Network Operating Systems

DNC-50, DNC-100, DNC-500 Dynamic Network Control Systems

A Guide to DNC Base Software Installation

Network Operating Systems

DNC-50, DNC-100, DNC-500* Dynamic Network Control Systems

A Guide to DNC Base Software Installation

Publication number: 450-1011-302
Product release: NSR27 02
Document release: Standard
Date: May 12, 1989

* DNC-50, DNC-100 and DNC-500 are trademarks of Northern Telecom.

Revision history

May 12, 1989 Release NSR27 02

Table of contents

1. Introduction

This document provides detailed instructions for the installation of NSR27 base software, which must be installed before software for any DNC application, such as Business Network Management, can be installed. Base software can be installed in Dynamic Network Control Systems (DNC-50, -100, -500, and -1000) and in Meridian MS-1* Meeting Services systems. The DNC base software is comprised of the Data Voice System (DVS) software package, along with DNC-specific software. When this document refers to different generations of the base software, it uses the Network Software Release (NSR) numbers rather than the DVS release numbers. Table 1-A shows the correspondence between the NSR numbers and the DVS release numbers.

Table 1-A
Correspondence Between NSR Numbers and DVS Release Numbers

NSR Number	DVS Release Number
NSR3	2.06
NSR4	2.06
NSR24	3.00.00
NSR25	3.00.00
NSR26	3.01.00
NSR27	3.01.00

This document does not contain hardware-installation instructions. For this information, refer to the Installation Guide for Cabinet Systems, 450-1011-201. In addition, if there are application-specific hardware-installation instructions, these are included in the documentation for the application that is to run on the system.

The procedures in this document should be performed only by authorized Northern Telecom personnel or representatives of a Northern Telecom distributor. The installer must be able to sign on as a superuser and must be familiar with DVS System Administrative Services (SAS) and XMS, the DVS operating system.

* Meridian and MS-1 are trademarks of Northern Telecom.

Document Release Information

The release information for this issue of this document.is found on page i. The information includes the 10-digit identification number for the practice, plus the following information:

(a) **Date:** This is the date the document was released for reproduction or printing. It is not intended to be the same as the software or product release date.

(b) **Product release:** This is the software or product release number associated with the current issue of the document, plus the issue number of document. The format is NSRaa bb, where:

- NSRaa is the Network Software Release number
- bb is a sequential issue number for the document that indicates how many times the document has been released with the specified software release.

(c) **Document release:** A rating code of Draft, Preliminary, or Standard is assigned to the document, reflecting the current status of the document.

Changes since the NSR26 Standard Issue

Some of the command sequences for NSR27 include new commands. Also, in the NSR27 command sequences, the COPYDIR command replaces CLONEDIR.

This issue includes special instructions for upgrading from NSR26 software to NSR27.

This issue explains automated feature selection, which is new with NSR27. Automated feature selection simplifies software-installation procedures. A feature-selection file lists those features that are to be involved in the procedure.

This issue covers installing software on systems that have 68020-based primary processors.

This issue recommends that the installer fill out the BMS-backup Information Form. The information on the form will be used by the customer when he or she uses the Backup Management System (BMS) to restore a file server that is controlled by the primary processor.

How to Use this Document

Parts 2 to 9 of this document describe various types of software-installation procedures for NSR27, and Part 10 explains the format of a feature-selection file. Refer to the appropriate part for the information you need.

Installing the Software on a New System

Part 2 outlines the procedure for installing a software release on a new system.

Upgrading to a New Software Release

Part 3 describes the procedure for installing a new software release over an existing release. The procedure explains how to check the available amount of disk space and then how to perform a secure upgrade.

Adding a New Feature

Part 4 outlines the procedure for adding a new NSR27 feature to an existing NSR27 system.

> ***Note:*** If necessary, refer to your Northern Telecom representative for procedures for adding an NSR27 feature to a pre-NSR27 system, or for adding a feature from a pre-NSR27 release tape to an NSR27 system.

Upgrading an Existing Feature

Part 5 outlines the procedure for upgrading an existing feature on an existing system.

Installing a Parallel System

Part 6 describes how to install a new software release that is to coexist with already installed software. The new software release is known as a parallel system. The two systems can be of the same release or of different releases.

Installing Over a Network

Part 7 outlines the procedure for installing the NSR27 software over a network. The DVS release TAPESET directory must exist on one of the network file servers to perform such an installation.

Reverting to a Previous Release

Part 8 describes how to revert to a previous release should the new release fail to operate properly.

Specifying the Number of Active Terminals

Part 9 describes how to specify the number of concurrent active terminals that the system can support.

Feature-selection Files

Part 10 explains the format of a feature-selection file. A feature-selection file is an optional way of simplifying many of the procedures covered in this document.

Software Tapes

The software is provided on magnetic tape cartridges. The tapes contain selected software features. The features are selected according to the requirements of the particular type of DNC system being installed. Some of these features are required and some are optional.

There are four tapes: Tape 1A, Tape 1B, Tape 2, and Tape 3. Tapes 1A and 1B are install tapes. You use Tape 1A if the system has a 68010-based primary processor; you use 1B if it has a 68020-based primary processor. The install tape contains enough software to allow access to the disk, so that the disk can be formatted, files can be copied, and so on. The install tape can be used to gain emergency access to the disk if the disk becomes corrupted and the system is no longer able to boot. Tapes 2 and 3 contain all the release software. The system cannot be booted using either Tape 2 or Tape 3.

Prerequisites of the Procedures

If you are using a 5-megabyte primary processor, you cannot install this software stream unless the primary processor has been upgraded with a V0.05 boot ROM.

Some of the procedures require that you have an ASCII terminal connected to the lower RS-232-C port on the rear of the primary processor. This terminal should be a Cybernex, but other VT100*-compatible terminals also work. (Only the Cybernex has been tested for this role.) The connection can be local, or can be set up remotely using modems. For installation instructions, refer to the Installation Guide for Cabinet Systems, 450-1011-201.

> ***Note:*** The connection requires a cable adapter for the VT100 terminal (order code NT4G46EB). Set the terminal's options as follows:

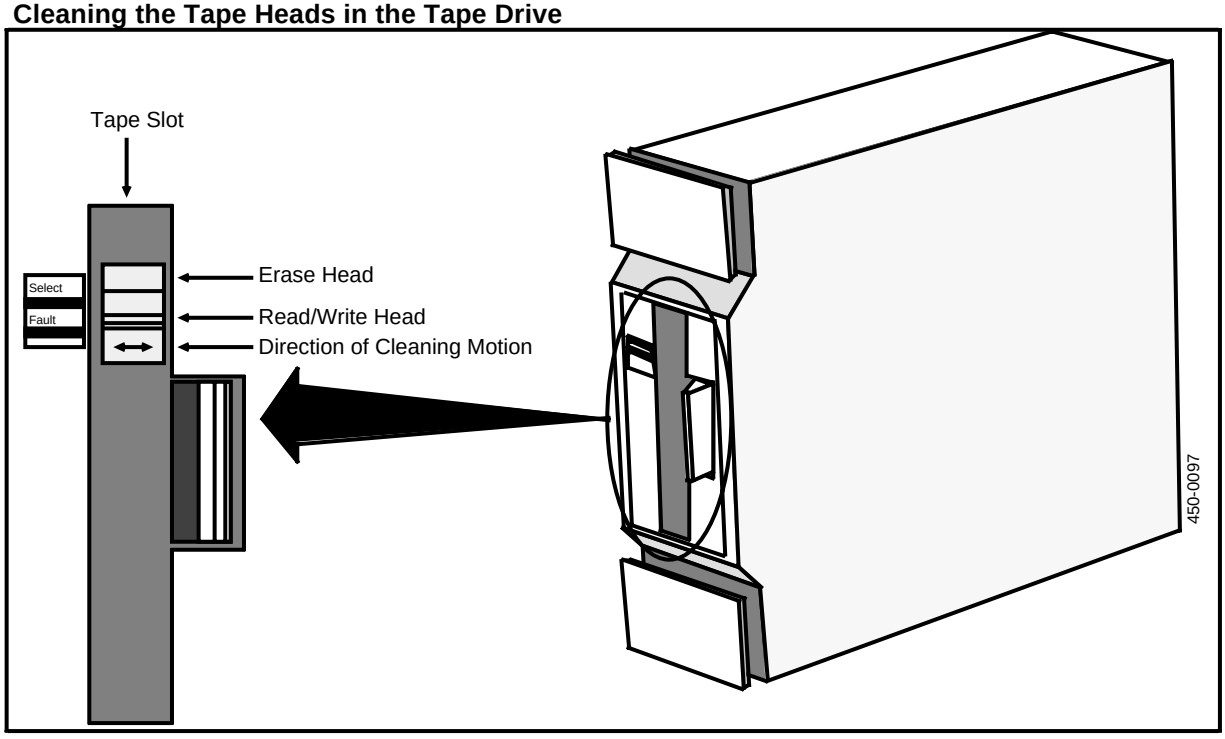
- 9600 baud
- 1 stop bit
- no parity
- 8 data bits per character
- no local copy (echo).

Before powering up the system or installing a tape in the tape drive, you should clean the tape heads with a cotton-tipped swab and isopropyl alcohol as shown in Figure 1-1. This is particularly important for new systems. Dirty tape heads can cause software faults that are difficult to trace.

---

* VT100 is a trademark of Digital Equipment Corporation.

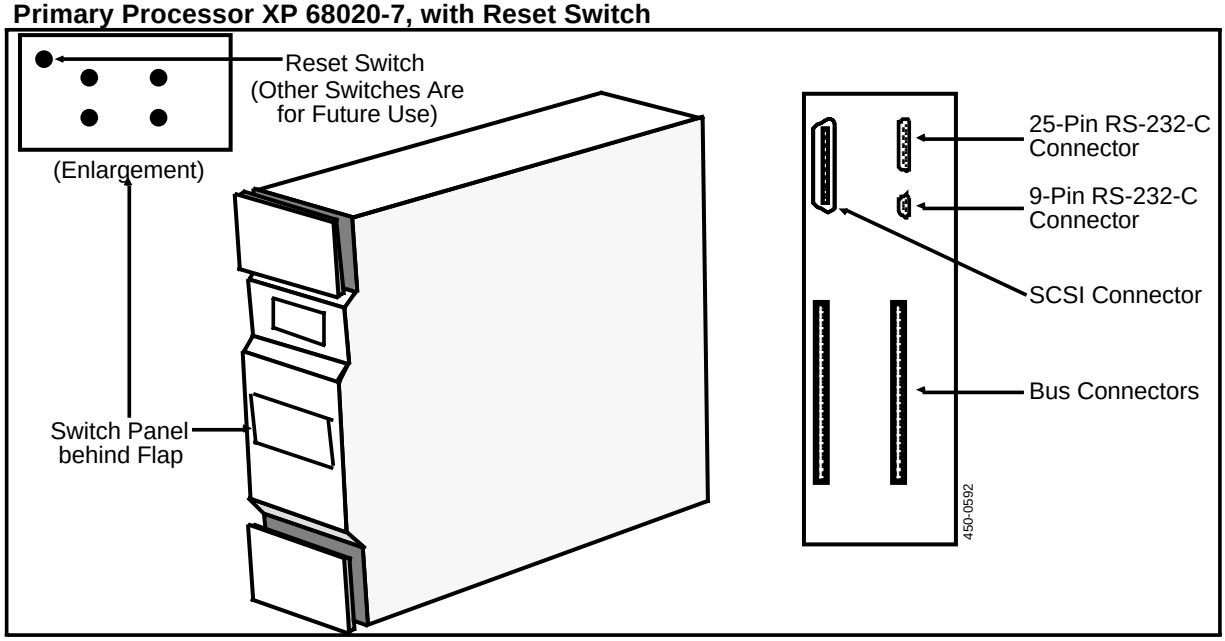
Figure 1-1
Cleaning the Tape Heads in the Tape Drive



Rebooting the System.

When the procedures require you to reboot the system, you can do so by powering the system down, waiting 30 seconds for the power SRUs to discharge, and then powering the system up again. If your system is equipped with an ON/OFF switch on the ac input jumper (located at the back of cabinet 1, the right-most cabinet as viewed from the rear), then use the switch. If not, unplug the ac input cord and plug it back in after 30 seconds. Alternatively, if your system is equipped with a Primary Processor XP 68020-7, you can reboot by pressing the Reset switch on the primary processor. (See Figure 1-2.)

Figure 1-2
Primary Processor XP 68020-7, with Reset Switch



Entering Commands in the Command Interpreter

The commands entered in the DVS system are based on the syntax of a proprietary Northern Telecom operating system called **XMS** (Extended Multiprocessor System). Depending on the procedure you are carrying out, you enter the commands from the ASCII terminal connected to the lower RS-232-C port on the rear of the primary processor, or from the system administrator's terminal. (The system administrator's terminal is an M4020 terminal. It must be attached to line 1 of a LANlink SRU, which must be installed in cabinet 1, slot 3 or cabinet 1, slot 15.)

The command syntax is described in a Bell-Northern Research document titled XMS User Documentation - User Interfaces (0011-02-04-01). However, you do not need to understand the syntax to use the procedures in this document. You just type in the commands exactly as shown, and press ENTER (or RETURN) to execute them.

If you have difficulties entering a command, or if you encounter a software or hardware fault that prevents you from proceeding, contact Northern Telecom.

Command Conventions

This document uses the following conventions for commands:

- Commands appear as uppercase characters, on a line separate from text, as in:

  LOGIN

  Unless explicitly directed otherwise, type each command exactly as it appears.
- Variable strings appear as lowercase characters, as in:

  FXT :#TAPE:DV1TAPE1:aaaa.CONFIG

Variables must be included in the syntax as part of the command. Numeric variable strings appear as lowercase n's; alphabetic strings appear as lowercase a's; and character strings (that is, strings composed of letters, digits, and characters) appear as lowercase x's.

- Command strings (or syntax) that are too long to fit on one line continue on the next line, as in:

  WRBT :#TAPE:DV1TAPE1:IPL.CODE
  :#TAPE:DV1TAPE1:xxxx

  Such a string must be entered on one line, with a space between the last character of the previous line and the first character of the following line.

- One blank line is left between each discrete command in a list of commands, as in:

  FLAGS PROMPT OFF

  FT

  The ENTER or RETURN key must be pressed after each discrete command has been completed.

- A single character space is required between the parts of a command, as in:

  :LOCAL :LOCAL:LOCAL

- Your responses to prompts appear as bold uppercase characters, as in:

  Y

- Softkeys appear as mixed case characters enclosed by angle brackets (< >) and are part of the text, as in:

  Press the <Switch Modes> softkey.

- Hardkeys appear as uppercase characters and are part of the text, as in:

  The initialization procedure can be restarted at any point by pressing the ESCAPE key.

2. Installing the Software in a New System

This procedure describes how to install the software for a new system. The procedure cannot be used to install software in a DNC that contains configuration data that is to be preserved. If you wish to preserve configuration data from a previous software release, see Part 3, ‘Performing a Secure Upgrade’.

To install a completely new system, or if the system will not boot, you must start with the install tape (Tape 1A or Tape 1B). Tape 1A is the install tape for a system that has a 68010-based primary processor; Tape 1B is for a system that has a a 68020-based primary processor. When the appropriate install tape is inserted into the tape drive and the system is powered up, the software is loaded automatically. The install tape should only be used as a “boot” tape for the installation of a new system or if the disk is corrupted and the system will no longer reboot.

Tapes 2 and 3 contain the release software. The software from tapes 2 and 3 is loaded after the system has been booted from the install tape. If for some reason, you want to "re-install" any system software after the initial installation, you would normally use only tapes 2 and 3.

Before Beginning

Before the system is powered up for the first time, proceed as follows:

1. Obtain a blank copy of the BMS-backup Information Form, which is shown in Figure 2-2 (at the end of this part). As you initialize the system, you will record information on the form. After installing the software, give the completed form to the system administrator, who will place it in the site-records binder. The customer needs the information when using Backup Management System (BMS) to restore a file server that is controlled by the primary processor.

2. Ensure that the primary processor's model number and type (SCSI or SASI), are recorded on the BMS-backup Information Form. Primary processor types and models are as follows:

Primary Processor:	Type (SASI/SCSI):	Model:
68010 SBC	SASI	Primary Processor 69010-5
68010 XP	SCSI	Primary Processor XP 68010-6
68020 XP	SCSI	Primary Processor XP 68020-7

3. Connect an ASCII terminal (Cybernex or other VT100-compatible terminal) to the lower RS-232-C port on the rear of the primary processor SRU. Set the terminal for full duplex operation at 9600 baud.

4. Obtain the information that is taped to the side of the Mass Storage SRU. This informatiom includes the type of disk drive (such as CDC or MICROPOLIS) used in the Mass Storage SRU, and the bad block list. (You require the bad block list only if the Mass Storage SRU is to be attached to a SASI primary processor.) If you do not have any of the required information, contact your Northern Telecom representative.

5. Ensure that there is a LANlink SRU in either cabinet 1, slot 3, or cabinet 1, slot 15, and that there is an M4020 terminal attached to line 1 of the LANlink SRU. This is the system administrator's terminal.

6. If you are installing a system with a 68010 XP primary processor, ensure that the primary processor is located in the top right corner of Cabinet 1. (If the primary processor is of any other type, it can be located anywhere, although the default system configuration will indicate that it is located in cabinet 1, slot 6.)

7. If you have not already done so, clean the tape heads on the tape drive according to Figure 1-1.

Initializing a New System

The initialization procedure can be restarted at any point by pressing the ESCAPE key. If you make a mistake or the procedure fails to execute a step, you can enter the command again, with the exception of the MAKEPATH and COPYDIR commands, which require you to return to the preceding FORK FS command and start from there.

> ***Note:*** Parts of this procedure depend on whether your system is equipped with a SASI (Shugart Associates System Interface) primary processor or a SCSI (Small Computing Systems Interface) primary processor.

Use the ASCII terminal and type each command exactly as it appears. Press the RETURN key after completing each command.

1. Insert the install tape in the tape drive connected to the primary processor. Use Tape 1A if the system has a 68010-based primary processor; use Tape 1B if the system has a 68020-based primary processor.

2. Power up the system. It takes approximately five minutes for the system to boot from the tape. When the system finishes its boot run, the INSTALL=> prompt appears. You are now running the Command Interpreter using the tape as your file system.

3. If you are using a SCSI primary processor, type the following command and press RETURN. The command is:

   SCSIINIT 1

   If you are using a SASI primary processor, type the following command and press RETURN. The command is:

   FXT :#TAPE:DV1TAPE1:aaaa.CONFIG ,

where “aaaa” is:	for a:
CDC	CDC disk drive
MICROPOLIS	MICROPOLIS disk drive
CDCMSD	CDC/MSD Mercury combination
MICMSD	MICROPOLIS/MSD Mercury combination

4. When the “Continue (Y/N)?” prompt appears, type **Y** and press RETURN. (Ignore the “Keyword not recognized,” error message.)

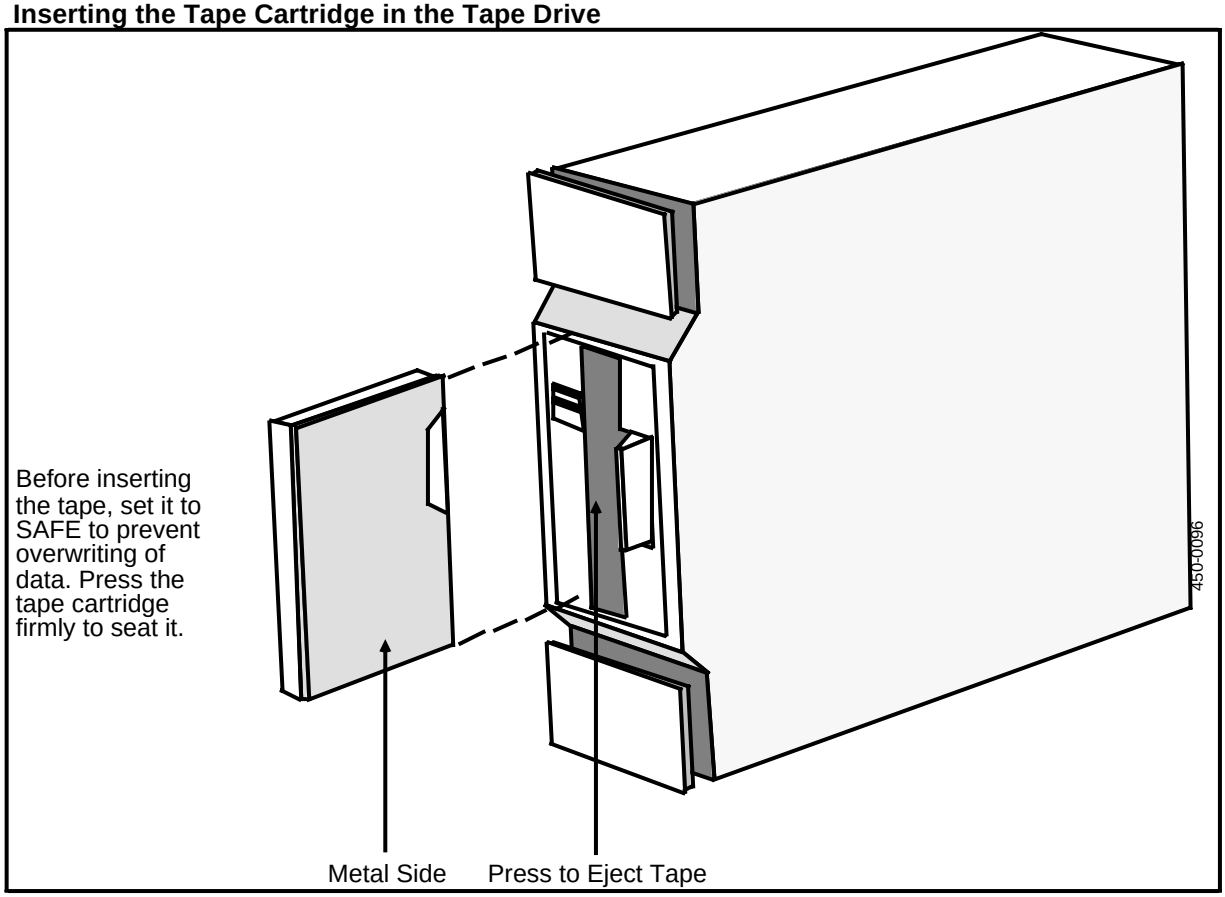
5. The “Reformat (Y/N)?” prompt appears, asking whether the disk is to be reformatted. If you are re-attempting to install the system, and if the bad block list that was previously entered is correct, type **N** and press RETURN at the prompt to start with an empty file system. (This is also done with systems already running a 2.06.05 or later system.)

> **- CAUTION -**
>
> The bad block list must be absolutely correct; otherwise, the release software will fail to operate properly.

   If you enter **N** in this step, then skip the next five steps.

6. If this is the first time you are installing the system or if you are upgrading from a 1.03 system, type **Y** and press RETURN at the “Reformat (Y/N)?” prompt.

Figure 2-1
Inserting the Tape Cartridge in the Tape Drive



The next four steps are for specifying the bad block list. Complete these steps only if the system has a SASI primary processor and only if you answered **Y** to the "Reformat (Y/N)?" prompt.

7. If you have a SASI disk unit, type in the list of bad blocks (from the list taped to the side of the SRU) and press RETURN after each entry. For each bad sector on the disk, you are prompted for the unit (always 1), cylinder, track (or head surface), and sector. The sector is always 1 on CDC or MICROPOLIS disks. For CDC disks, ignore any cylinder value greater than 916.

   Note: After entering a value once, you can press RETURN to enter the value again without retyping it.

8. When you have finished typing in the list, type **-1** and press RETURN.

   The system displays the bad block list as you have typed it and displays the "Additions (Y/N)" prompt below the list.

9. If you do not need to make any additions to the bad block list, type **N** and press RETURN.

If you need to make additions to the bad block list, type **Y** and press RETURN. Enter the values you want added to the list and press RETURN after each value. When you have finished entering the additions, type **-1** and press RETURN.

The system displays the updated list and again displays the "Additions (Y/N)" prompt. This process continues until you answer **N** to the "Additions (Y/N)?" prompt.

When you answer **N** to the prompt, the system displays the "Deletions (Y/N)" prompt.

10. If you do not need to make any deletions from the bad block list, type **N** and press RETURN.

    If you need to make deletions from the bad block list, type **Y** and press RETURN. Enter the values you want deleted from the list and press RETURN after each value. When you have finished making the deletions, type **-1** and press RETURN.

    The system displays the updated list and again displays the "Deletions (Y/N)?" prompt. This process continues until you answer **N** to the "Deletions (Y/N)?" prompt.

    After you answer **N** to the prompt, the disk is reformatted. Reformatting takes approximately 10 to 15 minutes (or up to 30 minutes if you have an MSD disk). When the formatting is completed, the INSTALL=> prompt appears.

11. If the system is equipped with a SASI primary processor, enter:

    FXINI_P1

    This command initializes the system and configures the file system. (If your system is equipped with a SCSI primary processor, SCSIINIT carries out these activities.)

12. The system displays the "Reinitialize (Y/N)?" prompt. Type **Y** and press RETURN. If anything such as a previous system was on the disk, it is now erased.

13. The system prompts you for a volume ID and volume name. Type the volume ID and name on the same line (separated by a character space). Ensure that the volume ID and volume name are recorded on a copy of the BMS-backup Information Form. (See Figure 2-2.) (The customer needs this information when using Backup Management System (BMS) to restore a file server that is controlled by the primary processor.) The volume ID can be any number from 12 to 32767 inclusive. The volume ID is similar to a password. The volume name can be composed of up to eight alphanumeric characters (without blanks). It is used as the file server name.

14. You are prompted for a number of configuration parameters.

If you wish to use the default value for a configuration parameter, press the RETURN key. If you do not wish to use the default value for a configuration parameter, change the value according to Tables 2-A and 2-B.

Note 1: As you specify the parameter values, record all the nondefault values on a copy of the BMS-backup Information Form. (See Figure 2-2.) (The customer needs this information when using Backup Management System (BMS) to restore a file server that is controlled by the primary processor.)

Tables 2-A and 2-B show the default parameter values, as well as the recommended settings for large and minimal systems. A large system consists of three or more applications processor SRUs. Specify minimal-system values if application software (Call Processing in particular) is configured on the primary processor. Specify large-system values if the system is to run the Business Network Management (BNM) application.

Note 2: When you are prompted for "total open instances" (see Table 2-A) or "number of open files" (see Table 2-B), set the value to at least two or three times the number of primary and applications processor SRUs in your system.

Note 3: If you are using Data Net, then when you are prompted for the "number of logins" (see Table 2-A) or the "number of users" (see Table 2-B), you may need to specify a value higher than the default. In this case, 200 is a reasonable number to use.

Table 2-A
Configuration Parameters for SASI File Systems

CONFIGURATION ITEM	DEFAULT	LARGE	MINIMAL
Default protection mask	755		
Number of object tasks	10	30	1
Number of agent tasks	5		1
Number of Helix communication buffers	30		4
Total open instances	50	81	10 (65 with MSD)
Total number of clients	100		10
Number of small (1K) cache frames	200		40

Table 2-A Continued
Configuration Parameters for SASI File Systems

CONFIGURATION ITEM	DEFAULT	LARGE	MINIMAL
Number of large (4K) cache frames	2		2
Daily audit time - HOUR	3		
Daily audit time - MINUTE	0		
File server timeout	500		
Number of FOS communication manager buffers	10		4
Number of 32K backup buffers (0...16)	2		
Number of logins	50		10
Max security agent communications failures	1		
Agent client audit delay	3000		
Commit to disk frequency	5		
Commit to disk timeout	1000		
Audit FID dir and mark bit map	TRUE		
Do initial audit	TRUE		

Table 2-B
Configuration Parameters for SCSI File Systems

CONFIGURATION ITEM	DEFAULT	LARGE	MINIMAL
Default file protection mask	755		
Number of object tasks	10	30	1
Number of agent tasks	5		1
Number of Helix communication buffers	30		4
Number of open files	50	81	10
Number of open file clients	100		10

Table 2-B Continued
Configuration Parameters for SCSI File Systems

CONFIGURATION ITEM	DEFAULT	LARGE	MINIMAL
Number of small (1K) cache frames	200		40
Number of large (4K) cache frames	4		2
Daily audit time - HOUR	3		
Daily audit time - MINUTE	0		
File server timeout	500		
Number of FOS communication buffers buffers	10		4
Number of 32K backup agent buffers (0..16)	0		
Number of users	50		10
Max retries on security agent failures	1		
User audit delay	3000		
Transactional file set commit timeout	500		
Static RAM commit frequency	5		
Static RAM commit timeout	3000		
Do initial FID directory and bitmap audit	TRUE		
Do initial file audit	TRUE		
File Server Write Protected	FALSE		

15. If your system is equipped with a SASI primary processor, then after you have finished entering all the values for the configuration parameters, enter the following command:

    FXINI_P2

    This command takes about 40 seconds to execute. (If your system is equipped with a SCSI primary processor, SCIINIT executes this step for you.)

16. When the system is again ready for input, enter the following command:

WRBT :#TAPE:DV1TAPE1:IPL.CODE :#TAPE:DV1TAPE1:xxxx

where “xxxx” is: for a:

PS_SYSTEM.SYS	68010 SBC Primary Processor
PH_SYSTEM.SYS	68010 XP Primary Processor
PP20_SYSTEM.SYS	68020 XP Primary Processor

This command takes about two minutes to execute.

17. To start the file server, enter:

    FORK FS

18. When the > prompt appears, wait 30 seconds for the file server to initialize itself, and then enter:

    LOGIN

19. When prompted for the login name, type the digit 0 and press RETURN.

    When prompted for the login password, type 0 and press RETURN.

20. To set the working directory, enter the following command:

    WORKDIR :LOCAL

    Note: If the command fails, repeat the LOGIN command (but not the FORK FS command), with 0 and 0 as the name and password, and then repeat the WORKDIR :LOCAL command.

21. After you have successfully set the working directory, enter:

    FLAGS PROMPT OFF

22. To load the contents of the install tape to the disk, enter the following commands:

    MAKEPATH :LOCAL :LOCAL:LOCAL

    COPYDIR :#TAPE:DV1TAPE1:MINISYS :LOCAL:LOCAL +R

    These commands take about 15 minutes to execute.

23. When the INSTALL=> prompt reappears, remove the tape and reboot the system. The system should reboot from the disk . Ignore the “VSS.PD.TEXT was not found,” error message.

    When the > prompt appears, you are again in the Command Interpreter, booted from disk.

24. To initialize the Tape System, enter:

    FORK CTAPE.CODE

    Wait one minute for the initialization to complete.

25. Insert Tape 2 into the tape drive and wait for the tape to stop moving. (This takes about 5 minutes.) Retension the tape by entering the following command:

    TRET

26. Once the tape has stopped moving, remove the tape, clean the tape drive heads, re-insert the tape, and wait once more for the tape to stop moving.

27. To start the tape server, enter:

    FT

28. If a feature-selection file does not exist, go to the Step 29, and begin selecting features manually.

    If a feature-selection file does exist, enter the following command:

    MASTER_NEWSYS AUTOFILE/xxx

    where "/xxx" is an optional parameter, "xxx" being the pathname of the feature-selection file. If the /xxx parameter is omitted, the system uses the default feature-selection file, :UUTILS:INFILE.TEXT.

    The system copies a few files from the tape to disk, and then reads the feature-selection file. (For information on this file, see Part 10, 'Format of the Feature-selection File'.)

    Note: If the feature-selection file does not specify whether personal computers are configured in the system, the system assumes that personal computers are not configured (PC FALSE).

    Because you are using a feature-selection file, you should proceed directly to Step 34.

29. If a feature-selection file is not available, start the process of manual feature selection by entering the following command:

    MASTER_NEWSYS

    The system copies a few files from tape to disk, and starts displaying a series of prompts. These prompts allow you to select the software features you wish to install. To abort the selection process at any of these prompts, press the ESCAPE key, and resume by entering MASTER_NEWSYS once again.

30. The system prompts for each software feature that is currently available, one feature at a time. (Features are listed in Tables 2-C and 2-D.)

    If you want to select a feature, type **Y** on the line for that feature and press RETURN. (Some features are selected automatically.)

    If you do not want a feature on your system, type **N** and press RETURN.

    There is a default setting (Y or N) for each feature. If the default setting is what you need, just press RETURN.

Some of the features listed in Tables 2-C and 2-D are not used with DNC systems. Your tapes may not have all the features listed in the tables. However, the tapes should contain the features required by your system.

The feature set for your system is determined by the application that is to run on your system. Some features are used only with certain applications. In addition, some features are optional, depending on customer order.

31. After all available features have been prompted for, the system displays a list showing the selected features, and displays the "Correct (Y/N)?" prompt.

    If the list is correct, type **Y** and press RETURN.

    If the list is incorrect, type **N** and press RETURN. The system then prompts once again for every available feature. This process continues until you answer **Y** to the "Correct (Y/N)?" prompt.

Table 2-C
DNC and DVS Services and their Program Names

Features on Tape 2	
RBASESW	Base DVS Software (selected automatically)
RBASEDV1	Base LAN/DV-1 Software (selected automatically)
RBASEDIA	Base DVS Diagnostics (selected automatically)
RBASELIU	RPA/LIU Software (selected automatically)
RCIU	Channel Interface Unit Software (not used in DNC)
RCOMMSERV	Communications Server Software
RDVSINT	DVS Public Interface Software
RXSRU	XSRU Software
RDV3274	IBM 3274 Emulation (used in DNC systems running BNM) (See Note at end of table.)
RFT3780	RJE 3780 Emulation (used in DNC systems running DMS-SCP
RDVX25	X.25 Gateway (enter Y)
RDVPAD	X.3 PAD (used in DNC systems running BNM)
RADU	Asynchronous Dial Up (enter Y)
RTRMS	TRMS Software
DNCBASE	Base Software for DNC Application (selected automatically)
LOGGER	DNC Log and Alarm Subsystems (enter Y)

Note: If you select RDV3274, the system prompts for the HAG size. If you are planning to use any communications software on the system, specify 0, so that resources will be allocated as required.

Table 2-D
DNC and DVS Services and Their Program Names

Features on Tape 3	
MX_IDLER	CPU Usage Monitor
REP_GEN	Report Generator
NCD	Network Configuration Database
GENERIC_DB	Generic Database
RDVCHNL	3274 Local Channel (not used in DNC)
RDVMCS	Meeting Communication Services (not used in DNC)
RDVSNAM	PC LAN/Netbios Communications
RDVVS	Voice Services (not used in DNC)
TEST_TOOLS	Test Tool utilities
SCHEDULER	Scheduler subsystem (enter Y)
SAVE_RESTORE	Save and Restore (enter Y)
TAPE_GEN	Tape Generation subsystem
INITPRIN	Printer Initialization
COMMS	Communications Subsystem
DNCOMS	DNC Operational Measurements

32. When the list is correct, the system displays the “Personal Computers (Y/N)?” prompt.

    If you do not have any personal computers physically configured on your system, type **N** and press RETURN. In this case, the Name Address Manager program resource unit (NAM PRU) is left in the DEFINED state to save memory space on the primary processor.

    (There are three other PRUs under the primary processor that are configured in the DEFINED state. They are the Printer Queue Manager, the Spooler User Interface, and the ASCII Connection Agent. They can be made ACTIVE through SAS Configuration at a later time.)

33. If you do have personal computers physically configured on your system, type **Y** and press RETURN at the prompt. The Name Address Manager is configured in the ACTIVE state to handle the PCs.

34. The installation process copies all the selected features that are on Tape 2.

    If you have selected any features that are on Tape 3, a prompt appears when the process is ready for that tape. Insert Tape 3 if the system prompts for it.

    It takes 30 to 120 minutes to copy the features from tape to disk, depending on the number of features selected. When the process is finished, the following message appears:

    *** INSTALL COMPLETE ***

35. When the tape stops moving, remove it from the drive.

    Note: The next two steps are optional.

36. Now that the software is completely transferred to the disk, you can choose to run the File Check program. The program finds any data-transfer errors that have occurred while the tape was being read. To run the File Check program, enter the following command:

    EXEC :LOCAL:NSR27aa:INSTALL:HASHCHECK NSR27aa

    where “aa” is the load being installed, for example, AK. This creates a hash file for each of the features as well as for the base software. Each hash file is stored in the directory :LOCAL:NSR27aa:INSTALL under the name of its corresponding feature. Each hash file's name ends with “.HASH”.

37. To check that the software was transferred successfully for each feature, edit each one of the hash files. At the bottom of each file is a tally of the number of files processed, the number of files with data errors, and the number of files missing. Above the tally are the names of the files that have errors or are missing.

    A defective tape, tape drive, mass storage unit, or primary processor can cause problems. If you have problems, refer to the Maintenance and Troubleshooting Guide, 450-1011-501.

38. To select the appropriate primary processor's boot volume, enter the following command. (Enter it on one line and remember to leave a space before the second occurrence of :LOCAL.) The command is:

    MAKEPATH :LOCAL:NSR27aa:xxxx
    :LOCAL:NSR27aa:SYSTEM.SYS +R -P

where “xxxx” is	for a:
PS_SYSTEM.SYS	68010 SBC Primary Processor
PH_SYSTEM.SYS	68010 XP Primary Processor
PP20_SYSTEM.SYS	68020 XP Primary Processor

    and “aa” is the NSR27 load, such as AK.

39. To activate the newly installed software, enter:

    MAKECURRENT NSR27aa

where “aa” is the load being installed, such as AK.

40. Reboot the system.

The default configuration is engineered to support up to 90 active terminals at one time. If fewer than this number are to be supported, then the number should be changed as described in Part 9, ‘Engineering SAM Memory Requirements’. This will prevent wastage of memory on the primary processor.

Figure 2-2
BMS-backup Information Form

BMS-BACKUP INFORMATION FORM

PRIMARY PROCESSOR MODEL: _____

SASI OR SCSI: _____

DISK VOLUME ID: _____

DISK VOLUME NAME: _____

FILE SYSTEM CONFIGURATION PARAMETERS
(Record NONDEFAULT parameter values only.)

PARAMETERS	NONDEFAULT VALUES
Default file protection mask / Default protection mask	
Number of object tasks	
Number of agent tasks	
Number of Helix communication buffers	
Number of open files / Total open instances	
Number of open file clients / Total number of clients	
Number of small (1K) cache frames	
Number of large (4K) cache frames	
Daily audit time -- HOUR	
Daily audit time -- MINUTE	
File server timeout	
Number of FOS communication buffers	
Number of 32K backup agent buffers / Number of 32K backup buffers	
Number of users / Number of logins	
Max retries on security agent failures / Max security agent communications failures	
User audit delay / Agent client audit delay	
Transactional file set commit timeout (SCSI systems only)	
Static RAM commit frequency / Commit to disk frequency	
Static RAM commit timeout / Commit to disk timeout	
Do initial FID directory and bitmap audit / Audit FID dir and mark bit map	
Do initial file audit / Do initial audit	
File server write protected (SCSI systems only)	

450-1918

3. Upgrading to a New Software Release

This part describes how to perform a secure upgrade. This process upgrades the system software, going from a previous software release to the new software release. The upgrade is ‘secure’ because you can back out of it. If you perform a secure upgrade but the new software does not operate properly, you can reactivate the previous software (as explained in Part 8, ‘Reverting to a Previous Release’).

You can perform a secure upgrade only if there is enough disk space to hold both the new software release and the previous release. The secure-upgrade procedure includes steps to determine the amount of space available, and the amount needed.

The procedure outlined in this part cannot be used to add new features to an already existing system. To add new features to an existing system, see Part 4, ‘Adding a New Feature’.

The procedure outlined in this part cannot be used to upgrade systems to NSR27 if they are running any release prior to DV-1 2.06.05. (Like DNC base software, DV-1 software is based on DVS.) In this case, the existing system must be upgraded to DV-1 2.06.05 prior to being upgraded to NSR27, or else the NSR27 software release must be installed as a new release (as explained in Part 2, ‘Installing A New System’).

It is not possible to upgrade to NSR27 if the system is equipped with a 68010-4 primary processor. That model is not supported with NSR27.

Before Beginning

Ensure that there is a LANlink SRU in either cabinet 1, slot 3, or cabinet 1, slot 15, and that there is an M4020 terminal attached to line 1 of the LANlink SRU. This is the system administrator's terminal and is the only terminal used to enter the commands for this procedure.

Ensure that there is an ASCII terminal connected to the lower RS-232-C port on the rear of the primary processor. The ASCII terminal serves to indicate if there are any problems. The primary processor generates errors and traceback if it crashes or has problems.

Clean the tape heads on the tape drive according to Figure 1-1.

Performing a Secure Upgrade

A secure upgrade is performed in two stages. The first stage installs all the software and files for the new system. The second stage performs the object conversions.

Use the system administrator's terminal and type each command exactly as it appears. Press the ENTER key (unless otherwise stated) after each command has been completed.

1. Log on to the system as the superuser.
2. Select System Administrative Services and then press ENTER.

   The System Administrative Services Main Menu appears.
3. Select Configuration and then press ENTER.

   The system displays the Configuration Service Main Menu.
4. To ensure that there are no outstanding configuration-service files, select Online Update and press ENTER.
5. Press the <Exit> softkeys until you arrive at the System Administative Services Main Menu.
6. Select Utilities and press ENTER.

   The Utilities Services Main Menu appears.
7. Select Helix Command Interpreter and press ENTER**.**

   The system prompt appears. (It is usually ‘>’.)
8. To ensure that all updated files have been cleaned up, enter:

   LISTDIR :LOCAL:OBJ
9. Check for the presence of the following files: ADMWRK01.OBJ, ADMWRK02.OBJ, ADMWRK03.OBJ, and ADMWRK04.OBJ.

   If the files are not present, then go on to the next step.

   If the files are present, then immediately exit from the Helix Command Interpreter, press the <Exit> softkeys until you arrive at the System Administrative Services Main Menu, return to Step 3 of this procedure, and follow the steps from that point.

10. To determine the amount of available disk space, enter the following commands:

    FSADMIN :LOCAL F

    STATUS :LOCAL

    Repeat the STATUS command until the line labeled “last audit” shows the current time. This may take 15 minutes or more with a large disk.

11. Calculate the total amount of space required by adding the space required by each of the features to be installed (see Table 3-A).

    Note: If the space required by the features is greater than the “current free space” value returned by the STATUS command in the preceding step, it may be possible to perform a secure upgrade if you implement only a minimal set of the new software's features. If there is too little space for even a minimal feature set, then a secure upgrade is impossible. In this case, you must use the procedure for loading a new system (see Part 2).

- CAUTION -

If you must use the new-system installation procedure rather than the secure-upgrade procedure, then before installing the new software release, you should make a hardcopy record of the configuration details of the previous software release. If the new software release does not operate properly, then you will want to reinstall the previous software, and you will need the configuration details.

Table 3-A
Space Requirements for Features

Feature	Space Required (in blocks)
RBASESW	33,000
RBASEDIA	450
RBASELIU	1100
RCIU	600
RDUX	6000
RCOMMSERV	650
RDVSINT	750
RTRMS	700
RBASEDV1	550
RADU	100
RDV3274	900
RDVCHNL	900
RDVMCS	800
RDVPAD	300
RDVVS	2800
RDVX25	350
RFT3780	500
DNCBASE	2220
LOGGER	1650
MX_IDLER	150
REP_GEN	450
RDVSNAM	100
SCHEDULER	500

Table 3-A Continued
Space Requirements for Features

Feature	Space Required (in blocks)
SAVE_RESTORE	200
NCD	3250
GENERIC_DB	1100
TEST_TOOLS	1300
COMMS	2200
TAPE_GEN	230
DNCOMS	650
INITPRIN	90

12. Place Tape 2 in the tape drive and enter the following command:

    TRET

13. Remove the tape once it has finished moving, clean the tape drive heads, and re-insert the tape.

14. Enter the following commands:

    FLAGS PROMPT OFF

    FT

    REMOVEDIR :LOCAL:NEW_UUTILS

    COPYDIR :#TAPE:DV1TAPE2:UUTILS :LOCAL:NEW_UUTILS

15. If a feature-selection file does not exist, go to the Step 16 and begin selecting features manually.

    If a feature-selection file does exist, enter the following command:

    :LOCAL:NEW_UUTILS:MASTER_UPGRADE AUTOFILE/xxx

    where “/xxx” is an optional parameter, “xxx” being the pathname of the feature-selection file. If the /xxx parameter is omitted, the system uses the default feature-selection file, :UUTILS:INFILE.TEXT.

    The system copies a few files from the tape to disk, and then reads the feature-selection file. (For information on this file, see Part 10, ‘Format of the Feature-selection File’.)

    Note 1: Base software is loaded even if it is not listed in the feature-selection file.

Note 2: If the feature-selection file does not specify the primary processor type, the system prompts for the information. If this occurs, proceed to Step 19. Otherwise, proceed to Step 20.

16. If a feature-selection file is not available, start the process of manual feature selection by entering the following command:

    :LOCAL:NEW_UUTILS:MASTER_UPGRADE

    The system copies a few files from tape to disk, and starts displaying a series of prompts. These prompts allow you to select the software features you wish to install. To abort the selection process at any of these prompts, press the ESCAPE key, and resume by entering this step's command once again.

17. The system prompts for each software feature that is currently available, one feature at a time. (Features are listed in Tables 2-C and 2-D.)

    If you want to select a feature, type **Y** on the line for that feature and press ENTER.

    If you do not want a feature on your system, type **N** and press ENTER.

    There is a default setting (Y or N) for each feature. If the default setting is what you need, just press ENTER.

    Note: If you select RDV3274, the system prompts for the Host Agent (HAG) size. Valid sizes are 8, 16, 32, and Unlimited (indicated with a zero). If you are planning to use any communications software on the system, specify 0, so that resources will be allocated as required.

18. After all available features have been prompted for, the system displays a list showing the selected features, and displays the “Correct (Y/N)?” prompt.

    If the list is correct, type **Y** and press ENTER.

    If the list is incorrect, type **N** and press ENTER. The system then prompts once again for every available feature. This process continues until you answer **Y** to the “Correct (Y/N)?” prompt.

19. A prompt appears asking you to indicate the type of primary processor in the system. Enter the single numeric code for the type of primary processor. The codes and valid types are:

Code:	Type of Primary Processor
2	68010 SBC
3	68020 XP
4	68010 XP

20. From this point on, the installation process copies all the selected features that are on Tape 2.

    If you have selected any features that are on Tape 3, a prompt appears when the process is ready for that tape. Insert Tape 3 if the system prompts for it.

When all the selected features have been loaded to the disk, the following message appears:

*** MASTER_UPGRADE COMPLETE ***

21. Remove the tape.

Note: The next two steps are optional.

22. Now that the software is completely transferred to the disk, you can choose to run the File Check program. The program finds any data-transfer errors that have occurred while the tape was being read. To run the File Check program, enter:

    EXEC :LOCAL:NSR27aa:INSTALL:HASHCHECK NSR27aa

    where “aa” is the load being installed, such as AK. This creates a hash file for each of the features as well as for the base software. Each hash file is stored in the directory :LOCAL:NSR27aa:INSTALL under the name of its corresponding feature. Each hash file's name ends with “.HASH”.

23. To check that the software was transferred successfully for each feature, edit each one of the hash files. At the bottom of each file is a tally of the number of files processed, the number of files with data errors, and the number of files missing. Above the tally are the names of the files that have errors or are missing.

    A defective tape, tape drive, mass storage unit, or primary processor can cause problems. If you have problems, refer to the Maintenance and Troubleshooting Guide, 450-1011-501.

24. To perform the system configuration upgrade, enter:

    WORKDIR :LOCAL:NSR27aa

    and then enter:

    :LOCAL:NEW_UUTILS:OBJ_UPGRADE

    where “aa” is the load being installed, for example, AK.

    When the process is completed, the following message appears:

    *** OBJECT CONVERSION COMPLETE ***

    Note: It is normal for error messages to appear during the object-conversion portion of the upgrade. These messages occur due to the demands of upgrading from multiple releases and optional features, such as the Private Directory feature available with Voice Services. Messages such as “Could not open file,” and “Duplicate object,” are examples of the type of message that can be ignored. The message “Enter data format string (default is hex),” can also be ignored, because the conversion execs supply the necessary information.

25. To select the appropriate primary processor's boot volume, enter the following command on a single line. (Remember to leave a space before the second occurrence of :LOCAL.) The command is:

    MAKEPATH :LOCAL:NSR27aa:xxxx
    :LOCAL:NSR27aa:SYSTEM.SYS +R -P

where “xxxx” is:	for a:
PS_SYSTEM.SYS	68010 SBC Primary Processor
PH_SYSTEM.SYS	68010 XP Primary Processor
PP20_SYSTEM.SYS	68020 XP Primary Processor

    and “aa” is the load being installed, such as AK.

26. To activate the new release, enter:

    :LOCAL:NSR27aa:MAKECURRENT NSR27aa

    where “aa” is the load being installed.

27. If you are upgrading from a 2.06 DVS release, you get a "Bad filetype," error message. In this case only, enter the following command. (Enter it on a single line and remember to leave a space before the second and third occurrences of :LOCAL.). The command is:

    :LOCAL:nnnn:XUTILS:WRBT
    :LOCAL:INSTALL_UTILS:IPL.CODE
    :LOCAL:SYSTEM.SYS

    where "nnnn" is the release number of the current system, for example 020605.

    The new system is now in place directly under :LOCAL.

    Note: If you have any Merlin workstations configured on your system it is very important to remember to upgrade all the boot volumes on the workstations to the new release of software. This procedure should be done prior to rebooting the system with the new release of base software.

28. Once the existing workstations have been upgraded, reboot the system.

    The upgrade is now complete.

When you have completed this procedure, go into System Administrative Services immediately using the system administrator's terminal, and press the <SAS Processor> softkey. This displays a screen that shows the memory available on the primary processor SRU and provides the means to courtesy down program resource units (PRUs). It may be necessary to move some PRUs from the primary processor SRU to an applications processor to accommodate increased memory usage resulting from the new release.

4. Adding a New Feature

This part describes how to add a new feature (that is, one that does not already exist) to an existing system. If you miss a feature when loading a system, you can use this procedure to add the feature instead of going through a complete reload.

This procedure can only be used to install an NSR27 feature in an NSR27 system. It cannot upgrade an NSR27 feature that is already in the system, nor can it upgrade pre-NSR27 base software. To upgrade pre-NSR27 base software, refer to Part 3, ‘Upgrading to a New Software Release’; to upgrade an existing NSR27 feature, refer to Part 5, ‘Upgrading an Existing Feature’.

Use the system administrator's terminal. (The system administrator's terminal is an M4020 terminal. It must be attached to line 1 of a LANlink SRU, which must be installed in cabinet 1, slot 3, or cabinet 1, slot 15.) Type each command exactly as it appears. Press the ENTER key after each command is completed. (When you are in the Command Interpreter, the RETURN key on the M4020 has the same function as the ENTER key. However, for brevity only the ENTER key is mentioned here.)

1. Log on to the system as the superuser.
2. Select System Administrative Services and press ENTER.

   The System Administrative Services Main Menu appears.
3. Select Utilities and press ENTER.

   The Utilities Services Main Menu appears.
4. Select Helix Command Interpreter and press ENTER.

   The system prompt appears. (It is usually ‘>’.)
5. Place Tape 2 in the tape drive and enter the following command:

   TRET
6. Remove the tape once it has stopped moving, clean the tape drive heads, and re-insert the tape.

7. Enter the following commands:

   FLAGS PROMPT OFF

   FT

   REMOVEDIR :LOCAL:NEW_UUTILS

   COPYDIR :#TAPE:DV1TAPE2:UUTILS :LOCAL:NEW_UUTILS

8. If you loaded the release software (for example, NSR27AS) and subsequently did a MASTER_UPGRADE (to NSR27AT), but did not include one or more features, you can subsequently add those features to the most recent load (NSR27AT). If you are going to use a feature-selection file to add the features, go to Step 9. If you are going to add the features without using a feature-selection file, go to Step 10.

9. If there is a feature-selection file listing the features to be added, enter the command:

   :LOCAL:NEW_UUTILS:MASTER_NEWFEAT AUTOFILE/xxx

   where '/xxx' is an optional parameter, 'xxx' being the pathname of the feature-selection file. If the /xxx parameter is omitted, the system uses the default feature-selection file, :UUTILS:INFILE.TEXT.

   Because you are using a feature-selection file, you should proceed directly to Step 16.

10. If a feature-selection file is not available, enter:

    :LOCAL:NEW_UUTILS:MASTER_NEWFEAT

    After entering the command, proceed to Step 14.

11. If you installed a previous load using MASTER_UPGRADE or MASTER_NEWSYS, you may want to add one or more features from the most recent load's tape to that previous load. If you are going to use a feature-selection file to add the missing features, go to Step 12. If you are going to add the features without using a feature-selection file, go to Step 13.

12. If there is a feature-selection file listing the features to be added, enter the following command. Enter the command on a single line, and remember to leave a space before AUTOFILE.

    :LOCAL:NEW_UUTILS:MASTER_NEWFEAT LOAD/NSR27aa AUTOFILE/xxx

    where ‘aa’ is the previous load, such as AS, and ‘/xxx’ is an optional parameter, ‘xxx’ being the pathname of the feature-selection file. If the /xxx parameter is omitted, the system uses the default feature-selection file, :UUTILS:INFILE.TEXT.

    The previous load must be a directory under :LOCAL.

    Because you are using a feature-selection file, you should proceed directly to Step 16.

13. If a feature-selection file is not available, enter:

    :LOCAL:NEW_UUTILS:MASTER_NEWFEAT LOAD/NSR27aa

    where ‘aa’ is the previous load, such as AS.

    The previous load must be a directory under :LOCAL.

    After entering the command, proceed to Step 14.

14. The system starts displaying a series of prompts. These prompts allow you to select the software features you wish to add. To abort the selection process at any of these prompts, press the ESCAPE key, and resume by entering the most recent command once again.

    The system prompts for each software feature that is currently available, one feature at a time. (Features are listed in Tables 2-C and 2-D.)

    For each feature that is to be added, type **Y** on the line for that feature and press ENTER.

    For each feature that is not to be added, type **N** and press ENTER.

15. After all available features have been prompted for, the system displays a list showing the selected features, and displays the “Correct (Y/N)?” prompt.

    If the list is correct, type **Y** and press ENTER.

    If the list is incorrect, type **N** and press ENTER. The system then prompts once again for every available feature. This process continues until you answer **Y** to the “Correct (Y/N)?” prompt.

16. The installation process copies all the selected features that are on Tape 2.

    If you have selected any features that are on Tape 3, a prompt appears when the process is ready for that tape. Insert Tape 3 if the system prompts for it.

    When all the selected features have been loaded to the disk, the following message appears:

    *** MASTER_NEWFEAT COMPLETE ***

17. Remove the tape.

18. To perform the system configuration upgrade, enter:

    WORKDIR :LOCAL:NSR27aa

    and then

    :LOCAL:NEW_UUTILS:NEWFEAT_OBJ

    where “aa” is the load to which the features were added. When the process is finished, the following message appears:

    *** NEW FEATURE OBJECT CONVERSION COMPLETE ***

19. Activate the release by entering:

    :LOCAL:NSR27aa:MAKECURRENT NSR27aa

    where “aa” is the load to which the features were added. (If you used the LOAD/NSRaa parameter then you must specify the same load now. If you did not use the LOAD/NSRaa parameter, then you must specify the current load.)

20. Reboot the system to get the new object files.

5. Upgrading an Existing Feature

This section describes how to upgrade an existing feature on an existing system. This procedure can only be used to upgrade an early NSR27 version of a feature to a newer NSR27 version of that feature on an NSR27 system. This procedure cannot install new features or base software. To install new features refer to Part 4, 'Adding a New Feature'; to upgrade base software refer to 'Performing a Secure Upgrade' in Part 3.

Preliminary Steps if Upgrading the LOGGER Feature

If you intend to upgrade the LOGGER feature, which encompasses the DNC Log service and the DNC Alarm service, then you must take the following program resource units (PRUs) out of service:

- Log Subsystem
- Alarm Subsystem
- Log/Alarm Query.

Note: Multiple instances of the Log Subsystem PRU may be configured in a single system.

To remove a PRU from service, proceed as follows:

1. Sign on as a system administrator.

   The main menu appears.

2. Select System Administrative Services and press ENTER.

   The System Administrative Services Main Menu appears.

3. Select Maintenance and press ENTER.

   The system displays the Faulty Units screen.

4. On the Faulty Units screen, press <Cabinet State>**.**

   The system displays the SRU State Display screen, which lists all shared resource units (SRUs) located in the first cabinet, and gives the status of each.

5. If necessary, use the <Next Cabinet> and <Previous Cabinet> softkeys to display the screen for the cabinet containing the SRU where the PRU resides.

6. Use the arrow keys to select the SRU, and then press <Next Level>.

   The system displays the PRU state display screen, which lists the name and status of each PRU that resides on the SRU.

7. Use the arrow keys to select the PRU, and then press <Courtesy Down>.

   The PRU's state changes to unloading, and then down.

8. To exit, press the <Exit> softkeys until you arrive at the System Administrative Services Main Menu.

Feature-upgrade Procedure

Use the system administrator's terminal. (The system administrator's terminal is an M4020 terminal. It must be attached to line 1 of a LANlink SRU, which must be installed in cabinet 1, slot 3, or cabinet 1, slot 15.) Type each command exactly as it appears. Press the ENTER key after each command is completed. (When you are in the Command Interpreter, the RETURN key on the M4020 has the same function as the ENTER key. However, for brevity only the ENTER key is mentioned here.)

1. Log on to the system as the superuser.
2. Select System Administrative Services and press ENTER.

   The System Administrative Services Main Menu appears.

3. Select Utilities and press ENTER.

   The Utilities Services Main Menu appears.

4. Select Helix Command Interpreter and press ENTER.

   The system prompt appears. (It is usually '>'.)

5. Place Tape 2 in the tape drive and enter the following command:

   TRET

6. Remove the tape once it has finished moving, clean the tape drive heads, and re-insert the tape.
7. Enter the following commands:

   FLAGS PROMPT OFF

   FT

   REMOVEDIR :LOCAL:NEW_UUTILS

   COPYDIR :#TAPE:DV1TAPE2:UUTILS :LOCAL:NEW_UUTILS

8. If you want to upgrade one or more features in the most recent load, and if there is a feature-selection file listing the features, enter:

   :LOCAL:NEW_UUTILS:MASTER_REPLFEAT AUTOFILE/xxx

where '/xxx' is an optional parameter, 'xxx' being the pathname of the feature-selection file. If the /xxx parameter is omitted, the system uses the default feature-selection file, :UUTILS:INFILE.TEXT.

After entering the command, proceed to Step 14.

9. If you want to upgrade one or more features in the most recent load, but a feature-selection file is not available, enter:

   :LOCAL:NEW_UUTILS:MASTER_REPLFEAT

   After entering the command, proceed to Step 12.

10. If you installed a previous load using MASTER_UPGRADE or MASTER_NEWSYS, and if you want to upgrade one or more features in that load using the most recent tape, and if there is a feature-selection file listing the features, enter the following command on one line. (Remember to leave a space before LOAD.) The command is:

    :LOCAL:NEW_UUTILS:MASTER_REPLFEAT
    LOAD/NSR27aa AUTOFILE/xxx

    where "aa" is the previous load, such as AS, and '/xxx' is an optional parameter, 'xxx' being the pathname of the feature-selection file. If the /xxx parameter is omitted, the system uses the default feature-selection file, :UUTILS:INFILE.TEXT.

    The previous week's load must be a directory under :LOCAL.

    After entering the command, proceed to Step 14.

11. If you installed a previous load using MASTER_UPGRADE or MASTER_NEWSYS, and if you want to upgrade one or more features in that load using the most recent tape, and if a feature-selection file is not available, enter the following command on one line. (Remember to leave a space before LOAD.) The command is:

    :LOCAL:NEW_UUTILS:MASTER_REPLFEAT
    LOAD/NSR27aa

    where "aa" is the previous load, such as AS.

    The previous week's load must be a directory under :LOCAL.

    After entering the command, proceed to Step 12.

12. The system starts displaying a series of prompts. These prompts allow you to select the software features you wish to upgrade. To abort the selection process at any of these prompts, press the ESCAPE key, and resume by entering the most recent command once again.

    The system prompts for each software feature that is currently available, one feature at a time. (Features are listed in Tables 2-C and 2-D.)

For each feature that is to be upgraded, type **Y** on the line for that feature and press ENTER.

For each feature that is not to be upgraded, type **N** and press ENTER.

13. After all available features have been prompted for, the system displays a list showing the selected features, and displays the "Correct (Y/N)?" prompt.

    If the list is correct, type **Y** and press ENTER.

    If the list is incorrect, type **N** and press ENTER. The system then prompts once again for every available feature. This process continues until you answer **Y** to the "Correct (Y/N)?" prompt.

14. The upgrade process copies all the selected features that are on Tape 2.

    If you have selected any features that are on Tape 3, a prompt appears when the process is ready for that tape. Insert Tape 3 if the system prompts for it.

    When all the selected features have been loaded to the disk, the following message appears:

    *** MASTER_REPLFEAT COMPLETE ***

15. Remove the tape.

16. To perform the system configuration upgrade, enter:

    WORKDIR :LOCAL:NSR27aa

    and then

    :LOCAL:NEW_UUTILS:REPLFEAT_OBJ

    where "aa" is the load against which the upgrades were applied.

    When the process is finished, the following message appears:

    *** REPLACE FEATURE OBJECT CONVERSION COMPLETE ***

17. Activate the upgraded release by entering:

    :LOCAL:NSR27aa:MAKECURRENT NSR27aa

    where "aa" is the load against which the upgrades were applied. (If you used the LOAD/NSRaa parameter, then you must specify the same load now. If you did not use the LOAD/NSRaa parameter, then you must specify the current load.)

18. Reboot the system to get the new object files.

6. Installing a Parallel System

A parallel system is a software load that is installed on a system so that it coexists with a previously installed load. The two software loads can be of the same release or of different releases. A parallel system is sometimes useful for DVS developers, because there is more than one set of completely independent software installed on the same system.

Use the system administrator's terminal. (The system administrator's terminal is an M4020 terminal. It must be attached to line 1 of a LANlink SRU, which must be installed in cabinet 1, slot 3, or cabinet 1, slot 15.) Type each command exactly as it appears. Press the ENTER key after each command has been completed. (When you are in the Command Interpreter, the RETURN key has the same function as the ENTER key. However, for brevity only the ENTER key is mentioned here.)

1. Log on to the system as the superuser.
2. Select System Administrative Services and press ENTER.

   The System Administrative Services Main Menu appears.
3. Select Utilities and press ENTER.

   The Utilities Services Main Menu appears.
4. Select Helix Command Interpreter and press ENTER.

   The system prompt appears. (It is usually ‘>’.)
5. To determine the amount of available disk space, enter the following commands:

   FSADMIN :LOCAL F

   STATUS :LOCAL

   Repeat the STATUS command until the line labeled “last audit” shows the current time. This may take 15 minutes or more with a large disk.

6. Calculate the total amount of space required by adding the space required by each of the features to be installed (see Table 3-A).

   Note: If the "current free space" value given by the STATUS command is less than this sum, it is not possible to perform the parallel installation.

7. You must rename the previously installed software so that it will not be overwritten by the new load. To rename the existing system, enter:

   MOVEPATH :LOCAL:NSR27aa :LOCAL:xxxx

   where "aa" is the existing NSR27 load and "xxxx" is a name of your choice, such as NSRSAVE.

8. Place Tape 2 in the tape drive and enter the following command:

   TRET

9. Remove the tape once it has finished moving, clean the tape drive heads, and re-insert the tape.

10. Enter the following commands:

    FLAGS PROMPT OFF

    FT

    REMOVEDIR :LOCAL:NEW_UUTILS

    COPYDIR :#TAPE:DV1TAPE2:UUTILS :LOCAL:NEW_UUTILS

11. If a feature-selection file exists, enter the following command:

    :LOCAL:NEW_UUTILS:MASTER_NEWSYS AUTOFILE/xxx

    where "/xxx" is an optional parameter, "xxx" being the pathname of the feature-selection file. If the /xxx parameter is omitted, the system uses the default feature-selection file, :UUTILS:INFILE.TEXT.

    The system copies a few files from the tape to disk, and then reads the feature-selection file. (For information on this file, see Part 10, 'Format of the Feature-selection File'.)

    If the feature-selection file does not specify whether personal computers are configured in the system, the system assumes that personal computers are not configured (PC FALSE).

    If you are using a feature-selection file, proceed directly to Step 17.

12. If a feature-selection file is not available, start the process of manual feature selection by entering the following command:

    :LOCAL:NEW_UUTILS:MASTER_NEWSYS

    The system copies a few files from tape to disk, and starts displaying a series of prompts. These prompts allow you to select the software features you wish to install. To abort the selection process at any of these prompts, press the ESCAPE key, and resume by entering this step's command once again.

13. The system prompts for each software feature that is currently available, one feature at a time. (Features are listed in Tables 2-C and 2-D.)

    If you want to select a feature, type **Y** on the line for that feature and press ENTER. (Some features are selected automatically.)

    If you do not want a feature on your system, type **N** and press ENTER.

    There is a default setting (Y or N) for each feature. If the default setting is what you need, just press ENTER.

14. After all available features have been prompted for, the system displays a list showing the selected features, and displays the “Correct (Y/N)?” prompt.

    If the list is correct, type **Y** and press ENTER.

    If the list is incorrect, type **N** and press ENTER. The system then prompts once again for every available feature. This process continues until you answer **Y** to the “Correct (Y/N)?” prompt.

15. Once the list is correct, the system displays the “Personal Computers (Y/N)?” prompt.

    If you do not have any personal computers physically configured on your system, type **N** and press ENTER at the prompt. In this case, the Name Address Manager program resource unit (NAM PRU) is left in the DEFINED state to save memory space on the primary processor.

    (There are three other PRUs under the primary processor that are configured in the DEFINED state. They are: the Printer Queue Manager, the Spooler User Interface, and the ASCII Connection Agent. The PRUs can be made ACTIVE through SAS Configuration at a later time.)

16. If you do have personal computers physically configured on the system, type **Y** and press ENTER at the prompt. The Name Address Manager is configured in the ACTIVE state to handle the PCs.

17. The installation process copies all the selected features that are on Tape 2.

    If you have selected any features that are on Tape 3, a prompt appears when the process is ready for that tape. Insert Tape 3 if the system prompts for it.

    After copying all selected features, the process sets the system up for operation.

    When the process is finished, the following message appears:

    *** INSTALL COMPLETE ***

18. Remove the tape.

    Note: The next two steps are optional.

19. Now that the software is completely transferred to the disk, you can choose to run the File Check program. The program finds any data-transfer errors that occurred while the tape was being read. To run the File Check program, enter:

    EXEC :LOCAL:NSR27aa:INSTALL:HASHCHECK NSR27aa

    where “aa” is the load being installed, such as AK. This creates a hash file for each of the features as well as for the base software. Each hash file is stored in the directory :LOCAL:NSR27aa:INSTALL under the name of its corresponding feature. Each hash file's name ends with “.HASH”.

20. To check that the software was transferred successfully for each feature, edit each one of the hash files. At the bottom of each file is a tally of the number of files processed, the number of files with data errors, and the number of files missing. Above the tally are the names of the files that have errors or are missing.

    A defective tape, tape drive, mass storage unit, or primary processor can cause problems. If you have problems, refer to the Maintenance and Troubleshooting Guide, 450-1011-501.

21. To select the appropriate primary processor's boot volume, enter the following command on one line. (Remember to leave a space before the second occurrence of :LOCAL.) The command is:

    MAKEPATH :LOCAL:NSR27aa:xxxx
    :LOCAL:NSR27aa:SYSTEM.SYS +R -P

where “xxxx” is:	for a:
PS_SYSTEM.SYS	68010 SBC Primary Processor
PH_SYSTEM.SYS	68010 XP Primary Processor
PP20_SYSTEM.SYS	68020 XP Primary Processor

    and “aa” is the load being installed, such as AK.

22. To activate the new release, enter:

    :LOCAL:NSR27aa:MAKECURRENT NSR27aa

where “aa” is the load being installed.

23. Reboot the system.

The default configuration is engineered to support up to 90 active terminals at one time. If fewer than this number are to be supported, then the number should be changed as described in Part 9, ‘Engineering SAM Memory Requirements’. This prevents the wastage of memory on the primary processor.

7. Installing Over a Network

If an existing system is running and has Local Data Net configured, then it is possible to perform an install over the network rather than from the cartridge tapes. The DVS release TAPESET directory must exist on one of the network file servers.

You can perform the following procedures over a network:

- secure upgrades
- parallel-system installations.

Performing a Secure Upgrade

Secure upgrades are performed in two stages. The first stage installs all software and files for the new system. The second stage performs the object conversions.

Use the system administrator's terminal. (The system administrator's terminal is an M4020 terminal. It must be attached to line 1 of a LANlink SRU, which must be installed in cabinet 1, slot 3, or cabinet 1, slot 15.) Type each command exactly as it appears. Press the ENTER key (unless otherwise stated) after each command has been completed.

1. Log on to the system as the superuser.
2. Select System Administrative Services and then press ENTER.

   The System Administrative Services Main Menu appears.
3. On the System Administrative Services Main Menu, select Configuration and then press ENTER.

   The system displays the Configuration Service Main Menu.
4. To ensure that there are no outstanding configuration-service files, select Online Update and press ENTER.
5. Press the <Exit> softkeys until you arrive at the System Administative Services Main Menu.

6. Select Utilities and press ENTER.

   The Utilities Services Main Menu appears.

7. Select Helix Command Interpreter and press ENTER.

   The system prompt appears. (It is usually '>'.)

8. To ensure that all updated files have been cleaned up, enter:

   LISTDIR :LOCAL:OBJ

9. Check for the presence of the following files: ADMWRK01.OBJ, ADMWRK02.OBJ, ADMWRK03.OBJ, and ADMWRK04.OBJ.

   If the files are not present, then go on to the next step.

   If the files are present, then immediately exit from the Helix Command Interpreter, press the <Exit> softkeys until you arrive at the System Administrative Services Main Menu, return to Step 3 of this procedure, and follow the steps from that point.

10. To determine the amount of available disk space, enter the following commands:

    FSADMIN :LOCAL F

    STATUS :LOCAL

    Repeat the STATUS command until the line labeled "last audit" shows the current time. This may take 15 minutes or more with a large disk.

11. Calculate the total amount of space required by adding the space required by each of the features to be installed (see Table 3-A).

    Note: If the space required by the features is greater than the "current free space" value returned by the STATUS command in the preceding step, it may be possible to perform a secure upgrade if you implement only a minimal set of the new software's features. If there is too little space for even a minimal feature set, then a secure upgrade is impossible. In this case, you must use the procedure for loading a new system (see Part 2).

- CAUTION -

If you must use the new-system installation procedure rather than the secure-upgrade procedure, then before installing the new software release, you should make a hardcopy record of the configuration details of the previous software release. If the new software release does not operate properly, then you will want to reinstall the previous software, and you will need the configuration details.

12. Enter the following commands. (Enter each command on a single line. In the last command, remember to leave a space between UUTILS and :LOCAL.) The commands are:

    FLAGS PROMPT OFF

    REMOVEDIR :LOCAL:NEW_UUTILS

    COPYDIR xxxx:TAPESET:DV1TAPE2:UUTILS
    :LOCAL:NEW_UUTILS

    where “xxxx” is the name of the DVS/DNC release directory, such as :LBDVS:COMMON:NSR27AK.

13. If a feature-selection file exists, enter the following command:

    :LOCAL:NEW_UUTILS:NET_UPGRADE xxxxxx AUTOFILE/xxx

    where “xxxxxx” is the name of the release directory, such as :LBDVS:COMMON:NSR27AK, and “/xxx” is an optional parameter, “xxx” being the pathname of the feature-selection file. If the /xxx parameter is omitted, the system uses the default feature-selection file, :UUTILS:INFILE.TEXT.

    The system copies a few files, and then reads the feature-selection file. (For information on this file, see Part 10, ‘Format of the Feature-selection File’.)

    Note 1: Base software is loaded even if it is not listed in the feature-selection file.

    Note 2: If the feature-selection file does not specify the primary processor type, the system prompts for the information. If this occurs, proceed to Step 17. Otherwise, proceed to Step 18.

14. If a feature-selection file is not available, start the load of the release software, by entering:

    :LOCAL:NEW_UUTILS:NET_UPGRADE xxxx

    where “xxxx” is the name of the DVS release TAPESET directory, for example :LBDVS:COMMON:NSR27AK:TAPESET.

15. The system starts displaying a series of prompts. These prompts allow you to select the software features you wish to install. To abort the selection process at any of these prompts, press the ESCAPE key, and resume by entering this step's command once again.

    The system prompts for each software feature that is currently available, one feature at a time. (Features are listed in Tables 2-C and 2-D.)

    If you want to select a feature, type **Y** on the line for that feature and press ENTER. (Some features are selected automatically.)

    If you do not want a feature on your system, type **N** and press ENTER.

There is a default setting (Y or N) for each feature. If the default setting is what you need, just press ENTER.

16. After all available features have been prompted for, the system displays a list showing the selected features, and displays the “Correct (Y/N)?” prompt.

    If the list is correct, type **Y** and press ENTER.

    If the list is incorrect, type **N** and press ENTER. The system then prompts once again for every available feature. This process continues until you answer **Y** to the “Correct (Y/N)?” prompt.

17. A prompt appears asking you to indicate the type of primary processor in the system. Enter the single numeric code corresponding to the type of primary processor. The codes and valid types are:

Code:	Type of Primary Processor
2	68010 SBC
3	68020 XP
4	68010 XP

18. From this point on, the installation process copies all the selected features and sets the system up for operation.

    When the process is finished, the following message appears:

    *** NET_UPGRADE COMPLETE ***

    Note: The next two steps are optional.

19. Now that the software is completely transferred to the disk, you can choose to run the File Check program. The program finds any data-transfer errors that occurred while the files were being copied. To run the File Check program, enter:

    EXEC :LOCAL:NSR27aa:INSTALL:HASHCHECK NSR27aa

    where “aa” is the load being installed, such as AK. This creates a hash file for each of the features as well as for the base software. Each hash file is stored in the directory :LOCAL:NSR27aa:INSTALL under the name of its corresponding feature. Each hash file's name ends with “.HASH”.

20. To check that the software was transferred successfully for each feature, edit each one of the hash files. At the bottom of each file is a tally of the number of files processed, the number of files with data errors, and the number of files missing. Above the tally are the names of the files that have errors or are missing.

    A defective tape, tape drive, mass storage unit, or primary processor can cause problems. If you have problems, refer to the Maintenance and Troubleshooting Guide, 450-1011-501.

21. To perform the system configuration upgrade, enter the following commands:

WORKDIR :LOCAL:NSR27aa

:LOCAL:NEW_UUTILS:OBJ_UPGRADE

where “aa” is the load being installed, such as AK.

When the process is finished, the following message appears:

*** OBJECT CONVERSION COMPLETE ***

22. To select the appropriate primary processor's boot volume, enter the following command on a single line. (Remember to leave a space before the second occurrence of :LOCAL.) The command is:

    MAKEPATH :LOCAL:NSR27aa:xxxx
    :LOCAL:NSR27aa:SYSTEM.SYS +R -P

where “xxxx” is:	for a:
PS_SYSTEM.SYS	68010 SBC Primary Processor
PH_SYSTEM.SYS	68010 XP Primary Processor
PP20_SYSTEM.SYS	68020 XP Primary Processor

    and “aa” is the load being installed, such as AK.

23. To activate the new release, enter:

    :LOCAL:NSR27aa:MAKECURRENT NSR27aa

    where “aa” is the load being installed.

24. If you are upgrading from a 2.06 DVS release, you get a “Bad filetype,” error message. In this case only, enter the following command. (Enter it on a single line and remember to leave a space before the second and third occurrences of :LOCAL.) The command is:

    :LOCAL:nnnn:XUTILS:WRBT
    :LOCAL:INSTALL_UTILS:IPL.CODE
    :LOCAL:SYSTEM.SYS

    where “nnnn” is the release number of the current system, such as 020605.

25. When the prompt reappears (after 1 or 2 minutes), reboot the system.

    The upgrade is now complete.

Performing a Parallel-system Installation

A parallel system is installed as outlined in Part 6, except that the software comes from an existing system via a network, rather than from cartridge tapes.

For the following procedure, use the system administrator's terminal. (The system administrator's terminal is an M4020 terminal. It must be attached to line 1 of a LANlink SRU, which must be installed in cabinet 1, slot 3, or cabinet 1, slot 15.) Type each command exactly as it appears. Press the ENTER key after each command has been completed. (When you are in the Command Interpreter, the

RETURN key on the M4020 has the same function as the ENTER key. However, for brevity only the ENTER key is mentioned here.)

1. Log on to the system as the superuser.
2. Select System Administrative Services and press ENTER.

   The System Administrative Services Main Menu appears.
3. Select Utilities and press ENTER.

   The Utilities Services Main Menu appears.
4. Select Helix Command Interpreter and press ENTER.

   The system prompt appears. (It is usually '>'.)
5. To determine the amount of available disk space, enter the following commands:

   FSADMIN :LOCAL F

   STATUS :LOCAL

   Repeat the STATUS command until the line labeled "last audit" shows the current time. This may take 15 minutes or more with a large disk.

6. Calculate the total amount of space required by adding the space required by each of the features to be installed (see Table 3-A).

   Note: If the "current free space" value given by the STATUS command is less than this sum, then it is not possible to perform the parallel installation.

7. You must rename the previously installed software so that it will not be overwritten by the new load. To rename the existing system, enter:

   MOVEPATH :LOCAL:NSR27aa :LOCAL:xxxx

   where "aa" is the existing NSR27 load and "xxxx" is a name of your choice, such as NSR99AA or NSRSAVE.

8. Enter the following commands:

   FLAGS PROMPT OFF

   REMOVEDIR :LOCAL:NEW_UUTILS

   COPYDIR xxxx:TAPESET:DV1TAPE2:UUTILS :LOCAL:NEW_UUTILS

   where "xxxx" is the name of the DVS release directory, such as :LBDVS:COMMON:NSR27AK.

9. If a feature-selection file exists, enter the following command:

   :LOCAL:NEW_UUTILS:NET_NEWSYS xxxxxx AUTOFILE/xxx

   where "xxxxxx" is the name of the DVS release TAPESET directory, (such as :LBDVS:COMMON:NSR27AK:TAPESET), and "/xxx" is an optional parameter, "xxx" being the pathname of the feature-selection file. If the /xxx parameter is omitted, the system uses the default feature-selection file, :UUTILS:INFILE.TEXT.

   The system copies a few files, and then reads the feature-selection file. (For information on this file, see Part 10, 'Format of the Feature-selection File'.)

   Note: If the feature-selection file does not specify whether personal computers are configured in the system, the system assumes that personal computers are not configured (PC FALSE).

   If you are using a feature-selection file, proceed directly to Step 15.

10. If a feature-selection file is not available, start the process of manual feature selection by entering the following command:

    :LOCAL:NEW_UUTILS:NET_NEWSYS xxx

    where “xxx” is the name of the DVS release TAPESET directory, (such as :LBDVS:COMMON:NSR27AK:TAPESET).

    The system copies a few files, and starts displaying a series of prompts. These prompts allow you to select the software features you wish to install. To abort the selection process at any of these prompts, press the ESCAPE key, and resume by entering this step's command once again.

11. The system prompts for each software feature that is currently available, one feature at a time. (Features are listed in Tables 2-C and 2-D.)

    If you want to select a feature, type **Y** on the line for that feature and press ENTER. (Some features are selected automatically.)

    If you do not want a feature on your system, type **N** and press ENTER.

    There is a default setting (Y or N) for each feature. If the default setting is what you need, just press ENTER.

12. After all available features have been prompted for, the system displays a list showing the selected features, and displays the “Correct (Y/N)?” prompt.

    If the list is correct, type **Y** and press ENTER.

    If the list is incorrect, type **N** and press ENTER. The system then prompts once again for every available feature. This process continues until you answer **Y** to the “Correct (Y/N)?” prompt.

13. Once the list is correct, the system displays the “Personal Computers (Y/N)?” prompt.

    If you do not have any personal computers physically configured on your system, type **N** and press ENTER at the prompt. In this case, the Name Address Manager program resource unit (NAM PRU) is left in the DEFINED state to save memory space on the primary processor.

    (There are three other PRUs under the primary processor that are configured in the DEFINED state. They are: the Printer Queue Manager, the Spooler User Interface, and the ASCII Connection Agent. The PRUs can be made ACTIVE through SAS Configuration at a later time.)

14. If you do have personal computers physically configured on your system, type **Y** and press ENTER at the prompt. The Name Address Manager is configured in the ACTIVE state to handle the PCs.

15. From this point on, the installation process copies all the selected features and sets the system up for operation. When the system is ready (about 1 hour later), the following message appears:

    *** INSTALL COMPLETE ***

    Note: The next two steps are optional.

16. Now that the software is completely transferred to the disk, you can choose to run the File Check program. The program finds any data-transfer errors that occurred while the files were being copied. To run the File Check program, enter:

    EXEC :LOCAL:NSR27aa:INSTALL:HASHCHECK NSR27aa

    where “aa” is the load being installed, such as AK. This creates a hash file for each of the features as well as for the base software. Each hash file is stored in the directory :LOCAL:NSR27aa:INSTALL under the name of its corresponding feature. Each hash file's name ends with “.HASH”.

17. To check that the software was transferred successfully for each feature, edit each one of the hash files. At the bottom of each file is a tally of the number of files processed, the number of files with data errors, and the number of files missing. Above the tally are the names of the files that have errors or are missing.

    A defective tape, tape drive, mass storage unit, or primary processor can cause problems. If you have problems, refer to the Maintenance and Troubleshooting Guide, 450-1011-501.

18. To select the appropriate primary processor's boot volume, enter the following command on one line. (Remember to leave a space before the second occurrence of :LOCAL.) The command is:

    MAKEPATH :LOCAL:NSR27aa:xxxx
    :LOCAL:NSR27aa:SYSTEM.SYS +R -P

where “xxxx” is:	for a:
PS_SYSTEM.SYS	68010 SBC Primary Processor
PH_SYSTEM.SYS	68010 XP Primary Processor
PP20_SYSTEM.SYS	68020 XP Primary Processor

    and “aa” is the load being installed, such as AK.

19. To activate the new software, enter:

    :LOCAL:NSR27aa:MAKECURRENT NSR27aa

    where “aa” is the load being installed, such as AK.

20. Reboot the system.

8. Reverting to a Previous Release

The following procedures, Recovery Methods A and B, explain how to revert to a previous release. Use Recovery Method A to revert to a previous release when the new release boots but fails to operate properly. Use Recovery Method B if the new release does not boot, or if it is impossible to access SAS Utilities Services.

> ***Note 1:*** Recovery action is unnecessary if the upgrade fails before the new system is activated.
>
> ***Note 2:*** If you are using shadow disks with NSR27, then you cannot use these recovery methods to revert to any release based on DVS release 3.00 or earlier. Shadow disks are supported only with NSR27.***The Business Network Management (BNM) application does not support the shadow disk capability in NSR27.***

Recovery Method A

Use this recovery method if the new release boots but fails to operate properly.

> ***Note:*** Use the system administrator's terminal. (The system administrator's terminal is an M4020 terminal. It must be attached to line 1 of a LANlink SRU, which must be installed in cabinet 1, slot 3, or cabinet 1, slot 15.)

1. Log on to the system as the superuser.
2. Select System Administrative Services and press ENTER.

   The System Administrative Services Main Menu appears.
3. Select Utilities and press ENTER.

   The Utilities Services Main Menu appears.
4. Select Helix Command Interpreter and press ENTER.

   The system prompt appears. (It is usually ‘>’.)

5. Type in the following command and press ENTER. The command is:

   :LOCAL:nnnn:MAKECURRENT nnnn

   where “nnnn” is the release number of the previous system, such as release number 020605.

6. When the prompt appears, reboot the system.

Recovery Method B

Use this recovery method if the new release does not boot, or if it is impossible to enter SAS Utilities Services.

> ***Note:*** Use the ASCII or Cybernex terminal attached to the lower RS-232-C port on the rear of the primary processor. Type each command exactly as it appears, and press the RETURN key after each command.

1. Insert the install tape in the tape drive. Use Tape 1A if the system has a 68010-based primary processor; use Tape 1B if the system has a 68020-based primary processor.
2. Reboot the system.
3. When the **INSTALL =>** prompt appears, enter the following commands:

   FORK FS

   LOGIN

4. When prompted for a login name, type the digit 0 and press RETURN.
5. When prompted for a login password, type the digit 0 and press RETURN.
6. Then enter the following commands:

   WORKDIR :LOCAL

   SEARCH :LOCAL:UUTILS :LOCAL:XUTILS *

   FLAGS PROMPT OFF

   :LOCAL:nnnn:MAKECURRENT nnnn

   where “nnnn” is the release number of the previous system, such as release number 020605.

7. When the INSTALL=> prompt appears, remove the tape and reboot the system.

Deleting Files Loaded in a Failed Upgrade Attempt

When you have reverted to a previous system after a failed upgrade attempt, you should delete any files that were loaded in the upgrade process. You should delete the files before you attempt the upgrade again. To delete the files, follow these steps:

> ***Note:*** Use the system administrator's terminal. (The system administrator's terminal is an M4020 terminal. It must be attached to line 1 of a LANlink SRU, which must be installed in cabinet 1, slot 3, or cabinet 1, slot 15.)

1. Log on to the system as the superuser.
2. Select System Administrative Services and press ENTER.

   The System Administrative Services Main Menu appears.
3. Select Utilities and press ENTER.

   The Utilities Services Main Menu appears.
4. Select Helix Command Interpreter and press ENTER.

   The system prompt appears. (It is usually ‘>’.)
5. Type in the following command and press ENTER. The command is:

   REMOVEDIR :LOCAL:NSR27aa -P

   where “aa” is the load being installed, such as AK.

9. Engineering SAM Memory Requirements

The Screen Activities Manager (SAM) is a program resource unit (PRU) that runs on the primary processor. The SAM PRU consumes memory based on the total number of terminals (M4020s, PCs, ASCIIs, and so on) that can be active at any one time. As a result, this number should be set to an appropriate value in order to avoid memory wastage within the primary processor.

Use the system administrator's terminal for this procedure. (The system administrator's terminal is an M4020 terminal. It must be attached to line 1 of a LANlink SRU, which must be installed in cabinet 1, slot 3, or cabinet 1, slot 15.) Type each command exactly as it appears.

To specify the number of terminals, take the following steps:

1. Log on to the system as the superuser.
2. Select System Administrative Services and press ENTER.

   The System Administrative Services Main Menu appears.
3. Select Configuration Services and press ENTER.

   The Configuration Service Main Menu appears.
4. Select Online Update and press ENTER.

   The Configuration Services Main Menu appears.
5. Select Object Editor and press ENTER.
6. Enter the object name

   SAMROOT

   and press ENTER.

7. Press the <Switch Modes> softkey.

   The four digits just to the right of the heading “20” are a hexadecimal number representing the number of active terminals that are supported. On a newly installed system, this number is 005A (that is, 90). Change this number to the actual number for the system, plus whatever is required for new terminals that may be added in the future. The number must be specified in hexadecimal. The valid range is hexadecimal 0001 to 0190 (that is, 1 to 400 terminals).

   The system's security profile controls the maximum number of terminals allowed (maximum and default value, 400) and the maximum number of active users that can be logged on at one time (maximum and default, 100). See ‘Controlling System Access: the Security Profile’, Part 10 in the Guide to System Administrative Services, 450-1011-301.

8. Press the <Save and Exit> softkey.
9. Press the <Exit> softkeys until you arrive at the main menu.
10. Reboot the system.

10. Format of the Feature-selection File

A feature-selection file is an optional way of simplifying many of the procedures covered in this document. If a feature-selection file exists, then you can direct the system to read that file to obtain the list of features to be involved in the current operation. The feature-selection file spares you from having to do manual feature selection, in which you select or reject available features by responding to a series of prompts.

To direct the system to read a feature-selection file, add the AUTOFILE keyword to the command for the operation, as in

```
MASTER_NEWSYS   AUTOFILE
```

When used without a qualifying pathname, the AUTOFILE keyword directs the system to use the default feature-selection file (:UUTILS:INFILE.TEXT).

Uses of the Feature-selection File

A feature-selection file can list features to be selected for installation with a new system, or it can list features that are to be used in a feature-upgrade operation, or it can list features that are to be added.

Default File for System Installation

Depending on the application that your system is to run, a default feature-selection file (INFILE.TEXT) for system installation may be included on the software tapes you receive.

User-specified Files

A user can create feature-selection files to serve his or her needs. To direct the system to use a feature-selection file other than the default (INFILE.TEXT), the user must append a slash and the appropriate pathname to the AUTOFILE keyword, as in

```
AUTOFILE/:LOCAL:UUTILS:IN1234.TEXT
```

The feature-selection file specifies the following information:

- the primary processor type (optional)
- whether the system has personal computers configured (optional)
- the features to be selected.

It is not mandatory to specify the primary processor type in a feature-selection file. If the information is included, it should be on the first line of the file. The line is composed of the keyword PPTYPE and a numeric code indicating the primary processor type. The valid codes and types are:

Code:	Type of Primary Processor
2	68010 SBC
3	68020 XP
4	68010 XP

It is not mandatory to specify whether the system has personal computers configured. If the information is included in the feature-selection file, it should be on the line preceding the first feature. The line states PC TRUE or PC FALSE.

When listing the features to be selected, use one line for each feature. To specify a feature, list its name as shown in Table 3-A.

If you specify the RDV3274 feature, then you have the option of specifying the HAG size. If you are planning to use any communications software on the system, you need a HAG size of 0. The default size is 0, so you can just omit the parameter. (With a HAG size of 0, space is allocated as required.) If you specify the HAG size, it must be on the same line as RDV3274, separated from the feature name by a space.

Here is an example of the feature-selection file:

```
PPTYPE 2
PC FALSE
RXSRU
RDV3274   8
RDVX25
LOGGER
SCHEDULER
MCI_STAM
```

450-1011-302
NSR27
02
Standard
May 12, 1989
Canada