



Hitachi HiCommand® Backup Services Manager

Portal
Installation Instructions
- for -
Red Hat Linux or Solaris

November 2006

Version 6.0

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1. Introduction

This document provides step-by-step instructions for the use of the Hitachi HiCommand® Backup Services Manager Portal Installer. Sections 2 and 3 below provide third party software and system setup information which must be completed before running the HBSM installer. The step-by-step installer instructions can be found in section 4. This install guide is valid for version 6.0 onward.

If at any time during the install you encounter a problem, or if you simply want to verify a step or have a question about the installation, please contact the Hitachi Data Systems Technical Support Center who will be happy to assist you:

Technical Support Center Contact Information

Phone:

Nth & Latin America 1-800-348-4357

Europe +(44)-175-361-8000

Asia Pacific (call USA GCC) +(1) 858-547-4765

Email: support@hds.com

2. Software Repositories

HBSM uses various open-source and third-party software products. The following is a list of the major third-party products that are bundled and included on the HBSM Portal Software CD.

Software Product	Version
Oracle 10g Database - Linux	10.2.0.1
Oracle 10g Database - Solaris	10.2.01
SUN Java 2 Standard Edition SDK	1.5.0_06
Apache HTTP Web Server	2.0.58
Apache Tomcat Java Servlet Engine	4.1.30
Apache Tomcat JK2 Connector	2.0.2
OpenLDAP	2.1.22

3. Pre-Installation Notes

3.1. Operating System Verification: Prior to the installation of the HBSM Portal software, please verify that your portal has been loaded and configured with one of the following certified operating systems referenced in the Hitachi HiCommand® Backup Services Manager Certified Configurations Document.

3.2. If the target platform is SOLARIS, please enter the following lines in `/etc/system` and reboot your server:

```
set shmsys:shminfo_shmmax=4294967295
set shmsys:shminfo_shmseg=50
forceload: sys/semsys
forceload: sys/shmsys
set semsys:seminfo_semmap=250
set semsys:seminfo_semmni=500
set semsys:seminfo_semmns=500
set semsys:seminfo_semmsl=500
set semsys:seminfo_semmnu=500
set semsys:seminfo_semume=100
```

3.3. If the target platform is Red Hat Linux, please ensure that the `libaio` package is installed. You can check for this package via the `rpm -q` command as follows. The package on your system should be the version below or greater.

```
rpm -q libaio
libaio-0.3.93-4
```

3.4. Software License Key file: **To license the HBSM Portal software, you must provide a license file upon the completion of the install process. Without this license file the software will not operate.** To obtain a license file, please see the instructions in Section 6 - *License Key file installation* below.

3.5. Setup `hbsmportal.yourdomain.com` and `hbsmagent.yourdomain.com` in the enterprise `/etc/hosts` file (or local DNS). NOTE: both entries should resolve to the IP address of the HBSM Portal server.

3.6. The install process will create user accounts for `aptare` and `tomcat`. For Solaris, the accounts will be created under `/export/home`. For others, they will be created under `/home`. Please ensure the appropriate directory (`/export/home` or `/home`) exists on your system prior to running the installer. Do not pre-create these accounts – let the installer create them for you.

3.7. Verify that the following file systems and disk space exists on the designated HBSM Portal Server. For the database file systems, the amount specified is the minimum required to create the database. We recommend allocating more than the minimum to accommodate growth.

File System / Directory	Minimum Disk Space	Notes
/opt	6 GBytes	
/tmp	1 GBytes	
/data01	3 GBytes	Required for Database
/data02	3 GBytes	Required for Database
/data03	3 GBytes	Required for Database
Total	16 GBytes	

4. HBSM Portal Installation

System: *Web/Application Server*

Required CD: *HBSM Portal Software*

This section covers the installation of the Portal software components. The next section (Section 5) covers the installation of the Database component. The Portal and Database components are normally installed on the same server, although they can be installed on different servers if required.

- 4.1. Login to the server as user `root`
- 4.2. Mount the required CD in your CD-ROM drive
- 4.3. **If your server platform is Solaris**, enter the following command to start the installer
 - 4.3.1. `cd /` (DO NOT CD TO THE CD-ROM DRIVE)
 - 4.3.2. `path_to_cdrom/aptareInstaller.sh` (where `path_to_cdrom` is the path to where the CD was mounted. E.g. `/cdrom/hs190_nn`)
- 4.4. **If your server platform is Red Hat Linux**, enter the following command to start the installer
 - 4.4.1. `cd /`
 - 4.4.2. `/mnt/cdrom/aptareInstaller.sh`
- 4.5. ***Determine what portal server configuration you are deploying***

```
Hitachi HiCommand® Backup Services Manager Installation
=====

HBSM requires a Web Server and a Database server.
You might want those to be separate machines or the same machine.

This script will only install the Web Server components.

Will this machine be the Web Server (y/n)?
```

- 4.5.1. Enter 'y' if the machine is going to be the portal web server. Otherwise, enter 'n' to cancel the installation.
- 4.6. ***Verify that you have the correct CD***

```
To begin this installation, you must have the following HBSM CD:
HBSM Portal Software
Do you have this CD (y/n)?
```

- 4.6.1. Enter 'y' if you have the CD. Otherwise, enter 'n' to cancel the installation.

4.7. *Verify that the CD is mounted*

```
Please ensure that the CD labeled
      "HBSM Portal Software"
is mounted. Hit return to continue
```

- 4.7.1. Press <enter> to continue the installation.
- 4.8. The Hitachi Data Systems End User License Agreement (EULA) will be displayed.
- 4.9. Read through the Hitachi Data Systems EULA.
- 4.10. At the end of the Hitachi Data Systems EULA, the following output will be displayed:

```
Please type 'accept' to accept these Terms and Conditions:
```

- 4.10.1. Type 'accept' (all lower case) and press <enter>. Otherwise, type any other key and <enter> to cancel the installation.
- 4.11. The installer will now copy and unzip the files from the CD. This may take several minutes depending on the performance of your system, your CD-ROM drive etc. The overall duration of the Portal installation is typically between 15 – 25 minutes.

4.12. *Enter your domain name*

```
We need to configure machine names and IP addresses for the
HBSM Portal, Agent and database server.
```

```
The portal and agent machines will be called
  hbsmportal.yourdomain and
  hbsmagent.yourdomain
```

```
Please enter your domain name: (yourdomain.com)
```

- 4.12.1. If the domain name displayed in parenthesis is correct, press <enter>. Otherwise, enter the correct domain name and press <enter>.
- 4.13. *Validate the system's IP address for the Portal*

```
Please enter IP Address for hbsmportal.yourdomain.com: (N.N.N.N)
```

- 4.13.1. If the IP Address displayed in parenthesis is correct, press <enter>. Otherwise, enter the correct IP Address and press <enter>.
- 4.14. *Validate the IP address of the database server*

```
Please enter IP Address for your database server: (N.N.N.N)
```

- 4.14.1. If the IP Address displayed in parenthesis is correct, press <enter>. Otherwise, enter the correct IP Address and press <enter>. **NOTE:** If you plan to install the Database component on a separate server, please be sure to supply the correct IP address of that server.

4.15. Confirmation of entered IP addresses

```
You have entered:
  Hostname                IP Address
  hbsmportal.yourdomain.com  127.0.0.1
  hbsmagent.yourdomain.com   127.0.0.1
  database server          127.0.0.1
Is this correct (y/n)?
```

- 4.15.1. If the Hostnames and IP Addresses listed are correct, enter 'y' and press <enter>. Otherwise, enter 'n' and press <enter>.

4.16. Confirm changes to be automatically made to /etc/hosts

```
These names will be set up in /etc/hosts. You can remove the entries
and add them to your local DNS later.

Would you like to add them to /etc/hosts (y/n)?
```

- 4.16.1. If you would like to set up the names in /etc/hosts, enter 'y' and press <enter>. Otherwise, enter 'n' and press <enter>.

4.17. Check that the portal CD is mounted in the CD-ROM

```
Please ensure that the CD labeled
  "HBSM Portal Software"
is mounted. Hit return to continue
```

- 4.17.1. Press <enter> to continue the installation.

4.18. Installing Java and Apache software components

- 4.18.1. You will now be prompted to accept the license terms of Sun's Java Runtime Environment. Enter "yes" to accept this license agreement.

```
Please ensure that the CD labeled
      "HBSM Portal Software"
is mounted. Hit return to continue
Using CDROM mounted at /cdrom/hs190_nn.
Creating group aptare...Done.
Creating user aptare...with defaultGroup aptare...Done.
Creating /opt/aptare...Done.
Creating /opt/aptare/logs...Done.
Creating group tomcat...Done.
Creating user tomcat...with defaultGroup tomcat...Done.
Adding user tomcat to group aptare...Done.

Checking for Java...Sun Microsystems, Inc. Binary Code License
Agreement

for the JAVA 2 PLATFORM STANDARD EDITION DEVELOPMENT KIT VERSION 5.0

SUN MICROSYSTEMS, INC. ("SUN") IS WILLING TO LICENSE THE SOFTWARE
IDENTIFIED BELOW TO YOU ONLY UPON THE CONDITION THAT YOU ACCEPT ALL OF
THE TERMS CONTAINED IN THIS BINARY CODE LICENSE AGREEMENT AND
SUPPLEMENTAL LICENSE TERMS (COLLECTIVELY "AGREEMENT").
PLEASE READ THE AGREEMENT CAREFULLY.  BY
...

==== Installing portal software...
Extracting files...this process may take 1-2 minutes to execute...Done.
Editing /opt/aptare/datarcvrconf/datrarcvrproperties.xml...Done.
Editing /opt/aptare/datarcvrconf/collectorconfig_bue_template.xml..Done
Editing /opt/aptare/datarcvrconf/collectorconfig_lnw_template.xml..Done
Editing /opt/aptare/datarcvrconf/collectorconfig_tsm_template.xml..Done
Editing /opt/aptare/portalconf/portalproperties.xml...Done.
Editing /opt/aptare/dataInterface/conf/datainterfaceconfig.xml...Done
Editing /opt/aptare/dataInterface/templates/header.html...Done
Editing /opt/aptare/rptNotifyEngine/conf/rptnotifyproperties.properties
...Done
Editing /opt/aptare/policyEngine/conf/systemconfig.properties ...Done

==== Now installing Apache.
Extracting files...this process may take 1-2 minutes to execute...Done.
Editing /opt/apache/conf/httpd.conf...Done.
Editing /opt/apache/conf/workers2.properties...Done.
```

4.19. Installing Tomcat Java Servlet Engine

```
==== Installing tomcat...
Extracting files...this process may take 1-2 minutes to execute...Done.
linking /opt/tomcat to jakarta-tomcat-4.1.30...
Done.

==== Installing Tomcat Connector...
Extracting files...this process may take 1-2 minutes to execute...Done.
```

4.20. Installing the openLDAP software components

```
==== Installing OpenLDAP...
Extracting files...this process may take 1-2 minutes to execute...Done.
Editing /opt/aptare/portalconf/portalproperties.xml...Done.
Editing /opt/openldap/etc/openldap/slapd.conf some more...Done.
Attempting to start OpenLDAP...
Starting LDAP Service... OK

Editing /opt/aptare/utils/InitLDAP.ldif...Done.
Initializing LDAP database...adding new entry
"dc=hostname,dc=yourdomain,dc=com"

adding new entry "cn=Manager,dc=hostname,dc=yourdomain,dc=com"
```

4.21. Setup HBSM Super User

```
You will now be required to enter a password for
HBSM Super User (admin@yourdomain.com).
Please use your usual means of remembering passwords!

Enter HBSM Super User (admin@yourdomain.com) password:
```

- 4.21.1. The HBSM Super User (admin@yourdomain.com) is the user which has “root” access to the entire range of application functionality.
- 4.21.2. Enter your HBSM Super User password and press <enter>. **PLEASE MAKE A NOTE OF THE USERID AND PASSWORD - YOU WILL NEED THESE LATER TO LOGIN:**

```
Super User: _____
Password : _____
```

```
Re-enter HBSM Super User (admin@yourdomain.com) password (for
verification):
```

- 4.21.3. Re-enter your HBSM Super User password and press <enter>.

4.22. Enter list of NetBackup Master Server host names

```
Enter VERITAS NetBackup Master Servers and Data Collector Servers (one
per line, empty line when done):
```

- 4.22.1. If you are installing for a VERITAS NetBackup environment, enter the Host Name of one of the VERITAS NetBackup Master Server and press <enter>. If you are installing for any other backup environment, enter the Host Name of the Data Collector server (i.e. the server on which the HBSM Data Collector software will be installed).

- 4.22.2. Repeat step 4.22.1 until all your Master Servers or Data Collector Servers have been entered.
- 4.22.3. When all the Servers have been entered, press <enter> to create an empty line and press <enter> again to submit the empty line which indicates you've completed your Server entries.

Note: If you don't have the full list of all your master or data collector servers at this time, you can manually add them later by editing the file [/opt/aptare/datarcvrconf/reload.conf](#)

4.23. *Initializing HBSM configuration files and installing HDS Charting service*

```
Finished writing VERITAS NetBackup Master Servers and Data Collector
Servers to /opt/aptare/datarcvrconf/reload.conf

Adding admin user to LDAP Server...SystemConfig. File Name is
/opt/aptare/portalconf/portalproperties.xml

==== Installing Charting Service...
Extracting files...this process may take 1-2 minutes to execute...Done.

Finished HBSM Console Installation!
```

4.24. *Installation of the Portal components is now complete.*

- 4.24.1. Now the HBSM Portal Installation is complete, continue to the next section to install the Portal database.

5. Oracle Database and HBSM Schema Installation

System: *Database Server*

Required CD: **HBSM Portal Software**

This section covers the installation of the Database component. The Database component may be installed on the same server as the Portal Software or on a different server.

- 5.1. Login as `root` to your HBSM Database server
- 5.2. Mount the cdrom labeled “HBSM Portal Software”.
- 5.3. **If your server platform is Solaris**, enter the following command to start the installer
 - 5.3.1. `cd /` (DO NOT CD TO THE CD-ROM DRIVE)
 - 5.3.2. `/cdrom/hs190_nn/install_oracle.sh`
- 5.4. **If your server platform is Red Hat Linux**, enter the following command to start the installer
 - 5.4.1. `cd /` (DO NOT CD TO THE CD-ROM DRIVE)
 - 5.4.2. `/mnt/cdrom/install_oracle.sh`
- 5.5. This command will copy the ORACLE binaries into `/opt/aptare/oracle` and setup the Oracle startup and shutdown scripts:

Please be patient, this command takes 3-5 minutes to complete as it installs approx. 500 Mbytes of files into `/opt/aptare/oracle`

```
Creating group dba...Done.
Adding user aptare to group dba...Done.
Creating ORACLE_HOME directory in /opt/aptare/oracle ... Done.
Setting up HBSM database directories /data01 /data02 /data03 ... Done.

Installing ORACLE binaries in /opt/aptare/oracle ...
Extracting files ... Please wait, this process will take 3-5 minutes to
complete ... Done.
Setting permissions for oracle files ... Done.
```

- 5.6. Reset the aptare user password using the “`passwd aptare`” command then log-out and re-log in as aptare.
- 5.7. As user aptare, run the HBSM database installation script to install the HBSM database objects and schema:
 - 5.7.1. `{path_to_cdrom_drive}/create_aptare_database.sh`
 - 5.7.2. NOTE: The following dialog will only appear if you are re-installing the HBSM database (e.g. after a failed attempt):

```
WARNING. WARNING. WARNING. WARNING. WARNING. WARNING. WARNING. WARNING.

By continuing this script you will be COMPLETELY ERASING YOUR ENTIRE
HBSM database. ARE YOU ABSOLUTELY SURE that you
wish to continue (type the word "continue" to proceed) ?
```

- 5.8. ***The installer will launch and you will be prompted to select the backup products the portal will be supporting:***

```
Welcome to the Hitachi HiCommand® Backup Services Manager Database
Installation Wizard
Copyright 2003-2006 APTARE, Inc. All Rights Reserved.

Please select the appropriate Vendor Backup Product(s) you will be
using with HBSM. Enter each product on a separate line and select 0
when complete:
  1) VERITAS NetBackup
  2) VERITAS Backup Exec
  3) IBM Tivoli Storage Manager
  4) LEGATO Networker
  0) Selection Complete - verify/change selection
1
3
0
You selected:
  VERITAS NetBackup
  IBM Tivoli Storage Manager
Do you wish to continue with this selection (y/n)? y
```

Enter the backup products you require the HBSM Portal to support. Enter each product on a separate line and select 0 when complete.

5.9. The installer will launch and you will be prompted to enter your domain name¹:

```
Please enter your HBSM Portal Domain Name: (mycompany.com)
You entered the following for your HBSM domain name: yourcompany.com
Your HBSM Super User Login Account will be admin@yourcompany.com
Is this the correct domain name (y/n)? y
```

5.10. The installer will check to see if Oracle is running and shut it down if it is:

```
The Oracle database TNS listener does not appear to be running,
continuing ...

Oracle is not currently running, continuing ...
```

5.10.1. If Oracle services are running they will be shutdown. If you are prompted for a password, enter the aptare user password established at 5.6 above.

5.10.2. HBSM database files will be extracted and the database will be created (this step will take between 5 – 10 minutes to complete.):

```
Extracting HBSM database files into /opt/aptare/database ... Done.
Changing ownership of all HBSM database release files to 'aptare' ...
Starting the HBSM Oracle Database instance ...
ORACLE instance started.

Total System Global Area  696254464 bytes
Fixed Size                 1981256 bytes
Variable Size             293602488 bytes
```

¹ This domain name should match that entered in step 4.12

```
Database Buffers          398458880 bytes
Redo Buffers              2211840 bytes
Creating Hitachi HiCommand® Backup Services Manager Database ...
Successfully created the Hitachi HiCommand® Backup Services Manager
Database
Creating the HBSM tablespaces and related datafiles, please wait ...
Creating tablespace aptare_tbs_data_1m tablespace, size 256 MBytes ...
Creating tablespace aptare_tbs_idx_1m, size 256 MBytes ...
Creating tablespace aptare_tbs_data_20m, size 1.0 GBytes ...
Creating tablespace aptare_tbs_idx_10m, size 1.0 GBytes ...
Creating tablespace aptare_tbs_data_200m, size 1.5 GBytes ...
Creating tablespace aptare_tbs_idx_100m, size 1.5 GBytes ...
Successfully created HBSM tablespaces and related datafiles
```

5.10.3. The installer will then load the database with Oracle packages (this step will take between 15 – 45 minutes to complete depending on your system performance):

```
Loading Oracle catalog package and related internal Oracle packages ...
The step can take between 5 and 15 minutes to complete depending on
system performance
Completed loading Oracle catalog package into HBSM database schema at
Wed Sep 8 18:18:00 PDT 2005
Loading Oracle catproc package and related internal Oracle packages ...
The step can take between 10 and 30 minutes to complete depending on
system performance
Completed loading Oracle catproc package into HBSM database schema at
Wed Sep 8 18:28:53 PDT 2005
Loading publd package ...
```

5.10.4. The portal user and the database schema are now created:

NOTE: During this step Oracle may produce messages similar to “mv: cannot stat `\opt/aptare/oracle/lib/EVENT_PACKAGE__PORTAL__2.so`: No such file or directory”

These are ok and can be ignored. Any other exceptions or errors however indicate a potential issue with the install.

```
Creating HBSM Portal user ...
Completed creation of the HBSM Portal database user
Creating HBSM base schema tables ...
...
...      (EACH STEP LOGS TO THE CONSOLE...)
...
Completed creation of the HBSM base schema tables
Creating HBSM <backup product> schema tables ...
```

5.10.5. The HBSM Packages are now validated:

If you do not see the message “Successfully validated ALL Packages” at the end of this step, there is a possible problem with the install and you should save a copy of the installer log and contact the Hitachi Data Systems Technical Support Center.

```
Validating HBSM Packages...

Validating PACKAGE ADAPTOR_PACKAGE
```

```
Validating PACKAGE ADMINREP_PACKAGE
Validating PACKAGE ALL_ERROR_PKG
...
...           (EACH PACKAGE IS LOGGED TO THE CONSOLE...)
...
Validating PACKAGE XML_REPORT_PKG
Package specifications have successfully been validated
...
Successfully validated ALL Packages.
```

5.10.6. The database creation is now complete:

```
Creation of HBSM Database completed at Mon Aug 1 18:31:46 PDT 2005
A complete log of this session can be found in the file:
/tmp/aptare_installer.log
```

5.10.7. NOTE: If the installer reports errors during the install and you are unable to resolve the problem, you should save a copy of the installer log and contact the Hitachi Data Systems Technical Support Center.

5.11. Installation of the Database components is now complete.

5.11.1. Now the HBSM Database Installation is complete, continue to the next section for the final step – License Key file installation.

6. License Key file installation

System: *Portal Server*

This section covers the installation of the HBSM License file. A valid license file is required in order to run the HBSM application.

To obtain a license file please send the following information to hbsm.key.request@hds.com and a license file will be mailed back to you within 48 hours:

- Your name, title and phone number
- Company name and address
- Hostname of the Portal server

Then, for each backup product that HBSM will be supporting please also provide the following hostnames:

- VERITAS NetBackup Name(s) of any master server(s) that will be sending data to the Portal server
- IBM Tivoli Storage Manager Name(s) of any TSM Server Instances that the Data Collector will be polling for backup information.
- EMC Legato Names of any Legato server(s) that the Data Collector will be polling for backup information.
- Backup Exec Hostname of the server that will be running the Data Collector.

Finally, if you have already installed the HBSM Portal software, please also include the output from the following command:

```
/opt/aptare/utils/reportConfig.sh
```

6.1. Once you have obtained the license file complete the following steps to install the license

6.2. Ensure the oracle processes are running:

6.2.1. Login as root on your HBSM Database server

6.2.2. `/opt/aptare/bin/oracle start`

6.3. Install the License Key file:

6.3.1. Login as aptare on your HBSM Portal server

6.3.2. `/opt/aptare/utils/installLicense.sh`

6.3.3. When prompted for the name of the license file, enter the complete path to the license key file on your server. For the initial install select “n” when asked if you are installing a supplementary license. A sample dialog is shown below:

```
Enter the name of the license file you wish to install [portal.license] :  
/opt/aptare/mycompany.license  
Are you installing a supplementary license (y/n) [n]: n  
Verifying license...  
Copying license...  
Copying license...  
License installed
```

```
SystemConfig. File Name is /opt/aptare/portalconf/portalproperties.xml
DbPool.initilised().Entering. 25 2
GenericPool.setMaxObjectCount(). Entering 0 0 25
GenericPool.initializePool(). Entering 0 0 25
New JDBC connection pool established
DbHandle.init(). Initialized the DbPool.
```

6.4. To complete the installation process you must restart the Portal services:

6.4.1. Login as root

6.4.2. /etc/init.d/aptare restart

```
Stopping LDAP Service... OK
...
Starting Oracle Database... OK
Starting Oracle Listener... OK
Starting Charting Service... OK
Starting Portal Service... OK
Starting Agent Service... OK
Starting Notify Service... OK
Starting Policy Engine... OK
Starting XML Reporter Engine... OK
Starting Apache Web Service... OK
Starting LDAP Service... OK
```

6.4.3. Note: If there are problems starting the Agent, Portal and Charting services, check the user “tomcat” has been set up with the appropriate .profile (or equivalent) for their shell. To verify, as user root execute “su – tomcat –c set”. The output should include values for environment variables “APTARE_HOME” and “JAVA_HOME”. If these are not set, you may need to copy the contents of the file .profile or .bashrc to the appropriate login script for the configured shell for the tomcat user.

6.4.4. **The install process is now complete.**

You can now login to the portal (<http://hbsmportal.yourdomain.com>) using the userid and password you assigned in step 4.21 above.

7. HBSM Portal Un-install

WARNING: Running the following uninstall script will completely erase the HBSM application and database.

- 7.1. Login as `root` to the HBSM server
- 7.2. **From the root directory (/)** run the uninstall script:
`/opt/aptare/utis/uninstall_portal.sh`

8. Appendix A - Database Space Consumption

The following table describes the *minimum* disk storage requirements for the HBSM database. The amount of space required will vary based on the backup products you selected during step 5.8 above.

Tablespace	Datafile	File System	Size in MBytes
Redo Logs	/data01/oradata/scdb/aptare_redo0[1-8].log	/data01	1024
Oracle Control Files	/data01/oradata/scdb/ora_control1.ctl	/data01	6
	/data02/oradata/scdb/ora_control2.ctl	/data02	6
	/data03/oradata/scdb/ora_control3.ctl	/data03	6
System	/data02/oradata/scdb/aptare_system01.dbf	/data02	512
aptare_temp_tbs	/data03/oradata/scdb/aptare_tbs_temp_01.dbf	/data03	1024
aptare_undo_tbs	/data03/oradata/scdb/aptare_undo_tbs_01.dbf	/data03	256
aptare_tbs_data_1m	/data01/oradata/scdb/aptare_tbs_data_1m_01.dbf	/data01	256
aptare_tbs_idx_1m	/data02/oradata/scdb/aptare_tbs_idx_1m_01.dbf	/data02	256
aptare_tbs_data_20m	/data02/oradata/scdb/aptare_tbs_data_20m_01.dbf	/data02	512
	/data02/oradata/scdb/aptare_tbs_data_20m_02.dbf	/data02	256
	/data02/oradata/scdb/aptare_tbs_data_20m_03.dbf	/data02	256
aptare_tbs_idx_10m	/data02/oradata/scdb/aptare_tbs_idx_10m_01.dbf	/data02	512
	/data02/oradata/scdb/aptare_tbs_idx_10m_02.dbf	/data02	256
	/data02/oradata/scdb/aptare_tbs_idx_10m_03.dbf	/data02	256
aptare_tbs_data_200m	/data01/oradata/scdb/aptare_tbs_data_200m_01.dbf	/data01	512
	/data01/oradata/scdb/aptare_tbs_data_200m_02.dbf	/data01	256
	/data01/oradata/scdb/aptare_tbs_data_200m_03.dbf	/data01	256
	/data01/oradata/scdb/aptare_tbs_data_200m_04.dbf	/data01	256
	/data01/oradata/scdb/aptare_tbs_data_200m_05.dbf	/data01	256
aptare_tbs_idx_100m	/data03/oradata/scdb/aptare_tbs_idx_100m_01.dbf	/data03	512
	/data03/oradata/scdb/aptare_tbs_idx_100m_02.dbf	/data03	256
	/data03/oradata/scdb/aptare_tbs_idx_100m_03.dbf	/data03	256
	/data03/oradata/scdb/aptare_tbs_idx_100m_04.dbf	/data03	256
	/data03/oradata/scdb/aptare_tbs_idx_100m_05.dbf	/data03	256

Summary of Database File System Usage

File System	Contains	Minimum Space Requirements
/data01	Redo Logs, aptare_tbs_data_1m, aptare_tbs_data_200m	2.9 GBytes
/data02	system, aptare_tbs_idx_1m, aptare_tbs_data_20m, aptare_tbs_idx_10m	3.0 GBytes
/data03	aptare_temp_tbs, aptare_undo_tbs, aptare_tbs_idx_100m	2.8 GBytes
Totals		9 GBytes

9. Appendix B – Oracle Time Zone List

The following is a complete listing of the Oracle Time Zones.

Africa/Cairo	Asia/Tehran	Europe/Istanbul
Africa/Tripoli	Asia/Tel_Aviv	Europe/Lisbon
America/Adak	Asia/Tokyo	Europe/London
America/Anchorage	Atlantic/Reykjavik	Europe/Moscow
America/Atka	Australia/ACT	Europe/Warsaw
America/Chicago	Australia/Adelaide	GMT
America/Denver	Australia/Brisbane	Greenwich
America/Detroit	Australia/Broken_Hill	Hongkong
America/Edmonton	Australia/Canberra	Iceland
America/Ensenada	Australia/Darwin	Iran
America/Fort_Wayne	Australia/Hobart	Israel
America/Halifax	Australia/LHI	Jamaica
America/Havana	Australia/Lindeman	Japan
America/Indiana/Indianapolis	Australia/Lord_Howe	Kwajalein
America/Indianapolis	Australia/Melbourne	Libya
America/Jamaica	Australia/NSW	Mexico/BajaNorte
America/Los_Angeles	Australia/North	Mexico/BajaSur
America/Manaus	Australia/Perth	Mexico/General
America/Mazatlan	Australia/Queensland	NZ
America/Mexico_City	Australia/South	Navajo
America/Montreal	Australia/Sydney	Pacific/Auckland
America/New_York	Australia/Tasmania	Pacific/Chatham
America/Noronha	Australia/Victoria	Pacific/Easter
America/Phoenix	Australia/West	Pacific/Honolulu
America/Porto_Acre	Australia/Yancowinna	Pacific/Kwajalein
America/Regina	Brazil/Acre	Pacific/Pago_Pago
America/Santiago	Brazil/DeNoronha	Pacific/Samoa
America/Sao_Paulo	Brazil/East	Poland
America/Shiprock	Brazil/West	Portugal
America/St_Johns	Canada/Atlantic	Singapore
America/Tijuana	Canada/Central	Turkey
America/Vancouver	Canada/East-	US/Alaska
America/Whitehorse	Saskatchewan	US/Aleutian
America/Winnipeg	Canada/Eastern	US/Arizona
Asia/Calcutta	Canada/Mountain	US/Central
Asia/Hong_Kong	Canada/Newfoundland	US/East-Indiana
Asia/Istanbul	Canada/Pacific	US/Eastern
Asia/Jerusalem	Canada/Saskatchewan	US/Hawaii
Asia/Riyadh	Canada/Yukon	US/Michigan
Asia/Seoul	Chile/Continental	US/Mountain
Asia/Shanghai	Chile/EasterIsland	US/Pacific
Asia/Singapore	Cuba	US/Pacific-New
Asia/Taipei	Europe/Dublin	US/Samoa

10. Appendix C – Apache Software License

HBSM includes software developed by the Apache Software Foundation (<http://www.apache.org/>)

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