SCSI Installation Guide

Generic

Installation requirements

To install a drive inside your computer or in an external storage enclosure for SCSI devices, you must have:

1 The documentation that came with your computer or storage enclosure.
2 The documentation that came with your hard drive.
3 A small, flat blade screwdriver.
4 A SCSI controller, which is either built into the system board or on an adapter inside your computer.
5 An installation kit, if it is required for your computer. Contact your place of purchase if you are not sure.
6 If you are installing this into a PS/2 computer, you will also need the up-to-date backup copy of your reference diskette and diagnostic diskette.

 WARNING: Do not open the static-protective bag containing the drive until instructed to do so. Static electricity can damage the drive.

Hardware and software considerations

Operating system
The operating system and hardware are two of the factors that determine the number of drives a computer can support. The manuals for your computer and operating system can help you to determine the number and type of hard disk drives you can use.

Power supply
Two factors that determine the number of internal drives that a computer or SCSI storage enclosure can support are:

1 The available current of the power supply
2 The nominal operating current of each drive installed

Most computer power supplies have output over-current protection. If the total allowed current is exceeded, the power supply shuts down. The computer must be turned off and turned on again.

SCSI ID
Each SCSI device connected to a SCSI adapter must be assigned a unique SCSI identification number (ID). The ID you assign to this device depends on the number of SCSI devices connected to the SCSI adapter and the SCSI IDs already assigned to those devices.

Note: All IBM SCSI controllers support SCSI IDs 6 through 0. (ID 7 is used for the SCSI controller.) Some SCSI controllers support SCSI IDs 15 through 8. If your SCSI controller supports more than seven devices, then you can use SCSI IDs 15 through 8. If you are not sure if your SCSI controller supports more than seven devices, refer to the documentation that came with your SCSI controller for information.

If you have an IBM PS/2 computer, you can view your SCSI ID settings by accessing the system programs. From the main menu, select **Set configuration**. The select **Set and view SCSI configuration.**

Other computers might have utility programs that enable you to view the SCSI configuration, or you might have to physically inspect the installed SCSI devices to see how the IDs are set. For more information, refer to the documentation that came with your computer or SCSI controller.

Handling precautions
1 Turn off all attached devices first; then turn off the computer.
2 Unplug all the power cords from electrical outlets before starting installation.
3 Disconnect all power cables from your computer and attached devices before starting installation.
4 Limit your movement. Movement can cause static electricity to build up around you.
5 Handle the drive carefully and by the edges.
6 Do not touch any exposed printed circuitry.
7 Prevent other people from touching the components or the drive.
8 When you are installing the drive, touch the static-protective package containing the drive to a metal expansion-slot screw or other unpainted metal surface on the computer, for at least 2 seconds. (This drains static electricity from the package and your body.)
9 When possible, remove the drive and install it directly into the computer without setting it down. If this is not possible, place the drive, component side up, on the static-protective bag on a flat surface until the drive is installed.
10 Do not place the drive on the computer cover or on a metal table.

Installing the drive

These instructions guide you as you install the drive inside your computer or storage enclosure.

Step 1. Setting the jumpers and terminators

Note: Be sure you have chosen the SCSI ID before continuing. If you did not yet choose the SCSI ID, go to "SCSI IDs" above, then return here.
Follow these steps to set the SCSI ID to match your chosen SCSI ID.

1 Touch the static-protective bag containing the drive to a metal expansion-slot cover on the computer. This drains any static electricity from the package and your body.

2 Remove the drive from the static-protective bag, holding the drive by the edges. Do not touch any exposed components on the drive.

3 Place the drive on the bag, on a flat surface.

4 When the Auto Start feature is enabled, the hard disk drive motor starts as soon as the computer is turned on. Locate the Auto Start jumper by referring to the documentation that came with your drive. If the Auto Start jumper is not in place, the hard disk is started by a command from the SCSI controller. For drives installed in IBM computers or storage enclosures ensure that this jumper is off. The hard disk drive is started in a staggered sequence. This reduces the start-up load on the power supply. For non-IBM computer, refer to the documentation that came with your computer for further information.

5 Set the SCSI ID that you selected. To remove a jumper, pull it straight off. To install a jumper, line up the two holes in the jumper with the appropriate two pins on the drive. Then push the jumper onto the pins until it is completely seated and covers both pins.

6 Store any jumpers you do not use in a safe place, in case you need to change the SCSI ID for this drive later. WARNING: If you have extra jumpers, do not store them on any of the extra pins on the connector. Storing them on a set of pins could damage the drive.

Step 2. Connecting the terminator

The location of the drive you are installing inside the computer or storage enclosure determines whether you need to connect a terminator or put a jumper on the Enable Active Termination pins. Read the information in the following table to determine if you must install the terminator. For more information about termination, refer to the documentation that came with your computer.

Note: A SCSI chain of devices consists of multiple SCSI devices connected by a SCSI cable to a SCSI controller.

If the hard disk drive is:	Then:
The last physical device on a SCSI chain of devices inside the computer.	Install the terminator

Going inside a computer that has one or more it	Do not install the terminator. Store
devices already installed, and this drive will not be the last device on the SCSI chain.	in a safe place for future use.
The last physical device on a SCSI chain of devices inside an external storage enclosure.	Install the terminator
Going into an external storage enclosure that Store has one or more devices already installed, and this drive will not be the last device on the SCSI chain.	Do not install the terminator. it in a safe place for future use.

Step 3. Enabling term power

If your drive has a jumper for term power and your SCSI controller is suppling term power, (check with the manufacturer of your controller) then you do not need to enable the term power. The jumper should be off. For help in locating the term power jumper, refer to the documentation that came with your drive.

Step 4. Installing the drive

For the specific information on installing a hard disk drive, refer to the documentation that came with your computer. You will be required to mount the drive inside your computer, and connect signal and power cables to the hard drive.

When installed in an enclosure, the drive is attached by cable to the external connector of a SCSI controller. The controller can be either on a SCSI adapter or built into the system board inside of your computer.

Note: Be sure to use the correct screws provided with your drive. Using the wrong ones might cause damage to the drive.

Step 5. Completing the installation procedure

The installation of the drive is complete. Reinstall the cover on the computer or storage enclosure. Store these instructions and any extra parts in a safe place in case you change your configuration.

After installing your hard disk drive, use the information that came with your computer to reconfigure your system. When you power on your system, turn on all attached devices first; then turn on the computer.

If you have any problems at this point, turn off all attached devices; then, turn off the computer and check that:

1 The cables are installed correctly
2 No options or cables are loose
3 The SCSI ID is properly set
4 No two SCSI drives have the same SCSI ID
5 The terminators are properly installed

Turn on all attached devices; then, turn on the computer. If you still have a problem, refer to the troubleshooting information in the documentation that came with your computer.

Step 6. Update configuration

Whenever you add or remove an option from your computer, you must update the configuration information. Your computer might have an automatic configuration program, or you might have to follow a specific procedure. For more information, refer to the documentation that came with your computer.

Step 7. Preparing the drive for use

Having successfully installed the hard disk drive, you need to prepare it for use. Depending on the operating system you are using, you might need to partition then format the hard disk. Refer to the documentation that came with your operating system for information on how to format your new drive.

To make the drive just installed your primary drive, you might need to create a new system partition on the drive. For information on creating a new system partition, refer to the documentation that came with your operating system.

Troubleshooting

You might be able to solve a problem yourself. Before calling IBM, you might want to try some or all of the following troubleshooting procedures.

1 Remove and reattach all drive cables
2 Remove and reseat the drive
3 Place the drive in a different slot, if one is available
4 If your drive contains jumpers or switches, check that they are set as specified
5 Reread any software instructions; be sure software settings are correct

6 Inspect the drive for damage, such as bent pins
7 Check the computer manual for instructions about the installation of upgrades. Look for a section about system setup or system configuration. Follow all procedures.
8 After completing these steps, reassemble the computer and connect the power cord

If you are still having problems and want to call IBM technical support, have available as much of the following information as possible:

1 Drive model or P/N and description
2 Computer manufacturer and model
3 Exact wording of error message (if any)
4 Description of the problem
5 Hardware and software configuration information for your system

If possible, be at your computer. Your technical support rep might want to walk you through the problem during the call.