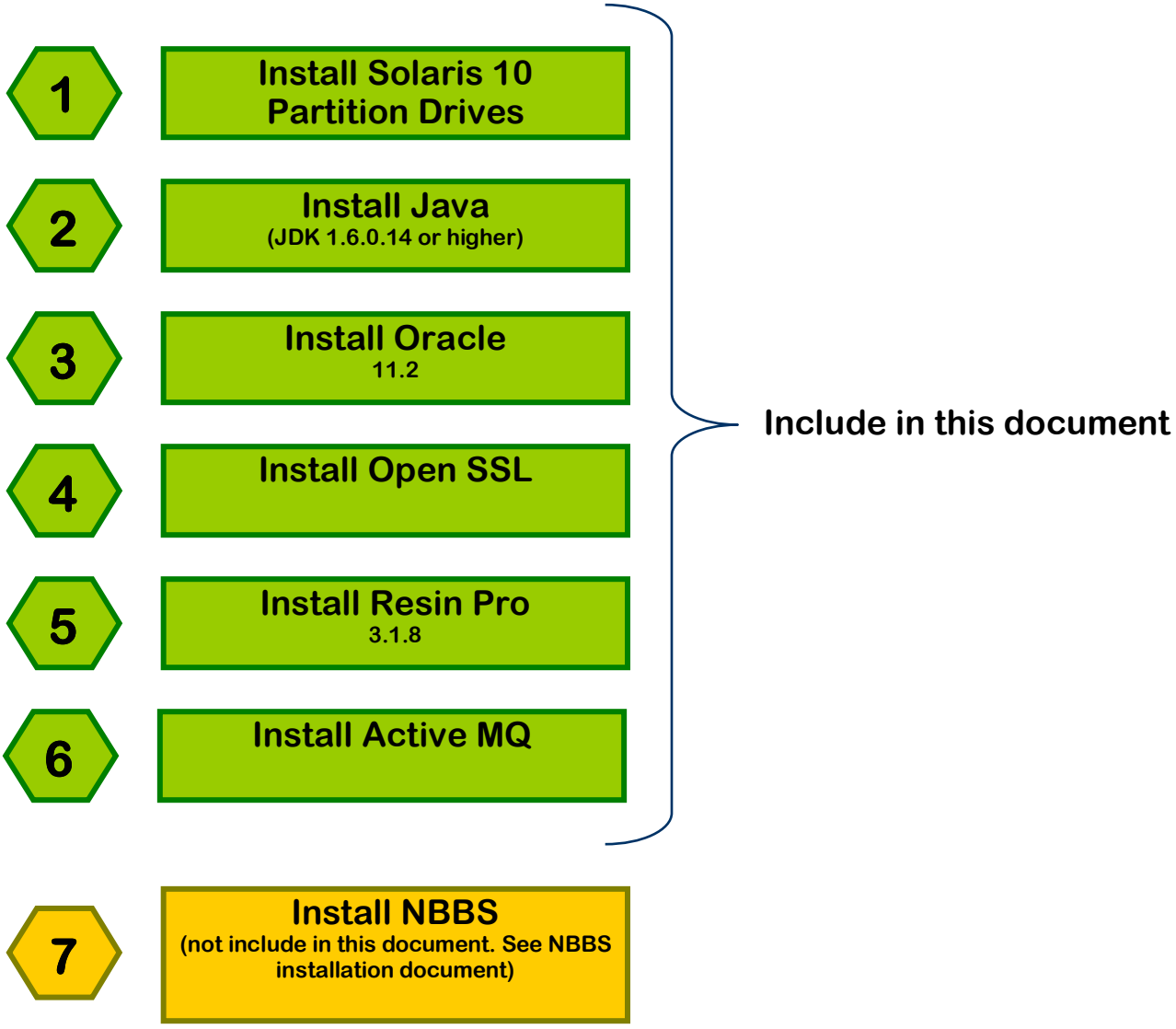
CHAPTER 1: GENERAL INFORMATION

This document describes the hardware and the 3rd party software installation procedure required to be completed before the installation of Motorola's NBBS device manager.
This guide is intended for Administrators and deployment team.

Work flow

To prepare the server, the operator must ensure that the following steps are complete.

1. Configure and load the operating system and partition the hard drives.
2. After the server is configured and UNIX is running, install oracle, followed by SSL, and Resin-Pro.
3. Install NBBS on the server. Installing NBBS includes configuring all the 3rd party software.



System requirements

Hardware requirements

Device	Configuration Data
Application Server	Sun T5220 Quad-Core UltraSPARC T2 Processor, 1.2 GHZ, 4 MB Level-2 Cache, 16 GB Memory, 4X146 GB 10000 rpm SAS Disk Drives

For hardware configurations that involves external disks arrays, please refer to Appendix A: Configuration when using External Disk Array

Software requirements

Software	Version
Operating System	Solaris 10
Java SE Development kit JDK	Version 1.6.0_14 or later Java EE 5 SDK includes the JDK 1.6.0_11 or later minor versions. Example: 1.6.0_12
Oracle Database	11gR2 Standard Edition One
Caucho Resin Professional	3.1.8
Open SSL	Openssl-0.9.8k

CHAPTER 2: INSTALL SOLARIS 10 OPERATING SYSTEM

A complete list of Sun SPARC Enterprise T5220 Server Documentation can be found at http://www.sun.com.

Reference:

- Sun SPARC Enterprise T5120 and T5220 Server Installation Guide
- Solaris 10 5/09 Installation Guide: Basic Installations

Connecting to the Server

Connect to the serial management port on the rear of the server using a laptop. Use Hyper-Terminal or similar console tool and set its configuration to and start a session:

Port=COMx
Baud = 9600
Data = 8 bit
Parity = None
Stop Bit = 1
No Flow Control

Power On/ILOM to ALOM

When the T5220 is powered on, the Integrated Lights Out Manager (ILOM) will initialize. ILOM allows users to monitor and manage the server using a browser-based interface or a Command-Line Interface.

1. Log in with the user preconfigured root account.

   ```
   User Name: root
   Password: changeme
   ```

2. Change the ILOM environment to ALOM.
3. Type the following command:

   ```
   create /SP/users/admin role=Administrator cli_mode=alom
   ```

4. Enter the password twice.
5. Log out.
6. Log in to the server.

   ```
   Username = admin
   Password = "the new password you provided."
   ```

7. At the sc> prompt type "poweron".
   "SC Alert: Host system has been reset" message displays.
8. Press **<ENTER>** key to get SC> prompt.
9. At the sc> prompt type **"console".**

10. Get the ok> prompt.

```
At the ">" prompt enter "send brk" and <ENTER> key to send the break.
Press <ENTER> key to get "ok" prompt.
If UNIX is running, type "init 0" to display the "ok" prompt.
```

Note: If you are using other tools to connect to T2000 through a serial port, try the following operations: type "**break -y**" at the sc> prompt; or press **--#** keys; if you are using Solaris keyboard use **Stop-A** keys.

Configure Disk Mirroring

1. Insert the Solaris CD/DVD into the disk drive.

```
Enter ok> boot cdrom -s
This command boots the system and provides limited functionality.
```

2. Enter the following commands to establish disk mirroring.

```
a. # raidctl -c c1t0d0 c1t1d0
b. Enter yes.
c. # raidctl -c c1t2d0 c1t3d0
d. Enter yes.
```

3. When mirroring is complete, a "complete" message is displayed.
4. Enter "init 0" to display the ok> prompt.

Note: This may take up to 90 minutes to complete.

Install Solaris

The Solaris installation program is divided into a series of short sections where you will be prompted to provide information for the installation. At the end of each section, you will be able to change the selections you have made before continuing.

If your keyboard does not have function keys, or they do not respond, press **<ESC>**; the legend at the bottom of the screen will change to show the ESC keys to use for navigation.

Information required to complete the Solaris installation

This section lists all the steps required to perform a scratch load of Solaris. Follow each step to complete the process. You will need the following information before beginning this procedure.

- Host Name _____
- Server IP address _____
- Server netmask _____
- Default router IP address _____
- Root Password _____

Procedure

1. Insert the Solaris 10 CD/DVD Operating System for SPARC Platforms into drive.

2. Enter ok> set-defaults.
3. Enter ok> boot cdrom – text.

Note: `text` indicates that the text installer will run instead of the GUI installer.

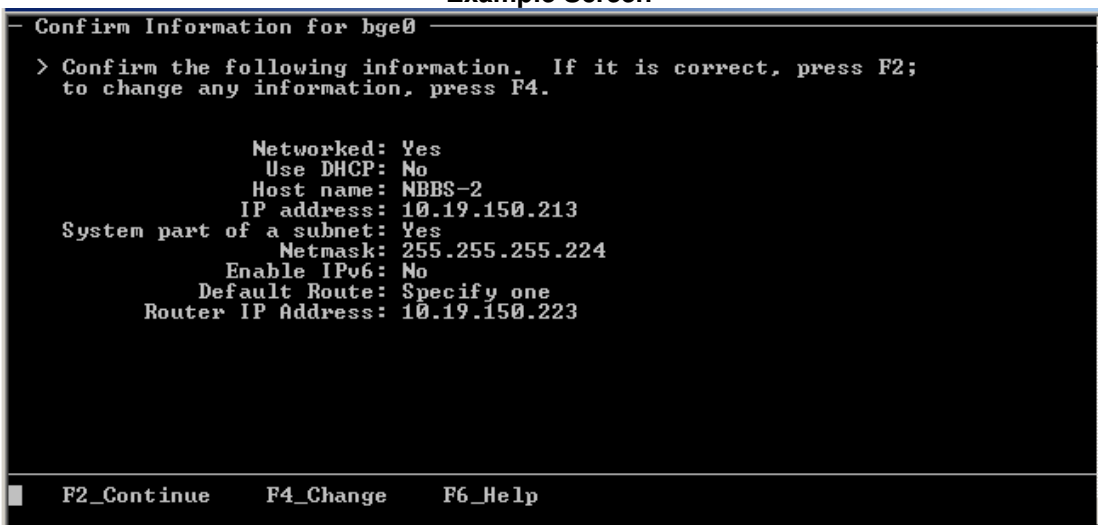
Note: This procedure follows the standard Sun Solaris procedure. The system prompts to enter the system configuration data. The following table lists all the information required to complete the installation.

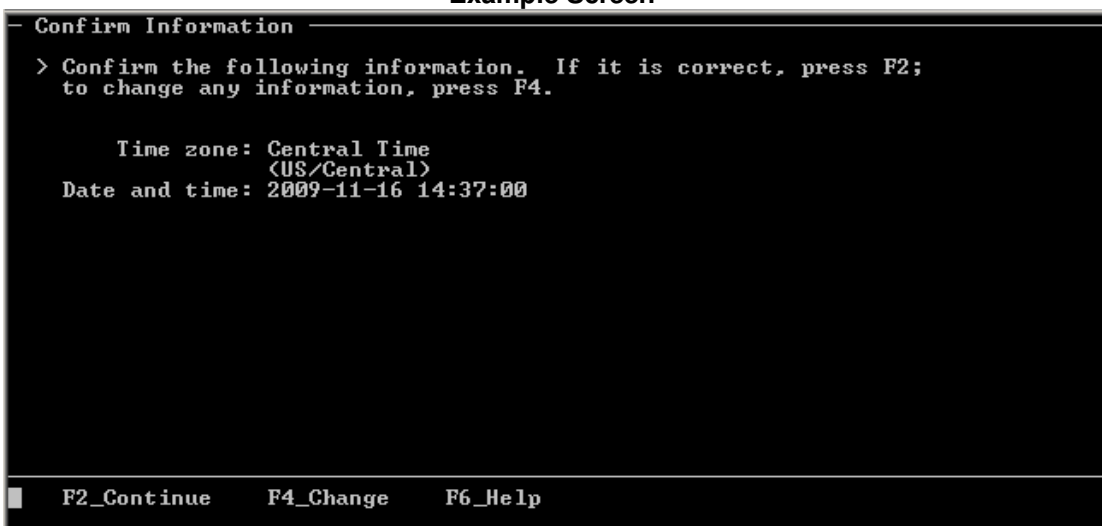
Solaris installation fields

The Solaris installation steps you through multiple screens. Enter the required data at each screen. Follow the navigation on the bottom of each screen.

Note: To navigate the Solaris installation window, use the up/down arrow keys to highlight items and the space bar or **<ENTER>** key to select [**X**] and deselect [ ] the item. After the selection is made, use the options on the bottom of the window to continue.

Step	Screen Title	Action/ Enter	Notes
1.	Select a Language	0	
2.	What type of terminal…	3	DEC VT100
3.	Read the notes	F2	Continues. Based on the terminal you are using, you may be prompted to use **<ESC>-2** instead of **F2**.
4.	Indentify This System	F2	Identifies the system. Sets network configuration and time.
5.	Network Connectivity	YES	Place an "**X**" next to **Yes**. To make a selection, use the arrow keys to highlight the option and press Return to mark it [X].
6.	Configure Multiple Network Interfaces	Select the correct interface.	Place an "**X**" next to the network interface you will use.
7.	DHCP	NO	Place an "**X**" next to the network interface you will use.
8.	Host Name	<Specify host name>	Enter the host name.
9.	IP Address	<XXX.XXX.XXX.XXX>	Enter the IP address.
10.	Subnet	YES	Place an "**X**" next to **yes** if the machine is part of a subnet.
11.	Netmask	<YYY.YYY.YYY.YYY>	Enter the subnet mask
12.	IPv6	NO	Place an "**X**" next to **no to disable IPv6**.
13.	Set Default Route for bge0	SPECIFY ONE	Place an "**X**" next to Specify One.
14.	Default Route IP Address	<ZZZ.ZZZ.ZZZ.ZZZ>	Enter the default router IP address.
	> Confirm the following information. If it is correct, press F2; to change any information, press		

	F4. Networked: Yes Use DHCP: No Host name: <HOST NAME> IP address: **XXX.XXX.XXX.XXX** System part of a subnet: Yes Netmask: **YYY.YYY.YYY.YYY** Enable IPv6: No Default Route: Specify one Router IP Address: **ZZZ.ZZZ.ZZZ.ZZZ** F2_Continue F4_Change F6_Help **Example Screen**  		
15.	Configure Security Policy	NO	Place an "**X**" next to **no** if the system will use standard UNIX security.
16.	Confirm Information	F2	F2 (<ESC>-2) to confirm.
17.	Name Service	NONE	Place an "**X**" next to **None**.
18.	Confirm Information	F2	F2 (<ESC>-2) to confirm.
19.	NFSv4 Domain Name	Use the NFSv4 do….	Place an "**X**" next to **Use the NFSv4 domain derived by the system**.
20.	Confirm Information	F2	F2 (<ESC>-2) to confirm.
21.	Time Zone	Enter your time zone	Place an "**X**" in the appropriate time zones.
22.	Country or Region	Enter your country/region	Place an "**X**" in the appropriate country.
23.	Time Zones	Enter the time zone	Place an "**X**" in the appropriate time zone.
24.	Date and Time	Enter the correct date and time	To make a selection, use the arrow keys to highlight the

			value.
	Example Screen 		
25.	Confirm Information	F2	Press F2 (<ESC>-2) to confirm.
26.	Root Password	<Password>	Enter the root password for your machine.
27.	Enable remote service	NO	Place an "**X**" next to **no**.
	The system completes the System identification process and starts the Solaris installation program. This action takes a few minutes.		
28.	Solaris Interactive Installation	F2	Loads the standard installation.
29.	Eject a CD/DVD automatically	Automatically eject CD/DVD	Place an "**X**" next to **Automatically…..**.
30.	Reboot after Installation	Auto Reboot	Place an "**X**" next to **Auto Reboot.**
31.	System is Upgradable	F4	Press F4 to begin an initial installation. This option overwrites the system disk.
32.	Accept License	F2	Press F2 (<ESC>-2) to accept.
33.	Select Geographic Regions	Select your geographic location	Place an "**X**" next to your location.
34.		Select "U.S.A. (en_US.ISO8859-1)"	Place an "**X**" next to the correct region and character set.
35.	Select System Locale	Select the correct system locale	If North America, select U.S.A (en_US.ISO8859-15) (en_US.ISO8859-15)
36.	Additional Products	NONE	Place an "**X**" next to **NONE**.
37.	Software to be Installed	Entire Distribution	
38.	Select File System	UFS	Select **UFS**.
39.	Analyzing System	The Solaris software on the system is being analyzed for	The analysis takes several minutes to complete.

<table>
<tr><td></td><td></td><td>the upgrade.</td><td></td></tr>
<tr><td>40.</td><td>Select Software</td><td>Entire Distribution</td><td>Place an “X” next to Entire Distribution.</td></tr>
<tr><td>41.</td><td>Select Disk</td><td>c1t0d0
c1t1d0</td><td>Place an “X” next to both disks.</td></tr>
<tr><td>42.</td><td>Preserve Data?</td><td>F2</td><td>Press F2 to continue.</td></tr>
<tr><td>43.</td><td>Automatically Layout File System?</td><td>F4_Manual Layout</td><td></td></tr>
<tr><td>44.</td><td>File System and Disk Layout</td><td>F4_Customize</td><td>Select both disks in order to customize disk 1 and disk 2.</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>45.</td><td colspan="3">Enter file sys and disk layout.
See the following table:
<table>
<tr><th>Disk #</th><th>Phy Dev</th><th>Logical dev</th><th>Total Size</th><th>Slice</th><th>Slice Size</th><th>Mount Point</th><th>Partition Description</th></tr>
<tr><td>Disk 1</td><td>c1t0d0
c1t1d0</td><td>c1t0d0</td><td>140 Gb</td><td>c1t0d0s0
c1t0d0s1
c1t0d0s3</td><td>30 Gb
12 Gb
98 Gb</td><td>/
swap
/opt</td><td>root
swap
application</td></tr>
<tr><td>Disk2</td><td>c1t2d0
c1t3d0</td><td>c1t1d0
(Logical mirror raid)</td><td>140 Gb</td><td>c1t1d0s3</td><td>140 Gb</td><td>/a01</td><td>database</td></tr>
</table>
(For external disk array configuration, instead of following the recommendation above, please refer to Appendix A: Configuration when using External Disk Array</td></tr>
<tr><td>46.</td><td>Mount Remote File System</td><td>F2</td><td></td></tr>
<tr><td>47.</td><td>Profile</td><td>F2</td><td>F2 to begin installation</td></tr>
<tr><td>48.</td><td>May get warning</td><td>F2</td><td>Verify and ignore if …</td></tr>
</table>

Note: The system starts to load OS and reboots. This action takes approximately 1.25 hours. Upon the completion of the install, the system prompts to select to Configure Keyboard Layout. Select US_English and F2_Continue.

IMPORTANT: Use of ENGLISH will be required for future Motorola support.

Note: You may be prompted with a screen asking whether you want to override the system default NFS version. If so, select No to continue.

CHAPTER 3: INSTALL SUNFREEWARE TOOLS

Required software:

- GCC-3.4.6
- LIBGCC-3.4.6
- LIBICONV-1.13.1
- LIBINTL-3.4.0
- TAR-1.23
- TOP-3.6.1

Perform the following steps to install the Sunfreeware tools.

1. Obtain the software from http://sunfreeware.com/programlistsparc10.html
2. Download the gzipped files to the local disk and gunzip the files.
3. Run the following command for installation:

```
# pkgadd -d /path/to/package

Example:
# pkgadd -d /usr/local/sw/tar-1.23-sol10-sparc-local

      The following packages are available:
      1 SMCtar     tar
                 (sparc) 1.23
```

4. Select package(s) you wish to process (or 'all' to process all packages). The default is all. [?,??,q]:
5. Once all packages are installed, replace the default solaris tar program with the newly installed one:

```
#mv /usr/sbin/tar /usr/sbin/tar.orig
#cp /usr/local/bin/tar /usr/sbin/
```

Note: This resolves an issue with the default version of tar, which has known issues with long **filenames/paths.**

CHAPTER 4: INSTALL JAVA

Required software:

- Java SE Development Kit 6u14 or higher
- Jdk-6u14-solaris-sparc.sh
- Jdk-6u14-solaris-sparc9.sh
- https://cds.sun.com/is-bin/INTERSHOP.enfinity/WFS/CDS-CDS_Developer-Site/en_US/-/USD/ViewProductDetail-Start?ProductRef=jdk-6u14-oth-JPR@CDS-CDS_Developer

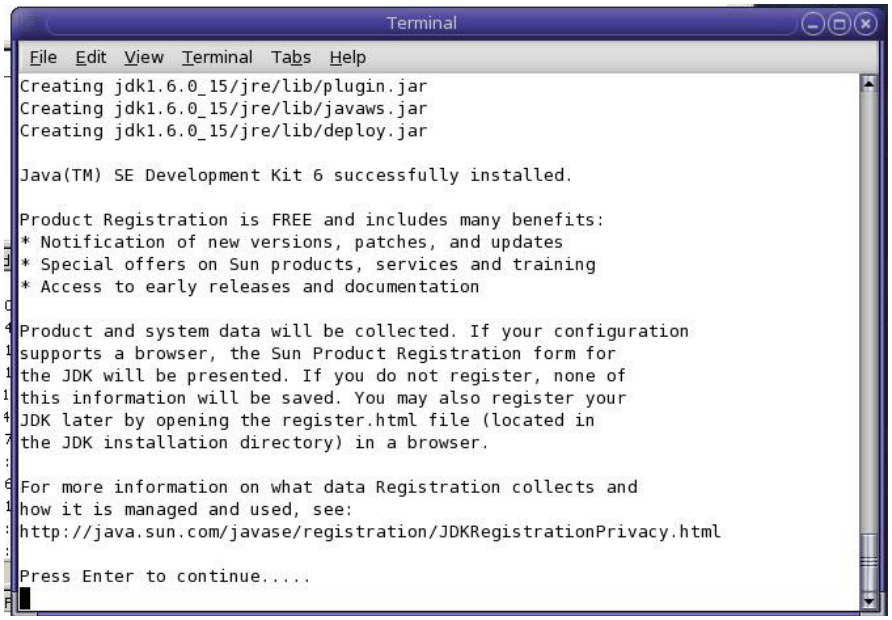
Installing Java on a SPARC platform requires loading both **Jdk-6u14-solaris-sparc.sh** and **Jdk-6u14-solaris-sparc9.sh.**

Note: The following installation files were completed with jdk-6u15. If you are using jdk-6u14 change the command accordingly.

1. Download the self-extracting binaries.
2. Copy both binaries to **/tmp.**
3. Ensure that the execute permissions are set correctly.

```
# chmod +x jdk-6u15-solaris-sparc.sh
# chmod +x jdk-6u15-solaris-sparcv9.sh
```

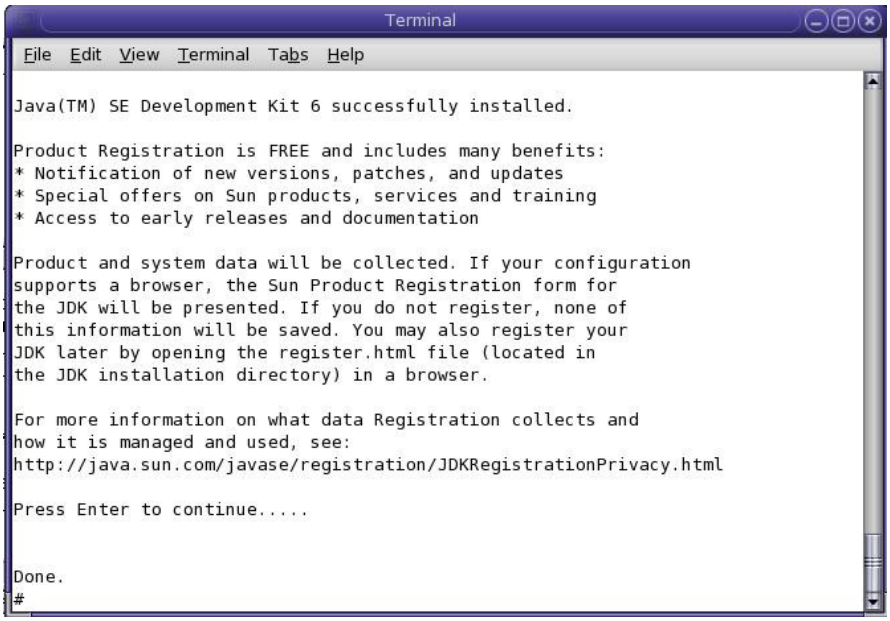
4. Change the directory to **/usr/jdk/instances.**
5. Run the self-extracting binaries for the Java SE Development Kit.
   a. **# /tmp/jdk-6u15-solaris-sparc.sh**
   b. Enter **yes** to agree with the **licensing terms.ls**
   c. The package begins to automatically extract the file system.



d. Press **<ENTER>** to continue. This returns you to the root prompt.

6. Run the self-extracting binaries for the Java SE Development Kit.

a. **/tmp/jdk-6u15-solaris-sparcv9.sh**
b. Type **yes** to agree with the **licensing terms.ls**
c. The package begins to automatically extract the file system.



7. Perform the following steps to create a soft link to the file.

```
cd /usr/jdk
#ln -s instances/jdk1.6.0_14 .
#rm latest
#ln -s jdk1.6.0_14 latest
cd /usr
#rm java
#ln -s jdk/jdk1.6.0_14 java
#ls -l java

lrwxrwxrwx    1 root              root   15 May 8 13:20 java -> jdk/jdk1.6.0_14
```

8. Verify the version of Java installed on the server.

```
# which java
/usr/bin/java
# Java -version
```

CHAPTER 5: INSTALL ORACLE

Reference:

- Oracle Database Quick Installation Guide, 11 g Release 2 (11.2) for Solaris Operating System, E10848-02, November 2009.
- Oracle Installation Notes, NBBS Engineering, Motorola Internal Document.

This installation procedure is based on the silent Oracle installation process. It is customized to include the correct users and file locations for the NBBS server.

Note: The assumption is, this is a new system and no groups or users have been created.

Note: For installation troubleshooting, refer to the Oracle Database Installation Guide.

Creating Groups, Users, and Kernel setup

This section creates the required groups and users to install Oracle for the NBBS.
Following are the groups and users that must be created.

- Oracle Inventory Group (dba)
- OSDBA Group (dba)
- Oracle software owner (oracle)

1. Create groups and users.

```
a. # groupadd dba
b. # mkdir /export/home
c. # useradd -g dba -G dba -m -d /export/home/oracle -s /usr/bin/bash oracle
d. # passwd oracle  (change oracle password)
```

2. Create and modify kernel parameters

```
e. # projadd -U oracle -K "project.max-shm-memory=(priv,8g,deny)" user.oracle
f. # projmod -sK "process.max-sem-nsems=(priv,2048,deny)" user.oracle
g. # projmod -sK "project.max-sem-ids=(priv,4000,deny)" user.oracle
h. # projmod -sK "project.max-shm-ids=(priv,32768,deny)" user.oracle
```

Creating required directories

This section creates the directories required to support Oracle in the NBBS.

Note: If using External Storage array for database, then change /u01/ora_backups/ to /b01/ora_backups/ first and then /opt/ to /u01/ in all occurrences below.

1. Create the following directories and change directory ownership.

```
a. # mkdir -p /opt/app/oracle/product/11.2.0/db_1
```

b. # **mkdir –p /opt/app/oracle/admin**
c. # **chown –R oracle:dba /opt/app**

2. Create the following directories and change directory ownership.

d. # **mkdir –p /a01/oradata**
e. # **chown –R oracle:dba /a01/oradata**

3. Create the following directories and change directory ownership

f. # **mkdir –p /opt/ora_backups**
g. # **chown –R oracle:dba /opt/ora_backups**

Configuring Oracle user environment

This section configures the oracle user environment.

1. Switch users to oracle

a. # **su – oracle**

2. Edit .bash_profile

```
a. # vi .bash_profile
b. Enter the following information in the file.
c. umask 022
d. export EDITOR=vi
e. TMP=/tmp; export TMP
f. TMPDIR=$TMP; export TMPDIR
g. ORACLE_BASE=/opt/app/oracle; export ORACLE_BASE
h. ORACLE_HOME=$ORACLE_BASE/product/11.2.0/db_1; export ORACLE_HOME (this text
   is a wrap from the previous line… export ORA…)
i. ORACLE_SID=nbbsdb; export ORACLE_SID
j. PATH=$PATH:/usr/local/bin:/usr/ccs/bin:/usr/sfw/bin:$ORACLE_HOME/bin:$ORACLE
   _HOME/OPatch; export PATH
k. ulimit –s 32768
l. ulimit –n 65536
```

3. Enable the source file.

a. $ **source .bash_profile**

Unzipping files

If the copy of oracle is downloaded from Oracle, you will need to unzip the files.

Note: If Oracle is being installed using a DVD or CD, refer to the Oracle installation guide for procedures to mount the disk.

Note: This can be done using several methods. The assumption is that you have the 2 zip files in this directory **./export/home/oracle**

1. Make the following directory
   a. # mkdir 11gSrc
2. Move the files to the application directory.
3. Check for corrupt files by running this command.
   a. # **unzip -t XXXXX.zip.** (XXXXX is the file name)
4. Unzip each file.
   a. # **unzip XXXXX.zip.**

Note: A directory structure (**/database**) will be created.

Oracle installation (Silent)

Run Silent install

The silent installation option allows you to complete an unattended installation. The Oracle Universal Installer displays the installation progress, but does not display any **Oracle Universal Installer** screens.

1. Create oraInst.loc file.
   a. # su - root
   b. # mkdir -p /var/opt/oracle
   c. # cd /var/opt/oracle
   d. Use vi text editor to create the oraInst.loc file, containing the following lines

      inventory_loc=/opt/app/oracle/oraInventory
      inst_group=dba
   e. # chown oracle:dba oraInst.loc
   f. # chmod 664 oraInst.loc
2. Change users to oracle
   a. **# su - oracle**
3. Install Oracle
   a. $ cd /export/home/oracle/11gSrc/database
   b. **$ ./runInstaller -silent -responseFile /export/home/oracle/11gSrc/database/response/db_install.rsp -invPtrLoc /var/opt/oracle/oraInst.loc **

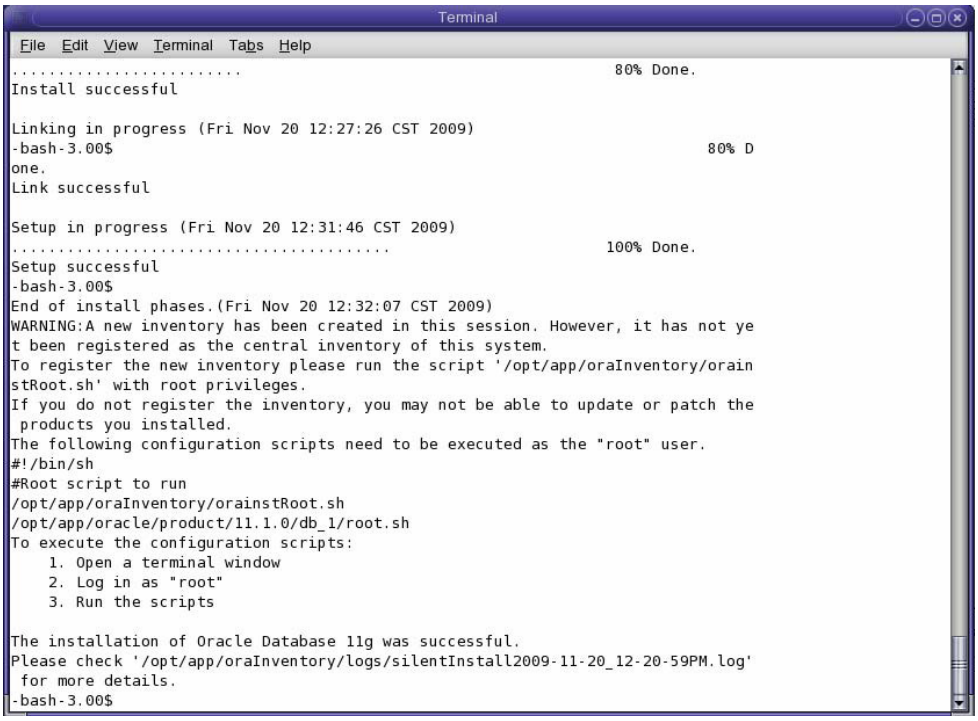
      **-noconfig ORACLE_BASE=/opt/app/oracle ORACLE_HOME=/opt/app/oracle/product/11.2.0/db_1 ORACLE_HOME_NAME=Ora11g_Home1 SELECTED_LANGUAGES=en **

      **oracle.install.option=INSTALL_DB_SWONLY UNIX_GROUP_NAME=dba oracle.install.db.DBA_GROUP=dba oracle.install.db.OPER_GROUP=dba **

      oracle.install.db.InstallEdition=SEONE SECURITY_UPDATES_VIA_MYORACLESUPPORT=false DECLINE_SECURITY_UPDATES=TRUE

> **Note:** Warnings raised by optional requirements are ignorable from running the above command. The command in step 3b is a single string with no carrage returns. This procedure takes about 15 minutes to complete.

4. Run the following scripts as root user
   a. Open a new terminal window.
   b. # **/opt/app/oracle/product/11.2.0/db_1/root.sh**



Create Database

Use the **nbbs_create_database_simplex_11gr2.tar** file to create the database.

> **Note:** If using External Storage array for database, then change /u01/ora_backups/ to /b01/ora_backups/ first and then /opt/ to /u01/ in all occurrences of the files in the tar ball prior to running it.

1. Move **nbbs_create_database_simplex_11gr2.tar** file to **/opt/app/oracle/admin** directory and unzip it. This should unzip the **nbbsdb/scripts** directories.

   > **Note:** Make sure that the **owner:group** of unzipped nbbsdb and its sub-directory is **oracle:dba**. If it is not, execute the command `chown -R oracle:dba nbbsdb`

2. Execute the following commands as **oracle** user
   a. `$ cd /opt/app/oracle/admin/nbbsdb/scripts/`
   b. `$ cp listener.ora /opt/app/oracle/product/11.2.0/db_1/network/admin/`
   c. `$ cp tnsnames.ora /opt/app/oracle/product/11.2.0/db_1/network/admin/`
   d. `$ lsnrctl start`
   e. `$ sh nbbsdb.sh`

Note: This script prompts for passwords for oracle internal admin users. Provide them accordingly. By default, "**oracle1**" can be used for all admin users and change them later according to customer password policy. Also the script expects an "Enter" key when running XDB scripts. Just hit return key to accept the default.

Note: This script would take at least an hour to complete.

Post database creation settings

Changing Password_life_time from defaults

As **oracle** OS user, sqlplus as **system** user.

```
$ sqlplus system
SQL> ALTER PROFILE DEFAULT LIMIT PASSWORD_LIFE_TIME UNLIMITED;
SQL> exit;
```

Disable Detailed auditing

As **oracle** OS user, sqlplus as **sysdba** user

```
$ sqlplus '/ as sysdba'
SQL> noaudit all;
SQL> noaudit all privileges;
SQL> noaudit exempt access policy;
SQL> exit;
```

Oracle Auto Start on Server Reboot

Note: If using External Storage array for database, then change /u01/ora_backups/ to /b01/ora_backups/ first and then /opt/ to /u01/ in all occurrences below.

1. Add this line to the **oratab** file.
   a. # cd /var/opt/oracle/
   b. # vi oratab
   c. Use vi to edit file
   d. Add the following:

   nbbsdb:/opt/app/oracle/product/11.2.0/db_1:Y:

2. Create db oracle file under /etc/init.d as **root** user.
   a. # cd /etc/init.d
   b. # vi dbora
   c. Enter the following data.

```
#!/bin/sh
# description: Starts and stops Oracle processes

      ORA_HOME=/opt/app/oracle/product/11.2.0/db_1
      ORA_OWNER=oracle
      export ORA_HOME ORA_OWNER

      if [ ! -f $ORA_HOME/bin/dbstart ]
      then
```

```
          echo "Oracle startup: cannot start"
          exit
        fi
        case "$1" in
           'start') # Start the Oracle databases and listeners
                    su - $ORA_OWNER -c "$ORA_HOME/bin/dbstart $ORA_HOME"
                 ##   su - $ORA_OWNER -c "$ORA_HOME/bin/emctl start dbconsole"
                    ;;
           'stop')  # Stop the Oracle databases and listeners
                  ##  su - $ORA_OWNER -c "$ORA_HOME/bin/emctl stop dbconsole"
                    su - $ORA_OWNER -c "$ORA_HOME/bin/dbshut $ORA_HOME"
                    ;;
        esac
```

d. Save the file

3. Change file permissions

```
# chmod 700 /etc/init.d/dbora
```

4. Make rc entries to start and stop DB upon server reboots.

```
# ln -s /etc/init.d/dbora /etc/rc3.d/S99dbora
# ln -s /etc/init.d/dbora /etc/rc0.d/K01dbora
```

5. Change shell interpreter to ksh as **oracle** user.
6. Edit first line from **"#!/bin/sh"** to **"#!/bin/ksh"** on both files and save them:

$ORACLE_HOME/bin/dbstart
$ORACLE_HOME/bin/dbshut

CHAPTER 6: INSTALL OPEN SSL

To configure your server to use OpenSSL follow this procedure.

1. Download OpenSSL.
   http://www.openssl.org/source/openssl-0.9.8k.tar.gz

2. Copy the compressed file to **/opt.**

3. Unzip the tar file.

```
# gunzip openssl-0.9.8k.tar.gz
# tar -xvf openssl-0.9.8k.tar
```

4. Verify that the **openssl** was extracted.

```
# cd openssl-0.9.8k
```

5. Edit the profile of the server.

```
# cd /etc
vi profile
```

6. Use **vi** to add the following lines to the profile.

   a. Enter **<Shift> G** (upper case g) to go to the end of the file.
   b. Enter **"o"** (lower case o) to enter text below the current line. Add the following four lines to the file.

```
PATH=$PATH:/usr/sbin:/usr/bin:/usr/ccs/bin:/usr/sfw/bin:/usr/local/ssl/bin:/usr/perl5/
5.8.4/bin
export PATH

LD_LIBRARY_PATH=$LD_LIBRARY_PATH:/usr/local/ssl/lib:/usr/lib:/usr/local/lib:/usr/sfw/l
ib
export LD_LIBRARY_PATH
```

   c. Enter **<ESC>**
   d. Enter **:w!** to save the changes
   e. Enter **:q** to exit vi editor

7. Activate the profile script.

```
# . ./profile
```

8. Verify system environment variables.

```
# env
```

   The following output must display.

```
TERM=xterm
SHELL=/bin/sh
SSH_CLIENT=10.116.67.31 1232 22
OLDPWD=/opt/openssl-0.9.8k
SSH_TTY=/dev/pts/6
```

```
USER=totin
PATH=/usr/sbin:/usr/bin:/usr/sbin:/usr/bin:/usr/ccs/bin:/usr/sfw/bin:/usr/local/ssl/bin:/usr/
perl5/5.8.4/bin
LD_LIBRARY_PATH=:/usr/local/ssl/lib:/usr/lib:/usr/local/lib:/usr/sfw/lib
MAIL=/var/mail//totin
PWD=/etc
JAVA_HOME=/opt/Software/jdk1.6.0_14
TZ=America/Cordoba
PS1=#
SHLVL=1
HOME=/home/totin
LOGNAME=totin
SSH_CONNECTION=10.116.67.31 1232 10.116.71.149 22
_=/usr/bin/env
```

9. Compile openssl.

```
# cd /opt/openssl-0.9.8k
# ./configure solaris64-sparcv9-gcc
# make
# make test
# make install
```

Note: Each step may take several minutes to complete.

Note: Compiled program is found in **/usr/local/ssl.**

CHAPTER 7: INSTALL RESIN

Required software:

- Resin Professional 3.1.8
  http://www.caucho.com/download/resin-pro-3.1.8.zip

Install Resin

1. Unzip the file.

   ```
   # unzip resin-pro-3.1.8.zip
   ```

   If you are using **resin-pro-3.1.8.tar.gz** file, then the command is

   ```
   # tar -xvf resin-pro-3.1.8.tar.gz
   ```

2. Move the directory to **/opt/.**

   ```
   # mv /tmp/resin-pro-3.1.8 /opt/
   ```

3. Edit **/opt/resin-pro-3.1.8/bin/httpd.sh** file to set JAVA_HOME environmental variable pointing to JDK 1.6 location.
   Add the following two lines to be the first uncommented lines in the file (line 18).

   ```
   JAVA_HOME={JDK 1.6 location}
   export JAVA_HOME
   ```

   Example:

   ```
   JAVA_HOME=/usr/jdk/jdk1.6.0_14
   export JAVA_HOME
   ```

4. Enable SSL for Resin.

   a. `# cd /opt/resin-pro-3.1.8/conf/`

   b. Add the following lines to **`jvm-arg`** in **`resin.conf`**.

   ```
   <jvm-arg>-Djava.library.path=/opt/resin-pro-3.1.8/libexec64</jvm-arg>
   <jvm-arg>-d64</jvm-arg>
   ```

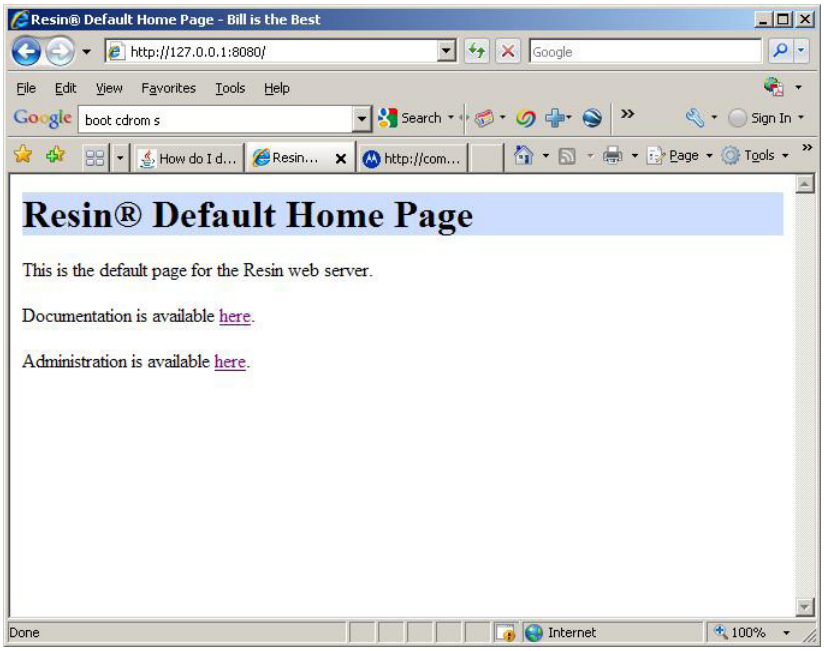
   c. Run the following commands.

   ```
   # cd /opt/resin-pro-3.1.8/
   # ./configure --enable-ssl --enable-64bit --enable-jni
   # make
   # make install
   ```

> **Note:** If you have previously configured and compiled (make) Resin with other parameters, some libraries are not compiled again properly. In that case, make a new installation of Resin and then perform these steps, to enable SSL on that new Resin before starting it for the first time.

5. Start the Resin Server.
```
# cd /opt/resin-pro-3.1.8/bin
./httpd.sh
```

6. Verify that the Resin Server is running.
   a. Open the browser.
   b. Enter the URL: **http://localhost:8080**



Resin Auto Start on Server Reboot

1. Go to <resin-home>/contrib.
```
# cd <resin-home>/contrib.
```

2. Modify init.resin.
```
# vi init.resin
```

3. Add or verify the location of JAVA_HOME and RESIN_HOME
```
JAVA_HOME=/usr/jdk/instances/jdk1.6.0_14
RESIN_HOME=/opt/resin-pro-3.1.8
export JAVA_HOME RESIN_HOME
```

4. Save the file, then rename it as **resin** and copy it to **/etc/init.d.**
```
# cp init.resin resin
# mv resin /etc/init.d
```

5. Add symbolic links.
```
# ln -s /etc/init.d/resin /etc/rc3.d/S99res
# ln -s /etc/init.d/resin /etc/rc0.d/K01resin
```

CHAPTER 8: INSTALL ACTIVEMQ

Required software:

- Apache-ActiveMQ 5.3.1
  http://activemq.apache.org/activemq-531-release.html

Install ActiveMQ

Perform the following steps to install ActiveMQ.

1. Download Unix Distribution of Apache-ActiveMQ 5.3.1
   http://activemq.apache.org/activemq-531-release.html

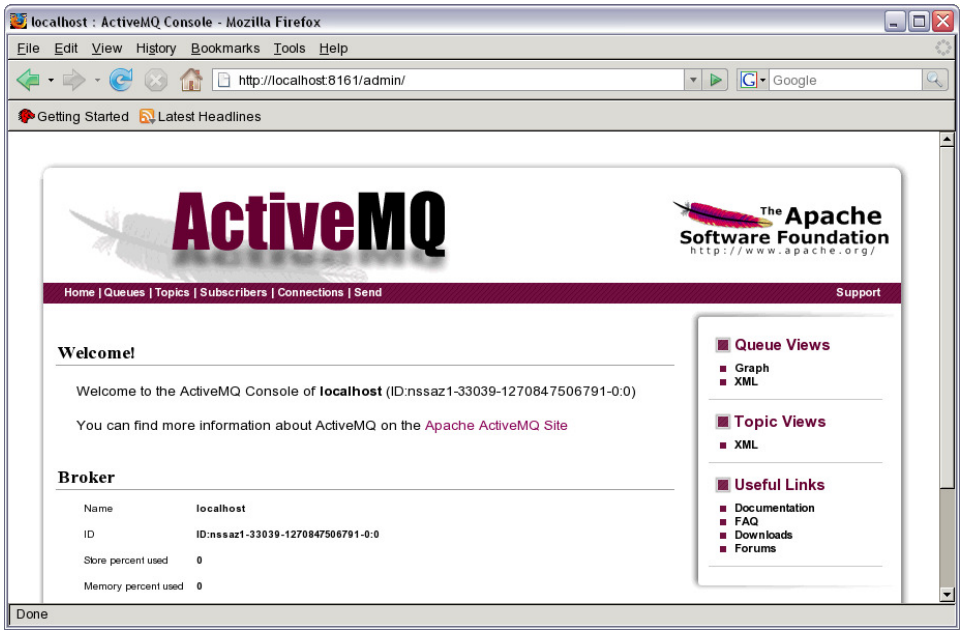
2. Install activemq
   http://activemq.apache.org/getting-started.html#GettingStarted-InstallationProcedureforUnix

```
# cd /opt/
# gunzip /path/to/apache-activemq…tar.gz
# tar -xvf /path/to/apache-activemq…tar
# cd /opt/apache-activemq-5.3.1/bin
# chmod 755 activemq
```

3. Start the ActiveMQ.

```
# /opt/apache-activemq-5.3.1/bin/activemq &
```

4. Verify that the ActiveMQ server is running.
   a. Open the browser.
   b. Enter the URL: **http://localhost:8161/admin**



ActiveMQ Auto Start on Server Reboot

1. Configure the following file as needed, note that the variables at the top must much your system.

```
#!/bin/sh

#
# Linux startup script for ActiveMQ
# chkconfig: 345 85 15
# description: Active MQ
# processname: activemq
#
# To install, configure this file as needed and copy init.activemq
# to /etc/rc.d/init.d as activemq.  Then use "# /sbin/chkconfig activemq reset"
#

USER=nbbs5
JAVA_HOME=/opt/app/jdk1.6.0_20/
export JAVA_HOME USER

StartTime=`date +%m%d%y_%H%M%S`
GCLogFile="log/gc_$StartTime.log"

if [ "$1" = "start" ]; then
   su $USER -c "nohup /opt/app/activemq/bin/activemq-admin start >  /tmp/smlog 2>&1 &"
    exit 0
fi

if [ "$1" = "stop" ]; then
    su $USER -c "/opt/app/activemq/bin/activemq-admin stop"
    exit 0
fi

# Anything else we spit out the proper syntax
echo "Invalid argument: $1"
echo "The options are:"
echo "          start - starts ActiveMQ server"
echo "          stop  - stops ActiveMQ server"

exit 1
```

2. Copy init.activemq to /etc/rc.d/init.d as activemq

3. Then use "# /sbin/chkconfig activemq reset"

CHAPTER 9: CONFIGURE THE NTP SERVICE

Perform the following steps to configure the NTP service.

1. Edit the file **/etc/inet/ntp.conf** so that it contains only the NTP IP address.

   ```
   server NTP_server_IP_address
   ```

2. Enable the NTP service, by running the following command as **root** user

   ```
   svcadm enable network/ntp
   ```

APPENDIX A: CONFIGURATION WHEN USING EXTERNAL DISK ARRAY

Refer to the following 3rd Party documentation for installation and configuration of external disk array:

- 2540 installation guide
  http://docs.sun.com/app/docs/doc/820-0015-14
- Sun Common Array Manager Software installation and administration guides
  http://docs.sun.com/coll/cam6.6?l=en

Recommendations

The storage pool should be setup as an Oracle_OLTP_HA storage pool with an even number of drives and a hot spare should be assigned whenever possible.

The following is a generic recommendation if storage is used in simplex or HA environments for databases. Mount /a01 and /b01 with forcedirectio options.

Once the array is configured, the Usable space will be carved into following mounts.

```
/u01 -- 50G
/a01 -- X Gig
/b01 -- 1.5 times X Gig
```

For e.g. the usable space is 800g after the raid 1+0 setup, then the partitions will be:

```
/u01 - 50G
/a01 - 300G
/b01 - 450G
```