

Release Notice:
Legato NetWorker for AViiON®
Computers
NetWorker 3.0 Release 1.0

Part number 085-600355-00

This release notice applies to the following models:

P001A
Q001A
Q017A

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085-600355-00

March 1993

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1 Introduction

This release notice describes NetWorker 3.0 Release 1.0 for Data General's family of AViiON® computers. It includes information or corrections that developed after the manuals were printed.

An online version of this release notice, suitable for lineprinters, is in the file `/usr/opt/networker/release/networker_1.0.rn`. Should you find discrepancies between the typeset and online versions, the typeset version takes precedence.

2 Product Description

NetWorker is a backup application for networked computers. Developed by Legato Systems, Inc., NetWorker is based on the Client/Server computing model. With this product, the system administrator of a designated server can back up its own disks to local tape drives, and also the disks of its designated clients. The features of NetWorker include:

- **Scheduling.** Once the backup manager specifies the file systems and clients to be backed up, the tape drives to use, the backup levels, and backup intervals, NetWorker backs up a network of computer systems with minimal operator intervention.
- **Restoration from backup.** NetWorker maintains online indexes of all the files it backs up. A client user can browse through these indexes and select files to be restored, with minimal operator intervention.
- **Support for on-demand backups and overrides.** Client users, as well as the backup operator, can initiate on-demand backups. The backup operator can easily override a schedule without changing it permanently.
- **Security.** By default, a client user can request an on-demand backup only for a local file system, and can browse through and restore only files that were backed up from a local file system. But the backup administrator may extend access to include file systems located on other clients.

By default, only the superuser on the backup server can change the backup configuration or access backed-up files. But the backup administrator, acting as superuser, can designate a subordinate backup operator to maintain the backup without giving the operator superuser access.

- **Parallelism.** NetWorker can back up an operator-specified number of file systems (up to 10) in parallel. The file systems may be located on the same or different clients. Parallelism can reduce the time required to complete a backup.
- **Concurrency.** NetWorker can write to up to four tape drives simultaneously. Used in combination with parallelism, concurrency can greatly reduce the time required to complete a backup.
- **Software compression.** Optionally, the operator can direct NetWorker to compress files prior to writing them to tape. Upon restoration, compressed files are uncompressed. Compression may reduce by up to fifty percent the tape space required for a backup.

- **File bypass.** Optionally, the operator can direct NetWorker to skip files that do not need to be backed up (for example, files ending with suffixes .o or .backup). Such directives can further reduce the number of tapes required to back up a disk.
- **Flexible volume control.** NetWorker maintains multiple versions of backup files, based on the operator's specifications.
- **Flexible server support.** A client can be supported by more than one backup server, and may choose between them. Also, a client and a server may be the same host. When this is the case, NetWorker backs up local disks to local tape drives.
- **Device support.** NetWorker works with all AViiON-supported tape drives, including the new Model 7921 CLARiiON™ tape array.

3 Environment

NetWorker 3.0 Release 1.0 requires DG/UX 5.4 Release 2.01 or later. It runs on any AViiON model. A NetWorker client must include one or more disks. A NetWorker server must include one or more backup devices.

NetWorker is available for AViiON systems in a single-client or in multi-client versions. The single-client version is included on the DG/UX 5.4 Release 2.01 tape or CD-ROM. The multi-client versions, available from Data General at additional cost, require an installed network.

Two user interfaces are available: a graphics interface based on the X Window System and Motif, and a curses-based ASCII terminal interface. The graphics interface program requires an AViiON workstation or X terminal, and the version of DG/UX 5.4 Release 2.01 (model Q001A) that includes the X Window System software.

4 Enhancements and Changes

NetWorker 3.0 Release 1.0 is the initial release of NetWorker for AViiON systems. See the user documentation and manual pages for a complete description of features.

5 Notes and Warnings

5.1 NetWorker and dump2/restore

In previous DG/UX releases, backup on AViiON systems was provided by the **dump2** and **restore** programs. DG/UX 5.4 Release 2.01 offers NetWorker as an alternative, superior backup system (see the list of features at the beginning of this release notice). But you can continue to use **dump2** and **restore** if you prefer. They are still present in DG/UX.

The File System->Backup options of **sysadm** assume you plan to continue using **dump2** and **restore** for backups. These operations have no effect on NetWorker. If you plan to start using NetWorker for backup, follow the procedures documented in the NetWorker manuals and de-

scribed below.

5.2 Using the Single-Client Version of NetWorker

The DG/UX 5.4 Release 2.01 tape or CD-ROM includes a version of NetWorker that works with a single client (the server as a client of itself). This version allows you to back up local disks to local tape drives. You get this version at no extra cost with the DG/UX operating system license. The NetWorker package loads by default when you install DG/UX 5.4 Release 2.01, but you can choose not to load it. If you do exclude it, you can load and install it at a later time from your release tape or CD-ROM, using the **sysadm** `Software->Package->Install` selection: see the "Installation" section of this release notice.

Available from Data General at additional cost are multi-client versions of NetWorker. Multi-client versions allow a server to back up the disks of its clients over the network, to the server's tape drives. They also allow client users to restore backed-up files from, and perform on-demand backups to, the server's tape drives. See your Data General representative for more information about obtaining the multi-client versions of NetWorker.

The same NetWorker manuals document the single-client and multi-client versions. When using the manuals with the single-client version, note the following points:

- References to "network-wide backups" do not apply.
- References to more than one client do not apply.

Note, however, that you can create multiple instances of a single client. For example, for a NetWorker server named *foo*, you can add several clients named *foo*. "Scheduling Filesystems" in Chapter 3 of the Administrator's Guide explains how to do this and why you might want to.

5.3 Using NetWorker from Diskless Workstations

Diskless workstations use dedicated areas of disks belonging to their server. The correct way to back up a diskless workstation's disk area is to back up the server. Do not attempt to install NetWorker on a diskless workstation.

You can use the NetWorker client software from a diskless workstation in order to request on-demand backups or recover files provided: (1) NetWorker is installed on the workstation's server (or the workstation's server is set up as a NetWorker client) and (2) the workstation has login privileges on the server. Here's how:

1. Allow the workstation's server to use the workstation's display. From a terminal window on the workstation, type this command:

```
xhost server
```

where *server* is the workstation server's hostname.

2. Open a terminal session on the server. For example, type:

```
rlogin server
```

and log in.

3. From this terminal window on the server, start NetWorker with this command:

```
networker -display wrks:0 &
```

where *wrks* is the workstation's hostname. If the NetWorker server is different from the workstation's server (that is, if the workstation's server is a NetWorker client), type this command:

```
networker -display wrks:0 -s networker-server &
```

where *networker-server* is the NetWorker server's hostname.

You can automate this procedure by editing your `.login` and `.mwmrc` files.

5.4 Using NetWorker from Terminals

The NetWorker manuals document the graphical user interface for NetWorker, which requires a workstation or X terminal. If you plan to use NetWorker from an ASCII terminal, consult the NetWorker manual pages.

The appendices of *Legato NetWorker Administrator's Guide* provide useful descriptions of the administrative commands. Appendix C tells you how to print the NetWorker manual pages in alphabetical order. Appendix B of *Legato NetWorker User's Guide* lists the commands for requesting backups and recoveries from a terminal.

Make sure the TERM environment variable is correctly set for the terminal you use. The **nsradmin**(8) and **nsrwatch**(8) commands will not work properly if TERM is set incorrectly. *Customizing the DG/UX System* (093-701101-03) discusses terminal setup.

5.5 Using NetWorker in Heterogeneous Networks

With a multi-client version of NetWorker, you can back up non-AViiON clients to the AViiON server, provided NetWorker is installed on those clients. For example, you can back up Sun, HP/UX, RS6000, DEC, MIPS, and MS-DOS clients to an AViiON backup server. However, to do so, you must obtain an appropriate version of the NetWorker software for those clients, from Data General or from Legato Systems, Inc. You *cannot* back up a non-AViiON client with the AViiON version of the NetWorker client software that accompanies this release notice.

5.6 Disk Space for NetWorker Index Files

The NetWorker index files may consume a large amount of disk space. The section "Disk Layout and Space Requirements" tells how to estimate the space requirements.

If you run out of index space during a backup, you'll have to do the following on each NetWorker server:

- Shut down networker (exit **networker** and, as superuser, type **nsr_shutdown**).
- Force the system log demon, **syslogd**, to close its log files in the index directory: edit file `/etc/syslog.conf` to comment out the NetWorker-added lines, then send the **syslogd** process a hang-up (hup) signal. See **syslog.conf(5)**, **syslogd(1M)**, and **kill(1)**.
- Expand the index file system (use **sysadm** to unmount, expand, and mount the file system.)
- Force **syslogd** to start logging files in the expanded file system (remove the comment characters from the NetWorker lines in `/etc/syslog.conf` and send **syslogd** a hang-up signal).
- Restart the networker demons (type **nsrd**).
- Restart NetWorker (type **networker&**).
- Re-run the backup

5.7 Using NetWorker with the CLARiiON Tape Array

Before NetWorker can use a tape volume, you must label the volume using the `Operation->Label` or `Operation->Label and Mount` selection in the graphical interface or the **mm** command in the terminal interface. NetWorker writes the label you supply on the tape and records it in the online indexes; you should affix an adhesive label to the tape. Labels allow NetWorker to prompt for the tape it needs to fulfill a restoration request.

With the CLARiiON tape array, a single NetWorker label applies to all tapes in the array. When labeling a CLARiiON tape array volume, affix the adhesive volume label to each separate tape, and keep the tapes together in a group. A prompt from NetWorker to insert or remove a CLARiiON tape array volume means you should insert or remove the complete group. The tapes in the group may be inserted in any array slot and in any order.

5.8 Inspecting NetWorker Syslog Entries

When you install NetWorker, several entries are added to the server's `/etc/syslog.conf` file, specifying where NetWorker messages and logging information are sent. We recommend that you inspect these entries, which appear between two comment lines identifying NetWorker as their source. You can change the specifications if they are not appropriate at your site.

5.9 Starting and Stopping NetWorker Demons

NetWorker demons run on NetWorker servers only. Do not start them on NetWorker clients.

By default, the NetWorker demons start whenever the NetWorker server enters run level 3 (init 3). To change this behavior, edit the file `/etc/networker.params` and change the variable `networker_START` to `false`.

If you disable the default behavior, you'll need to start the demons manually on NetWorker servers from run level 3. To do so, become superuser and type:

```
# nsrd
```

To stop the NetWorker demons, type:

```
# nsr_shutdown
```

If you set a system up as a NetWorker server and later decide to set it up as a NetWorker client, stop the demons and change `/etc/networker.params` as indicated above.

5.10 Changing the Destination of Bootstrap Information

Bootstrap information allows NetWorker backup volumes to be used for recovery should a disaster befall the computer system. As each savegroup of a backup completes, NetWorker sends the saveset bootstrap information to the default printer. This allows you to store the information with the tape volumes to which the information applies.

You can change the destination of bootstrap information to a different printer. To do so, you use the `nsradmin` program. Follow the instructions in the Administrator's Guide, Appendix D, section "Cannot Print Bootstrap Information." For detailed information about using this program, see its man page (type `man nsradmin`).

If the destination printer for bootstrap information is unavailable, the information is included in the savegroup completion notification message.

5.11 Known Problems

5.11.1 Selecting Files for Backup and Recovery

Chapter 3 of the User's Guide explains how to use `Operation->Backup->View` to request on-demand backups, and `Operation->Recover->View` to recover backed-up files. The section "Expanding a Branch" explains that the `Expand Branch` option lets you view all levels of subdirectories in a directory. Do not choose `Expand Branch` in directories that contain many or large subdirectories. Instead, choose `Expand One Level` to traverse subdirectories individually until you reach the one containing the files you want to back up or recover.

NetWorker has difficulty expanding large and complex directory structures, and may hang. If a hang occurs, you must kill and restart **networker**. Such hangs do not affect the NetWorker demons.

5.11.2 Recovering Duplicate Files

During recovery operations with the Motif interface, you are asked whether you wish to be prompted in the event a file to be recovered already exists on disk. Select No. You are then asked to specify what action should be taken in this situation: overwrite the disk file, rename it, or skip (do not recover) the file. For instructions, see the User's Guide, Chapter 2, page 39.

The default action is to prompt the requester for a resolution (overwrite, rename, skip) should a filename conflict occur. But accepting the default (selecting Yes) causes the recovery process to hang on the first duplicate file. If a hang occurs, close the recovery window and perform the recovery operation again as indicated in the previous paragraph.

5.11.3 Specifying Dates with NetWorker Commands

In the command line interface of NetWorker, many commands require you to specify a date in the **getdate(3)** format. The **getdate(3)** format for relative time is a number followed immediately by a unit: no spaces are allowed between the number and the unit keyword. For example, in order to set the expiration date of a tape to 30 days from the current day, use **mm(8)** as follows:

```
# mm -lv -f /dev/rmt/0n -e 30days mars.089
```

5.11.4 Mounting and Labeling Tapes

Both the graphical and command line interfaces allow you to label a backup volume and mount it in one operation. From the NetWorker Main window, you select **Operation->Label and Mount**. From the shell interface, you execute **mm** with both the **-m** and **-l** options as in:

```
# mm -m -l -f /dev/rmt/1n upstairs.003
```

Upon completion, this action sends a message indicating that the tape is labeled but not mounted. Ignore the message. The tape, in fact, is both labeled and mounted.

5.11.5 Sharing Tape Drives with NetWorker

Do not access (read, write, or rewind) a mounted NetWorker drive with another utility (for example, with **cpio**). Doing so will interrupt the backup and recovery process, and could destroy the contents of a NetWorker volume.

Before using a tape drive that NetWorker uses, first make sure that NetWorker is not using the drive. If NetWorker has the drive mounted, unmount it and remove the NetWorker tape volume. Note that you cannot unmount a drive or remove a tape while a NetWorker backup or recovery op-

eration is in progress.

5.11.6 Entering Numerical Values

In the graphical user interface, some numerical input fields will not accept numbers that you type directly into them from the keyboard. Instead, you must use the provided mouse interface. For example, select `Administration->Policies` from the NetWorker Main window and look at the `Number of periods` field. To increase or decrease the number displayed, click the up-arrow or down-arrow to the right of the field, respectively, then click `Apply` at the bottom of the Policies window. If you click the field and type the desired number from the keyboard, the field is not updated. Instead, your entry is ignored.

5.11.7 Recovering Control Point Directories

This release does not properly support Control Point Directories (CPDs). NetWorker can back up CPDs, but recovers them as normal directories.

6 Documentation

The graphical user interface provided by the `networker` program is documented in these manuals:

Legato NetWorker Administrator's Guide (069-100495-00)

Legato NetWorker User's Guide (069-100496-00)

See also the online Help information. Chapter 2 of the Administrator's Guide explains how to use the pull-down Help menu.

For the curses-based shell interface, see Appendix A of the Administrator's Guide.

For detailed reference information, see the online manual pages. See appendices A and C of the Administrator's Guide for useful summaries of the shell commands and manual pages. To print the complete set of manual pages, type this command after loading NetWorker:

```
pccat /usr/catman/networker/man?/*.z | lp -dprinter
```

where `printer` is the name of an ASCII-capable printer.

7 Software Distribution

7.1 Media

Legato NetWorker for one client is part of the general DG/UX operating system release package. See the DG/UX 5.4 Release 2.01 notice for exact media details of single-client NetWorker.

Multi-client NetWorker, model Q017A, is released on:

- QIC-150 cartridge tape, part number 079-600309-00
- CD-ROM, part number 068-600038-00

7.2 Files

These online files in `/usr/opt/networker/release` list the contents of NetWorker 3.0 Release 1.0:

```
networker.man_1.0.fl
networker_1.0.fl
```

8 Installation Instructions

Single-client NetWorker is optionally loadable at the time you install DG/UX 5.4 Release 2.01. To load and install NetWorker at this time, accept the default value (all) when asked for the packages to load. Should you choose not to install NetWorker at the time of DG/UX installation, you can load and install it at a later time from the DG/UX release tape or CD-ROM, using the **sysadm Software->Package->Install** option. Multi-client NetWorker is a separate product. You load and install it from its release tape or CD-ROM, again using the **sysadm Software->Package->Install** option. Installation of both single-client and multi-client NetWorker are described below.

8.1 Avoiding Problems with Program Names

A program called **mm** used to be available with DG/UX. If you still use this program, you'll have to rename or relocate it before you can install NetWorker. The general problem and solution are described below.

During NetWorker installation, a script creates symbolic links in directory `/usr/bin` pointing to the NetWorker executables (in `/usr/opt/networker/bin` by default). Should the directory `/usr/bin` already contain any files of these names, listed below, NetWorker installation will fail:

compressasm	logasm	mailasm	mbackup	mm
mminfo	mmlocate	mrecover	networker	nsr.help
nsr_shutdown	nsradmin	nsrcreat	nsrck	nsrim
nsrindexasm	nsrls	nsrmdbasm	nsrwatch	nullasm
rap	rapcheck	rapxfer	recover	recoverindex
save	savefs	savegroup	saveindex	scanner
tapeexercise	uasm	xlateasm	xrap	

Similarly, if you copy into `/usr/bin` any files having these names, after loading NetWorker, the NetWorker symbolic link may be overwritten without notice. In both cases, NetWorker will fail.

If a failure occurs during NetWorker installation, you'll see an error message such as the follow-

ing:

```
Creating symbolic links..
UX:ln:ERROR: Cannot create /srv/release/PRIMARY/usr/bin/mm: File exists
```

You can prevent this problem, prior to beginning NetWorker installation, by renaming any file of the same name in `/usr/bin`. You can remedy the problem, after NetWorker installation, by renaming any duplicate file and creating the required symbolic link. For example, here's how you could remedy the problem indicated by the error message shown above:

```
# cd /usr/bin
# mv mm mm_orig
# ln -s ../opt/networker/bin/mm mm
```

8.2 Disk Layout and Space Requirements

NetWorker requires a minimum of 40,000 blocks of disk space. Do not attempt to install NetWorker on disk unless you have at least this much free disk space. (As noted below, you can install NetWorker on a client by mounting the software from the NetWorker server instead of loading the software onto the client's disk.)

In addition, on the NetWorker server, you need disk space for NetWorker's online indexes. How much you need depends on a number of factors, including:

- The number of files you back up and their combined size
- The browse policy: how long you keep online the indexes for each backup
- The number of full backups performed during the browse policy period
- The number and average size of incremental backups performed during the browse policy period

NetWorker requires approximately 1 block of online index space for every two files it backs up. Different versions of backed-up files count as separate files. For example, if two given files are backed up on a monthly full backup and also on each of four weekly full backups, 5 blocks are required for those two files.

By default, online indexes for backed-up files are recycled (discarded and reused) after one month. If you choose a longer browse period (for example, quarterly), you'll need more disk space. You can decrease the index space requirements by shortening the browse period, by reducing the number of backups within the browse period, or by replacing full with incremental backups.

A rule of thumb for determining index space requirements is: estimate the total number of files in all file systems you plan to back up and allow two blocks for each file. This will be enough space for four distinct backup versions of each file. You may need to experiment over time to determine the best index size for your site.

8.3 Installing Single-Client NetWorker

Read this section if you are installing the single-client NetWorker software from the DG/UX 5.4 Release 2.01 tape or CD-ROM. It summarizes detailed installation instructions for NetWorker in Chapter 7 of *Installing the DG/UX System* (093-701087-03).

When you indicate that you want to install NetWorker (or accept the default, which is to load all packages), a NetWorker installation script on the DG/UX 5.4 Release 2.01 tape or CD-ROM does the following:

- Creates a logical disk and file system of 40,000 blocks named `usr_opt_networker`
- Loads the NetWorker files into this file system
- Mounts the file system as `/usr/opt/networker`
- Creates symbolic links in `/usr/bin` to the NetWorker executables in `/usr/opt/networker/bin`

For the specific prompts, see "Preparing the Logical Disk for the `/usr/opt/networker` File System" in Chapter 7 of *Installing the DG/UX System*.

Among the files loaded during installation is a NetWorker setup script. During setup, it prompts:

```
Configure system as a client for a remote NetWorker server? [no]
```

If you override the default (answer yes), setup ends. With this response, you will not be able to use NetWorker on this system unless you purchase the multi-client NetWorker software and install it (as described below in "Installing Multi-Client NetWorker") on a NetWorker server.

Accepting the default indicates that the system will be both backup server and client: it will be able to use NetWorker for backup of local disks to local tape drives. With this response, the setup script proceeds to set up the system as a NetWorker server. It:

- Creates a logical disk and file system of 10000 blocks named `var_opt_networker` for the NetWorker index files: you can supply a different name or size
- Mounts the file system as `/var/opt/networker`
- Creates a symbolic link file named `/nsr` pointing to the index file mount point (During operation, the NetWorker software writes indexes to the location indicated by `/nsr` on the server.)
- Enables execution of the NetWorker demons at system startup.

For a list of all the prompts that appear during the setup procedure, see "Setting Up NetWorker" in Chapter 7 of *Installing the DG/UX System*.

8.4 Installing Multi-Client NetWorker

Read this section if you are installing the multi-client NetWorker software from its release tape or CD-ROM. For a general discussion of software package installation, see Chapter 7 of *Customizing the DG/UX System* (093-701101-03).

NetWorker requires DG/UX 5.4 Release 2.01 or later. Before continuing, first make sure that all systems that will be using NetWorker (servers and clients) have been upgraded to DG/UX 5.4 Release 2.01. You cannot back up any files on AViiONs running an earlier version of DG/UX.

8.4.1 Server Installation

On each server:

- Insert the NetWorker release tape or CD-ROM in a drive.
- Start **sysadm** and select the **Software->Package->Install** option.

Prompts appear for loading and setting up the software, including:

- The creation (if one doesn't exist) of a 40000-block logical disk and file system named `usr_opt_networker`, the loading of the NetWorker software into this file system, the mounting of the file system under the mount point `/usr/opt/networker`, and creation of symbolic links in `/usr/bin` to the NetWorker executables in `/usr/opt/networker/bin`.
- The creation (if one doesn't exist) of a logical disk and file system for the NetWorker index files, `var_opt_networker`, the mounting of this file system under the mount point `/var/opt/networker`, creation of a symbolic link file `/nsr` pointing to `/var/opt/networker`, and arranging for the startup of NetWorker demons during system initialization.

Either accept the defaults or supply the requested information. Be sure to answer no (the default) to the prompt:

```
Configure system as a client for a remote NetWorker server? [no]
```

For a list and brief discussion of the prompts that appear, see Chapter 7 of *Customizing the DG/UX System* (093-701101-03).

8.4.2 Client Installation

At each NetWorker client, add the NetWorker server's hostname to the `/.rhosts` file. Then do one of the following:

- If you installed NetWorker on the client's disk when you upgraded to DG/UX 5.4 Release 2.01, you need do nothing. NetWorker will work as a client even though you indicated during installation that it was a server.

However, if this system has previously been set up as a NetWorker server, you may want to stop the NetWorker demons and disable their execution on system startup: see "Starting and Stopping NetWorker" in this release notice. While the demons do no harm, they consume resources needlessly and may cause confusion. For example, if the demons continue to run on the client, you might inadvertently request a system backup of the local copy of the NetWorker software.

- If you did not install NetWorker at the time of DG/UX 5.4 Release 2.01 installation, do so now. Insert the NetWorker release tape or CD-ROM in a drive, start **sysadm** and select **Software->Package->Install**. Answer yes to this prompt:

```
Configure system as a client for a remote NetWorker server?
[no]
```

Answering yes to this prompt prevents the setup script from enabling startup of the NetWorker demons, which need run only on the NetWorker server; and from creating the index file logical disk, which is not needed on NetWorker clients.

- Optionally, instead of loading and setting up the NetWorker software on the client's disk, you can:
 - (1) remote mount the NetWorker software from the NetWorker server (directory `server-name:/usr/opt/networker`)
 - (2) add the mount command to the client's `/etc/fstab` file
 - (3) add the NetWorker executable directory, `/usr/opt/networker/bin`, to the search path of root and of any other NetWorker user on the client.

You can use **sysadm** to perform (1) and (2) in one step.

9 Preparing a Software Trouble Report (STR)

If you believe you have found an error in the NetWorker software or its documentation, or if you have a suggestion for enhancing or improving the product, tell Data General about it. Here's how:

- Describe the problem or request, using a Data General Software Trouble Report (STR) form. See "Describing Problems."
- For software problems, prepare a tape containing diagnostic information and problem illustrations. See "Preparing STR Tapes" in the DG/UX 5.4 Release 2.01 release notice.

A copy of the standard STR form, suitable for printing on a line printer, is in the file `/usr/release/STR_form`. STR forms are also available from the nearest Data General office, from your representative, or from the Software Support Center. Depending on your support contract, you submit STR reports to the Software Support Center or directly to your Data General representative.

9.1 Describing Problems

For each problem you report, fill in the 3-page STR form completely. Where asked for the product name and release, enter NetWorker 3.0 Release 1.0. For the model number, enter the number of your release tape: Q001, P001, or Q017A.

Also, indicate the type of STR you are writing:

- An enhancement request: describe it clearly and say why you want it.
- A documentation error: identify the document -- the manual page name, the document title, ordering number, the page number(s) and section(s) containing the error. Explain the error where necessary.
- A software problem: clearly describe the problem, indicating how to reproduce it.

If you are reporting a problem that involves or results in a system panic or hang, your filled-out STR form **must** be accompanied by a tape, containing:

- In file 0, a system memory dump
- In file 1, a `cpio` copy of your tailored system file (usually named `/dgux`)
- In file 2, a `cpio` copy of other files (logs, program source and executable files, shell scripts, etc.) that cause, illustrate, or document the problem.

An accompanying tape is also essential for problems caused by programs not supplied by Data General. Include a copy of the executable program file *and* of the source file where possible.

If your STR includes a tape, indicate in the problem description the tape's organization and contents.

End of NetWorker Release Notice