NORTEL NETWORKS

Nortel Networks Multiservice Switch

7400/15000/20000

Software Installation

NN10600-270

Nortel Networks Multiservice Switch 7400/15000/20000

Software Installation

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General availability. Contains information on Nortel Networks Multiservice Switch 7400, 15000, and 20000 for the PCR6.1 release.

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About this document

NN10600-270 *Nortel Networks Multiservice Switch 7400/15000/20000 Software Installation* describes the process of connecting a newly-installed Nortel Networks Multiservice Switch node to a Preside Multiservice Data Manager workstation and downloading software to the node.

This document is intended for software installers who are install software on a Multiservice Switch nodes and performing basic configuration using StartUp, or manually.

This document assumes that you have a basic understanding of Multiservice Switch network architecture and operation. In addition, you should understand network topologies and Multiservice Switch software and configuration. Some experience using Preside Multiservice Data Manager and a basic knowledge of Unix is also beneficial.

What's new in this document

The following feature was added to this document:

- "Patch Auto-application" (page 12)

Other changes made to this document include the following:

- The terms Passport and PVG have been rebranded in conjunction with the new Nortel Networks' brand simplified naming format. Passport is now referred to as the Nortel Networks Multiservice Switch, and PVG is now Media Gateway 7480/15000. For more information on the product rebranding, refer to NN10600-000 *Nortel Networks Multiservice Switch 7400/15000/20000 What's New in PCR6.1*.

- The section “Prerequisites for setting up the software distribution site” (page 27) was updated with information about disk space requirements for Nortel Networks Multiservice Switch software.

Patch Auto-application

The following sections were updated for this feature:

- “Determining what software is already on the node” (page 21)
- “Removing unused software from the node” (page 25)
- “Downloading software from the software distribution site” (page 41)
- “Downloading software to the node” (page 45)

Procedure conventions

This document uses the following procedure conventions:

- The commands used in the procedures contain full component and attribute names. You can abbreviate the component and attribute names when you enter commands, however this document does not provide the abbreviations. For more information on abbreviating component and attribute names, see NN10600-060 *Nortel Networks Multiservice Switch 7400/15000/20000 Component Reference*. All component and attribute names are formatted in italics.
- The introduction of every procedure states whether you must perform the procedure in operational mode or provisioning mode. For more information on these modes, see “Operational mode” (page 12) or “Provisioning mode” (page 13).

Operational mode

Procedures contained within this document can either be performed in operational mode or provisioning mode. When you initially log into a Nortel Networks Multiservice Switch node, you are in operational mode. Multiservice Switch nodes use the following command prompt when you are in operational mode:

```
#>
```

where:
is the current command number

In operational mode, you work with operational components and attributes. In operational mode, you can

- list operational components and display operational attributes to determine the current operating parameters for the node
- control the state of parts of the node by locking and unlocking components
- set certain operational attributes and enter commands to perform diagnostic tests

Provisioning mode

To change from operational mode to provisioning mode, use the start Prov command. Only one user can be in provisioning mode at a time. Nortel Networks Multiservice Switch nodes use the following command prompt whenever you are in provisioning mode:

```
PROV #>
```

where:
is the current command number

In provisioning mode, you work with the provisionable components and attributes which contain the current and future configurations of the node. You can add and delete components, and display and set provisionable attributes. You can also verify your changes and then activate them as the new node configuration. You end provisioning mode and return to operational mode using the end Prov command.

For information on operational and provisionable attributes, see NN10600-060 *Nortel Networks Multiservice Switch 7400/15000/20000 Component Reference*.

Completing configuration changes

Several procedures in this document ask that you complete the configuration changes. When you complete the configuration changes, you are activating the configuration changes, confirming that you want to activate them, and

saving the changes. Follow this procedure in provisioning mode when asked to complete the configuration changes. See the section "Provisioning mode" (page 13) for more information.

1 Verify that the provisioning changes you have made are acceptable:

```
check Prov
```

Correct any errors and then verify the provisioning changes again.

2 If you want to store the provisioning changes in a file, save the provisioning view:

```
save Prov
```

3 If you want these changes as well as other changes made in the edit view to take effect immediately, activate and commit the provisioning changes:

```
activate Prov
```

```
confirm Prov
```

```
commit Prov
```

4 End the provisioning session:

```
end Prov
```

Chapter 1
Software installation

Software installation begins with verifying that the correct software has been installed on the node during commissioning and ends when you are ready to begin configuring specific services.

For a detailed view of the sequence of tasks to perform in order to install software, see “Software installation tasks” (page 16). Each box in the work flow represents a task that comprises one or more procedures. Each task has a corresponding section in this guide that contains the relevant procedures. To link to any task, go to the list that follows the work flow.

Prerequisites to software installation

CAUTION
Potential breach of security.
A new Multiservice Switch node is fully connected to your network, but has no access control. Therefore, any user can log in from any other location with full privileges. It is strongly recommended that you provision access control as soon as possible. For provisioning procedures, see NN10600-606 *Passport - MDM Network Security: User Access Configuration*.

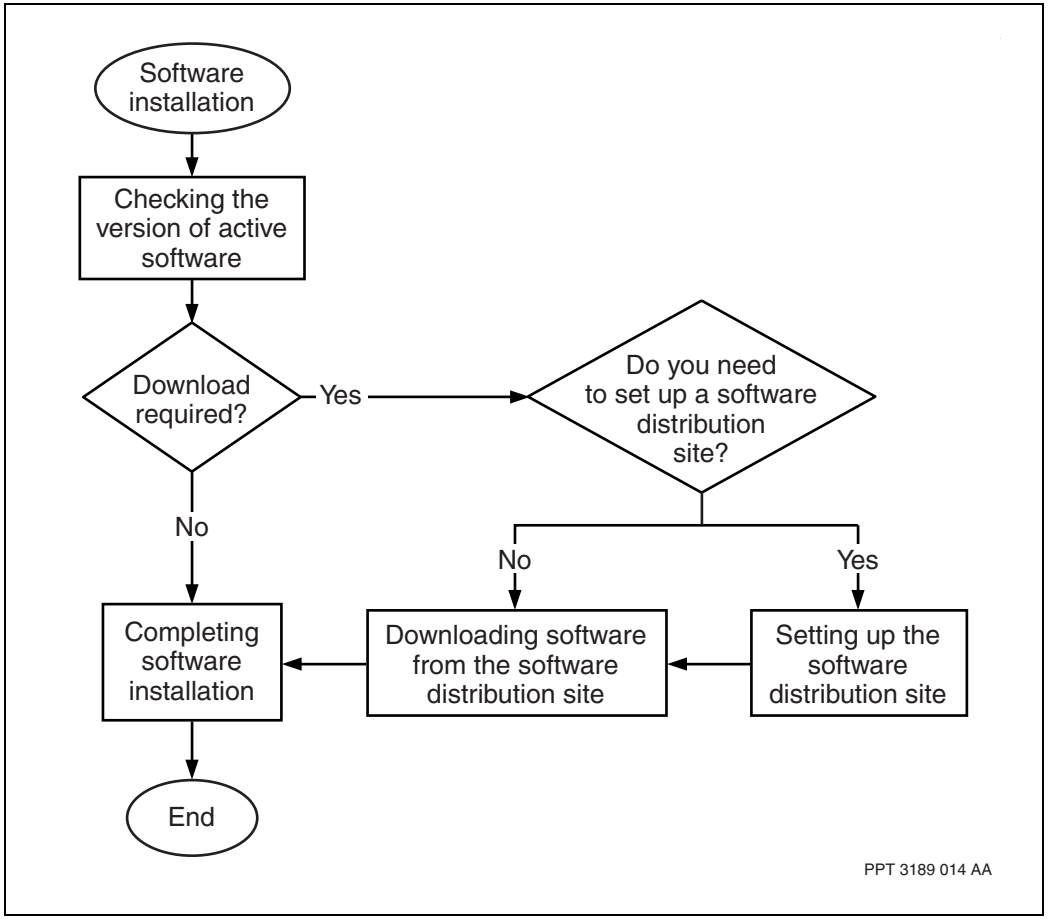
- All necessary hardware is installed. See NN10600-130 *Nortel Networks Multiservice Switch 15000/20000 Hardware Installation, Maintenance, and Upgrade* and NN10600-175 *Nortel Networks Multiservice Switch 7400 Hardware Installation, Maintenance, and Upgrade*.

- Preconfiguration tasks such as running StartUp are complete. See NN10600-271 *Nortel Networks Multiservice Switch 7400/15000/20000 Network Management Connectivity*.

Software installation tasks

This workflow shows you the sequence of tasks you perform to install software. To link to any task, go to "Software installation task navigation" (page 17).

Figure 1
Software installation tasks



Software installation task navigation

Chapter 2
Checking the version of active software

Check the version of active software, which is the base software loaded automatically by StartUp. You can remove any unwanted software component once you have verified that you do not need it on your node.

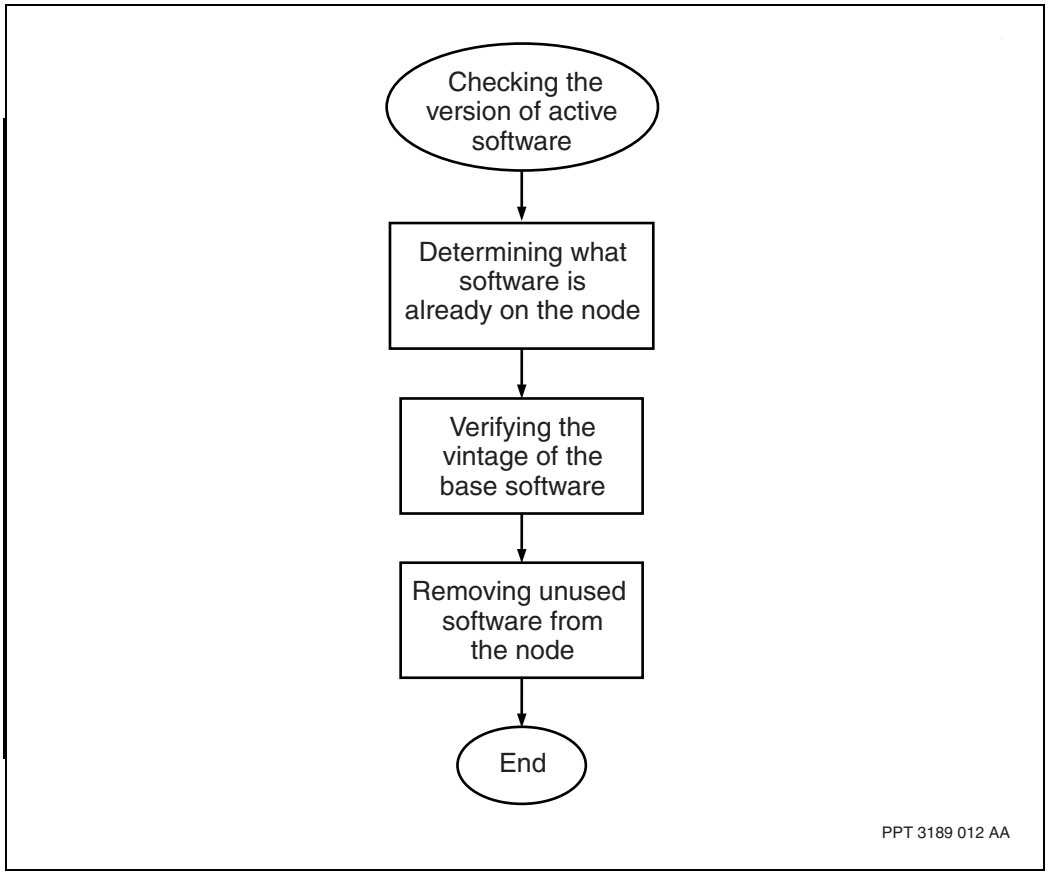
Prerequisites to checking the version of active software

- The node has an operational software load running (for an initial installation, this may require running StartUp, see NN10600-271 *Nortel Networks Multiservice Switch 7400/15000/20000 Network Management Connectivity*)
- All network connections have been established

Checking the version of active software procedures

This task flow shows you the sequence of procedures you perform to check the active software on your node. To link to any procedure, go to “Checking the version of active software procedure navigation” (page 20).

Figure 2
Checking the version of active software procedures



Checking the version of active software procedure navigation

- “Determining what software is already on the node” (page 21)
- “Verifying the vintage of the base software” (page 24)
- “Removing unused software from the node” (page 25)

Determining what software is already on the node

Determine what software is already on the node and how it is configured, before you download new software. If the control processors were shipped loaded with all the software you need, you may not need to download any additional software from the software distribution site (SDS). You also need to check that the software you plan to download is compatible with the software already on the node.

Prerequisites

- Perform this procedure in operational mode. See the section "Operational mode" (page 12) for more information.

Procedure steps

1. Determine which versions of the application software are already available on the node:

   ```
   list Software ApplicationVersion/*
   ```

   A list of the currently available software applications is displayed.

2. Determine which of these software applications have been configured and added to the application version list so that they can be used by the logical processors:

   ```
   display Software AvList
   ```

   A list of the software applications included in the application version list is displayed.

3. Determine which features are associated with a particular software application:

   ```
   list Software ApplicationVersion/* Feature/*
   ```

   A list of the software applications and the features supported in each of these applications is displayed.

4. Determine which processor types each version of the application software supports:

   ```
   display Software ApplicationVersion/* processorTargets
   ```

   A table containing the currently available software applications and their supported processor types is displayed. The processors supported on Nortel Networks Multiservice Switch 15000 and Multiservice Switch 20000 nodes are the i960 processor and the PPC processor.

Note: If a Multiservice Switch 7400 node is running pre-P6.0 software, the software only supports i960 processor types. Since you cannot display the *processorTargets* attribute, use the following command to determine which versions of application software are currently available on the node:

```
display Software ApplicationVersion/*
```

5 Determine which version of the software is currently active by displaying the application version list:

```
display Software AvList
```

6 Determine which patches are currently active by displaying the patch list:

```
display Software PatchList
```

7 Determine which features and logical processors have been configured for each logical processor type (LPT):

```
display Software LogicalProcessorType/* featureList,
logicalProcessors
```

A table containing the features and logical processors assigned to each LPT is displayed.

8 Determine which patch version files are available on the node:

```
list sw av/patch_<release version> patchVersion/*
```

9 Determine which patch version is currently active by displaying the patch version:

```
display sw autopatch patchVersion
```

Procedure job aid

Figure 3
Software version naming formula

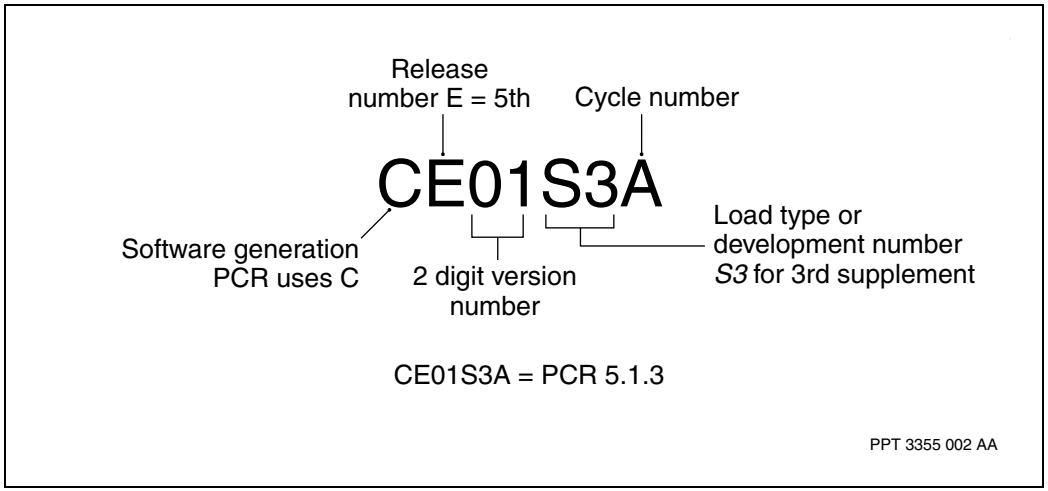
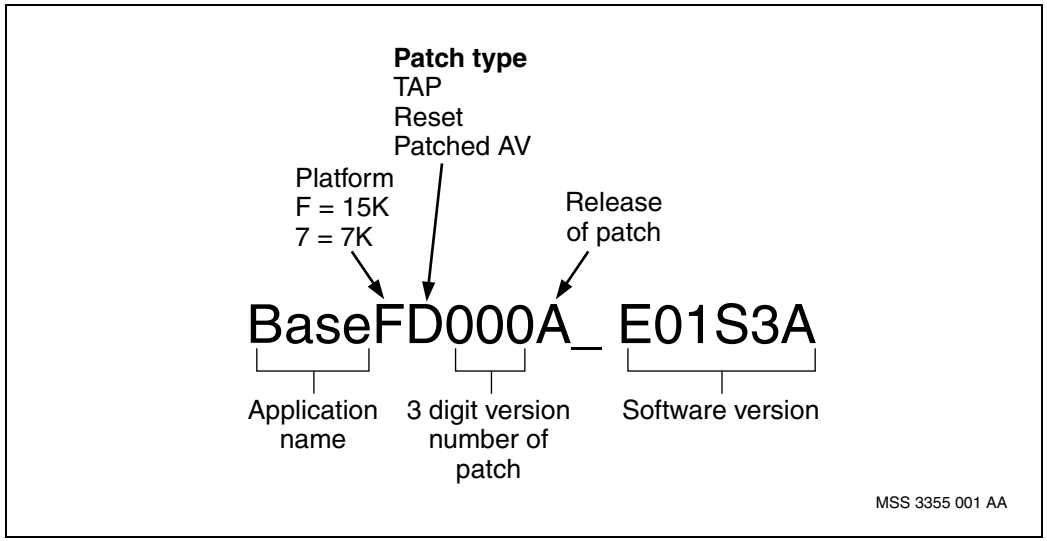


Figure 4
Software-patch naming formula



Verifying the vintage of the base software

Verify that the current base software is the correct version for the node.

Prerequisites

- An operational base software load.

Procedure steps

1 Enter the following command to verify the version.

```
display software AvList
```

The system displays a list of the base software applications on the node and the current date and time.

Removing unused software from the node

Remove unused software that is no longer required by the current view, edit view, or any semantically checked saved view using the Tidy Software command. The command removes application versions and their associated patches.

Note: If an Ethernet function processor resets while the Tidy Software command or the Remove Software ApplicationVersion command is in progress, the ports on the Ethernet function processor are not available until the command completes.

Procedure steps

1. List the application versions that currently exist on the node:

   ```
   list Software ApplicationVersion/*
   ```

2. Remove the software application:

   ```
   remove Software ApplicationVersion/<av_name>
   ```

   The AV is either removed, or the system responds with a list of provisioning views that reference that AV. Typically, all of the provisioning views that reference the AV are views on disk.

3. If the system responds with a list of provisioning views that reference the AV, remove those provisioning views:

   ```
   Tidy -rm<view_names> Prov
   ```

   If the system issues alarms when you enter this command, see NN10600-500 *Nortel Networks Multiservice Switch 6400/7400/15000/20000 Alarms Reference* for more information.

4. List the patches that currently exist on the node:

   ```
   list Software ApplicationVersion/* Patch/*
   ```

   If the node is currently running a software level that does not support patches, or if there are dependant Application Versions, the above command fails.

5. Check which applications versions the Tidy Software command will delete when you issue it:

   ```
   tidy -query Software
   ```

6 Delete the application versions not needed by the current view, edit view, or any semantically checked saved views:

```
tidy Software
```

The node indicates which application versions it has deleted. This command also deletes all patches associated with those application versions.

7 Verify that the unused software has been removed:

```
list Software ApplicationVersion/*
```

8 Verify that the unused patches have been removed.

```
list Software ApplicationVersion/* Patch/*
```

If the node is currently running a software level that does not support patches, or if there are dependant Application Versions, the above command fails.

Variable definitions

Variable	Value
<av_name>	is the name of the application version you want to remove.
<view_names>	is the name of the provisioning views that reference the AV.

Chapter 3
Setting up the software distribution site

Setting up the software distribution site (SDS) allows you access to the different versions of software available. The SDS is a workstation used to store, manage, and distribute Nortel Networks Multiservice Switch software. Ultimately, you will download this software to your node. You only need to set up the SDS once, after which you can update it with each new release of software.

For more general information on the SDS, see "Additional information about software distribution site directories" (page 37).

Prerequisites for setting up the software distribution site

- You have a copy of the *Release Report* which is available from the Nortel Networks' website (www.nortelnetworks.com)
- You have access to the software that is to be downloaded to the SDS. Talk to your Nortel Networks customer representative about getting this software in one of two ways:
  - — on CD-ROM
  - — through the Nortel Networks' website (www.nortelnetworks.com)
- You have an installed and functional SDS workstation to which you will download the feature software. Once the SDS workstation is operational you can use it as the software distribution site. This workstation must
  - — run under the Sun OS, Solaris, HP, or IBM UNIX operating system.
  - — have sufficient disk space to accommodate Multiservice Switch software. The space required depends on the number of software

releases you have stored on the SDS. The approximate disk space requirements for each Multiservice Switch 15000 or Multiservice Switch 20000 release are 290 Mbytes for the node's software, and 30 Mbytes for the management information base (MIB) files.

— be connected to the network with an IP address. Record this IP address for when you download the software to the node.

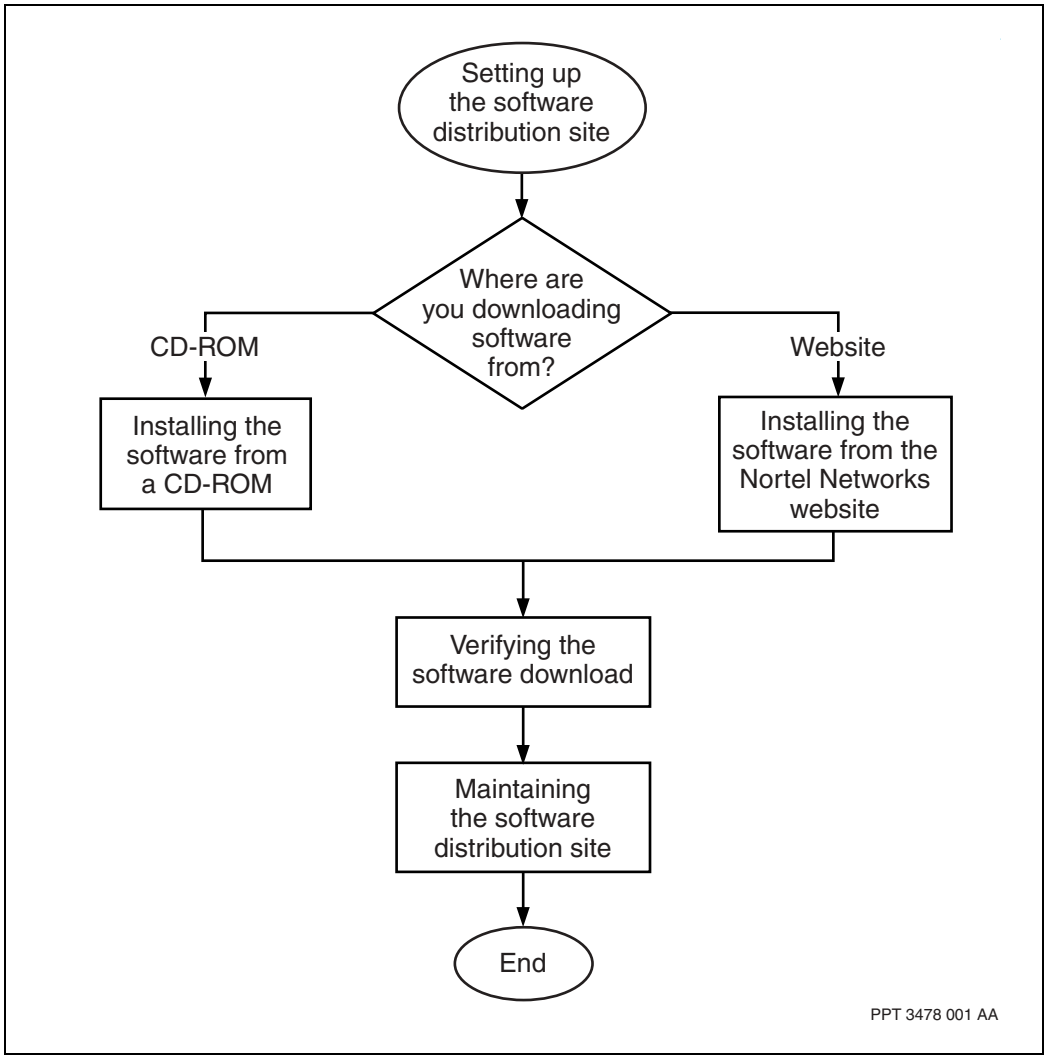
— have a CD-ROM drive (Rockridge format) if you are going to download the software from the CD-ROM

— have user IDs and passwords set up for FTP and remote log in sessions. Make sure that the user IDs have read access to all software files and that their default log in directories have a subdirectory called software. Record these user IDs and passwords to use when you download the software to the node.

Setting up the software distribution site procedures

This task flow shows you the sequence of procedures you perform to set up the software distribution site. To link to any procedure, go to "Setting up the software distribution site procedure navigation" (page 29).

Figure 5
Setting up the software distribution site procedures



Setting up the software distribution site procedure navigation

- “Installing the software from a CD-ROM” (page 31)
- “Installing the software from the Nortel Networks website” (page 33)

- "Verifying the software download" (page 34)
- "Maintaining the software distribution site" (page 35)

Installing the software from a CD-ROM

Installing the software from a CD-ROM allows you to install a release's software and management information base (MIB) files onto the software distribution site (SDS). Contact your Nortel Networks customer representative for information on how to order the appropriate CD-ROM.

Note: If the control processors were shipped loaded with all of your required software, you may not need to download any additional software from the SDS.

Prerequisites

- You need to be logged on as root to perform some steps in the procedure.

Procedure steps

1. Log on to the SDS workstation with a userid that has the appropriate privileges.
2. Create a directory for mounting the CD:

   cd /

   mkdir /cdrom

   If mountable CDs have been used in the past for other applications, you may not have to create this directory.
3. If you have a Sun OS workstation, mount the CD by typing

   mount -rt hsfs /dev/sr0/cdrom

   If you have an HP (HPUX) workstation, mount the CD by typing

   mount -rt cdfs /dev/dsk/c20ld2s0/cdrom

   If you have an IBM (AIX) workstation, mount the CD by typing

   mount -rv cdrfs /dev/cd0/cdrom

   If you have a Solaris workstation, do not perform this step.
4. If you have a Sun OS, HP, or IBM workstation, start the installation program by typing

   /cdrom/install

   If you have a Solaris workstation, start the installation program by typing:

   /cdrom/cdrom0/install

5 Follow the installation program's prompts.

Use the *Nortel Networks Multiservice Switch Release Notes* to determine which versions of the software you want to install.

The installation program indicates when the installation is complete at which time, the following have been installed:

- the Multiservice Switch 15000 or Multiservice Switch 20000 release software in the directory you defined when prompted by the installation program
- the MIBs in the directory /nortel/management/mibs/magellan/passport

6 Once the software has been successfully installed, log back into the SDS workstation with a user ID that has the appropriate privileges.

7 If you have a Sun OS, HP, or IBM workstation, unmount the CD by typing:

```
umount /cdrom
```

If you have a Solaris workstation, unmount the CD by typing:

```
eject cdrom
```

Installing the software from the Nortel Networks website

Install the software from the Nortel Networks website to the software distribution site (SDS) workstation in order to access software updates, product information, Nortel Networks Multiservice Switch Release Notes, technical tips, and technical newsgroups from Nortel Networks' website.

Note: If the control processors were shipped loaded with all of your required software, you may not need to download any additional software from the SDS.

Prerequisites

- Before accessing Nortel Networks' website, you need an account with a user name and password, and a dropbox must be set up for you. Contact your Nortel Networks customer representative for more information on accessing this website.

Procedure steps

1. From the browser window, go to *www.nortelnetworks.com*.
2. Click the *Customer Support page* link.
3. From the Customer Support window, click the *Software Distribution* link.
4. From the Software Distribution window, select *Data and Internet* from the Select a Product Family drop-down menu.
5. From the Software Distribution window, select a product from the Select a Product drop-down menu.
6. Enter your user name and password for the access login.
7. From the Software Download window, select the product that you want to download.
8. From the Software Download window, select a site, distribution type, product line, product description, and product revision.
9. From the Software Download window, click *Download*.

   A Save As dialog is displayed.
10. Enter the directory where you want the software placed.
11. Click *Save*.
12. Close the windows and exit from the Nortel Networks' website.

Verifying the software download

Verify that the software downloaded properly, and that all the correct files were downloaded and placed in the correct location.

Procedure steps

1. On the SDS workstation, change to the software directory:

   ```
   cd software
   ```

2. Verify the contents of the directory:

   ```
   ls
   ```

   A subdirectory for each of your features is displayed.

Maintaining the software distribution site

Maintaining the software distribution site (SDS) workstation involves conserving disk space on the software distribution site (SDS) and periodically removing software applications and other files associated with old software releases. Refer to "Software distribution site maintenance tasks" (page 35) for a summary of SDS maintenance tasks.

Table 1
Software distribution site maintenance tasks

Task	Steps required	Command
Removing an application version from the software distribution site	1 - Change to the software directory	`cd <home>/software`
	2 - Remove the AV directory and all its files	`rm -rf <application>/<version>`
Removing an application	1 - Go to the software directory:	`cd <home>/software`
	2 - Remove the application	`rm -rf <application>`
Removing other software distribution site directories	1 - Change to the appropriate directory	`cd <directory_name>`
	2 - Check to make sure you are in the correct directory (the actual name (not the alias) of the directory you are in is displayed):	`pwd`
	3 - Ensure that the files you want to remove are in that directory:	`ls -l`
	4 - Use the UNIX remove command to remove all the subdirectories and files in that directory:	`rm -r *`
	5 - Go back up one level in the directory hierarchy:	`cd ..`
	6 - Remove the directory whose files you have just deleted:	`rmdir <directory_name>`

Variable definitions

Variable	Value
<application>	is the name of the application (for example, the value “FrameRelay” is used to remove all versions of the FrameRelay application.
<directory_name>	is the specific directory that contains the software you want to remove.
<home>	is the home directory of the SDS login account. If you are using the SDS login account, you can use the tilde character (~) to represent the home directory
<version>	is the version number of the application (for example, the value “AA01” is used if you are removing version AA01 of base.

Additional information about software distribution site directories

When you receive new Nortel Networks Multiservice Switch software on CD-ROM or download it from the website, you install the software on a workstation that serves as a software distribution site (SDS). The SDS is a repository of software that you access when downloading software applications to your nodes.

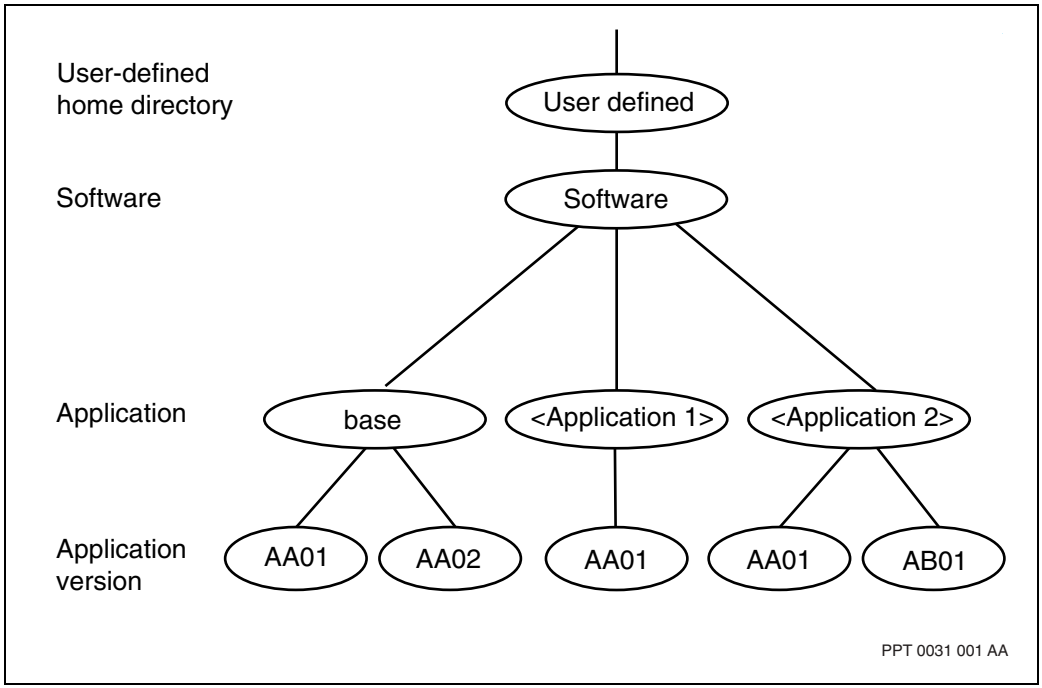
If you already have an SDS for Multiservice Switch 7400 software, you will need to create another SDS for Multiservice Switch 15000 or Multiservice Switch 20000 software. You should copy the directory structure from your existing SDS to ensure that the directory structure is identical. Each SDS, however, must have a unique user ID to ensure access to the correct software. When you log into the SDS using a Multiservice Switch 15000 or Multiservice Switch 20000 node's user ID, you will be accessing Multiservice Switch 15000 or Multiservice Switch 20000 software. Similarly, if you log into the SDS using a Multiservice Switch 7400 node user ID, you will be accessing Multiservice Switch 7400 node software.

The figure "Multiservice Switch software directory structure at a software distribution site" (page 38) shows the directory structure on the SDS, including the following directories:

- a user-defined home directory, which is the default log in directory. The home directory must have a subdirectory called Software.
- application directories, which contain the software application version directories
- software application version directories, which contain all the control files and object files for a particular version of an application

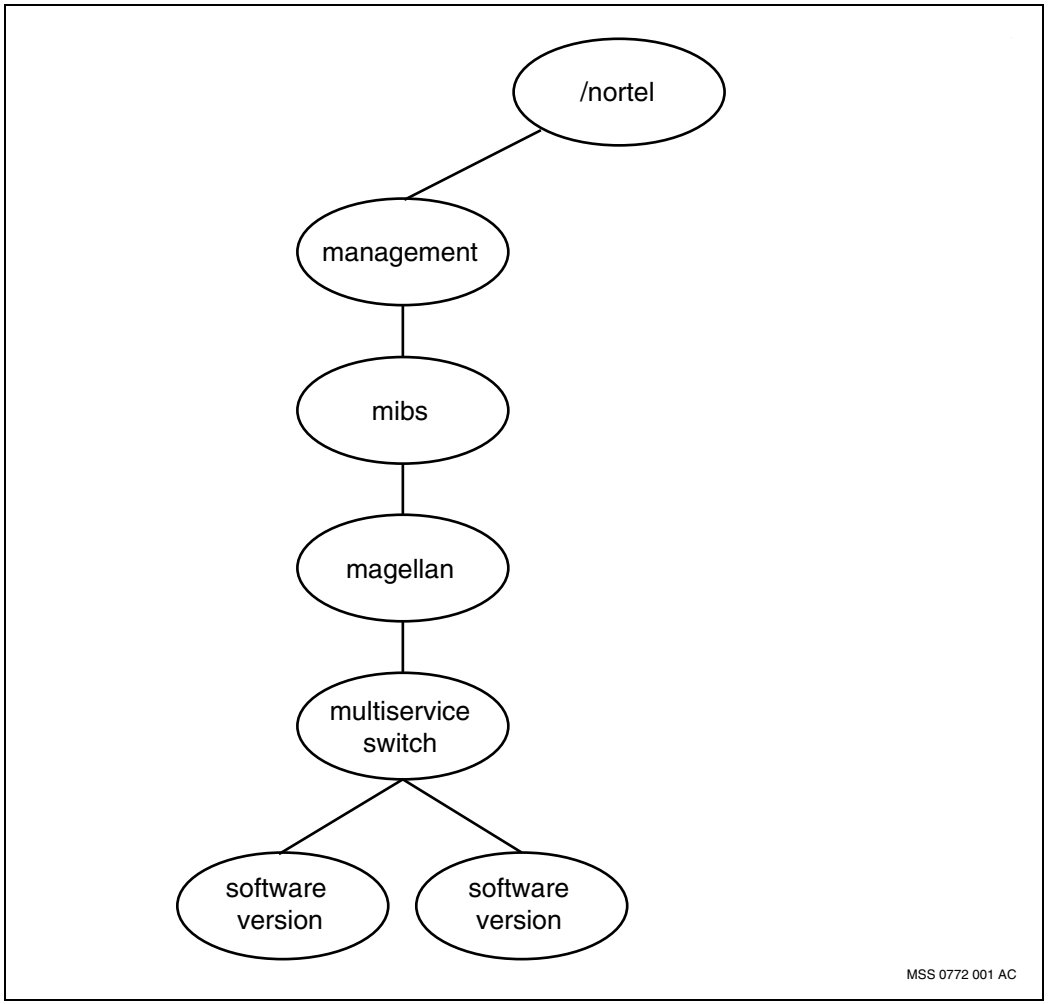
The directory structure maintained on a node is similar to the structure on the SDS workstation.

Figure 6
Multiservice Switch software directory structure at a software distribution site



You can also install the files for the management information bases (MIB) on the SDS. The figure "Multiservice Switch SDS software directory structure: optional MIB" (page 39) illustrates the directory structure for this option.

Figure 7
Multiservice Switch SDS software directory structure: optional MIB



Chapter 4
Downloading software from the software distribution site

Download software from a software distribution site (SDS) if the current active software on the node does not meet your network requirements.

Note: You can also download the software to your node using Preside Multiservice Data Manager. For more information, see 241-6001-100 *Preside MDM Installation*.

Note: With the auto-application of Multiservice Switch patch feature, customers can determine, through the use of a single command, which patches should be applied on each of their switches. These patches can then be applied to the Software patchList. Patches are no longer automatically downloaded with the Application, instead the Patch Av, which contains all the patches for the particular software release, must be downloaded. The scheduling of the patch download may be controlled by the MDM. At the appointed time, the MDM will trigger the switch to download the latest version of the Patch Av. In order to view patches on-switch, the Patch Av must be downloaded from the Passport SDS site.

Prerequisites to downloading software from the software distribution site

- You need an available software distribution site (SDS). If you need to set up an SDS, see “Setting up the software distribution site” (page 27).

- You must have a user ID with a command scope of ‘device’ and a command impact of ‘configuration’.

  To determine your command scope and impact, type ***me*** in operational mode. Information about your user ID is displayed.

  Note: After running StartUp, user access will not be configured. However, by default you will have network command scope and debug command impact; as a result, you will be able to download software.

- You need the IP address or host name of the software distribution site (SDS) workstation
- You must have the user ID and the password to log in to the SDS workstation

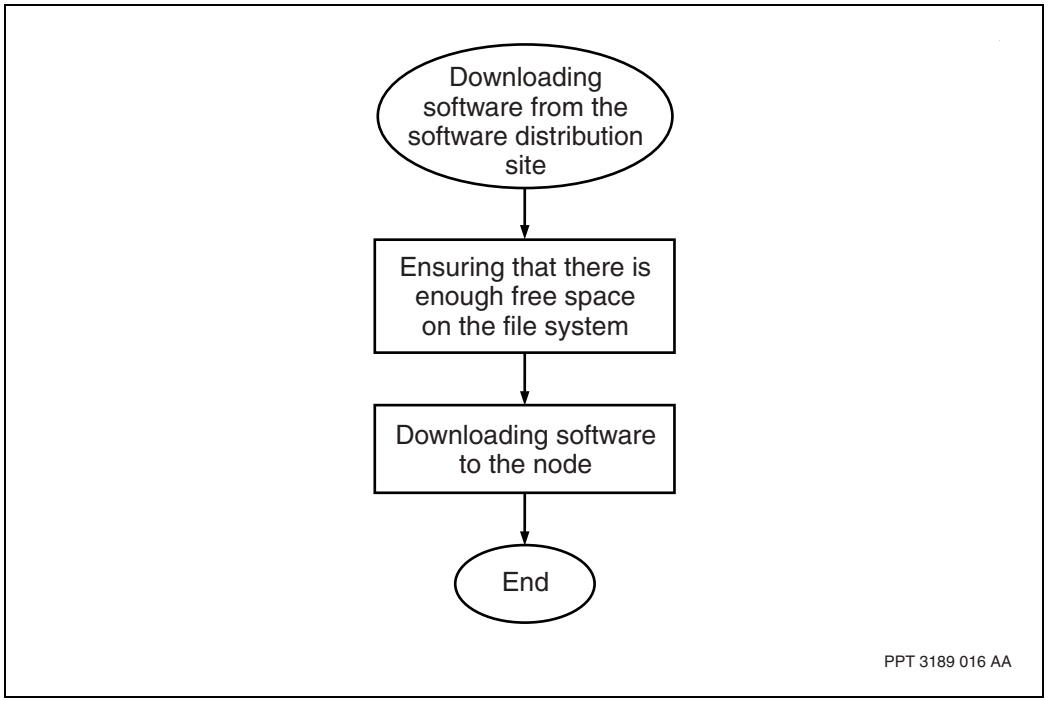
  Note: If you have a Nortel Networks Multiservice Switch 7400 SDS and another for Multiservice Switch 15000 or Multiservice Switch 20000 SDS, you will have two unique user IDs, one for each product line. Ensure that you have the correct user ID for the product software you want to download.

- Ensure that the software you are installing is compatible with the other software already on the node.
- Ensure that the node has the “secure FTP authentication” feature enabled so that all FTP sessions with the SDS workstations are secured. See NN10600-607 *Passport - MDM Network Security: Secure Communications Configuration* for details.
- Ensure that the CPs and FPs are compatible with the software running on the node where the cards are to be inserted. To verify the minimum software requirements for each FP, see NN10600-551 *Nortel Networks Multiservice Switch 7400/15000/20000 FP Configuration Reference*. To verify the software requirements of the CPs, see NN10600-130 *Nortel Networks Multiservice Switch 15000/20000 Hardware Installation, Maintenance, and Upgrade*.

Downloading software from the software distribution site procedures

This task flow show you the sequence of procedures you perform to download software to your node. To link to any procedure, go to "Downloading software from the software distribution site procedure navigation" (page 43).

Figure 8
Downloading software from the software distribution site procedures



Downloading software from the software distribution site procedure navigation

- "Ensuring that there is enough free space on the file system" (page 44)
- "Downloading software to the node" (page 45)

Ensuring that there is enough free space on the file system

Ensure that there is enough free disk space on the file system before you begin downloading the software applications you need. If you do not have enough free space, you will have to remove unused software and provisioning files from the file system before you install the new software.

Prerequisites

- Perform this procedure in operational mode. See the section "Operational mode" (page 12) for more information.

Procedure steps

1. Determine the space currently available on the file system:

   `display FileSystem freeSpace`

2. Determine how much disk space you need to accommodate the software you want to download.

3. If the file system does not have enough available space, remove any unused software and provisioning files.

   Removing unused software will usually free up sufficient disk space. However, it is possible that a significant amount of disk space is being used by spooling files if they are not being removed often enough by the Management Data Provider (MDP). If this is the case, use MDP to retrieve and delete spooling files. For more information on MDP, see 241-6001-309 *Preside MDM Management Data Provider User Guide*.

   For information on using the *tidy Prov* command to remove provisioning files from the node, see NN10600-050 *Nortel Networks Multiservice Switch 7400/15000/20000 Command Reference*.

Downloading software to the node

Download new software from the software distribution site (SDS) using the software downloader once you are aware of the current state of the node.

Nortel Networks Multiservice Switch nodes automatically download any patches included with the application versions it is downloading. If any patches for the application version are not already available on the node, the node includes them on the download. For more information on patches, see NN10600-550 *Nortel Networks Multiservice Switch 7400/15000/20000 Common Configuration Procedures*.

Prerequisites

- Perform this procedure in provisioning mode. See the section "Provisioning mode" (page 13) for more information.
- If you are migrating a Nortel Networks Multiservice Switch 7400 node with PowerPC processor cards from pre-P6.0 software, you must download the files twice. The first time you download, you will not be able to set the *processorTargets* attribute to specify that you need the software for the PowerPC processor type. After you have migrated to P6.0 or later software, you can set the *processorTargets* attribute and download the necessary files. For more information on migrating the software, see NN10600-272 *Nortel Networks Multiservice Switch 7400/15000/20000 Upgrading Software*.
- If you are migrating from a software release that does not support patches, you must download twice any application versions that contain patches. The first download gets the software required to support patches. The second download, which you perform after migrating to the new software, automatically downloads the patches. For information on the support of patches in a software level, see the *Nortel Networks Multiservice Switch Release Notes*.
- The Multiservice Switch must be running at least PCR 6.1 software in order to download the Patch Av for the auto-application patch feature. Customers migrating from a pre PCR6.1 release to PCR6.1 or later will be required to migrate prior to downloading the patches available for the release to which they are migrating.

Procedure steps

1. Verify that the downloader is inactive:

   ```
   display Software Download status
   ```

   The value of the *status* attribute must be inactive.

2. If the node is running P6.0 or later software, set the processor type for the application versions. The default value of i960 may not be appropriate for some processors. Verify the processor type listed in *Nortel Networks Multiservice Switch Release Notes* before entering a value here:

   ```
   set Software Download processorTargets (<type>)
   ```

3. Create the list of software applications that you want to download. Note that the names of software packages are case sensitive and must be entered exactly as they appear.

   Be sure to include the Patch Av in the Sw Dld Avl if you wish to have patches downloaded.

   ```
   set Software Download avListToDownload
   <application_versions>
   ```

   The system will also download patches associated with the application versions you specify.

4. Verify that the software applications that you want to download are in the list of software that will be downloaded:

   ```
   display Software Download avListToDownload
   ```

5. Start downloading the software.

   ```
   start -host(<ipAddress>) -user(<userId>)
   -password(<password>) Software Download
   ```

6. Monitor the progress of the download:

   ```
   display Software Download
   ```

   When the *status* attribute is *inactive* and the *filesToTransfer* attribute is *0*, the download is complete.

7. Verify that the correct software was downloaded:

   ```
   list Software ApplicationVersion/*
   ```

8. Verify that the correct patches were downloaded:

   ```
   list Software ApplicationVersion/* Patch/*
   ```

A list of the software applications and associated patches now available on the node is displayed.

Note: If the node is currently running a software level that does not support patches, the above command fails.

Variable definitions

Variable	Value
<application_versions>	is a space-separated list of application versions.
<ipAddress>	is the IP address of the SDS.
<password>	is the password for the <userid> on the SDS.
<type>	is a space-separated list of processor types. Use i960 for the i960 processor, PPC for the PowerPC processor. To turn off a particular type, precede it with a tilde (~) character.
<userID>	is a user ID on the node SDS that has read access to the software files.

Chapter 5
Completing software installation

Complete the software installation process by activating the software, configuring the feature list, and performing a final provisioning cycle.

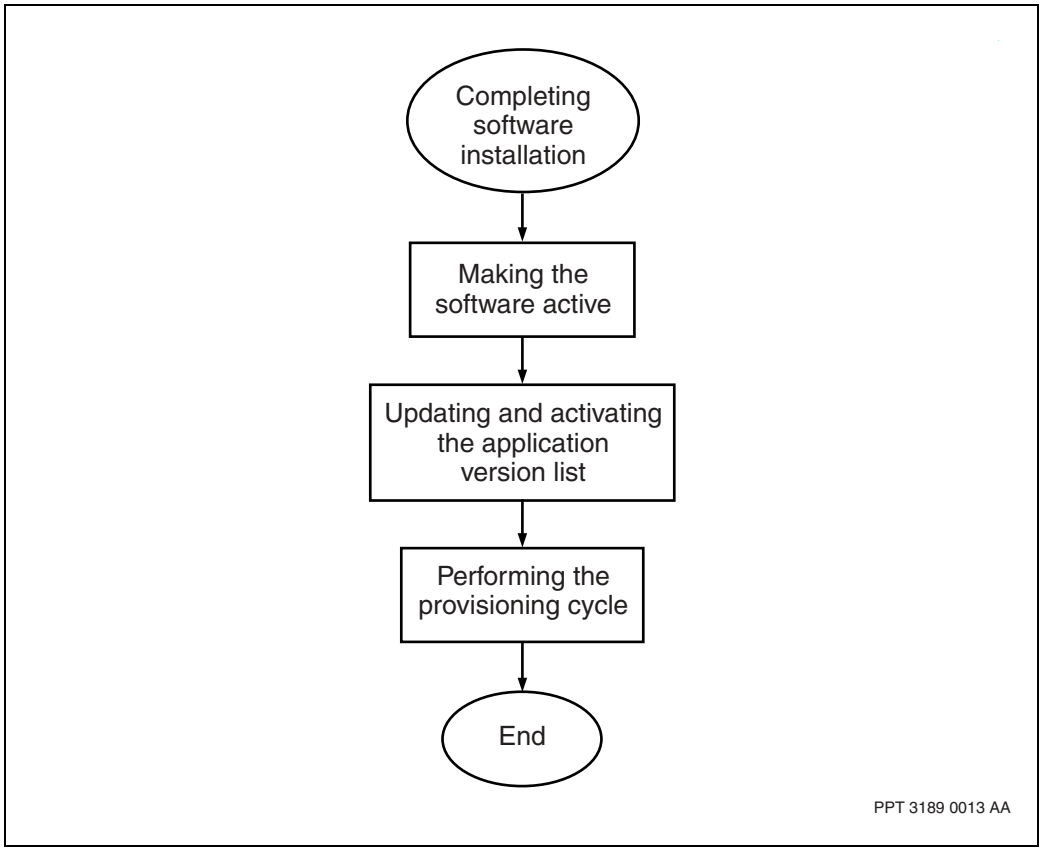
Prerequisites to completing software installation

- Ensure that the current active software is the correct software version for you network. See “Checking the version of active software” (page 19).
- This task should not be used for upgrading the software. If you downloaded software with the intent to upgrade or patch the existing software, use the work flow in NN10600-272 *Nortel Networks Multiservice Switch 7400/15000/20000 Upgrading Software*.

Completing software installation procedures

This task flow show you the sequence of procedures you perform to complete software installation on your node. To link to any procedure, go to “Completing software installation procedure navigation” (page 50).

Figure 9
Completing software installation procedures



Completing software installation procedure navigation

- “Making the software active” (page 51)
- “Updating and activating the application version list” (page 52)
- “Performing the provisioning cycle” (page 54)

Making the software active

Make the software active by activating the software currently installed on the node.

Procedure steps

1 Activate the provisioning changes:

```
activate prov
```

Updating and activating the application version list

Update and activate the application version list (AVL) to add additional application versions to the node.

Prerequisites

- Perform this procedure in provisioning mode. See the section "Provisioning mode" (page 13) for more information.

Procedure steps

1. Display the current AVL:

   display software avl

   The screen displays the current AVL. For example:

   ```
   Sw avList = base_AQ0123B, frameRelay_AQ0123B,
   networking_AQ0123B, trunks_AQ0123B
   ```

2. Replace the old applications in the AVL with the new application versions that represent the release you are installing on the node.

   To replace all the application versions at once with new versions, empty the AVL by preceding the new versions with an exclamation mark (!) in a single set command. Separate the application versions with a space. For example:

   set software avl ! <av_name1> <av_name2> <av_name3>

3. Display the edited AVL to verify that the proper software is set and that all software packages come from the same release:

   display software avl

   The screen displays the current AVL. For example:

   ```
   Sw avList = base_AQ0123C, frameRelay_AQ0123C,
   networking_AQ0123C, trunks_AQ0123C
   ```

4. Verify that the provisioning changes you have made are acceptable:

   check prov

   The system responds with a warning that indicates that all processors will reboot when the new provisioning data is activated.

5. Save the edit view with portable formats:

   save -file(<filename>) -portable prov

It is recommended that you save the editing view. Otherwise, the provisioning system will automatically save the view into a temporary location (_TMP_SystemReload_TMP_.full.xxx). The system removes these temporary views automatically. Automatic deletion of these views may not occur if the Software Installation steps are not correctly followed. In such an event, these views may be removed using the following command:

```
tidy -remove(_TMP_SystemReload_TMP_file.full.xxx)
prov
```

6 Activate the edit view:

```
activate prov
```

Variable definitions

Variable	Value
<av_name>	is the name of a new application version.
<filename>	is the name of the file in which the edit view is saved.

Performing the provisioning cycle

Perform the provisioning cycle to complete the software installation process on a node. You must check, save, and commit the provisioning changes before you end the provisioning session.

Note: If the active CP fails before the current view is made the committed view, rollback to the committed provisioning view occurs. This results in a complete shelf outage.

Prerequisites

- Perform the following procedure in provisioning mode. See the section "Provisioning mode" (page 13) for more information.

Procedure steps

1. Verify the provisioning changes are still valid on the new software:

   `check prov`

   Correct any error and then verify the provisioning changes again.

2. Save the current view:

   `save -current prov`

3. Activate and confirm the provisioning changes:

   `activate prov`

   `confirm prov`

4. Optionally, commit the current view:

   `commit -file(<filename>) prov`

   Do not commit the current view unless the new software is the software to which you want to roll back.

5. End provisioning mode:

   `end prov`

Variable definitions

Variable	Value
<filename>	is the name of the file that contains the new, upgraded provisioning data.

Nortel Networks Multiservice Switch 7400/15000/20000

Software Installation

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