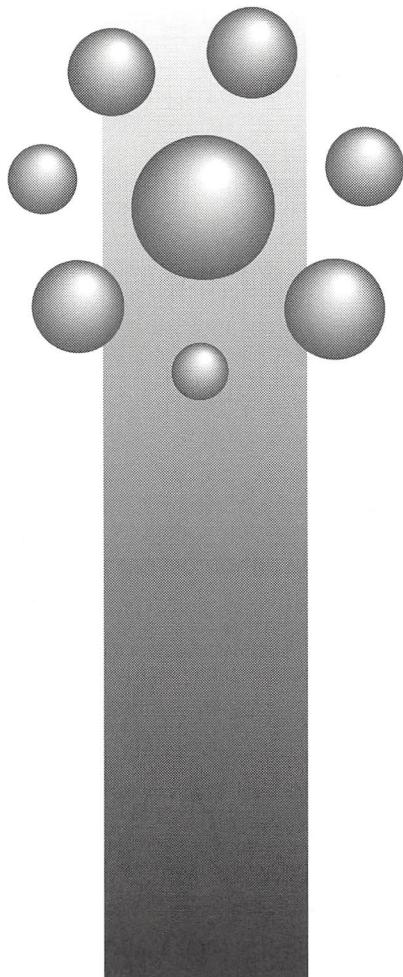


COREL SCSI!

USER MANUAL

CorelSCSI for DOS/OS2/Windows



User Manual

WO\Q173

Copyright 1992 by COREL SYSTEMS CORPORATION

The contents of this manual and the associated CorelSCSI and CorelDRIVER software are the property of COREL SYSTEMS CORPORATION and are protected by copyright. Any reproduction in whole or in part is strictly prohibited. For additional copies of this manual or the software, please contact COREL SYSTEMS CORPORATION.

CorelSCSI is a registered trademark of COREL SYSTEMS CORPORATION

CorelDRIVER is a registered trademark of COREL SYSTEMS CORPORATION

MSCDEX is a copyright of Microsoft Corporation

Micro Channel is a trademark of IBM

PS/2 is a trademark of IBM

Microsoft Windows is a registered trademark of Microsoft Corporation

User manual designed and written by Julie Clifford, David O'Heare, and Irshaad Hussain

Printed in Canada

March 1992

Table of Contents

Introduction

Read this first	3
If you are using DOS or OS2.....	3
If you are using Microsoft Windows.....	3
About this manual	4
Text conventions.....	6
Command line format	6

About CorelSCSI	9
What is SCSI?	9
Introducing CorelSCSI.....	9
About optical drives.....	9
WORM drives.....	10
Multi-function drives	11
CD-ROM drives.....	11
About Tape devices.....	12
QIC (Quarter inch cartridge)	12
DAT (Digital audio tape).....	12
8mm Helical Scan	12
Other peripherals	13

Installation

Installing CorelSCSI hardware.....	17
The installation process.....	18
Before you start	18
Preparing the LS3000 interface card.....	19
Memory settings	19
Auto-sense termination.....	20
SCSI bus power	20
Floppy disk controller.....	21
Installing the LS3000 interface card	21
To install the LS3000 interface card	21
Configuring the LS3000 interface card.....	22
Host adapter selection.....	22
Current BIOS settings.....	22
Modify BIOS settings	23
Board Diagnostics.....	23
Preparing the LS2000 interface card.....	24
Memory settings	24
Wait state operation	25
SCSI bus power	25
Bootable SCSI hard disks (MS-DOS only)	26
Installing the LS2000 interface card	26

Table of contents

To install the LS2000 interface card	26
Preparing the LS2000 TOS interface card for Toshiba portable computers	27
Memory settings	27
SCSI bus power	28
Bootable SCSI hard disks	28
Installing the LS2000TOS interface card	29
To install the LS2000 TOS in a Toshiba-compatible computer	29
Preparing the LS2000 MCA interface card for Micro Channel bus computers	30
Installing the LS2000MCA interface card	30
To install the LS2000 MCA interface card	30
Configuring the LS2000MCA interface card	31
To configure the LS2000MCA card	31
Installing a SCSI device	32
To install an internal SCSI device	32
To install an external device	33
Installing an internal and an external device	33
To remove the terminating resistor from the CorelSCSI interface card	33
To reinstall the terminating resistor on the CorelSCSI interface card	34
SCSI hard disks	34
Bootable SCSI hard disks under MS-DOS	34
To prepare a SCSI hard disk	35
Installing software for DOS and OS2	37
CorelDRIVER and ASPI	37
Before you begin	37
Installing CorelDRIVER	38
README files	39
Installation options	39
Automatic device driver configuration	40
Microsoft Windows configuration	41
Manual device driver configuration	41
Device driver statement options	42
ASPI driver	42
Device drivers for specific devices	43
Advanced device driver statement options	44
Installing software for Windows	47
Before you begin	47
Installing CorelSCSI Tools for Windows	47

DOS/OS2 Reference

WORM and rewritable optical drives	53
Commands available to DOS and OS2 users	54
Commands available to DOS users only	54
Formatting an optical cartridge	54
To select an option in the CFORMAT program	54
Cartridge compatibility option.....	56
Volume size menu	56
Begin high level format	57
Determining the free space on a cartridge	59
To select an option in the CHKMEDIA program	59
Displaying explicit error messages	61
Testing the drive and interface.....	61
To select an option in the DIAGS program	62
Creating an output log file	62
Performing diagnostics tests.....	62
Running selected tests.....	63
To run selected tests	64
Checking driver status.....	65
To run DVRSTAT	65
Applying a patch to your DOS system	67
To select a PATCH option	67
Modifying disk operation with the UTILS program	69
To start the UTILS program	69
Changing the SCSI ID or LUN.....	70
Displaying cartridge information.....	71
To look for blank sectors	71
To compare sectors.....	71
To read sectors.....	72
Setting the internal time for the driver.....	72
Dismounting a cartridge	72
Logging error codes	73
Flushing data to the cartridge	74
Locking the drive	75
Mounting a cartridge.....	75
Resetting the SCSI bus.....	77
Scanning for SCSI devices.....	77
Status codes.....	78
Generating log files	78
Commands for WORM drives only	81
About HISTORY	81
History markers.....	82
Accessing old versions of files	82
Displaying or selecting history markers	84
Activating a selected history marker	85

Table of contents

Restoring a cartridge to its empty state	86
Restoring a cartridge to its last active state	86
Writing a USER marker.....	87
Creating an output log file	88
Repairing a cartridge	88
Using the WORMFREE command.....	89
Working with CD-ROM drives.....	91
Playing audio CDs with CDAUDIO.....	91
To select an option in the CDAUDIO program	91
To select an audio option.....	92
Changing slots or CD-ROM drives	93
To select another CD-ROM drive	94
To change slots with a multi-disc player.....	94
Displaying error codes	95
To use this command.....	95
Using the CDTOOLS utility	96
To select an option within CDTOOLS.....	96
Changing the drive operating values	96
Checking drive status.....	97
To check the status of one drive.....	98
To check the status of all drives	98
Testing the drive, interface card, and cable	99
To start the tests	99
CorelSCSI Backup.....	101
Why back up files.....	101
Installing and configuring the backup software.....	101
Starting CorelSCSI backup	102
Backing up your disk	102
Full backup.....	103
Selecting files to back up	106
Verifying your backup	112
Restoring from your backup	113
Full restore	114
Selecting files to restore.....	115
Miscellaneous.....	120
Format a tape.....	120
Rebuild a volume file.....	122
To rebuild a volume file	122
View save set	122
Device status	124
Exit	124
Windows Reference	
CorelSCSI Backup for Windows	127
Why back up files.....	127

Table of contents

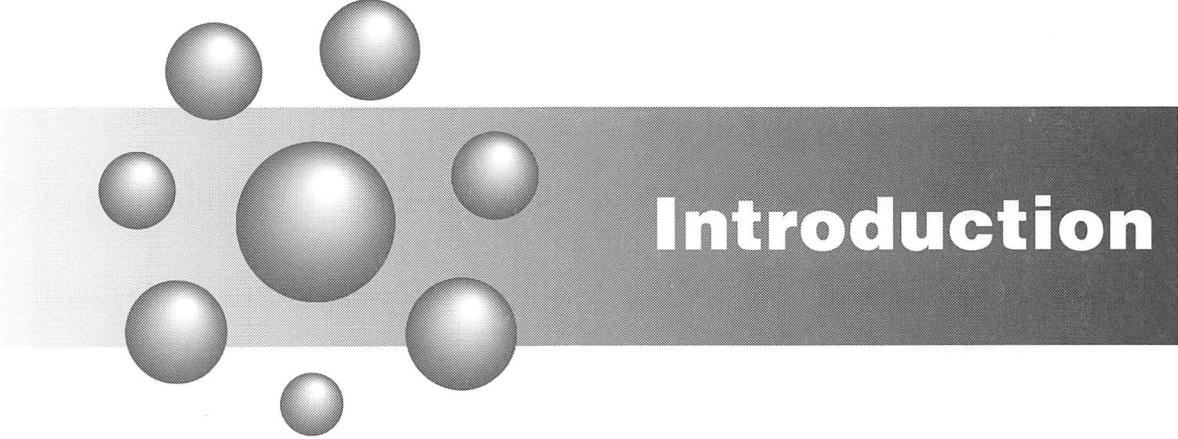
Installing and configuring the backup software.....	127
Starting CorelSCSI backup	128
The Tape Backup screen	129
Backup menu	129
Options menu.....	130
Disk menu	131
Tape menu.....	132
Utility menu	133
The Tape Verify screen.....	133
Verify menu	133
Tape menu.....	134
Utility menu	134
The Tape Restore screen	135
Restore menu	135
Options menu.....	136
Disk menu	137
Tape menu.....	137
Utility menu	138
Exit to Windows.....	138
CorelSCSI Tools	139
Starting the CorelSCSI Tools program.....	140
System menu	140
Title bar	140
Menu bar	140
Device list	141
Device types and associated icons.....	141
Running CorelSCSI Tools	141
Using a mouse.....	142
At the keyboard.....	142
Managing the CorelSCSI log files	143
Opening the default log file	143
Opening a log file	144
To create a new log file	144
To open an existing log file.....	144
Closing a log file.....	144
Viewing a log file	145
To return to CorelSCSI Tools	145
Printing a log file	145
Selecting a printer for the log file	145
To select a different printer	146
Exiting the CorelSCSI Tools program	146
Displaying system status	146
Displaying drive information.....	146
Displaying driver information	147
Displaying cartridge information.....	150
Displaying the latest error.....	152
Changing the CorelSCSI Tools configuration	153

Table of contents

Selecting advanced or normal mode.....	153
To run CorelSCSI Tools in advanced mode	154
Displaying confirmation messages.....	154
Restoring the default configuration	154
Saving the current configuration	155
Modifying drive operation	155
Locking /Unlocking a drive	155
Setting mount parameters	156
Mounting/dismounting a cartridge	156
To mount a cartridge	156
To dismount cartridge.....	156
Ejecting a cartridge	157
Changing the SCSI ID/LUN.....	157
Resetting the SCSI bus	157
Flushing driver buffers	157
Scanning the SCSI bus.....	158
About CorelSCSI icons	159
CD-Audio.....	161
CD-Audio screen.....	162
In the Play window	162
In the Program window	163
Using the System menu to play a CD	163
Setting program configuration	164
Switching drive control.....	164
Changing the CD-Audio color scheme.....	165
Setting Startup options.....	165
Displaying time and drive status.....	167
Playing a CD	168
Finding a specific track	168
Selecting specific music	168
Turning drive volume on or off	169
Options Panel	169
Time button	169
Disk information	170
Play mode display	170
Options button.....	170
Using the controls in the Program window	170
Artist Title	171
Disk Title	171
Track list	171
Track title	173
Selecting a play mode	173
Repeating track or disk	173
Adjusting the information in the Track list.....	174
Saving the information in the Track list	175
Keyboard combinations	176
At the keyboard.....	176

Troubleshooting

Troubleshooting	181
Checklist.....	182
Installation: DOS and OS2.....	182
Jumper settings	182
Device driver.....	183
Drive access	183
Installation: DOS only	183
DOS Memory	183
Questions and answers: DOS and OS2.....	184
Questions and Answers: OS2 only	186
Error messages	187



Introduction

Read this first

The CorelSCSI interface supports SCSI devices under the DOS, OS2, and Windows operating systems. This manual tells you how to install and use the CorelSCSI interface card and software with the DOS/OS2/Windows operating systems.

If you are using DOS or OS2

If your computer operating system is either DOS or OS2, read these sections:

- Installing CorelSCSI hardware - to learn how to install the CorelSCSI card and cable
- Installing software for DOS and OS2 - to configure the software for your system
- DOS/OS2 reference - to learn how to use the DOS/OS2 based CorelSCSI features
- Troubleshooting - if you experience errors while using the CorelSCSI software

If you are using Microsoft Windows

If you are running Microsoft Windows (version 3.0 or later), read these sections:

- Installing CorelSCSI hardware - to learn how to install the CorelSCSI card and cable
- Installing software for Windows - to configure the CorelSCSI software for the Windows environment
- Windows reference - to learn how to use the Windows-based software features
- Troubleshooting - if you experience errors while using the CorelSCSI software.

About this manual

The CorelSCSI software, CorelDRIVER, offers many commands and utilities to help you perform maintenance and diagnostic procedures on your drives and cartridges. This manual tells you how to install the CorelSCSI card and software, and familiarizes you with the commands and utilities the software provides.

Some of the CorelDRIVER commands are designed to be used with both WORM and rewritable drives while others will work only with WORM drives, CD-ROM drives, or tape devices. In this manual, the commands are grouped according to the type of devices to which they apply.

The manual is divided into five major parts:

- Introduction
- Installation
- DOS/OS2 reference
- Windows reference
- Troubleshooting

Introduction

Read this part to learn about CorelSCSI and about the devices that CorelSCSI supports.

Installation

The three chapters in this part tell you how to install the CorelSCSI card and software that came in your CorelSCSI interface kit.

Installing CorelSCSI hardware Follow the procedures in this chapter when installing the CorelSCSI card. This chapter covers all CorelSCSI card installations, regardless of the operating system you are using.

Installing software for DOS and OS2 If you are using the DOS or OS2 operating system, follow the procedures in this chapter when installing the CorelSCSI software.

Installing software for Windows If you have Microsoft Windows, version 3.0 or later, on your computer, and want to run CorelSCSI in the Windows environment, follow the procedures in this chapter when installing the CorelSCSI software.

DOS/OS2 reference

This part describes the CorelDRIVER commands that you can use to manage the SCSI devices in your DOS or OS2 system. CorelDRIVER is a universal driver that supports WORM, rewritable, and multi-function drives.

WORM and rewritable optical drives Read this chapter to learn about the commands that you can use with your WORM, rewritable, and multi-function drives.

Commands for WORM drives only This chapter describes commands that you can use only with WORM drives or with multi-function drives operating in WORM mode.

Working with CD-ROM drives To learn about the commands that you can use to operate and monitor your CD-ROM drives, read this chapter.

CorelSCSI Backup In this chapter you will learn how to back up your files to a tape device.

Windows reference

This part describes the CorelSCSI commands that are available in the Windows environment.

CorelSCSI backup for Windows This chapter describes how to back up your files to a tape drive using the Microsoft Windows interface.

CorelSCSI Tools Read this chapter to learn how to operate and monitor your WORM, rewritable, and multi-function drives using the Microsoft Windows interface.

CD-Audio This chapter tells you how to use the CD-Audio program to play audio CDs on your CD-ROM drive.

Troubleshooting

The Troubleshooting part contains information that can assist you in identifying the cause of problems and in finding solutions to them. This part describes problems and possible solutions for WORM, rewritable, multi-function, and CD-ROM drives in DOS, OS2, and Windows-based systems.

Text conventions

This manual uses the following text conventions:

- A word enclosed in angle brackets indicates a key on the keyboard. For example, “Press <Esc>” means press the keyboard key titled “Esc”.
- Two words separated by a plus (+) sign indicate two keys that you must press simultaneously. For example, “Shift + Tab” means that you must hold down the Shift key and press the Tab key.
- Words in uppercase letters are command names.

Command line format

The commands and utilities that come with CorelDRIVER are menu driven. However, you have the option of entering commands at the command prompt instead of using the menus. The commands and utilities sections of this manual (DOS/OS2 reference) contain optional command line formats that allow you to execute a command at the command prompt.

This manual uses the following syntax when listing the command line formats for the CorelDRIVER commands:

- Words in bold letters are commands or parameters you must enter to execute a given command. You can use either uppercase or lower case letters when typing these words.
- Words in italics are place holders for variable information. You must replace each place holder with a value appropriate to the task you want to perform.
- Words enclosed in square brackets [] are optional parameters. These parameters allow you to access the command options, but are not required for the basic command to work.
- Vertical bars indicate that you have the option of using one parameter or another. Also, if parameters are placed in a column, one above the other, it means you can only use one of those parameters at a time.

In addition to the parameters described for each command, you can also use /QUIET and /HELP. Unless otherwise specified, /QUIET allows you to perform the command without keyboard input and screen output as long as you have included all the necessary parameters. /HELP takes you into the command line format help screens.

Example of command syntax

For example, the command line format for CFORMAT is as follows:

**CFORMAT *drive*: [/VOLUMES:*n*] [*volume*] [/format] [/HELP] [/QUIET]
[/LOWLEVEL] [/ZERO]**

When you are actually typing this line at the command prompt, you might type the command as follows:

cformat f: /VOLUMES:1 YAS1A /DOS3 /QUIET

In the example above, the placeholders *drive*, *n*, *volume*, and *format*, are replaced with specific values as listed below:

drive	is replaced by f, the drive letter
n	is replaced by 1 (VOLUME:1), indicating one volume
volume	is replaced by the name (YAS1A) of the volume
format	is replaced by DOS3, the type of format required.

About CorelSCSI

What is SCSI?

SCSI stands for Small Computer System Interface. The interface is a combination of hardware and software that allows you to connect up to seven SCSI devices to a single card.

The SCSI interface is transparent; the computer does not need to know all the details of the devices connected to the SCSI bus. The computer asks for data from a device, or asks to send data to a device. The SCSI hardware and software take care of moving the data.

Introducing CorelSCSI

The CorelSCSI package contains the hardware and software needed to allow your IBM PC-compatible computer to communicate with devices that use the SCSI standard. Devices supported include optical drives such as CD-ROM, WORM, rewritable, and multi-function drives; tape drives; and hard drives.

About optical drives

Optical drives are random access devices that use lasers to write and read data to and from a cartridge. Optical drives use three different types of disk storage: rewritable, write-once/ read many or WORM, and read only memory or ROM (used for CD-ROM drives).

Rewritable drives

Rewritable drives use magneto-optical (MO) or phase-change technology to write data to and read data from a plastic or glass disk. The disk is encased in a high-impact plastic cartridge, making it less susceptible to damage from being dropped. Since the cartridges are immune to most magnetic fields, they can safely store data for many years.

Magneto-optical (MO) technology

MO technology uses a combination of magnetics and optics to read and write information on a disk. A laser beam is used to heat a layer of special material on the disk. When heated, the material takes on the polarity of an electromagnet located in the drive mechanism. Data is recorded on the disk by rapidly switching the polarity of the electromagnet.

To read data, the laser beam is polarized, and the reflected light is detected, measured, and translated into data.

To erase data, the appropriate sector of the disc is heated by the laser beam. The heated sector is then exposed to even polarity which returns the material to its pre-write state.

Phase-change technology

Phase-change optical drives use only optics to read and write information to a disk.

With phase-change technology, a laser beam is used to heat a layer of special material on the disk. This material can exist in either a crystalline or amorphous state. When a spot on the disk is heated by a low power laser, the material becomes crystalline. When heated by a higher powered laser the material becomes amorphous. Data is written to and erased from the disk by using lasers to change the state of the material on the disk.

To read data, a laser and lens are used to measure how much of the light is reflected back from the surface of the disk. Light striking an amorphous area is scattered, and very little returns to the lens. Light striking a crystalline area is reflected straight into the lens. The reflected light is detected, measured, and translated into data.

In short, rewritable drives are large storage capacity devices that combine long term storage with the flexibility of re-using the storage medium.

WORM drives

A WORM drive cannot physically overwrite data on a cartridge, and files written to a cartridge cannot be physically erased. WORM drives use lasers to permanently alter the surface of the cartridge medium as they write to the cartridge. This ensures permanency and a long storage life for the recorded data.

WORM drives are ideal for archiving large amounts of information and maintaining an audit trail of all changes to your data. Since anything written to the cartridge cannot be erased or deleted, a secure record of all versions of all files written to the cartridge is made. In this way an audit trail of the history of all your data is available to you.

WORM drives are large storage capacity devices that provide long term storage and when used with the CorelDRIVER History utility provide an easily accessible audit trail of all data ever recorded on a cartridge.

Multi-function drives

Multi-function drives are large storage capacity devices that provide long term storage and the flexibility of working in either WORM or rewritable mode. This flexibility allows you to use the mode (WORM or rewritable) that is best suited to your work and your particular applications.

With CorelDRIVER, your multi-function drive automatically switches between WORM and rewritable mode when you insert the appropriate optical disk into the drive.

CD-ROM drives

CD-ROM drives are read-only drives that allow you to read data from a CD but not write or erase information from the CD. CDs are a popular method for publishing and distributing large amounts of information, such as databases, catalogs, graphics, software applications (such as CorelDRAW), and multimedia presentations.

To create CDs, optical laser technology is used to record information in a digital electronic form. This technology uses a laser to burn microscopic pits into a light-sensitive coating on a master disc. Copies made from the master disk are encased in clear, highly durable polycarbonate plastic (a type of plastic that is used to make bullet proof windows).

To read the disc, a laser and lens are used to measure how much of the light is reflected back from the surface of the disk. Light striking one of the microscopic pits is scattered, and very little returns to the lens. Light striking a flat portion of the disc is reflected straight into the lens. As a result, the intensity of the reflected light changes as the laser beam moves from a pitted to a flat portion of the disc.

A photo detector (a device which measures the strength of the reflected light) makes a current. The current is proportional to the intensity of light which comes through the lens. This constantly changing current is interpreted as information by the computer.

As its name suggests, you can only read from a CD-ROM disc. You cannot write to the disc. A CD-ROM disc is used to distribute information, either in audio format, or as computer data, or in both formats as in the case of Corel's own Artshow 91 CD.

Introduction

As such, CD-ROM is a powerful new publishing medium that lets anyone access large amounts of data. Because of this CD-ROM drives are fast becoming standard components of PC systems.

About Tape devices

Tape devices are widely used for backing up and archiving files. Because of the low cost of the cartridges, tape devices are ideal for this purpose.

The types of tape devices most commonly used are: QIC (Quarter inch cartridge), DAT (Digital audio tape), and 8mm Helical scan.

QIC (Quarter inch cartridge)

The QIC cartridge can hold between 40 megabytes and 1.35 gigabytes (GB) of data. The data is recorded in opposite directions: even numbered tracks are recorded as the tape goes in one direction while odd numbered tracks are recorded as the tape goes in the opposite but parallel direction. This results in increased speed when reading data since the drive can read data while going in either direction. Data is recorded by running tape past a stationary head at up to 120 inches/sec. The tape then reverses direction and data is recorded on a parallel track. Data is recorded on up to 26 tracks in a zig-zag pattern.

DAT (Digital audio tape)

DAT cartridges are small and compact, and can hold between 1.3 GB and 2.2 GB of data. In DAT drives the tape moves past the recording head at 0.31 inches /sec. However, the combined movement of the tape and the rotating recording heads delivers a recording speed equivalent to 123 inches/sec. The tape heads move in a spiral rotation from the bottom to the top of the tape so that each track is written diagonally on the tape.

Since the recording heads are wider than the tape, each new track overlaps the previous track. As a result there is no blank tape between tracks and a high data density is achieved. Alternate tracks are written at alternate angles so that despite the overlap of tracks each track's signal can be distinguished from the other tracks.

8mm Helical Scan

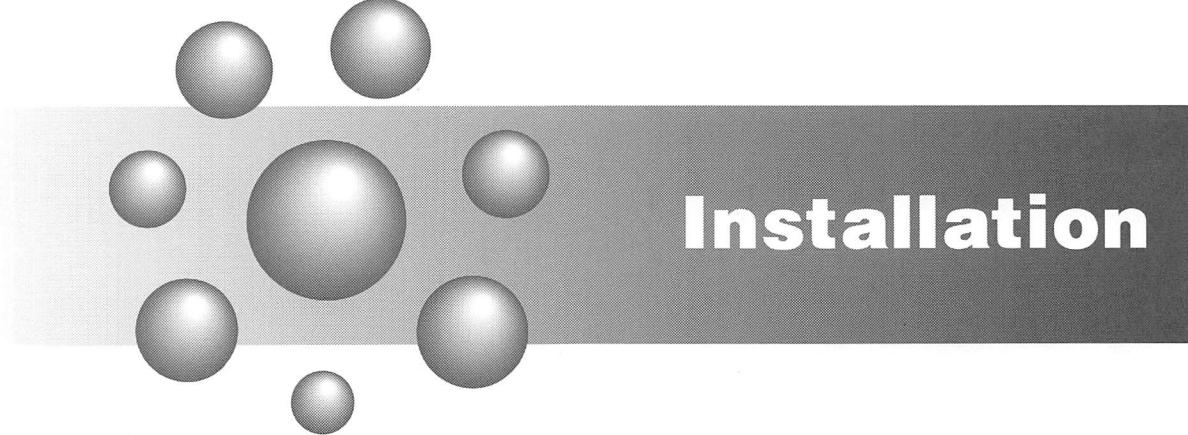
The 8mm Helical Scan uses an 8mm video cassette tape as a recording medium. Data is recorded using the same rotating head technique as a DAT cartridge. The 8mm helical scan tape backup system provides between 2 GB and 5 GB of storage.

Other peripherals

CorelSCSI supports a number of other SCSI peripherals as well as those described in the previous pages. These include:

- Hard disk drives
- Floppy disk drives
- Printers
- Scanners

The subsequent sections of this manual describe the CorelSCSI commands that you can use to operate and perform diagnostics on the SCSI devices in your computer system.



Installation

Installing CorelSCSI hardware

The CorelSCSI package contains the hardware and software needed to allow your IBM PC-compatible computer to communicate with peripherals that use the SCSI standard.

The CorelSCSI package also includes a VHS video cassette that shows how to install the interface card and software. The video cassette demonstrates a basic installation. Refer to this section of the manual for details and for explanations of more complicated installations.

This manual covers the installation of the following CorelSCSI interface cards:

- CorelSCSI LS3000 in PC-AT compatible and EISA bus computers, including most 80386 and i486-based computers; the LS3000 will not run in PC-XT compatible computers
- CorelSCSI LS2000 in PC-XT and PC-AT compatible computers and in EISA bus computers and 80386 and i486 computers
- CorelSCSI LS2000 TOS in Toshiba portable computers with a proprietary bus expansion slot
- CorelSCSI LS2000 MCA in IBM PS/2 and other Micro Channel bus computers.

The procedures are similar for all types of computers. Any differences will be explained as needed.

This manual also covers the installation of the CorelDRIVER device drivers for computers running MS-DOS or PC-DOS version 3.1 or later, and for computers running Microsoft Windows 3.0 or later.

The installation process

The installation process consists of the following procedures:

- gathering the needed information to install the hardware and software properly
- preparing the interface card for installation
- installing the interface card
- preparing and installing peripherals, including checking for proper termination
- installing the software.

About SCSI termination

Your system configuration may require a SCSI terminator. A terminator is used to properly end a SCSI bus chain.

If you have only two SCSI devices (the interface card and one peripheral), both devices require a terminator. If you have more than one SCSI peripheral, the first and last device on the chain must be terminated. All other devices on the SCSI chain must not be terminated.

Some manufacturers install a SCSI terminator inside the peripheral. Refer to the manual for the peripheral to determine if a terminator is installed, and how to remove it if it is installed and is not required.

Before you start

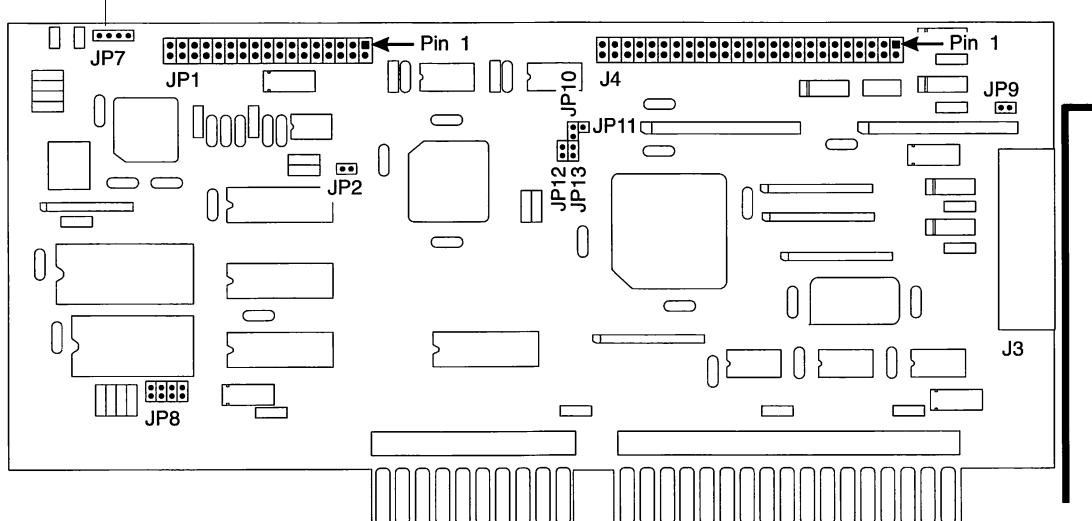
You will need the following items to install the CorelSCSI interface card:

- a PC-compatible computer with a vacant slot
- the CorelSCSI interface card and cable
- the CorelSCSI software diskettes
- a Phillips (cross-head) screwdriver
- your SCSI peripheral or peripherals.

Preparing the LS3000 interface card

Before you install the interface card, check to make sure that it is set properly for your computer. The card is shipped from the factory with default settings that will work in most computers.

HDD Light Connector



Memory settings

The CorelSCSI interface card uses memory mapped I/O. The addresses the card uses are changeable. If you have a network card, scanner controller card, 16-bit VGA card, or other peripheral controller card in your computer, you may have to move the memory address of the CorelSCSI interface card.

Note If you use a memory manager like EMM386, QEMM, or 386MAX, you must set the memory manager to exclude the address range used by the LS3000 interface card. See the instruction manual for the memory manager for instructions.

Installation

The following table lists the jumper settings for the memory addresses used by the LS3000 interface card.

LS3000	Memory address	Jumper setting		
		JP8	JP12	JP13

		JP8	JP12	JP13
C400-C7FFF		ON	ON	ON
CC00-CFFF		ON	OFF	ON
D400-D7FF		ON	ON	OFF
DC00-DFFF		ON	OFF	OFF

Note On jumper JP8 only the rightmost jumper is set.

Note If you install more than one CorelSCSI interface card in your computer, each interface card must have a different address.

Auto-sense termination

The first and last device on the SCSI bus must be terminated. Any other devices on the SCSI bus must not be terminated. Since the interface card is a SCSI device, the interface card must have its termination set properly.

The LS3000 can sense automatically if it must terminate itself on the SCSI bus. You can disable this feature if necessary.

Note If you disable the Auto-sense termination, the board terminates the SCSI bus.

The following table lists the jumper settings for termination sensing.

LS3000	Jumper position	Termination
---------------	------------------------	--------------------

JP11 On (default)	Auto-sense termination enabled	
JP10 Off	Auto-sense termination disabled	

SCSI bus power

The SCSI bus terminators must receive power. The following table lists the settings for SCSI bus termination power.

LS3000	Jumper position	Termination power
---------------	------------------------	--------------------------

JP9 On (default)	LS3000 supplies termination power to the SCSI bus	
JP9 Off	LS3000 does not supply termination power	

Floppy disk controller

If you purchased a CorelSCSI LS3000 interface card with an on-board floppy disk controller, the controller is enabled by default. You may change this if you wish.

The following table lists the settings for the floppy disk controller, if applicable.

LS3000	Jumper position	Floppy controller
JP2 On (default)		Floppy controller enabled (default)
JP2 Off		Floppy controller disabled

Installing the LS3000 interface card

Installing the interface card is not a long or difficult procedure. If you are new to installing hardware inside your computer, don't worry. Be patient and follow the instructions carefully.

To install the LS3000 interface card

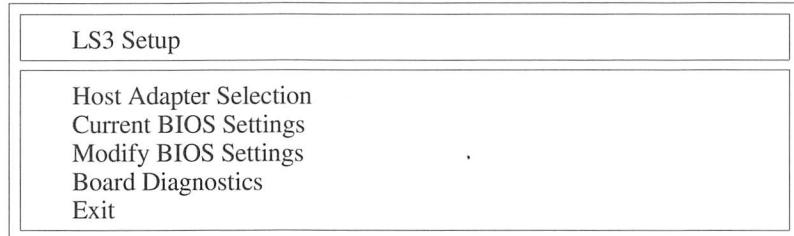
Follow these 10 steps to install the LS3000 interface card. Remember to take precautions against static electrical discharge.

- 1 Disconnect the computer from the power source.
- 2 Remove the case of your computer. Most computers have from three to five screws on the back panel that hold the cover in place. Remove these and set them aside carefully; you will need them to reassemble your computer. If your computer's case is different, please refer to its owner's manual.
- 3 Find an empty 16-bit slot in the computer. A 16-bit slot has two edge connectors in a line. Refer to the computer owner's manual for further details.
- 4 Remove the screw from the top of the slot cover and set the screw aside.
- 5 Remove the slot cover.
- 6 Carefully remove the CorelSCSI interface card from its static protective packaging. Handle the card by its edges or by its bracket.
- 7 Check that the card is set properly. See "Preparing the interface card" for more information.
- 8 Plug the card into the slot. Make sure that the card is firmly seated in the slot.
- 9 Replace the screw through the metal bracket on the end of the interface card.
- 10 Replace the cover on the computer.

Configuring the LS3000 interface card

If you are installing an internal SCSI device, see "To Install an internal SCSI device" on page 32.

Put the CorelSCSI LS3000 Configuration diskette in drive A: or B: and type **A:LS3SETUP** (or **B:LS3SETUP**). A menu like the following appears.



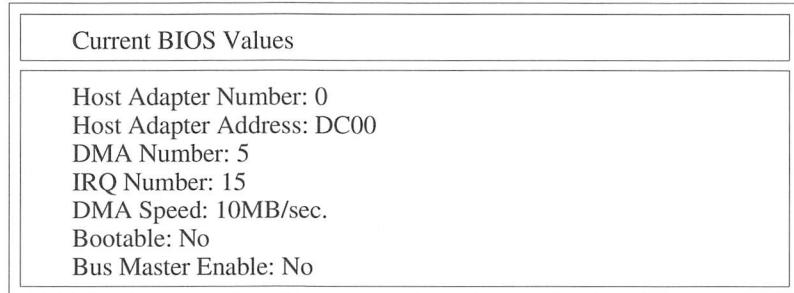
Note At any point in the utility, press "F1" for help.

Host adapter selection

If you have more than one LS3000 interface card installed in your computer, use this menu choice to select the card to configure. The interface card with the lowest memory address is interface card number one.

Current BIOS settings

Choose Current BIOS Settings to see the current configuration of the selected interface card. A window like the following appears:



Modify BIOS settings

Choose Modify BIOS Settings to configure the LS3000 interface card. A menu like the following appears:

Modify BIOS Settings
Host Adapter Number: 0 Host Adapter Address: DC00 DMA Number: 5 IRQ Number: 15 DMA Speed: 10 MB/sec. Bootable: No Bus Master Enable: No

Host adapter number The interface card being configured. This field is set by the Host Adapter Selection above, and cannot be changed.

Host adapter address The address of the interface card being configured. This field is set by the jumpers on the selected interface card, and cannot be changed.

DMA Number The Direct Memory Access channel used by the interface card.

IRQ number The Interrupt Request line used by the interface card.

DMA speed The speed of data transfer through the ISA bus.

Bootable If set to Yes, a SCSI hard disk with ID 0 (zero) can be used as a boot drive under MS-DOS.

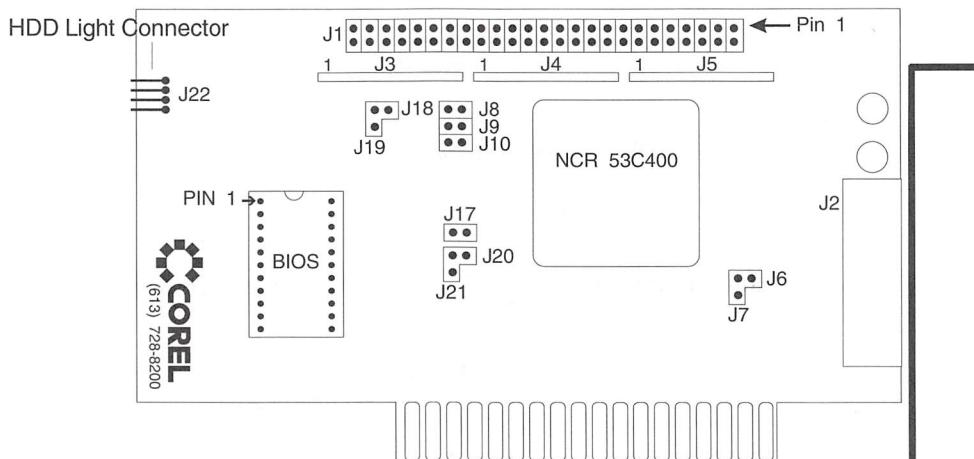
Bus master enable If set to Yes, allows the interface to utilize the Bus Master.

Board Diagnostics

Choose Board Diagnostics to aid in troubleshooting the LS3000 interface card.

Preparing the LS2000 interface card

Before you install the interface card, check to make sure that it is set properly for your computer. The card is shipped from the factory with default settings that will work in most computers.



Memory settings

The CorelSCSI interface card uses memory mapped I/O. The addresses the card uses are changeable. If you have a network card, scanner controller card, 16-bit VGA card, or other peripheral controller card in your computer, you may have to move the memory address of the CorelSCSI interface card.

Note If you use a memory manager like EMM386, QEMM, or 386MAX, you must set the memory manager to exclude the address range used by the LS2000 interface card.

The following table lists the jumper settings for the memory addresses used by the LS2000 interface card.

LS2000	Memory address	Jumper setting	J8	J9	J10
C800-CBFF		Off	Off	On	
CC00-CFFF		On	Off	On	
D000-D3FF		Off	On	On	
D400-D7FF		On	On	On	
D800-DBFF (default)	Off	Off	Off		
DC00-DFFF		On	Off	Off	
E000-E3FF		Off	On	Off	
E400-E7FF		On	On	Off	

Note If you install more than one CorelSCSI interface card in your computer, each interface card must have a different address.

Wait state operation

The CorelSCSI LS2000 interface card can be set to use zero or one wait state. Zero wait states usually means better performance, but may not be compatible with all computers.

The following table lists the jumper settings for the wait states available.

LS2000	Jumper position	Wait states
J17 Off (default)		1 wait state
J17 On		0 wait states

SCSI bus power

The SCSI bus terminators must receive power. The following table lists the settings for SCSI bus power.

LS2000	Jumper position	Termination power
J6 On (default)		LS2000 supplies termination power to SCSI bus
J7 On		LS2000 does not supply termination power to SCSI bus
J18 On		power supplied by the SCSI bus to LS2000 terminators
J19 On (default)		power supplied by the LS2000 to its terminators

Bootable SCSI hard disks (MS-DOS only)

To boot your computer from a SCSI hard disk requires that the BIOS ROM be enabled. The following table lists the jumper settings for enabling the CorelSCSI interface card to boot your computer from a SCSI hard disk.

LS2000	Jumper position	BIOS ROM
	J20 On	ROM enabled
	J21 On	ROM disabled

See “Bootable SCSI hard disks” on page 34 for further information.

Installing the LS2000 interface card

Installing the interface card is not a long or difficult procedure. If you are new to installing hardware inside your computer, don’t worry. Be patient and follow the instructions carefully.

To install the LS2000 interface card

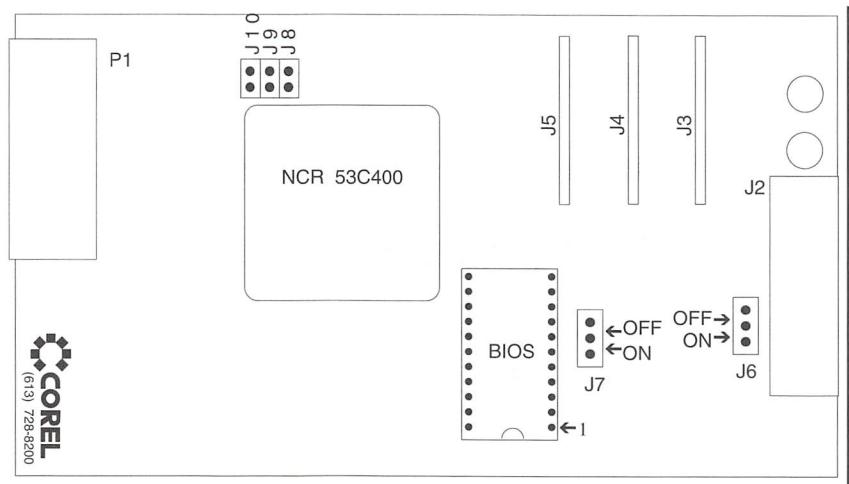
Follow these 10 steps to install the interface card. Remember to take precautions against static electrical discharge.

- 1 Disconnect the computer from the power source.
 - 2 Remove the case of your computer. Most computers have from three to five screws on the back panel that hold the cover in place. Remove these and set them aside carefully; you will need them to reassemble your computer. If your computer’s case is different, please refer to its owner’s manual.
 - 3 Find an empty slot in the computer.
-
- Note** On some early PC-XTs and compatibles, you can not use slot 8 (nearest the power supply) for the CorelSCSI interface card.
-
- 4 Remove the screw from the top of the slot cover and set the screw aside.
 - 5 Remove the slot cover.
 - 6 Carefully remove the CorelSCSI interface card from its static protective packaging. Handle the card by its edges or by its bracket.
 - 7 Check that the card is set properly. See “Preparing the interface card” for more information.
 - 8 Plug the card into the slot. Make sure that the card is firmly seated in the slot.
 - 9 Replace the screw through the metal bracket on the end of the interface card.

- 10 If you are not installing an internal SCSI device, replace the cover on the computer. If you are installing an internal SCSI device, continue with step 3 under “To Install an internal SCSI device”.

Preparing the LS2000 TOS interface card for Toshiba portable computers

Before you install the interface card, check to make sure that it is set properly for your computer. The card is shipped from the factory with default settings that will work in most computers.



Memory settings

The CorelSCSI interface card uses memory mapped I/O. The addresses the card uses are changeable. If you have a network card, scanner controller card, 16-bit VGA card, or other peripheral controller card in your computer, you may have to move the memory address of the CorelSCSI interface card.

Note If you use a memory manager like EMM386, QEMM, or 386MAX, you must set the memory manager to exclude the address range used by the LS2000 interface card.

Installation

The following table lists the jumper settings for the memory addresses used by the LS2000 interface card.

LS2000 TOS

Memory address Jumper setting

	J8	J9	J10
C800-CBFF	Off	Off	On
CC00-CFFF	On	Off	On
D000-D3FF	Off	On	On
D400-D7FF	On	On	On
D800-DBFF (default)	Off	Off	Off
DC00-DFFF	On	Off	Off
E000-E3FF	Off	On	Off
E400-E7FF	On	On	Off

Note If you install more than one CorelSCSI interface card in your computer, each interface card must have a different address.

SCSI bus power

The SCSI bus terminators must receive power. The following table lists the settings for SCSI bus power.

LS2000 TOS

Jumper position Termination power

J6 On	LS2000 supplies termination power
J6 Off	LS2000 does not supply termination power

Bootable SCSI hard disks

The following table lists the jumper settings for enabling the CorelSCSI interface card to boot your computer from a SCSI hard disk. To boot your computer from a SCSI hard disk requires that the BIOS ROM be enabled.

LS2000 TOS

Jumper position BIOS ROM

J7 On	ROM enabled
J7 Off	ROM disabled

See "Bootable SCSI hard disks" on page 34 for further information.

Installing the LS2000TOS interface card

Installing the interface card is not a long or difficult procedure. If you are new to installing hardware inside your computer, don't worry. Be patient and follow the instructions carefully.

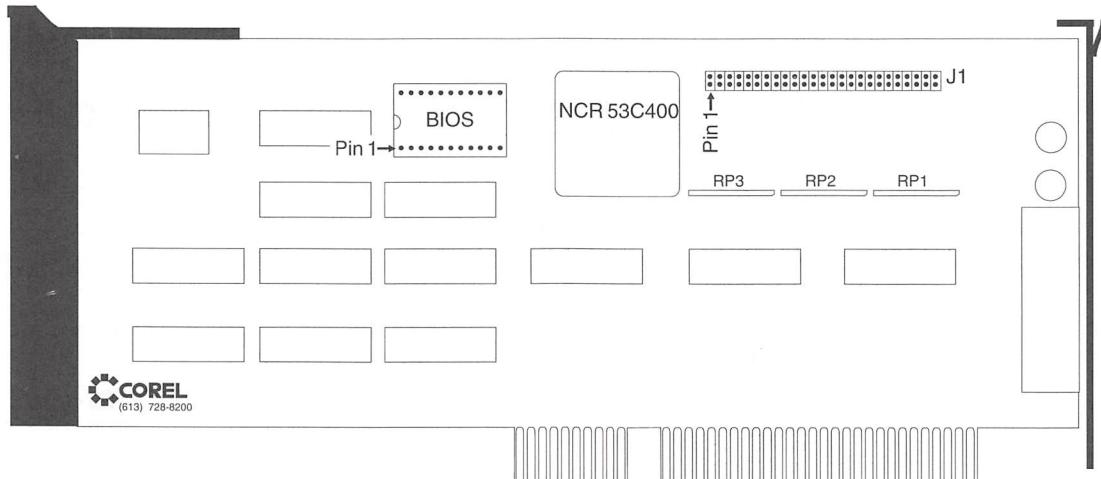
To install the LS2000 TOS in a Toshiba-compatible computer

Follow these 6 steps to install the interface card. Remember to take precautions against static electrical discharge.

- 1 Disconnect the computer from the power source.
- 2 Remove the two screws holding the Toshiba expansion slot cover. Set the screws aside carefully and remove the cover. Refer to the owner's manual for the location of the slot.
- 3 Carefully remove the CorelSCSI interface card from its static protective packaging. Handle the card by its edges or by its bracket.
- 4 Check that the card is set properly. See "Preparing the interface card" for more information.
- 5 Plug the card into the slot. Make sure that the card is firmly seated in the slot.
- 6 Replace the two screws through the metal bracket on the end of the interface card.

Preparing the LS2000 MCA interface card for Micro Channel bus computers

Because it works under Micro Channel architecture, there are no jumpers to be set on the CorelSCSI LS2000 MCA interface card.



Installing the LS2000MCA interface card

Installing the interface card is not a long or difficult procedure. If you are new to installing hardware inside your computer, don't worry. Be patient and follow the instructions carefully.

To install the LS2000 MCA interface card

Follow these 9 steps to install the interface card. Remember to take precautions against static electrical discharge.

- 1 Disconnect the computer from the power source.
- 2 Remove the case of your computer. Most computers have from three to five screws on the back panel that hold the cover in place. Remove these and set them aside carefully; you will need them to reassemble your computer. If your computer's case is different, please refer to its owner's manual.
- 3 Rest your hand on the case of the power supply for a moment. This allows any static electrical charge to go harmlessly to ground. The power supply is a large metal box, usually in one back corner or along one side of the computer.
- 4 Find an empty slot in the computer. Loosen the knurled screw on the back of the computer that holds the slot cover in place, but do not remove it completely.

- 5 Remove the slot cover.
- 6 Carefully remove the CorelSCSI interface card from its static protective packaging. Handle the card by its edges or by its bracket.
- 7 Plug the card into the slot. Make sure that the card is firmly seated in the slot.
- 8 Tighten the knurled screw on the back of the computer.
- 9 If you are not installing an internal SCSI device, replace the cover on the computer. If you are installing an internal SCSI device, continue with step 3 under “To Install an internal SCSI device”.

Configuring the LS2000MCA interface card

Ensure that you have the following two disks before configuring the LS2000MCA card.

- MCA reference diskette
- LS2000-MCA Installation Diskette (contains @611E.ADF)

To configure the LS2000MCA card

- 1 Insert the MCA Reference diskette in drive A: or B: and restart your computer.
- 2 A screen appears with the message “Adapter Configuration Error” and you are asked “Automatically configure the system (Y/N)”. Type N.

You must copy the file @611E.ADF before you run the automatic configuration program.

- 3 The Main Menu appears. Select “Copy an option diskette” and when prompted insert the “LS200MCA Installation Diskette”.

Follow the onscreen instructions and the reference diskette will be updated with the necessary file (@611E.ADF).

- 4 The Main Menu appears. Select the “Set Configuration” option.
The “Set Configuration” menu appears.
- 5 Select “Run automatic configuration” to configure the LS2000MCA card.

Note Before you run the automatic configuration you can use the “View configuration” option to view all the configuration settings and ensure that there are no conflicts. If there is a conflict an asterisk (*) appears next to the conflicting setting. To change a setting, select the “Change configuration” option from the “Set Configuration” menu. Select the setting you want to change and use the Previous and Next function keys to change the setting.

- 6 Once the configuration is complete, remove the reference diskette and reboot your computer.

Installing a SCSI device

To install an internal SCSI device

Follow these 11 steps to install an internal SCSI device in your computer. Remember to take precautions against static electrical discharge.

- 1 Disconnect the computer from the power source.
- 2 Remove the case of your computer. Most computers have from three to five screws on the back panel that hold the cover in place. Remove these carefully and set them aside; you will need them to reassemble your computer. If your computer is different, please refer to its owner's manual.
- 3 Attach the appropriate mounting hardware to the SCSI device. Most PC-AT type computers require a mounting rail on both sides of the device.
- 4 Check that the termination of the device is correct. The device at each end of the SCSI chain must be terminated, while those devices in the middle of the chain must not be terminated.

Remember that the interface card is a SCSI device. If the internal device is the only other SCSI device installed in your computer, ensure that both the interface card and the internal device have a terminating resistor or resistors installed.

- 5 Attach the ribbon cable to the device. Make sure that the colored stripe on the edge of the ribbon cable lines up with pin 1 on the connector.
- 6 Slide the device into the drive bay. It should slide easily. Fasten the device into place using the necessary hardware for your system.
- 7 Find an unused power supply connector. The power supply connector is a white 4-pin plug. Attach this connector to the matching connector on the device. Note that the connector will only fit one way.
- 8 Connect the ribbon cable to the 50-pin connector on the CorelSCSI interface card. Be sure that the colored wire on the ribbon cable connects to pin 1 on the interface card. See the diagram of your card for the location of pin 1. For PC-XT and PC-AT type computers, the colored wire must be toward the back of the computer.

Note For LS2000 MCA interface cards in PS/2 and other Micro Channel computers, the colored wire must be toward the *front* of the computer.

- 9 If you are using the on-board floppy disk controller of a CorelSCSI LS3000 interface card, connect the ribbon cable from the floppy drive or drives to the 34-pin connector on the interface card.
- 10 If you are booting your computer from a SCSI hard drive, the ROM must be enabled. See “Preparing the interface card” for more information.
- 11 Replace the cover on the computer.

To install an external device

Follow these 4 steps to attach an external SCSI device to your computer:

- 1 Disconnect the computer from the power source.
- 2 Connect the small connector on the CorelSCSI cable to the connector on the back of the CorelSCSI interface card. If you require a cable to connect your external SCSI device to the CorelSCSI interface card, please see your CorelSCSI dealer for details.
- 3 Connect the other end of the cable to one 50-pin connector on the external SCSI device.
- 4 Check that the termination of the device is correct. The device at each end of the SCSI chain must be terminated, while those devices in the middle of the chain must not be terminated.

Remember that the interface card is a SCSI device. If the internal device is the only other SCSI device installed in your computer, ensure that it has its terminating resistor or resistors installed.

Note Some SCSI peripherals use an internal terminator. If your peripheral or peripherals use internal terminator, you do not need to install an external terminator. See the owner’s manual for details.

Installing an internal and an external device

If you are installing one or more internal SCSI devices and one or more external SCSI devices, you must remove the terminating resistor from the CorelSCSI LS2000 interface card. The CorelSCSI LS3000 interface card automatically senses whether it must terminate itself on the SCSI bus.

To remove the terminating resistor from the CorelSCSI interface card

Follow these 3 steps to remove the terminating resistor:

- 1 Remove the CorelSCSI interface card from the computer, if it is already installed.

- 2 Remove the terminating resistors from the sockets at J3, J4, and J5 on the LS2000 interface card, or from RP1, RP2, and RP3 on the LS2000 MCA for Micro Channel interface card. Set the resistors aside in case your computer's configuration changes in the future.
- 3 Install the CorelSCSI interface card using the instructions on the preceding pages.

Note The LS2000 TOS interface card for Toshiba portable computers does not have a connector for an internal SCSI device. You must not remove the terminating resistors from an LS2000 TOS.

To reinstall the terminating resistor on the CorelSCSI interface card

Follow these 3 steps to reinstall the terminating resistor:

- 1 Remove the CorelSCSI interface card from the computer, if it is already installed.
- 2 Carefully insert the terminating resistors in the sockets at J3, J4, and J5 on the LS2000 interface card, or at RP1, RP2, and RP3 on the LS2000 MCA for Micro Channel interface card. Make sure that you insert pin 1 on the terminating resistor in pin 1 in the socket.
- 3 Install the CorelSCSI interface card using the instructions on the preceding pages.

SCSI hard disks

Bootable SCSI hard disks under MS-DOS

If you have a non-SCSI hard disk in your computer, you cannot boot your computer from a SCSI hard disk. To boot your computer from a SCSI hard disk, you must:

- enable the BIOS ROM on your CorelSCSI interface card
- set the drive type for the SCSI hard disk to "NOT INSTALLED" in CMOS setup; set both disk drive selections to "NOT INSTALLED"; see the documentation for your computer for details
- set the SCSI ID of the hard drive to 0 (zero). If you are installing a second SCSI hard disk, its ID must be set to 1 (one).

System BIOS limitations mean that there can be a maximum of 2 hard disks in a PC-compatible computer. If you have a non-SCSI hard disk attached to your computer, the following items apply:

- the non-SCSI hard disk must be the first hard disk in the system; your computer may refer to this as drive 0.
- set the secondary disk drive selection in your CMOS setup to “NOT INSTALLED”; see the documentation for your computer for details
- you must set the SCSI hard disk ID to 1 (one).

To prepare a SCSI hard disk

A SCSI hard disk must be low-level formatted before you can begin to use it. Many new SCSI hard disks are low-level formatted at the factory. If yours was not, follow these 5 steps to low level format the hard disk.

1 Boot your computer. If the SCSI hard disk is the only hard disk in the system, you must boot from a floppy disk.

2 At the DOS prompt in your DOS directory, type **DEBUG**

The computer responds with “-”.

3 At the “-” prompt, type **G=<memory address>:7**. For example, if the card address is at its default address of D800, type “G=D800:7”.

The computer prompts you for the ID of the device to low-level format.

4 Enter the SCSI ID number of the device to format and press <Enter>.

The computer prompts you to press Y if you wish to continue.

5 Press <Y> to continue, or <N> to return to the operating system.

When the low level format is complete, you can partition the hard disk and perform a high-level format. Please see your operating system manual for details.

Installing software for DOS and OS2

This chapter explains how to install the CorelDRIVER software. You must install the driver software before you can use your SCSI peripherals.

CorelDRIVER and ASPI

ASPI stands for Advanced SCSI Programming Interface. ASPI is the industry standard that allows a single interface card to support peripherals from many manufacturers.

ASPI support is automatically installed when you install the CorelDRIVER software. If you purchase a SCSI peripheral that has an ASPI-compatible device driver, you can control it from your CorelSCSI interface card.

Before you begin

You will need the following information before you begin installing CorelDRIVER:

Drive and directory The CorelDRIVER installation software suggests a location of C:\CORELDRV to install its utilities. You may change this if you wish.

SCSI interface card The CorelDRIVER ASPI software will detect the type of interface card you have installed, whether an LS3000, LS2000, LS2000 TOS, or an LS2000 MCA.

SCSI ID and LUN Each SCSI peripheral attached to the interface card must have a different SCSI identification number (ID). The CorelDRIVER installation software

Installation

may ask you for the SCSI ID and logical unit number (LUN) of the SCSI peripherals being installed.

Peripheral type, make, and model The CorelDRIVER installation software installs different drivers depending on the type, make and model of SCSI peripheral you are installing.

EMS memory If your computer has expanded memory (EMS), CorelDRIVER can load its drivers and buffers there. CorelDRIVER supports LIM EMS version 3.2 and version 4.0.

Cache buffers CorelDRIVER uses cache buffers in RAM to speed up read and write operations. The default number of cache buffers is 4, but you may set the number from 0 to 32.

Cartridge format If you are installing an optical drive, the format of cartridges used will vary, depending on whether your computer uses MS-DOS 3.X (DOS3 type), or MS-DOS 4.0 or later (DOS4 type).

Partitioning information CorelDRIVER allows up to 16 partitions on an optical cartridge. If you are using DOS3 type cartridges, increasing the number of partitions can decrease the amount of memory used by the drivers.

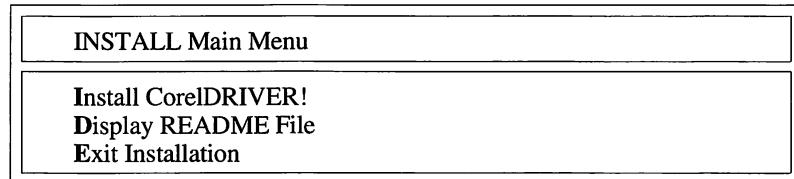
System files CorelDRIVER will make changes to your AUTOEXEC.BAT and CONFIG.SYS files if you choose. These changes are needed to allow your SCSI peripherals to operate properly.

Installing CorelDRIVER

There are two ways to install the CorelDRIVER software. For most systems, the automatic installation is all that is needed.

The manual installation allows you to customize the installation. For example, you can install drivers for a SCSI peripheral that is not currently attached to your system.

To begin either type of configuration, put the CorelSCSI diskette in drive A: or B: and type A:INSTALL (or B:INSTALL). The Install program main menu appears on the screen.



Selecting items in CorelSCSI menus

There are three ways to choose items from a CorelSCSI menu:

- Use the arrow keys to move the highlight bar to the option that you want and press <Return>.
- If you have a mouse and a mouse driver installed, use the mouse to move the highlight bar and press the left mouse button to select.
- If the menu shows bold letters in some choices, press the bold letter of the menu choice that you want.

You can press <Esc> in any menu to go back to the previous menu.

README files

Select Display README files from the main menu and a window appears listing the available files.

Select a README file to display

ABOUT CD-ROM DRIVER! Version 1.10a
ABOUT Universal DRIVER! Version 2.21a
Automatic Device Driver Configuration By The Install Program
Device Driver Caching Modes
Important Information Regarding The Utilities

Corel strongly suggests that you read the README files included on the CorelSCSI diskette. The README files contain information that was not available at the time this manual was printed.

Installation options

Select Install CorelDRIVER! from the main menu and the Installation options menu appears. From this menu you tell CorelDRIVER

- the boot drive of your computer
- where to install the drivers for your SCSI peripherals
- the interface that you have installed in your computer.

Installation

Installation Options	
Enter drive letter of boot drive	C
Enter CorelDRIVER! software directory	C:\CORELDRV
Select interface type	COREL ASPI
<ESC> Cancel	<F7> Accept

The installation program will show the default choices for boot drive and interface type on this menu. If the choices are correct, press <F7>.

To make changes, use the arrow keys or the mouse to move the highlight bar to the desired entry. Press <Enter> or click the left mouse button. Correct the entry, or choose from the selections offered. When all the choices are correct, press <F7>.

Automatic device driver configuration

Choose Automatic device driver configuration. CorelDRIVER Install will check your computer system and configure itself properly.

Device Driver Configuration
Automatic device driver configuration
Manual device driver configuration

If you choose Automatic configuration, CorelDRIVER Install will offer you the choice of Express Configuration.

Perform Express Configuration
No
Yes

If you choose Yes, CorelDRIVER Install will

- prompt you to make sure that all SCSI peripherals are connected and turned on
- check the SCSI bus for all devices
- automatically modify your AUTOEXEC.BAT and CONFIG.SYS files
- install a patch to your DOS if needed.

If you choose No express configuration, CorelDRIVER Install will display the appropriate menus for the devices on the SCSI bus. CorelDRIVER Install allows you to specify the appropriate options for each device:

- whether you want the device driver loaded into EMS memory
- the number of drive letters assigned to each device
- the number of cache buffers for the device
- the number of cache buffers for the CD-ROM extensions to MS-DOS
- whether you want the CD-ROM extensions loaded into EMS memory
- any other options the SCSI device may support.

Microsoft Windows configuration

If you use Microsoft Windows 3.0, the following lines must appear under the [386Enh] section of your SYSTEM.INI file:

```
EmmExclude=<SCSI card address>
TimerCriticalSection=5
InDOSPolling=TRUE
```

The “EmmExclude” statement must be added to prevent Windows from attempting to use the memory addresses used by the CorelSCSI interface card (see your Windows SYSINI.TXT file for more details). The <SCSI card address> displayed above should be replaced with the address range used by the SCSI card.

For example, the CorelSCSI LS2000 interface card uses 16K of RAM starting at address D800 in its default configuration. In this case, the above EmmExclude line would become:

```
EmmExclude=d800-dbff
```

The automatic device driver installation will ask you if you use Windows. If you reply Y, the installation program will add the above entries for you.

Manual device driver configuration

If you choose Manual device driver configuration, you must enter all parameters of the SCSI devices being installed. If you choose the manual configuration, you must select the specific SCSI devices you are installing.

Installation

CorelDRIVER Install will present a series of menus prompting you for information on the SCSI devices installed in your system. You must enter:

- the SCSI interface card memory address; this must match the memory setting of the SCSI interface card
- the SCSI interface card IRQ setting, if any; this must match the IRQ setting on the SCSI interface card
- the number of wait states for the device
- whether the CorelSCSI interface card provides power to the SCSI bus terminators
- whether the CorelSCSI interface card has an enabled floppy disk controller
- if a SCSI hard disk is being configured, whether the disk is bootable
- the drive and directory to install the driver software in
- the model of SCSI interface card you have installed
- the SCSI identification number (ID) and logical unit number (LUN) for all SCSI devices in the system
- the type, make, and model of all SCSI devices in the system
- whether to install the device drivers in EMS memory
- the number of cache buffers required for each device
- the optical cartridge format; whether the cartridges will be used under MS-DOS 3.X, or whether the cartridges will only be used under a later version of MS-DOS
- optical cartridge partitioning information; whether the cartridge will appear as a single partition or as multiple partitions
- whether CorelDRIVER Install may modify the AUTOEXEC.BAT and CONFIG.SYS.

Device driver statement options

The installation program adds statements to your CONFIG.SYS file. There are two formats of statements added.

ASPI driver

If you are running MS-DOS or PC-DOS, the CorelDRIVER installation program adds the following line to your CONFIG.SYS file:

DEVICE=ASPILS_D.SYS

If you are running OS2, the CorelDRIVER installation program adds the following line to your CONFIG.SYS file:

DEVICE=ASPILS_O.SYS

The ASPI driver must appear in the CONFIG.SYS file before any device-specific device driver statements.

If you are using a SCSI interface card from another manufacturer, the DEVICE= line will be different.

Device drivers for specific devices

The device specific statement looks like this:

DEVICE=xxx_yyy.sys /DOSn /ID:n[;m]+p[;q] /SS:n /C:n [/EMS] [/VOL:n] [/HAN[:d] @4xxxx]

Where:

xxx_yyy.sys is the device driver used.

/DOSn is the type of DOS. n is 4 for DOS version 4.x and later, and is 3 for previous versions of DOS.

/ID:n[;m] indicates the SCSI ID and, optionally, LUN that was selected.

+ p[;q] indicates IDs and LUNs for additional drives.

/SS:n indicates the maximum logical sector size allowed on cartridges in drives. n equals the logical sector size.

/C:n is the number of cache buffers you have chosen.

/EMS signifies that the driver is installed in expanded memory.

/VOL:n is the maximum number of logical volumes on any cartridge that you will use with your drive.

/HAN:d d is the number of the host adapter.

@4xxxx This is a reference marker for the software's internal operations, and should never be altered or deleted.

You can change the device statement manually once you have installed CorelDRIVER. To avoid errors, however, we recommend that you use the “Update” option of the Install program.

Advanced device driver statement options

You may add optional switches to the device driver statement. These options are recommended only for advanced technical users.

Warning

Be very careful when you change the /TW, /WC and /CN options as they affect the writing of data to the cartridge. If you turn off or significantly increase the /TW parameter, you must ensure that data is properly updated to the cartridge before it is removed. This can be done by running the FLUSH program.

/TWn

Sets the timer used by the driver to ensure that data cached in RAM is properly written to the cartridge.

The default value for /TWn is 1/5 second. This means that after 1/5 of a second of inactivity, the cartridge will automatically be updated. n represents the number of seconds of inactivity before the driver will update your cartridge. You can use any value from 0 to 3640. 0 turns the automatic update feature off. If you use -1 or any other invalid number, the driver will use the default update time of 1/5 seconds.

If the cartridge is not properly updated, data on the cartridge can be lost. If you use a WORM drive, the HISTORY program allows you to recover any information stored on the disk when history markers were written to the cartridge. If history markers are not written you cannot recover the data.

If you turned off the cartridge updates (/TW0 /WC0), wrote a file to the cartridge, and deleted it without a cartridge update, you would not be able to recover that file. If you change the timer value, ensure that you update your cartridge. Update your cartridge by running the FLUSH utility or by using the /TW switch in your device driver. The update MUST be done before ejecting a cartridge, powering down or rebooting the system or drive. If you are uncertain about whether the cartridge update has been performed run the FLUSH utility.

/WCn	Specifies the maximum number of writes to a cartridge before it is updated with a history marker. The default value is 512. This option ensures that your cartridge is periodically updated while you write data to it. If a power failure occurs while copying large amounts of data, the /WCn option would help protect data written to your cartridge.
/CNn	/WCn performs the same update that the /TW option does. You can use any value from 0 to 65535. Using the value 0 with /WCn will turn off this update feature. See the description of the /TW switch to determine how it is used to ensure that data is kept up to date on the cartridge. affects the way in which data is written to the disk. Normally, CorelDRIVER writes data to the cache buffers and the disk at the same time. This prevents loss of data in the event of a disruption, such as a power failure. Selecting /CNn causes the software to create n cache buffers, and then write to disk only when the buffers are full. This speeds up write times, but could lead to the loss of data, including directory information, if a power loss or drive failure occurs before the driver flushes cached data. This option is for rewritable drives only. If you are using a WORM drive, you do not have to specify this option. WORM drives automatically perform this feature.
Note	Use the /CNn option only if you require higher write speeds.
/EMn	determines the maximum number of bad sectors that you want to be able to handle when scanning the cartridge at mount time. If the indicated number of bad sectors is exceeded, the wrong history marker may be activated. Specifying larger numbers may slow down the first access to a cartridge. The default value for n is 3. This option is for WORM drives only.

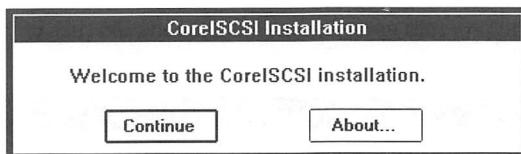
Installing software for Windows

Before you begin

You must install the CorelDRIVER software before installing CorelSCSI for Windows. See the section titled “Installing software for DOS and OS2” beginning on page 37 for instructions.

Installing CorelSCSI for Windows

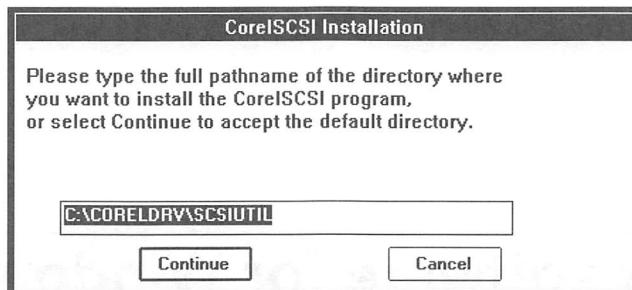
To install CorelSCSI for Windows, put the CorelSCSI diskette in drive A: or B:. Choose Run... from the File menu in the Program Manager screen. Type **A:INSTALL** (or **B:INSTALL**). The Install program main screen appears.



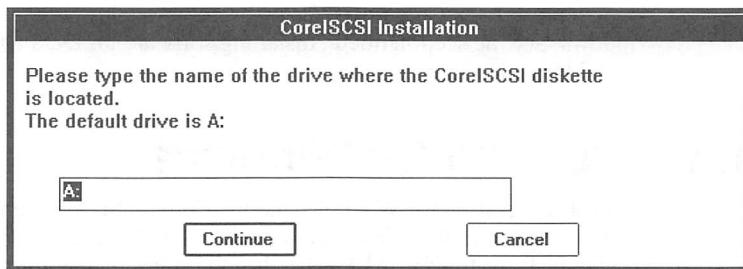
Click on the About button in the CorelSCSI dialog box for further information on the installation program. Click on the Continue button or press <Enter> to continue the installation.

Installation

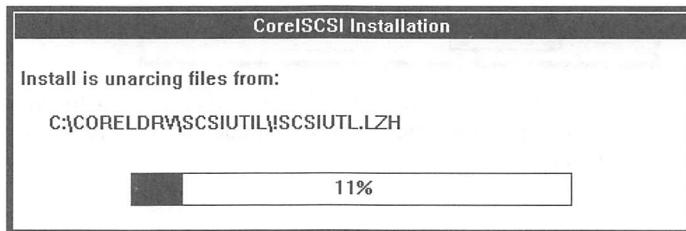
A dialog box appears to prompt you for the directory you wish to install the CorelSCSI utilities in. The default directory is C:\CORELDRV\SCSIUTIL. To change this, type the full directory path you wish to use. When you have entered the correct directory, click on the OK button or press <Enter>.



A dialog box appears to prompt you for the drive that you are installing the CorelSCSI utilities from. The default drive is A:. To change this, type the letter of the drive you wish to install from. Click on the OK button or press <Enter> to continue.



The installation program opens a window showing the files being copied and uncompressed.

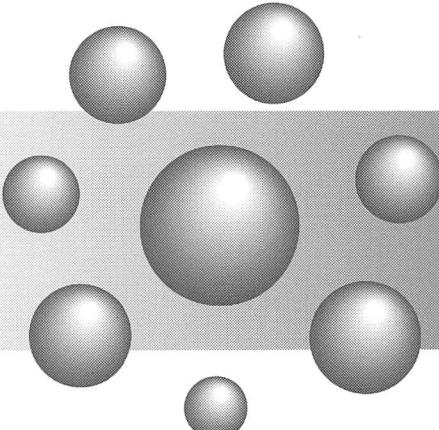


When all files have been installed, CorelSCSI for Windows displays a dialog box to tell you that the installation is complete.



Click on OK to return to the Program Manager window. You will see a new program group containing the CorelSCSI for Windows utilities.





DOS / OS2 Reference

WORM and rewritable optical drives

This chapter describes commands that you can use with your WORM, rewritable, and multi-function optical drives.

These commands replace some of the operating system commands, as stated below:

- CFORMAT - formats a cartridge
- CHKMEDIA - checks the condition of the cartridge, and updates the amount of space available on a WORM cartridge
- CRITICAL - displays explicit error messages for optical-related errors
- DIAGS - tests the drive and interface for problems
- DVRSTAT - checks the status of the system
- PATCH - alters your operating system files if necessary, allowing them to accommodate the non-standard sector sizes used by some cartridges
- UTILS - monitors and modifies disk operation. Use these commands only at the recommendation of Corel's technical support personnel.

Note In addition to the commands listed above, the CorelDRIVER software includes a set of commands that apply to WORM drives only. These commands allow you to manage information on your WORM cartridge, and test and repair the cartridge if required. Refer to the chapter "Commands for WORM drives only" for further details.

Commands available to DOS and OS2 users

The CFORMAT, CHKMEDIA, DIAGS, and DVRSTAT commands and most of the UTILS options are available to both DOS and OS2 users.

Commands available to DOS users only

PATCH is required only for DOS - based systems, as are the ERRORLOG and CTIME options in the UTILS program.

Using the CorelDRIVER commands

There are three ways to use the options provided with the CorelDRIVER commands:

- Cursor to the option in the menu and press <Enter>.
- Type the bold letter corresponding to the option you want to use, then press <Enter>.
- Type the command, option, and required parameters after the DOS prompt (command line format). The command line format for each command appears as the last item in the command description.

Formatting an optical cartridge

The CFORMAT command prepares your optical cartridge for use (similar to formatting a magnetic disk). Use this command instead of the operating system FORMAT command.

If you have a double-sided cartridge, you must format each side separately.

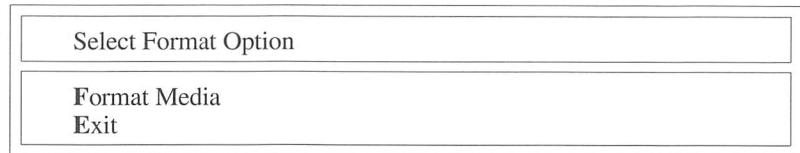
WARNING! Possible loss of files

Using CFORMAT to clear directories on a rewritable cartridge will cause permanent loss of all the files on the cartridge.

To select an option in the CFORMAT program

Type at the DOS prompt: **CFORMAT**

The “Select Format Option” menu appears.



When you select the “Format Media” option, you may see one of these messages:

- OK to reformat media (old data will be hidden)?
- Do you really want to format non-removable media?

Reformat confirmation for WORM cartridges If you are using a WORM cartridge and it has files on it, the message below will appear.

OK to reformat media (old data will be hidden)?
No
Yes

If you want to clear directories on a WORM cartridge, use the HISTORY/ NEW command instead of the CFORMAT command. This will hide your old files and make your cartridge appear as new. However, you will still be able to access the files in the hidden directories at a later time. (For information on the HISTORY/ NEW command, refer to the chapter “Commands for WORM drives only”.)

Press <Enter> to continue, or Exit to cancel the operation.

Note Both CFORMAT and HISTORY /NEW will erase all volumes on a particular side of your cartridge.

Reformat confirmation for hard disks If this message below appears, you may have configured the device driver to the same address as your SCSI hard drive.

Do you really want to format non-removable media?
Continue format of non-removable device. DO NOT format non-removable media.

Cartridge compatibility option

With DOS - based systems, the next step is to select a format from the “Select cartridge compatibility option” menu.

Select cartridge compatibility option
MS/PC - DOS 3.X, 4.X, and 5.X (but not DR-DOS 5.0)
MS/PC - DOS 3.X, 4.X, 5.X, and DR-DOS 5.X (power of 2 sector size)
MS/PC - DOS 4.X, 5.X, DR-DOS 5.X, and OS2 (but not DOS 3.X)
Novell NetWare (not compatible with CorelDRIVER for DOS)

MS/PC - DOS 3.X, 4.X, and 5.X (but not DR-DOS 5.0) This format is compatible with most DOS3 and DOS4 types of DOS.

Refer to “Applying a patch to your DOS system” on page 66 for details on patching requirements.

MS/PC - DOS 3.X, 4.X, 5.X, and DR-DOS 5.X (power of 2 sector size)

This is identical to the above option except that the logical sector size is a power of 2 (e.g., 512 bytes, 1K, 2K, 4K, ...).

MS/PC - DOS 4.X, 5.X, DR-DOS 5.X, and OS2 (but not DOS 3.X) Use this format if your DOS supports drive partitioning larger than 32 megabytes (e.g., PCDOS 4.01), and if you will not need to use your cartridge on a DOS3 - based system.

Note If you are using DR-DOS 5 or later, you do not need to patch your system. DR-DOS automatically adjusts to the physical sector size on each cartridge. You can use your DOS3-formatted cartridge in your DR-DOS 5 system only if the cartridge was formatted with a power of 2 sector size (for example, 2048, 4096, 8192, or 16384).

Novell NetWare (not compatible with CorelDRIVER for DOS) Use this option to prepare your cartridge for use with Novell NetWare386. This format is incompatible with all versions of DOS.

Volume size menu

Selecting a cartridge compatibility option results in the volume size menu shown on the next page. This menu lists the number and size of volumes you can have on the cartridge, and the cluster and logical sector size that corresponds to each number of volumes.

From this menu, choose the number of volumes for your cartridge. Each volume on the cartridge will be mapped to a different drive letter.

Volumes	Size (Millions)	Cluster Size	Sector Size
1	469	16384	8192
2	234	8192	4096
4	117	4096	2084
8	58	2048	1024

Note With DOS3 - based systems, formatting your cartridge into more than one volume can reduce the size of your patch, and, consequently, the size of your buffers. For example, if you choose only one volume, you will have to patch for 8K, as opposed to the 1K patch required by 8 volumes. Refer to “Applying a patch to your DOS system” on page 66 for details on patching requirements.

You can use the different volumes on your cartridge to organize your files. For example, use one volume for correspondence, another for publications, another for financial reports, etc....

When you have selected the number of volumes, press <Enter> to continue.

The Begin high level format menu appears.

Begin high level format

This menu contains three options.

Ready to Begin High - Level Format
Edit volume labels
Begin high level format process
Return to main menu

Edit volume labels If you want to change the label of a volume, select the “Edit volume labels” option and make your changes. (The default name is VOL_0001.) When you have finished, select “Accept Volumes” and press <Enter>.

Begin high level format process Select this option to continue formatting, and press <Enter>. You will now see the Format Status Screen, and the “Ready to Begin High-Level Format” menu.

To begin high level formatting select Yes and press <Enter>. When formatting is complete, select the “Return to main menu” option or press any key to exit the CFORMAT program.

To use the command line format

If you do not want to use the menus, you can type the following command at the DOS prompt:

CFORMAT *drive*: [/VOLUMES:*n*] [*volume*] [/format] [/HELP] [/QUIET] [/LOWLEVEL] [/ZERO]

Where:

/VOLUMES

specifies the number of volumes to format. If you select a number greater than 1 (:n), you can assign the corresponding number of volume labels (using the *volume* option described below).

volume

indicates the volume label(s) you want to assign to the drive or volume.

/format

specifies the format you want for your cartridge. Valid options include DOS3, DOS4, PWR2, and NOVELL (see “Cartridge compatibility option” on page 56).

[/LOWLEVEL]

performs a low-level format on a rewritable cartridge if your drive supports this function. In most cases this option is not required. CFORMAT automatically determines if a low level format is required and will prompt you if it is.

/ZERO

writes zeros to each sector on the rewritable cartridge, completely initializing the cartridge. In most cases this option is not required. When used, however, it must be used in conjunction with the /LOWLEVEL option.

Example: CFORMAT f: /VOLUMES:2 VOL1A VOL1B /DOS3 /QUIET

This command formats two volumes on your cartridge to a DOS3 compatible format, and labels the formatted volumes VOL1A and VOL1B. Since the /QUIET option is included, the command is executed without further keyboard input and screen output.

Note The /format option does not exist with the command line format in OS2. The program will automatically format your cartridge for OS2, DOS 4.X, and DOS 5 compatibility.

Determining the free space on a cartridge

The CHKMEDIA command displays cartridge size and the amount of space available on the cartridge.

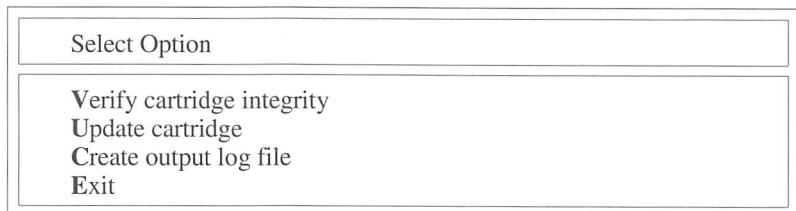
CHKMEDIA performs the same functions as the DOS CHKDSK program. On a WORM drive, however, it also informs the operating system of the amount of space used and available on your cartridge (when you use the /Update option).

Note Corel recommends that you use CHKMEDIA/Update regularly, especially if you are using a WORM drive. If your version of DOS is 4.X or earlier, use this command instead of the corresponding CHKDSK command in your operating system.

To select an option in the CHKMEDIA program

Type at the DOS prompt: **CHKMEDIA**.

From the resulting menu, select the CHKMEDIA option you want to use.



Verify cartridge integrity Use this option to check disk space. CHKMEDIA will make a summary of the amount of space used and available on your cartridge and check for cross links, file size errors, and other possible errors.

Update cartridge This option removes lost clusters on a WORM cartridge, and informs the operating system of the amount of space remaining on the cartridge.

Note Verify and Update both prompt you for the letter of your drive.

Create output log file This option writes information displayed by Verify and Update to a log file of your choice. Select this option before you select Verify or Update.

Exit Select this option to leave the CHKMEDIA program.

A display similar to this appears when you select either the Verify or Update option in CHKMEDIA.

Volume:	JEFF on drive F:
F:\	
<u>Summary</u>	
469860352	bytes total disk space
91209728	bytes in 2 hidden files
0	bytes in 0 directories
360448	bytes in 11 user files
378290176	bytes available on disk (DOS)
378301440	bytes available on disk (physical)

“Bytes available on disk (DOS)” indicates the amount of available space reported by DOS. “Bytes available on disk (physical)” is the amount of space that is actually available on the cartridge.

To use the command line format

Instead of using the menus, you may type the following command at the DOS prompt.

CHKMEDIA *drive:* [/VERIFY] [/UPDATE] [/LOG[:filename]] [/HELP] [/QUIET]

Where:

VERIFY produces a summary of space used and available on your WORM cartridge.

/UPDATE informs the operating system of available space on your WORM cartridge.

/LOG: writes the information displayed by /VERIFY or /UPDATE to a log file of your choice.

filename is the name of the log file.

Example: CHKMEDIA f: /VERIFY /LOG:test1.log

This command produces a summary of a cartridge in drive F and writes this information to the log file Test1.log.

Displaying explicit error messages

When a critical error occurs, DOS returns a message informing you of the error. If the error is related to an optical device, the CRITICAL command will display a more explicit message than that output by DOS.

For example, when your cartridge is full DOS will display a “write protect” error message. With the CRITICAL command active, the message will read “Write-failure- the cartridge is full”.

To display more explicit error messages, type at the DOS prompt: **CRITICAL ON**

To turn off explicit error message display, type at the DOS prompt: **CRITICAL OFF**

Testing the drive and interface

Use the DIAGS program to test the SCSI interface card and cable, and the drive.

The DIAGS program includes five diagnostics tests:

- Capacity tests
- Internal diagnostic test
- Seek test
- Read test
- Read/write test.

Capacity test Tests the capacity of the drive from the SCSI controller in the drive. A test failure signals a problem with the SCSI interface card, cabling, or the drive.

Internal diagnostics Forces the drive to perform an internal diagnostic test. Before performing this test, ensure that you have a cartridge in your drive. If you do not, the test will fail. If a cartridge is inserted and the test fails, it could signal a problem with either the drive or the cartridge.

Seek test Performs random seek tests. A failure indicates problems with either the drive or the cartridge.

Read test Performs a Read test on a few sectors previously written to your cartridge. Ensure that the cartridge you use for this test already has data written to it. The program will not perform a Read test on a blank cartridge, but will still indicate a pass. If, however, you have used a valid cartridge and the test fails, it could indicate problems with the drive, the cartridge, or termination on the SCSI bus.

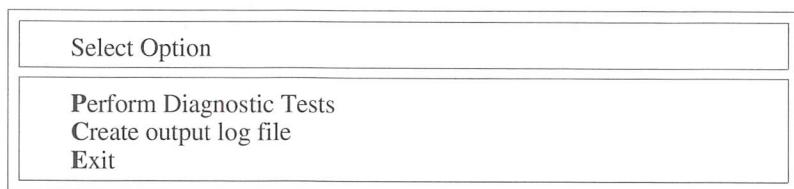
Write / Read test Performs a Write test of a single sector on your WORM cartridge. This test requires a formatted WORM cartridge. It involves writing data to a single sector, reading it back, and comparing it to the original data. A failure could indicate problems with the tested sector, the cartridge, the drive, or the termination.

Note To save space on your WORM cartridge, the Write / Read test is performed only once during each test run.

To select an option in the DIAGS program

Type at the DOS prompt: **DIAGS**

From the menu that appears, select the option you want to use.



The DIAGS options are described below.

Creating an output log file

Use the “Create an output log file” option to place the results of the diagnostics tests in a log file for future reference.

Unless you specify an alternate path, the log file will be placed in the current directory.

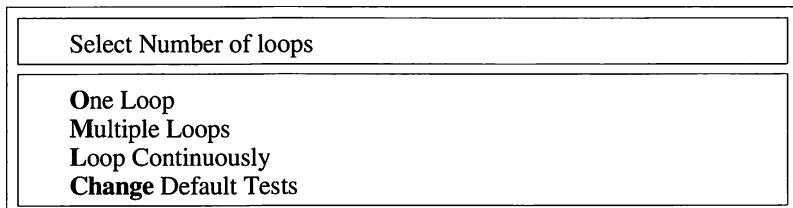
Note If you want to place the results of the diagnostic tests in a log file, you must activate the “Create output log” option before running the diagnostic tests. Use a descriptive name for your log file.

Performing diagnostics tests

When you select the “Perform diagnostics tests” option, you are prompted for the letter of the drive. Select the drive letter and press <Enter>.

Note Before you run any of the DIAGS tests, be sure to insert a formatted cartridge in your drive.

From the “Select Number of loops” menu select the number of times to repeat the test.



One loop Select this option if you want to perform the diagnostic tests once.

Multiple loops This option allows you to specify the number of times to repeat the diagnostic tests. (The default value is 10 loops.)

Loop continuously Selecting this option will repeat the diagnostic tests until you press any key.

Change default tests To run selected tests, use the “Change default tests” option.

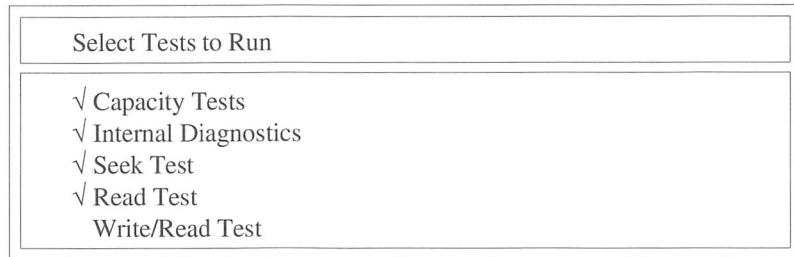
Note If you selected the One loop, Multiple loop, or Loop continuously option, just press <Enter> to start the testing. Only the default tests will be run. To run specific tests, use the “Change default tests” option.

When you select the “Change default tests” option, the “Select Tests to Run” menu appears.

Running selected tests

The default tests are the Capacity Test, the Internal Diagnostic Test, the Seek Test, and the Read Test (indicated by check marks in the “Select Tests to Run” menu).

To select or deselect a diagnostic test, cursor to the test you want to select or deselect and press <Enter>.



To run selected tests

- 1 After using the “Change default tests” option, press Esc to return to the “Select Number of Loops” menu.
- 2 Select the number of times the tests are to be repeated.
- 3 Press <Enter> to start the tests.

Note To stop testing at any time, press <Esc>.

Once testing is complete, the results of the diagnostic tests that were run are displayed on your screen in a table similar to this.

Test	Attempts	Failures
Capacity Test	1	0
Internal Diagnostic Test	1	0
Seek Test	1	0
Read Test	1	0

To use the command line format

If you do not wish to use the menus, you can type the following command at the DOS prompt:

DIAGS drive: [/Sn] [/LOOP[:xxx]] [/LOG[:logname]] [/HELP] [/QUIET]

Where:

/Sn

indicates the diagnostic tests you want to run on your system. The value of *n* can be 0, 1, 2, 3, or 4. These values correspond to the Capacity Test, Internal diagnostic Test, Seek Test, Read Test, and Write / Read

Tests respectively. You can select more than one /Sn option. (See the example that follows.)

/LOOP:xxx

indicates the number of times [xxx] you want to repeat the tests on your system. If you do not include this in your command line format, the driver will automatically take you into the menu and ask for it.

/LOG:logname

is an optional parameter that allows you to store the results of the diagnostic tests in a log file of your choice.

Example: DIAGS f: /S1 /S4 /LOOP:10 /LOG:c:\TESTS\TRIAL2.LOG

This command runs the internal diagnostics test ten times and the write/read test once. It places the results of the tests in a log file named TRIAL2.LOG.

Checking driver status

Use DVRSTAT to check the current status of CorelDRIVER. Run DVRSTAT immediately after you experience an unexpected error. DVRSTAT will display the status of your system during the last error.

To run DVRSTAT

- 1 Type at the DOS prompt: **DVRSTAT**

The DVRSTAT Main Menu appears. If you have more than one drive connected to your system, you will be prompted to select a drive.

- 2 Select “Show Status” from the main menu.

The General Status screen appears.

General Status	
Driver (version: 2.0)	Max logical sector size: 8192
Last error reported: Time out during select phase (0X202)	
Last Error was recorded on: 15:35:11	17-Jul-1990
Cartridge Mounted: YES	Volume mounted: TEST
Cartridge was formatted on: 12:14:51	01-Jun-1990
Cartridge write protected Status: NOT WRITE PROTECTED	
Physical sector size: 1024	Logical: 8192 Cluster: 16384
Physical space left: 438,482,944 bytes	
Cartridge last written on: 16:45:36	13-Jul-1990
There have been 0 write errors, resulting in 0 sectors lost	

The General status screen displays information about the status of the drive and interface at the time the last error was reported. It also displays the date and time of the last error, and the status of the cartridge and information about its sector and cluster sizes.

The last three lines of the display screen, including the amount of physical space left, the date the cartridge was last written to, and the total number of write errors during the life of the cartridge, are displayed only if you are using a WORM cartridge.

Note Be sure to use DVRSTAT immediately after an error. DO NOT REBOOT FIRST. If you do, you will lose information relating to your last error.

To use the command line format

Instead of using the menus, you can type the following command at the DOS prompt.

DVRSTAT *drive*:

Example: DVRSTAT d:

This command displays information about drive D.

Applying a patch to your DOS system

The PATCH command alters your operating system files to allow them to accommodate non-standard sector sizes used by some media.

Why patch your DOS system

Because of the internal differences between the various types of DOS, and in order to take full advantage of the logical partition support of “DOS4”-type DOS, CorelDRIVER offers the PATCH program.

Until recently, the most common versions of DOS on the market — MS, PC-DOS 3.3 and older — could not cope with logical partitions greater than 32 megabytes in size. This meant that hard drives larger than 32 megabytes had to be divided into multiple partitions, each partition being a maximum of 32 megabytes (i.e., drives C:, D:, E:, etc.). While this is acceptable on a 60 or 100 megabyte hard drive, it is not acceptable on larger optical drives. You would have to divide each cartridge into as many as 30 drive letters, which would exceed the number of letters in the alphabet.

CorelDRIVER makes a change to this version of DOS by using a “patch”. The patch enables DOS to recognize a logical partition size larger than 32 megabytes, and allows it to treat the entire disk as one large partition, if desired. These versions of DOS are referred to as “**DOS3**”-type DOS in this manual.

The process of patching DOS is a common technique used by numerous software vendors, and will not adversely affect the operation of your system. The installation of the patch increases the size of the buffers allocated by DOS in your CONFIG.SYS file, and of additional “cache buffers” allocated by Corel-DRIVER. This means that more RAM is used.

Dividing the cartridge into several partitions can reduce the size of the patch and in turn the amount of RAM used. Later versions of DOS eliminate the 32 megabyte barrier, and need a much smaller patch or sometimes none at all. The size of the required patch depends on the capacity of the drive media and its “physical sector size”. To determine the correct patch size for your system, refer to Corel technical support.

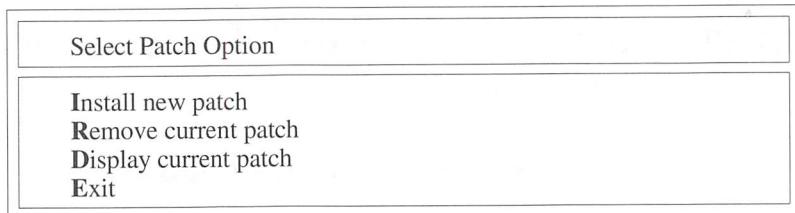
PATCH is run during the initial installation of CorelDRIVER, and usually does not need to be run again. However, in some cases it may be necessary to temporarily remove the patch and then replace it (for example, if there is not sufficient memory to run a particular application.)

You may also need to patch if you change the type of media in your drive (for example, if you switched from 512 byte media to 1024 byte, where applicable to your particular drive).

To select a PATCH option

Type at the DOS prompt: **PATCH**

The “Select Patch Option” menu appears.



Note When you select one of the PATCH options, you will be asked which drive you want to patch. This must be your boot drive, usually C:, and not a drive supported by CorelDRIVER.

Install new patch When you select this option you will be prompted for the size of the patch. To find the correct patch size, refer to Corel's technical support staff.

Remove current patch Use this option to remove the existing patch from your operating system.

Display current patch This option displays the size of the patch most recently installed.

If you try to use your drive without the required patch, the message "Sector size too large" appears when you boot your system. (See "Questions and Answers" in the chapter "Troubleshooting".)

To use the command line format

Instead of using the menus, you can type the following command at the DOS prompt:

PATCH [drive:[filename]] [/SIZE:opt] [/QUIET] [/HELP]

Where:

drive:filename indicates the boot drive containing the DOS to be patched. This should not be the optical drive. [filename] indicates the file to patch instead of IBMDOS.COM or MSDOS.SYS. You will rarely need to use the :filename option.

/SIZE:opt specifies the size of the patch to be installed. The value for [opt] can be one of the following: 1024, 2048, 3072, 4096, 5120, 6144, 8192, 16384, or REMOVE which will return the system to its pre-patched state. This patch is the same as the DOS logical sector size. To determine the patch size you need, refer to Corel technical support.

Example: PATCH c: /SIZE:8192 /QUIET

This command patches the system files on drive C for an 8K logical sector size.

Modifying disk operation with the UTILS program

The UTILS program contains options that allow you to monitor and modify disk operation.

Note Use the UTILS options only at the recommendation of technical support personnel. The results of these options can assist support personnel if you should encounter a problem that cannot be solved by normal means.

With the exception of CTIME and ERRORLOG, all of the UTIL options are available to both DOS and OS2 users. ERRORLOG and CTIME are available to DOS users only.

To access the UTILS options

You can access the UTILS options in one of four ways:

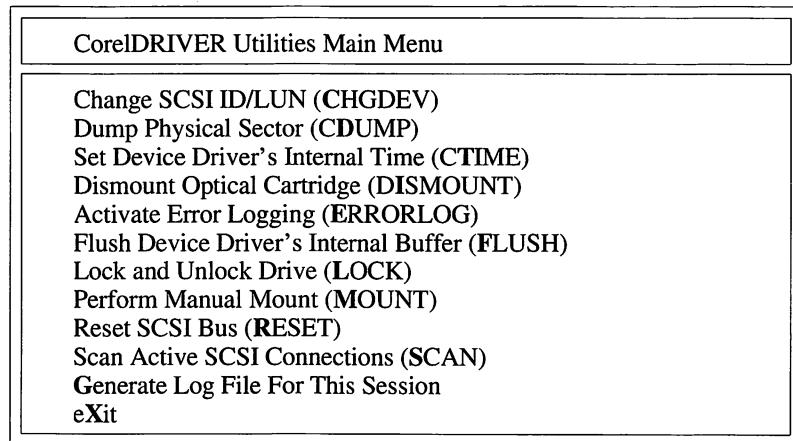
- by typing UTILS and selecting the option from the CorelDRIVER Utilities Main Menu (Menu format)
- by typing UTILS followed by the highlighted letter in the option name, as shown in the CorelDRIVER Utilities Main Menu (Menu format)
- by typing UTILS followed by the name of the option or options and their required parameters (Command line format)
- by typing the name of the option followed by the required parameters for the option (Batch file command line format).

The descriptions that follow include the Menu format and the Batch file command line format for each option. The command line format for all the UTILS options appears at the end of this chapter.

To start the UTILS program

Type at the DOS prompt: **UTILS**

The CorelDRIVER Utilities Main Menu appears.



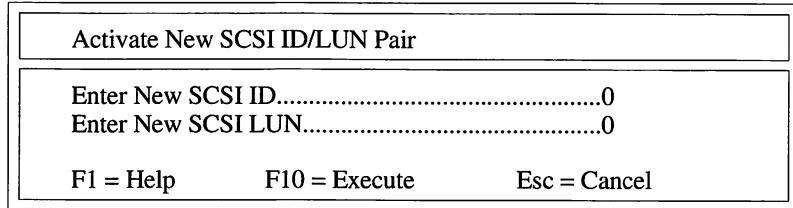
When you select an option from this menu, you are prompted to select the letter of the drive on which you want to perform the action.

Changing the SCSI ID or LUN

If your drive's SCSI ID or LUN does not match the ID/LUN configured in your device driver's command line, you can use CHGDEV to change the ID or LUN accessed by the device driver. You do not have to reboot the system for the change to take effect.

The new ID or LUN number must be the same as the ID or LUN that is physically set on the drive.

When you select the CHGDEV option, the screen shown below appears.



Type the number of the new SCSI ID (0-7) or LUN (0-7) and press <F10> to make the change take effect.

Note The change will take effect without your rebooting the system. However, the next time you restart the system, the change will no longer be in effect.

To use the batch file command line format

At the DOS prompt, type:

CHGDEV *drive*: [*id* [*lun*]]

Where:

id is the new SCSI ID

lun is the new LUN.

Example: CHGDEV d: 1 0

This command changes the SCSI ID and LUN of drive D to 1 and 0 respectively.

Displaying cartridge information

Use CDUMP to view data at the physical sector level on a cartridge. You can then read and compare sectors on the cartridge.

To view physical sectors on the cartridge, use one of the commands described below. The following parameters appear in the commands:

S1 represents the starting physical sector in hex.

S2 represents the second starting physical sector in hex.

N represents the number, in decimal, of sectors to read or compare.

To look for blank sectors

Command: B S1 N

Type this command to look for N blank sectors starting from sector S1.

To compare sectors

Command: C S1 S2 N

Type this command to compare the next N sectors, starting at S1 for the first group and comparing it to the group starting at S2.

To read sectors

Command: R S1 N

Type this command to read N sectors starting from sector S1.

To use the batch file command line format

At the DOS prompt, type:

CDUMP [drive:]

Note Typing CDUMP at the command prompt only takes you into the CDUMP utility. Once you are in CDUMP you can use the preceding CDUMP commands to read and compare screens. /QUIET will not work with CDUMP.

Setting the internal time for the driver

CTIME sets the internal time of the device driver so the history markers will reflect the correct date and time.

Note This utility is only required for the IBM PC/XT and compatible computers as these computers do not have BIOS support for reporting time and date.

CTIME takes the correct time from the operating system and passes it to the device driver. CTIME should be used only after the correct time and date have been set on your computer.

Run this utility separately for each device driver installed in your system.

To use the batch file command line format

At the DOS prompt, type:

CTIME [drive:]

Example: CTIME d:

This command updates the internal time for the device driver for drive D.

Dismounting a cartridge

Use DISMOUNT to dismount a cartridge in a drive. This ensures that all data has been flushed to the cartridge. This command will also eject the cartridge from those drives that support the eject function.

Note With some models of drives the only way to eject a cartridge is to use the DISMOUNT command.

To use the batch file command line format

At the DOS prompt, type:

DISMOUNT [drive:]

Example: DISMOUNT d:

This command dismounts the cartridge in drive D.

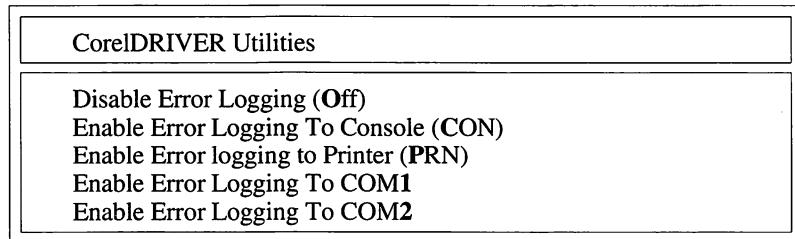
Logging error codes

Use ERRORLOG to activate the error logging capability of CorelDRIVER. Once activated, ERRORLOG displays error codes for any errors that occur while you are using the drive.

This option should only be used under the supervision of technical support personnel.

Note ERRORLOG is available to DOS users only.

When you select ERRORLOG in the CorelDRIVER Utilities Main Menu, the menu shown below appears.



From this menu, you can select one of the following options.

Disable error logging Select this option to turn off the error logging feature.

Enable error logging to console Select this option to activate error logging and display error codes on the screen.

Enable error logging to printer Select this option to activate error logging and send error codes to your printer (LPT1).

Enable error logging to COM1 Select this option to activate error logging and direct output to the COM1 port of your computer.

Enable error logging to COM2 Select this option to activate error logging and direct output to the COM2 port of your computer.

To use the batch file command line format

At the DOS prompt, type:

ERRORLOG drive: [stream]

Where:

stream can be one of the following:

Off	to disable error logging
CON	to display error messages on screen
PRN	to print the error messages
COM1	to send error messages to COM1 port
COM2	to send error messages to COM2 port.

Example: ERRORLOG d: PRN

This command sends the error messages for drive D to the printer.

Flushing data to the cartridge

FLUSH is used to force all internal driver data and any data in buffers to be written to the cartridge. This will ensure that the data on the cartridge is kept up to date.

Normally the device driver automatically flushes data to the cartridge at regular intervals. However, it is possible to modify the timeout value or even turn it off. This is done by setting the timeout (/TW) option in the CONFIG.SYS file.

WARNING!

If you change or turn off the /TW parameter it is important that you run FLUSH before you remove the cartridge, reboot the computer, or turn off the drive or computer.

Run FLUSH whenever you want to ensure that data on the cartridge is properly updated.

To use the batch file command line format

At the DOS prompt, type:

FLUSH [drive:]

Example: FLUSH d:

This command flushes the data in drive D to the cartridge.

Locking the drive

Use LOCK to lock or unlock the cartridge in the drive. This option can be used to prevent accidental removal of the cartridge from the drive.

Many of the CorelDRIVER commands and utilities automatically lock the drive while they are running. Also, the device driver automatically locks the drive when it has data that needs to be flushed in its buffers.

Note LOCK only works with drives that support the door locking feature.

To use the batch file command line format

At the DOS prompt, type:

**LOCK [drive:] | [ON] |
 | [OFF]**

Example: LOCK d: ON

This command locks drive D if the drive supports the door locking feature.

Mounting a cartridge

Use MOUNT to mount a cartridge in the drive. With MOUNT, you can also mount a cartridge that is damaged and mount a cartridge to a previously formatted area.

Note MOUNT should only be used under the supervision of technical support personnel.

This screen appears when you select the MOUNT option. Descriptions of the Mount options follow.

Manual Mount Parameters		
Reformat area to use for mounting.....0		
Maximum number of bad sectors allowed.....0		
F1 = Help	F10 = Mount	Esc = Cancel

Reformat area to use for mounting You can indicate which reformat area of the cartridge you want to mount (the first reformat area is 1). First try mounting the default area, 0, which is the last format area.

Maximum number of bad sectors allowed You can indicate the maximum number of bad sectors that you want the MOUNT utility to be able to handle when scanning the cartridge. If the indicated number of bad sectors is exceeded, the wrong history marker may be activated. However, allowing for a large number of bad sectors may result in slower operation. The default setting is fine for most situations.

Note A value of 0 for either of the two Mount parameters will set that parameter to its normal default value.

Once you have entered a value for the parameter you want to use, press <F10> to mount the cartridge.

To use the batch file command line format

Type at the DOS prompt:

MOUNT *drive:* [AREA:*n*] BSC:*n*

Where:

AREA: is the reformat area to be used for the mount.

n is the reformat area number described above.

BSC: is the bad sectors to allow.

n is the number of bad sectors to allow.

Example: MOUNT d: AREA:1 BSC:9

This command mounts the cartridge to area 1, and allows 9 bad sectors.

Resetting the SCSI bus

Use RESET to reset the SCSI bus. Use this command only under the direction of Corel's technical support personnel.

To use the batch file command line format

Type at the DOS prompt:

RESET [drive:]

Example: RESET d:

This command resets the SCSI bus for drive D.

Scanning for SCSI devices

Use SCAN to scan your system and display any attached SCSI devices.

This command displays a chart showing all attached SCSI devices, and the SCSI ID and LUN of each device. The SCSI ID numbers (0-7) are displayed across the top of the chart; the LUN numbers (0-7) are displayed down the side of the chart. A status code indicates the condition of each device.

Active SCSI Connections									
SCSI	ID	00	01	02	03	04	05	06	07
C	00	FF	OK	FF	FF	FF	FF	FF	FF
S	01	FF	05	FF	FF	FF	FF	FF	FF
I	02	FF	05	FF	FF	FF	FF	FF	FF
	03	FF	05	FF	FF	FF	FF	FF	FF
	04	FF	05	FF	FF	FF	FF	FF	FF
L	05	FF	05	FF	FF	FF	FF	FF	FF
U	06	FF	05	FF	FF	FF	FF	FF	FF
N	07	FF	05	FF	FF	FF	FF	FF	FF

Status codes

The following status codes can appear in the chart:

OK	Device is ready
02	Device is attached but not ready
03	Device contains an invalid or unformatted cartridge
04	Hardware error. Run DIAGS to isolate the cause of the error.
05	Device is not attached
06	Device is not attached
FF	Device does not respond
XX	Not scanned

To use the batch file command line format

Type at the DOS prompt:

SCAN [drive:]

Example: SCAN d:

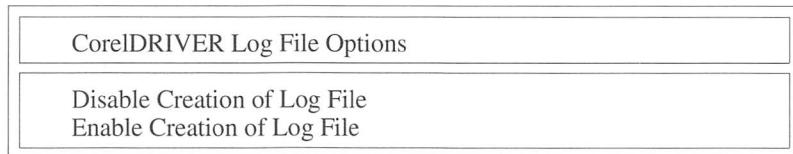
This command displays all the SCSI devices on the SCSI bus for drive D.

Generating log files

Use the GENERATE LOG FILE option to create a log file of all screen output generated by the CorelDRIVER utilities.

Note If you want to send the output to a log file, activate this option before using the other utilities.

This menu appears when you select the GENERATE LOG FILE option.



Disable Creation of Log File If you select this option, no log file will be created.

Enable Creation of log file If you select this option, you are prompted for the name of the the log file. Type the name you want to give the log file.

A log file will be created and saved to disk. This file will contain a record of screen output generated by the utilities you use. For example, if you use CDUMP to display sector data on the screen, the log file will contain all the displayed data.

Naming a log file

Select a descriptive name for your log file. For example, you can give the name S10DUMP.LOG to a file containing the information displayed onscreen as a result of using CDUMP on sector 10. Later, if you decide to change the log filename, select the Enable... option again and enter the new filename.

Note If you did not specify a filename in the /Log [filename] switch in the device driver declaration, the default file name, UTILS.LOG, will be used.

The command line format for UTILS appears on the next page.

To use the command line format

Instead of using the menus or the batch file commands, you can type, at the DOS prompt, UTILS followed by the option name and the appropriate parameter(s) for each option you want to use.

That is, you would type: **UTILS [drive:] [/LOG [filename]] [/QUIET] [/HELP]** followed by your choice of the options listed below:

[/CDUMP]
[/CHGDEV [*id lun*]]
[/CTIME]
[/ERRORLOG [OFF CON PRN COM1 COM2]]
[/FLUSH]
[/LOCK [ON OFF]]
[/MOUNT [AREA:*n* BSC:*n*]]
[/RESET]
[/SCAN]
[/DISMOUNT]

Note If you select the /QUIET switch without supplying a drive letter, the program will use the first installed CorelDRIVER drive letter when executing the command you typed.

Example: UTILS d: /CHGDEV 1 0 /LOG /QUIET

This command changes the active SCSI ID/LUN to 1 and 0 respectively, generates a log file called UTILS.LOG (since no log filename is supplied), and suppresses all outputs (because the Quiet option has been used).

Commands for WORM drives only

This chapter describes commands that apply to WORM drives only. They are:

- **HISTORY** - to review the history of all data written to the WORM cartridge and retrieve old versions of your files
- **REPAIR** - to check the validity of history markers written to the cartridge and, if necessary, to repair the cartridge
- **WORMFREE** - to display the amount of physical free space on a WORM cartridge and to set the minimum amount of space that must be available on a cartridge before a warning message is given.

In addition to the commands listed above, you can also use the commands described in the chapter “WORM and rewritable optical drives” to monitor and modify the operation of your WORM drives.

About HISTORY

A WORM drive cannot physically overwrite data on a cartridge, and files written to a cartridge cannot be physically erased. CorelDRIVER software makes the WORM drive appear to function the same as a magnetic or rewritable drive.

When you delete a file from a WORM cartridge, it only appears to have been deleted. The data actually remains permanently on the cartridge. WORM-only commands such as **HISTORY** take advantage of this fact.

Through the use of a system of markers, **HISTORY** allows you to review the history of all data ever written to your cartridge. The history markers describe the state of the data on the cartridge at the time the marker was written.

Therefore, if you accidentally delete a subdirectory on your cartridge, you can use HISTORY to return the cartridge to the state it was in before you deleted the files.

History markers

HISTORY organizes files through a system of markers. There are four types of markers:

- User markers
- New markers
- Active markers
- System markers

User markers These are markers you write to your cartridge, using an optional number to identify a group of history markers. For example, you can use 1 to identify daily backups, 2 for weekly backups, and 3 for monthly backups.

Note Corel recommends that you regularly place user markers on your cartridge to help you identify previous states on your cartridge.

New markers These markers are written to your cartridge when it is formatted or when you use the “New (hide all files)” option.

Active markers Active markers are written when the “Activate a selected History Marker” command is used. Active markers are duplicates of an earlier marker.

System markers System markers are written automatically to the cartridge by the device driver.

Accessing old versions of files

HISTORY is a WORM only-utility that allows you to access old versions of files on your WORM cartridge. It provides you with an audit trail of all changes made to the cartridge over its lifetime. You can look at different stages of your cartridge to locate, view, and retrieve older or deleted versions of files.

Using the WORM only commands

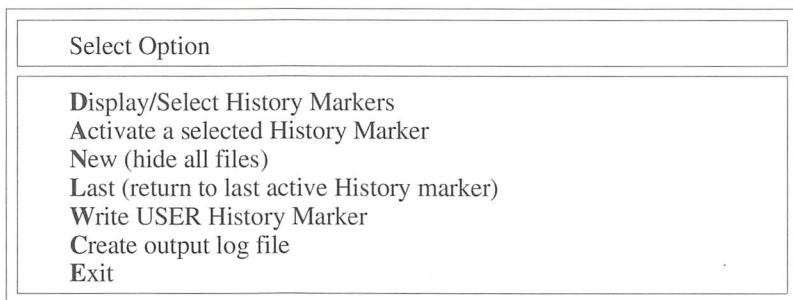
There are three ways to use the options provided with the CorelDRIVER commands for WORM drives:

- Cursor to the option in the menu and press <Enter>.
- Type the bold letter in the name of the option you want to use and press <Enter>.
- Type the command, option, and required parameters after the DOS prompt (command line format). The command line format for each command appears as the last item in the command description.

To select an option in the HISTORY program

Type at the DOS prompt: **HISTORY**

Select an option from the menu that results.



Selecting an option in the “Select Option” menu results in a table similar to the one on the next page. The table lists all the history markers on your cartridge.

DOS/OS2 reference

Counter	Type	Version	Time	Date
012:	ACTIVE	2.00C	9:15:24	9-May-1990
011:	SYS001	2.00C	9:17:21	9-May-1990
010:	SYS001	2.00C	9:16:42	9-May-1990
009:	SYS001	2.00C	9:15:02	9-May-1990
008:	SYS001	2.00C	9:14:35	9-May-1990
007:	USER00001	2.00C	9:13:16	9-May-1990
006:	SYS001	2.00C	9:12:29	9-May-1990
005:	SYS001	2.00C	9:12:16	9-May-1990
004:	SYS001	2.00C	9:11:45	9-May-1990
003:	SYS001	2.00C	9:10:19	9-May-1990
002:	NEW	2.00C	9:10:56	9-May-1990
001:	SYS001	2.00C	9:10:29	9-May-1990

When you select a history marker from this table, the cartridge is automatically mounted and placed in the write-protected state. You can then access any file that had been written to the cartridge at the time of the selected history marker.

Note History markers are not volume specific. If you use History on a volume, the change will be reflected on the whole cartridge, not just one volume.

Displaying or selecting history markers

Use the “Display/Select History markers” option to specify which history marker you want to display.

This screen appears when you choose the Display/Select History markers from the main menu.

Select Display Option
All History markers
USER, NEW, and ACTIVE markers only
Specific USER marker search
Filename search
Date search

All history markers Choose this option to display all history markers of all types written since the last format.

USER, NEW, and ACTIVE markers Use this option to display only USER, NEW, and ACTIVE markers.

Specific USER marker search Use this option to search for a specific USER marker by its number. Valid numbers are from 1 to 65535.

Filename search Use this option to search for all different versions of a specific file. Give the full specification for the file (including the directory name).

Date search Choose this option when searching for markers created on or after a specified date. The date format is dd-mmm-yyyy.

To use the command line format

Type at the DOS prompt:

HISTORY [*drive:*] [/ALL[*date*]] [/QUIET] [HELP] [/USER [*number*]] [*filename*]

Where:

/ALL displays all markers of all types.

/USER displays all markers of all types.

filename allows you to search for a specific file.

Example: HISTORY d:/USER:1

This command displays user marker USER 00001.

Activating a selected history marker

Use the “Activate a selected History marker” option to activate a previously selected history marker.

This option restores all files that were on your cartridge at the time the selected history marker was written, and hides all files created after that time. You can then access your restored files in read/write mode.

Note To activate a specific history marker, you must first use one of the “Display>Select History Markers” options to select that history marker.

To use the command line format

Type at the DOS prompt:

HISTORY [*drive:*] [/ACTIVE] [/QUIET]

Where:

/ACTIVE activates a selected history marker.

Example: HISTORY d: /ACTIVE

This command activates the marker you selected in the HISTORY display screen.

Restoring a cartridge to its empty state

Use the “New (hide all files)” option to restore the cartridge to a newly formatted state in read/write mode.

Although all volumes will be empty, you will still have access to old history markers and files through the other HISTORY options.

Note Corel recommends that you use this option instead of reformatting your WORM cartridge.

To use the command line format

Type at the DOS prompt:

HISTORY [*drive:*] [/NEW] [/QUIET]

Where:

/NEW restores the cartridge to an empty state in read/write mode.

Example: HISTORY d: /NEW /QUIET

This command returns the cartridge to a newly formatted state.

Restoring a cartridge to its last active state

Use the “Last (return to last active history marker)” option to restore your cartridge to its most recent active state in read/write mode.

Use this option after you have finished reviewing a previous state.

To use the command line format

Type at the DOS prompt:

HISTORY [drive:] [/LAST] [/QUIET]

Where:

Last restores your cartridge to its most recent active state.

Example: HISTORY d: /LAST

Writing a USER marker

Use the “Write USER history marker” option to write a history marker to the cartridge.

You can choose specific numbers to help you identify your history markers, and to help you retrieve files at a later time. Valid numbers are 1 to 65535. The default number is 1.

Assigning USER marker numbers

Corel recommends that you assign numbers that have fixed meanings. For example use 1 to identify daily backups, 2 for weekly backups, 3 for monthly backups and 4 for yearly backups. You could then use HISTORY to access only the backup state in which you are interested.

To use the command line format

Type at the DOS prompt:

HISTORY [drive:] [/WRITE:xxxxx] [/QUIET]

Where:

/WRITE writes a user history marker to the cartridge

xxxxx identifies the marker. Valid numbers range between 1 and 65535.

Example: HISTORY d: WRITE:3 /QUIET

This command writes History marker USER00003 to the cartridge.

Creating an output log file

Use the “Create Output log file” option to prepare a log file for the displayed history markers.

If you wish to send the output to a file, activate this option before displaying history markers on the screen.

You can select a descriptive name for your log file. For example, you can use the name USER.LOG for a file that contains a list of all your user history markers.

To use the command line format

Type at the DOS prompt:

HISTORY [drive:] [/Log:[filename]]

Where:

/Log writes the information that is output by History to a file.

filename is the name of the file to which the History information is sent.

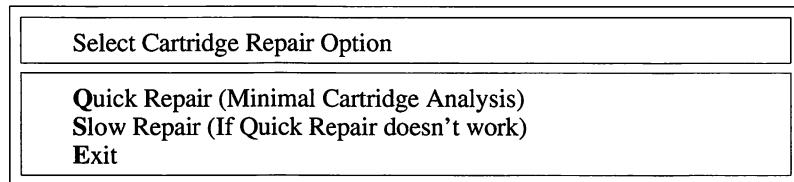
Example: HISTORY d: /LOG test1.log

This command writes the information output by HISTORY to log file Test1.log.

Repairing a cartridge

REPAIR checks the validity of history markers on your cartridge and writes any necessary corrections to it. Use Repair if a write fault error appears when you try to write to your cartridge.

With the REPAIR program, you have the option of performing a quick repair or a slow repair, as the Select Cartridge Repair Option menu shows.



Quick repair This option performs a quick validity check on your cartridge. REPAIR will also write any necessary corrections to the cartridge.

Slow repair This option performs a more exhaustive check on your cartridge than the Quick repair option. REPAIR will also write any necessary corrections to the cartridge. Use the slow repair if the quick validity check fails to repair your cartridge.

Exit This option takes you out of the Repair program.

To use the command line format

Type at the DOS prompt:

REPAIR [drive:] [/SLOW] [/QUIET]
[/QUICK]

Where:

- | | |
|---------------|---|
| /QUICK | performs a validity check on your cartridge and writes necessary corrections to it. |
| /SLOW | performs a more exhaustive validity check on your cartridge than the Quick repair option. |

Example: REPAIR d: /SLOW /QUIET

This command performs an exhaustive validity check on your cartridge without keyboard input or screen output.

Using the WORMFREE command

Use the WORMFREE command to perform the following functions:

- Display the amount of physical space available on a WORM cartridge. Each time a request for available space is received, the WORMFREE command will check the amount of physical space available on the cartridge and display the results. (WORMFREE does not update the cartridge as CHKMEDIA does.)
- Set the amount of free space that will trigger a warning message. When the amount of free space on the cartridge equals the amount you specify, the “Write-protect error, abort, retry, ignore?” message will be displayed. (Usually, this message appears when there is only 512K available on the cartridge. If you select Retry at this point, you can continue to copy until 256K remains available. The cartridge will then be permanently write-protected.)

For more information about the command, type HELP WORMFREE at the DOS prompt.

Command line format

Type at the DOS prompt:

WORMFREE		[ON]		[x]
				[OFF]

Where:

- | | |
|------------|--|
| ON | displays the physical space available on your WORM cartridge |
| x | sets the amount of free space that will trigger the warning message. You can specify an amount up to 20 megabytes. |
| OFF | disables the WORMFREE command. |

Working with CD-ROM drives

In addition to the device driver, CorelSCSI offers a series of commands and utilities to use with your CD-ROM drive. These include:

- CDAUDIO - to play your audio CDs on any CD-ROM drive
- CDCHANGE - to select another drive if you have several daisy-chained in your computer system, or another slot if you are using a multi-disc player
- CDDEBUG - to recreate an error and record the resulting error codes. This information can help Corel's technical support staff to find the cause of the error.
- CDTOOLS - to change the operating values for the drive, display drive status, test the drive and interface card and cable, and play your audio CDs.

If you need help while you are using a command, type <F1> to view the on-line help screens.

Playing audio CDs with CDAUDIO

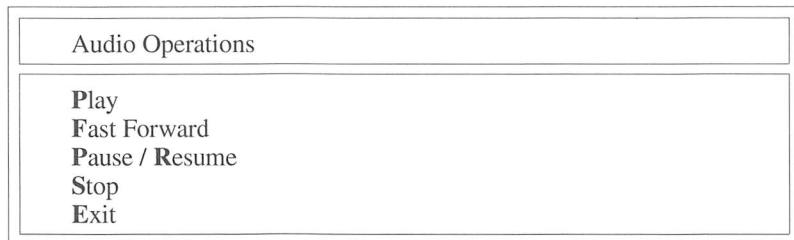
Use CDAUDIO to play your audio CDs. You can also access CDAUDIO menus by typing CDTOOLS and selecting the AUDIO option. (See CDTOOLS later in this chapter).

To select an option in the CDAUDIO program

Type at the DOS prompt: **CDAUDIO**

You are prompted to select the letter of your CD-ROM drive.

When you select a CD-ROM drive, the “Audio Operations” menu shown below appears, followed by an “Audio Status” message.



The “Audio Status” message gives you information about your CD-ROM drive. For example, you may see the following message if you have not yet selected the play option in the “Audio Operations” menu: Audio Playback Head Location Unknown.

To select an audio option

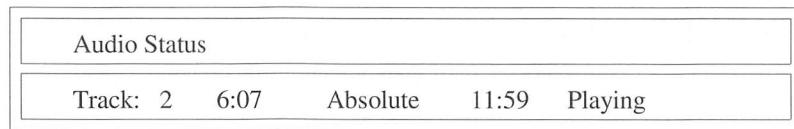
You can select one of the options in the “Audio Operations” menu to play your CD. The audio options are described below.

Play Select this option to load your CD, select a track and play the CD. Once you select “Play”, the CD is loaded and a new “Audio Status” message appears.

When you select play, the “Audio Table of Contents” appears. It shows you a break-down of the tracks on your audio CD, the time when each track begins (in minutes), and the length of each track (also in minutes).

Note If you are not using an audio CD, this message appears in the “Audio Table of Contents”: Track 1 Non Audio Track. Either replace the CD with an audio CD or, if you have a multi-disc player, select another slot that has an audio CD.

While the CD is playing, you will see an “Audio Status” message similar to this one on the screen.



This message includes:

- the track number you have selected
- the playing time (in minutes and seconds) from the start of the active track to the current position in the track
- the total elapsed time from the beginning of the first track to the current position
- the activity of the audio CD (e.g., Playing, Paused).

Fast Forward This option advances your CD by 10 second intervals like a fast forward command. "Audio Status" continues to display time intervals.

Note: Your CD must be playing before you try to fast forward it.

Pause / Resume Select this option to pause your audio CD. To continue playing your CD, select this option again.

Stop Select this option to stop playing your audio CD.

Exit Select this option to exit the CDAUDIO menus. If you want to stop the CD, select Stop before Exit.

Pressing <Esc> also takes you out of the CDAUDIO menus. However, the CD will continue to play until you either select the Stop option in CDAUDIO or manually eject the disc.

Changing slots or CD-ROM drives

If you are using a multi-disc player, or have several CD-ROM drives daisy-chained in your system, the CDCHANGE command allows you to change a slot or CD-ROM drive without using different drive letters for each slot or drive.

This feature has two advantages. First, it lets you share the first drive letter available for your CD-ROM drive with all your CD-ROM drives. (Some CD-ROM applications allow you to use only the first available drive letter.) Second, it saves drive letters by only using one drive letter for all your CD-ROM drives.

To select another CD-ROM drive

Type the following at the DOS prompt:

CDCHANGE [drive:] SCSI ID

Where:

- drive** is the drive letter of your CD-ROM drive. If you have only a single CD-ROM drive letter, this parameter is optional.
- SCSI ID** is the SCSI number of the drive you want to use. You must include a semi colon (;) after the SCSI ID to distinguish it from a slot number. (See “To change slots with a multi-disc player” for details on multi-disc players.)

Example:

CDCHANGE G:4;

This command changes your drive to the one identified by drive letter G and SCSI ID 4.

Note You can also use the “Operate” option in CDTOLS to change SCSI IDs. (See “Using the CDTOLS utility” later in this chapter.)

To change slots with a multi-disc player

If you are using a multi-disc player, CDCHANGE lets you change the slot you are using without assigning a different drive letter for each slot. To use this option with your multi-disc player, type the following at the DOS prompt:

CDCHANGE [drive:] slot number

Where:

- drive** is the drive letter of your CD-ROM drive. If you have only a single CD-ROM drive letter, this parameter is optional.
- slot number** is the number of the slot you want to use.

Example:

CDCHANGE G:2

This command changes the slot you are using to slot number 2 on your G drive.

Note: You can also use the “Operate” option in CDTOOLS to change the slot number you are using. (See “Using the CDTOOLS utility” later in this chapter).

Displaying error codes

The CDDEBUG command is intended for troubleshooting. It allows you to print error codes to a location of your choice.

Note Error codes will not appear unless you have used the CDDEBUG command. If you have problems with your drive, type CDDEBUG, select your output option, and try to recreate the problem. The program will then display error codes for the particular problem.

To use this command

Type the following at the DOS prompt:

CDDEBUG

Select one of these options:

Option 0 to turn off the error logging function

Option 1 to display error codes on your screen

Option 2 to send the error codes to a printer.

WARNING!

Choosing the screen option (Option 1) could cause problems if you are using programs that run in graphics mode. Examples of such programs include Microsoft Windows and Ventura Publisher.

The error codes indicate a particular problem with your drive. Corel’s technical support team will be able to interpret the codes and help you to find the source of a problem.

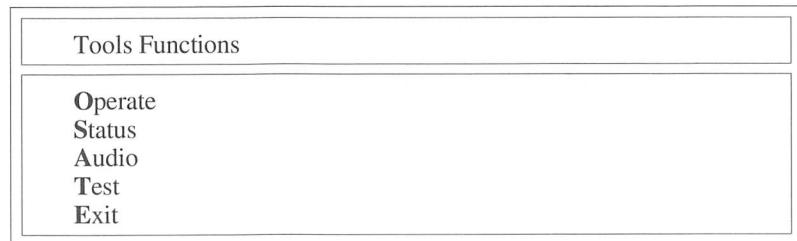
Using the CDTOOLS utility

CDTOOLS is a set of menu driven utilities that allow you to monitor, test, and change the operating values for your drive. Also included in CDTOOLS are the Audio functions discussed in the CDAUDIO section earlier in this chapter.

To select an option within CDTOOLS

Type the following at the DOS prompt: **CDTOOLS**

From the Tool Functions menu that results, select the option you want to use.



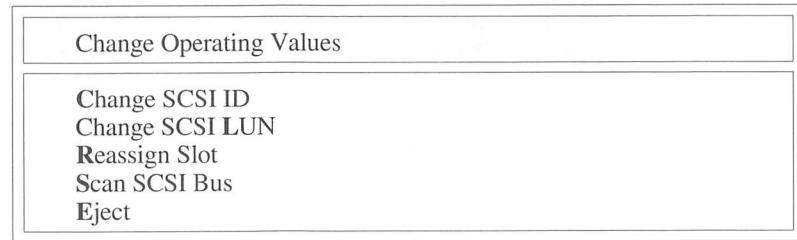
If you select Operate, Status, Audio, or Test, you will be prompted to select the letter of your CD-ROM drive.

The “Tools Functions” menu options are described in the following pages.

Changing the drive operating values

Use Operate to change the SCSI ID of your CD-ROM drive. If you are using a multi-disc player, you can also change the SCSI LUN and the slot number.

When you select Operate, the “Change Operating Values” menu appears.



Note If you are using a multi-disc player, you will see all the options in the “Change Operating Values” menu. If you are using a single-disc player, you will see only the first and last options in this menu.

Change SCSI ID Use this option to select another ID for your drive. Type the new number for the SCSI ID (a number from 0 to 7), then press <Enter>.

Change SCSI LUN Use this option to select another LUN for your CD-ROM drive. Type the new number for the SCSI LUN (a number from 0 to 7), then press <Enter>.

Note The new SCSI ID and LUN will take effect without your rebooting the system. However, the next time you restart the system, the change will no longer be in effect.

Reassign Slot Use this option as you would use CDCHANGE. To select another slot, type the number of the slot you want to use, then press <Enter>.

Scan SCSI Bus This option scans the SCSI bus, and talks to all the SCSI devices on your system. It then lists:

- all SCSI IDs on the bus (ranging from 0 to 7)
- the device associated with each SCSI ID
- manufacturer's information relating to your CD-ROM drive
- the version of firmware you are using.

The list is similar to the one shown below.

SCSI Bus Scan - Hit Any Key to Continue			
0;0;	Disk	Macdonnell	
1;0;	None		
3;0;	CD-ROM	Takizawa	1.0b
4;0;	None		
5;0;	None		
6;0;	None		
7;0;	None		

Eject This option will eject the CD, if the drive supports the eject feature. You must stop the CD (using the Stop option) before ejecting it from the drive.

Checking drive status

Use the Status option in CDTOLLS to check the current state of the drive. Select Status immediately after you have had an unexpected error. The resulting display will contain information relating to your system during the last error.

To use this option, highlight Status in the Tool Functions menu, or type S and press <Enter>. The drive selection menu appears.

To check the status of one drive

From the drive selection list, select the drive on which the error occurred.

Your CD Drive status appears (similar to that shown below).

CD Drive Status - Hit Any Key To Continue										
F: 3;4 Version 1.10b Audio: Start: 3:10 End: 62:35 Idle										
CURRENT ERRORS: Command: 0 SCSI: 00/00 Success										
LAST ERRORS: Command: 305 SCSI: 02/04 DOS:0000 From: 3/9 Success										
LAST CDB: 0,0,0,0,0,OH										
SCSI Sense Key Summaries										
0	1	2	3	4	5	6	7	8	9	10

5649	0	172	0	0	0	1	0	0	0	0

Corel's technical support team can use this display to help you in solving problems with your system.

To check the status of all drives

If you select ALL from the drive selection menu, you will see a status display similar to the one below.

CD-ROM	Drive	Accesses	Keys
F:	3;0 Takizawa	5649	173

This display gives you the following information:

- the letter of your CD-ROM drive
- the SCSI ID and LUN

- the type of CD-ROM drive you are using
- the number of times you have accessed your drive since you booted-up
- SCSI sense key codes. These codes give specific status information relating to your drive.

Note If you are using a multi-disc player, you will see information relating to every drive letter associated with your CD-ROM drive. The drive letters will appear in alphabetical order.

Testing the drive, interface card, and cable

Use the Test option in CDTOOLS to test your CD-ROM drive, and the SCSI interface card and cable.

This option includes four different diagnostic tests.

Note Use nonaudio CDs for these tests because the seek tests and read tests will not run on audio only CDs.

The diagnostics tests are described below.

Drive Capacity Test tests the capacity of the drive from the SCSI controller in the drive. A test failure signals a problem with the SCSI interface card, cabling or the drive.

Drive Diagnostics Test performs an internal diagnostic test. Before running this test, ensure you have first inserted a CD into your drive. If you have inserted a nonaudio disc and the test fails, it could signal a problem with either the drive or the disc.

Drive Seek Test performs random seek tests. A failure indicates a problem with your drive or the disc.

Drive Read Test performs a read test on a few sectors of your disc. If you have used a nonaudio disc and the test fails, it could indicate problems with the drive, the cartridge, or termination on the SCSI bus.

To start the tests

When you select the TEST option, you are prompted to select the letter(s) of the drive or drives you want to test.

The screen shows the following information about the drive you selected:

- drive letter
- SCSI ID and LUN
- brand of CD-ROM you are using
- drive model number.

When you are finished viewing this display, press <Enter> to start the tests.

WARNING!

- Ensure you have inserted a CD in your drive for the drive diagnostic test, the drive seek test, and the drive read test. Otherwise the tests will fail.
- Ensure you use a nonaudio CD for the drive seek test and the drive read test otherwise the tests will not run. If you do use an audio disc for the tests, you will see the message: NOT RUN (Audio Disk Inserted).

Once the tests are completed, you will see a display similar to the one that follows.

Drive Capacity:	Passed
Drive Diagnostics Test:	Passed
Drive Seek Test:	Passed, 267 MS/Seek test
Drive Read Test:	Passed, 277 MS/Read test

Tests Completed - Hit any key to continue

Note If you are not sure whether the problems with your drive are caused by the disc(s) or the drive, run the tests several times with different discs. If you continue to have problems, they are most likely caused by the drive.

CorelSCSI Backup

In addition to the device drivers, the CorelSCSI package includes a program that allows you to back up and restore files to a tape drive connected to your SCSI controller. This program, CTBACKUP, is available to DOS users. This section of the manual explains how to use this program.

Why back up files

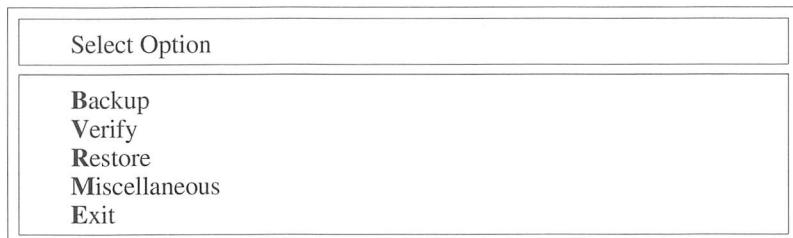
Backing up files is a form of disaster insurance. If your hard disk should fail, an up-to-date backup allows you to replace the disk and restore your data. If a needed file should be corrupted or accidentally deleted or overwritten, your backup allows you to retrieve the file and continue working. Back up your data regularly for maximum protection.

Installing and configuring the backup software

The CorelSCSI Backup software is installed and configured when you install the CorelSCSI utilities on your hard disk. You do not need to configure the software before you begin.

Starting CorelSCSI backup

Type CTBACKUP at the command prompt and the Select Option menu appears.



Selecting items in CorelSCSI backup

There are three ways to choose items from a menu in CorelSCSI Backup:

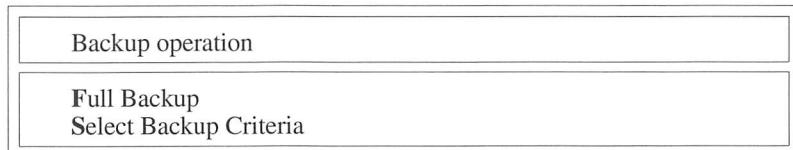
- use the arrow keys to move the highlight bar to the option that you want and press <Return>;
- if you have a mouse and a mouse driver installed, use the mouse to move the highlight bar and press the left mouse button to select; or
- type the bold letter of the menu choice that you want.

You can press <Esc> in any menu to go back to the previous menu. If you press <Esc> in the Select Option menu, CTBACKUP asks if you wish to return to the operating system.

Backing up your disk

Choose Backup from the Main menu and the Backup Operation menu appears. From this menu you can choose:

- Full Backup to copy all files on the hard disk to tape
- Select Backup Criteria to copy files to tape according to a set of rules you define.



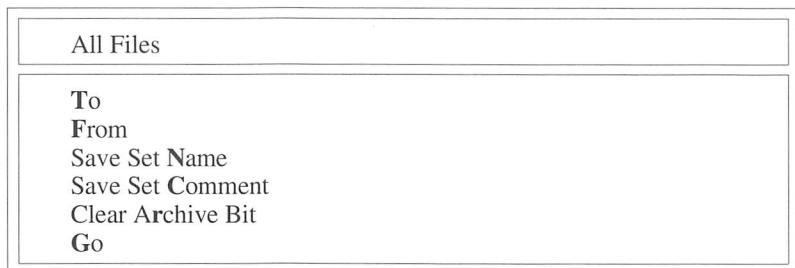
Choosing the desired action will display a new menu. Press <Esc> to return to the Main menu.

Quick instructions for CorelSCSI backup

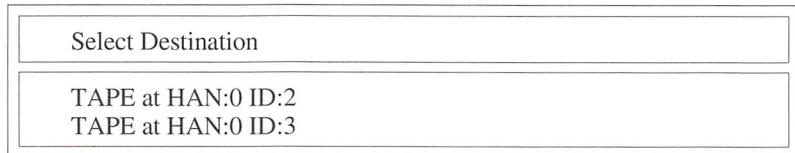
- To back up the default hard disk to tape, choose Backup from the Main menu, choose Full Backup, and choose Go.

Full backup

Choose Full Backup from the Backup Operation menu and the All Files menu appears.



- To** Choose To, and a menu appears listing the drives to which you can back up.

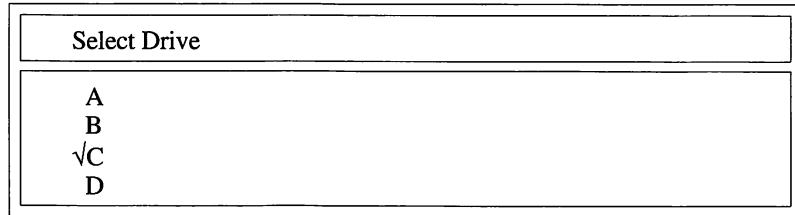


HAN stands for Host Adapter Number. If you have more than one CorelSCSI interface card, CTBACKUP identifies them by number.

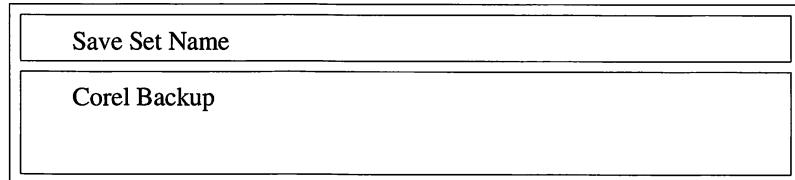
ID stands for SCSI ID. Each device on a SCSI bus must have a unique ID number. Refer to the owner's manual for your tape drive to change the ID of the tape drive.

DOS/OS2 reference

From Choose From and a menu appears listing all disk drives attached to the computer. Press <Space> to select the drive to back up. You can select more than one drive to be backed up. The drive to be backed up defaults to the current drive.

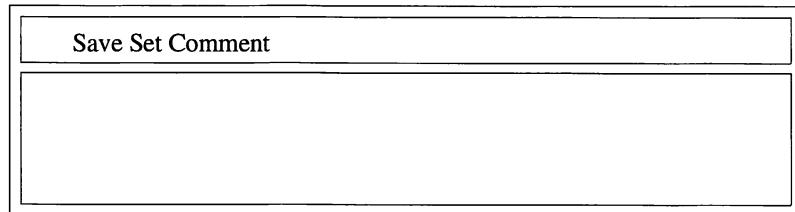


Save Set Name Choose Save Set Name and a window appears asking for a save set name. You may enter up to 20 characters to name the save set. The save set name defaults to Corel Backup.

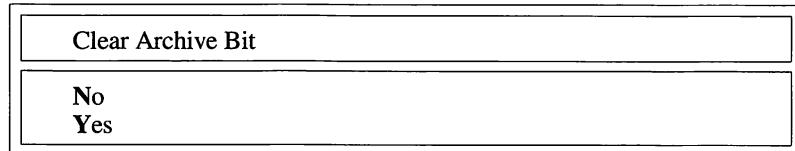


If you do not change the name, save sets can be told apart by date and time.

Save Set Comment Choose Save Set Comment and a window appears asking for a comment. Enter up to 20 characters as your comment.

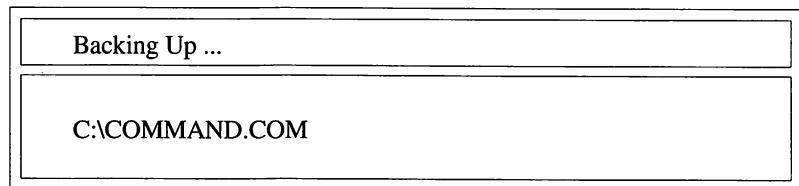


Clear Archive Bit Choose Clear Archive Bit from the Backup Criteria menu and the Clear Archive Bit menu appears. Clearing the Archive bit turns off the Archive attribute of a file.

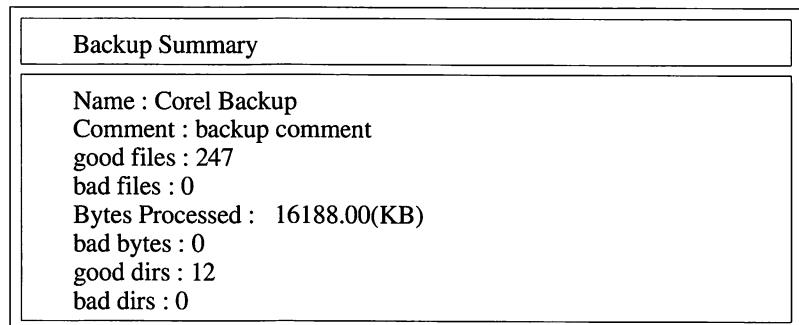


If the Archive attribute is cleared (turned off), that indicates that the file has been backed up since it was created. CorelSCSI Backup has an option to back up only files that have the Archive attribute turned on. Do this using Backup Archive Files Only under the Select Backup Criteria menu.

Go Choose Go and the program scans the selected disk or disks to find all file names. The program then begins backing up the entire disk to tape. Press <Esc> to abort the backup and return to the All Files menu.

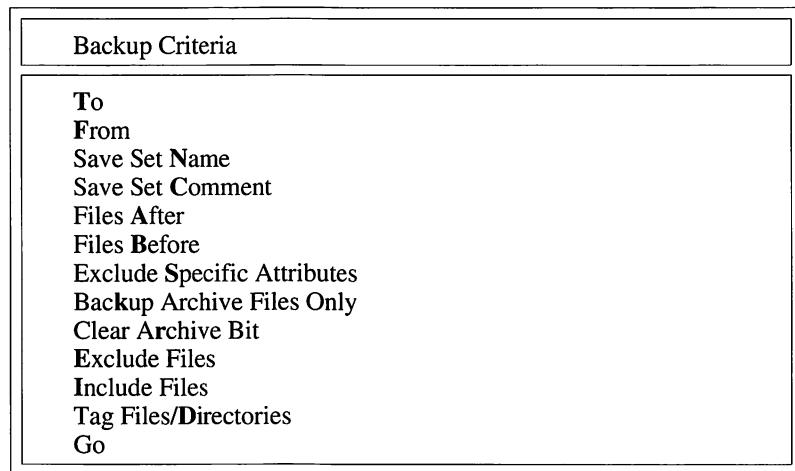


When the backup is complete, CTBACKUP displays a summary of the items backed up.



Selecting files to back up

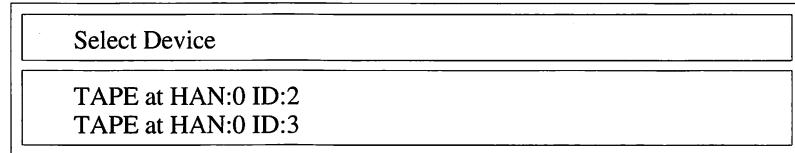
Choose Select Backup Criteria from the Select Option menu and the Backup Criteria menu appears.



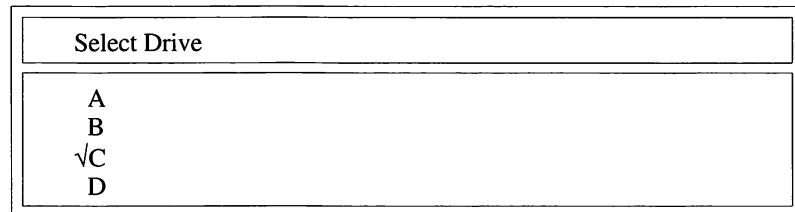
When the Backup Criteria menu is on the screen, a Backup Criteria window shows the current settings. The following pages give the details of the choices on this menu.

Press <Esc> to return to the Backup Operation menu.

To Choose To, and a menu appears listing the drives to which you can back up.



From Choose From and a list of all disk drives attached to the computer appears. Press <Space> to select the drive to back up. You can select more than one drive to be backed up. The drive to be backed up defaults to the current drive.



Note This menu will show drive B: even if there is no physical drive B: attached to the system.

Save Set Name Choose Save Set Name from the Backup Criteria menu and the Save Set Name window appears. Enter up to 20 characters to name the save set. The Save Set Name defaults to Corel Backup.

Save Set Name
Corel Backup

If you do not change the name, save sets can be told apart by date and time.

Save Set Comment Choose Save Set Comments from the Backup Criteria menu and the Enter Save Set Comment window appears. You can enter up to 20 characters in your comment.

Enter Save Set Comment:

Files After Choose Files After from the Backup Criteria menu and the Enter Date window appears. Enter the date in the format shown below.

Enter Date: 01-JAN-1980

To back up all files dated on or after a certain date, enter that date in the Files After window. The date defaults to 01-JAN-1980.

Files Before Choose Files Before from the Backup Criteria menu and the Enter Date window appears. Enter the date in the format shown below.

Enter Date: 31-DEC-2099

To back up all files dated on or before a certain date, enter that date in the Files Before window. The date defaults to 31-DEC- 2099.

Note You can use both Files Before and Files After to specify files within a range of dates.

Exclude Specific Attributes Choose Exclude Specific Attributes from the Backup Criteria menu and the Exclude File Types menu appears. Press <Space> to select specific attributes.

Exclude file types

Archive
Read Only
System
Hidden

File attributes are part of the information that the operating system uses to track files on the disk. Every file has four attributes, which can be on or off.

The Archive attribute indicates that the file has not been backed up since it was created. CorelSCSI Backup allows you to turn off the Archive attribute when you back up a file.

The Read Only attribute indicates a file that can be looked at, but cannot be changed.

The System attribute indicates a file that is part of the operating system. These files do not appear in directory listings, but exist on the disk.

The Hidden attribute indicates a file that does not appear in directory listings.

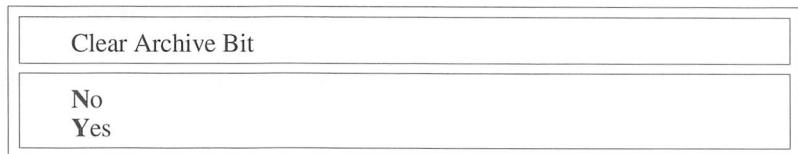
Backup Archive Files Only Choose Backup Archive Files Only from the Backup Criteria menu and the Backup Archive Files menu appears.

Backup Archive Files Only

No
Yes

If the Archive attribute is cleared (turned off), that indicates that the file has been backed up since it was created. Choose Yes to back up only files that have the Archive attribute set (turned on).

Clear archive bit Choose Clear Archive Bit from the Backup Criteria menu and the Clear Archive Bit menu appears. Clearing the Archive bit turns off the Archive attribute of a file.



If the Archive attribute is cleared (turned off), that indicates that the file has been backed up since it was created.

Exclude Files Choose Exclude Files from the Backup Criteria menu and the File Specification window appears.



If you do not want to back up a specific file or group of files, choose Exclude Files. Enter the File name in the window and press <Return>. An Exclude Files window appears, listing the files to be excluded from the backup. Press <Insert> to add more files to the Exclude Files list. Press <Return> to accept the list.

Note Files on the Exclude Files list are not backed up, even if they match other backup criteria. However, the Include Files list (see below) takes priority. If a file matches the Exclude Files list and the Include Files list, the file will be backed up.

To delete files from the list of files to be excluded, move the highlight bar to the file and press <Delete>.

Include Files Choose Include Files from the Backup Criteria menu and the File Specification window appears.



To back up a specific file or group of files, choose Include Files. Enter the File name in the window and press <Return>. An Include Files window appears, listing the files to be included in the backup. Press <Insert> to add more files to the Include Files list. Press <Return> to accept the list.

To delete files from the list of files to be included, move the highlight bar to the file and press <Delete>.

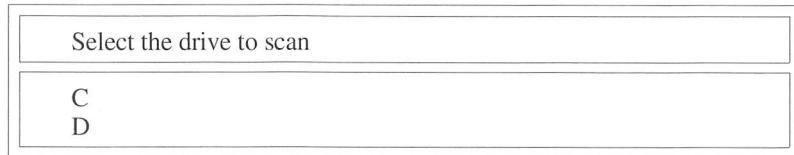
Note The Include Files list takes priority over all other backup criteria. If a file matches both the Include Files list and the Exclude Files list, it will be backed up.

Using wildcards in CorelSCSI backup

You can use the * and ? wildcards to substitute for part of the file name. The asterisk (*) represents any number of characters, and the question mark (?) represents any single character.

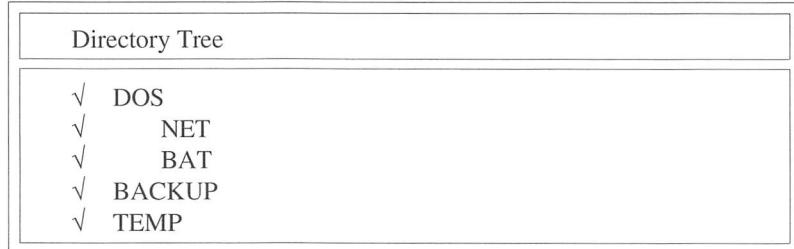
For example, if you do not want to back up files with an extension of .BAK, enter *.BAK in the Exclude Files window. If you want to back up files named SYSTEM1.TXT through SYSTEM9.TXT, enter SYSTEM?.TXT in the Include Files window.

Tag File/Directories Choose Tag File/Directories from the Select Backup Criteria menu and CorelSCSI Backup displays a list of selected disk drives.



Tagging a file or directory marks that file or directory for other criteria to act on. If a file or directory is tagged, CTBACKUP uses the other backup criteria to determine whether or not to back up the file. If a file or directory is not tagged, that file or directory is ignored.

Press <Return> to select a drive and CorelSCSI scans the selected disk. When complete, the Directory Tree window appears. From this window you can choose complete directories to be backed up.



Directories that are tagged appear with a check mark beside their names. To change the tag on a directory, move the highlight bar to the desired directory. Press <Space> to untag a directory that is tagged, or to tag a directory that is not tagged.

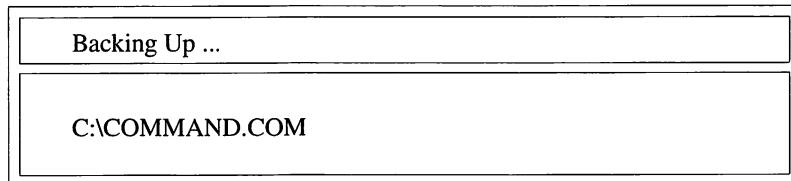
To tag files, press <Return> to enter the highlighted directory.

Name	Size	Date	Time	Attribute
✓ IO.SYS	33430	9-Apr-1991	5:00:00	ASRH
✓ MSDOS.SYS	37394	9-Apr-1991	5:00:00	ASRH
✓ COMMAND.COM	78459	9-Apr-1991	5:00:00	
✓ WINA20.386	9349	9-Apr-1991	5:00:00	
✓ CONFIG.SYD	351	9-Jan-1992	13:55:18	
✓ AUTOEXEC.BAT	227	17-Jan-1992	10:23:40	
✓ NET.BAK	31	13-Jan-1992	9:19:10	

Files that are tagged appear with a check mark beside their names. To change the tag on a file, move the highlight bar to the desired file. Press <Space> to untag a file that is tagged, or to tag a file that is not tagged. Press <Esc> to return to the directory tree.

Press <I> to invert tagging for files in current directory. Inverting tags in a directory will tag all untagged files, and untag all tagged files.

Go Choose Go and the program scans the disk to find all file names. The program then begins backing up the entire disk to tape. Press <Esc> to abort the backup and return to the All Files menu.



When the backup is complete, CTBACKUP displays a summary of the items backed up.

Backup Summary
Name : Corel Backup Comment : backup comment good files : 38 bad files : 0 Bytes Processed : 247.30(KB) bad bytes : 0 good dirs : 9 bad dirs : 0

Verifying your backup

Choose Verify from the Main menu and the Verify Option menu appears.

Verify Data
From Select Save Set Go

From Choose From from the Verify Data menu and a menu appears listing the possible tape drives that you can verify from.

Select Device
TAPE at HAN:0 ID:2 TAPE at HAN:0 ID:3

Select Save Set Choose Select Save Set from the Verify data menu and CorelSCSI Backup presents a menu of the available save sets that you can verify.

Select Save Set to Verify
Corel Backup No Comment 1-Mar-1992 8:22:45 Corel Backup No Comment 3-Mar-1992 16:14:54 Corel Backup No Comment 6-Mar-1992 11:37:30

Go Choose Go from the Verify Data menu to start the verify. CTBACKUP will compare the data on the tape with the data on the hard disk, and display a list of any files that do not match.

Verify Summary
Name : Corel Backup Comment : no comment Good Files : 8 Bad Files : 0 Bytes Processed : 284.60(KB) Bad Bytes : 0 Good Dirs : 4 Bad Dirs : 0

Restoring from your backup

Choose Restore from the Main menu and the Restore Operation menu appears.

Restore Operation
Full Restore Select Restore Criteria

Choosing the desired action will display a new menu. Press <Esc> to return to the Main menu.

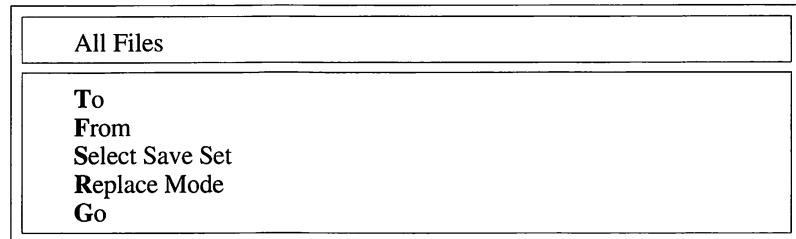
Quick instructions for restoring

To restore the default hard disk from tape, choose Restore from the Main menu, choose Full Restore, and choose Go.

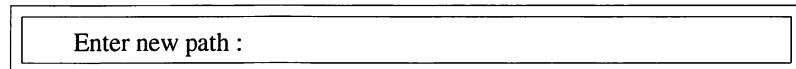
This will restore all files from the tape, overwriting any newer versions of files that may exist.

Full restore

Choose Full Restore from the Restore Operation menu and the All Files menu appears.

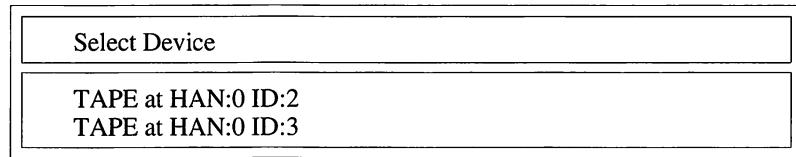


To Choose To and a window appears asking you to enter a new path. Use this window to restore files to a different location than they were backed up from.

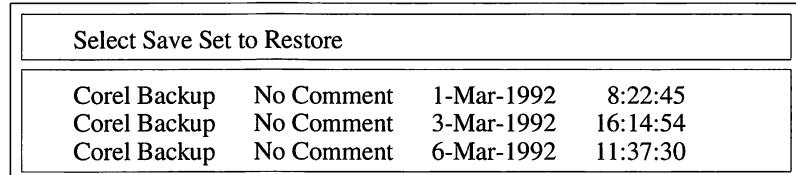


To restore files to their original path, type ORIGINAL PATH.

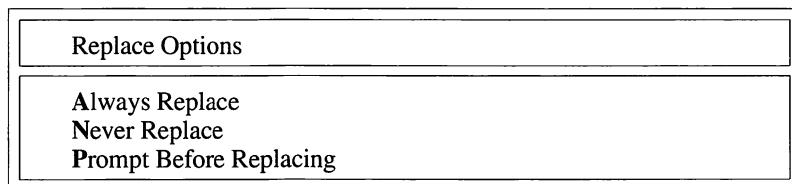
From Choose From and a menu appears listing the drives that you can restore from.



Select Save Set Choose Select Save Set from the All Files menu and CorelSCSI Backup presents a menu of the available save sets that you can restore.



Replace Mode Choose Replace Mode from the All Files menu and CorelSCSI Backup presents a menu of the available options for replacing files while restoring.



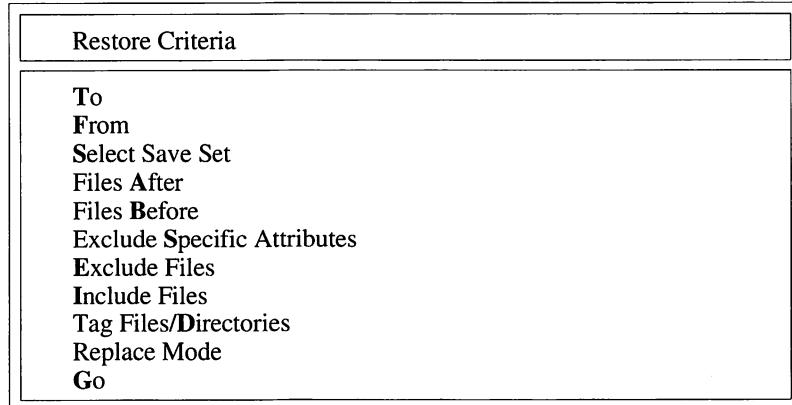
Choose Always Replace to have any files on the hard disk overwritten with the files being restored. Choose Never Replace to leave any files on the hard disk untouched.

Choose Prompt Before Replacing and CTBACKUP will ask you before replacing any file with a file from the backup.

Go Choose Go from the All Files menu to start the restore. The program then begins restoring all files from the selected save set. Press <Esc> to abort the restore and return to the All Files menu.

Selecting files to restore

Choose Select Restore Criteria from the Main menu and the Restore Criteria menu appears.



When the Restore Criteria menu is on the screen, a Restore Criteria window shows the current settings. The following pages give the details of the choices on this menu.

Press <Esc> to return to the Restore Operation menu.

DOS/OS2 reference

To Choose To and a window appears asking you to enter a new path. Use this window to restore files to a different location than they were backed up from.

Enter new path :

To restore files to their original path, type ORIGINAL PATH.

From Choose From and a menu appears listing the drives that you can restore from.

Select Device

TAPE at HAN:0 ID:2
TAPE at HAN:0 ID:3

Select Save Set Choose Select Save Set from the All Files menu and CorelSCSI Backup presents a menu of the available save sets that you can restore.

Select Save Set to Restore

Corel Backup	No Comment	1-Mar-1992	8:22:45
Corel Backup	No Comment	3-Mar-1992	16:14:54
Corel Backup	No Comment	6-Mar-1992	11:37:30

Files After Choose Files After from the Backup Criteria menu and the Enter Date window appears. Enter the date in the format shown below.

Enter Date: 01-JAN-1980

To restore all files dated on or after a certain date, enter the date in the Files After window. The date defaults to 01-JAN-1980.

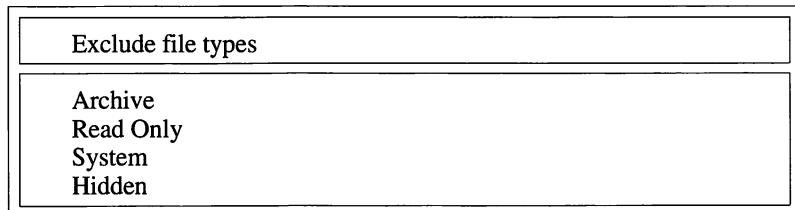
Files Before Choose Files Before from the Backup Criteria menu and the Enter Date window appears. Enter the date in the format shown below.

Enter Date: 31-DEC-2099

To restore all files dated on or before a certain date, enter the date in the Files Before window. The date defaults to 31-DEC-2099.

Note You can use Files Before and Files After to specify files within a range of dates.

Exclude Specific Attributes Choose Exclude Specific Attributes from the Restore Criteria menu and the Exclude File Types menu appears. Press <Space> to select specific attributes.



File attributes are part of the information that the operating system uses to track files on the disk. Every file has four attributes, which can be set (on) or cleared (off).

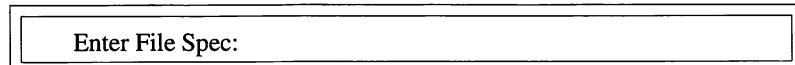
The Archive attribute, when set, indicates that the file has not been backed up since it was created.

The Read Only attribute indicates a file that can be looked at, but can not be changed.

The System attribute indicates a file that is part of the operating system. These files do not appear in directory listings, but exist on the disk.

The Hidden attribute indicates a file that does not appear in directory listings.

Exclude Files Choose Exclude Files from the Restore Criteria menu and the File Specification window appears.



If you do not want to restore a specific file or group of files, choose Exclude Files. Enter the file name in the window and press <Return>. An Exclude Files window appears, listing the files to be excluded from the restore. Press <Insert> to add more files to the Exclude Files list. Press <Return> to accept the list.

Note Files on the Exclude Files list will not be restored, even if they match other restore criteria. However, the Include Files list (see below) takes priority. If a file matches the Exclude Files list and the Include Files list, the file will be restored.

You can use wildcards to substitute for part of the file name. For example, if you did not want to restore files that ended in .BAK, enter *.BAK in the Exclude Files window.

Include Files Choose Include Files from the Restore Criteria menu and the File Specification window appears.

Enter File Spec :

To restore a specific file or group of files, choose Include Files. Enter the file name in the window and press <Return>. An Include Files window appears, listing the files to be included in the restore. Press <Insert> to add more files to the Include Files list. Press <Return> to accept the list.

Note The Include Files list takes priority over other restore criteria. If a file matches both the Include Files list and the Exclude Files list, it will be restored.

You can use wildcards to substitute for part of the file name. For example, if you wanted to restore all files that end in .DOC, enter *.DOC in the Include Files window.

Tag Files/Directories Choose Tag File/Directories from the Restore Criteria menu and CorelSCSI Backup displays the Directory Tree window.

Directory Tree

- ✓ DOS
- ✓ NET
- ✓ BAT
- ✓ BACKUP
- ✓ TEMP

Tagging a file or directory marks that file or directory for other criteria to act on. If a file or directory is tagged, CTBACKUP uses the other backup criteria to determine whether or not to back up the file. If a file or directory is not tagged, that file or directory is ignored.

Directories that are tagged appear with a check mark beside their names. To change the tag on a directory, move the highlight bar to the desired directory. Press <Space> to untag a directory that is tagged, or to tag a directory that is not tagged.

To tag files, press <Return> to enter the highlighted directory.

Name	Size	Date	Time	Attribute
✓ IO.SYS	33430	9-Apr-1991	5:00:00	ASRH
✓ MSDOS.SYS	37394	9-Apr-1991	5: 00:00	ASRH
✓ COMMAND.COM	78459	9-Apr-1991	5:00:00	
✓ WINA20.386	9349	9-Apr-1991	5:00:00	
✓ CONFIG.SYD	351	9-Jan-1992	13:55:18	
✓ AUTOEXEC.BAT	227	17-Jan-1992	10:23:40	
✓ NET.BAK	31	13-Jan-1992	9:19:10	

Files that are tagged will appear with a check mark beside their names. To change the tag on a file, move the highlight bar to the desired file. Press <Space> to untag a file that is tagged, or to tag a file that is not tagged. Press <Esc> to return to the directory tree.

Press <I> to invert tagging for files in current directory. Inverting tags in a directory will tag all untagged files, and untag all tagged files.

Replace Mode Choose Replace Mode from the Restore Criteria menu and CorelSCSI Backup presents a menu of the available options for replacing files while restoring.

Replace Options
Always Replace
Never Replace
Prompt Before Replacing

Choose Always Replace to have any files on the hard disk overwritten with the files being restored.

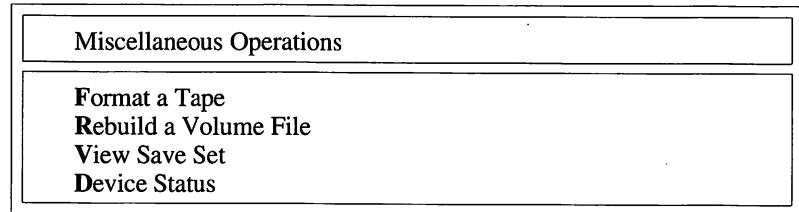
Choose Never Replace to leave any files on the hard disk untouched.

Choose Prompt Before Replacing and CTBACKUP will ask you before replacing any file with a file from the backup.

Go Choose Go from the All Files menu to start the restore. The program then begins restoring all files from the selected save set. Press <Esc> to abort the restore and return to the All Files menu.

Miscellaneous

Choose Miscellaneous from the Main menu and the Miscellaneous Operations menu appears.



Choosing the desired action will display a new menu. Press <Esc> to return to the Main menu.

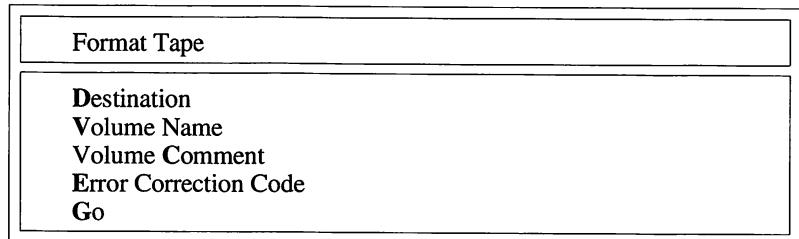
Format a tape

Formatting a tape prepares the tape to accept information. You must format a tape before the first time you use it.

WARNING

If you format a tape that has been used, you will lose access to the information stored on the tape.

Choose Format a Tape from the Miscellaneous Options menu and the Format Tape menu appears.



Destination Choose Destination from the Format Tape menu and a menu appears listing the drives that you can format.

Select Device
TAPE at HAN:0 ID:2
TAPE at HAN:0 ID:3

Volume Name Choose Volume Name from the Format Tape menu and a Volume Name window appears. Enter a descriptive name of up to 20 characters in this window and press <Return>.

Volume Name

The program will ask if you wish to save the changes to the volume name. Choose No to make corrections, or Yes to accept the name as entered.

Volume Comment Choose Volume Comment from the Format Tape window and a Volume Comment window appears. Enter a descriptive comment of up to 20 characters in this window and press <Return>.

Volume Comment

Error Correction Code Choose Error Correction Code from the Format Tape menu and the Error Correction Code window appears. Choose Yes to turn the error correction code on, or No to turn the error correction code off.

Error Correction Code
No
Yes

Note This option is only available for QIC (quarter-inch cartridge) tape drives

Go Choose Go from the Format Tape menu and CTBACKUP gives you one more chance to stop without formatting the tape. A window appears asking if you are sure you want to format the tape. Choose Yes to continue and format the tape, or No to return to the Format Tape menu.

Are you sure you want to format this tape?
No
Yes

Rebuild a volume file

Choose Rebuild a Volume File from the Miscellaneous Options menu to allow a backup tape made on one computer to be used on another computer.

CorelSCSI backup keeps a database on the hard disk. The database contains a list of files that have been backed up to tape. This allows faster retrieval from tape. To selectively restore from a tape to a computer that does not have the same database, you must rebuild the volume file first.

To rebuild a volume file

Follow these steps to rebuild a volume file:

- 1 Ensure that the CorelSCSI backup software is installed on the hard disk.
- 2 Put the tape to restore from in the tape drive.
- 3 Choose Rebuild a Volume File from the Miscellaneous Operations menu.

After you choose Rebuild a Volume File, the computer reads the information off the tape that allows the computer to rebuild the volume file.

View save set

Choose View Save Set from the Miscellaneous Options menu and a window appears showing the available save sets.

Select Save Set to View			
Corel Backup	No Comment	1-Mar-1992	8:22:45
Corel Backup	No Comment	3-Mar-1992	16:14:54
Corel Backup	No Comment	6-Mar-1992	11:37:30

Select the save set you wish to view and and CorelSCSI Backup displays a window showing the Directory Tree for the selected save set.

Directory Tree	
√	DOS
√	NET
√	BAT
√	BACKUP
√	TEMP

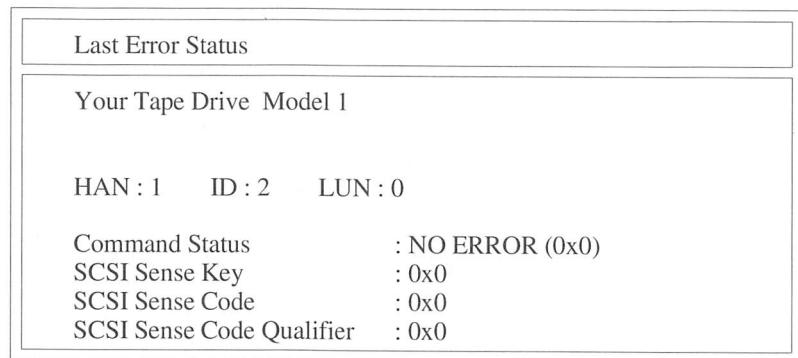
Move the highlight bar to the directory you wish to view and press <Return>. CorelSCSI Backup displays a window showing the files in the directory that were backed up in the selected save set.

Name	Size	Date	Time	Attribute
√ IO.SYS	33430	9-Apr-1991	5:00:00	ASRH
√ MSDOS.SYS	37394	9-Apr-1991	5: 00:00	ASRH
√ COMMAND.COM	78459	9-Apr-1991	5:00:00	
√ WINA20.386	9349	9-Apr-1991	5:00:00	
√ CONFIG.SYD	351	9-Jan-1992	13:55:18	
√ AUTOEXEC.BAT	227	17-Jan-1992	10:23:40	
√ NET.BAK	31	13-Jan-1992	9:19:10	

Device status

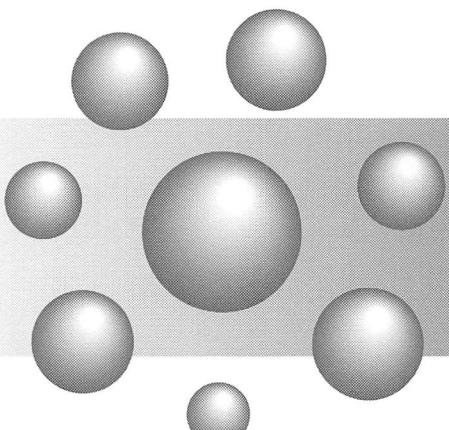
Choose Device Status from the Miscellaneous Options menu and a window appears listing the current status of the device. This window lists

- the make and model of the tape drive
- the hardware adapter number (HAN) that the tape drive is attached to
- the SCSI identification number (ID) of the tape drive
- the logical unit number (LUN) of the tape drive.
- the last error message, if any, from the tape drive



Exit

Choose Exit from the Main Menu and the program returns you directly to the operating system. Be sure that you are done with the program before choosing Exit.



Windows Reference

CorelSCSI Backup for Windows

In addition to the device drivers, CorelSCSI for Windows includes a program that allows you to back up and restore files to a tape drive connected to your SCSI controller. This section explains how to use this program.

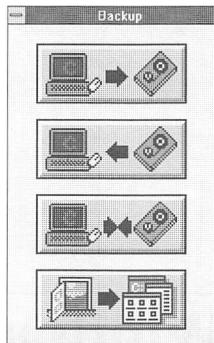
Why back up files

Backing up files is a form of disaster insurance. If your hard disk should fail, an up-to-date backup allows you to replace the disk and restore your data. If a needed file should be corrupted or accidentally deleted, your backup allows you to retrieve the file and continue working. Back up your data regularly for maximum protection.

Installing and configuring the backup software

The CorelSCSI Backup software is installed in the CorelSCSI group when you install the CorelSCSI for Windows utilities on your hard disk. You do not need to configure the software before you begin.

Starting CorelSCSI backup



Double click on the Windows Backup icon and the initial screen appears, as shown above. From this screen you can choose:



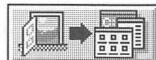
- Backup to copy all or selected files to tape



- Verify to make sure that your backup is correct



- Restore to return files to your hard disk



- Exit to return to Windows.

The Tape Backup screen



Choose the Backup icon and the Tape Backup and Drive List windows appear.

Use the Drive List window to choose the disk drive to back up from. You can select more than one drive to back up.

From the Tape Backup window you can:

- back up all files on the hard disk to tape
- back up files to tape according to a set of options you define
- log items backed up.

Quick backup instructions

To back up a hard disk to tape:

- choose the Backup icon from the initial window
- select a drive to back up
- choose Backup
- choose Method
- choose Full
- choose Backup
- choose Start.

Backup menu

Use the Backup menu to:

- select whether to do a full backup or a partial backup
- start the backup
- exit to Windows
- get further information about the program.

Full Choose Full under Backup Method menu selection to back up all files to tape.

Selective Choose Selective from the Backup Method menu to back up only selected files to tape. Use the Criteria selection under the Options menu to select files to back up.

Windows reference

Go Choose Go from the Backup menu to begin copying files to tape.

Exit Choose Exit from the Backup menu to close the Tape Backup window and return to Windows.

Options menu

Use the Options menu to

- set the program to clear the Archive bit
- select the options for backup.

Clear Archive Bit Choose Clear Archive Bit from the Options menu to clear (turn off) the archive attribute for each backed up file.

When a file is created or modified, the operating system sets (turns on) the archive attribute. If you clear the archive bit when you back up your files, the next time you run backup you can back up only files that have had their archive attribute set.

Setting Backup criteria Choose Criteria from the Options menu to set the options for backing up files.

Archive Attribute Only Choose the Archive Bit Set Only checkbox to back up only files that have the archive bit set.

Include/Exclude List Click on the Include button to add a file to list of files to be backed up. Click on the Exclude button to add a file to the list of files to be excluded from the backup.

Note The Include list takes priority over other backup criteria. If a file matches both the Include list and the Exclude list, it will be backed up.

Date After/Date Before Enter a date in the Date After text box to select only files dated on or after that date. Enter a date in the Date Before text box to select only files dated on or before that date. Enter a date in both boxes to select files within a range of dates.

File Attribute Exclude Choose checkboxes for files with attributes that you do not wish to back up.

OK When you have made all your changes, click on the Change button. This makes the options your default for Selective backup.

Close Click on the Close button to return to the Tape Backup window.

Note If you click on the Close button before you click on the Change button, any changes you may have made to the backup criteria are lost.

Disk menu

Use the Drive menu to select the hard disk drive or drives to back up.

Drive List Choose Drive List from the Drive menu and the Drive List selection window appears.

Move the highlight bar to the desired drive and click on the Select button. You may select more than one drive to back up by repeating the selection process.

To remove a drive from the list of selected drives, move the highlight bar to the desired drive and click on the De-select button.

Click on the Close button to close the Drive List window.

Close All Choose Close All from the Drive menu to remove all drives from the selected list.

Tagging files and directories Click on the drive letter on the bottom of the Drive menu to open a file select window.

Tagging a file or directory marks that file or directory for other criteria to act on. If a file or directory is tagged, the backup program uses the other backup criteria to determine whether or not to back up the file. If a file or directory is not tagged, that file or directory is ignored.

The left side of the window shows the directories available. The right side of the window shows the files in the currently highlighted directory.

Some directories have a single file folder icon next to them, while others show two file folders. The directories that show two file folders have subdirectories, while the directories that show a single file folder do not have subdirectories.

To display the subdirectories within a directory, either double click on the file folders icon, or highlight the directory name, and choose Expand from the Tree menu.

To tag a directory, either double-click on the name of the directory, or highlight the directory name and choose Tag All from the Files menu. This tags all files in the directory. To untag a directory, double click on the directory name again, or highlight the directory name and choose Untag All from the Files menu.

To tag a group of files in a directory, highlight the filenames and choose Tag Marked from the Files menu. To deselect a group of files, highlight the filenames and choose Untag Marked from the Files menu.

Choose Invert Tag from the Files menu to tag all untagged files in the currently highlighted directory and untag all tagged files.

Tape menu

Use the Tape menu to:

- name the save set and enter a save set comment
- select the tape drive, if you have more than one attached to your system.
- format a backup tape before use
- see the names of the files on the tape
- rewind a tape to the beginning.

Save Set Choose Save Set from the Tape menu and a Tape Volume window appears, listing the save sets on the tape currently in the tape drive. Click on the New button to enter a save set name and comment.

The save set name and save set comment can each be up to 20 characters. Enter the name and comment, and click on OK.

Device Choose Device from the Tape menu to select the tape drive to back up to, if you have more than one drive attached to your system.

Format Choose Format from the Tape menu to prepare a tape to be used for backup. Tapes must be formatted before they can be used.

WARNING

If you format a tape that has been used, you will lose access to the information stored on the tape.

Browse Choose Browse from the Tape menu to see the names of all files on the tape currently in the tape drive.

Rewinding a tape Choose Rewind from the Tape menu to rewind the tape that is currently in the tape drive.

Utility menu

Use the Utility menu to:

- log items backed up
- change to the Restore functions
- change to the Verify functions.

Log Choose Log from the Utility menu to create a log file listing the files backed up.

Verify Choose Verify from the Utility menu to change to the Verify screen. See "The Tape Verify Screen" for further information.

Restore Select Restore from the Utility menu to change to the Restore screen. See "The Tape Restore Screen" for further information.

The Tape Verify screen



Choose the Verify icon and the Tape Verify window appears.

Use the Tape Verify window to verify all files backed up to tape.

Verify menu

Use the Verify menu to:

- select whether to do a complete verify or a quick verify
- start the verify
- exit to Windows
- get further information about the program.

Go Choose Go from the Verify menu to begin verifying.

Exit Choose Exit from the Verify menu to return to Windows.

Tape menu

Use the Tape menu to:

- select the save set to verify
- select the tape drive, if you have more than one attached to your system.
- format a backup tape before use
- rewind a tape to the beginning.

Save Set Choose Save Set from the Tape menu and a window appears, listing the save sets on the tape currently in the tape drive. Double-click on the name of the save set that you wish to verify.

Device Choose Device from the Tape menu to select the tape drive to verify from, if you have more than one drive attached to your system.

Format Choose Format from the Tape menu to prepare a tape to be used for backup. Tapes must be formatted before they can be used.

WARNING

If you format a tape that has been used, you will lose access to the information stored on the tape.

Browse Choose Browse from the Tape menu to see the names of all files on the tape currently in the tape drive.

Rewinding a tape Choose Rewind from the Tape menu to rewind the tape that is currently in the drive.

Utility menu

Use the Utility menu to:

- log items verified
- change to the Backup functions
- change to the Restore functions

Log Choose Log from the Utility menu to create a log file listing the files verified.

Backup Select Backup from the Utility menu to change to the Backup screen. See "The Tape Backup Screen" for further information.

Restore Select Restore from the Utility menu to change to the Restore screen. See “The Tape Restore Screen” for further information.

The Tape Restore screen



Choose the Restore icon and the Tape Restore window appears.

From the Tape Restore window you can:

- restore all files on a tape to a hard disk
- restore files to a hard disk according to a set of options you define
- log items restored.

Quick restore instructions

To restore a hard disk from tape

- choose the Restore icon from the initial window
- choose Restore
- choose Method
- choose Blind
- choose Restore
- choose Start.

Restore menu

Use the Restore menu to:

- select whether to do a full restore or a selective restore
- start the restore
- exit to Windows
- get further information about the program.

Full Choose Blind to restore all files from the selected save set to the selected disk. The files are restored in their original directory structure.

Selective Choose Selective to restore selected files, or to restore files to a different directory structure.

Go Choose Go from the Restore menu to begin the restore process.

Exit Choose Exit from the Restore menu to close the program and return to Windows.

Options menu

Use the Options menu to:

- select the options for restoring
- set whether or not to replace files when restoring.

Setting Restore criteria Choose Criteria from the Options menu to set the options for restoring files.

Include Files/Exclude Files Double click on “Add File” to add a file to either the Include List or the Exclude List. Double click on a file name in either list to remove the file from the list.

Note The Include list takes priority over other restore criteria. If a file matches both the Include list and the Exclude list, it will be restored.

Date Before/Date After Enter a date in the Date After text box to select only files after that date. Enter a date in the Date Before text box to select only files before that date.

You can enter a date in both boxes to select files within a range of dates.

File Attribute Exclude Choose checkboxes for files with attributes that you do not wish to restore.

Saving your changes When you have made all your changes, click on the Change button. This makes the options your default for Selective restore.

Click on the Close button to return to the Tape Restore window.

Note If you click on the Close button before you click on the Change button, any changes you may have made to the restore criteria are lost.

Replace files Choose Replace from the Option menu to select whether to overwrite existing files when restoring.

Click on Always Overwrite to restore backed up files over the current version on the disk. Click on Never Overwrite to bypass backed up files that also exist on the disk. Click on Prompt to ask whether to overwrite or not.

Disk menu

Use the Drive menu to select the disk and directory that the restore should go to.

Where Click on Where in the Drive menu to select the path to restore files to.

Select Use Original Path to restore files to the same drives and directories they were backed up from.

If you do not select Use Original Path, you can restore files to a drive or directory that you choose. Select Keep SubDir Structure to keep the original directory structure under the selected drive or directory.

Tape menu

Use the Tape menu to:

- select the save set to restore
- select the tape drive, if you have more than one attached to your system.
- format a backup tape before use
- browse a tape
- rewind a tape to the beginning.

Save Set Choose Save Set from the Tape menu and a Tape Volume window appears, listing the save sets on the tape currently in the tape drive. Double-click on the name of the save set that you wish to restore from.

Device Choose Device from the Tape menu to select the tape drive to restore from, if you have more than one drive attached to your system.

Format Choose Format from the Tape menu to prepare a tape to be used for backup. Tapes must be formatted before they can be used.

WARNING

If you format a tape that has been used, you will lose access to the information stored on the tape.

Browse Choose Browse from the Tape menu to see the names of all files on the tape currently in the tape drive.

Rewind Choose Rewind from the Tape menu to rewind the tape that is currently in the drive.

Utility menu

Use the Utility menu to:

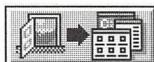
- log items verified
- change to the Backup functions
- change to the Verify functions

Log Choose Log from the Utility menu to create a log file listing the files restored.

Backup Select Backup from the Utility menu to change to the Backup screen. See “The Tape Backup Screen” for further information.

Verify Select Verify from the Utility menu to change to the Verify screen. See “The Tape Verify Screen” for further information.

Exit to Windows



Choose the Exit icon to end Windows Backup and return to Windows.

CorelSCSI Tools

CorelSCSI Tools is a Windows-based program that you can use to operate and display the status of the SCSI devices attached to your SCSI card.

Currently, CorelSCSI Tools supports the following SCSI devices:

- WORM drives
- rewritable optical drives
- multi-function optical drives
- fixed disks under CorelDRIVER control.

This chapter describes the CorelSCSI Tools application window and commands.

Starting the CorelSCSI Tools program

To use the CorelSCSI Tools commands, click the CorelSCSI Tools icon in the Corel application window.

In the CorelSCSI Tools window are the following components:

- system menu
- title bar
- menu bar
- device list

System menu

In addition to the standard Windows commands, the System menu contains a number of commands that are unique to the CorelSCSI Tools application. These commands allow you to change the mode in which the CorelSCSI Tools program operates, then save the new configuration or revert to the default configuration.

Refer to “Changing the CorelSCSI Tools configuration” on page 153 for information on the CorelSCSI commands in the System menu. For information on the standard Windows commands, refer to the documentation that comes with the Microsoft Windows software.

Title bar

Displayed in the title bar is the name of the program - CorelSCSI Tools for Windows - and the minimize and maximize buttons that allow you to resize the CorelSCSI window.

By positioning the cursor in the title bar and holding down the mouse button, you can move the CorelSCSI window to a new location on the desktop.

Menu bar

The menu bar contains the following items:

- File menu - which allows you to open, close, view, and print a CorelSCSI log file (see “Managing CorelSCSI log files” on page 143)
- Status menu - to display drive, driver, and cartridge information and last error status for the selected drive (see “Displaying system status” on page 146)
- Utilities menu - which you can use to operate the attached SCSI devices (see “Modifying drive operation” on page 155)

- Help menu, which identifies the device types supported by CorelSCSI (see “About CorelSCSI icons” on page 159).

Device list

The device list appears at left in the CorelSCSI Tools screen.

When you start CorelSCSI Tools for Windows, the program scans the SCSI bus and identifies each WORM, rewritable, and multi-function drive attached to the SCSI card in your computer.

For each device it identifies, the following information appears in the drive list:

- an icon identifying the drive type (WORM, multi-function, or fixed disk)
- the drive letter assigned to the device
- the SCSI ID and LUN of the drive

Note If there are two or more volumes on a cartridge in one of the drives, the SCSI ID and LUN, the drive type, and the drive letter assigned to each volume appear in the drive list.

Device types and associated icons

Depending on the SCSI devices you have attached to your computer, your drive list will contain one or more of the following icons.



E:
Id:1,0

This icon indicates a WORM drive. You will see one of these icons for each WORM drive, and for each multi-function drive operating in WORM mode.



G:
Id:4,0

This icon indicates a rewritable device. Rewritable devices include rewritable drives and multi-function drives operating in rewritable mode.



D:
Id:0,0

This icon indicates a fixed disk that is controlled by the device driver.

Running CorelSCSI Tools

You can run the CorelSCSI Tools program either by using a mouse or by entering key combinations at the keyboard.

Using a mouse

At startup, the first device in the drive list is automatically selected. If you want to work with another device, position the mouse pointer on the appropriate button in the drive list and click the left mouse button. You can now use the CorelSCSI Tools commands to monitor or manipulate the device by clicking the appropriate menu and selecting the command you want to execute.

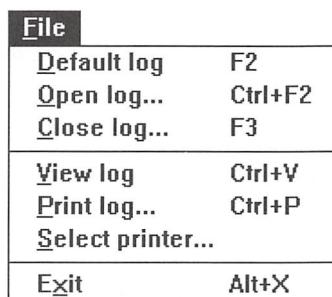
At the keyboard

Instead of using a mouse, you can run the CorelSCSI Tools program from the keyboard by using the key combinations listed below. In the list, two keys separated by a plus sign (for example, Shift+Tab) indicate that you must press and hold the first key while pressing the second key.

To do this	Use these keys
Start the CorelSCSI Tools program and open the application window	Press Tab to cycle through the icons until the CorelSCSI Tools icon is highlighted, then press Enter.
Move between sections in a dialog box	Press Tab to go in one direction, and shift + Tab to go in the other.
Move within a group in a dialog box	Press the up and down arrows as required.
Toggle a check box on or off	Press the space bar.
Put the choices you made in the dialog box into effect	Press Tab to highlight the Set or Start button, then press Enter.
Cancel an operation and close the dialog box	Press Esc.
Open the default log file	Press F2.
Open the Open file dialog box	Press Ctrl+F2.
Close the log file	Press F3.
View a log file	Press Ctrl+V
Print a log file	Press Ctrl+P
Exit the CorelSCSI Tools for Windows program	Press Alt+X

Managing the CorelSCSI log files

Use the commands in the File menu to manage the CorelSCSI log files.



When you open a log file, information on the following topics is immediately written to the file:

- CorelSCSI Tools program
- DOS system
- Windows
- Config.sys, in systems with DOS 4.0 or later
- Autoexec.bat, in systems with DOS 4.0 or later

While the log file is open, the information output by every operation that is performed using CorelSCSI Tools is written to the file.

Log files are intended primarily for use by Corel's technical staff. The information in the files can assist in identifying the cause of problems that may occur.

Opening the default log file

The DEFAULT LOG command opens a new version of the default log file. (The default log file name and directory are specified during installation.) If a default log file already exists, it will be overwritten.

At the keyboard

You can also open the default log file using either of the key combinations listed below.

- Alt F, D
- F2

Opening a log file

You can use the OPEN LOG command to do the following:

- create a new log file
- open a new version of the default log file and overwrite the existing file (as with the Default log command)
- open an existing default log file and add new log information to it.

When you select the OPEN LOG command, the file dialog box opens.

To create a new log file

With the file dialog box open, click in the file edit box. Type the filename, then click OK or press <Enter> to open the file.

The CorelSCSI Tools, DOS, Windows, and computer information described on the previous page are written immediately to the file. While the file remains open, all subsequent CorelSCSI Tools operations will also be written to the file.

To open an existing log file

In the file list box, select the file name using the drive, directory, and file lists. Double click the file name. From the menu that appears, select Overwrite or Append.

Overwrite If you select Overwrite, the contents of the existing file will be overwritten. Once overwritten, the contents of this file cannot be recovered.

Append Select Append to add information to the file. The CorelSCSI Tools, DOS, Windows, and computer information described on the preceding page is written to the end of the file, preserving the existing information.

At the keyboard

You can also open the file dialog box to access the Overwrite or Append options using either of the key combinations listed below:

- Alt F, O
- Ctrl+F2

With the file dialog box open, you can then open a new log file, overwrite the existing one, or append information to it.

Closing a log file

When you click CLOSE LOG, the log file is automatically saved and closed.

At the keyboard

You can also execute the CLOSE LOG command from the keyboard using either of these key combinations:

- Alt F, C
- F3

Viewing a log file

The VIEW LOG command displays the contents of the log file in the Notepad. You can use the arrows in the side bar to scroll through the log file.

To return to CorelSCSI Tools

To return to the CorelSCSI Tools program, close the Notepad or click in the CorelSCSI Tools window.

At the keyboard

You can also execute the VIEW LOG... command from the keyboard using either of the following key combinations:

- Alt F, V
- Ctrl+V

Printing a log file

Use the PRINT LOG command to send the contents of the open log file to the selected printer. If you want to send the log file to another printer, use the SELECT PRINTER command described on the next page.

At the keyboard

You can also execute the PRINT LOG command from the keyboard by using either of the following key combinations:

- Alt F, P
- Ctrl+P

Selecting a printer for the log file

Click SELECT PRINTER to select a printer on which to print the log file.

The dialog box that appears contains a list of the printers that are available to you. The printer that is currently selected is highlighted in the list.

To select a different printer

To select a different printer, double click on the printer name, or click once on the printer name then click OK.

At the keyboard

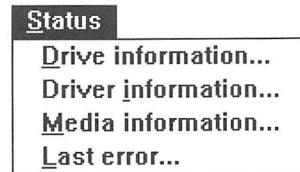
You can also open the printer dialog box from the keyboard by pressing Alt F, S.

Exiting the CorelSCSI Tools program

Clicking EXIT terminates the CorelSCSI Tools program and closes the window. If you did not close Notepad after viewing a log file, however, the Notepad application will remain open.

Displaying system status

Use the commands in the Status menu to display the current state of the various elements of your system. The output from these commands can assist support personnel if you should encounter a problem that cannot be solved by normal means.



Unless stated otherwise, the command descriptions that follow apply equally in both normal and advanced modes. Where additional information is displayed in advanced mode, the information is identified in the command description.

Displaying drive information

See "Changing the CorelSCSI Tools configuration" on page 153 for information on selecting a mode of operation.

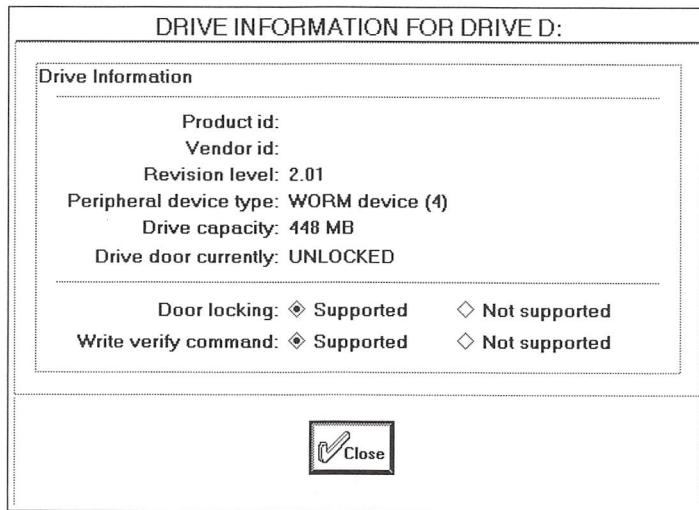
The DRIVE INFORMATION command displays the state of the selected drive. The information it displays depends on the mode you selected in the System menu: normal or advanced.

In normal mode

In normal mode, the Drive information dialog box appears (see next page).

The first section of the dialog box identifies the drive and vendor names, the firmware version, and the type and capacity of the drive. It also indicates whether the drive door is locked or unlocked.

The second section indicates whether or not the selected drive supports the door locking and Write/Verify command features.



In advanced mode

In advanced mode, an additional parameter appears as the last item in the dialog box: Corel device identifier. This is an identification number assigned by Corel to each drive we support.

The Corel device identifier can be useful if you have a drive that the device driver does not recognize. In such a case you can include, in the device driver statement, the Corel device identifier for a similar Corel-supported drive. This will force the device driver to address your drive as if it were the corresponding Corel-supported drive.

Note When adding the Corel device identifier to the device driver statement, insert it immediately after the SCSI ID and LUN for the drive. For example, if you add the Corel device identifier 29, your device driver statement may look like this:
Device=C:\CORELDRV\UNI_ASP.SYS /DOS4 /ID:1;0;29 /SS:1024 /C:4 /VOL:5

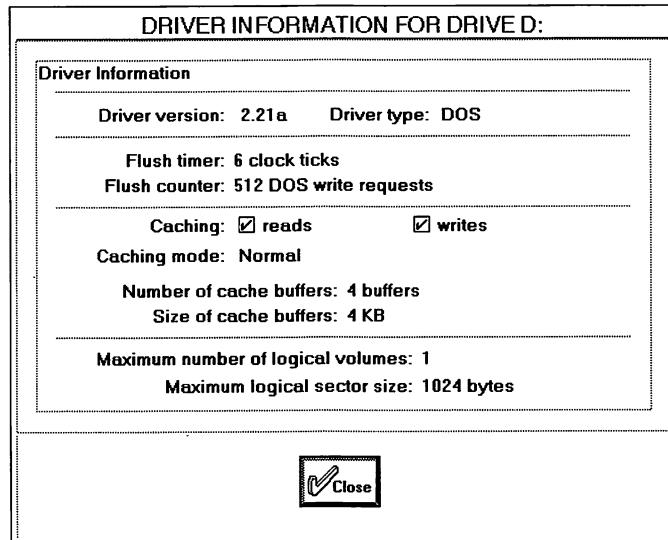
Displaying driver information

The DRIVER INFORMATION command displays the status of the driver. The information displayed depends on the mode you selected in the System menu: normal or advanced.

Windows reference

In normal mode

In normal mode, you will see this dialog box.



It displays the following information.

Driver information The first section in the dialog box displays the type and version of the device driver. The possible types are DOS and OEM (original equipment manufacturer).

Flush information “Flush timer” is used to ensure that data cached in RAM is properly written to the cartridge. The default value is 6 clock ticks. This means that after 6 clock ticks (which is equal to 1/5 of a second) of inactivity, the cartridge will automatically be updated.

“Flush counter” specifies the maximum number of consecutive writes to a cartridge before it is updated with a history marker. (The default value is 512.) This ensures that the cartridge is periodically updated while you write data to it.

Cache information The cache information section indicates whether the device driver is caching when reading or writing, the caching mode currently in use, and the number and size of cache buffers.

The possible caching modes are:

- Normal, in which writes are held in the cache until they are flushed to the cartridge either at your request or by the device driver.
- Write through, in which all writes are written to the cartridge immediately. However, the information is retained in the cache and subsequent requests to read the same data will get the information from the cache.

Volume information The last section in the dialog box displays the maximum number of logical volumes supported, and the maximum logical sector size.

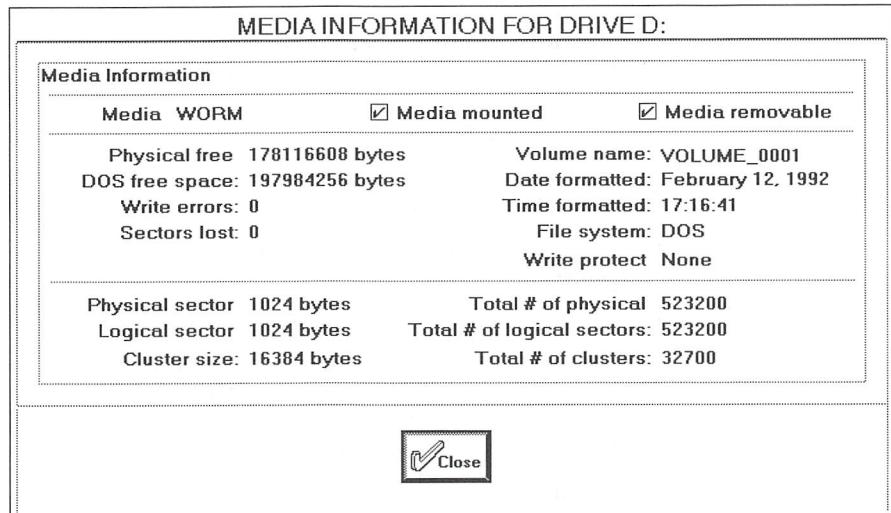
In advanced mode

If you selected Advanced in the system menu, this additional information appears in the Driver information dialog box:

- the largest block of data that can be transferred at one time by the SCSI host adapter
- the largest logical sector size the driver is configured to support
- whether the Write/Verify command is enabled or disabled. With this command enabled, the device driver will use the Write/Verify command to write data to the drive. With the Write/Verify command disabled, the device driver will use the SCSI Write command instead.
- whether or not the driver will perform an automatic bus reset if a timeout condition (Command status 200-20A) is detected on the SCSI bus
- the door locking mode: automatic or manual
- the number of bad sectors that can be tolerated during a mount.

Displaying cartridge information

Use the MEDIA INFORMATION command to display the status of the cartridge in the selected drive (as shown in the dialog box below). The cartridge must be mounted for this command to be executed. (If it is not, you are asked if you want to mount it.)



The first section in the Media Information dialog box identifies the cartridge type as one of the following:

- WORM
- rewritable
- Fixed disk.

Check boxes in this section also indicate if the driver has mounted the cartridge, and if the cartridge can be removed from the drive.

The information in the second section of the Media information dialog box includes:

Physical free space This is the actual amount of free space remaining on a WORM cartridge. For other types of cartridges, this value is not reported.

Free space on a WORM cartridge

If the WORM cartridge needs to be updated, the amount of free space shown here can be different from the amount of free space reported by DOS. However, this is the most accurate count that can be obtained of the free space on a WORM cartridge.

DOS free space This is the amount of free space on the WORM cartridge as reported by DOS. This information is displayed only when the WORM cartridge is mounted. In all other instances, <Unavailable> appears instead.

Write errors This is the total number of write failures that have occurred since the WORM cartridge was last formatted.

Sectors lost The value shown here represents the total number of sectors lost during the write failures mentioned above. This indicates the amount of space wasted on a WORM cartridge because of flaws in the media and/or hardware problems.

Note The values for Write errors and Sectors lost apply only to WORM cartridges. For rewritable cartridges, these values are always set to zero (0).

Volume name This is the name supplied when the cartridge was last formatted.

Date and time These values indicate when the cartridge was last formatted.

File system File system is the operating system for which the WORM cartridge was formatted. Possible values are: DOS3, DOS4, or Unknown. DOS3 and DOS4 apply only to WORM cartridges. For all other types of cartridges, “Unknown” is displayed here.

Write protect status This parameter indicates whether or not the cartridge is write-protected. One of the following values can be displayed:

None The cartridge is not write protected.

Hardware A write protect tab has been placed on the cartridge.

Software The driver will not allow writes to the cartridge. This can occur when there is a history marker discrepancy.

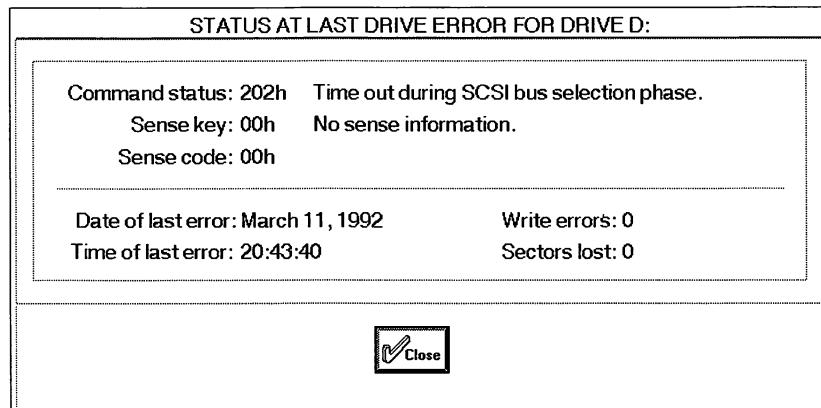
Full The WORM cartridge is full. This value appears for WORM cartridges only.

Windows reference

The last section in the Media information dialog box displays the size of each physical sector, logical sector, and cluster on the cartridge. This section also contains the total number of physical sectors, logical sectors, and clusters on the cartridge.

Displaying the latest error

The LAST ERROR command displays information on the most recent SCSI error, as this dialog box shows.



The first section in the dialog box displays the following:

Command status This code identifies the last error that occurred. The text beside the code further identifies the error. For an explanation of the error codes for your drive, refer to “Error messages” on page 187.

Sense key The sense key is the SCSI sense value reported by the drive when an error occurred. Each sense key corresponds to a particular type of problem. The sense key occurrences help identify problems with the drive and cartridges, and are useful as a troubleshooting tool.

Sense code Each sense key can have a number between 00 and FF hexadecimal (0 and 255 decimal) associated with it. This number is referred to as the sense code. The sense code represents additional data that the drive reports to the device driver to further isolate the cause of the error.

In the second section of the “Status at last drive error” dialog box are the date and time when the last error occurred, as well as the number of write errors detected and the number of sectors lost as a result of the errors.

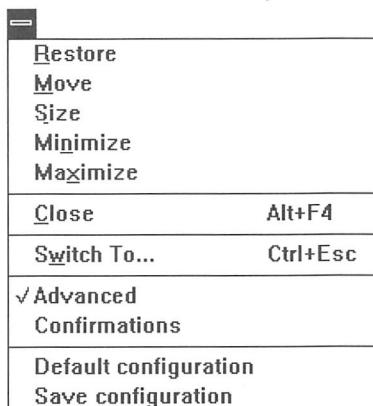
Changing the CorelSCSI Tools configuration

The CorelSCSI Tools commands are described in this section. For information on the standard Windows commands, see the Microsoft Windows documentation.

In addition to the standard Windows commands, the System menu contains a number of commands that are unique to CorelSCSI Tools. These commands are:

- Advanced
- Confirmation messages
- Default configuration
- Save configuration

By default, both the ADVANCED and CONFIRMATION MESSAGES commands are deselected. When you select the ADVANCED command, a check mark appears beside Advanced in the System menu (see below).



Selecting advanced or normal mode

The ADVANCED command determines the mode in which the CorelSCSI Tools program will operate: normal or advanced. When you first run the CorelSCSI Tools program, ADVANCED is deselected and normal mode is in effect.

In normal mode, you are required to make a minimum number of choices and provide a minimum amount of information. The normal configuration is suitable for most applications and meets the needs of most users.

In advanced mode, additional information is displayed in the dialog boxes for some of the CorelSCSI Tools commands, and you are asked to provide more information about your system setup. This provides greater flexibility by allowing you to make more choices about how the system will operate, but requires a greater degree of proficiency with computers. The advanced mode is intended for users who have nonstandard needs or who are experienced computer users.

To run CorelSCSI Tools in advanced mode

If you want to run CorelSCSI Tools in advanced mode, select the ADVANCED command. A check mark appears beside the command while advanced mode is in effect.

The mode you select will be in effect for the current session only. To make the change permanent, you must save the current configuration before exiting the program.

Displaying confirmation messages

The CONFIRMATION MESSAGES command determines whether or not you will get a response to each action you initiate using CorelSCSI Tools. By default, this command is deselected, and no confirmation messages are displayed.

Note If a command fails or an error occurs, you will see an error message regardless of the state (selected or deselected) of the CONFIRMATION MESSAGES command.

To display both error and confirmation messages while CorelSCSI Tools is running, select the CONFIRMATION MESSAGES command.

The mode you select will be in effect for the current session only. To make the change permanent, you must save the current configuration (using the SAVE CONFIGURATION command) before exiting the program.

Restoring the default configuration

In the default configuration, CorelSCSI Tools runs in normal mode with no display of confirmation messages (i.e. both “Advanced” and “Confirmation messages” are deselected).

If you change these settings, you can use the DEFAULT CONFIGURATION command to return to the default settings at any time. If you saved your configuration after making the original changes, you must do so again after using this command. If you do not save the default configuration, it will be in effect for the current session only.

Saving the current configuration

The SAVE CONFIGURATION command saves the current configuration to the initialization file. The following information is saved:

- the current mode of operation (normal or advanced)
- whether or not confirmation messages are to be displayed
- the default name of the log file
- the default name of the log file directory.

The next time you use CorelSCSI Tools, the program will use the last configuration you saved.

Modifying drive operation

Use the commands in the Utilities menu to monitor and modify drive operation.



Locking /Unlocking a drive

The LOCK/UNLOCK command toggles between Lock and Unlock. If the selected drive supports the door locking feature and the door is currently unlocked, then Lock appears in the Utilities menu. If the door is locked, however, Unlock appears instead.

If the drive does not support the door locking feature, the LOCK/UNLOCK command will be grayed.

This command can be used to prevent accidental removal of the cartridge from the drive.

Note Most of the CorelSCSI commands lock the drive door while they are running. Also, the device driver locks the door when there is data in its buffer to be flushed.

Setting mount parameters

The MOUNT PARAMETERS command applies to WORM devices only, and is only available in advanced mode. In normal mode, it does not appear in the Utilities menu.

You can use the MOUNT PARAMETERS command to specify the following values for the next cartridge mount:

- sector number at which to start the mount
- maximum number of bad sectors that you want the MOUNT MEDIA command to handle when scanning the cartridge. The default setting is fine for most situations. (If the indicated number of sectors is exceeded, the mount operation fails. However, allowing for a large number of bad sectors may result in slower operation.)
- the format area of the cartridge you want to mount. The first format area is 1. First try mounting the default area, 0, which is the last format area.

These values are valid only for the next mount. They will be reset to zero (0) after the WORM cartridge is mounted.

Note To set a Mount parameter to its default value, type zero (0) in the appropriate section of the “Mount parameters” dialog box.

Mounting/dismounting a cartridge

The MOUNT/DISMOUNT MEDIA command toggles between Mount and Dismount. If the cartridge is mounted in the selected drive, Dismount appears in the Utilities menu. If the cartridge is not mounted, however, Mount appears instead.

To mount a cartridge

Use the MOUNT MEDIA command to logically mount a cartridge in the drive.

This command forces the driver to make another attempt to mount the WORM cartridge. In conjunction with the mount parameters (set with the MOUNT PARAMETERS command), it may be possible to mount a damaged cartridge that the driver is unable to mount on its own.

This command can also make it possible to mount a cartridge to a previously formatted area.

To dismount cartridge

Use the DISMOUNT command to logically dismount a cartridge in a drive. This will ensure that all data has been flushed to the cartridge.

Ejecting a cartridge

Selecting the EJECT MEDIA command causes the cartridge to be ejected from the drive. If a dismount is required, the cartridge will be dismounted and the driver's buffers will be flushed to the cartridge before it is ejected.

This command appears in the Utilities menu only if the selected drive supports the eject feature.

Changing the SCSI ID/LUN

Use the CHANGE SCSI ID/LUN command to change the value of the SCSI ID and/or LUN used by the device driver for a particular drive.

If your drive's SCSI ID or LUN does not match the ID/LUN specified in the device driver configuration line, you can use this command to change the ID or LUN that the device driver uses to access that drive.

Note The new ID or LUN number must be the same as the ID or LUN that is physically set on the drive or an error will occur when you try to access the drive.

The Change SCSI ID/LUN dialog box contains a list of SCSI IDs and SCSI LUNs (0 to 7 for each group). The SCSI ID and LUN of the selected drive is highlighted in the list.

To select a new SCSI ID or LUN for the driver to access, click the desired SCSI ID and/or LUN, then click Set to put the change into effect. The change will take effect immediately, but it will be valid for the current session only. If you want to make the change permanent, you must set the device driver's command line options to the new SCSI ID and LUN.

Resetting the SCSI bus

The RESET SCSI BUS command causes the reset line on the SCSI bus to be cycled, thereby forcing all the attached SCSI devices to reset themselves. Some host adapters do not support this option.

Flushing driver buffers

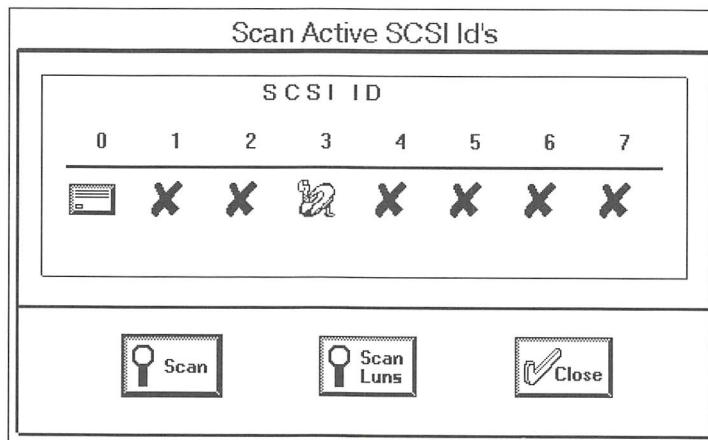
The FLUSH DRIVER BUFFERS command forces all internal driver data and any data in the buffers to be written to the cartridge. Use this command to ensure that the data on the cartridge is kept up to date. This leaves the cartridge mounted.

Unless you have modified the default configuration, you do not need to use this command since the driver will automatically flush data to the cartridge.

Scanning the SCSI bus

Use the SCAN SCSI BUS command to scan your system for attached SCSI devices.

When you select this command in the Utilities menu, the SCSI IDs are scanned and the results are displayed in a dialog box similar to the one below.



See "Device types and associated icons" on page 141 for a list of the icons that may appear here

The “Scan Active SCSI IDs” dialog box shows the eight SCSI IDs (0 to 7) and an icon indicating the type of SCSI device detected at each SCSI ID. Where no SCSI device is detected, an “X” appears instead of an icon.

If an error occurs with a device, the sense key pertaining to the error appears on the device icon. For information on any error codes that appear for your device, refer to “Error messages” in the Troubleshooting chapter.

Scanning SCSI LUNs

To scan the SCSI LUNs on the bus, click “Scan LUNs” in the “Scan Active SCSI IDs” dialog box. The LUNs are added to the dialog box, with the logical unit numbers running down the left side of the box. As with the SCSI IDs, an icon appears for the SCSI device on each LUN (if any). An “X” appears where no device was detected.

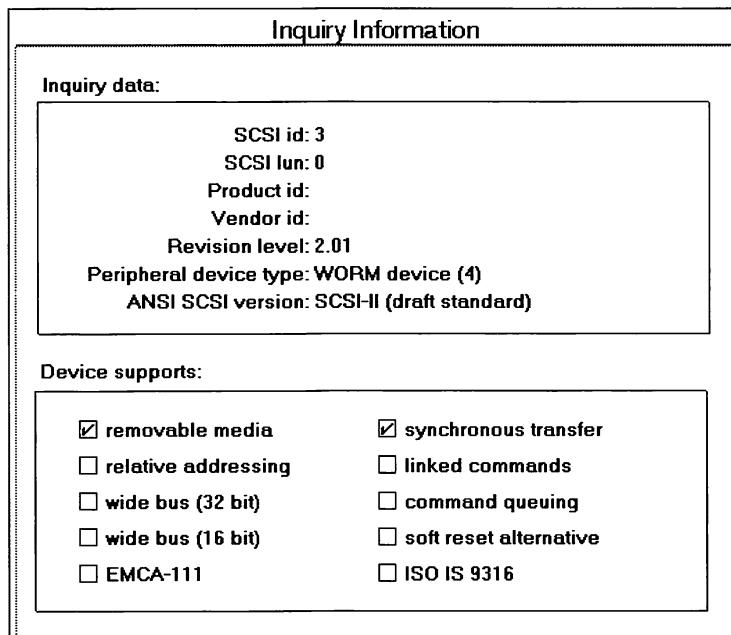
To display information about a SCSI device

Clicking an icon in the “Scan Active SCSI IDs” dialog box displays additional information about the device the icon represents.

For SCSI-I devices you will see the following information:

- SCSI ID and LUN
- product and vendor ID
- revision level
- device type
- ANSI SCSI version

For SCSI-II devices, additional features supported by the device are added to the preceding list, as this dialog box shows.



To rescan the SCSI bus, click the SCAN button in the “Scan Active SCSI IDs” dialog box.

About CorelSCSI icons

Use the Help menu to learn about the CorelSCSI icons (DEVICES command), and to determine which version of the program you are using (ABOUT command).

CD-Audio

The CD-Audio program lets you play your audio CDs on a CD-ROM drive just as you would on your home CD player. In addition to the normal play options you find on a CD player, CD-Audio provides controls that you can use to customize the set up and performance of the program.

This chapter describes the CD-Audio screen and program features, and lists the key combinations that you can use to operate CD-Audio from the keyboard.

For help in using CD-Audio

For detailed instructions on using CD-Audio, click “Help” in the CD-Audio window and use the extensive CD-Audio on-line help.

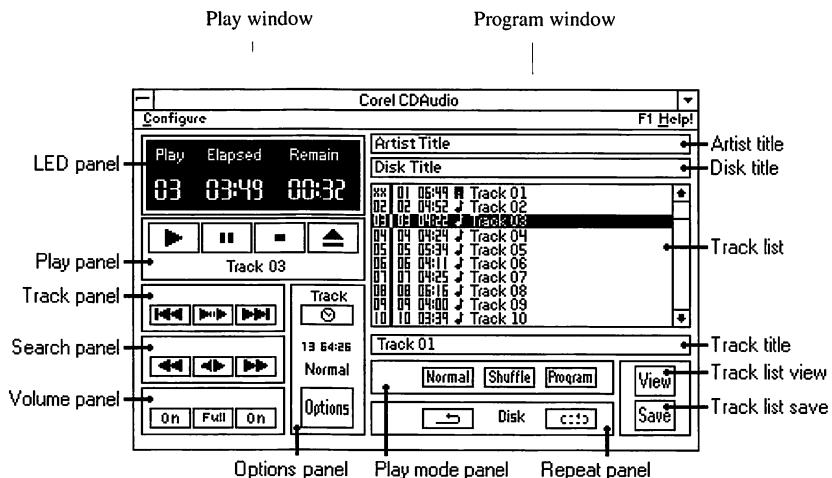
CD-Audio screen

CD-Audio can be displayed in three modes:

- Play window, which contains the play controls. This is the display you see when you run CD-Audio for the first time.
- Full window, which contains both the Play window and the Program window
- CD-Audio icon, which appears on your desk top when you click the Minimize button in the CD-Audio window.

You can play your CDs with CD-Audio regardless of how it is displayed, and you can use the play controls (in the Play window), the program controls (in the Program window), and the keyboard combinations to do so.

The illustration below shows the full CD-Audio window, with the Play window on the left, and the Program window on the right.



In the Play window

The Play window contains the system menu, the Configure menu, the LED panel, the CD-Audio play controls, and the Options panel. Using the Play window controls you can:

- play, pause, and stop your CD while CD-Audio is displayed as an application icon

- change CD-Audio's set up and color scheme
- play CDs using controls like those on your home CD player
- open the Program window to access CD-Audio's programmable features.

In the Program window

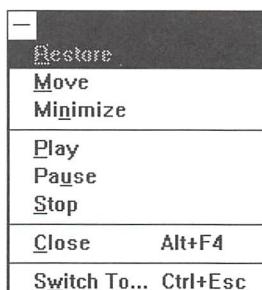
In the Program window are the controls that allow you to customize the way CD-Audio operates. Using the program controls you can:

- program a selection of tracks to listen to
- listen to a random selection of tracks
- continuously repeat your favorite track or CD
- create a catalog of music by assigning titles to the CD, the artist, and each of the tracks on the CD. Once saved, this information will be automatically displayed each time you insert the CD in the drive.
- exclude undesirable tracks from the play list so that you never have to listen to them, then restore them to the play list if you should change your mind
- display specified information in the Track list

Descriptions of the controls in the Play window follow.

Using the System menu to play a CD

In addition to the standard Windows commands Restore, Move, Minimize, Switch to., and Close, the System menu contains the Play, Pause, and Stop commands.



You can use these commands to continue playing your CDs after minimizing CD-Audio. The System menu (also called the Control menu) is opened by clicking the control menu box in the upper left corner of the CD-Audio window. Make sure

that the CD-Audio icon is highlighted before selecting a command in the System menu.

While minimized, the CD-Audio icon (shown below) displays the number of the track that is playing and the length of time the CD has been playing.



Note While CD-Audio is minimized, you can also play your CDs using some of the key combinations listed in “At the keyboard”. In the list, these key combinations are identified by an asterisk.

Setting program configuration

Use the Configure menu to select another drive on which to play the CD, to create a new color scheme for the CD-Audio windows, and to set the startup configuration for the program.

Switching drive control

CD-Audio controls only the selected CD-ROM drive. If you have more than one CD-ROM drive on your system, you can use the Drive option to switch control to another drive.

Note CD-Audio does not keep track of the drive you selected when the program was last run. At startup, the program always selects the first CD-ROM drive it detects.

You can select another drive by highlighting its drive letter in the drive list and clicking Select.

To access all slots on a CD-ROM changer

If you have a CD-ROM changer and want to access all the slots, you must assign a different number to each slot. Then use the drive letter to refer to the slot. You must also stop the CD before selecting a new slot since the changer will not swap CDs while the drive is playing.

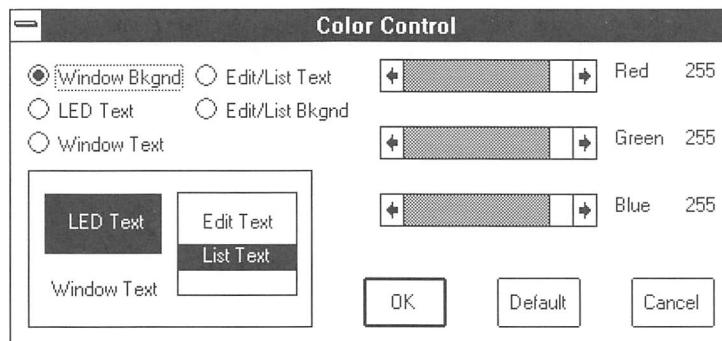
Changing the CD-Audio color scheme

Use this option in the Configure menu to change the CD-Audio window colors.

You can change the color of the following areas of the window:

- Window background
- LED display text
- Window text
- Edit/List text
- Edit/List background

When you select Color this screen appears. The sample CD-Audio window in the lower left corner displays the current color scheme.



Use the color controls to adjust the red, green, and blue color components separately to achieve a desired color. Each color scroll bar has a range of 0 to 255.

New colors appear immediately in the sample window as you mix them, showing you the color scheme for the entire CD-Audio window as you create it.

To return to the default color scheme, click Default in the Color Control dialog box.

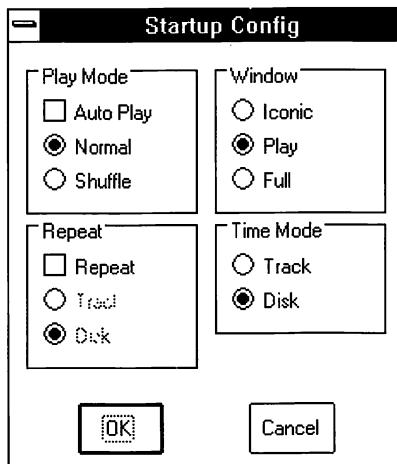
Setting Startup options

Use the Startup Config options in the Configure menu to determine how CD-Audio will operate when you start the CD-Audio program. You can choose:

- how the tracks will be played
- how the CD-Audio window will be displayed
- whether the track or disk will be repeated
- whether the play time will be displayed.

Windows reference

Selecting Startup Config results in this dialog box.



Play mode

Use this option to indicate how the tracks should be played when you first start the CD. The following options are available: Auto Play, Normal, and Shuffle.

Auto Play With Auto Play selected, CD-Audio will start playing as soon as you insert a CD into the CD-ROM drive. When you select Auto Play, you must also select either Normal or Shuffle

Normal Select Normal mode to play the tracks one after the other as they occur on the CD.

Shuffle Select Shuffle to let CD-Audio shuffle the tracks and play them in random sequence.

Window

This option lets you choose how the CD-Audio window will appear at startup. Choose one of the following: Iconic, Play, or Full.

Iconic The Iconic option displays CD-Audio as an application icon on your desktop. While CD-Audio is iconized, you can play the CD by using either the options in the System menu or the Play control keyboard shortcuts.

Play If you choose Play, you will see the CD-Audio Play window.

Full If you choose Full, you will see both the Play window and the Program window.

Repeat

This option lets you specify whether or not you want a single track or the entire CD to be repeated. First select Repeat to turn Repeat mode on. With Repeat mode selected, you must then select either Track or Disk to indicate the repeat cycle.

Time Mode

Use this option to display the elapsed and remaining play time either for the track that is currently playing, or for the entire CD. The play time is displayed in the LED panel in the Play window.

Displaying time and drive status

The LED panel contains the current drive status the current track number, and the time display.

Drive status can be one of the following CD-ROM drive states:

Wait The drive is not ready, or there is no CD in the drive.

Play The drive is busy playing an audio CD.

Pause The drive is in pause mode.

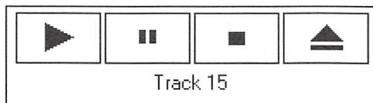
Stop The drive is ready to play the audio CD.

The time is displayed under the headings “Elapsed” and “Remain”. “Elapsed” indicates how long the track or disk has been playing; “Remain” indicates how much play time remains.

You can set the default time display (track or disk) using the Startup option in the Configure menu. Then use the Time button in the Options panel to toggle on the display for either the track or the disk whenever you choose.

Playing a CD

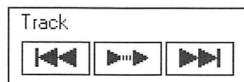
Use the Play panel to start, stop, pause, and resume playing. If the CD-ROM drive supports the eject feature, you can click the last button (at far right) to eject the CD.



The Play panel also displays the track that is selected or playing

Finding a specific track

Click the left or right button in the Track panel to find a specific track by moving forward or backward from track to track.



Click the middle button to skip forward from track to track, playing 10 seconds of each track before skipping to the next.

When you find a track you want to listen to, click the middle button again. The selected track will be played from the beginning.

Selecting specific music

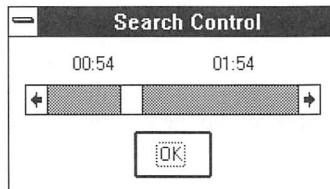
Use the controls in the Search panel to find a specific piece of music by searching back and forth within a track. The Search controls are active only while the CD is playing.



Each time you click either the left or right button, you will skip 10 seconds back or forward within the track. To skip through the track in a series of jumps, hold down the left or right button.

Use the middle button in the Search panel to tune in a piece of music. When you click this button the Search Control dialog box appears (see next page).

Use the scroll bar to move to any point within the track. The elapsed and remaining time display above the scroll bar is updated as you move through the track.



Turning drive volume on or off

Use the controls in this panel to turn the drive volume on and off.

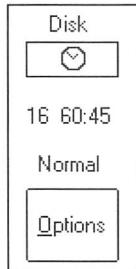
The left and right buttons on the Volume panel control the audio channels independently of each other. The left button toggles the left audio channel on and off; the right button toggles the right audio channel. The middle button toggles both audio channels on or off simultaneously.

The button face indicates the current state: ON or OFF.

Note The CD-Audio Volume panel is grayed out if your CD-ROM drive does not provide volume control.

Options Panel

This panel contains the Time button, disk information display, play mode display, and Options button.



Time button

The Time button (at the top of the Options panel) switches between the playing time display for the track and for the entire CD. The playing time is displayed in the LED panel, and the text above the Time button indicates whether the display is for the

track or the disk. Depending on your selection, “Track” or “Disk” appears above the Time button.

Disk information

The number of tracks on the disk and the total playing time for the CD appear in the Disk information display (below the Time button) in the Options panel. You can switch between the play time display for the track or disk by clicking the Time button.

Play mode display

The current play mode (Normal, Shuffle, or Program) appears below Disk information display in the Options panel.

You can choose a play mode either as part of your startup configuration, or by clicking the appropriate button in the Play mode panel (in the Program window).

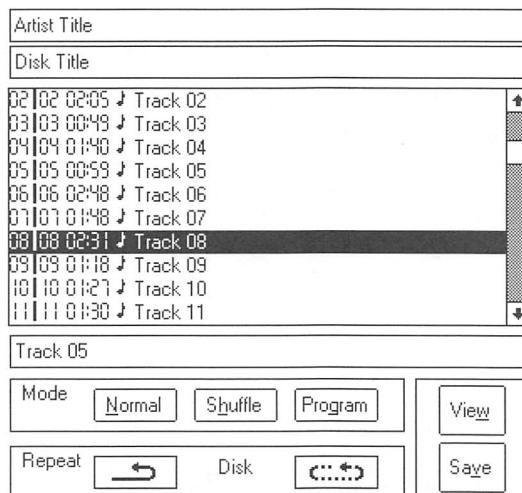
Options button

Clicking this button opens the Program window and gives you access to the programmable CD-Audio features described in the next section.

Using the controls in the Program window

With the Program window open, you can select specific tracks to play; assign artist, disk and track titles; and edit the play list by excluding and restoring tracks. After assigning titles, you can save them in a database file using the Save option in the Program window. Once the titles are saved, CD-Audio will display them each time you use the CD.

The illustration below shows the controls in the Program window.



Artist Title

In the Artist title text box, you can enter the title of the artist or any information that you want to associate with the disk. Then click Save to save the information you entered. The information will be displayed whenever you use CD-Audio to play the CD.

Disk Title

In the Disk title box, you can enter the title of the disk or any information that you want to associate with the disk. Then click Save to save the information you entered. The information will be displayed whenever you use CD-Audio to play the CD.

Track list

The Track list automatically displays the tracks as they appear on the CD.

Note The tracks always appear in the same sequence in the track list regardless of the Play mode you select.

You can use the Track list to display additional information about the tracks on the CD; select a single track or program a selection of tracks to listen to; assign names to the tracks; and edit the play list.

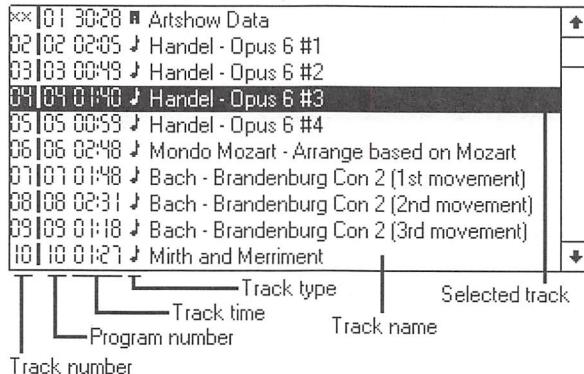
Editing the play list

If there is a track in the CD that you prefer not to hear, you can exclude it from the play list so that CD-Audio will always skip it. If you then save the edited play list, the track will be excluded each time you play the CD. The excluded track will still appear in the track list, but the track number in the first column will be replaced with "xx".

To exclude a track from the play list, highlight the track in the track list and press Alt+Del. To restore an excluded track to the play list, highlight the track and press Alt+Ins. To restore all excluded tracks, press Ctrl+R.

The illustration that follows identifies the information you see in the track list.

Track number



Each track found on a CD is assigned a track number in ascending order, starting at one. Unless the track has been excluded from the play list, the track number will always appear in the Track list.

Program number

The program number indicates the sequence in which the track will be played. In the Program mode, tracks not included in the play list will display the — symbol.

Track time

Track time displays the total play time for each track.

Track type

This field indicates each track to be either a data track or an audio track.

Track name

Initially, all track names default to “Track nn”. However, you can enter names for the tracks then save them in a database file. The number (or the name) of the track that is currently selected or playing will be displayed in the Play panel.

Selected track

The highlight bar follows the selected track in the track list.

Track title

You can use the Track title box to enter names for the tracks on the CD, to a limit of 40 characters per track.

Selecting a play mode

Use the Play mode panel to specify the sequence in which tracks are to be played (Normal, Shuffle, or Program).

Normal mode

In normal mode, tracks are played one after the other as they appear in the Track list. Selecting Normal mode in the Play mode panel is identical to using the Play controls in the Play window.

Shuffle mode

Choose Shuffle mode if you want to listen to a random selection of tracks. With Shuffle selected, CD-Audio shuffles the tracks and plays them in the sequence that results. The sequence in which each track will be played appears in the program number column.

Program mode

Use Program mode to select tracks to play in a desired sequence. Double-clicking each track you want to listen to adds the track to your play list. The tracks will be played in the sequence in which you selected them.

A number indicating the play sequence will appear in the the second column for each selected track. This column will be blank for those tracks that you did not select.

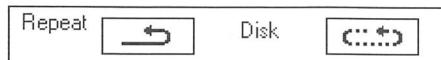
Repeating track or disk

The Repeat panel lets you replay the selected track or the entire CD.

This is a two-step process: First use the Repeat button to turn on Repeat mode, then use the Repeat cycle button to select Disk or Track.

Repeat button

Use the Repeat button (at left in this illustration) to toggle Repeat mode on and off.



The button face indicates the current mode:

- A curved arrow (as shown above) indicates that Repeat mode is on.
- A straight arrow indicates that Repeat mode is off.

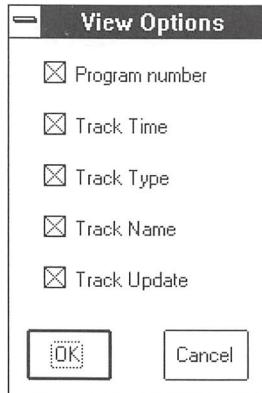
Repeat cycle button

Use this button (shown at right in the illustration above) to toggle between a single track and entire disk. The text beside the button indicates your selection.

Adjusting the information in the Track list

The Track list in the Program window can display a variety of information about the tracks on the CD. To specify the information you want to display, click View in the Program window and select the required options in the View Options check box (shown below). Except for Track Update, if the options in the View Options check box are deselected, the corresponding information does not appear in the Track list.

To select an option, click the item in the View Options check box until an X appears beside it, or use the Tab and cursor keys to highlight the item then press the spacebar.



Program Number

Select Program number to display the play sequence when in Program mode. The sequence in which each selected track will be played appears in the second column of the track list. For tracks that are not selected, the Program column will display —. Deselect this option if you do not want to display the program numbers.

Track Time

Select Track Time to display the play time for each track.

Track Type

Select Track Type to display the types of tracks on your CD: data or audio.

Track Name

Select Track Name to display the title of the tracks in the track list. If you have assigned titles to the tracks, the titles will appear beside the other track information. If you have not, the Track Name area will display the number of each track.

Track Update

Select Track Update to have the track that is currently playing highlighted in the Track list. The highlight will move from track to track as the tracks are played. You can modify the information for each track as it is highlighted. To manipulate the track information for any track regardless of which track is playing, deselect Track Update.

When the Track update option (in the View Options check box) is selected, the track that is currently playing is highlighted in the Track list box. If you highlight another track, it will become the current track and will start playing.

When the Track update option is deselected, the track that is highlighted in the Track list appears in the Track title box. You can manipulate this track without affecting the track that is playing.

Saving the information in the Track list

Click the Save button in the Program window to save the track, artist, and disk information you entered in the Program window. The information, which is saved in a database, is retrieved and displayed automatically each time you insert the CD in the drive.

Keyboard combinations

Each CD-Audio option can be initiated either by positioning the cursor on the appropriate area in the CD-Audio window and clicking the mouse button, or by simultaneously pressing two keys on the keyboard. In this section, you will find all the key combinations that work with CD-Audio.

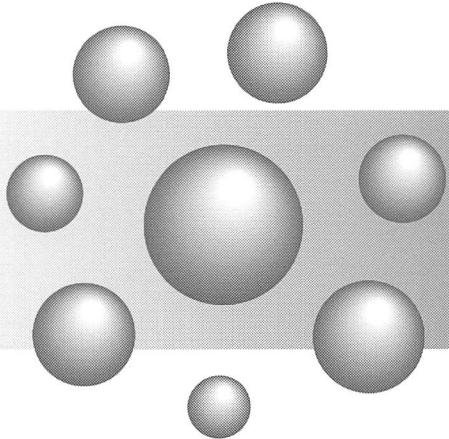
To find the Key combinations you need, locate the task you want to perform in the first column of the table. The tasks are listed in alphabetical order.

At the keyboard

Asterisks in the second column of the table identify the key combinations you can use while CD-Audio is displayed as an application icon. Before using one of these combinations, you must first highlight the CD-Audio icon by clicking it or by pressing Alt+Tab until the icon is highlighted.

To do this	Press these keys
Add the current track to the program list while in Program mode	Alt+Ins
Advance to the next track on the CD	*Alt+right arrow
Cancel the Program or Shuffle mode and return to normal play.	*Ctrl+N
Clear the programmed track selections	Ctrl+L
Cycle through application icons	*Alt+Tab
Delete the current track from the program list while in Program mode	Alt+Delete
Enter Program mode	Ctrl+G
Exclude tracks from the play list. Normal or Shuffle mode must be in effect.	Alt+Delete
Move forward from track to track, playing the first 10 seconds of each track	*Ctrl+C
Move the cursor between the areas of the CD-Audio window	Tab
Open the View Options check box	*Ctrl+W
Pause the music. To resume playing, press Ctrl+u again	*Ctrl+U or F6

To do this	Press these keys
Play the previous track on the CD	*Alt+left arrow
Restore all the tracks you excluded from the play list	Ctrl+R
Restore a single track to the play list while in Normal mode	Alt+Insert
Save the artist, disk, and track titles that you enter in the Program window.	Ctrl+V
Shuffle tracks and play them at random	*Ctrl+H
Start playing	*Ctrl+P or F5
Stop playing	*Ctrl+S or F7
Stop playing, and eject the CD if the drive can do so	*Ctrl+E or F8
Toggle between the track and CD play time display	*Ctrl+T
Toggle between track and CD replay. Repeat mode must be in effect.	Ctrl+I
Toggle the Program window on and off	Ctrl+O
Toggle the Repeat mode on and off	Ctrl+A



Troubleshooting

Troubleshooting

This chapter will help you determine the cause and possible solution to problems that occur with your system.

The chapter is divided into five sections:

- Checklist - which contains the most common causes of problems with drive access. If you experience a problem, read through the checklist first before turning to a specific section.
- Installation - which describes the problems that can result from improper installation
- Questions and Answers for DOS and OS2 - which lists the most commonly asked questions from DOS and OS2 users
- Error messages - which lists the error messages you may receive, explains what they mean, and suggests a course of action when possible.

When you encounter a problem, refer to this chapter before calling Corel technical support staff.

Checklist

If you get operating system errors when you try to access a drive, examine your system for the following potential problems:

- Ensure that the drive is powered on and connected properly.
- Ensure that the cables between the drive and the interface are securely connected.
- Ensure that the SCSI devices in your system are correctly terminated.
- Ensure that your cartridge is properly formatted and inserted in the drive.
- Ensure that the cartridge is not write protected.
- Ensure that the device driver is loading properly. When you boot up, watch your screen for error messages.
- Use DVRSTAT (in the Status menu) to determine the most recent error with your drive. Then refer to "DVRSTAT messages" in this chapter for an explanation of the messages that appear on your screen.
- If you suspect a problem with hardware (drive, cable or card), run "DIAGS". If all the tests pass, run the tests in a loop for about 10 minutes.

Then examine the log file created. If any of the tests failed, run "DVRSTAT" to determine the cause of the problem. For an explanation of any resulting error messages, refer to "Error messages" on page 187 .

Installation: DOS and OS2

This section deals with problems that may occur during DOS and OS2 installation.

Jumper settings

Improper jumper settings are a common source of problems. They could interfere with other interface cards and hinder the performance of your entire system. It is important, therefore, to follow the guidelines for jumper settings given in the Installation book in this manual.

Ensure the following items are correctly set:

- The software switches in the device driver statement must match the jumper settings on the SCSI card, where applicable.
- The SCSI ID and LUN settings on the drive must match the switch settings in the CONFIG.SYS file.

If the CorelSCSI device driver is successfully installed, you will see a message on boot-up which lists the SCSI card installed in your system, the SCSI unit ID, the LUN number, and the drive ID. Watch for any error message following this message.

Device driver

Ensure that the path specified in the driver declaration in CONFIG.SYS is the same as the sub-directory where the driver is located.

Drive access

If you have problems accessing the drive, ensure the following:

- Cables between the drive and the interface are securely connected.
- Your drive is correctly terminated.
- Your drive is powered on with a cartridge properly inserted.
- The CorelSCSI device driver is installed properly on your boot disk.
- The unit ID and LUN specified in CONFIG.SYS using the /ID option matches the unit ID and LUN on the drive.

Installation: DOS only

Read this section for information on installation errors specific to the DOS environment.

DOS Memory

If you do not have enough conventional RAM for other applications after the CorelSCSI device driver has been installed, review the following:

- Reducing the number of DOS buffers in CONFIG.SYS will allow more RAM for your applications, particularly if DOS has been patched.
- If reducing the number of buffers hinders the performance of your system, we recommend that you use a disk caching program which uses EMS or EXTENDED memory. This will improve the performance of your system with minimal effects to DOS memory.
- When you are loading the device driver, ensure that you have specified the minimum number of cache buffers with the /C:x option. If you do not specify a number for this option, a default value of 4 will be used.
- If you have expanded memory available, try loading the driver into it by adding the /EMS switch to your DEVICE statement.

Questions and answers: DOS and OS2

Q. I have just installed the CorelSCSI device driver. When I try to boot my system, my computer hangs.

A. If you are using DOS4, check the number of buffers defined in CONFIG.SYS. If the buffers use more than 64K of memory, reduce them to a number that will not exceed the DOS limit of 64K: Buffers=7, for example.

Q. Installation went fine, but when I try to access my optical drive, I get a *Not ready* error message.

A. Try the following:

- 1** Ensure that the SCSI ID and LUN defined in the driver declaration in CONFIG.SYS matches the SCSI ID on the drive.
- 2** Try running the Scan SCSI Bus command in the Utils menu to see the SCSI ID and LUN of each device on the bus.

Q. When I boot up, the message Sector size too large appears as my system is loading the CONFIG.SYS file.

A. This problem indicates the DOS patch is missing or incorrect, and that the device driver cannot be loaded. Ensure that you have installed the correct PATCH on your boot disk. Also, ensure that the sector size indicated by the /SS:xxxx switch is equal to or less than the patch size used.

Q. Can I make the optical disk drive my boot device?

A. No, you can not boot from your optical drive.

Q. Why does it take longer and longer to copy files?

A. Copying files takes longer when you place many files in the same subdirectory because DOS has to search through the file allocation table (FAT) and the entire directory, and then add new files. Try to spread your files over several subdirectories.

Q. Everything was running fine. When I tried to access one specific cartridge, however, I got a data error reading my cartridge. DVRSTAT displayed *Check condition* and *Medium error*. How can I retrieve my data?

A. Examine your cartridge by sliding the metal door open. If you can see dust or shavings from the cartridge, use compressed air to remove them. Do not use your fingers or cleaning agents to clean the surface of the cartridge. Also, do not blow onto the surface of the cartridge.

If you still have problems and are using a WORM cartridge, try to retrieve your data by using HISTORY. Select the history marker that stores the complete files and then copy your files from it. (See the chapter "Commands for WORM drives only".)

Q. How can I retrieve files that I deleted by mistake?

A. With a WORM drive, use the "Display history markers" option in the HISTORY program. Select the history marker with the time and date when your files were complete. You can now retrieve your files. (See the chapter "Commands for WORM drives only".)

With a rewritable drive, you can use one of the commercial programs to restore your files.

Q. I have two drives daisy-chained, but I can only see one of them.

A. Do the following:

- Ensure that termination is ON on the first and last devices in the chain, and OFF on the devices between the first and the last device.
- Ensure that all drives have unique SCSI IDs and LUNs.
- Make sure power is on for all drives.

Q. I am using DOS4. Although I can get a directory, the computer hangs before my prompt reappears, or before it does a directory listing.

A. Check your **Buffers** = statement in CONFIG.SYS. If it is set to read multiple sectors in one I/O (e.g., BUFFERS = 25,8) problems will occur because of the size of the sectors. Remove the ,8.

If you do not specify any buffers in CONFIG.SYS, the default, **25,8** will be used.

Q. While I was trying to copy several files into the root directory of my optical drive, the message *File creation error* appeared on my screen.

A. DOS has a limit of 768 entries in the root directory, including the volume label, directories, and hidden files. You have exceeded this DOS limit.

Q. When I try to write to my WORM cartridge, I get a *Write fault* error.

A. Run DVRSTAT. If the status at the last drive error is Run REPAIR, then run the REPAIR program. (See REPAIR in the "Command for WORM drives only" chapter.) The problem is caused by a History marker discrepancy. This problem usually occurs when the computer has been reset. It may also occur when your

Troubleshooting

computer has been powered down during a write or before your cartridge has been updated.

Q. Everything was running fine. The write-protect tab on the cartridge was set to read / write. All of a sudden, I got a message saying that my cartridge is full. However it still has several megabytes left on it.

A. Verify that your cartridge is not physically write-protected.

If you are using a WORM cartridge, your cartridge is full if it has less than 512,000 bytes PHYSICAL space available. Run CHKMEDIA and check the amount of PHYSICAL space left on the cartridge. We recommend that you run CHKMEDIA / UPDATE regularly to allocate deleted files to a hidden file, and to inform DOS of the amount of PHYSICAL space remaining on your cartridge.

Questions and Answers: OS2 only

Q. While I was trying to copy files to my cartridge, the message *Data error (cyclic redundancy check)* appeared on my screen.

A. This message usually indicates problems with your cartridge. For example, it will appear if you are trying to use a NON-ISO cartridge in an ISO drive, or vice versa. Reformattting your cartridge would solve this problem, however, it would also permanently erase files on the cartridge.

This message will also appear if your cartridge is defective, or if it was written to on a system that had improper termination.

Q. This message appears on the screen when I try to access the drive: *The device <od>: is not ready.* ?? DVRSTAT shows: Time-out during select phase.

A. Ensure that the SCSI ID on the drive is the same as the value in the device driver (CORELDRV.SYS) declaration in CONFIG.SYS. (The default value for the SCSI ID is 0.) Change this value by adding the switch /ID:x, where x is the value set on your drive (1,2,3,4,5,6,or 7).

Ensure that the SCSI ID on the drive does not conflict with other SCSI devices on the chain. The Host Adapter is usually set to SCSI ID #7.

Q. After copying to my WORM drive, the door on the drive is locked and the cartridge cannot be removed.

A. Ensure that CDAEMON is loaded in CONFIG.SYS so that it can perform the flush and unlock the door on the drive.

Error messages

This section explains some of the error messages you may see on the General Status Screen after you run the DVRSTAT program.

Attached drive is not supported. (0x017)

The attached drive is not supported by the CorelDRIVER.

Attempt to access a DOS4 cartridge from DOS3. (0x015)

The driver is configured for DOS3, but you are attempting to access a DOS4 or OS/2 formatted cartridge.

Cartridge not properly updated - Run REPAIR. (0x0f)

The last history marker has not been written to your cartridge. Therefore, a history marker discrepancy exists. Run the REPAIR program.

This error could have occurred as a result of a power failure during operation, or a system reboot while a history marker was being written.

Check condition (0x305) - Aborted command (0x0b)

The drive stopped the command. Try the command again.

Check condition (0x305) - Blank check (0x08)

The WORM drive attempted to read an empty sector or rewrite an already written sector.

Check condition (0x305) - Hardware Error (0x04)

The drive encountered a hardware failure. This error indicates a problem with the drive, the media, or termination.

Check condition (0x305) - Medium error (0x03)

The drive cannot read or write to the inserted medium because the medium is either incompatible or defective.

Check condition (0x305) - Not ready (0x02)

The drive is not ready to receive commands. Ensure that a cartridge is inserted, and that the drive is “spun-up” and ready.

Troubleshooting

Check condition (0x305) - Unit attention (0x06)

The cartridge in the drive may have been replaced, the drive reset, or the system powered down or up.

Check condition (0x305) - Write protect failure (0x07)

You have tried to write to a write-protected cartridge.

Check condition (0x305) - Illegal request (0x05)

The drive received an invalid SCSI command. Check cabling and termination.

Drive has no cartridge logically mounted (0x00e)

Ensure that a cartridge is inserted in the drive, then use the MOUNT command.

Illegal cartridge change (0x00a)

The cartridge originally in the drive was replaced. Place the original cartridge in the drive.

Illegal device driver command (0x009)

Your driver does not support the command you attempted.

Illegal IOCTL code received (0x006)

An unsupported IOCTL command was issued to the device driver.

Invalid cartridge format (0x005)

Your cartridge is not in Corel format, or is incompatible with the operating system you are using.

Invalid physical sector size (0x013)

The device driver cannot support the physical sector size of your media.

Logical sector size too large (0x014)

The device driver has been configured for a logical sector size that is different from the size on the cartridge being used. Reconfigure the device driver to handle the required size. Ensure that the sector size specified by the /SS:xxxx switch is equal to or greater than the logical sector size on your cartridge, and that you have patched DOS to this size.

No history mark record found (0x004)

No history marker was found on the WORM cartridge. Ensure that the cartridge has been properly formatted.

No host adapter found - Missing or conflicting (0x003)

- Check the memory address on your host adapter and ensure that it does not conflict with another card.
- Ensure that the SCSI card is properly installed.
- If you are using a 16-bit VGA card, it could be conflicting with your host adapter. Modify your VGA card settings to operate in 8-bit mode, or change the address of the host adapter.

Non-MSDOS Cartridge (0x00d)

Your cartridge has been formatted for a different operating system. Reformat the cartridge for the DOS environment.

WARNING!

Reformatting will erase all data on the cartridge.

Previous disk not updated - Replace and Flush with UTILS

The original cartridge has been replaced. Insert the original cartridge into the drive, and flush the data to the cartridge before you remove it. To flush the data, use the FLUSH driver buffers command in the Utils menu.

Reservation conflict (0x002)

Ensure that another SCSI card in the computer is not using the same SCSI ID.

Request for non-existent partition (0x018)

You are trying to access a volume that is not on your cartridge. For example, if the device driver is configured to handle up to 5 volumes, but the inserted cartridge was reformatted with only 4, an attempt to access a fifth volume will cause this error.

Request sense attempt failed (0x302)

An error occurred during the REQUEST SENSE operation. Check that all internal and external cables on the drive are properly connected. Run DIAGS.

Troubleshooting

SCSI bus parity error (0x0301)

Parity error on SCSI bus. This message could indicate possible problems with cabling or termination.

Target and initiator have the same ID (0x300)

Ensure that the drives on your SCSI chain have a different SCSI ID from the host adapter, if applicable.

Time-out during arbitration (0x201)

Time-out during SCSI arbitration phase. This message could indicate possible problems with termination.

Time-out during command phase (0x204)

Time-out during SCSI command phase. This message could indicate problems with termination.

Time-out during data phase (0x204)

Time-out during SCSI data phase. This message could indicate problems with termination.

Time-out during message phase (0x206)

Time-out during SCSI message phase. This message could indicate problems with termination.

Time-out during programmed I/O (0x207)

Time-out during programmed I/O. This message could indicate problems with termination.

Time-out during select phase (0x202)

Time-out during SCSI selection phase. Check for incorrect SCSI ID configuration in the driver specification in the CONFIG.SYS file and the setting on the drive. Check for bad cabling.

Time-out during status phase (0x205)

Time-out during SCSI status phase. This message could indicate problems with termination.

Time-out waiting for SCSI bus to become free (0x200)

Time-out during SCSI bus free phase. Check for memory address conflict.

Unexpected cartridge parameters. (0x010)

The device driver is not correctly configured for your drive. Call Corel technical support for more information.

Unexpected loss of busy signal (0x209)

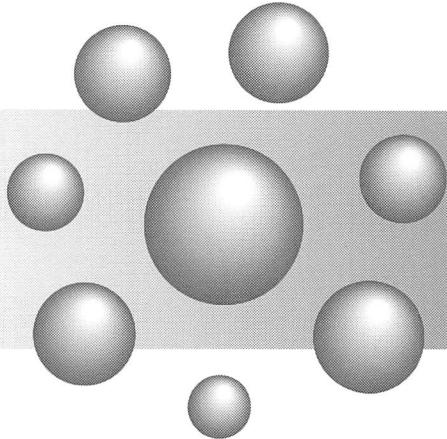
This message could indicate problems with termination.

Write error - cartridge is full (0x007)

The WORM cartridge you are using is write-protected because it is almost full.

Write error - cartridge is write-protected (0x008)

The media you are using is write-protected because of hardware or software write protect. Check the write-protect, then run REPAIR if the problem still exists.



Index

Index

A

ADVANCED

- Advanced mode, 153
- Normal mode, 153

Advanced mode of operation

- Setting mount parameters, 156
- Advanced mode of operation, 153

B

buffers, DOS

67

C

cache buffers

67

Capacity test

61

Cartridge compatibility

189

CD-Audio

- Change color scheme, 165
- Change configuration, 165
- Icon, 166
- Play while minimized, 163 - 164
- Play window, 162, 166
- Program mode, 173
- Program number, 172
- Program window, 162
- Select CD-ROM drive, 164
- Shuffle mode, 173

CD-ROM devices

11

CDAUDIO

- Audio status message, 92
- Fast forward, 93
- Pause/Resume, 93
- Stop, 93

CDCHANGE

- Command line format, 94
- multi-disc player, 94

CDDEBUG

- Print to a printer, 95
- Print to screen, 95
- Troubleshooting, 95

CDROM uses

12

CDTOOLS

- Change operating values, 96
- Check drive status, 97
- Test drive and interface, 99

CDUMP

- Physical sector information, 71

CFORMAT

- Change volume label, 57
- High-level format, 57
- Low level format, 58
- Reformatting WORM cartridges, 55

CHANGE SCSI ID/LUN

157

CHGDEV

70

Change ID/ LUN

157

CHKMEDIA

- Create log file, 59
- Space on WORM cartridges, 59
- Update cartridge, 59
- Verify cartridge integrity, 59

Cleaning a cartridge

184

CLOSE LOG

144

Cluster size

66

Command line formats

6

CONFIG.SYS file

182, 184

CONFIRMATION MESSAGES

154

CorelSCSI log files

Information in files

143

CorelSCSI Tools

File menu

143

Status menu

146

System menu

140, 153

Utilities menu

155

CTBACKUP

Attributes

108, 117

Backup summary

105, 111

Choosing disk drive

104, 106, 114, 116

Choosing tape drive

103, 106, 112, 114, 116

Clearing archive bit

104, 109

Configuring

101

Device status

124

Directory tree

110

Exclude files

109, 117

Exit

124

Files after

107, 116

Files before

108, 116

Formatting a tape

120

Full backup

102 - 103

Full restore

114

Include files

109, 118

Installing

101

Replace mode

115, 119

Restoring

113

Save set comment

104, 107

Save set name

104, 107, 112, 114, 116, 122

Select backup criteria

102

Select option menu

102

Selecting items

102

Selective backup

106

Selective restore

115

Tag files and directories

110, 118

Using wildcards

110

Verify summary

113

Verifying backup

112

Volume file

122

D

DEFAULT CONFIGURATION

154

DEFAULT LOG

143

Device driver

82, 182

DIAGS

182, 189

Index

- Capacity test, 61
Change default tests, 63
Internal diagnostic test, 61
Read test, 61
Seek test, 61
Select number of loops, 63
Test results, 64
Write/Read test, 62
- DISMOUNT**
In DOS/OS2, 72
- DISMOUNT MEDIA**, 156
- DOS**
32 Mbyte limit, 67
patch required, 67
- DOS compatibility problems, 187
- DOS file limit, 185
- DOS3, 187
- DOS4, 184, 187
- DOS5, 56
- DR-DOS 5, 56
- DRIVE INFORMATION**, 146
In advanced mode, 147
In normal mode, 146
- Drive status, 66
- DRIVER INFORMATION**
Cache buffers, 148
Caching mode, 148
Device driver type, 148
Flush timer, 148
In advanced mode, 149
In normal mode, 147
- DVRSTAT**
General status screen, 66
- DVRSTAT Messages**
Aborted command, 187
Blank check, 187
Cartridge parameters, 191
Check Condition, 187 - 188
Disk not updated, 189
Hardware problems, 187
History markers, 189
Host adapter, 189
Illegal device, 188
Illegal request, 188
Invalid cartridge format, 188
IOCTL commands, 188
Logical sector sizes, 188
Loss of busy signal, 191
Medium error, 187
Nonexistent partitions, 189
Not ready error, 187
Physical sector sizes, 188
Programmed I/O, 190
Reservation conflict, 189
SCSI cards, 189
SCSI ID, 189
Select phase, 191
Sense attempt, 189
- Status phase, 191
Target and initiator, 190
Time-out errors, 190 - 191
Unit attention, 188
Write errors, 191
Write protect error, 188
- DVRSTAT Messages**
SCSI bus parity error, 190
- E**
- Edit play list, 172
- EJECT MEDIA**, 157
- ERRORLOG**
Disable error logging, 73
Enable error logging, 73
Exclude tracks from play list, 172
- EXIT CorelSCSI Tools, 146
- F**
- File menu, 143
- File menu, CorelSCSI Tools**
CLOSE LOG, 144
DEFAULT LOG, 143
EXIT, 146
OPEN LOG, 144
PRINT LOG, 145
SELECT PRINTER, 145
VIEW LOG, 145
- Fixed disk
Icon, 141
- FLUSH**, 189
Force data to a cartridge, 74
- FLUSH DRIVER BUFFERS**, 157
- Formatting your cartridge, 182
- G**
- GENERATE LOG FILE**, 78
- H**
- Hardware protect, 191
Help, 6
Help menu, 159
Hidden files, 108, 186
High-level format, 57
- HISTORY**, 81, 83, 85, 87, 89, 91, 93, 95 - 97, 99
Active markers, 82, 84
Date search, 85
Default values, 87
Display History markers, 84
Filename search, 85
History markers, 85
Marker search, 85
New markers, 82, 84
Select History markers, 84
System markers], 82
User markers, 82, 84

I

Icons

- Fixed disk, 141
- Rewritable devices, 141
- WORM devices, 141

Internal diagnostics test, 61

L

Last error, 66

- Command status, 152

LOCK, 155

Logical mounting, 188

Logical partitions, 67

Low-level format, 58

LUN, 124, 157

LUN ID's, 182

M

Making CDs, 11

Marker discrepancy, 187

MEDIA INFORMATION

- Cartridge type, 150
- DOS free space, 151
- Lost sectors, 151
- Physical free space, 150
- Sense code, 152
- Sense key, 152
- Write errors, 151

MO technology, 10

MOUNT, 188

- Bad sectors allowed - DOS/OS2, 76
- In DOS/OS2, 75
- Reformat area - DOS/OS2, 76

MOUNT MEDIA, 156

MOUNT PARAMETERS, 156

- Format area, 156
- Number of bad sectors, 156
- Starting sector number, 156

MP technology, 10

Multi-function devices, 11

N

Normal mode of operation, 153

O

OPEN LOG, 144

- Add to existing file, 144
- Overwrite existing file, 144

Operate

- Change SCSI ID, 97
- Change SCSI LUN, 97
- Reassign slot, 97
- Scan SCSI bus, 97

Optical laser technology, 11

Optical Technology

Writing and reading information , 11
OS/2, 187

P

PATCH, 67

- Buffers, 67
- Display current patch, 68
- Install new patch, 68
- RAM requirements, 67
- Remove patch, 68

Phase-change technology, 10

Physical space, 186

Play tracks at random, 173

Power failures, 187

PRINT LOG, 145

Q

Quiet, 6

R

Read test, 61

Reading CDs, 11

Reformatting WORM cartridges

- Using CFORMAT, 55
- Using HISTORY, 55

REPAIR, 187

Quick repair, 88

Slow repair, 89

Repeating track or disk, 173

RESET

Reset SCSI bus - DOS/OS2, 77

RESET SCSI BUS, 157

Restore tracks to play list, 172

Rewritable devices

- Icon, 141
- MO technology, 10
- Phase-change technology, 10

S

SAVE CONFIGURATION, 155

SCAN

Error codes, 78

Scan SCSI devices - DOS/OS2, 77

SCAN SCSI BUS

SCSI device list, 158

SCSI-1 devices, 159

SCSI-11 devices, 159

SCSI bus, 191

SCSI card, 189

SCSI chain, 190

SCSI ID, 103, 124, 157, 182, 184, 191

SCSI termination, 18

Search

Musical selection, 169

Sector size, 66

Seek test, 61

Index

SELECT PRINTER, 145

Software protect, 191

Status

 SCSI sense key codes, 99

Status menu, 146

Status menu, CorelSCSI Tools

 DRIVE INFORMATION, 146

 DRIVER INFORMATION, 147

 LAST ERROR, 152

 MEDIA INFORMATION, 150

System menu, 153

T

Tape devices

 8mm Helical scan, 12

 DAT (Digital audio tape), 12

 QIC (Quarter inch cartridge), 12

Termination, 18

Termination problems, 185, 188, 190 - 191

Test

 Cabling problems, 99

 Drive capacity test, 99

 Drive diagnostics test, 99

 drive problems, 100

 Drive read test, 99

 Drive seek test, 99

 nonaudio disc, 99

 SCSI problems, 99

 Termination problems, 99

 Using test, 99

Troubleshooting

 Accessing the drive, 183

 Booting from an optical disk, 184

 Buffers = statement, 185

 Cables, 182

 Check condition, 184

 Cleaning a cartridge, 184

 Computer hanging, 184

 Copying files, 184

 Daisy-chained drives, 185

 Data error, 186

 Device driver, 183

 Disk caching, 183

 DOS memory, 183

 DOS4, 185

 DVRSTAT, 185

 File allocation table, 184

 Full cartridge, 186

 Hanging computers, 185

 Hardware problems, 182

 History marker discrepancy, 185

 Interface card conflicts, 182

 Jumper settings, 182

 Non-ISO standard media, 186

 Not ready error, 184

 PATCHing problems, 184

 Path for device driver, 183

RAM problems, 183

Reducing buffers, 183

Retrieving lost files, 185

SCSI ID conflicts, 186

Sector size too large, 184

Sector sizes, 185

Software switch settings, 182

WORM drives, 185

Write-protection, 186

U

Utilities menu, 155

Utilities menu, CorelSCSI Tools

 CHANGE SCSI ID/LUN, 157

 DISMOUNT MEDIA, 156

 EJECT MEDIA, 157

 FLUSH DRIVER BUFFERS, 157

 LOCK DRIVE, 155

 MOUNT MEDIA, 156

 MOUNT PARAMETERS, 156

 RESET SCSI BUS, 157

 UNLOCK DRIVE, 155

UTILS program, 69

 CTIME, 72

 LOCK, 75

UTILS program, commands

 CDUMP, 71

 CHGDEV, 70

 DISMOUNT, 72

 ERRORLOG, 73

 FLUSH, 74

 GENERATE LOG FILE, 78

 MOUNT, 75

 RESET, 77

 SCAN, 77

V

VIEW LOG, 145

Volumes, 189

W

WORM cartridges, 189, 191

WORM devices

 DOS free space, 151

 Icon, 141

 Lost sectors, 151

 Physical free space, 150

 Setting mount parameters, 156

 Write errors, 151

WORM drive, 10, 187

Write protection, 182

Write/Read test, 62

DOS, OS/2, and Windows Versions



COREL

COREL SYSTEMS CORPORATION

1600 CARLING AVE. OTTAWA, ONTARIO, CANADA, K1Z 8R7

1-800-836-SCSI

FAX: (613) 728-9790

CDN TEL: (613) 728-8200

BIOS INSTALLATION

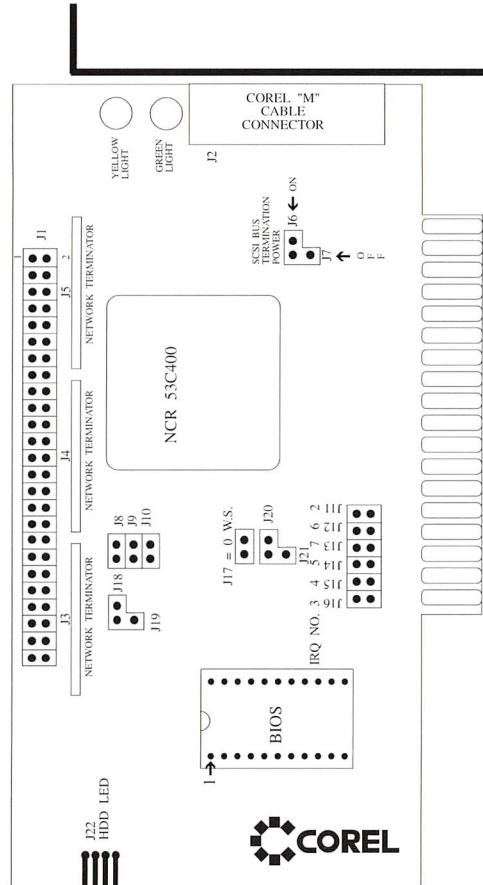
COREL LS2000 JUMPER SETTINGS

J6 = ON **SCSI bus termination power enable
 J7 = ON **SCSI bus termination power disable
 J17 = ON **Zero wait state enable
 J17 = OFF **One wait state enable

MEMORY ADDRESS OF CARD		
J8	J9	J10
OFF	OFF	OFF
OFF	OFF	ON
OFF	ON	OFF
OFF	ON	ON
ON	OFF	OFF
ON	OFF	ON
ON	ON	OFF
ON	ON	ON

D800H C800H E000H D000H CC00H E400H D400H

Hardware Interrupt Settings	
J11	= IRQ2
J12	= IRQ6
J13	= IRQ7
J14	= IRQ5
J15	= IRQ4
J16	= IRQ3
J18	= SCSI Power
J19	= +5V
J20	= Rom Enable
J21	= Rom Disable



WARNING: Incorrect installation of the EPROM will result in permanent damage to the EPROM.

- Make sure to correctly insert the EPROM on the Corel LS2000 card. See Fig.1 for pin 1.
- Install the LS2000 card in system.
- Connect the SCSI hard drive to the LS2000 card.
- When using an internal cable, make sure cable is properly keyed. See Fig.1 for pin 1 on connector J1.
- Check to ensure all SCSI devices are correctly terminated.

Hardware System setup parameters:

When installing 1 or 2 SCSI hard drives in your computer, set the hardware system setting to: "HARD DISK DRIVE TYPE 1 & 2 = NOT INSTALLED". The LS2000 Bios will handle identifying the drive types.

When installing 1 ST-506 or 1 ESDI hard drive in conjunction with a SCSI hard drive, set the hardware system setting to "HARD DISK DRIVE TYPE 1 = TYPE ?" and "HARD DISK DRIVE TYPE 2 = NOT INSTALLED". In this situation the SCSI hard drive ID must be set to 1 (see the SCSI hard drive's owner's manual for information on how to change the SCSI ID).

NOTE: The system Bios or the LS2000 Bios will only support 2 hard drives, additional drives can be supported with CorelDRIVER. Therefore if you already have 1 ST-506 or 1 ESDI drive connected you can only connect 1 additional SCSI hard drive, in this case the SCSI drive cannot be bootable. Here are the possible combinations:

- 1 SCSI H/D set SCSI ID to 0 (bootable)
- 2 SCSI H/D set SCSI ID to 0 and 1 (Only ID 0 is bootable)
- 1 ST-506 & 1 SCSI set SCSI ID to 1 (Only ST-506 is bootable)
- 1 ESDI & 1 SCSI set SCSI ID to 1 (Only ESDI is bootable)
- 1 IDE and SCSI set SCSI ID to 1 (Only IDE is bootable)

Low-level Format:

- Type "DEBUG" at DOS prompt.
- Type "G=<CARD SEGMENT>:7" at DEBUG prompt.
- e.g.: if card address is C800 (J10=on) then type "G=C800:7".

SCSI Termination:

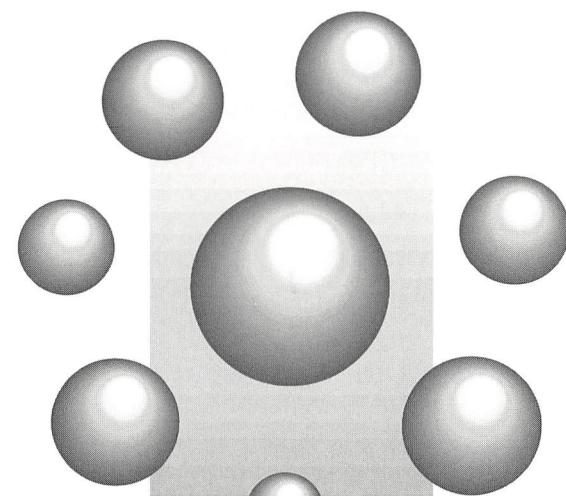
The LS2000 is terminated by default. You can connect several SCSI peripherals onto the card as long as you respect the SCSI BUS rules which state that "ONLY THE FIRST AND LAST DEVICE ON THE BUS NEED TO BE TERMINATED". If you have a SCSI device connected to the external connector, and you want to install an

BIOS INSTALLATION

internal hard drive, make sure you remove the network terminators J3,J4, and J5.

Improper termination can result in data corruption, so please be careful in configuring your system and verify that the SCSI peripherals you are connecting to the LS2000 are properly terminated. Please refer to the user's guide that comes with your SCSI device(s) to insure that your device is properly terminated.

COREL SCSI!
The best way to connect PC peripherals!
LS2000



COPYRIGHT

© Copyright 1990,1991,1992 Corel Systems Corporation. All Rights Reserved.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior written consent of Corel Systems Corp. 1600 Carling Ave., Ottawa, Ontario, Canada, K1Z 8R7.

CHANGES

The material in this manual is for information only and is subject to change without notice.
 Corel Systems Corp. reserves the right to make changes in the product design without reservation and without notification to its user.
 Additional information may be obtained from:



COREL

Corel Systems Corporation
 Multimedia Division
 1600 Carling Avenue, Ottawa,
 Ontario, Canada, K1Z 8R7

TEL: (613)728-8200

FAX: (613)761-8051

This pamphlet is created with CorelDRAW 2.01

Connect
7
Peripherals
with one
card!

INTRODUCTION

Overview

The Corel LS2000 Host Adapter is a reliable high performance SCSI Interface for the Industry Standard Architecture(ISA). This guide provides complete instructions for the installation of the LS2000.

SCSI Features:

- ANSI X3.131 -1986 Compatible
- 2.0 MBytes/sec Asynchronous SCSI transfer
- Initiator or Target Roles
- Parity Generation
- Parity Checking selectable
- Direct Control of SCSI Bus signal

PC Interface Features:

- Memory-mapped PC Interface
- Interrupt operation selectable
- Base memory address selectable via jumpers
- Programmable Interrupt level
- 8-bit Data Interface

Bios Features:

- Supports all 512 bytes/sector SCSI Winchester Disks
- ST-506 and SCSI combination
- ESDI and SCSI combination
- IDE and SCSI combination
- Bootable disk support

FCC COMPLIANCE

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 tested and found to comply with the limits for a Class B computing device in accordance with specifications in Subpart J or Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in 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, the user is encouraged to try to correct the interference by one or more of the following measures:

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

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communication Commission helpful:

"How to Identify and Resolve Radio-TV Interference Problems".

U.S. Government Printing Office,
Washington, DC 20402,
Stock No. 004000003454

This equipment has been certified to comply with the limits for a Class B computing device, pursuant to Subpart J of Part 15 of FCC Rules. Only peripherals (computer input/output devices, terminals, printers, etc.) certified to comply with the Class B limits may be attached to this computer. Operation with non-certified peripherals is likely to result in interference to radio and TV reception.

INSTALLATION

System Configuration

The Corel LS2000 SCSI Host Adapter is a memory-mapped device. The adapter takes 16KB of RAM. The default address of the LS2000 card is set at D800h. Before installing the LS2000 card in a system, verify that no other adapter such as network interface card, expanded memory card, video card, scanner controller, or any other peripheral controller card, is using this memory segment. If the system you are configuring does not have D800h to DBFFh available, you will then have to change the memory setting of the LS2000 card. Please refer to Fig. 1 for jumper settings to locate an unused RAM segment.

Default Hardware Settings:

The Corel LS2000 SCSI Host Adapter is shipped with the following default factory setting:

- 1 Wait State (J17=off)
- no IRQs used (J11-J16=off)
- RAM segment address at D800h to DBFFh
- SCSI Bus terminated (J3,J4,J5=installed)
- SCSI Bus termination power enabled (J6=on)
- +5V enabled (J19=on)
- Rom enabled (J20=on)

Jumper Settings:

J3,J4,J5 SCSI Terminators

The Corel LS2000 host adapter provides single-ended SCSI termination by default. However, if the user would like to disable this option, he or she would need to remove J3,J4 and J5. The pins of the resistor network are easily bent, therefore be very careful if you plan to remove them.

J6 SCSI Bus Power Enable

A jumper in position J6 enables the LS2000 to provide power to the SCSI bus.

J7 SCSI Bus Power Disable

A jumper in position J7 disables the LS2000 from providing power to the SCSI bus.

J8,J9,J10 Memory Address of Card

The Corel LS2000 provides you with eight possible address locations to give you greater flexibility when installing the card in your system. See Fig.1 for jumper settings.

J11,J12,J13,J14,J15,J16 Interrupt Request

The above jumpers enable the appropriate IRQ line to be used by the LS2000. When operating the adapter under a single-threaded operating system such as DOS or the BIOS, the firmware does not make usage of an IRQ. However, when running the card under multi-threaded operating

INSTALLATION

systems such as OS/2, the firmware could use an IRQ. Please consult your device driver and/or software manual to ensure that you have the appropriate setting. See Fig1 for IRQ numbers.

J17 Wait State Operation

When J17 is enabled, the LS2000 is running at Zero Wait State.

When J17 is disabled, the LS2000 is running at One Wait State.

J18,J19 Terminator Power

Indicates the Power Source for the Network Terminators. It is preferable to use J19 (+5V) in order to minimize noise.

J20,J21 Rom Enable and Disable

Enables you to disable the Bios without removing the EPROM. J20=Enable, J21=Disable

Hardware Installation:

WARNING: The Corel LS2000, like all electronic equipment is static sensitive. Please take proper precautions when handling the board.

- Turn off computer
- Remove the computer cover
- Be very careful of electrostatic discharge
- Check the LS2000 jumper settings
- Insert the LS2000 in an available slot
- Make sure the LS2000 is properly seated
- Re-install the computer cover

Congratulations, the installation is complete!

IMPORTANT: When installing the LS2000 in a computer that has a memory manager already installed, make sure to exclude the card address range (e.g X=D800-DBFF). Please refer to the manuals supplied with your memory manager to properly exclude the LS2000 SCSI controller.

Windows 3.0 Note:

- After loading Windows 3.0 you must make modifications to the CONFIG.SYS and SYSTEM.INI files.
- ADD "STACKS=0,0" to your CONFIG.SYS.
 - ADD the following lines to your SYSTEM.INI found in your Windows directory. The modifications to your SYSTEM.INI must be added under the "[386enh]" section.
 - EMMExclude=CARD ADDRESS RANGE (e.g.: EMMEXCLUDE=D800-DBFF)
 - lndOSPolling=True
 - TimerCriticalSection=5

For more information read the SYSINI2.TXT and SYSINI3.TXT files found in your Windows directory.

WARRANTY

Corel Systems Corporation will repair your unit free of charge in the event of a defect in materials or workmanship. The warranty covers the following:

Parts

New or comparable rebuilt parts in exchange for defective parts for three (3) years from original purchase.

Labor

Carry-in or mail-in service for three (3) years from original purchase.

This warranty is extended only to the original purchaser. A purchase receipt or other evidence of the original date of purchase will be required upon request for service during the warranty period.

This warranty only covers failures (resulting from defects in materials or workmanship) that occur during normal use. It does not cover failures due to damages that occur during shipping; failures that are caused by products not supplied by Corel Systems Corporation; failures that result from accident, misuse, abuse, neglect, mishandling, alteration, faulty installation, modification, or service by anyone other than authorized service personnel; or failures caused by damage that is attributable to lightning, line voltage variations, or acts of God. There are no express warranties except as listed in this paragraph.

COREL SYSTEMS CORPORATION SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THIS PRODUCT, OR ARISING OUT OF ANY BREACH OF THIS WARRANTY INCLUDING, WITHOUT LIMITATION, LOSS OF STORED DATA. DURATION OF IMPLIED WARRANTIES, IF ANY, IS LIMITED TO 90 DAYS.

This warranty gives you specific legal rights and you may also have other rights which vary from region to region. Some regions do not allow the exclusion of incidental damages or limitations on how long an implied warranty lasts, so the above exclusions or limitations may not apply to you.

Service

If a problem develops with your SCSI card during the warranty period, first contact your dealer or the Multimedia Division listed below. If in-factory servicing is required, ship the unit with adequate insurance and with shipping cost prepaid. Return shipping costs will be paid by Corel Systems Corporation.

**Corel Systems Corporation, Multimedia Division
1600 Carling Avenue, Ottawa, Ontario, Canada K1Z 8R7 TEL: (613) 728-8200**

Q026

OUTSTANDING PRODUCTS

Congratulations!

Thank you for purchasing one of Corel's outstanding products. For more information on our family of award-winning products, please call or fax:

FAX: (613) 761-9176

1-800-836-DRAW

CDN TEL: (613) 728-8200

1

CORELDRAW!

CorelDRAW is the world's finest graphics package! To date it has won over 50 international awards for its incredible type control, superb drawing power, stunning special effects, and ease of use. Creating eye-catching newsletters, advertisements, presentations and illustrations is fast and fun with CorelDRAW. Our users love it! Available in Windows, OS/2, Unix, and CD-ROM versions.

2

**BLOCKBUSTER
CD-ROM PACK**

Corel's Blockbuster CD-ROM Pack gives you a high speed CD-ROM drive, CorelSCSI interface kit, and CorelDRAW on CD-ROM — the world's finest graphics package. As a bonus you get 3 additional CDs and the ability to use hundreds of other multimedia CD-ROM titles emerging on the market! There's no better way to catch the multimedia wave. Available in external, internal and MCA versions.

3

COREL ARTSHOW '91

The Corel ArtShow '91 CD-ROM and 120 page full-color coffee table book feature an exciting selection of high quality designs that were entered into the second annual CorelDRAW International Design Contest. Over 850 CorelDRAW designs are easily accessible using our unique graphical user interface.

4

COREL SCSI!

CorelSCSI provides a fast and easy connection to your PC allowing up to 7 peripherals on the same card. And it includes software drivers that support hundreds of devices so you are ready for future expansion. Each kit includes a SCSI host adapter and SCSI cable, CorelDRIVER software for SCSI devices, "Easy to Install" videotape, and comprehensive documentation. Available in 8 bit ISA, 8 bit MCA, and 16 bit Bus Master interface kits.

5

**COREL SCSI!
ONE
GIGA-BYTE
DRIVE**

The CorelSCSI One Giga-byte Drive Bundle gives you the fastest multifunction optical disk drive available! Store up to one gigabyte of data on a single 5 1/4" cartridge! Supports both WORM (write once, read many) and rewritable cartridges in a single drive unit. For plug and play convenience with your One Giga-byte Drive, the CorelSCSI interface kit is included! This bundle is ideal for all your data, archival and multimedia storage applications.

16 BIT

Bus Master
Interface Kit

LS 3000

Kit includes:

- LS3000 AT BUS to SCSI Bus Master host adapter
- CorelDRIVER software for SCSI devices with operating system support for DOS, Windows, Novell NetWare 386 and OS/2
- Corel CD-Audio software for Windows
- CorelDRIVER utilities for Windows
- CorelDRIVER utilities for DOS
- Corel Tape Back-up software for 1/4" tape and DAT (DOS and Windows)
- Sitback™ software for unattended backup (DOS and Windows)
- "Easy to Install" video
- Internal SCSI ribbon cable

Features

- up to 12 MB/sec ISA transfer
- 6.25 MB/sec synchronous SCSI transfer
- 10 MB/sec FAST synchronous SCSI transfer
- 5 MB/sec asynchronous SCSI transfer
- DMA, IRQ, and ISA bus speed programmable
- Auto-sense termination
- SCSI-2 compatible
- Optional floppy controller supports standard AT floppy drives
- Supports up to 7 SCSI devices on one card including: hard drives, 1/4" tape drives, DAT drives, CD-ROM drives, rewritable drives, WORM drives, multifunction drives, and more
- Transparent support for all optical disk jukeboxes on NetWare 386 file servers
- Full three year warranty



All product and company names are trademarks of their respective corporations.

Specifications subject to change without notice.

Printed in Canada

WO\Q060



Kit includes:

- LS2000 AT BUS to SCSI host adapter
- CorelDRIVER software for SCSI devices with operating system support for DOS, Windows, and OS/2
- Corel CD-Audio software for Windows
- CorelDRIVER utilities for Windows
- CorelDRIVER utilities for DOS
- Corel Tape Back-up software for 1/4" tape and DAT (DOS and Windows)
- Sitback™ software for unattended backups (DOS and Windows)
- "Easy to Install" video

Features

- 2.5 MB/sec asynchronous SCSI transfer
- 8 memory address selection
- Provides SCSI BUS power
- Provides termination power
- SCSI-2 compatible
- Supports up to 7 SCSI devices on one card including: hard drives, 1/4" tape drives, DAT drives, CD-ROM drives, rewritable drives, WORM drives, multifunction drives, and more
- Full three year warranty



Kit includes:

- LS2000 Micro Channel BUS to SCSI host adapter
- CorelDRIVER software for SCSI devices with operating system support for DOS, Windows, and OS/2
- Corel CD-Audio software for Windows
- CorelDRIVER utilities for Windows
- CorelDRIVER utilities for DOS
- Corel Tape Back-up software for 1/4" tape and DAT (DOS and Windows)
- Sitback™ software for unattended backups (DOS and Windows)
- "Easy to Install" video
- External SCSI cable

Features

- 2.5 MB/sec asynchronous SCSI transfer
- 6 memory address selection
- Provides SCSI BUS power
- Provides termination power
- SCSI-2 compatible
- Supports up to 7 SCSI devices on one card including: hard drives, 1/4" tape drives, DAT drives, CD-ROM drives, rewritable drives, WORM drives, multifunction drives, and more
- Full three year warranty

Also available from COREL

1 CORELDRAW!

CorelDRAW is the world's finest graphics package! To date it has won over 50 international awards for its incredible type control, superb drawing power, stunning special effects, and ease of use. Creating eye-catching newsletters, advertisements, presentations and illustrations is fast, and fun with CorelDRAW. Our users love it!

2 BLOCKBUSTER

Corel's CD-ROM pack gives you:
• a high speed CD-ROM drive
• CorelSCSI interface kit
• CorelDRAW on CD-ROM — the world's finest graphics package

Bonus

3 additional CDs and the ability to use hundreds of other additional multimedia CD-ROM titles emerging on the market!



COREL SCSI!

1-800-836-SCSI

FAX: (613) 728-9790 / CDN TEL: (613) 728-8200