

4

Backing Up and Restoring System Software

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NOTE

If you need to recover data and already have boot recovery diskettes, and a full backup tape go to:

- [Restoring Selected Data from a Backup Tape](#) on page 4-13 or
- [Restoring a 3070 System from a Full Backup Tape](#) on page 4-18

Introduction

A disaster recovery plan, and backup disks and tape(s) are necessary to protect your system and data against hardware failures, corrupted data, or accidental deletion of files. Your 3070 system includes TapeWare software with Backup, Restore, and Disaster Recovery tools.

Objectives

After reading this chapter, you should be able to:

- Create a backup strategy.
- Create boot Recovery Diskettes.
- Create a Full backup tape.
- Restore selected data from a backup tape.
- Boot your system from Recovery Diskettes and use a full backup tape to restore system software and data.

Prerequisites

- Experience administering Windows systems.
- Administrator log on privileges.

Required Tools and Materials

- TapeWare software with Disaster Recovery.
- An HP SureStore DAT 24 tape drive or compatible DDS storage device.
- Four (4) blank 3.5" diskettes and 24Gb blank tape (Included with the system.)

Planning a Backup Strategy

Data is sometimes lost when a user accidentally deletes or overwrites a file, or misuses a command. Also, a power failure or hard disk crash can result in lost or corrupted data. Data can be restored if you use effective backup procedures.

One of the most important responsibilities of the system administrator is to implement an effective backup strategy. The backup strategy you use to protect from data loss depends on a number of variables:

- How frequently is the system used?
- How often does the data change?
- How critical is it that files can be restored quickly?

One typical three-tiered backup strategy follows:

1 **Make a new set of boot Recovery Diskettes for booting your system periodically, as magnetic media can deteriorate. Also, create a new set every time you:**

- install new software or update existing software or operating system.
- add or remove users.
- change logical volumes in any way.
- change the Windows Administrator password.

For instructions, see [Creating Boot Recovery Diskettes](#) on page 4-5.

2 **Create a full system backup once each week.**

NOTE

You can recover individual files from a full or partial backup tape.

For instructions, see [Making a Full Backup Tape](#) on page 4-8.

3 **Create an incremental backup once each day.**

Incremental backups are faster to create than full backups, and they require less backup media. However, recovering a system may require several backup tapes: the full backup, in addition to multiple incremental backups.

Preparing for Disaster Recovery

If your system fails, it is important to be prepared for disaster recovery. To recover your 3070 operating system, application software, and files, you need:

- A DDS tape drive connected to your 3070 controller.
- TapeWare software with Disaster Recovery.
- The boot diskettes you will create or have created by following procedure described in [Creating Boot Recovery Diskettes](#) on page 4-5.
- A full backup tape, preferably very recently created. See [Making a Full Backup Tape](#) on page 4-8.

WARNING



You must create full backup tapes regularly to prepare for disaster recovery. If you do not have a recent full backup tape, you may lose important data in the event of a disk failure.

Creating Boot Recovery Diskettes

Introduction

- Your 3070 system includes a set of blank diskettes that should be used at the initial system setup to create boot disk Disaster Recovery diskettes.

When to Create Boot Recovery Diskettes.

Create a new set of boot Recovery Diskettes when you:

- initially setup your 3070 controller.
- update your operating system or software.
- install new service packs.
- add or remove hardware.
- change the configuration of your disk drives.
- add or remove disk drive volumes or partitions.

ADVICE

Always create two or more sets of boot Recovery Diskettes, in case one set of disks becomes corrupted or unreadable.

Required Tools and Material

- TapeWare- a program for backing up recovering, and restoring system data and files.

- Disaster Recovery Wizard - a TapeWare application.
- At least four blank formatted 3.5" floppy diskettes, depending on your system configuration.

How to Create Boot Recovery Diskettes

Table 4-1 describes how to create a set of boot Recovery Diskettes.

Table 4-1 How to create boot Recovery Diskettes

Task	Step
<p>1 Log on as Windows Administrator.</p>	<p>a Press Ctrl-Alt-Del to log on.</p> <p>b The default User Name is Administrator. Click OK.</p> <p>No password is necessary when you receive your 3070 system. After you establish an Administrator account, you must enter the password.</p>
<p>2 Start TapeWare.</p>	<ul style="list-style-type: none"> • Double-click the TapeWare Administrator icon on your desktop, or • from the Start menu, point to Programs > TapeWare > TapeWare Administrator.
<p>3 Log on to TapeWare as ADMIN.</p>	<p>a The default User Name is ADMIN.</p> <p>b No password is necessary when you receive your 3070 system. After you establish ADMIN accounts, you must enter the Password, then click OK.</p>
<p>4 Create new boot disk Recovery Diskettes for booting and recovering your system.</p>	<p>a Click Disaster Recovery from the TapeWare Wizard tab.</p> <p>b Click Make Diskettes, then click OK in the Disaster Recovery window.</p> <p>c Insert a formatted 3.5" inch disk into the floppy disk drive. The program copies data and prompts you to Insert new disk Recovery Diskette 2.</p> <p>d Insert new disks, as prompted until you have created a complete set of Recovery Diskettes.</p>

Table 4-1 How to create boot Recovery Diskettes (continued)

Task	Step
5 Label each boot Recovery Diskettes.	Include: <ul style="list-style-type: none">• A disk name and number (example: boot disk Recovery Diskette 1 of 4)• The date created.• The operating system revision.• The computer system name.
6 Write protect each boot Recovery Diskette and store in a secure location.	

Making a Full Backup Tape

Overview

Your 3070 system includes an HP SureStore DAT 24 tape device and TapeWare software for performing data backups. This section describes how to perform full data backups using the TapeWare Wizard and a system compatible DDS tape drive.

A full backup tape can be used to recover your operating system, application software, and data files. An effective disaster recovery policy involves creating full backup tapes on a regular basis.

Prerequisites

Before performing data backups, determine:

- the device file of the storage device on which to create your backup.
- the disk drives, folders, and files to backup.
- when the backup should occur.
- the type of backup. Options include:
 - **Full** - backup all selected drives, folders, and files.
 - **Incremental** - backup only files that have changed since the last backup of any type: Full, Incremental, Differential, or Snapshot.

- **Differential** - backup only files that have changed since the last Full backup.
- **Snapshot** - backup all selected drives, folders, and files without updating archive flags.

Required Tools and Materials

To perform the backup procedures described in this section, you need:

- TapeWare software.
- An HP SureStore DAT 24 tape drive or system compatible tape device.
- A DDS tape with enough capacity to perform a full backup. 24 Gb or more is recommended.

How to Make a Full Backup Tape

Table 4-2 describes how to make a full backup tape using the TapeWare Wizard, which may be used for disaster recovery or restoring selected data.

Table 4-2 How to make a full backup tape

Task	Step
1 Log on as Windows Administrator.	<p>a Press Ctrl-Alt-Del to log on.</p> <p>b The default User Name is Administrator. Click OK.</p> <p>No password is necessary when you receive your 3070 system. After you establish an Administrator account, you must enter the password.</p>
2 Start TapeWare.	<ul style="list-style-type: none"> • Double-click the TapeWare Administrator icon on your desktop, or • From the Start menu, point to Programs > TapeWare > TapeWare Administrator.
3 Log on to TapeWare as ADMIN.	<p>a The default User Name is ADMIN.</p> <p>No password is necessary when you receive your 3070 system. After you establish ADMIN accounts, you must enter the Password, then click OK.</p>
4 Start and name backup job.	<p>a Click Backup Local Machine in the TapeWare Wizard tab.</p> <p>b Type a job name in the Wizard - Welcome window, then click Next.</p>
ADVICE	
<p>Create a job name that is easy to identify, such as the computer or device name and the backup date.</p>	

Table 4-2 How to make a full backup tape (continued)

Task	Step
5 Select a backup tape device.	<p>a Insert a blank DDS tape into a tape device that is connected to your system.</p> <p>b Select a backup tape device in the Wizard - Where window, then click Next. TapeWare will copy selected data to the tape in the selected device.</p>

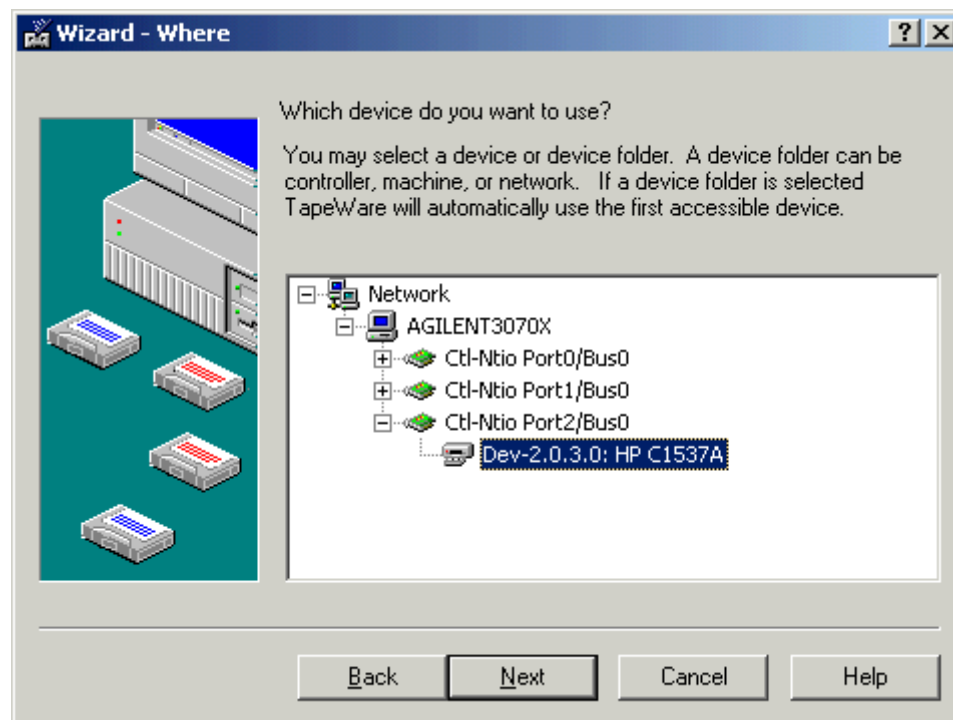


Table 4-2 How to make a full backup tape (continued)

Task	Step
6 Select the type of backup to perform.	<ul style="list-style-type: none">• Click Full in the Wizard - How to Backup window, then click Next.
7 Select how data will be written to tape.	<ul style="list-style-type: none">• Select Overwrite all tapes that are accessible in the Wizard - How to Write window.

NOTE

The default option is **Append to any tapes that are accessible**. If you are creating a backup tape to be used for disaster recovery, select the **Overwrite** option.

Table 4-2 How to make a full backup tape (continued)

Task	Step
<p>8 Choose a data verification option.</p>	<ul style="list-style-type: none"> • Select a verification option in the Wizard - How to Verify window. Full verify is recommended for a full backup. Then click Next. Options include: No verify - Do not verify data. Full verify - Verify data on tape matches exactly data on hard drive. Quick verify - Verify data on tape is readable. <div data-bbox="842 638 1955 686" style="background-color: #e1f5fe; padding: 5px;">NOTE</div> <p>Full verify compares all files on the backup media to the files on the server or workstation and ensures that they are identical. Any files that are not identical will be reported in error messages.</p>
<p>9 Specify when to run the backup job.</p>	<ul style="list-style-type: none"> • Select Now in the Wizard - When to Run window, and then click Finish. You can also save the job or schedule it to run later by selecting Save the job, but don't run it now or Later. <div data-bbox="842 995 1955 1044" style="background-color: #e1f5fe; padding: 5px;">NOTE</div> <p>It may take one hour or more to complete a full backup job. A Status of Backup Local Machine window displays the job's progress.</p>

Restoring Selected Data from a Backup Tape

This section describes the procedures for restoring selected data from a backup tape using TapeWare's Restore Specific Wizard. Use this wizard to selectively restore data from individual drives, folders, or files.

For instructions on restoring an entire system, see [Restoring a 3070 System from a Full Backup Tape](#) on page 4-18.

Restoring Specific Data

You can use a full or partial backup tape to selectively restore data to your system. [Table 4-3](#) on page 4-13 describes how to restore specific data from a backup tape.

Table 4-3 How to recover specific data from a backup tape

Task	Step
1 Log on as Windows Administrator.	a Press Ctrl-Alt-Del to log on.
	b The default User Name is Administrator. Click OK . No password is necessary when you receive your 3070 system. After you establish an Administrator account, you must enter the password.
2 Start TapeWare.	a Insert the backup tape into the tape drive. Use either a full or partial backup tape that contains the data you want to recover.
	b Double-click the TapeWare Administrator icon on your desktop, or from the Start menu, point to Programs > TapeWare > TapeWare Administrator .
3 Log on to TapeWare as ADMIN.	a The default User Name is ADMIN. No password is necessary when you receive your 3070 system. After you establish ADMIN accounts, you must enter the Password , then click OK .

Table 4-3 How to recover specific data from a backup tape (continued)

Task	Step
4 Start the Restore Specific program and name the job.	a Select the TapeWare Wizard tab and click Restore Specific . b Type a job name, then click Next .

Table 4-3 How to recover specific data from a backup tape (continued)

Task	Step
<p>5 Select what to restore.</p>	<ul style="list-style-type: none"> Select the computer, drives, folders, or files that you want to restore in the Wizard-What to Restore window. Click in the checkboxes next to the device or folder names you want to select. Then click Next. <p>You can expand or collapse devices and folders to view the structure. A folder with a plus sign indicates it can be expanded to view more folders. A folder with a minus sign can be collapsed.</p> <p>A check mark indicates an item has been selected. Selected data will be restored to its original location.</p>

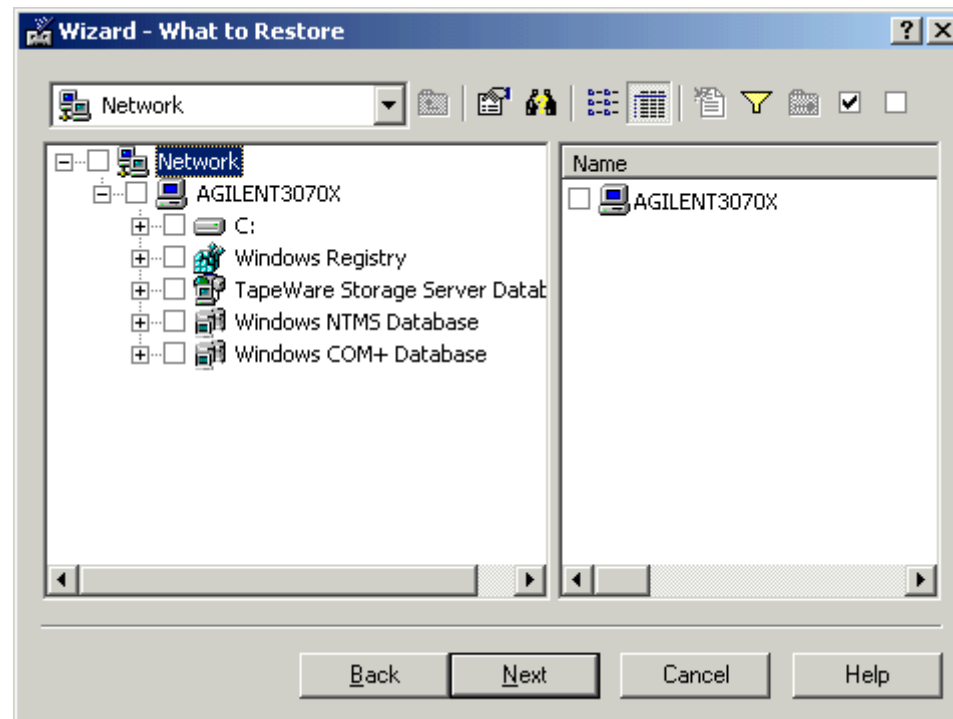


Table 4-3 How to recover specific data from a backup tape (continued)

Task	Step
<p>6 Choose a tape device from which to restore data.</p>	<p>a Select the device or folder name that represents a tape device connected to your system. If necessary, expand or collapse devices and folders until you can view and select the desired device.</p> <p>b Click Next.</p>

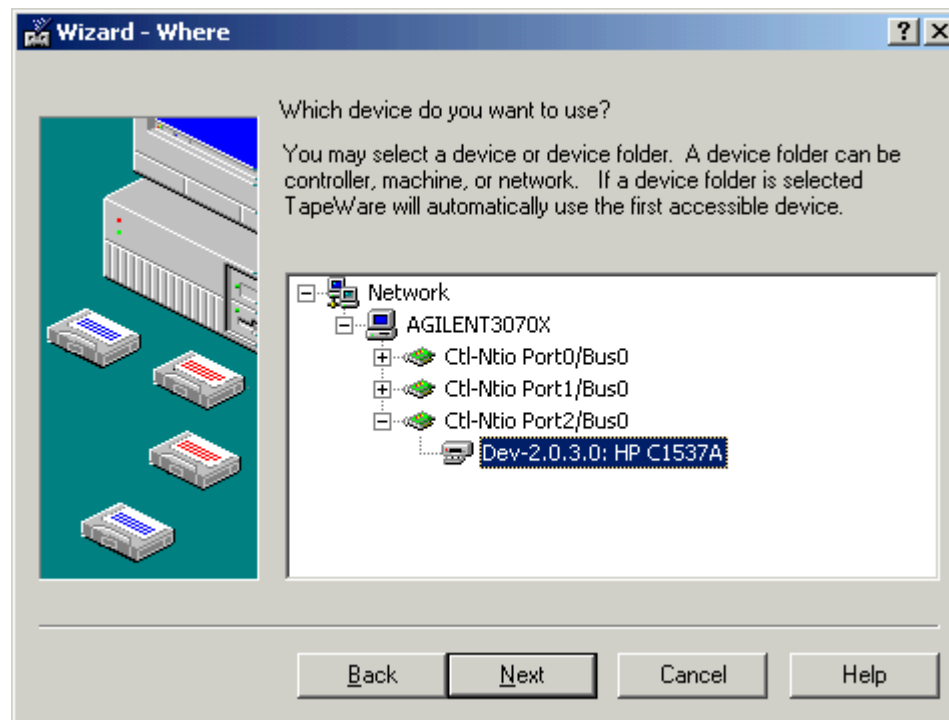


Table 4-3 How to recover specific data from a backup tape (continued)

Task	Step
7 Specify when to run the restore job.	<p data-bbox="848 358 1522 391">a Click Now, if you want to run the job immediately.</p> <p data-bbox="848 415 1625 448">Click Save job, but don't run it now to save the job to a file.</p> <p data-bbox="848 472 1892 545">Click Later if you want to schedule the job to run later, and follow the onscreen instructions to specify when the job should run.</p> <p data-bbox="848 565 1041 597">b Click Finish.</p> <div data-bbox="842 643 1955 688"><p>NOTE</p></div> <p data-bbox="919 699 1944 732">TapeWare displays the status of the job in the Status of Restore Specific window.</p>

Restoring a 3070 System from a Full Backup Tape

Introduction

For instructions on restoring selected data, see [Restoring Selected Data from a Backup Tape](#) on page 4-13.

Restore from full backup or a disaster recovery tape only if:

- the operating system will not boot.
- the main system disk drive fails.
- the entire file structure is corrupted or lost.

CAUTION



If you are restoring a system from a disaster recovery or full backup tape, TapeWare erases and reformats all disk drives, reinstalls the operating system, and overwrites the hard disk drives with data from the backup or disaster recovery tape.

NOTE

When you received your system you should have made recovery media by following the procedures in sections [Creating Boot Recovery Diskettes](#) on page 4-5 and [Making a Full Backup Tape](#) on page 4-8. If you did not do so, contact your Agilent board test representative.

Prerequisites

The disaster recovery process requires:

- Administrator log on privileges for your 3070 Windows system.
- ADMIN log on privileges for TapeWare

Required Tools and Materials

To restore your system after a system failure or disk crash, you will need:

- TapeWare software with Disaster Recovery.
- An HP SureStore DAT 24 tape drive or system compatible tape device.
- A set of boot Recovery Diskettes created at system installation or later.
- A full backup tape created at system installation or later or very recently.

Disaster Recovery Procedure

If the hard drive becomes corrupted so that the controller will not boot, you must boot from a set of boot Recovery Diskettes. Booting from Recovery Diskettes starts TapeWare's disaster recovery program.

The disaster recovery process involves using the boot Recovery Diskettes:

- to boot the MS Windows 2000 operating system.
- to start TapeWare's disaster recovery program.
- with a full backup tape to restore your system.

Use the boot Recovery Diskettes and a full backup tape to recover your 3070's operating system, software applications, and files.

The boot Recovery Diskettes enable you to boot your system and run TapeWare's disaster recovery program, **Recover.exe**. This option should be used only as an emergency measure because it:

- removes all the files from the hard drive.
- reformats the hard drive.
- re-installs MS Windows 2000 and 3070 software applications.

CAUTION



All files on the drive to be recovered will be overwritten!

You can use TapeWare to recover a boot disk or to recover all disk volumes and partitions. **Table 4-4** describes the disaster recovery options you can select

when you boot your system from the boot Recovery Diskettes. You must use both the boot recovery diskettes and a full backup tape to restore your system.

Table 4-4 TapeWare Disaster Recovery Options

Available Options	Description
Recover Boot Disk	Recover main boot disk. Recover all volumes and partitions from the boot disk.
Recover Entire System	Recover entire system, including all volumes and disks.
Exit From Disaster Recovery	Exit from disaster recovery procedure without recovering system or overwriting data on tape.

How to Restore a System From a Full Backup Tape

Table 4-5 describes how to restore a 3070 system from boot recovery diskettes and a full backup tape.

NOTE

Use only a complete and recent full backup tape as a disaster recovery tape.

You can make other types of backups, such as **Incremental**, **Differential**, or **Snapshot**. These types of backups can be used to recover a partial system or individual files, but cannot be used to restore an entire system.

Table 4-5 How to restore a system from a disaster using boot recovery diskettes and full backup tape

Task	Step
<p>1 Boot from Recovery Diskette 1 and begin TapeWare Disaster Recovery (Phase 2)</p> <p>Recovery Diskette 1 contains Recover.exe, the TapeWare application that initiates the Disaster Recovery process.</p>	<p>a Insert Recovery Diskette 1 in your floppy drive.</p> <p>b From the Start menu, choose Shutdown, select Restart and Click Yes.</p>
<p>2 Insert the most recent full backup tape in the tape drive.</p> <p>NOTE</p> <p>TapeWare restores your system by copying data from the disaster recovery tape to your system. The data is restored in its original location on the hard drive.</p>	<p>NOTE</p> <p>If a full backup exists on multiple tapes, you must have all backup tapes to fully restore your system.</p>

Table 4-5 How to restore a system from a disaster using boot recovery diskettes and full backup tape (continued)



Task	Step
<p>3 Choose a recovery option. Available options include:</p> <ul style="list-style-type: none"> ■ Recover Boot Disk ■ Recover Entire System ■ Exit from Disaster Recovery 	<div data-bbox="1094 375 1955 423" style="background-color: red; color: white; padding: 2px;">WARNING</div> <div data-bbox="1094 423 1892 537">  Use this option to recover all hard disks on your system. NOTE: All data on the drives to be recovered will be overwritten. </div> <hr/> <p>a Press the DOWN ARROW key to select Recover Entire System from the Available Options box, then press Enter.</p> <div data-bbox="1094 727 1955 776" style="background-color: lightblue; padding: 2px;">NOTE</div> <div data-bbox="1167 784 1955 1040"> <p>If you have placed board files on another disk drive, and you suspect that only your boot disk is corrupted or you have had to replace the boot disk, you may attempt to recover the boot disk only. This will leave all data on other disks intact. However, this may cause data to be overwritten on other disks as well. It is recommended that you select Recover Entire System.</p> </div> <hr/> <p>b Several messages appear on screen. Read each screen and press Enter to continue.</p>

Table 4-5 How to restore a system from a disaster using boot recovery diskettes and full backup tape (continued)

Task	Step
<p>4 Overwrite existing partitions on the hard disk drive.</p>	<p>a Press F10 to overwrite existing partitions, or Press ESC to return to the main menu without recovering the system or its volumes.</p> <p>b Press the UP ARROW key to choose Yes, Recover the Entire System and press Enter. To return to the main menu, use the arrow keys to select No, go back and press Enter.</p> <p>c This message appears: THIS IS YOUR LAST CHANCE, ARE YOU SURE? If you want to recover your entire system and all its volumes, select Yes, Perform the Recovery, then press Enter. To exit and return to the main menu, select No, go back and press Enter.</p>

WARNING



This option overwrites all disk volumes and partitions with the data from the disaster recovery tape or backup tape.

Table 4-5 How to restore a system from a disaster using boot recovery diskettes and full backup tape (continued)

Task	Step
<p>5 Insert the remaining Recovery Diskettes when prompted.</p> <p>NOTE After completing these steps, it takes approximately 30 minutes to one hour to restore your system.</p>	<p>NOTE Your system may automatically reboot several times after the restart process.</p> <hr/> <p>a Insert Recovery Diskette 2, then press F10.</p> <p>b When prompted, remove Recovery Diskette 2 and insert Recovery Diskette 3, then press F10.</p> <p>c When prompted, remove Recovery Diskette 3 and insert Recovery Diskette 4, then press F10.</p> <p>d Remove Recovery Diskette 4.</p> <p>e Press F10 to reboot (restart) your system.</p> <p>NOTE When the system reboots, the disaster recovery software should initialize and the recovery tape should begin to load. The system may stop responding while displaying the message <code>Deinitializing System Support</code>. If this occurs, press the reset button to reboot the system. After the system reboots, the disaster recovery process will continue and the tape should begin to load.</p>

Table 4-5 How to restore a system from a disaster using boot recovery diskettes and full backup tape (continued)

Task	Step
	<p data-bbox="1094 358 1955 467">f If your backup data spans multiple tapes, click Yes in the Do you have any more tapes that you would like TapeWare to restore to your system? window and insert additional backup tapes.</p> <p data-bbox="1129 488 1388 521">Otherwise, click No.</p> <p data-bbox="1094 542 1934 613">g Click Restart in the Recovery Complete window to restart your system.</p>

Restoring a 3070 System from the System Recovery DVD

Introduction

This procedure describes how to install system recovery software on your Agilent 3070 system controller (MS Windows®* system only).

Restore from the System Recovery DVD only if:

- the operating system will not boot, **and**
- the main system disk drive fails, **and**
- the file structure is corrupted or lost, **and**
- the backup tape was never created or is corrupt.

Restoration takes about 10 minutes.

Required Materials

- The System Recovery DVD (E9970-19415) that was shipped with your system.

CAUTION



The System Recovery DVD is unique to each computer. The DVD case is labeled with the serial number of the computer for which it was created. Using the wrong DVD for recovery may result in a defective system.

CAUTION



Restoration from the System Recovery DVD will format the C: drive and reload it to a factory default state. You will not be able to boot the testhead because certain files which are unique to your system are not restored by this process.

Before doing this procedure, verify that you have a backup copy of these unique files:

- \Agilent3070\diagnostics\th1\config
- \Agilent3070\diagnostics\th1\config.o
- \Agilent3070\lib\.enable
- \Winnt\System32\drivers\etc\bootptab.

To restore these files after the recovery procedure, see *Administering Agilent 3070 Systems (MS Windows®)*. For restoring codewords, see *Installing Codewords on a 3070*. For help, consult your Agilent systems engineer.

After system restoration, you must also reconfigure the IO for the GPIB Card. Follow the System Recovery Procedure and IO Configuration Procedure on page 28.

* Window®s and MS Windows® are U.S. registered trademarks of Microsoft Corporation.

System Recovery Procedure

- 6 Load the System Recovery DVD in your DVD-ROM drive.
- 7 Restart the computer. If necessary, press the **reset** button on the front of the computer.
- 8 At the **Agilent 3070:** prompt, type `restore system`.
- 9 Press any key to scroll through the license agreement.
- 10 In the **Power Quest** screen, click **Continue**.
- 11 In the **Warning** message window, click **Yes**.
- 12 When the restoration is completed and you see the **Agilent 3070:** prompt, remove the DVD from the drive.
- 13 Press **CTRL-ALT-DEL** to restart the computer.

IO Configuration Procedure

- 1 Log in as administrator.
- 2 Right-click the blue **IO** icon on the right side of the Taskbar and select **Run IO Config**.
- 3 In the **Available Interface Types** field, select **82350 PCI GPIB** and click **Configure**.
- 4 In the **SICL Interface Name** field, change `hpib7` to `hpib` and click **OK**.
- 5 In the **IO Config** window, click **OK**.

- 6 In the **Restart** message window, click **OK**.

- 7 Restart the computer: click **Start** > **Shutdown** > select **Restart** > click **OK**.

This concludes the recovery procedure. Now restore the unique files listed on page 27.