

STARKEEPER® II NMS RELEASE 10.0 BACKUP AND RECOVERY PROCEDURES

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1. OVERVIEW

This document describes backup and recovery procedures for a StarKeeper® II NMS Release 10.0 hardware platform. These notes supplement the information provided in Chapter 7 of the *StarKeeper II NMS Core System Guide*.

2. INSTALLATION MATERIAL

Your StarKeeper release 10.0 platform was delivered with installation material which included installation tapes and machine licenses. This material must be saved in a secure location in the event that a re-installation takes place.

2.1. Installation Tapes

The installation tapes required to re-install the platform include:

- i. HP-UX 10.20 Install Tape (A.C.E.)
- ii. HP Composite Software Tape for StarKeeper II NMS R 10.0
- iii. StarKeeper II NMS R 10.0 Installation Tape for HP Systems

2.2. Machine Licenses

The purchase or upgrade of your Release 10.0 system came with a set of licenses for the StarKeeper application and the INFORMIX® Relational Database Management System. For all machine types, there is a license for the particular StarKeeper application on the machine. For Core and Co-resident systems, there are also licenses for the Informix products.

If your license documentation is no longer available, the file `/opt/SK/install/logs/lic.YYMMDD`, where 'YYMMDD' is a date stamp, should be printed and stored in a secure location. This file contains the license information for the machine.

3. ROOT DISK BACKUP AND RECOVERY

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StarKeeper platforms contain two disks: The root disk, and the second disk. This section describes backing up and restoring the root disk.

3.1. Creating a customer **make_recovery** tape

The HP-UX command **make_recovery** is used to back up the root disk. The backup tape is a bootable image of the root disk. That is, the system can be booted from that tape.

This procedure is used to create a customer **make_recovery** tape:

- a) Stop the StarKeeper II NMS application.
- b) Log in as **root** from the console, using the **No Windows** option.
- c) Place the machine in single user mode by running the command
shutdown 0.
- d) Insert a write enabled tape into the tape drive.
- e) Run the command
mount -a
- f) Run the command
make_recovery -v -A
- g) When the command completes, run the command
init 4
- h) Start the StarKeeper application.

make_recovery takes up to 60 minutes to complete.

3.2. Restoral from customer **make_recovery** tape

To restore the root disk from a customer **make_recovery** tape, follow the procedure 'Booting Up and Recovering From the Root Disk Backup Tape' beginning on page 7-32 of the *StarKeeper II NMS Core System Guide*.

3.3. Restoral from generic **make_recovery** tape

If a customer **make_recovery** tape is not available, a generic root disk **make_recovery** tape can be obtained from Datatek Applications. To restore the root disk using this tape, follow the procedure described in the previous section of this document.

Once the root disk has been restored, certain data that was applied to the root disk during initial StarKeeper installation must be re-applied:

- 1) The machine's host name must be set using the command
set_parms hostname

- 2) LAN parameters must be set using the commands
set_parms ip_address
set_parms addl_network
- 3) The passwords for the logins *root*, *cnmsadm* and *skdemo* must be set.
- 4) Set the listener address using **SKsh** on a Core or Co-resident System, or by using **WS Admin** on a Graphics System.
- 5) The number of Datakit channels has been set to 512. If this is not correct for the machine, change the dkchan kernel parameter using the HP-UX **sam** utility.
- 6) On a Core or Co-resident System, modify the */opt/informix/etc/sqlhosts* file by adding this line at the end (-> denotes a TAB character):
local_se -> sesotcp -> {host name} -> se3

3.4. Restoral from installation tapes

If the root disk must be restored, and there is no **make_recovery** tape available, the restoral must be made from the installation tapes that accompanied the Release 10.0 machine installation.

To restore the root disk from the installation tapes, follow the procedure 'Installing HP-UX 10.20 On a New Disk' beginning on page 7-35 of the *StarKeeper II NMS Core System Guide*.

4. SECOND DISK BACKUP AND RECOVERY

This section describes backing up and restoring the second disk. This disk contains the */usr2* file system which holds the StarKeeper application.

4.1. Creating a customer **fbackup** tape

The HP-UX **fbackup** command is used to backup up file systems to tape. The *StarKeeper II NMS Core System Guide* has a detailed discussion of creating incremental backups of the */usr2* file system.

This procedure can be used to create a backup of the entire */usr2* file system:

- a) Stop the StarKeeper application.
- b) Log in as **root** from the console, using the **No Windows** option.
- c) Place the machine in single user mode by running the command

shutdown 0

- d) Insert a write enabled tape into the tape drive.
- e) Run the command
mount -a
- f) Run the command
fbackup -i /usr2 -0 -f /dev/rmt/0m
- g) When **fbackup** completes, run the command
init 4

4.2. Configuring a new second disk

After a new second disk has been installed (see the section Replacing a Hard Disk in this document), and before it can be restored, the disk must be configured. The configuration steps are different for model 715 and C200 machines.

4.2.1 Model 715 machine

(Note: this section replaces Procedure 7-5 in the *StarKeeper II NMS Core System Guide*).

The disks on model 715 machines use the HFS (High Performance) file system. Perform these steps to configure the disk:

- a) Log in as **root** from the console, using the **No Windows** option.
- b) Place the machine in single user mode by running the command
shutdown 0
- c) Create a file system on the disk using the command
newfs -F hfs /dev/rdisk/c0t5d0
- d) Verify that directory **/usr2** exists. If it does not exist, create it using the command
mkdir /usr2
- e) Verify that file **/etc/fstab** contains an entry for the **/usr2** file system. If it does not, edit file **/etc/fstab** to add the line
`/dev/dsk/c0t5d0 /usr2 hfs defaults 0 2`
- f) Mount the file system using the command
mount -a

Verify that the file system is mounted by using the command
mount

If the **mount** command fails, refer to the section Solving Mounting Problems in chapter 4 of the document *HP-UX System Administration Tasks*.

4.2.2 Model C200 machine

The model C200 machines use the LVM (Logical Volume Manager) file system. To configure the second disk on a C200 machine, follow the steps in Procedure 7-6 of the StarKeeper II NMS Core System Guide.

Note: If the **pvcreate** command fails with the error message
Physical volume /dev/dsk/c0t5d0 is already
Recorded in /etc/lvm

Then run this command: **vgexport /dev/vg01**
Then run Procedure 7-6 again.

At the end of the procedure, perform these additional steps:

5. Create a file system on the disk using the command
newfs /dev/vg01/r1vol1
6. Mount the file system using the command
mount -a

4.3. Restoral from customer **fbackup** tape

After the second disk has been configured, data can be restored to the disk using an **fbackup** tape created by the customer.

To restore the disk data using this tape, perform these steps:

- a) Insert the **fbackup** tape into the tape drive.
- b) Restore the data using the command
frecover -r

4.4. Restoral from a generic **fbackup** tape

If a customer **fbackup** tape is not available, a generic tape can be obtained from Datatek Applications. To restore the second disk using this tape, follow the procedure described in the previous section of this document.

Once the disk has been restored, certain data that was applied to the disk during initial StarKeeper installation or later must be re-applied:

- 1) On a Core or Co-resident System, use the SKIICONN menu of **SKsh** to set the machine's Machine ID, service address and listener address.
- 2) On a Core or Co-resident System, restore the configuration data using the procedure described later in this document.
- 3) On a Graphics System, use the Workstation Administration application to set the machine's Machine ID, service address and listener address.

5. CONFIGURATION DATA BACKUP AND RECOVERY

It is important to back up the StarKeeper configuration database on core and Co-resident Systems on a periodic basis. Although much of the configuration data comes from the node database when the **cfg_sync** command is run, there is a set of data called StarKeeper-only data that can not be recovered from the node. This data includes items such as trunk names, concentrator names and SMDS address relationships.

5.1. Configuration data backup using **skbackup**

StarKeeper configuration data can be backed up while the StarKeeper application is running. Use this procedure to back up the configuration data:

- a) Log onto StarKeeper as user **cnmsadm**.
- b) Insert a write enabled tape into the tape drive.
- c) Run the command
skbackup -f -CHR

5.2. Configuration data restoral using **skrestore**

To restore the configuration data on an **skbackup** tape, use this procedure:

- a) Log onto StarKeeper as user **cnmsadm**.
- b) Stop the StarKeeper application.
- c) Insert the **skbackup** tape into the tape drive.
- d) Run the command
skrestore -cR
- e) Start the StarKeeper application.

6. RECOMMENDED BACKUP SCHEDULE

This section provides a recommended schedule for performing machine backups.

- a) Run **make_recovery** after Release 10.0 is first installed. Then run **make_recovery** after the root disk is modified with these activities:
 - i. Adding operating system patches.
 - ii. Adding or deleting users.
 - iii. Modifying kernel parameters.
 - iv. Changing printer configurations.

- b) Run **fbackup** after Release 10.0 is first installed. Then run **fbackup** after the second disk is modified with these activities:
 - i. Adding application patches.
 - ii. Changing exception processing parameters.
 - iii. Adding or changing network maps.
 - iv. Adding or changing filters.

- c) Run **skbackup** after Release 10.0 is first installed. Then run **skbackup** after the StarKeeper configuration database is modified with these actions:
 - i. Adding or changing network nodes or node connection information.
 - ii. Adding or changing trunk or concentrator names.
 - iii. Adding or changing SMDS and/or ICI information.

It is important that all backup material, including installation tapes, backup tapes and license information be stored in a secure place. This material should **not** be stored near the machines themselves.

7. REPLACING A HARD DISK

A hard disk crash will involve replacing the disk. This can be done in two ways.

You can contact Hewlett Packard (800 633-3600) to have this done. The amount they will charge depends on the type of maintenance agreement the machine is registered for.

You can obtain and install a new hard disk yourself. An Internet search of the disk's model number will point to vendors who sell the disk. Known vendors of HP equipment include CBM of America, Elite Computer Solutions (ECS) and

Lucent Technologies (SCO organization). The disk can be installed according to the instructions in the machine's owner's guide, available on the web at <http://docs.hp.com>.

When replacing a disk, make sure that the SCSI ID of the new disk is the same as that of the original disk.

7.1. Model C200

The model C200 comes with 2 4-GB SCSI II disks. An example disk is the SEAGATE ST34572WS or the HP A4569A disk.

Disk installation procedures are provided in the document *Model C160/C180/C200/C240 Owner's Guide*.

7.2. Model 715

The model 715 comes with 2 2-GB SCSI II disks. An example disk is the HP C3325A.

Disk installation procedures are provided in the document *Model 715 Owner's Guide*.

8. CONCLUSION

Presented above are the procedures to backup and restore your StarKeeper machine disks. Details on replacing a defective disk were discussed. Please insure that you make sufficient and frequent backups of your StarKeeper systems.

Please direct any questions to the Lucent Technologies hot-line, which is 1-866-LUCENT8.