Upgrading the SAM21 Shelf Controller

ATTENTION

If upgrading the entire Nortel Networks Succession solution, do not use this document. Follow the upgrade procedure in *IP Solutions Upgrades*, NN10344-450 or *ATM Solutions Upgrades*, NN10261-450. Both documents include the upgrade of the SAM21 Shelf Controllers in the context of an office upgrade.

If upgrading from an SN07 release to a maintenance SN07 release, follow the procedure described in this document and follow the network element upgrade order specified in*IP Solutions Upgrades*, NN10344-450 or *ATM Solutions Upgrades*, NN10261-450.

What's new in upgrades for SN07

December 2004, 05.02 Standard

Procedure Electronic Software Delivery (ESD) for SAM21 Shelf Controller is available for customers with an ESD agreement with Nortel Networks. The procedure describes how to install a SAM21 Shelf Controller software load.

September 2004, 05.01 Preliminary

Supported upgrades from previous releases

Upgrade from SN05 and SN06 to SN07 is supported. Maintenance upgrades from SN07 to SN07 are also supported.

If upgrading from SN05, refer to CS 2000 SAM21 Manager server changes platform on page 2. and 10 Base-T to 100 Base-T auto-negotitation with CS LAN router on page 2. An intermediate upgrade to SN06 is not necessary.

Delivery of software is on CDROM. The CDROM is inserted in the Sun Microsystems server that provides the CS 2000 Management Tools.

Using file links (hard or soft symbolic links) in the filesystem to manage software loads for any card in the SAM21 shelf is unsupported. File links prevent the SAM21 Shelf Controller from booting cards over the backplane because the SAM21 Shelf Controller cannot access software loads with Network File System (NFS) protocol if the datafilled load is a file link.

What's new in upgrades for SN06

October 2003, post SN06 release

10 Base-T to 100 Base-T auto-negotitation with CS LAN router

During the upgrade of the SAM21 Shelf Controller, the port on the router that the SAM21 Shelf Controller uses must be set to auto-negotiate Ethernet parameters after the lock and before the unlock request.

If the Communications Server LAN (CS LAN) is provided by Nortel Networks Passport 8600 series router switches, reconfigure the port on the CS LAN router to "auto-negotiate," and then unlock the SAM21 Shelf Controller. To determine which port connects to the SAM21 Shelf Controller, use the **show ip arp info <ip_address>** command, with the IP address of the SAM21 Shelf Controller. Use the **config ethernet <slot/port> auto-negotiate enable** command with the slot and port numbers returned from the show command. After enabling auto-negotiation, commit the change with the **save config** command. More information is provided in Upgrading software on the SAM21 Shelf Controller on page 20.

October 2003, 04.02 Standard

CS 2000 SAM21 Manager server changes platform

The platform for the CS 2000 SAM21 Manager server changes for the SN06 release from the CS 2000 Core Manager to the CS 2000 Management Tools server. Upgrade of the SAM21 Shelf Controller software takes place during the migration of the server to the CS 2000 Management Tools server. Prerequisites are listed:

- Upgrade of the CS 2000 SAM21 Manager server software on the CS 2000 Core Manager to the temporary SN06 version. Refer to *Upgrading the CS 2000 Core Manager*, NN10060-461.
- Upgrade of the temporary CS 2000 SAM21 Manager client software to SN06. Refer to *Upgrading the CS 2000 Core Manager*, NN10060-461.

- Installation of the CS 2000 SAM21 Manager server software on the CS 2000 Management Tools server. Refer to *Upgrading the CS 2000 Management Tools*, NN10062-461.
- Installation of the CS 2000 SAM21 Manager client software on the CS 2000 SAM21 Manager client workstation. Refer to *Upgrading the CS 2000 Management Tools*, NN10062-461.

The SAM21 Shelf Controllers are reconfigured to use the CS 2000 SAM21 Manager server installed on the CS 2000 Management Tools and when each SAM21 Shelf Controller loads the upgrade software, control is transferred from the CS 2000 Core Manager to the CS 2000 Management Tools server.

Store bootload in flash
Starting with SN06, the SAM21 Shelf Controller maintains a copy of the bootload in local, non volatile storage. The integrity of the bootload is ensured during each boot by verifying the checksum of the bootload against the bootload checksum stored on the CS 2000 Core Manager.

Bootload validity checks
As an improvement to fault management, the SAM21 Shelf Controller compares the name of the file provided by the BOOTP response to the name of the bootload compiled into the bootload. If the values do not match, the SAM21 Shelf Controller issues a new boot request. Do not use file links (hard or soft symbolic links) in the filesystem to manage bootloads since the file links defeat bootload caching and increase the time required to boot each SAM21 Shelf Controller.

Upgrade strategy

Software upgrades for the SAM21 Shelf Controllers provide improved software for the maintenance and management of the cards in the SAM21 shelf.

Software on the SAM21 Shelf Controller can affect environment and network booting parameters on the Non System Slot (NSS) cards in the SAM21 shelf. The SAM21 Shelf Controller applies these changes during the lock request on an NSS card. To ensure these enhancements are applied to all NSS cards, all NSS cards must go through a lock and unlock cycle during the office upgrade.

Required information

The following information is required to complete the upgrade of the SAM21 Shelf Controllers.

- hostnames

  Have the IP address of the CS 2000 Management Tools server. This address is required to migrate control of the SAM21 Shelf Controllers to the CS 2000 SAM21 Manager server software that is installed and running on the CS 2000 Management Tools server if this is an SN05 to SN07 upgrade. This IP address is also required to install and run the Java Web Start version of the CS 2000 SAM21 Manager client.

- dependencies

  — The CS 2000 Core Manager must be upgraded to the CS2E0007 level. Check this by entering the SWIM level of the SDMMTC interface. Enter the **sdmmtc** command and then the **swim** command.

Check CS2E software version at SWIM level

```
    SDM        CON      NET      APPL     SYS       HW     CLLI:
     .          .        .        .        .        .      Host:

SWIM
 0 Quit         Product Code                              Version
 2 Apply        CS2E0007                                   7.x
 3 Details
```

  — The CS 2000 Management Tools server must be upgraded to SN07. Check the version of the NTSSPFS and NTsam21em packages at a terminal connected to the CS 2000 Management Tools server. Use the commands shown in the following figure.

Check SSPFS and SAM21EM software versions

```
CS2000MT# pkginfo -x NTSSPFS
NTSSPFS     Succession Platform Utilities Installation
            (sparc) NTSSPFS_7_x_y

CS2000MT# pkginfo -x NTsam21em
NTsam21em   Succession SAM21 Element Manager
            (noarch) SAM21EM_7_x_y
```

Tools and utilities

The CS 2000 SAM21 Manager client is the interface for a software upgrade of the SAM21 Shelf Controllers in the SAM21 shelf. The upgrade from SN05 to SN07 requires the Java Web Start client and the **/sdm/bin/sam21gui** client application. Upgrades from SN06 or SN07 to SN07 require only the Java Web Start client.

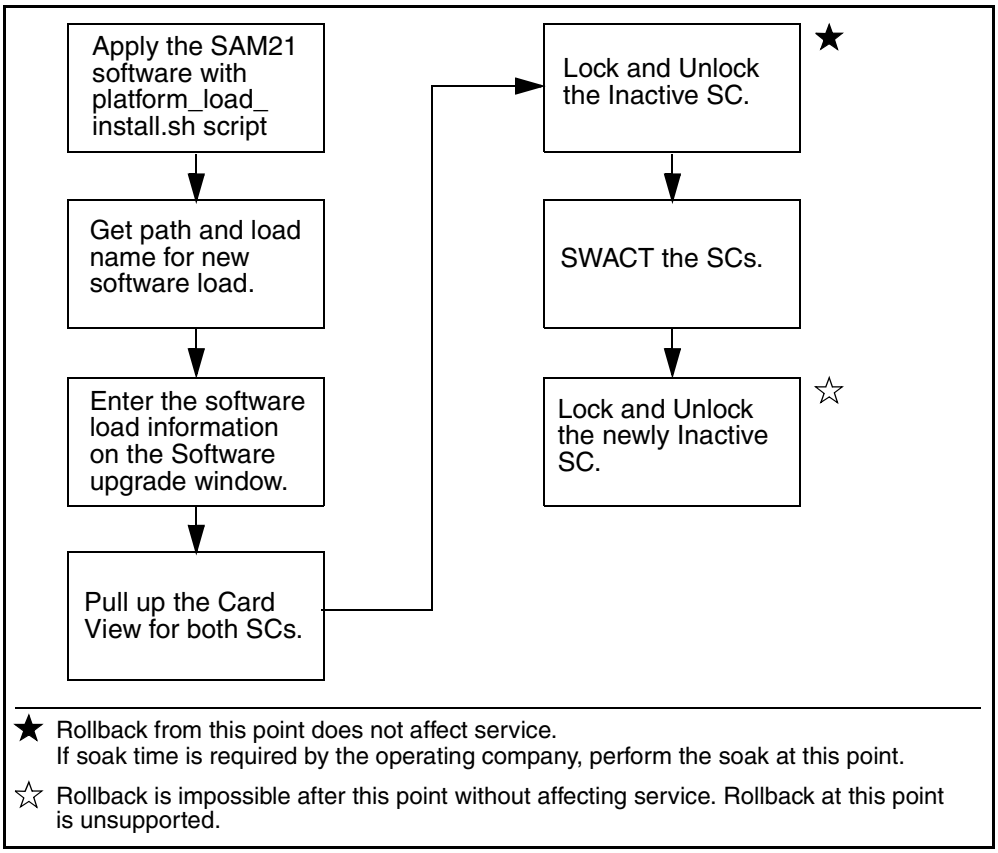
> ***Note:*** If a Card View window is opened and a task or maintenance is completed, close the window rather than minimize the window. Memory consumption is kept to a minimum, but several unused and open Card View windows can consume memory on the CS 2000 SAM21 Manager client workstation.

Software is delivered on CDROM. To extract the files from CDROM, the **/opt/nortel/sspfs/Scripts/platform_load_install.sh** script is used to move software from the CDROM to the CS 2000 Management Tools server filesystem. If a CS 2000 Core Manager or Core Business Manager (CBM) is available, the software is transferred there, and installed.

Upgrade procedures

The following figure provides an overview of the steps required to upgrade software on the SAM21 Shelf Controllers in a SAM21.

Upgrade overview



Preparing for CPU upgrade

Ensure that the CS 2000 SAM21 Manager software on the client workstation and the server have been upgraded before upgrading the software on the SAM21 Shelf Controllers.

For the SN05 to SN07 upgrade, verify that the CS 2000 SAM21 Manager software package is installed and running on the CS 2000 Management Tools server.

In advance of the upgrade, check that all ATM connections are carried on the active SAM21 Shelf Controller. This is only necessary for SAM21 Shelf Controllers with ATM interfaces. Refer to step 4 of Upgrading software on the SAM21 Shelf Controller on page 20 for more information.

Patching software on CPU

The SAM21 Shelf Controller software does not use patches.

Upgrading circuit pack on element

For procedures on upgrading Non System Slot (NSS) cards in the SAM21 shelf, refer to the documentation for that component.

Upgrading whole element

Follow the steps below to upgrade software for all the cards in the SAM21 shelf.

1. upgrade the element server software for the SAM21 and NSS cards
2. upgrade the element client software for the SAM21 and NSS cards
3. upgrade SAM21 Shelf Controller software
4. upgrade non-system slot software for additional cards

Electronic Software Delivery (ESD) for SAM21 Shelf Controller

Software loads for the SAM21 Shelf Controller are available for electronic transfer from Nortel Networks to a customer dropbox.

Audience

This procedure is intended for use by telephone operating company personnel who have an ESD agreement with Nortel Networks. When the agreement was established, the telephone operating company furnished Nortel Networks with the location of an electronic dropbox and a username and password pair for delivering software loads. When Nortel Networks delivers a software load to the dropbox, an electronic mail notification is sent to the email address specified by the telephone operating company when the ESD agreement was established.

When to use this procedure

Use this procedure after receiving electronic notification for the following software loads:

- SAM20070.n.R.NCL.NAP.vault.nn.D.tar.gz — NCL
- SAM2M0070.n.R.NCL.NAP.vault.nn.D.tar.gz — MNCL

n
is an integer value such as 7 and is part of the product order code

vault
is a string that identifies the Nortel Networks software vault that holds the software

nn
is an integer value that indicates the respository version of the software

Action

At a CS 2000 Management Tools server terminal

1 Make a temporary directory to store the ESD software:

```
$ mkdir /data/iso_esd
```

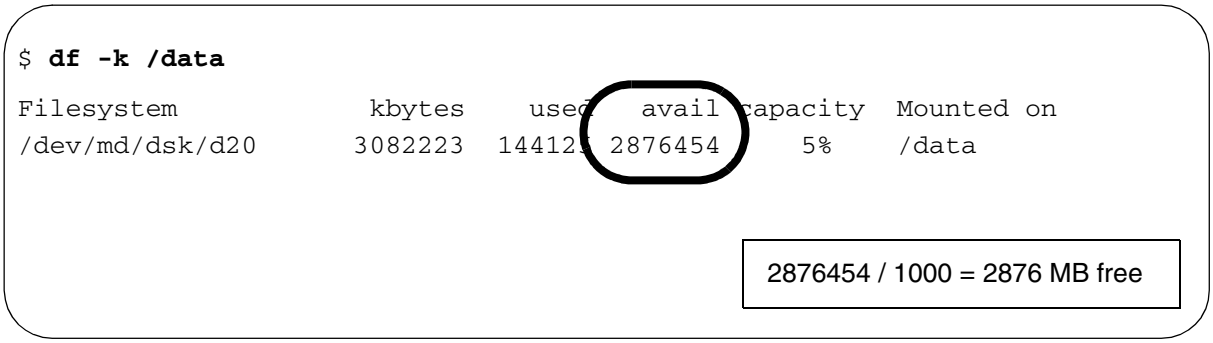
2 Change directory to the newly created location:

```
$ cd /data/iso_esd
```

3 Ensure that enough disk space is available for the ESD software, 350 MB is recommended.

```
$ df -k /data
```

The free space on the device that /data is mounted is printed. The value for "avail" is the number of free kilobytes. Divide that number by 1000 to determine the number of free megabytes.



4 Transfer the ESD software files from the dropbox on the repository server. The repository server is the machine owned by the telephone operating company that was selected to be the destination for the ESD software files:

$ ftp <repository_server>

Log in and change directory to the dropbox location on the repository server.

5 Change the transfer mode to binary.

ftp> bin

6 Retrieve the ESD software load:

ftp> get <esd_filename>.tar.gz

Example
ftp> get SAM20070.70.R.NCL.NAP.SDC.1.D.tar.gz

Note: Determine the actual ESD filename from the Nortel Networks notification, or listing the contents of the dropbox with the **ls** command.

7 Repeat step 6 for all ESD software loads recorded in the notification from Nortel Networks and then end the FTP session:

ftp> bye

8 Extract the ESD software load from the tape archive format:

$ gtar xvzf <esd_filename>.tar.gz

Example
$ gtar xvzf SAM20070.70.R.NCL.NAP.SDC.1.D.tar.gz

The ESD software load is uncompressed, and a new directory named after the ESD software filename is created. The directory name is the name of the ESD filename without the .tar.gz suffix.

The contents of the ESD software load are placed in this new directory.

9 Change directory to the newly created directory:

```
$ cd <esd_filename>
```

Example
$ cd SAM20070.70.R.NCL.NAP.SDC.1.D

10 Become the root user:

```
$ su - root
```

A prompt for the root password is presented. Enter the root password.

11 The ESD software is formatted as an ISO 9660 image. Use the mount_iso.ksh script to mount the ISO 9660 image:

```
# /opt/nortel/sspfs/Scripts/mount_iso.ksh mount
/data/iso_esd/<esd_filename>/<iso_image>.iso.
tape
```

Example
 # mount_iso.ksh mount
/data/iso_esd/SAM20070.70.R.NCL.NAP.SDC.1.D/image.
iso

A response is printed to the terminal. Use the response to determine if the command was successful:

mount_iso.ksh command responses

Response	Meaning
Is is very important for the user of this command to know that if you mount an iso image. It is a MUST that you umount an image before removing the image file. If the file is deleted while the OS has it mounted, it can be harmful to the runtime applications on this unit	This response indicates success.
Provided full path to ISO image does not exist	Verify the location and nameof the ISO 9660 image, such /data/iso_esd/SAM207000.../image.iso, and retry.
ISO Image Already Mounted	Enter **mount_iso.ksh umount** to unmount whatever ISO 9660 image is currently mounted, and retry.

mount_iso.ksh command responses

Response	Meaning
Error creating the image device location	This response indicates an operating system error with the loopback file driver. Retry the command, and if it fails a second time, contact Nortel Networks support personnel.
ERROR MOUNTING <ESD_filename>	This response indicates that either the ISO 9660 file is corrupt, or the `/tmpmnt` directory has been deleted.

The contents of the ESD software file are available in directory `/tmpmnt`.

12 To install the software now, list the contents of the `/tmpmnt` directory (**ls /tmpmnt**) and record the name of the .rpm file.

Enter the **platform_load_install.sh** command.

Select **2**, Install RPM from Disk.

Enter the .rpm filename when prompted.

Enter /tmpmnt/noarch when prompted for the location of the .rpm file.

13 To install the software later, copy the contents to a location on the CS 2000 Management Tools server. When installing the software at the later date, proceed as in step 12 except specify the location of the software instead of /tmpmnt.

14 Unmount the ESD file:

```
# mount_iso.ksh umount
```

15 This procedure is complete.

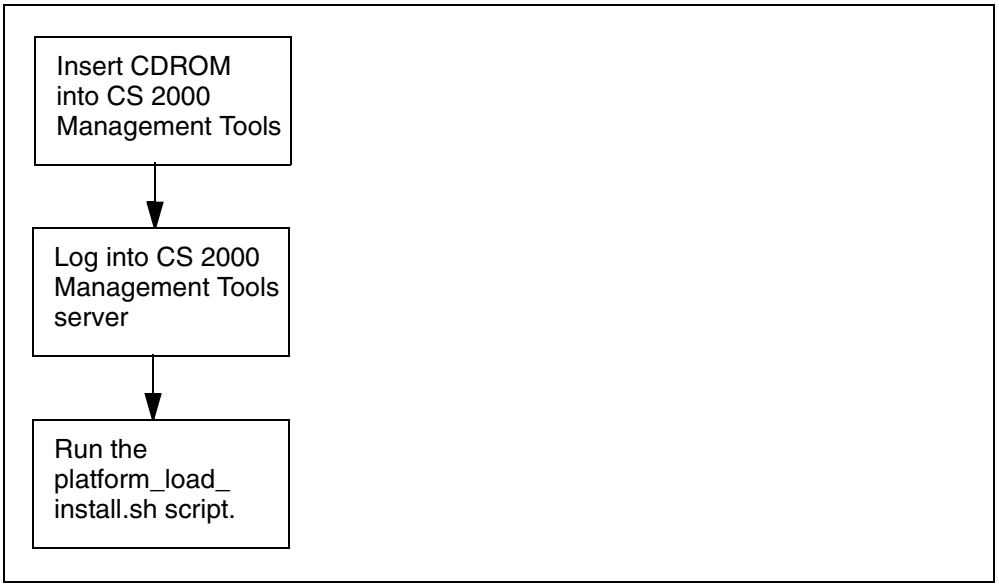
Installing SAM21 Platform software

This procedure installs the SAM21 Shelf Controller software on the CS 2000 Core Manager or Core and Billing Manager 850 (CBM) so that the CS 2000 Core Manager or CBM can serve the software to a BOOTP request from a SAM21 Shelf Controller.

If this is an SN05 to SN07 upgrade, before performing this procedure, upgrade the CS 2000 SAM21 Manager server software on the CS 2000 Core Manager and install the CS 2000 SAM21 Manager package on the CS 2000 Management Tools server. These procedures are described in *IP Solutions Upgrade*, NN10344-450 or *ATM Solutions Upgrade*, NN10261-450.

Do not remove old SAM21 Shelf Controller filesets (NCL and MNCL filesets of the same release) from the CS 2000 Core Manager unless there is not enough disk space in the `/swd/sam21` volume on the CS 2000 Core Manager to apply new releases. If required, follow the procedure listed in section Old fileset removal on CS 2000 Core Manager on page 16. Use procedure Old fileset removal on CBM on page 18 for removing old .rpm packages.

The following figure summarizes the procedure.



At the CS 2000 Management Tools frame (Sun Microsystems t1400 or Netra 240)

1 Insert the CDROM into the CDROM tray. If the unit is a Netra 240 in a cluster configuration, use the active Netra 240 unit. The active unit is identified by a lit USER LED on the front of the unit.

The CDROM label for the SAM21 Shelf Controller software includes the product code, SAM20007, on the lower half of the label.

At a CS 2000 Management Tools terminal

2 Log in and then use the su command to gain root privilege.

```
Trying <hostname>...
Connected to <hostname>.
Escape character is '^]'.

Authorized use only, activities logged.
login: username
Password: <password>
Last login: Fri Jan 30 12:48:10 from <otherhost>
prompt:>
prompt:> su - root
Password: <root_password>
#
```

3 Execute the platform_load_install.sh script.

```
# /opt/nortel/sspfs/Scripts/platform_load_install.sh
```

The screen clears and a menu is displayed.

```
      Welcome to the Platform Installation Tool Version 3.2
   ========================================================================
      RPM INSTALLATION/REMOVAL
     ============================
     1) Install RPM from CDROM       2) Install RPM from Disk
     3) Uninstall RPM                4) Query all RPMs

      OTHER
     =========
    C) Change Rotation Parameters          P) View Rotation Parameters
     V) SAM21 Platform Version Installed     X) Exit

      Please choose one of the following: 1
```

Note: *Options C and P are not available for offices configured with a CS 2000 Core Manager or a CBM.*

4 Enter **1** and press the Return key to install the software.

The screen clears and the contents of the .rpm package are displayed.

```
                Verifying CDROM is mounted
/cdrom/cdrom on /vol/dev/dsk/c0t0d0/cdrom read only/nosuid/mapl-
case/noglobal/rr/traildot/dev=16c0001 on Sat Mar 27 16:34:13 2004
                CDROM is mounted.
                Listing file names in the rpm on the cd.

/swd/sam21/10.0.0.0401211453
/swd/sam21/10.0.0.0401211453.cksum
/swd/sam21/F695_flash.10.0.0.0401211453
/swd/sam21/F695_flash.10.0.0.0401211453.chksum
/swd/sam21/N765.flash.10.0.0.0401211453
/swd/sam21/N765a.flash.10.0.0.0401211453
/swd/sam21/Sitka.flash.10.0.0.0401211453
/swd/sam21/checkLoad
/swd/sam21/hostsmodify
/swd/sam21/hostsmodify.sh
/swd/sam21/hostsmodify.sspfs
/swd/sam21/logs/logfile
/swd/sam21/logs/slgcleansam
/swd/sam21/sc-atm-tools.rpm
/swd/sam21/sc-ip-tools.rpm
/swd/sam21/sc-mtc-tools.rpm

                Do you want to continue (y/n)? Y
```

Note: *If the message* `There is no cd in the CDROM drive, please check drive` *is displayed, ensure that the CDROM is inserted in the tray for this unit.*

5 Enter **Y** to proceed with the software installation.

The software is extracted from the .rpm package. The .rpm package is transferred to the CS 2000 Core Manager or CBM.

```
              Extracting files from the rpm archive on the cd.

Installing RPM package SAM21_PLAT-10.0-223.0
Sun Microsystems Inc.   SunOS 5.8       Generic Patch   December 2002
sam21_plat_10_0_223_0.rpm                    100%   11MB 750.4KB/s   00:14
root@47.135.214.127's password: <enter root password>
```

6 Enter the root password for the CS 2000 Core Manager or the CBM.

The software is installed on the CS 2000 Core Manager or CBM. If a CBM is used, the .rpm package is then copied to the inactive CBM unit and another prompt for the root password appears. If this happens enter the root password and press Return. After the load file is installed on the CS 2000 Core Manager or CBM, the transferred .rpm package is deleted from the CS 2000 Core Manager or CBM.

```
              Extracting files from the rpm archive on the cd.

Installing RPM package SAM21_PLAT-10.0-223.0
Sun Microsystems Inc.   SunOS 5.8       Generic Patch   December 2002
sam21_plat_10_0_223_0.rpm                    100%   11MB 750.4KB/s   00:14
root@47.135.214.127's password: <enter root password>
Mate IP is 47.135.214.129
Sun Microsystems Inc.   SunOS 5.8       Generic Patch   December 2002
root@47.135.214.129's password: <enter root password>

     Configuring syslog to add designlog, statlog and customerlog files.
      Log files already added to syslog.

      Adding log rotation for designlog/statlog/customerlog files.
      Installation of Platform Load Complete.

      ******* Please hit ENTER key to continue ***********
```

Note: *After the first installation, syslog and log rotation will not be reconfigured.*

7 Enter **X** to exit.

8 Enter the eject command:

```
# eject
```

9 Log out of the CS 2000 Management Tools server.

At the CS 2000 Management Tools frame

10 Remove the CDROM.

11 This procedure is complete.

Note: For customers experienced with upgrading the SAM21 Shelf Controllers in earlier releases, no action is required at the CS 2000 Core Manager for software installation.

Additional information

Do not use file links (hard or soft symbolic links) in the filesystem for bootloads. Links are not supported, they defeat the caching mechanism, and increase the time required to boot a SAM21 Shelf Controller.

Old fileset removal on CS 2000 Core Manager

Do not remove old SAM21 Shelf Controller fileset (NCL and MNCL filesets of the same release) unless there is not enough disk space in the `/swd/sam21` volume to apply new releases.

To remove old SAM21 Shelf Controller filesets, perform the following procedure.

At the Core Manager console or terminal window

1 Change directory to `/var/adm/sam21`:

```
# cd /var/adm/sam21
```

2 Copy the custlog, designlog, and statlog configuration files to a backup version in the `/var/adm` directory:

```
# cp custlog ../custlog.bak
# cp designlog ../designlog.bak
# cp statlog ../statlog.bak
```

3 List the existing filesets:

```
# sdmmtc details
```

4 Find the SAM21 Shelf Controller fileset to be removed by using the filter command:

```
> filter sam21
```

Filter command example

```
    SDM         CON      NET      APPL     SYS             CLLI: clliname
     .           .        .         .       .              Host: hostname

Details
 0 Quit       Filter: SAM21 (Description View)
 2              # Fileset Description                Version         Status
 3              1 SAM21 Platform v10                10.0.117.0      APPLIED
 4              2 SAM21 Platform v7                 7.0.558.4       APPLIED
 5              3                                >> 7.0.558.0       ARCHIVED
 6              4 SAM21 Platform v8                 8.0.24.9        APPLIED
 7 Select       5                                >> 8.0.24.0        ARCHIVED
 8 Remove       6 SAM21 Platform v9                 9.0.66.5        APPLIED
 9              7                                >> 9.0.66.0        ARCHIVED
10             8 Succession SAM21 Manager           8.0.24.2        APPLIED
11                                        Filesets: 1 to 8 of 8
```

5 Remove the old SAM21 Shelf Controller fileset:

> remove <#>

#
is the number for the “SAM21 Platform” fileset to remove. For example, **remove 3** to remove version 7.0.558.0.

6 Make the `/var/adm/sam21` directory:

 # mkdir -p /var/adm/sam21

7 Change directory to `/var/adm`, the location of the backup configuration files:

 # cd /var/adm

8 Move the backup configuration files into the `/var/adm/sam21` directory, and remove the backup suffix:

```
# mv custlog.bak sam21/custlog
# mv designlog.bak sam21/designlog
# mv statlog.bak sam21/statlog
```

9 The current SAM21 Shelf Controller NCL and MNCL filesets need to be reapplied.

To reapply the filesets, use Installing SAM21 Platform software on page 12 in this document.

Old fileset removal on CBM

Do not remove old SAM21 Shelf Controller fileset (NCL and MNCL filesets of the same release) unless there is not enough disk space in the `/swd/sam21` volume to apply new releases.

At the CS 2000 Management Tools terminal

1 Log in as root and then run the platform_load_install.sh script.

The screen clears and a menu is displayed.

```
      Welcome to the Platform Installation Tool Version 3.2
=====================================================================
      RPM INSTALLATION/REMOVAL
     ============================
     1) Install RPM from CDROM       2) Install RPM from Disk
     3) Uninstall RPM                4) Query all RPMs

      OTHER
     =========
    C) Change Rotation Parameters          P) View Rotation Parameters
     V) SAM21 Platform Version Installed     X) Exit

      Please choose one of the following: 3
```

2 Select **3** and press the Return key.

The application connects to the CS 2000 Core Manager or CBM and displays the installed .rpm packages.

```
           Uninstalling RPM Software.

           The Following RPM files are installed

3PC_MC_SSPFS-7.09-1.0
SAM21_PLAT-10.0-223.0
         Please enter rpm file you would like to uninstall or q to exit>
```

3 Enter the name of the .rpm package to remove. For example, SAM21_PLAT-10.0-223.0.

Note: The .rpm package name is case sensitive.

A confirmation prompt is provided.

```
      Please enter rpm file you would like to uninstall or q to exit>
SAM21_PLAT-10.0-223.0
Sun Microsystems Inc.   SunOS 5.8       Generic Patch   December 2002
     Are you sure you want to uninstall SAM21_PLAT-10.0-223.0 (y,n)>? Y
```

4 Enter **Y** to confirm the uninstall prompt.

The uninstall begins, and stops to prompt for the root password on the CS 2000 Core Manager or CBM. If the office uses a CBM, a second root password prompt is provided for the mate CBM unit.

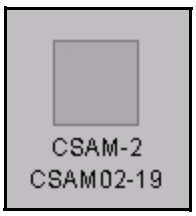
```
      Uninstalling RPM on SDM/CBM, you will be prompted for the sdm/cbm
root passwd.
root@47.135.214.127's password: <enter root password>
Mate IP is 47.135.214.129
root@47.135.214.129's password: <enter root password>
       SAM21_PLAT-10.0-223.0 RPM has been uninstalled


               ******* Please hit ENTER key to continue ***********
```

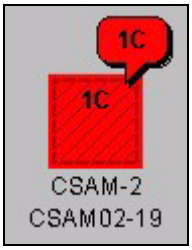
5 This procedure is complete.

Upgrading software on the SAM21 Shelf Controller

If this is an SN05 software upgrade to SN07, the shelf icon will appear isolated.



Not isolated



Isolated

ATTENTION

The information in this attention box only applies to an SN05 to SN07 software upgrade.

Ensure that the IP address provisioned in the SAM21 EM Server field of the Reprovision window is the call processing LAN interface on the CS 2000 Core Manager before beginning this procedure. This change must be made on the CS 2000 SAM21 Manager client hosted by the CS 2000 Core Manager and the CS 2000 SAM21 Manager client on the CS 2000 Management Tools server. If this IP address is not set to the call processing LAN interface prior to loading and Swact of the SAM21 Shelf Controllers to the new SN07 load, the CS 2000 SAM21 Manager server looses communication with the shelf after the first Swact. Therefore, the shelf becomes isolated. Contact Nortel Networks support personnel if the shelf becomes isolated.

Monitor the progress text at the States tab as each SAM21 Shelf Controller is locked in step 5. The SAM21 Shelf Controller that is upgraded first configures the second SAM21 Shelf Controller. In order to configure the first SAM21 Shelf Controller, it must be locked and unlocked so that the second SAM21 Shelf Controller can configure it. This additional step is only performed once for each SAM21 shelf.

Before the firmware parameters for a SAM21 Shelf Controller are configured, the progress text at the States tab during a lock includes the following lines:

```
Lock started
Locking in progress
Checking if SC firmware parameters are up to date
SC firmware parameters are not up to date
Configuring SC firmware parameters
Configuring netboot parameters
Configuring environment parameters
Saving configuration
SC firmware parameters configuration completed
Lock completed successfully
```

After the firmware parameters for a SAM21 Shelf Controller are configured, the progress text at the States tab includes the following lines:

```
Lock started
Locking in progress
Checking if SC firmware parameters are up to date
SC firmware parameters are up to date
Lock completed successfully
```

Ensure that the progress text for both SAM21 Shelf Controllers includes `SC firmware parameters are up to date.`

Client interfaces

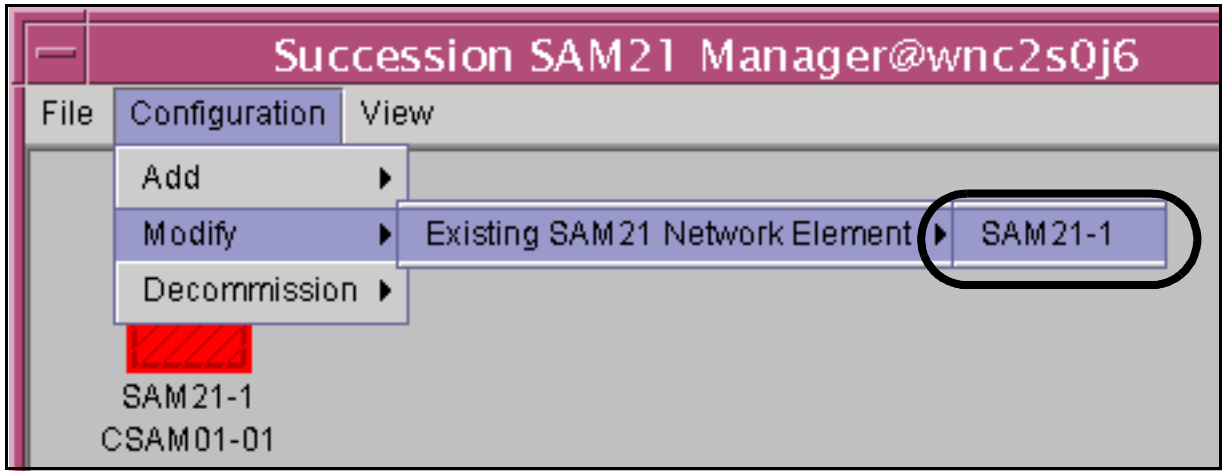
For the upgrade from SN05 to SN07, two versions of the CS 2000 SAM21 Manager client are used. Use the Java Web Start client hosted by the CS 2000 Management Tools server to reprovision the software load in steps 1, 2, and 3. Use the client hosted by the CS 2000 Core Manager and started with the **/sdm/bin/sam21gui** to lock and unlock the SAM21 Shelf Controllers as well as for SWACT in steps 5 through 11.

Detailed procedure

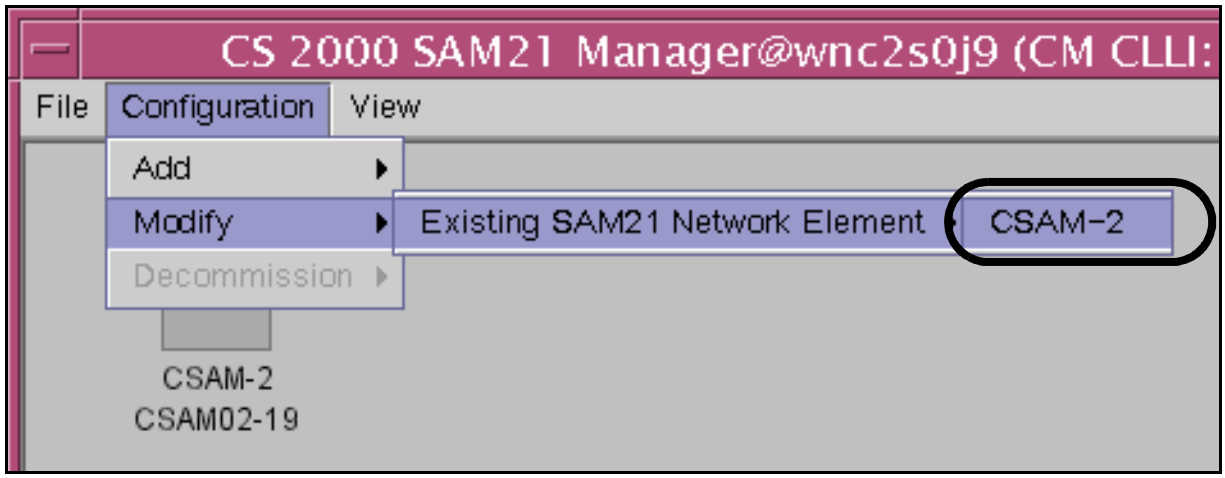
At the CS 2000 SAM21 Manager client (Java Web Start client)

1 From the Subnet View, select Configuration, Modify and then the SAM21 shelf with the SAM21 Shelf Controllers to upgrade.

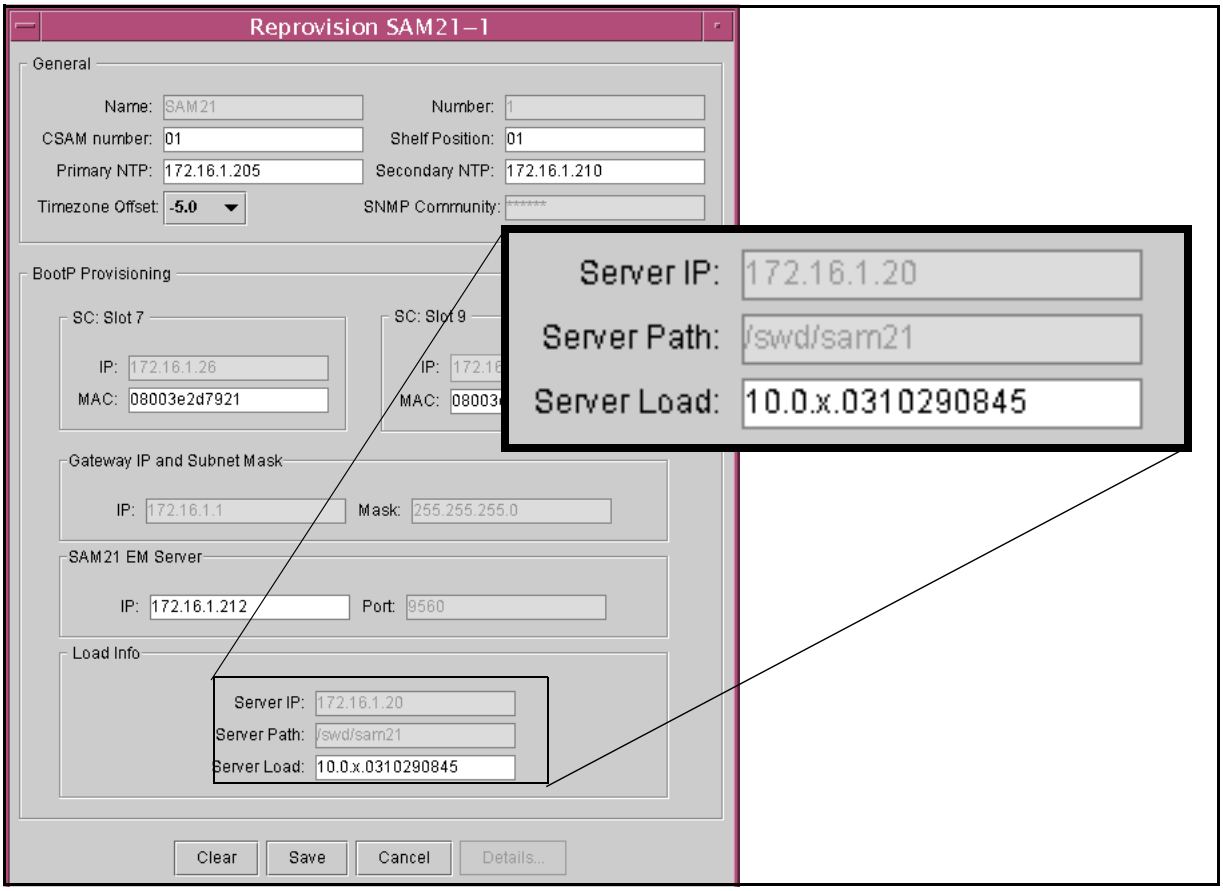
Upgrade from SN05 to SN07



Upgrade from SN06 to SN07 or newer



2 Enter the new software load name in the Server Load field on the Reprovision window. This action updates /etc/bootptab on the CS 2000 Core Manager. A warning is generated if the provisioning fails.



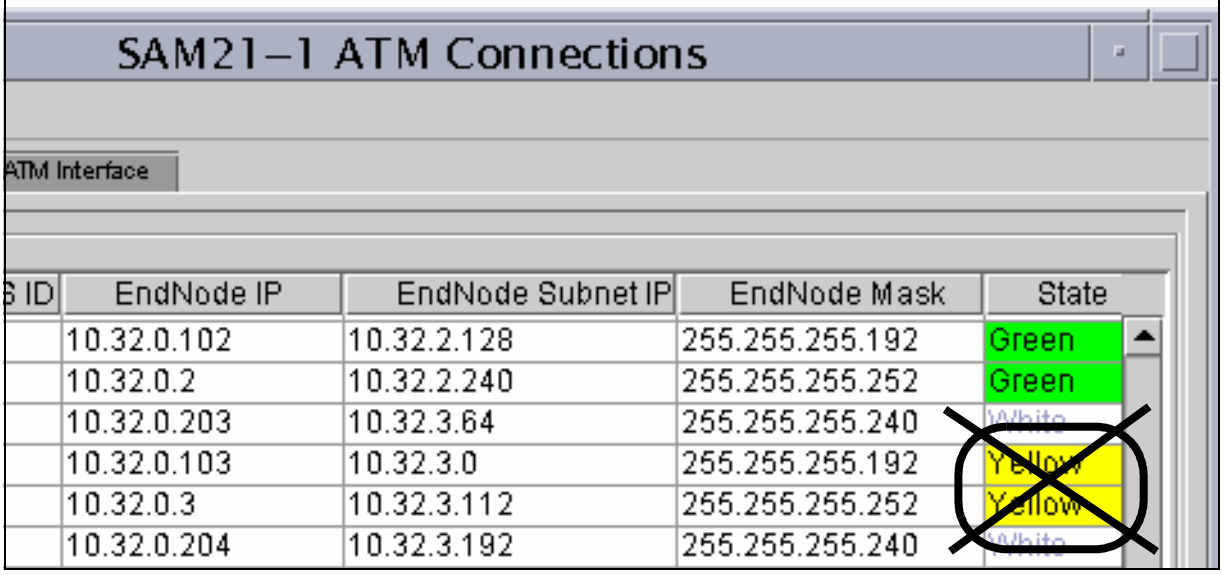
Note 1: ‘ x’ is greater than or equal to zero. Refer to page 1-1 of the *SAM21 Platform Base Release Notes* for the correct value.

Note 2: This graphic shows the SN06 to SN07 upgrade. For SN05 to SN07 upgrades, the Primary NTP, Secondary NTP, and Timezone Offset fields are not available. During these same upgrades, the IP address, MAC addresses, Gateway IP address, SAM21 EM Server IP, Server IP, and Server Path fields are available.

3 Click Save on the Reprovisioning window to save the data. Close the Reprovisioning window.

4 If the SAM21 Shelf Controllers are provisioned with ATM interfaces, verify that the inactive SAM21 Shelf Controller does not carry the active ATM link. Select Configuration and then IPOA Services from the Subnet View to open the ATM Connections window.

Green - active ATM link is on active SAM21 Shelf Controller
Yellow - active ATM link is on inactive SAM21 Shelf Controller
Red - connection between SAM21 Shelf Controller and end node existed but is currently broken
White - connection between SAM21 Shelf Controller and end node is provisioned, but never connected



If all the connections are yellow, then SWACT the SAM21 Shelf Controller at a period of low activity before proceeding. If some connections are green and some are yellow, as in the example, then check for alarms at the ATM equipment between the SAM21 Shelf Controller and the end node with the yellow connection. Correct the condition, check again that all connections are green, and then proceed.

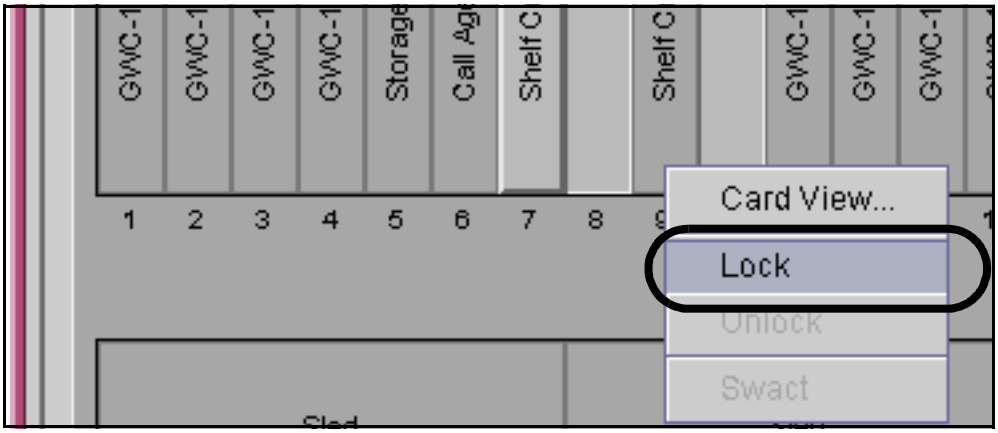
5

ATTENTION

If this is an SN05 to SN07 upgrade, perform steps 5 through 11 from the client that is hosted by the CS 2000 Core Manager and is started with the `/sdm/bin/sam21gui` command.

From the Shelf View window, right click on the card icon for the inactive SAM21 Shelf Controller and select Lock from the context menu.

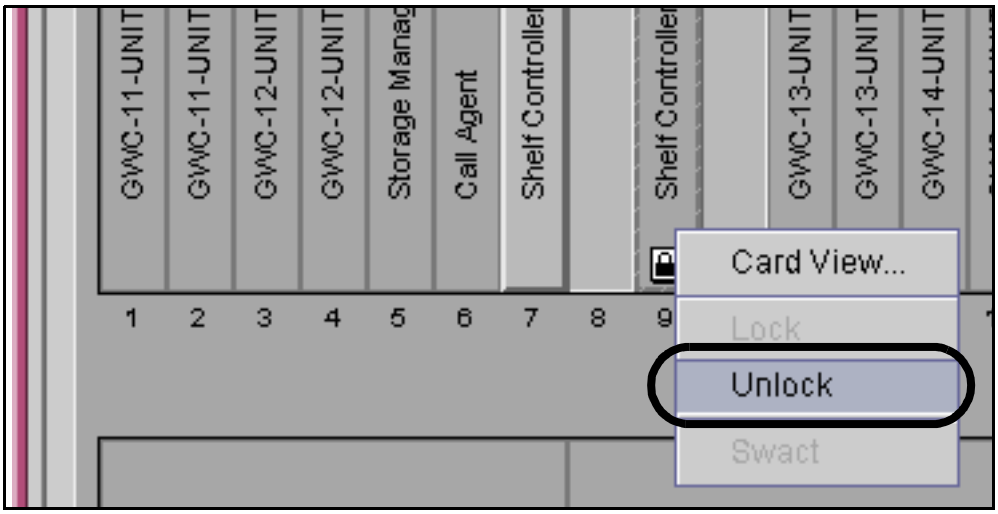
Note: The Lock menu option is only available for the inactive SAM21 Shelf Controller.



6 Wait for the Lock icon to appear on the SAM21 Shelf Controller icon and the other SAM21 Shelf Controller to indicate that it is in simplex (alarm 2C on the other SAM21 Shelf Controller).

Note: If the CS LAN is provided by Nortel Networks Passport 8000 series router switches, reprovision the port on the Passport to auto-negotiate. Refer to Reprovision Passport port to auto-negotiate on page 28. This only needs to be done once. If this procedure was completed during the upgrade to SN06, do not reconfigure the port.

7 Right click on the same SAM21 Shelf Controller and select Unlock from the context menu and optionally verify that calls can originate and complete. The unlock request can require up to 10 minutes.



Note: Optionally monitor the download and boot of the card from the States tab of the Card View window. If the card does not boot or if the *SAM21 Base Platform Release Notes* indicates that upgraded firmware is included in the load, refer to procedure SAM21 Shelf Controller does not unlock on page 37 for information about configuring firmware parameters.

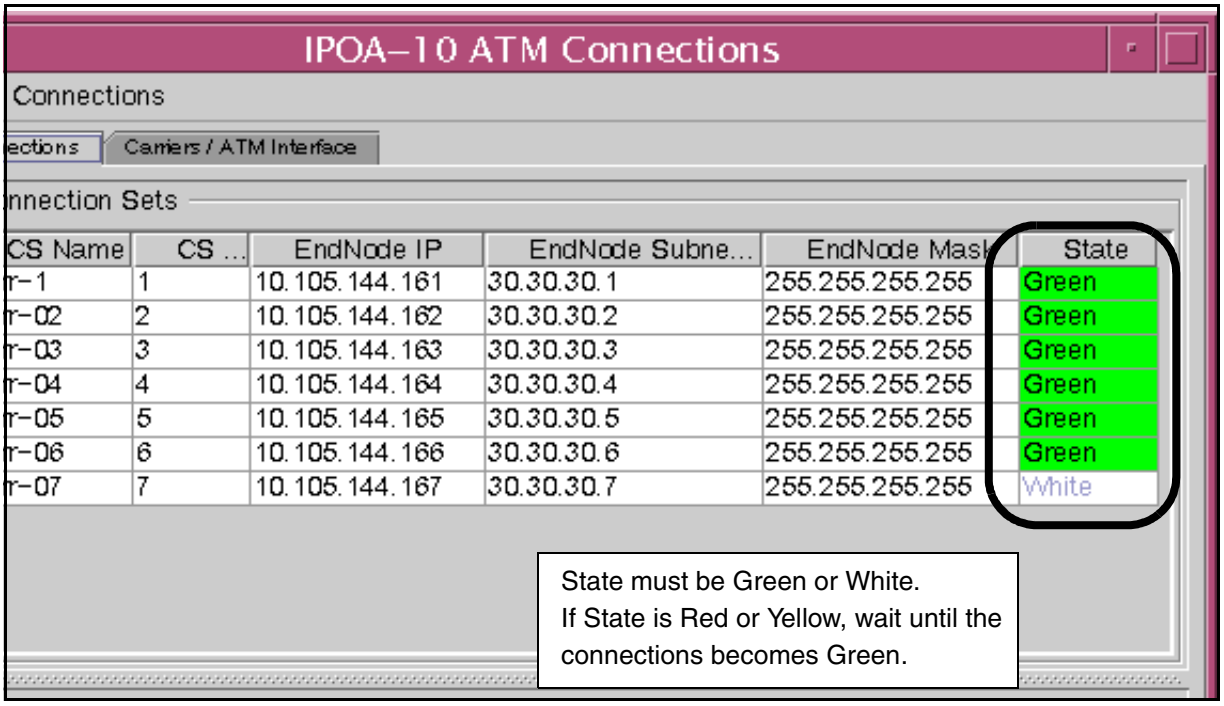
A successful boot reports the following message at the States tab of the Card View window:

```
Unlock started
Establishing control
Waiting for board to initialize
Unlock in progress
Waiting for SC to boot
SC is booting...
Unlock completed successfully
```

8 If required by operating company personnel, soak the new software load. If rollback to the previous release is required, refer to Rollback software on the SAM21 Shelf Controller on page 34.

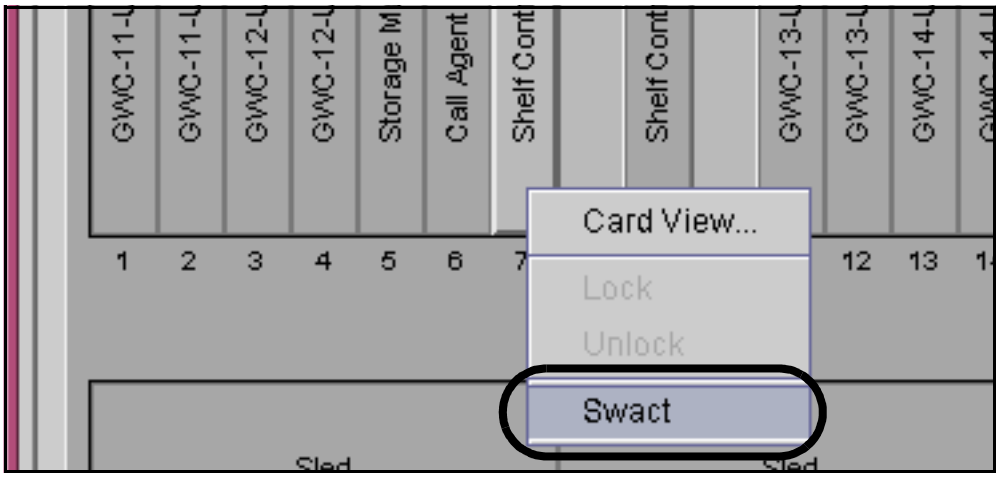
9 If the SAM21 Shelf Controller is configured with an ATM interface, verify that all ATM connections are green at the ATM Connections window before proceeding.

Check for Green state



10 After the hashed outline disappears from the Inactive SAM21 Shelf Controller, right click on the icon for the Active SAM21 Shelf Controller and select Swact from the context menu.

If required by telephone operating company personnel, soak the new software and firmware after the Swact.



11

> **ATTENTION**
> Rollback is not supported after this step is completed.

Lock and unlock the newly Inactive card as in steps 5 and 7. If firmware configuration was required with the first card, perform the firmware configuration on the newly inactive card.

12 If this is an SN05 to SN07 upgrade, Swact the SAM21 Shelf Controllers again, and then Lock and Unlock the SAM21 Shelf Controller that was upgraded first. This step ensures that the firmware parameters are configured correctly. Monitor the progress text at the States tab as the SAM21 Shelf Controller boots.

13 This procedure is complete.

Reprovision Passport port to auto-negotiate

To enable auto-negotiation of the Ethernet port speed and duplex state, perform the following steps at the command line interface to the Passport router switch. Read, write, and administrative privileges are required for this procedure.

At the CLI for the Passport

1 Determine the slot and port on the Passport that connects to the device:

```
> show ip arp info <ip_address>
```

ip_address
is the physical IP address of the SAM21 Shelf Controller, the Gateway Controller, or USP

The slot and port are reported.

```
prompt:cpu> show ip arp info 172.30.242.25
================================================================================
                                      Ip Arp
================================================================================
  IP_ADDRESS       MAC_ADDRESS      VLAN  PORT    TYPE    TTL
--------------------------------------------------------------------------------
172.30.242.25    00:90:69:1a:d4:fc   200   1/2   DYNAMIC 272
```

Note: *If the response indicates MLT instead of the slot and port, perform this operation from the mate Passport unit. If the response indicates that no arp entry is found, ping the IP address from the CLI, and retry the command.*

2 Set the slot and port to auto-negotiate:

> config ethernet <slot>/<port> auto-negotiate enable

The slot and port are reconfigured to auto-negotiate and the prompt returns.

```
prompt:cpu> config ethernet 1/2 auto-negotiate enable
prompt:cpu>
```

3 Verify the port configuration:

> show ports info config <slot>/<port>

The slot and port configuration is displayed.

```
prompt:cpu> show ports config info 1/2

================================================================================
                                      Port Config
================================================================================

PORT                AUTO  SFFD  ADMIN       OPERATE     DIFF-SERV  QOS MLT
NUM   TYPE          NEG.        DUPLX SPD   DUPLX SPD   EN   TYPE  LVL ID
--------------------------------------------------------------------------------
1/2   100BaseTX     true  false  half  100   full  100   fals  core  1   0
```

4 Commit the change:

> save config

Change CS 2000 SAM21 Manager server address

Perform this procedure only once for each shelf that is upgraded to SN07 from SN05.

This procedure uses both CS 2000 SAM21 Manager clients. The intent of the procedure is to change the IP address of the CS 2000 SAM21 Manger server. to the IP address of the CS 2000 Management Tools server. First, the Java Web Start client hosted by the CS 2000 Management Tools server is used, then the **/sdm/bin/sam21gui** client is used.

- the CS 2000 Management Tools server (Sun Microsystems) based SAM21 Manager must be changed first
- the CS 2000 Core Manager (SDM) based SAM21 Manager must be changed second

ATTENTION

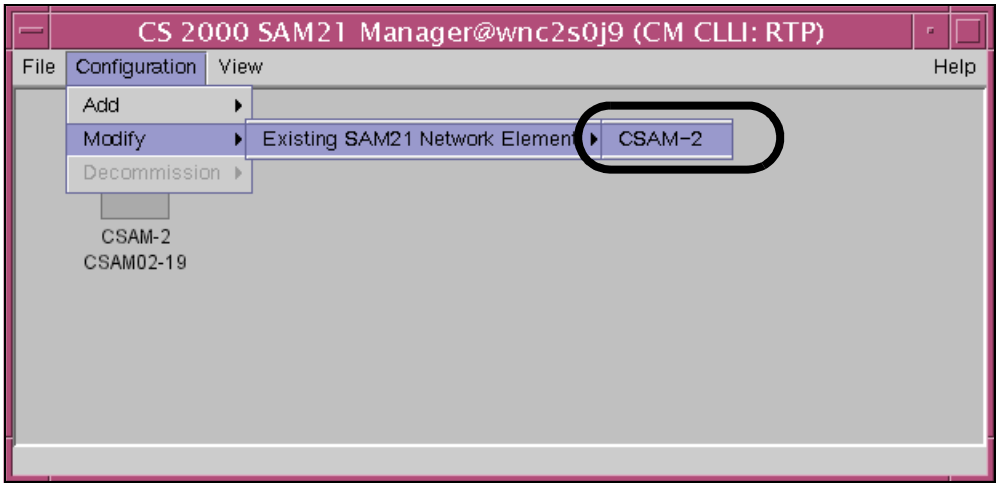
Failure to change the CS 2000 Management Tools based SAM21 Manager first can isolate the SAM21 shelf.

The CS 2000 Management Tools based SAM21 Manager client is identified as the Java Web Start client.

At the CS 2000 SAM21 Manager (Java Web Start client)

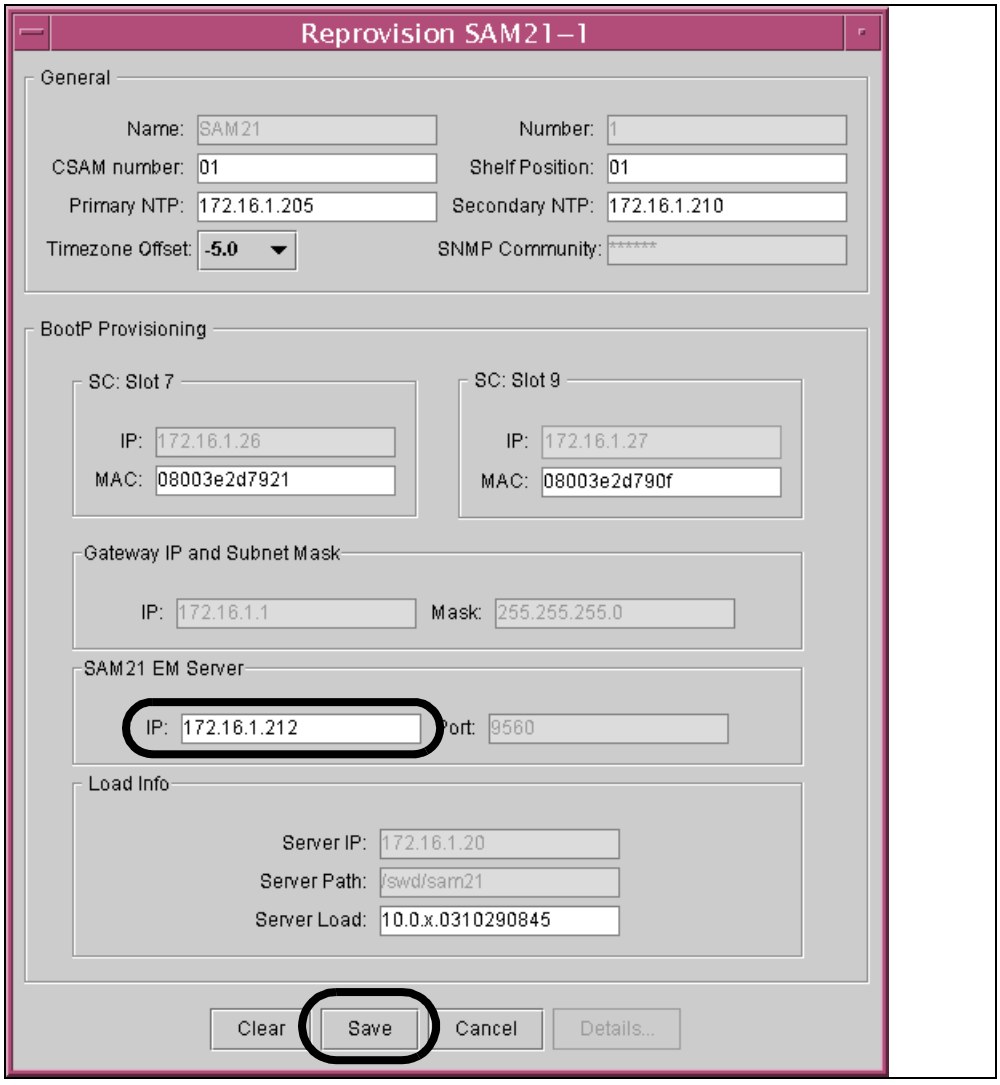
1 Use the Configuration menu to modify a SAM21 shelf and open the Reprovisioning window.

Subnet View window at Java Web Start client



2 Replace the existing IP address with the IP address of the CS 2000 Management Tools server and click Save. This action updates /etc/bootptab on the CS 2000 Core Manager. A warning is generated if the provisioning fails.

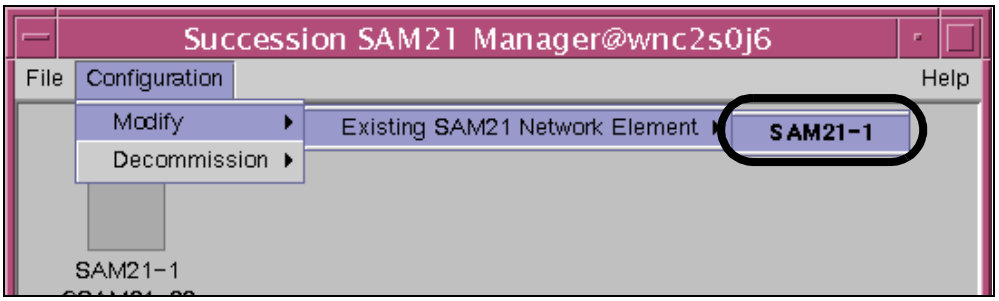
Reprovision window at Java Web Start client



At the CS 2000 SAM21 Manager client workstation

3 Use the Configuration menu to modify a SAM21 shelf and open the Reprovisioning window.

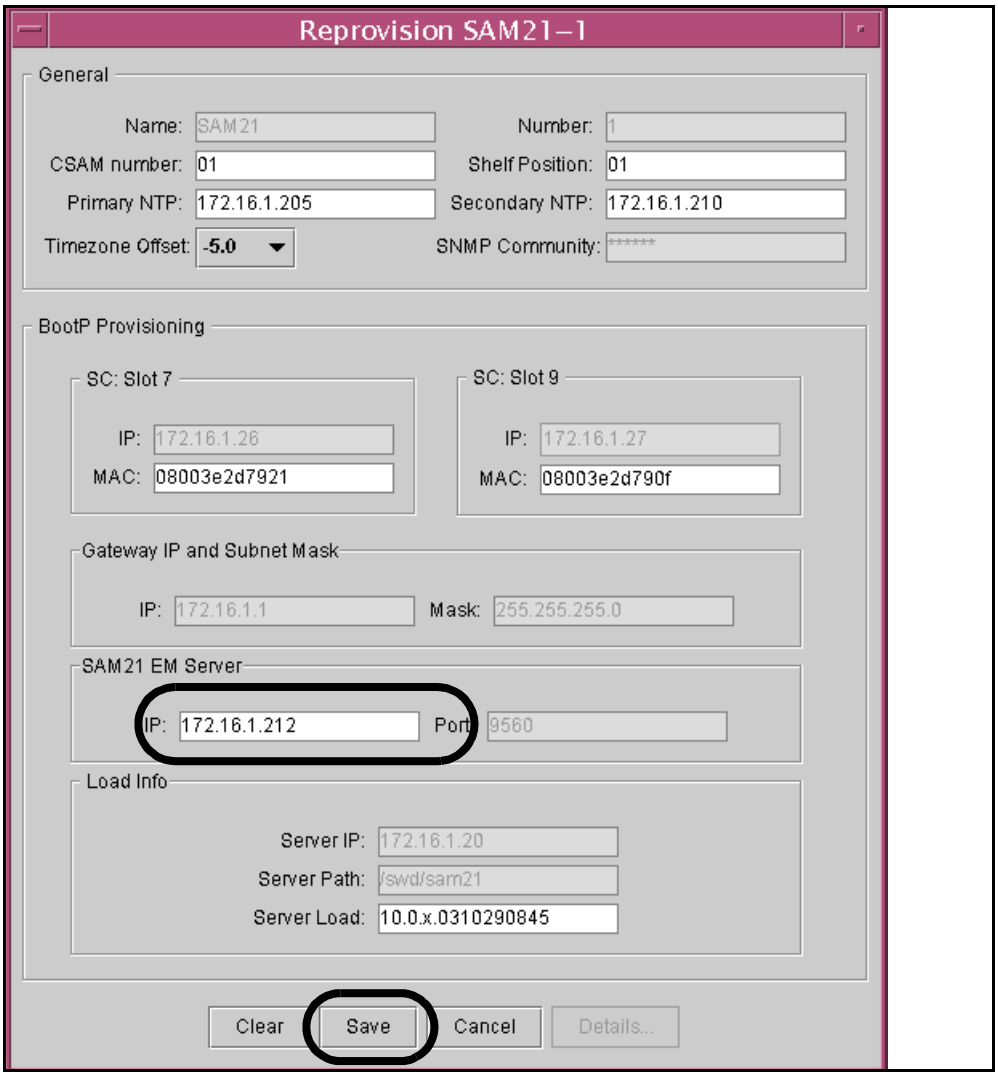
Subnet View window at /sdm/bin/sam21gui client



4 Replace the existing IP address with the IP address of the CS 2000 Management Tools server and click Save. This action causes the SAM21 Shelf Controllers to issue a BOOTP request, read the response, and begin communicating with the CS 2000

SAM21 Manager on the CS 2000 Management Tools server. The SAM21 Shelf Controllers do not reboot.

Reprovision window at /sdm/bin/sam21gui client



5 This procedure is complete.

Note: The instance of the CS 2000 SAM21 Manager server that is running on the host that provides the CS 2000 Management Tools needs to discover each of the SAM21 shelves. This process can take up to 20 minutes for each SAM21 shelf.

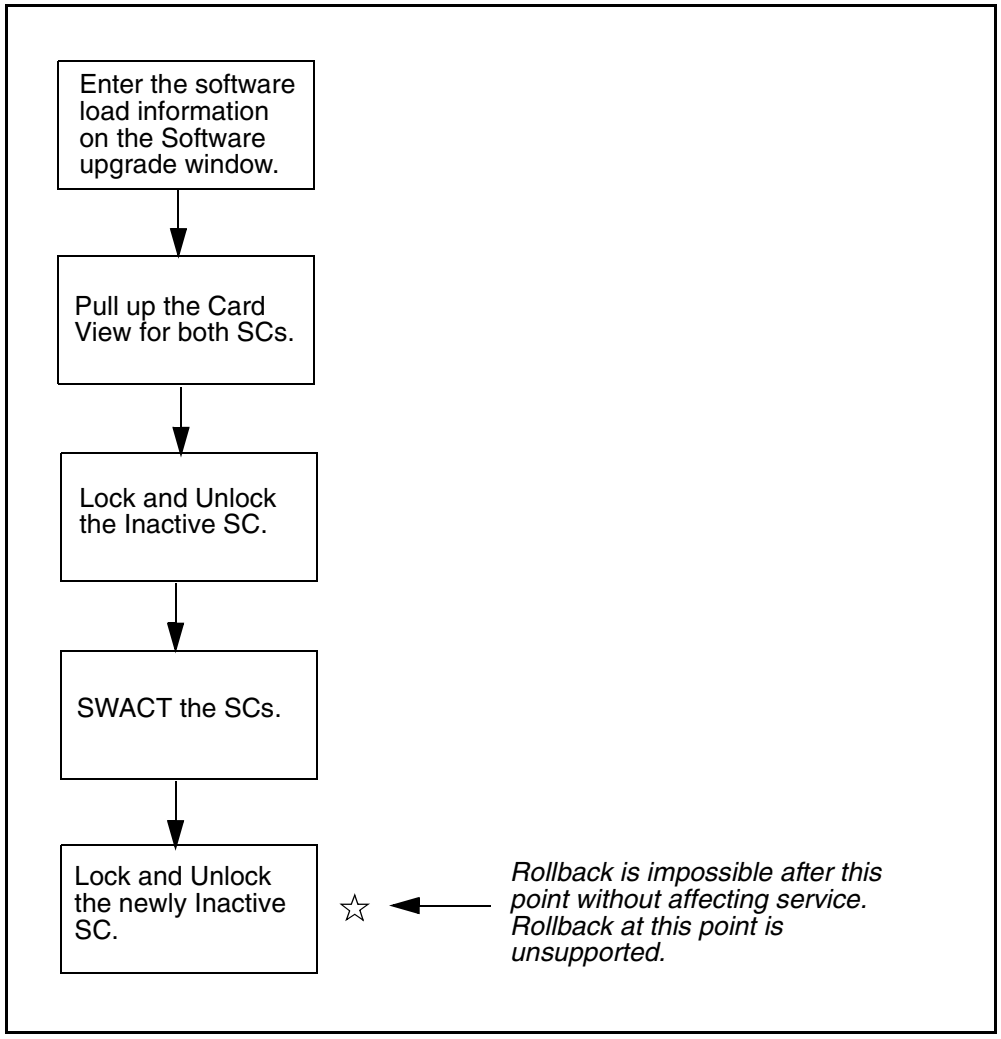
Rollback software on the SAM21 Shelf Controller

If a rollback from SN07 to SN05 is required, ensure that the CS 2000 SAM21 Manager is running on the CS 2000 Core Manager.

ATTENTION

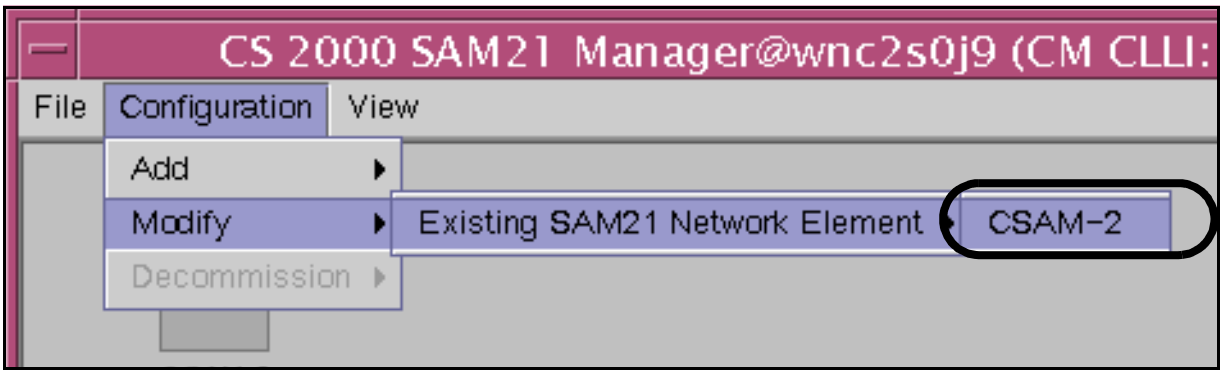
If the office is a CS 2000 - Compact, rollback the Call Agent software to SN06 before rolling back the SAM21 Shelf Controller software. Not rolling back the Call Agent software first may result in a reset loop on the next unlock or RExTst of the Call Agent.

The following figure summarizes the upgrade procedure. Rollback is available until the second SAM21 Shelf Controller is unlocked and upgraded to the new software load. This point is indicated with the star.

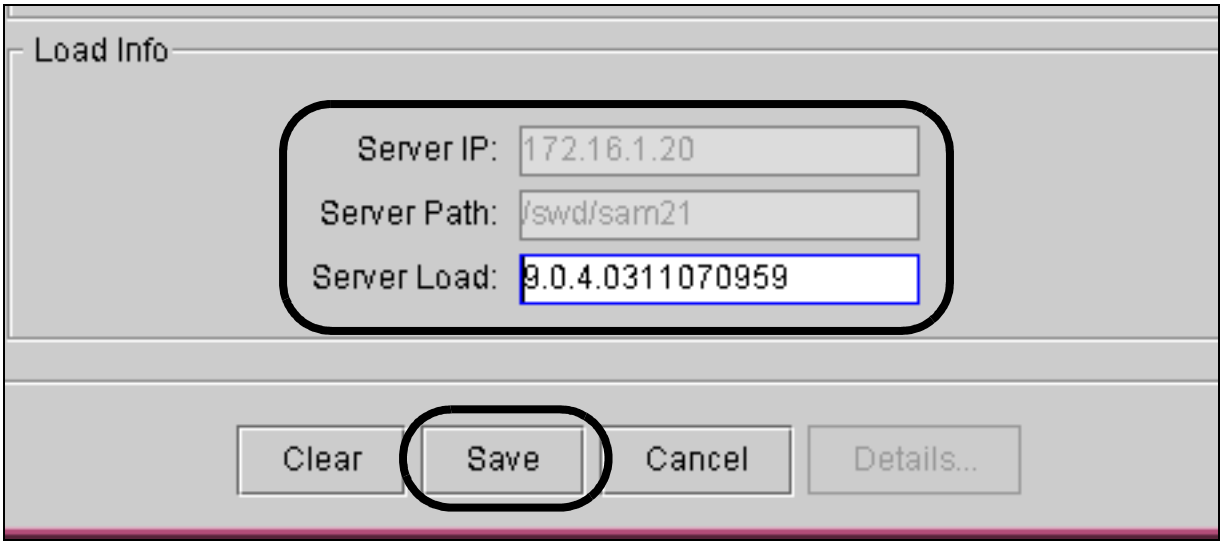


At the CS 2000 SAM21 Manager client (Java Web Start client)

1 From the Subnet View, select Configuration, Modify and then the SAM21 shelf with the SAM21 Shelf Controllers to revert.



2 Enter the software loadname of the old software load on the Reprovisioning window. For example, if the upgrade was from 9.0.4.0311070959 to 10.0.0.0301120523, enter 9.0.4.0311070959 to revert to the old software load.



3 Click Save.

4

ATTENTION

If this was an SN05 to SN07 upgrade, perform steps 4 through 8 from the client that is served by the CS 2000 Core Manager and is started with the `/sdm/bin/sam21gui` command.

If the active SAM21 Shelf Controller is running SN07, right click on the card icon and select Swact from the card context menu. Wait for completion of SWACT.

From the Shelf View, right click on the inactive SAM21 Shelf Controller and select Lock from the card context menu.

Note: This SAM21 Shelf Controller is the card that was loaded with the software upgrade and is being reverted to the previous software load.

5 Wait for the lock icon to appear on the inactive SAM21 Shelf Controller.

6 From the Shelf View, right click on the inactive SAM21 Shelf Controller and select Unlock from the card context menu.

7 Wait for the hashed outline to disappear from the Inactive SAM21 Shelf Controller.

8 This procedure is complete.

SAM21 Shelf Controller does not unlock

If the SAM21 Shelf Controller does not unlock and the lock icon persists on the SAM21 Shelf View, then the SAM21 Shelf Controller failed to boot.

At the CS 2000 SAM21 Manager client

1 Ensure that the SAM21 Shelf Controller has enough time to boot. A SAM21 Shelf Controller can take up to 4 minutes to boot on a slow network.

If the SAM21 Shelf Controller has enough time to boot and still has a lock icon and a hashed outline, continue with this procedure.

At the SAM21 frame

2 Verify that the SAM21 Shelf Controller is fully seated in the slot. Check the latches on the SAM21 Shelf Controller and the Hot Swap Controllers. The latch handles are perpendicular to the faceplate when the card is inserted properly and the latches are latched properly.

Note: Do not push on the faceplate to seat the card; use the levers.

3 Connect a VT100 terminal or a PC with terminal application software to the serial port labeled COM1 on the rear of the SAM21 shelf. If the SAM21 Shelf Controller in slot 7 does not boot, connect to slot 7. If the SAM21 Shelf Controller in slot 9 does not boot, connect to slot 9.

a To start the HyperTerminal application, click Start menu, click Programs, click Accessories, and click HyperTerminal.

b Double click the Hyperterm.exe icon to open a new connection.

The system displays the Connection Description box.

c Enter SC in the Name field and click OK.

The system displays the Phone Number box.

d Select Direct to COM1 from the “Connecting using:” list. Leave other entries in the box empty. Click OK.

e Open the COM1 Properties box and set the port settings to the following:

- Bits per second: 9600
- Data bits: 8

- Parity: None
- Flow control: Hardware

Click OK.

f Press the Enter key.

The system displays a new Hyperterm window with a login prompt.

4 If the message `em respawning too fast` is displayed on the console, the latches are not latched properly.

Press the reset button on the faceplate while the console is connected and verify that the firmware revision is RM12 or the firmware revision indicated in the *SAM21 Platform Base Release Notes*.

```
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PPC1 Debugger/Diagnostics Release Version 4.9 - 07/12/01 HA RM12
COLD Start

Local Memory Found=08000000 (&134217728)

MPU Clock Speed=367Mhz

BUS Clock Speed=67Mhz

WARNING: Keyboard Not Connected

Reset Vector Location   : ROM Bank B
Mezzanine Configuration : Single-MPU
Current 60X-Bus Master  : MPU0
Idle MPU(s)             : none

L2Cache                 : 1024KB, 147Mhz
System Memory           : 128MB, ECC Enabled (ECC-Memory Detected)


HA Mesquite Abbreviated Self-Tests about to Begin...
ISABRIDGE IRQ: Interrupt Request.....Running--->   PASSED

SelfTest/Boots about to Begin... Press <BREAK> at anytime to Abort ALL

NetBoot about to begin... Press <ESC> to Bypass, <SPC> to Continue
```

Firmware revision RM12

5 Press the **Esc** key to bypass NetBoot and access the PPC-Bug prompt.

6 Type **cnfg** at the PPC-Bug prompt and press Enter.

Note: The MAC address of the SAM21 Shelf Controller card should be displayed. Verify that this is the address used in the CS 2000 SAM21 Manager client on the Reprovisioning window.

7 Type **niot** at the PPC-Bug prompt and press Enter.

8 The SAM21 Shelf Controller software provides a series of prompts. Accept the default values except the following options in bold. For the options in bold, enter the value indicated in the table.

Note: If an error is entered, type **.** (period) and press Enter to quit. Restart niot by typing **niot** and pressing Enter.

Prompt	Value
Controller LUN	00
Device LUN	00
Node Control Memory Address	07F9E000
Client IP Address	**0.0.0.0**
Server IP Address	**0.0.0.0**
Subnet IP Address Mask	255.255.255.0
Broadcast IP Address	255.255.255.255
Gateway IP Address	**0.0.0.0**
Boot File Name	NULL
Argument File Name	NULL
Boot File Load Address	001F0000
Boot File Execution Address	001F0000
Boot File Execution Delay	00000000
Boot File Length	00000000
Boot File Byte Offset	00000000
BOOTP/RARP Request Retry	**00**
TFTP/ARP Request Retry	**00**
Hardware Error Retry Attempts	**20**
Trace Character Buffer Address	00000000

Prompt	Value
BOOTP/RARP Request Control	**A**
BOOTP/RARP Reply Update Control	**N**
Update Non-Volatile RAM (only appears if a change has been made)	**Y**

9 Type **env** at the PPC-Bug prompt and press Enter.

10 The SAM21 Shelf Controller software provides a series of prompts. Accept the default values except the following options in bold. For the options in bold, enter the value indicated in the table.

Prompt	Value
Bug or System Environment	B
Field Service Menu Enable	N
Probe System for Supported I/O Controllers	Y
Auto-Initialize of NVRAM Header Enable	Y
Network PReP-Boot Mode Enable	**Y**
SCSI Bus Reset on Debugger Startup	N
Primary SCSI Bus Negotiations Type	A
Primary SCSI Data Bus Width	N
Secondary SCSI Identifier	07
NVRAM Boot List (GEV.fw-boot-path) Boot Enable	N
NVRAM Boot List (GEV.fw-boot-path) Boot at power-up only	N
NVRAM Boot List (GEV.fw-boot-path) Boot Abort Delay	5
Auto Boot Enable	N
Auto Boot at power-up only	N
Auto Boot Scan Enable	N

Prompt	Value
Auto Boot Scan Device Type List	FDISK/CDROM/TAPE/HDISK/
Auto Boot Controller LUN	00
Auto Boot Device LUN	00
Auto Boot Partition Number	00
Auto Boot Abort Delay	7
Auto Boot Default String	NULL
ROM Boot Enable	N
ROM Boot at power-up only	Y
ROM Boot Abort Delay	5
ROM Boot Direct Starting Address	FFF00000
ROM Boot Direct Ending Address	FFFFFFFC
Network Auto Boot Enable	**N**
Network Auto Boot at power-up only	N
Network Auto Boot Controller LUN	00
Network Auto Boot Device LUN	00
Network Auto Boot Abort Delay	5
Network Auto Boot Configuration Parameters Offset (NVRAM)	00001000
Watchdog prior status ignored at autoboot	**Y**
Watchdog reset at board reset	**Y**
Reset Ethernet chip after file reception	**Y**
Stop Auto Boot After Selftest Failure	N
Memory Size Enable	Y
Memory Size Starting Address	00000000
Memory Size Ending Address	08000000

Prompt	Value
DRAM Speed in NANO Seconds	50
ROM First Access Length (0-31)	10
ROM Next Access Length (0-15)	0
DRAM Parity Enable [On-Detection/Always/ Never - O/A/N]	O (letter O)
L2Cache Parity Enable [On-Detection/Always/Never - O/A/N]	O (letter O)
PCI Interrupts Route Control Registers (PIRQ0/1/2/3)	0A050000
Serial Startup Code Master Enable	N
Serial Startup Code LF Enable	N
Claim domain A	N
Claim domain B	N
Slot power control word	00000000
Ignore healthy control word	00000000
Firmware Command Buffer Enabled	**Y**
Firmware Command Buffer Delay	**20**
Firmware Command Buffer	**ma cboot**<Enter key> **pboot 14 0**<Enter key> **nbo**<Enter key> <Enter key> **ma ;l**<Enter key> (letter L) **cboot**<Enter key> **NULL**
Update Non-Volatile RAM (appears only when a change is made)	**Y**
Reset local system (CPU)	Y

11 The SAM21 Shelf Controller reboots.

12 Optionally verify that calls can originate and complete.

13 If this problem persists, contact Nortel Networks support personnel.

14 This procedure is complete.