SyQuest®

1.5 GB Portable SCSI Removable Cartridge Disk Drive With Parallel Port Option

Installation Guide for
PC Compatible Systems

Welcome to SyQuest®

Thank you for buying a SyQuest removable cartridge disk drive, a truly unique combination of powerful features and performance. Our goal is to make your drive an invaluable asset for years to come, starting today. If you have questions or need assistance installing your drive, please contact SyQuest.

SyQuest® Technology is located at 47071 Bayside Parkway, Fremont, CA, 94538-6517. SyQuest's main phone number is 510-226-4000, which has a 24-hour automated system to help direct your calls. You may also contact Sales or Technical Assistance at these online addresses:

Sales		**Technical Assistance**	
U.S.A.		U.S.A.	
Email	sales@syquest.com	Email	support@syquest.com
		World Wide Web	http://www.syquest.com
		Germany	
		Email	support.de@syquest.com
		United Kingdom	
		Email	support.uk@syquest.com

Contents

Safety Standards

This product meets the following national and international regulations:

- UL 1950 Standard for Safety of Information Processing and Business Equipment
- UL Standard for Safety of Information Technology
- CSA C22.2 No. 154 Data Processing Equipment
- CSA C22 No. 220 Information Processing Equipment
- IEC 435 Safety Requirements for Data Processing Equipment
- IEC 380 Safety of Electrical Energized Office Equipment
- IEC 950 Safety of Information Technology Equipment in Electrical Business Equipment
- VDE 0871/1984
- VFG 243/1991

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FCC Warning

This equipment generates and uses radio frequency energy and, if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type-tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, try to correct the interference by one or more of the following measures:

- Reorient the antenna.
- Relocate the equipment with respect to the receiver.
- Move the equipment away from the receiver.
- Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.

If necessary, consult your dealer or an experienced radio/television technician for additional suggestions. The booklet entitled *How to Identify and Resolve Radio-TV Interference Problems,* prepared by the Federal Communications Commission, may be helpful. This booklet, Stock No. 004-000-003454, is available from the U.S. Government Printing Office, Washington, DC 20402.

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The SyJet removable cartridge disk drive is covered by one or more of the following U.S. Patents: 4,488,187; 4,504,879; 4,683,506; 4,630,190; 4,722,012; 4,870,518; 4,864,437; 4, 920,462; 4,974,103; 4,965,685; 5,038,232; 5,175,657; 5,121,280; 5,204,793; 5,262,918; 5,317,464; DES342,062; 5,400,201; 5,535,072; 5,523,902; 5,526,212.

The SyJet removable disk drive cartridge is covered by one or more of the following U.S. Patents: 4,503,474; 4,717,981; 4,864,452; 4,965,691; 5,218,503; 5,280,403; 5,422,775; 5,400,201; 5,523,902; DES367,579; DES342,062.

Other U.S. Patents and other nations' patents pending.

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Portability with Flexibility

The SyJet™ portable SCSI drive with Parallel Port Option is really two products in one! This manual provides instructions on connecting the portable drive to your parallel port. You can also connect the portable SyJet drive to a SCSI card. You can use the same drive for both parallel port and SCSI connections—this means portability with flexibility!

SyQuest can provide you with the following gear to allow you to connect your SyJet drive to the SCSI connector on your computer:

- SCSI cable and adapters (50 pin SCSI connector at the SyJet end of the cable, your computer's SCSI connector type at the other end)
- SCSI Installation Manual and diskette

See your SyGear Accessories Brochure for fast and easy ordering information on reasonably-priced SyGear accessories.

Getting Started

You can connect the SyJet™ portable SCSI drive with Parallel Port Option to your 386™, 486™, or Pentium™ class desktop or tower computer. Your computer must also have the following features to operate the SyJet drive properly:

- A parallel port. The cable provided in this package allows you to connect your SyJet drive to the printer port while allowing your printer to function normally.
- A compatible operating system from the following list:
  - MS-DOS™ 5.0 or higher
  - PC-DOS™ 5.0 or higher
  - Novell DOS™ 7.0 or higher
  - Windows® 3.1 or higher
  - Windows® 95
  - Windows® NT 3.51 or higher
  - OS/2™ 2.1 or higher

This guide provides detailed step-by-step installation instructions. Installation typically requires about an hour, and requires familiarity with computer hardware and software, as well as some mechanical ability. Please review all instructions in this installation guide, and familiarize yourself with your computer before you install your SyJet drive.

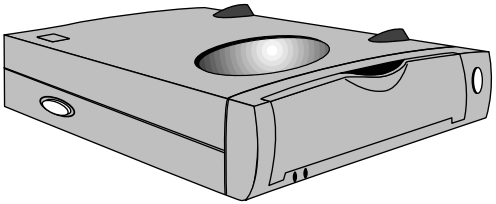
Note: The SyQuest parallel port-to-SCSI adapter cable acts as a standard 8-bit terminated SCSI Host Bus Adapter (HBA).You can daisy-chain other SyQuest drives to your SyJet drive (each drive must have a unique SCSI address).

Caution: Only SyQuest drives are supported with the adapter cable. Do not connect any other type of SCSI device.

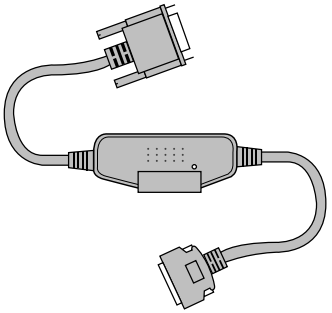
Preparing Your SyJet Drive for Installation

1. Unpack your SyJet drive.

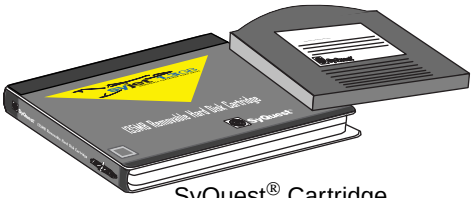
Unpack and inspect the contents of the shipping carton.



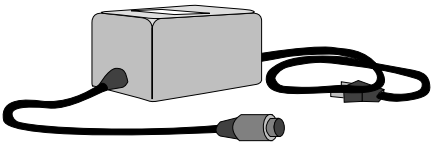
SyJet SCSI Removable Cartridge Disk Drive



Parallel Port Adapter Cable



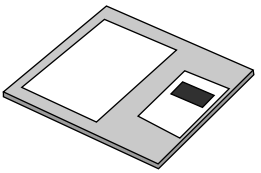
SyQuest® Cartridge in Protective Case



Power Adapter

Installation Guide

SyGear Accessories Brochure

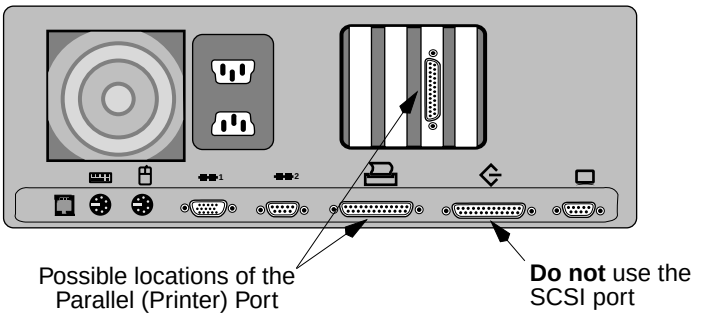


Installation Diskette for DOS, Windows 3.1x, and Windows 95, and Drivers for OS/2

2. Locate your computer's Parallel port.

Your computer's parallel port is located at the back of your computer. The port may be labeled with a printer symbol, and it uses a 25-pin connector.

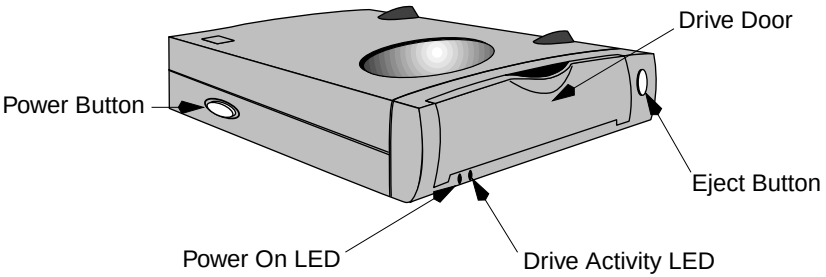
Computer Rear View



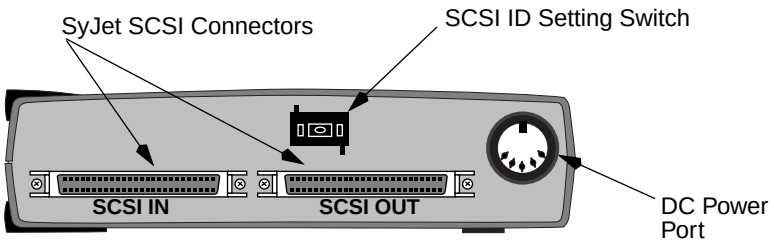
Caution: Do not connect the cable to your computer at this time.

3. Study the parts of your SyJet drive.

Front View



Rear View



4. Check for devices that have conflicting Interrupt (IRQ) numbers.

Installed devices make use of Interrupt Request numbers (IRQs) to request services from the computer. In this step, you'll verify that no devices (for example, sound cards) use the IRQs (5 and 7) that are used by the printer port. The parallel port adapter used by the SyJet drive will share the printer port with your installed printer.

DOS and Window 3.1: Use the Microsoft MSD.EXE program. If IRQs 5 or 7 are used by a non-printer device, follow the procedure specified in the device's manual to set it to a different IRQ.

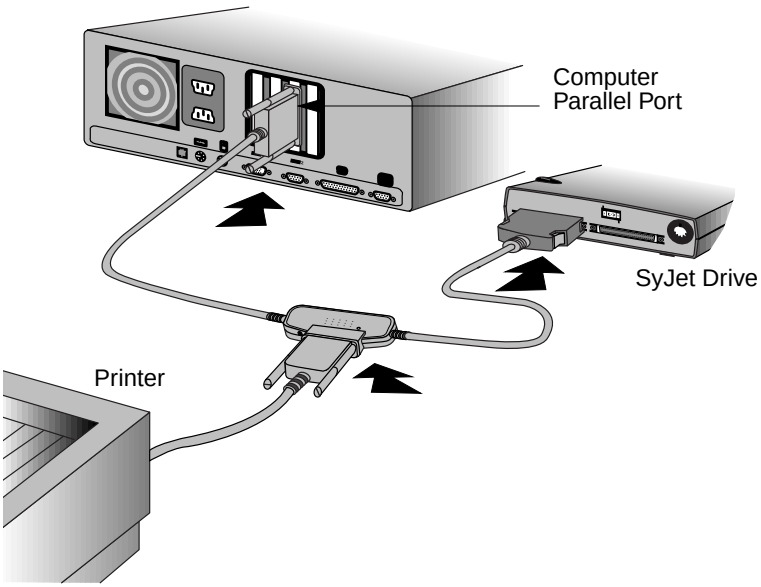
Windows 95: Under the Start menu, go to Settings, Control Panel. Double-click System; the System Properties property sheet opens. Click the Device Manager tab and double-click Computer; the Computer Properties property sheet opens. Click Interrupt Request (IRQ) to view all IRQ settings on your computer.

To change a setting, close the Computer Properties property sheet. In the Device Manager tab of the System Properties property sheet, double-click the device; the device property sheet opens. Click the Resources tab, select Interrupt Request, and click the Change Setting button. You may have to refer to the device's installation documentation to determine how to change the IRQ setting.

Installing Your SyJet Drive

1. **Turn off your computer.**
   Never attach or remove cables while your computer or your SyJet drive is on.

2. **Plug the Parallel port adapter cable's 50-pin connector into the SyJet drive connector labeled *SCSI IN*.**



3. **Remove the printer cable from the computer, and plug it into the connector in the middle of the adapter cable.**

4. Plug the 25-pin end of the adapter cable into your computer's Parallel (printer) port.

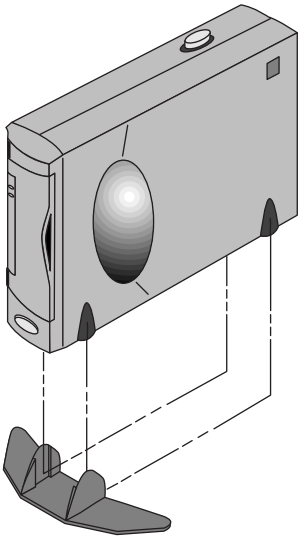
Caution: Do not attach your SyJet drive to the 25-pin **SCSI port** found on some PCs.

Note: The SyJet drive must be powered on in order for the printer to operate. If you wish to operate the printer while the SyJet drive is off, you must purchase an accessory power supply for the adapter cable.

5. Plug the power adapter connector into the DC power port on the rear of the SyJet drive. Plug the power adapter into an AC power outlet.

Caution: Use only the SyQuest power adapter provided with the drive—other power adapters may damage your drive.

6. If you will use the drive in the vertical position, attach the mounting foot to the base of the drive. You can attach the foot anywhere on the base between the rubber pads, as shown.



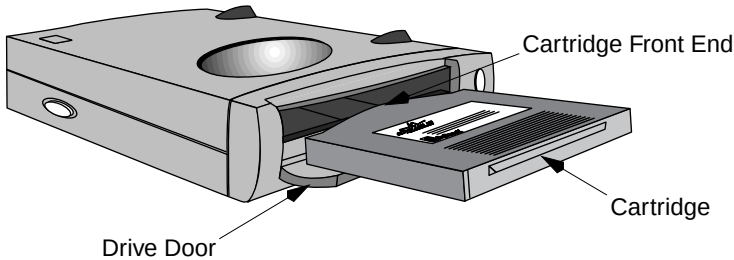
Caution: If you drop your SyJet drive, inspect it. If the plastic case is chipped or otherwise damaged, return it to your SyQuest reseller for inspection. The drive and cartridge can be damaged if the drive tips over while operating, so place the drive in a secure, stable location.

7. Turn on the SyJet drive, then turn on the computer.

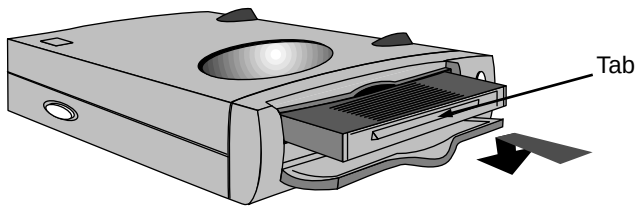
The Power On LED glows green to indicate that the SyJet drive is powered on.

8. Insert a SyJet cartridge into the SyJet drive.

Hold the cartridge as shown below, and open the drive door using your finger or the front end of the cartridge.



Slide the cartridge all the way into the drive. Press down gently on the tab until the cartridge snaps into place.



The drive spins up the cartridge, and the Drive Activity LED flickers amber. The Drive Activity LED glows green when the drive is ready.

If the Drive Activity LED does not glow green, eject and re-insert the cartridge. See “Ejecting a Cartridge” on page 15.

Note: The SyJet drive automatically goes into a power saving mode after 30 minutes of inactivity. Normal drive activity will restore full power to the drive when needed.

Note: The SyJet drive reads, writes, and formats SyJet cartridges only. The SyJet drive *cannot* read, write, or format other SyQuest cartridges.

Caution: Always remove the cartridge from the SyJet drive before moving or transporting the drive. If you remove or eject the cartridge, you must pull it halfway out in order to reinsert it. This built-in feature prevents partial insertion.

Congratulations, your SyJet drive is installed! Now you'll install some software.

Installing SyQuest SCSI Software

Note: Do not install the software if the SyJet drive fails to go to the *Ready* state (steady green Drive Activity LED—the LED on the right). See "Troubleshooting" on page 21.

DOS and Windows 3.1x

1. **Exit Windows to DOS.**
   Press **Alt + F4** to exit Windows—do not use a DOS shell.
2. **Insert the *SyQuest Installation Diskette*.**
3. **At a DOS prompt, type: `A:\INSTALL` and press Enter.**
   If your 3.5-inch diskette drive is `B:`, type `B:\INSTALL` and press Enter.
4. **Follow the installation program prompts.**

Windows 95

1. **Click Start, then select Settings and Control Panel.**
2. **In the Control Panel window, double-click the Add/Remove Programs icon.**
3. **Insert the *SyQuest Installation Diskette* and click Install.**
   Click Next, then click Finish.
4. **Follow the instructions in the Installation Wizard window to complete the software installation.**

Windows NT 3.51

1. **Run Windows NT Setup from the Main group.**
2. **From the Options menu, select Add/Remove SCSI Adapters.**
3. **Click the Add button, and select Other.**
   This requires a disk from a hardware manufacturer.
4. **Insert the *SyQuest Installation Diskette*.**
5. **Click SyQuest EPST Parallel to SCSI Controller Driver, and click OK.**
6. **Click the Install button.**
7. **Reboot to allow the new driver to take effect.**

Windows NT 4.0

To install your SyJet drive under Windows NT, use the SCSI drivers provided with your SCSI host adapter. Refer to your SCSI host adapter documentation or the SyQuest online manual for details.

1. **Run SCSI Adapters from the Control Panel.**
2. **Click the Drivers tab and click Add.**
3. **Click the Have Disk button.**
4. **Insert the *SyQuest Installation Diskette*.**
5. **Click SyQuest EPST Parallel to SCSI Controller Driver, and click OK.**

You must use *Disk Administrator* to prepare your cartridge or add a signature block.

OS/2

1. **Insert the *SyQuest Installation Diskette*.**
2. **Select Device Driver Install from System Setup.**
3. **Change the source from `A:\` to `A:\OS2` and click Install.**
   If your 3.5-inch diskette drive is `B:`, change the source from `B:\` to `B:\OS2`.
4. **Click SyQuest SCSI Device, and click OK.**

Novell NetWare

To install your SyJet drive under NetWare, use the Novell SCSI drivers, or the SCSI drivers provided with your SCSI adapter. Refer to your SCSI adapter documentation for details.

UNIX

To install your SyJet drive under UNIX, use the SCSI drivers provided with your SCSI adapter. Refer to your SCSI adapter documentation for details.

Congratulations, your SyJet drive and software are installed and ready to use!

Ejecting a Cartridge

Follow these steps to remove a cartridge, when changing cartridges, or when transporting your SyJet drive.

1. **Verify that the Power LED glows green.**
   The SyJet drive should always be switched on when you eject a cartridge.

2. **Exit all applications that use the cartridge and close all open files on the cartridge.**
   You may lose data if you eject the cartridge before closing all open files on the cartridge.

3. **If the cartridge is locked, unlock it.**
   See “Locking or Unlocking a Cartridge” on page 19.

4. **Press the Eject button on the front of the SyJet drive.**
   The Drive Activity LED flickers amber, the drive eject tone sounds, the drive door opens, and the cartridge ejects. Three tones sound to indicate that the cartridge has been fully ejected, and is ready for removal.

   If the Drive Activity LED does not flicker, unmount the cartridge using the SyQuest Windows 95 Utilities.

5. **Remove the cartridge and place it in its protective case.**

Note: If you remove or eject the cartridge, you must pull it halfway out in order to reinsert it. This built-in feature prevents partial insertion.

Caution: Never store or transport the SyJet drive with the cartridge partially or fully inserted. Leaving a cartridge partially inserted, or transporting the SyJet drive with the cartridge inserted may damage the drive and void your warranty.

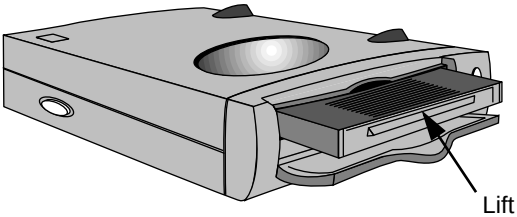
Ejecting a Cartridge Without Power

While the drive is not powered, you can manually eject a cartridge.

Caution: Never manually eject a cartridge while the power is on. This will damage the drive and void the warranty.

To manually eject a cartridge, follow these instructions:

1. **Wait for 45 seconds after power is turned off.**
2. **Open the drive door. Eject the cartridge by gently lifting the tab and pulling the cartridge out of the drive.**



3. **Return the cartridge to its protective case for storage or transport.**

SyQuest Utilities Software

The SyQuest Utilities software shipped with your SyJet drive allows you to perform useful tasks on the drive and on the cartridge. For additional information on any utility, run the SyQuest Utilities program and click the Help button.

Drive

The following utilities are supported only in DOS, Windows 3.1, and Windows 95. To run these utilities, run `sqprep.exe` from the DOS prompt for either DOS or Windows 3.1, and SQUTIL95.EXE for Windows 95.

Eject Tone: Plays a tone when a cartridge is ejected to remind you to remove and store the cartridge. You can enable or disable this tone. The default setting of this feature is *enabled*.

Write Verify: This option causes the drive to verify that each bit of data transferred to the cartridge was written correctly. Write performance is reduced when this data integrity enhancement feature is enabled. The default setting of this feature is *enabled*.

Sleep Mode: The SyJet drive automatically switches to low power consumption (sleep mode) if the drive is not accessed for an extended period. This utility allows you to specify that time period. The default setting of this feature is 30 minutes.

Update Drive Code: Use this utility to update the SyJet drive code for new features or critical drive improvement options.

Head Clean: Use this utility to clean the drive heads only in a final attempt at data recovery.

Cartridge

Write-protecting a Cartridge

SyQuest cartridges are shipped from the factory ready to record data. You write-protect a cartridge to prevent data on the cartridge from being altered or erased. You can use the SyQuest Utilities under DOS, Windows 3.1x, and Windows 95. To write protect a cartridge:

Verify that a cartridge is in the drive and the Drive Activity LED is glowing green.

DOS: At a DOS prompt, run the SQSHELL program. From the list of options, select Other Options and press return. Click Enable Write Protect (or Disable Write Protect).

Windows 3.1x: Double-click the SyQuest Utilities icon. Click the Control button. Click the SyJet drive letter, and click either Set to On or Reset to Off in the Write Protect box.

Windows 95: Run the SyQuest Utilities and click the Control button. Select the SyJet drive letter in the list box and click either Set to On or Reset to Off in the Write Protect box.

Note: When you enable Write Protection, both the SyJet cartridge *and* the drive are placed in Write Protect mode. This means that any cartridge inserted into the drive cannot be written to until you turn *off* Write Protection. The Write Protection utility is supported only under DOS, Windows 3.1x, and Windows 95.

Locking or Unlocking a Cartridge

Locking a cartridge causes the eject button to have no effect. You unlock a cartridge to allow use of a the eject button.
Lock or unlock a cartridge as follows:

Exit all applications that use the cartridge, and close all open files on the cartridge. You may lose data if you eject the cartridge before closing all open files on the cartridge.

DOS: At a DOS prompt, run the SQSHELL program. From the list of options, select Other Options, and press Return. Select Lock Utility (or Unlock Utility).

Windows 3.1X: Double-click the SyQuest Utilities icon. Click the Lock (or Unlock), button, then select the SyJet drive letter and click the OK button.

Windows 95: Windows 95 automatically locks and unlocks the cartridge.

Windows NT: Windows NT automatically locks and unlocks the cartridge.

OS/2: Select the SyJet drive icon, click the right mouse button, and select the Lock (or Unlock) menu item.

AV Mode

AV mode is for audio/video playback only. To avoid data errors, always record in data mode. Using the AV mode utility, you can select either:

- Enable AV mode— for video playback *only*.
- Disable AV mode—(data mode) for normal operation.

To enable or disable AV mode:

Verify that a cartridge is in the drive and the Drive Activity LED glows green.

Windows 3.1x: Run the SyQuest Utilities and click the Control button. Click the SyJet drive letter button and click either Set to ON or Reset to OFF in the AV Mode box.

Windows 95: Run the SyQuest Windows 95 Utility and click the Control button. Select the letter of the SyJet drive in the list box and click either Set to ON or Reset to OFF in the AV Mode box.

Note: AV mode is supported only under Windows 3.1x and Windows 95. AV Mode does not disable the Write Verify utility in order to write to disk at a faster rate. If you desire faster disk writing as well as the continuous read capability of AV mode, you must disable Write Verify.

Troubleshooting

Symptom	Problem	Solution
Computer does not recognize a newly installed SyQuest drive.	SCSI adapter software was not installed before installing SyQuest software.	Install ASPI-compatible SCSI adapter software before installing SyQuest software. Run the diagnostic software provided by your SCSI adapter manufacturer after connecting the SyQuest drive, but before installing SyQuest software.
Computer does not recognize a newly installed SyQuest drive.	Drive does not show a steady green Drive Activity LED (the *Ready* state).	Eject and reinsert the cartridge.

Note: The online manual included on the cartridge provides a technical discussion of SCSI technology and the SyQuest software. To view the online manual, insert the cartridge and type `X:` (where X is the SyJet drive letter), then type `manual`.

Note: If you have more than one SyQuest drive attached to your computer when you install SyQuest SCSI software, make sure each connected drive has a cartridge fully inserted.

Note: You can update the software drivers on older SyQuest cartridges without losing existing data on the cartridges. The driver update program preserves existing data.

Drive Letter Assignment Order

DOS and Windows assign drive letters to any drive (SyQuest or not) that you add to your system. Sometimes, when you add a new drive, DOS or Windows can assign a new letter to an existing drive that you would prefer remain unchanged. In order to manage drive letter assignments in PCs, you should understand the mechanisms which determine how drive letters are assigned by DOS The following describes disk drive partitions and how DOS assigns letters to them.

Partitions

DOS, like most operating systems, deal with large storage devices as a collection of contiguous storage elements (blocks) called *volumes*. DOS treats floppies, CD-ROMS, tape drives and hard disk drives as logical volumes that have the following bookkeeping elements associated with them:

- Drive code letter
- (Optional) name
- Directory
- Files

Every operating system has its own specific way of dealing with storage on a volume; DOS controls the storage of files in the fixed drive volume with a structure called the *partition*. Because most volumes have only one partition, the terms will often be used interchangeably. You can think of a partition as a contiguous area of the disk drive in which the operating system stores files. A physical hard disk drive is partitioned into at least one partition.

In DOS, two types of partitions are defined—primary and extended. A primary partition contains the programs necessary to run DOS. Extended partitions do not necessarily contain these programs; in fact, they can be used to hold non-DOS operating systems. Furthermore, extended partitions can be divided into more than one logical volume.

Each logical volume is treated by the operating system as if it were a separate physical device and is therefore assigned its own drive letter. A single hard disk drive can be partitioned into several logical volumes, each volume having a drive letter assigned to it. A table in the first block of the physical drive contains information about the partitions on the drive. DOS will first assign the primary partitions drive letters and then later drive letters to the logical volumes of the extended partitions.

Drive Letter Assignments Protocol

The partition table information from the disk drive(s) is used by DOS to assign a letter to each partition. The operating system works in conjunction with the BIOS ROM to accomplish this. The BIOS ROM contains the Basic Input/Output Support (hence its name) to control the standard devices attached to your computer (including the floppy and hard disk drives). This BIOS ROM (which we will further identify as the mother board BIOS ROM) contains support for the hard disk drives attached to the IDE controller. IDE hard disk drives are made known to the BIOS by the CMOS (special memory which contains information about the standard devices attached to the computer). During system power up, DOS looks at the CMOS to determine which hard disk drives are attached to the IDE controller. Since the BIOS ROM is the first place hard disk drives are identified by the PC, any drives defined in the CMOS are assigned the first drive letters. (This also means that drives attached to the IDE controller but not defined in CMOS are not assigned drive letters at this stage.)

PCs provide a means for expansion of the original mother board BIOS ROM to allow for additional devices. After the mother board BIOS has installed the standard devices, it will search for adapter boards equipped with their own BIOS ROMs. If a SCSI Host Bus Adapter (often called the HBA, or SCSI adapter) with its own BIOS is found, control is passed by the PC to this ROM. If the ROM finds a primary partition on the hard disk drive attached to the SCSI HBA it will install that partition at this time using the next drive letter available. If the HBA BIOS is disabled or if the drives are not recognized by the BIOS, then no letters are assigned. (For example, some Adaptec controller BIOSes will recognize only hard disk drives at SCSI ID 0 or 1 at this time and as a result no letters are assigned to devices attached at IDs 2 and above.)

After the BIOS ROMs have finished their initialization, the operating system (DOS) is loaded. DOS first scans each BIOS-accessible disk for primary partitions and assigns them drive letters. DOS then scans each BIOS-accessible disk for extended partitions and assigns them drive letters. The system initialization then proceeds to load and execute two special system configuration files—CONFIG.SYS and AUTOEXEC.BAT—in this order. CONFIG.SYS loads and executes the device drivers that it finds. Logical volumes installed by device drivers are assigned the next available letters. This includes logical volumes like compressed files and RAM drives. Device drivers are executed in the order listed in CONFIG.SYS. Next, programs in the AUTOEXEC.BAT file are executed and those programs which install logical volumes are assigned the next available drive letters.

One of the most common problems encountered when adding a drive to a system is that insufficient drive letters are available to the system and logical volumes (for example, CD-ROM drives) appear to become *lost*. This situation is easily remedied by the addition of a LASTDRIVE= statement in CONFIG.SYS which allows you to extend the available letters.

Finally, network volumes are assigned after the operating system has loaded and the network is attached.

Drive Code Letter Assignments Summary

Drive letters are assigned in the following order:

- Floppies and Hard Disk Drives defined in CMOS
- Hard disk drives controlled by HBA BIOSes having primary partitions
- Logical Volumes on previously installed drives from steps 1 and 2
- Logical volumes installed by Device Drivers in the order they are found in CONFIG.SYS.
- Logical volumes installed by Software in the order they are found in AUTOEXEC.BAT
- Network installed logical volumes

Example of Drive Letter Reassignment

This example assumes that there are two existing hard drives on your computer—the Master hard drive and the Slave hard drive. The Master drive has a Primary partition and two Secondary partitions. The Slave drive has a Primary partition and a single Extended partition. The DOS internal driver assigns letters in the following order:

C:\ Master Primary

D:\ Slave Primary

E:\ Master Extended(1)

F:\ Master Extended(2)

G:\ Slave Extended

Installing a SyQuest cartridge with a single Primary partition changes the order as follows:

C:\ Master Primary

D:\ Slave Primary

E:\ SyQuest Primary

F:\ Master Extended(1)

G:\ Master Extended(2)

H:\ Slave Extended

In this example, DOS reassigned the drive letters of each Extended partition.

Using Extended Partitions

One way to prevent drive letter reassignment is to assign your SyQuest cartridge one or more Extended partitions and no Primary partitions. This way, your SyQuest drive will be assigned the last letter(s) in the series, leaving the original drive assignments unchanged.

Note: Partitioning your SyQuest drive in this manner will prevent booting with your SyQuest cartridge, and may cause interchange problems, especially with non-SyQuest drivers.

Compressed Drives

DOS native data compression drivers may assign drive letters to compressed drives after all of the above have been assigned. Refer to your MS DOS manual for details and possible problems associated with compressed drive letter assignments.

SCSI Host Bus Adapter BIOS

Some SCSI Host Bus Adapters (HBA) have on-board BIOS, most of which can be specifically enabled or disabled to a specific SCSI ID. Some vendors' HBA's are automatically BIOS-enabled and cannot be disabled. If the SCSI BIOS is enabled to the SyQuest drive, then it probably has its letter assigned by the BIOS and cannot be changed, much like IDE drive letter assignment.

In DOS and Windows 3.1X, the SCSI device drivers are usually external and loaded through either the CONFIG.SYS or the AUTOEXEC.BAT files.

CONFIG.SYS

Note: Windows 95 contains a volume management layer that handles drive letter assignments. SyQuest recommends that Windows 95 users who do not intend to run in DOS mode not install *any* drivers in either the CONFIG.SYS file or AUTOEXEC.BAT file, since doing so can cause conflicts within this volume management layer.

If you do not install the SyJet drive through your HBA BIOS, you must load the SyQuest drivers in the CONFIG.SYS file. See “SCSI Host Bus Adapter BIOS” on page 26. Drive letter assignment occurs in device driver order. Devices with multiple partitions receive letter assignments in consecutive order, regardless of whether these partitions are Primary or Extended.

Device drivers supporting multiple devices receive multiple drive letters. For example, DOS assigns drive letters to SCSI devices in order of SCSI ID, normally starting with SCSI ID 0. SCSI devices with multiple partitions receive multiple drive letter assignments.

You can change the drive letter assignment by changing the order of the device drivers in the CONFIG.SYS file.

AUTOEXEC.BAT

Note: Windows 95 contains a volume management layer that handles drive letter assignments. SyQuest recommends that Windows 95 users who do not intend to run in DOS mode not install *any* drivers in either the CONFIG.SYS file or AUTOEXEC.BAT file, since doing so can cause conflicts within this volume management layer.

The MSCDEX DOS CD-ROM extension, network drivers, and other device drivers in the AUTOEXEC.BAT file are assigned drive letters in the order that they appear.

SyQuest recommends that you use the LASTDRIVE=[drive letter] command to preassign your CD-ROM a drive letter far enough along in the alphabet to create a gap in your drive letter assignments large enough to accommodate drive assignments for additional devices without disturbing the order of your existing devices.

Referring to the New Drive Letters

Several system files refer to the disk drives by their drive letter. If DOS rearranges your drive letters, you must correct all references to the affected disks to ensure that your system functions properly. Perform these tasks:

1. **Edit the CONFIG.SYS and AUTOEXEC.BAT file to reflect the new drive letters.**
2. **Edit the PATH statement in your AUTOEXEC.BAT file to refer to the new drive letters.**
3. **Edit all batch files to refer to the new drive letters.**
4. **Edit all Windows .INI files and your Windows groups to reflect the new drive letters.**
5. **Rerun INSTALL or SETUP for any application programs if you cannot change the reference drive letter for that application.**
6. **Edit the network LOGIN script as needed to reflect the new drive letters.**
7. **Remount compression drives if you are using DOS compression.**

CD-ROM Drive Letters

CD-ROMs are usually assigned the last local drive letter because they are supported by a device driver (MSCDEX.EXE) that is the last to load (typically at the beginning of the AUTOEXEC.BAT file). In the most common PC configuration, DOS assigns drive letter D to the CD-ROM, because it is the only drive in addition to the boot drive, C.

You can direct MSCDEX (and other equivalent CD-ROM device drivers) to use a specific drive letter with the /L command line option in the AUTOEXEC.BAT file. This allows you to guarantee that the CD-ROM is assigned a particular drive letter even when you add several devices over time. SyQuest recommends that you leave a one drive letter *gap* between the highest drive letter that you plan to install and the CD-ROM drive letter. This ensures that the CD-ROM drive letter is not changed when you install other drives.

For example, if you wish to ensure that your CD-ROM drive retains the drive letter G even if you add several hard drives to your computer, modify the MSCDEX.EXE line in the AUTOEXEC.BAT file to read as follows: C:\DOS\MSCDEX.EXE /D:MSCD001 /L:G

Note: If you use the LASTDRIVE command in your CONFIG.SYS file, set LASTDRIVE equal to or higher than the CD-ROM drive letter. In our example, you might use LASTDRIVE=G.

Network Drive Letters

A Network Operating System (NOS) assigns DOS drive letters to network drives alphabetically after DOS has assigned letters to the local devices, but rarely does the NOS assign a drive letter lower than F. This means that you can usually add a local drive and not affect your network drive letter assignment.

If your first network drive letter is changed and your network LOGIN script refers to a specific drive letter for LOGIN (typically F), you may need to change the script to refer to the new drive letter. Your network system administrator can help in rearranging your network drives.

Changing Your Network Drive Letter: The DOS LASTDRIVE command allows you to set the highest drive letter that DOS will use for local drives. This, in turn determines the first network drive letter. For example, you can force the your network to start at drive letter H by using LASTDRIVE=G in your CONFIG.SYS file.

The NOS can only assign drives up to Z, so be sure to allow enough letters between the last local drive and drive Z for your network drives.

Managing Drive Letter Reassignments

Whenever drive letters change, you must perform the following tasks:

1. **Update the CONFIG.SYS and AUTOEXEC.BAT files to reflect the new drive letters. Update the path of device drivers loaded from drives other than the C: drive.**
2. **Update the PATH statement in your AUTOEXEC.BAT file to correctly refer to new drive letters.**
3. **Update all batch files to reference the proper drive letters.**
4. **Update all Windows .INI files and your Windows groups for new drive letters.**
5. **Rerun INSTALL or SETUP of your application program if the reference drive letter cannot be changed.**
6. **Update the network LOGIN script as necessary to reflect the new drive letters.**
7. **Remount the compressed drives if you are using DOS compression.**
8. **Update Windows icons by first selecting the icon and then selecting Properties under the Program Manager File menu.**

OS/2 Drive Letter Assignment

When OS/2 boots, drive letters are assigned in the following order:

- IDE primary partitions (drive 0 followed by drive 1, and so on)
- SCSI primary partitions
- SyQuest SCSI Drive primary partitions
- IDE logical partitions
- SCSI logical partitions
- SyQuest SCSI Drive logical partitions
- Removable media drives (OS/2 Floppy partitions)

Reserving Additional Drive Letters (OS/2)

When OS/2 boots, OS/2 reserves one drive letter for a primary partition and a drive letter for each logical partition that OS/2 finds on the cartridge. If plan to interchange cartridges that have different numbers of partitions, you can force OS/2 to reserve additional drive letters by modifying the OS2DASD.DMD statement to include /NUMVOL:u,n where u is the physical hard disk index (0 for the boot drive, 1 for the second drive, and so on) and n is the number of drive letters to reserve to a maximum of four.

For example, to reserve three drive letters for drive 1, change the OS2DASD.DMD statement in CONFIG.SYS from:

```
BASEDEV=OS2DASD.DMD
```

to

```
BASEDEV=OS2DASD.DMD /NUMVOL:1,3
```

Using the *Visit* Program to Manage Drive Letters

SyQuest SCSI drives may be temporarily installed on PCs using the VISIT program. VISIT loads the required device drivers and allows you to quickly attach and software-connect a SyQuest SCSI drive while the computer is operating—you need not even reboot the system.

VISIT assigns a new drive letter (after all other drive letters are assigned in the normal order) for the SyQuest SCSI drive. The drive is accessible as a removable cartridge disk drive using the newly-assigned drive letter.

Note: The VISIT program will not work in this manner if you have enabled your HBA BIOS to install the SyJet drive. In this case, VISIT will use the assigned drive letter. See "SCSI Host Bus Adapter BIOS" on page 26.

To *visit* a personal computer, follow these steps:

1. **Turn off the computer.**
2. **Connect the SyQuest SCSI drive to the computer's SCSI adapter.**
3. **Connect the SyQuest power supply and turn on the SyQuest SCSI drive.**
4. **Turn on the computer and allow the operating system to load.**
5. **Insert the *SyQuest Installation Diskette* into the primary diskette drive.**
6. **Type `A:\VISIT` (or `B:\VISIT`) and press the Enter key.**

Glossary of Common System Terms

ASPI: Acronym for Advanced SCSI Programming Interface. It establishes *standard language* for SCSI device control programs to communicate with SCSI HBAs. The standard allows the maker of a SCSI device to write a single ASPI-compatible device driver rather a unique driver for each different HBA. HBA vendors provide an ASPI manager written specifically for their board and the operating system. The interface between SCSI device(s) and the HBA is accomplished at the common ASPI control level.

ASPI Manager: This is the software module written for a specific HBA and operating system (usually provided by the HBA vendor). This software allows disparate SCSI devices to be easily interfaced to the HBA. Each SCSI device will have its own ASPI-compatible device driver that communicates to the HBA and operating system through the ASPI Manager.

BIOS: (Basic Input/Output System) is the software that starts up, tests, and provides basic communication services for a computer's standard hardware components. The BIOS program is loaded prior to the loading of the operating system. The BIOS is contained on a ROM on the mother board of the computer. Some adapter boards (including SCSI HBAs) contain their own BIOS ROM which act as extensions to the computer's on board BIOS providing support for added devices.

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