

USER GUIDE



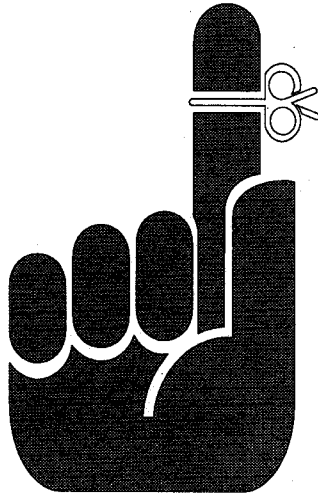
HIGH PERFORMANCE
PARALLEL-TO-SCSI
ADAPTER



MiniSCSI *Plus*™



MiniSCSI Plus™



Don't Forget!

For best **MiniSCSI Plus** performance, make sure that your computer is configured with its parallel port set to "Bidirectional" mode, if so equipped. See your computer user manual for details if necessary.

In addition, please see *Chapter 9* for information about fine-tuning your **MiniSCSI Plus** for maximum performance, but be sure to install and test it completely before doing so.



T348 MiniSCSI*plus*[™]
High Performance
Parallel-to-SCSI Adapter

Including:



CD-ROM Audio-Control
Software



SCSI Tape Backup
Software

User Guide

MiniSCSI~~plus~~ → User Guide

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NOTE

If you're like many users, you'll want to get started using your new product as soon as possible. But, before you attempt to install and use your **MiniSCSI Plus** Host Adapter and software, please read this manual. It will save you time in the long run, and make you aware of many options you might otherwise miss. Remember, you can always change your system configuration at a later time with the Install program.

For technical support of this product, please see your dealer first for assistance, as he/she is most likely to understand your specific needs and equipment setup. To be eligible for any Trantor factory technical support which may be necessary, your Product Registration Card **must** be on file with us. **Please fill out and mail in your Product Registration Card within 10 days of purchase!**

FCC NOTICE

Your Trantor SCSI Host Adapter is covered by FCC rules for a Class B computing device.

The following information is provided for the information and guidance of the user. Use shielded cables to attach only peripherals (computer input/output devices, terminals, printers etc.) certified to comply with the Class B limits to your computer. FCC regulations, Part 15 prescribed by the Federal Communications Commission (FCC) specify that we provide the following information:

WARNING

This equipment generates and uses radio frequency energy and, if not installed and used properly, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specification in Subpart J of Part 15 of FCC Rules, which are designed to provide a reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause interference to radio or television reception, (which you can determine 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, consult the dealer or an experienced radio/television technician for additional suggestions. You may find the booklet *How to Identify and Resolve Radio-TV Interference Problems* helpful. This booklet has been prepared by the FCC and is available from the U.S. Government Printing Office, Washington, D.C. 20402; Stock # 004-000-00345-4.

WARRANTY, SERVICE, SUPPORT

If you have technical questions not answered by this manual, contact your dealer first. If your dealer is unable to answer your questions, you may contact Trantor directly.

TRANTOR PRODUCTS LIMITED WARRANTY

Trantor Systems, Ltd. (hereafter Trantor) warrants this hardware product to be free from defects in material and workmanship under the following terms.

HOW LONG IS THE WARRANTY

Labor is warranted for (2) Two Years from the date of the first consumer purchase. Parts are warranted for (2) Two Years from the date of the first consumer purchase. Magnetic media on which the software is supplied is warranted for (90) Ninety Days from the date of the first consumer purchase. Note that only the media itself is warranted, not the software; please refer to the License Agreement on the software package.

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WHAT IS COVERED AND WHAT IS NOT COVERED

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2. Any product on which the serial number (if applicable) has been defaced, modified or removed.
3. Damage, deterioration or malfunction resulting from:
 - a. Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature, commercial or industrial use, unauthorized product modification, or failure to follow instructions supplied with the product.
 - b. Repair or attempted repair by anyone not authorized by Trantor.
 - c. Any shipment of the product (claims must be presented to the carrier).
 - d. Removal or installation of the product.
 - e. Any other cause which is not related to a product defect.
4. Cartons, carrying cases, batteries, external cabinets, or any accessories used with the product.

WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR

We will pay all labor and material expenses for covered items, but we will not pay for the following:

1. Removal or installation.
2. Costs of initial technical adjustments (set-up), including adjustment of user controls and software installation and configuration. These costs are the responsibility of the Trantor dealer from whom the product was purchased.
3. Shipping charges to or from Trantor.

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1. To obtain service on your product, take or ship it to any authorized Trantor service dealer.
2. You must pay all shipping charges if it is necessary to ship the product for warranty service.
3. Whenever warranty service is required, the original dated sales slip (or a copy) must be presented as proof of warranty coverage, and should be included in any shipment of the product. Please also include in any mailing your name, address, daytime telephone number and a description of the problem(s).
4. For the name of the nearest Trantor authorized service center, contact your dealer or Trantor.

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EXCLUSION OF DAMAGES

TRANTOR'S LIABILITY FOR ANY DEFECTIVE PRODUCT IS LIMITED TO THE REPAIR OR REPLACEMENT OF THE PRODUCT AT OUR OPTION. TRANTOR SHALL NOT BE LIABLE FOR:

1. DAMAGE TO OTHER PROPERTY CAUSED BY ANY DEFECTS IN THIS PRODUCT, DAMAGES BASED UPON INCONVENIENCE, LOSS OF USE OF THE PRODUCT, LOSS OF TIME, COMMERCIAL LOSS; OR
2. ANY OTHER DAMAGES, WHETHER INCIDENTAL, CONSEQUENTIAL OR OTHERWISE. SOME STATES DO NOT ALLOW EXCLUSION OF AN IMPLIED WARRANTY AND/OR DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS AND EXCLUSIONS MAY NOT APPLY TO YOU.

HOW STATE LAW RELATES TO THE WARRANTY

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

MiniSCSI^{plus} User Guide

TRANTOR SOFTWARE LICENSE AND WARRANTY

Please refer to the separate Trantor Software License Agreement and Warranty which came with your Trantor distribution diskette.

Notice (applicable to Music Box TSR only)

This product uses the TesSeRact™ Ram-Resident Library and supports the TesSeRact Standard for Ram-Resident Program Communication. For information about TesSeRact, contact the TesSeRact Development Team at:

TesSeRact Development Team

c/o Chip Rabinowitz

2084 Woodlawn Ave.

Glenside, PA 19038

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MiniSCSI^{plus} User Guide

1 MiniSCSI Plus Introduction

This manual describes installation and operation of the Trantor model T348 **MiniSCSI Plus**[™] Host Adapter (hereafter referred to as “**MiniSCSI Plus**”) and ASPI-compatible hard disk, CD-ROM, and scanner drivers and utilities. This manual also contains installation, configuration, and operational instructions for *Music Box*[®] audio control software for CD-ROMs and **Tape Mate II**[™] SCSI tape backup and restore software.

This manual is divided into four sections—*Part I Installation & Use*, *Part II Music Box*, *Part III Tape Mate II*, and *Part IV Appendices*.

1.1 Checklist

You should have received the following items in your **MiniSCSI Plus** package:

- MiniSCSI Plus** SCSI host adapter
- 3.5-inch, 1.44-MB high-density software distribution diskette
- 3.5-inch, 720-KB **Tape Mate II** distribution diskette
- MiniSCSI Plus** User Guide (this manual)
- Product Registration card
- Microsoft[®] MSCDEX Registration card

If anything is missing, please contact your dealer immediately.

1.2 Typeface and Writing Conventions

There are several typeface conventions used in this manual. These conventions represent different things and are used to make reading this manual easier.

- | | |
|-----------------------|--|
| Bold Print | Bold print represents text to be selected or messages that appear in a dialog box, on a menu, or on screen. |
| Courier Bold | Text or commands to be entered from the keyboard are emphasized with Courier bold print. |
| EUROSTILE BOLD | On screen <i>Music Box</i> buttons to be pressed using the mouse are emphasized with Eurostile bold print. |
| <i>Italic Print</i> | Italic print indicate chapter, section, appendix, table, and figure titles and references. <i>Music Box</i> is also represented by italic type. |
| [Brackets] | Brackets are used to identify control and function keys on the keyboard. For example, the notation [Enter] means to press the [Enter] key on the keyboard. When two or more notations in brackets are connected with a |

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hyphen, as in [Ctrl]-[Alt]-[Del], then press the indicated keys simultaneously.

CAPS

CAPS are used in this manual to designate directories, subdirectories, and file names in your computer system like AUTOEXEC.BAT and CONFIG.SYS. They are also used to designate on-line or **Tape Mate II** script language commands.

MiniSCSI*plus*[™]

Installation & Use

Installation & Use

2 Installation & Use Introduction

Installation & Use details installation, configuration and use of your **MiniSCSI Plus** as well as ASPI-compatible hard disk, CD-ROM, and scanner drivers and utilities. This chapter is an introduction to *Part 1*.

2.1 Hardware Installation

Your **MiniSCSI Plus** has been designed to provide simple, flexible control of most SCSI hard disks, removable-cartridge disks, floptical[®], magneto-optical drives, SCSI-interfaced Bernoulli[®] and SyQuest[®] drives, CD-ROMs and Hewlett-Packard[®] ScanJet Scanners.

Note that for the sake of simplicity, this manual refers to the software for all devices (except CD-ROMs and scanners) as “hard disk” software, since these devices all share the same hard disk device driver and utilities. Some of the important features include:

- High-speed operation—the **MiniSCSI Plus** is fully compatible with bidirectional parallel ports, offering excellent performance, while remaining compatible with unidirectional ports found on many older computer systems.
- Simple installation—with the integral 3-foot lightweight cable, just plug it into your parallel printer port and connect to your SCSI device(s) and printer.
- Both SCSI and parallel printer interfaces may be operated simultaneously, with no performance degradation.
- Standard SCSI interface connector, permitting the use of almost any SCSI-compatible device.
- Small size and light weight for easy portability.
- No battery or external power supply needed—the **MiniSCSI Plus** is powered by the SCSI device(s) connected to it.
- Supports virtually any PC/XT/AT, 80386, 80486, Micro Channel or notebook computer with a parallel printer port.

2.2 Hard Disk, CD-ROM & Scanner Software

The software included with your **MiniSCSI Plus** also has several important features, including:

- Simple installation and configuration, including automatic updating of your AUTOEXEC.BAT and CONFIG.SYS files.
- Supports ASPI (Advanced SCSI Programming Interface) specifications, permitting use of ASPI-compatible software. See *Appendix B* for more information.
- Spanning capability allows you to treat two or more erasable SCSI devices (either fixed or removable media) as a single large device.

- Formatting routines automatically identify all connected devices and media, allowing partitioning and verification.
- Media format compatibility, so that you may interchangeably connect your SCSI devices to the **MiniSCSI Plus** as well as to Trantor SCSI Host Adapters installed in other IBM-compatible computers.
- A simple Install menu allows you to easily call SCSI device media format routines, set spanning selections and test your SCSI interface and devices.

2.3 Software Overview

The distribution diskette packaged with your **MiniSCSI Plus** contains a number of important files. The following is a brief summary:

INSTALL.EXE

The main setup and installation program, which provides a “shell” to perform numerous functions, including:

- Copy all software files to your system
- Format SCSI device storage media (fixed and removable)
- Configure SCSI device spanning
- Test of all SCSI devices connected to the adapter

There are separate programs (see below) which perform these functions.

CDINSTAL.EXE

The CD-ROM installation routines, initially run from the main **INSTALL** program. Use this program to change CD-ROM operation options at a later time.

HDINSTAL.EXE

The hard disk installation routines, initially run from the main **INSTALL** program. Use this program to change hard disk operation options at a later time.

SCINSTAL.EXE

The scanner installation routines, initially run from the main **INSTALL** program. Use this program to change scanner operation options at a later time.

MAxxx.SYS

ASPI Manager files (see *Appendix B*) for various Trantor SCSI host adapters. Only one of these will be copied to your system during the installation process; for the **MiniSCSI Plus** the MA348.SYS file is used.

2 Installation & Use Introduction

TSCSI.SYS

The hard disk “device driver” file which links the **MiniSCSI Plus** hardware to your computer’s operating system. It must be loaded through your system’s CONFIG.SYS file; INSTALL.EXE will modify your CONFIG.SYS file automatically. Not needed for CD-ROM or scanner operation.

TSTATUS.EXE

A status utility which will inform you of:

- The revision level of the TSCSI.SYS driver
- How much memory is used by TSCSI.SYS
- The SCSI drives connected to your adapter and their capacities

Note that this feature will not work on CD-ROMs.

SCSITEST.EXE

A test utility to search for all SCSI adapters and devices connected to your computer and report the results. Used to confirm that your SCSI adapter and all SCSI devices are properly connected and configured.

TFORMAT.EXE

A SCSI formatting utility, used to format and partition the storage media of your SCSI drives. Works with both fixed (hard disk) and removable (cartridge or floppy) drives. Options include the ability to define more than one logical partition (drive letter) per drive, and to verify the reliability of the media after formatting. The ASPI Manager (MA348.SYS) must be loaded in order for TFORMAT to function.

TSPAN.EXE

Allows you to create one large logical drive (C:, D:, E: etc.) from two or more SCSI devices by “spanning” them via software control. The spanned devices must either be all fixed or all removable; spanning fixed and removable devices together is not permitted. It is possible, however, to use more than one spanned set of devices simultaneously; for instance, a spanned set of hard disks may be used along with a different spanned set of removable cartridges. The ASPI Manager (MA348.SYS) must be loaded in order for TSPAN to function.

TSLCDR.SYS

The CD-ROM “device driver” file which links the **MiniSCSI Plus** hardware to the operating system. It must be loaded through your system’s CONFIG.SYS file; INSTALL.EXE will modify your CONFIG.SYS file automatically. TSLCDR.SYS, TSCSI.SYS and TSJII.SYS must be loaded to support CD-ROMs, hard disks and scanners simultaneously.

MSCDEX.EXE

Microsoft’s CD-ROM extensions to MS-DOS, licensed by Trantor. It is generally loaded from AUTOEXEC.BAT. See *Section 5.1*.

CHKCD.EXE

A utility, similar to the CHKDSK program supplied with DOS, to display status information about a CD-ROM.

TLOCK.EXE

A utility designed to prevent ejecting a disc from a CD-ROM or other removable-media drive by pushing the drive's front panel button.

TUNLOCK.EXE

A utility which is the opposite of TLOCK; it "unlocks" a CD-ROM or other removable-media drive, permitting disc eject by pushing the drive's front panel button.

TEJECT.EXE

When run from the DOS command line, this command ejects the currently-loaded disc(s) from a CD-ROM or other removable-media drive.

TSJII.SYS

The scanner "device driver" file which links the **MiniSCSI Plus** hardware to your computer's operating system. It must be loaded through your system's CONFIG.SYS file; INSTALL.EXE will modify your CONFIG.SYS file automatically. Not needed for CD-ROM or hard disk operation.

TSJDIAG.EXE

The scanner diagnostic program that provides you with information about the installed scanner and driver. It enables you to perform a scanner self test and check communications between the scanner and the driver.

READ.ME

A text file which may be included, containing up-to-date information since this manual was printed. It is important that you look for this file and, if it exists, read it carefully.

Auxiliary Files

***.OVL**

Overlay files used during installation only. There are several versions supplied; only one of which is used for any particular Trantor SCSI interface product.

***.INF**

Text information files used during installation only. There are several versions supplied; only one of which is used for any particular Trantor SCSI interface product. Note: you must not modify these files in any way; if you do, the installation process will halt.

***.MSG**

Messages for INSTALL screen prompts.

2 Installation & Use Introduction

Music Box Files

Your distribution diskette has a \MUSICBOX subdirectory, containing a number of *Music Box* files; these will be discussed in *Chapter 13*.

OS/2 Files

Your distribution diskette has an \OS2 subdirectory, containing the following files:

OS2_READ.ME

A standard text file explaining how to install and configure your hardware for OS/2. Please note that OS/2 support is provided via fax and BBS only—see this file for details.

OS2.FAQ

OS/2 Frequently Asked Questions text file. Please read this before contacting us for OS/2 technical support.

***.ADD**

OS/2 Adapter Device Driver files. There are several versions supplied for various Trantor host adapters—see the OS2_READ.ME file for details of OS/2 support installation and operation.

***.DDP**

OS/2 installation script files. See OS2_READ.ME for details.

3 Hardware Installation

Hardware installation involves plugging the **MiniSCSI Plus** into a parallel printer port and connecting it to the applicable SCSI device(s). Please see *Chapter 12* for troubleshooting assistance with possible problems which may develop.

WARNING

Your **MiniSCSI Plus** is powered via the SCSI device(s) connected to it. For this reason, you should **always** connect and disconnect the **MiniSCSI Plus** with your computer, printer and all SCSI devices turned **off** to protect against damage to any components.

In addition, if you disconnect your SCSI device(s) from the **MiniSCSI Plus** while in use, the **MiniSCSI Plus** will lose power and not recognize the SCSI device(s) when reconnected. Reboot your computer in this case.

3.1 Installing the MiniSCSI Plus

1. Connect your **MiniSCSI Plus** parallel connector (see *Figure 1*) to a parallel printer port on your computer; you may use either LPT1, LPT2 or LPT3—the **MiniSCSI Plus** will automatically detect which port is in use.

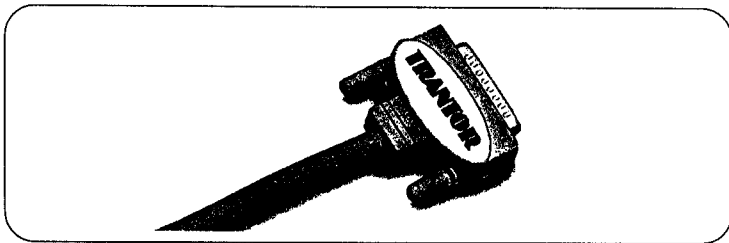


Figure 1 Parallel Connector

Note: if your parallel printer port has a copy-protection device (commonly known as a “dongle”) or other non-printer product connected to it, you should remove the device from your printer port and connect it to the printer passthrough connector on the **MiniSCSI Plus**, rather than leaving it connected between your computer and the **MiniSCSI Plus**. If this arrangement causes any problems, either the “dongle” or the **MiniSCSI Plus** will have to be relocated to a different parallel port.

MiniSCSI^{plus} User Guide

2. Connect the first SCSI device to the SCSI connector on the **MiniSCSI Plus** (see *Figure 2*). Other SCSI devices (up to 7 total) may be daisy-chained to the first SCSI device; see your dealer for details if you are not familiar with multiple-device connections.

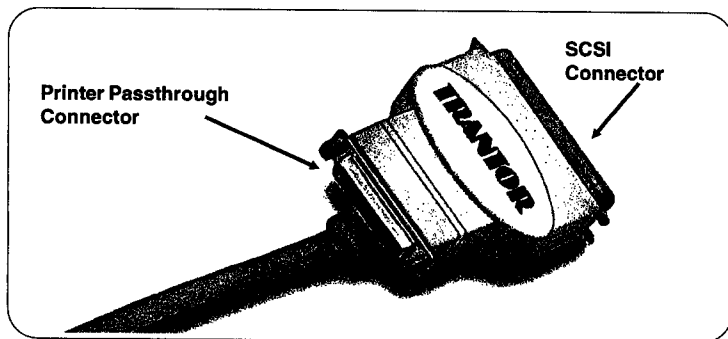


Figure 2 SCSI and Printer Passthrough Connectors

The SCSI device(s) connected to the **MiniSCSI Plus** provides power to the **MiniSCSI Plus**, and thus must be equipped with the standard TERMPPOWER output (which is part of the SCSI connector interface specification). See your SCSI device manual or dealer to confirm that this is the case. Your **MiniSCSI Plus** will not operate without a TERMPPOWER connection.

The last (or only) SCSI device connected to the **MiniSCSI Plus** should be properly “terminated,” per manufacturer’s specifications. See your dealer for termination assistance if necessary.

If you connect more than one SCSI device to your **MiniSCSI Plus** simultaneously, make sure that each device’s SCSI “address” (device number) is different (between 0 and 7). Different addresses are essential to prevent conflicts when the **MiniSCSI Plus** communicates with the devices.

3. If you wish to simultaneously use a parallel printer with your **MiniSCSI Plus**, connect it to the **MiniSCSI Plus**’s printer passthrough connector (see *Figure 2*) with a standard parallel printer cable. No special configuration or switching is needed to continue using your printer.

Note that the Printer port on the **MiniSCSI Plus** is operable only while the **MiniSCSI Plus** is powered up; if you disconnect or turn off the SCSI device connected to the **MiniSCSI Plus**, the printer passthrough port on the **MiniSCSI Plus** will no longer function.

4 Software Installation


An automatic software installation program (called INSTALL) is included on the software distribution diskette and allows you to install and configure hard disk, CD-ROM, and scanner support software. You must install your software to a bootable hard disk. The original distribution diskette is not copy-protected, and you are encouraged to make a backup copy of it (using DOS' DISKCOPY or any other suitable utility) to protect against loss or damage of your original software.

Your **MiniSCSI Plus** provides support for ASPI-compatible software, which opens up a wide range of SCSI device support. Please see *Appendix B* for more information about ASPI.

If there is a READ.ME text file on your **MiniSCSI Plus** distribution diskette, please read it now, with any word processor or text editor. It may contain corrections or updates to the software or this manual. Please see *Chapter 12* for troubleshooting assistance with possible problems which may develop.

NOTE

If you are using the **MiniSCSI Plus** with the OS/2 operating system, skip to *Chapter 11* for OS/2 installation and use.

 Your **MiniSCSI Plus** is designed for high-performance operation with computers equipped with a bidirectional parallel printer port (although it's fully compatible with older unidirectional ports). If your computer is capable of bidirectional operation, make sure you have enabled this mode! Typically, this is performed with a software setup (sometimes called configuration) program or bootup option; see your computer owner's manual for details on how to set this mode. Unidirectional mode will work, but at a slower rate, and you will not be taking advantage of all the performance available to you.

4.1 Installation Steps

The automatic installation program, INSTALL, does the following:

For CD-ROM software:

- Creates a subdirectory (\TSCSI), if necessary, on the hard drive specified by you during installation.
- Copies all CD-ROM files to the new subdirectory; for Trantor SCSI adapters, copies the appropriate ASPI Manager.

- Adds the lines “DEVICE=C:\TSCSI\TSLCDR.SYS” to your CONFIG.SYS file, and “C:\TSCSI” to the PATH statement in your AUTOEXEC.BAT file. This assumes that you specified drive C for the installation. CONFIG.SYS, AUTOEXEC.BAT and the PATH statement are created if they do not already exist.


For Hard Disk software:

- Creates a subdirectory (\TSCSI), if necessary, on the hard drive specified by you during installation.
- Copies all hard disk files to the new subdirectory; for Trantor SCSI adapters, copies the appropriate ASPI Manager.
- Adds the lines “DEVICE=C:\TSCSI\TSCSI.SYS” to your CONFIG.SYS file, and “C:\TSCSI” to the PATH statement in your AUTOEXEC.BAT file. This assumes that you specified drive C for the installation. CONFIG.SYS, AUTOEXEC.BAT and the PATH statement are created if they do not already exist.

For Scanner software:

- Creates a subdirectory (\TSCSI), if necessary, on the hard drive specified by you during installation.
- Copies all scanner files to the new subdirectory; for Trantor SCSI adapters, copies the appropriate ASPI Manager.
- Adds the lines “DEVICE=C:\TSCSI\TJSII.SYS” to your CONFIG.SYS file, and “C:\TSCSI” to the PATH statement in your AUTOEXEC.BAT file. This assumes that you specified drive C for the installation. CONFIG.SYS, AUTOEXEC.BAT and the PATH statement are created if they do not already exist.

4.1.1 Running the INSTALL Program

 Prior to installing your software, the **MiniSCSI Plus** and your SCSI device(s) must be properly connected to your computer system and powered up. See *Chapter 3* for instructions if you have not already done this.

To run the automatic installation program, place the distribution diskette (or, preferably, a copy of it) in floppy disk drive A or B, log to the floppy drive, and enter the command **INSTALL**.

Here's an example of this sequence:

```
C:\>B:  
B:\>INSTALL
```

INSTALL's main menu will appear (see *Figure 3*). You may select any of the three options by using the [Spacebar] or [Arrow] keys to move the


4 Software Installation

highlight cursor. Choose **Install Hard Disk Driver**, **Install CD-ROM Driver**, or **Install Scanner Driver** to proceed.



Figure 3 INSTALL Main Menu

Once you have configured and installed your software, the main INSTALL program is no longer used. You may reconfigure your CD-ROM, hard disk, and/or scanner software at any time by running the appropriate (CDINSTAL, HDINSTAL or SCINSTAL) installation program from the directory containing your installed CD-ROM, hard disk, and/or scanner software. If you choose to install hard disk software, skip to *Section 4.1.3*; if you choose scanner software, skip to *Section 4.1.4*; otherwise, continue with *Section 4.1.2* for CD-ROM software installation.

 Note that the INSTALL menus have help lines at the bottom of the screen; the first line describes how to exit the current menu, and the bottom line describes how to select various options on the menu. A middle line may display to assist you in selecting various options for the highlighted field.

4.1.2 CD-ROM Software Installation

If you select **Install CD-ROM Driver**, the CD-ROM Host Adapter Options menu will appear as shown in *Figure 4*. At this point you have the

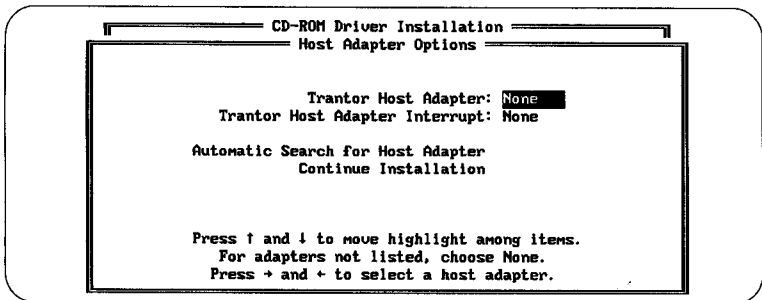


Figure 4 CD-ROM Host Adapter Options Menu

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option of specifying the Trantor adapter for which you are installing software, or letting INSTALL automatically select it for you. For Trantor bus-based adapters, you also have the option of setting a host adapter interrupt setting—this does not apply to the MiniSCSI Plus.

In most cases, you should move the cursor to **Automatic Search for Host Adapter** and press [Enter]. After a few seconds, INSTALL will scan your system, identify the **MiniSCSI Plus** and set the adapter setting to “T348” as shown in *Figure 5*. The only reason you might want to set the adapter manually (with the [Left Arrow] and [Right Arrow] keys) is if you don’t have your **MiniSCSI Plus** installed and connected to a SCSI device or if you already have another Trantor adapter installed in your computer—INSTALL will only automatically identify the first adapter it finds.

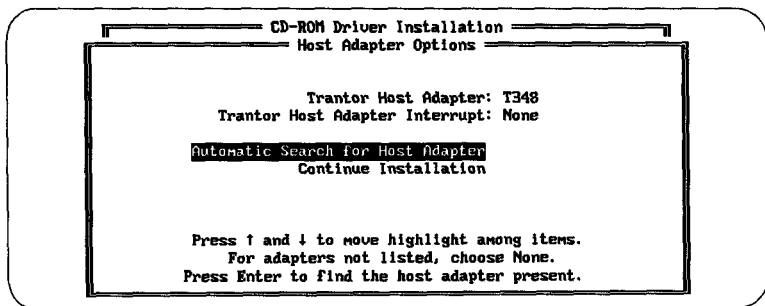


Figure 5 Setting the Host Adapter

Once the Host Adapter option has been set to “T348,” move the cursor to **Continue Installation** and press [Enter]. The next CD-ROM installation menu will appear as shown in *Figure 6*.

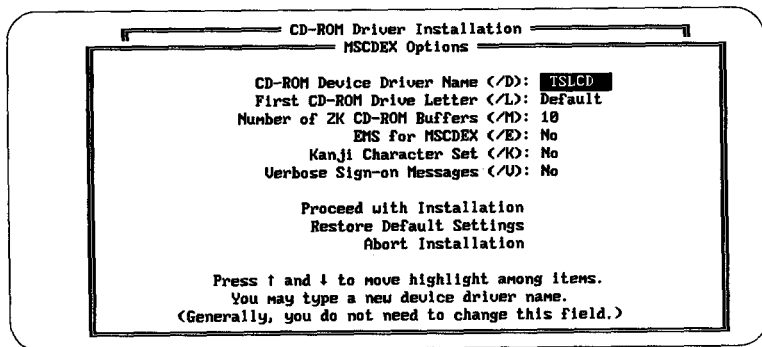


Figure 6 CD-ROM INSTALL Options

4 Software Installation

You may point to any of the menu options with the [Up Arrow] and [Down Arrow] keys; the help line at the bottom of the screen explains how to change each option. In most cases, accepting the default installation options is appropriate, but you may change any of these that you wish, as well as restoring all the options to their default values with a menu selection.

The various options shown in *Figure 6* relate to operation of the MSCDEX extensions software for CD-ROM drives. For a full explanation of each of these options, please refer to *Section 5.1*, which discusses MSCDEX in detail.

Once you've set all the options, select the **Proceed with Installation** line and press [Enter]. After prompting you for the drive letter of your boot disk, INSTALL will present a summary Installation Options screen showing you exactly what will be done during installation (see *Figure 7*). Check this screen very carefully to be sure INSTALL will be doing what you intend; you have the option at this point of backing up to change any of the option settings.

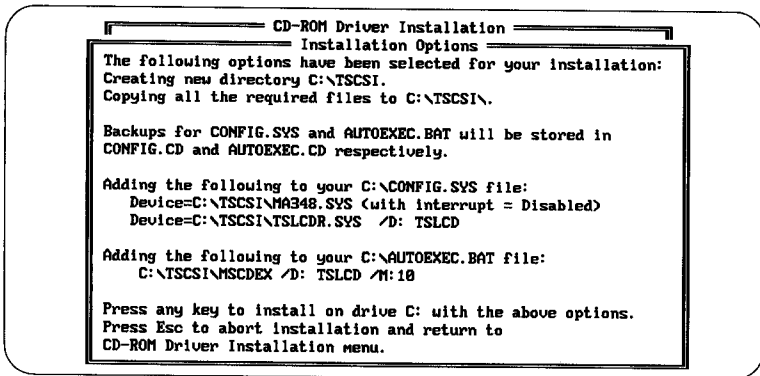


Figure 7 Installation Options Configuration Screen

If you proceed with installation, you'll see a screen similar to *Figure 8* as INSTALL creates (if necessary) the \TSCSI subdirectory on your boot disk and copies the CD-ROM distribution files into it. In addition, your CONFIG.SYS and AUTOEXEC.BAT files will be modified (or created, if necessary) to load the CD-ROM software. Upon completion, you'll be prompted to press any key to return to the INSTALL Main Menu. Once there, you may choose to install hard disk or scanner software (see the next sections) or return to DOS. When you are finished installing the software, reboot your computer (by pressing [Ctrl]-[Alt]-[Del]) to activate the **MiniSCSI Plus** software.

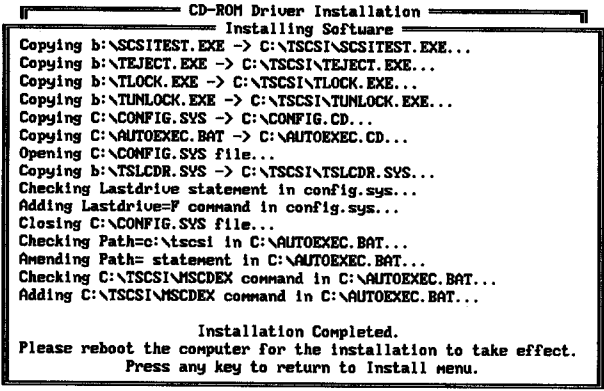


Figure 8 Installation Completion Screen

4.1.3 Hard Disk Software Installation

If you've chosen Install Hard Disk Driver from the main INSTALL menu, you'll see a screen similar to Figure 9. You may point to the menu options with the [Up Arrow] and [Down Arrow] keys; press [Enter] to perform the desired action. This menu allows selection of many options for your SCSI device, but for now we are only concerned with the top selection: Install Distribution Software. (The remaining options are discussed in Chapter 6 of this manual.) Select this option and press [Enter].

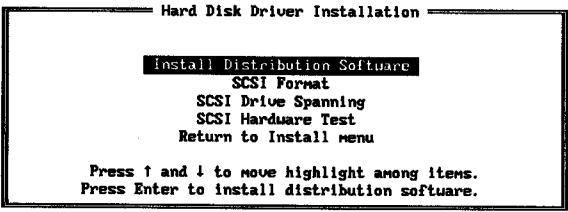


Figure 9 Hard Disk Installation Options

At this point, the Hard Disk Host Adapter Options menu appears as shown in Figure 10. Here you have the option of explicitly specifying the Trantor adapter for which you are installing software, or letting INSTALL automatically select it for you. For Trantor bus-based adapters, you also have the option of setting a host adapter interrupt setting—this does not apply to the MiniSCSI Plus.

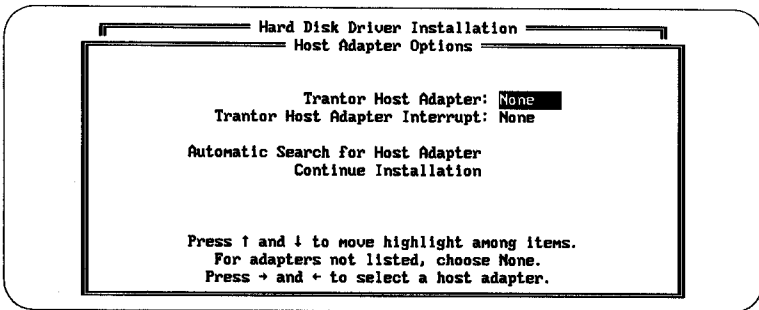


Figure 10 Hard Disk Installation Options Menu

In most cases, you should move the cursor to **Automatic Search for Host Adapter** and press [Enter]. After a few seconds, INSTALL will scan your system, identify the **MiniSCSI Plus** and set the adapter setting to “T348” as shown in *Figure 11*. The only reason you might want to set the adapter manually (with the [Left Arrow] and [Right Arrow] keys) is if you don’t have your **MiniSCSI Plus** installed and connected to a SCSI device or if you already have another Trantor adapter installed in your computer—INSTALL will only automatically identify the first adapter it finds.

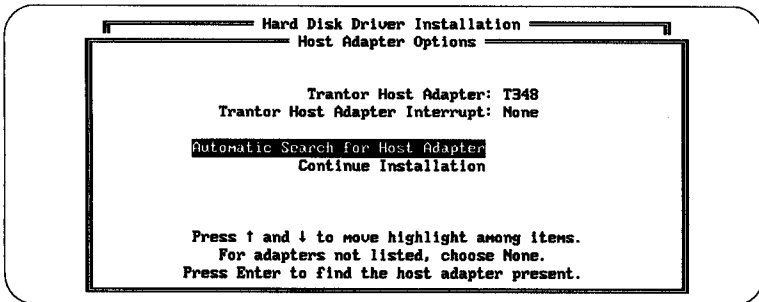


Figure 11 Setting the Host Adapter

Once the Host Adapter option has been set to “T348,” move the cursor to **Continue Installation** and press [Enter]. After prompting you for the drive letter of your boot disk, INSTALL will present a summary Installation Options screen showing you exactly what will be done during installation (see *Figure 12*). Check this screen very carefully to be sure INSTALL will be doing what you intend; you have the option at this point of backing up to change any of the option settings.

If you proceed with installation, you’ll see a screen similar to *Figure 13* as INSTALL creates (if necessary) the \TSCSI subdirectory on your boot disk and copies the hard disk distribution files into it. In addition, your

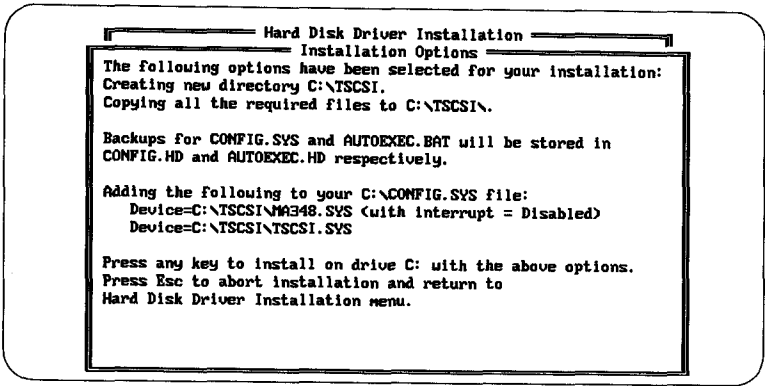


Figure 12 Installation Options Confirmation Screen

CONFIG.SYS and AUTOEXEC.BAT files will be modified (or created, if necessary) to load the hard disk software. Upon completion, you'll be prompted to press any key to return to the INSTALL Main Menu. Once there, you may choose to install CD-ROM or scanner software (see the previous or next sections respectively) or return to DOS. When you are finished installing the software, reboot your computer (by pressing [Ctrl]-[Alt]-[Del]) to activate the **MiniSCSI Plus** software.

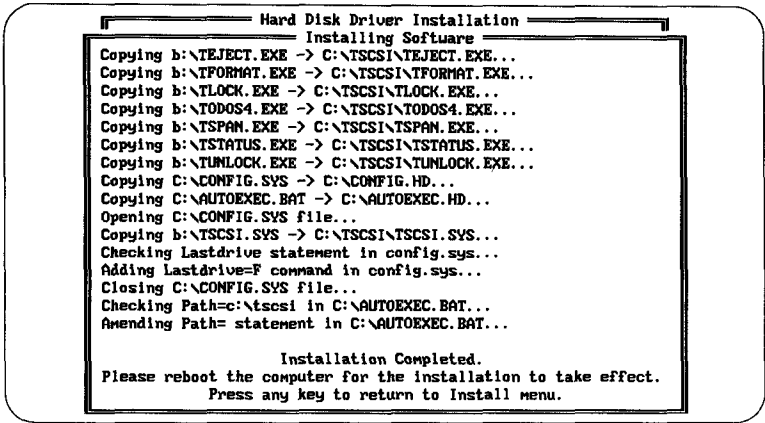


Figure 13 Installation Complete Screen

4.1.4 Scanner Software Installation

If you have chosen **Install Scanner Driver** from the main **INSTALL** Menu, chose **Install Scanner Driver** again from the new menu. You will see the **Scanner Host Adapter Options** Menu appear as shown in *Figure 14*.

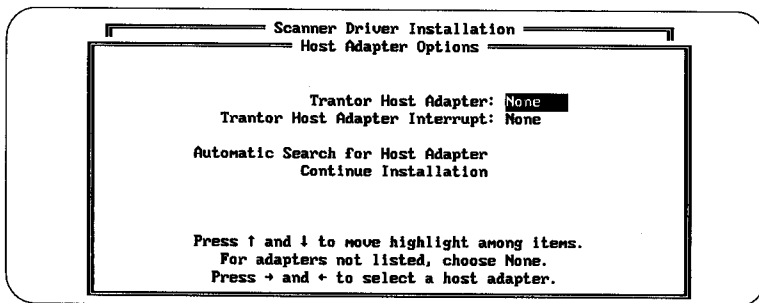



Figure 14 Scanner Installation Options Menu

At this point you have the option of explicitly specifying the adapter for which you are installing software, or letting **INSTALL** automatically select it for you. For Trantor bus-based adapters, you also have the option of selecting a host adapter interrupt setting—this does not apply to the MiniSCSI Plus.

 The only reason you might want to set the adapter manually (with the [Left Arrow] or [Right Arrow] keys) is if you do not have your **MiniSCSI Plus** installed and connected to a SCSI device or if you already have another adapter installed in your computer—**INSTALL** will only automatically identify the first adapter it finds. The **INSTALL** program displays a help line at the bottom of the screen to assist you in selecting the driver for your device.

In most cases, you should move the cursor to **Automatic Search for Host Adapter** and press [Enter]. After a few seconds, **INSTALL** will scan your system, identify the adapter and set the adapter setting. See *Figure 11* as an example.

Once the host adapter option has been set to “T348,” move the cursor to **Continue Installation** and press [Enter]. The next **Scanner Installation** Menu appears as shown in *Figure 15*.

Use the [Arrow] keys to scroll through the various scanners available and select your scanner. Then select **Continue Installation** and press [Enter]. After prompting you for the drive letter of your boot disk, **INSTALL** will present a summary **Installation Options Screen** showing you exactly what will be done during installation (*Figure 16*).

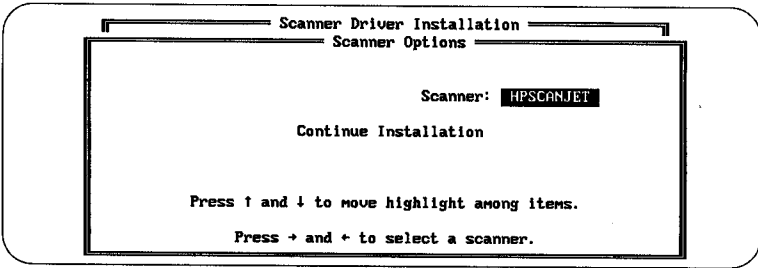


Figure 15 Scanner Selection

Check this screen very carefully to understand what INSTALL will do; you have the option at this point of backing up to change any of the option settings by pressing [Escape]. Then press any key to continue.

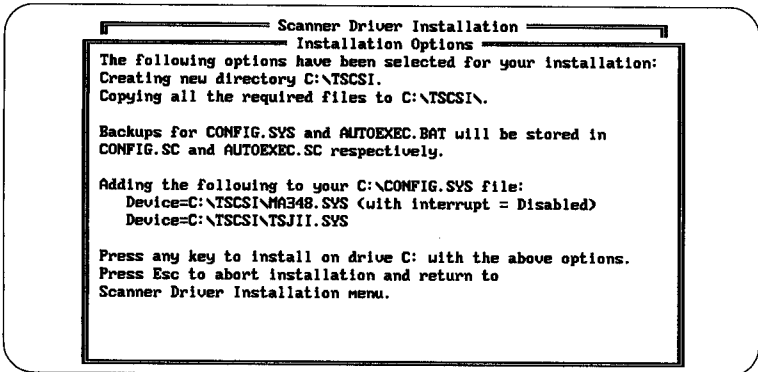


Figure 16 Installation Options Confirmation Screen

If you proceed with installation, you will see a screen similar to *Figure 17* as INSTALL creates (if necessary) the \TSCSI subdirectory on your boot disk and copies the scanner distribution files into it.

In addition, your CONFIG.SYS and AUTOEXEC.BAT files will be modified (or created, if necessary) to load the scanner software. Upon completion, you will be prompted to press any key to return to the INSTALL Main Menu. There you may choose to install CD-ROM or hard disk software (see the previous sections) or return to DOS. When you are finished installing the software, reboot your computer (by pressing the [Ctrl]-[Alt]-[Del] keys simultaneously) to activate the distribution software.

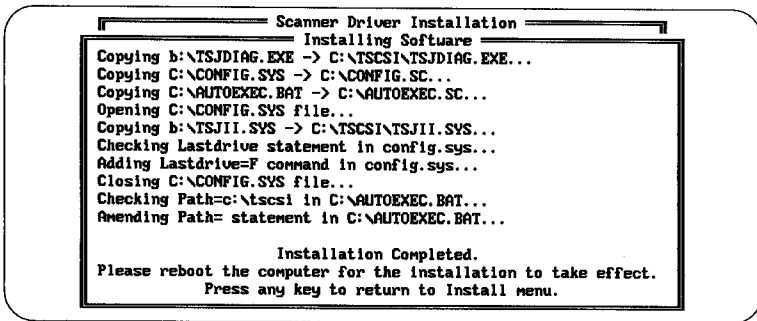


Figure 17 Installation Complete Screen

NOTE

If an initialization error occurs, the driver will abort installation and remove itself. Initialization will fail if TSJII.SYS cannot access an installed ASPI Manager or cannot locate the appropriate scanner on the SCSI bus. Otherwise, TSJII.SYS will display a status message including the scanner model number and SCSI ID.

4.1.5 Checking the Installation

If the installation process was completed correctly, your computer should operate as before, except that the **MiniSCSI Plus** software (MA348.SYS, TSLCDR.SYS, TSCSI.SYS and/or TSJII.SYS — all loaded via your CONFIG.SYS file) should now recognize and use the **MiniSCSI Plus** and any SCSI device(s) attached to your system. (Full DOS access to hard disk type devices may require formatting first, see *Chapter 6* for details.)

During bootup, you should see information appear on your screen as the software searches for and recognizes the **MiniSCSI Plus** and your SCSI device(s). If a “No Host Adapter Detected” error message appears, the SCSI device is probably not supplying TERMPOWER to the **MiniSCSI Plus** (see *Section 3.1*). (Older Hitachi CD-ROM and SyQuest removable drives, for example, do not supply TERMPOWER and must be upgraded to provide power for the **MiniSCSI Plus**.) As each device is found, information about the device will appear on screen.

If MA348.SYS, TSLCDR.SYS, TSCSI.SYS, TSJII.SYS and/or MSCDEX report any problems, check the following:

- Make sure the hardware is installed and cabled correctly (see *Chapter 3*).
- Make sure the SCSI software has been installed properly (see *Chapter 4*). Run SCSTEST (see the next section) to make sure the system can recognize the SCSI device(s).

- Make sure your SCSI device(s) is plugged in and turned ON! You'd be amazed at how often folks forget this simple step. Remember, the **MiniSCSI Plus** is powered from the SCSI device(s) connected to it (see *Chapter 3*).

4.1.6 Testing the SCSI Hardware

If there appears to be a problem accessing the SCSI device(s) attached to your computer, or if you simply want to verify proper operation of your SCSI hardware, you can use the **MiniSCSI Plus** test software (called SCSITEST). There are two ways to run SCSITEST, either within the INSTALL menu system (**SCSI Hardware Test**), or in a "standalone" mode, directly from DOS. The program's operation will be the same in either case—the choice is yours.

Starting the Test Software in Standalone Mode

Invoke the test software (SCSITEST) by first logging to the \TSCSI subdirectory. For example:

```
D:\>C:  
C:\>CD \TSCSI  
C:\TSCSI>SCSITEST
```

After running SCSITEST, you'll see the opening screen (*Figure 18*). The selection bar will be on the first option, **Test Hardware**; select this option by pressing [Enter]. After a moment, SCSITEST should confirm that a **MiniSCSI Plus** adapter is connected to the system.

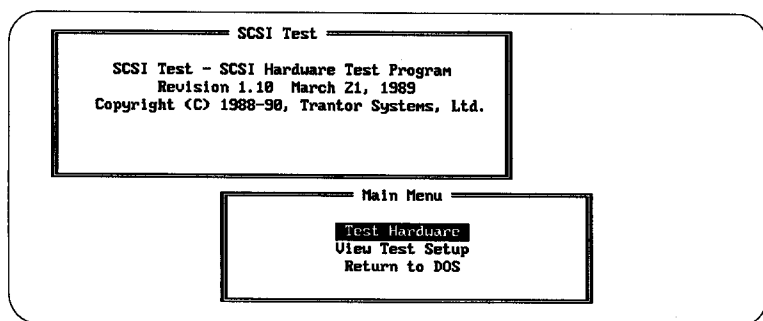


Figure 18 SCSITEST Opening Screen

If SCSITEST Indicates an Error

If SCSITEST reports a problem identifying an adapter, turn your computer off and recheck your installation of the **MiniSCSI Plus**. Make sure it is securely seated in the parallel port connector and that all connections to the **MiniSCSI Plus** are secure. After retesting the

4 Software Installation

installation, if SCSITEST still shows a problem identifying the **MiniSCSI Plus**, contact your dealer for assistance.

If SCSITEST Indicates a SCSI Adapter Was Found

In most cases, SCSITEST will indicate that one **MiniSCSI Plus** adapter was found and ask for confirmation (see *Figure 19*).

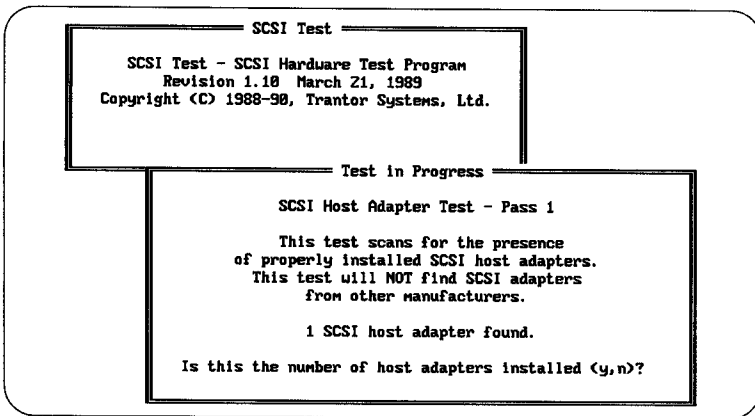


Figure 19 SCSITEST Adapter Board Count

If all seems to be working properly, confirm this by answering **Y** to the question. SCSITEST will then proceed to an informational screen, telling you that a scan for SCSI devices will now take place.

After reading the information presented, press [Enter] to begin the scan ("polling") for devices. Polling begins with device 0 and proceeds through device 6. If you have more than one SCSI device connected (such as a hard disk and a removable-cartridge or CD-ROM drive), make certain that their device addresses are different (see *Section 3.1*). As each device is found, SCSITEST will pause to identify the device and its address; press [Enter] to continue, after making sure the information provided is correct.

If No Devices are Found

If SCSITEST cannot identify any devices connected to the **MiniSCSI Plus**, it will stop and inform you of this problem. In most cases, the most likely reason for a device not being found is one of the following:

- The device is not connected to the **MiniSCSI Plus** correctly. Double-check that the cable between the **MiniSCSI Plus** and your device(s) is correctly attached.
- The device is not receiving power. Check that a power cable is properly attached to the SCSI device.

- The device address is not set properly. Check that the device address is set between 0 and 6 (see your device manual for details on how to do this) and, if you're using more than one SCSI device, that each device is set to a different address.
- The ASPI Manager (MAxxx.SYS) is not loaded.

After checking the above conditions, re-run the Hardware Test. If SCSITEST still indicates that it cannot identify any devices, and you are sure you've double-checked everything, contact your dealer for assistance. If SCSITEST correctly senses the presence of the **MiniSCSI Plus** and cannot identify any devices, the most likely remaining problem is either a bad connecting cable or a failure of the SCSI device.

Test Summary

After testing for the presence of the host adapter(s) and SCSI device(s), you may select **View Test Setup** from the SCSITEST menu. This short summary screen (see *Figure 20*) will indicate whether a **MiniSCSI Plus** adapter was found during the test and, if so, its address.

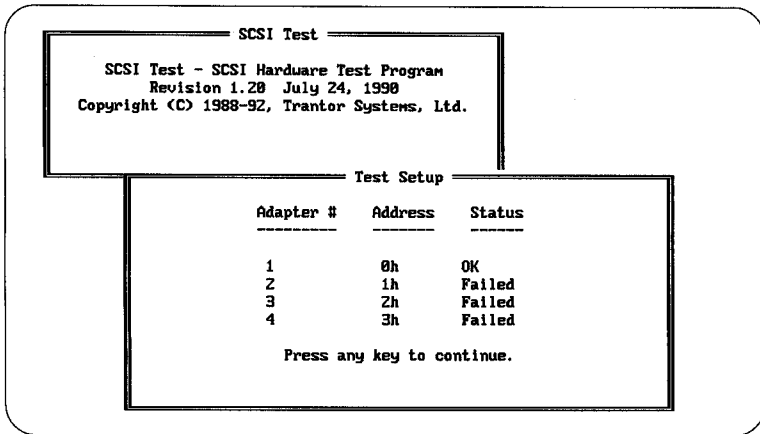


Figure 20 SCSITEST Hardware Summary

Normally, you'll see three "failed" indications and one "ok" indication which denotes the **MiniSCSI Plus**. This summary screen does not report anything about the device(s) connected to the **MiniSCSI Plus**; it is designed to summarize the condition of the **MiniSCSI Plus** only.

At this point, if everything seems to be working properly, you should be able to exit SCSITEST to "see" the CD-ROM and/or hard disk drive(s) by logging to them in DOS like any other disk drive. For example, if your first SCSI device has been assigned "D" as its drive letter, you should be

4 Software Installation

able to type **D:** followed by [Enter] and see DOS recognize it as it would any other drive.

Assuming that the hardware and software tests indicate the proper operation of your system, proceed to *Chapter 5* of this manual for a summary of the CD-ROM utilities, *Chapter 6* for a summary of the hard disk utilities, or *Chapter 7* for a summary of the scanner operation. You should also review *Chapter 9* for a technique that may increase performance of your **MiniSCSI Plus** even further.

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Installation & Use

5 CD-ROM Software Operation

This chapter describes the function and operation of the CD-ROM software utilities. Although you might need these programs only infrequently, it is suggested that you familiarize yourself with them now, so that you'll understand their capabilities when needed.

This manual does not address any of the standard DOS commands, such as DIR, DEL, COPY, etc. Your **MiniSCSI Plus** software and hardware will, in most cases, permit the use of these DOS commands with your SCSI device(s) in exactly the same way as with your other hardware (CD-ROM drives won't, of course, permit you to delete files from or copy files to the CD-ROM disk). If you are unfamiliar with these, consult your DOS documentation or dealer for assistance.

5.1 MSCDEX, the DOS CD-ROM Extensions

Your MS-DOS or PC-DOS operating system by itself does not know how to access a CD-ROM drive. There are many differences between a CD-ROM and hard drives. For example:

- CD-ROM drives can hold up to 680 MB of data—most DOS versions (prior to 4.x) cannot handle partitions greater than 32 MB.
- CD-ROM drives use the High Sierra or ISO 9660 file formats—DOS drives use the MS-DOS format.
- CD-ROM drives do not include a FAT (File Allocation Table).
- CD-ROM drive sector size is 2048 bytes. IBM PC/XT/AT-type hard disks typically use a sector size of 512 bytes.

Due to these differences, CHKDSK, FORMAT and some other DOS file utilities will not work on a CD-ROM drive. The MSCDEX program, a memory-resident extension to DOS, is able to interface your operating system to your SCSI CD-ROM device driver (TSLCDR.SYS) and your CD-ROM drive.

After the TSLCDR.SYS device driver is successfully loaded (via your CONFIG.SYS file), MSCDEX must be run. It is common to load it through your AUTOEXEC.BAT file. You could also run it only when you first need access to your CD-ROM drive during a work session. The **MiniSCSI Plus** installation process normally sets up your AUTOEXEC.BAT file to automatically load MSCDEX.

The format of the MSCDEX program is as follows:

```
MSCDEX [/V /K /E] /D:[DriverName]  
/L:[DriveLetter] /M:[Value]
```

Where:

/D:[DriverName] is a required parameter and gives MSCDEX the name of the device driver it will use to “talk to” the CD-ROM drive. The internal name of TSLCDR.SYS is TSLCD and should be substituted for [DriverName].

/L:[DriveLetter] tells MSCDEX to assign [DriveLetter] as the logical device drive name to the CD-ROM. When more than one CD-ROM is present, the drive letters will be sequentially assigned starting with [DriveLetter]. If no /L: parameter is supplied, MSCDEX will assign the next available drive letter.

Note that if you will have a total of more than five logical drives on your system (drives A:–E:), you must prepare DOS to support at least the number of devices you’ll have, via the DOS LASTDRIVE statement. In your CONFIG.SYS file, you must insert a line like this:

LASTDRIVE=[DriveLetter]

Where:

[DriveLetter] is the alphabetic character (F through Z) that represents the last valid drive letter that DOS may use. For example:

LASTDRIVE=H

/M:[value] tells MSCDEX how much memory to allocate as sector buffers for caching CD-ROM information. The higher this value is, the better performance will be, though you will use additional RAM memory for each buffer that is allocated. If no /M: parameter is supplied, MSCDEX allocates 10 buffers, each of which uses 2048 bytes of RAM memory.

The **/V** option results in a verbose listing of additional information, including how much memory is used by buffers, resident data and resident code.

The **/K** option is used only when the CD-ROM media directory is written in Kanji (Japanese).


The **/E** option tells MSCDEX to use expanded (EMS) memory if your system includes it; this will conserve about 16 KB of main DOS memory.

For example:

MSCDEX /E /D:TSLCD /L:M

Installs MSCDEX with an internal name of “TSLCD,” uses expanded memory and configures the CD-ROM drive as drive M.

5 CD-ROM Software Operation

 All of the above options may be configured via the CDINSTALL program, either when first installing your CD-ROM software or later, should you decide to change settings. See *Section 4.1.2* for details of the CD-ROM installation programs.

5.2 CHKCD

Very similar to the CHKDSK utility which is supplied with DOS, CHKCD will display useful information about the capacity and contents of your CD-ROM disc. While CHKCD is not required for normal operation of your SCSI system, it's often useful to have available.

To run CHKCD, simply type its name, optionally followed by the drive letter of your CD-ROM. To report the results for CD-ROM drive M, for example, enter:

CHKCD M:

5.3 TLOCK

This program, when run from the DOS command line (or within a batch file, if desired), will "lock" a CD-ROM disc or removable-media hard disk cartridge in the drive; i.e. it will inhibit operation of the front-panel Eject button. This is useful on a shared or networked computer system where an inadvertent disc eject might disrupt operations. Some CD-ROMs, such as the NEC CDR-36/37, have manual-loading mechanisms; TLOCK has no effect on such drives.

Simply type **TLOCK** to lock all removable-media drives currently installed, or follow with the drive letter to lock one drive. For example:

TLOCK

will lock all removable-media drives, except additional units on multi-drive products (such as dual-drive Bernoulli Boxes and multi-disc CD-ROM changers). You must specify the drive letter for such devices.

TLOCK F:

will lock only drive F:, which may be any removable-media drive.

5.4 TUNLOCK

This utility reverses the action of TLOCK, i.e. it permits media to be ejected from a CD-ROM or other removable-media drive. Type **TUNLOCK** to unlock all installed removable-media drives, or follow with the drive letter to unlock one drive.

For example:

TUNLOCK

will unlock all removable-media drives, except additional units on multi-drive products (such as dual-drive Bernoulli Boxes and multi-disc CD-ROM changers). You must specify the drive letter for such devices.

TUNLOCK G:

will unlock only drive G:, which may be any removable-media drive.

5.5 TEJECT

Just like the name says: when run, this program ejects a CD-ROM disc or removable-media hard disk cartridge from the drive (except, of course, for those drives which have a purely mechanical eject mechanism). If TLOCK has been run, TEJECT will set the drive to unlocked status prior to ejecting the disc.

Type **TEJECT** to eject all installed removable-media drives, or follow with the drive letter to eject just one drive. For example:

TEJECT

will eject all removable-media drives, except additional units on multi-drive products (such as dual-drive Bernoulli Boxes and multi-disc CD-ROM changers). You must specify the drive letter for such devices.

TEJECT H:

will eject only drive H:, which may be any removable-media drive.

6 Hard Disk Software Operation

This chapter describes the function and operation of each of the TSCSI hard disk software utilities. Although you might need some of these programs only infrequently, it is suggested that you familiarize yourself with them now, so that you'll understand their capabilities when needed.

This manual does not address any of the standard DOS commands, such as DIR, DEL, COPY etc. Your **MiniSCSI Plus** software and hardware will, in most cases, permit the use of these DOS commands with your SCSI hard disk device(s) in exactly the same way as with your other hardware (except CD-ROM drives; see *Chapter 5*). If you are unfamiliar with these, consult your DOS documentation or dealer for assistance.


6.1 TFORMAT (*formats storage media*)

TFORMAT is designed to format or prepare the storage media of your SCSI hard disk devices in the same manner as the FORMAT command used by DOS. It will work with any erasable SCSI device compatible with the **MiniSCSI Plus**, including hard disks, SCSI floppy drives, magneto-optical and removable-media cartridge drives (such as the Bernoulli Box). Note that the ASPI Manager (MA348.SYS) must be installed and loaded before TFORMAT will work; this is normally set up automatically during software installation (*Chapter 4*).

In all cases, the operation of TFORMAT is the same; just run TFORMAT from DOS, but do not specify a drive letter to format (as you normally would with the DOS FORMAT command). For example:

TFORMAT

will "poll" your **MiniSCSI Plus** and the SCSI device(s) in your system and present you the option of which device to format in sequential order. For example, *Figure 21 (next page)* illustrates the case of a single device (SCSI address 4) being found; a SyQuest 42-MB removable cartridge drive.

-  If you are formatting a cartridge in a dual-drive Bernoulli Box, you must perform the format operation in the first (usually the left) drive.

TFORMAT asks you to confirm whether you wish to format this device, as a safety precaution; you must type **YES** (upper or lower case), followed by [Enter] to proceed with formatting. Type anything else to abort the formatting operation. When more than one drive is daisy-chained to the **MiniSCSI Plus**, the format program will show you the SCSI address and the vendor information of the next drive and allow you to either select the drive by typing **YES** or proceed to the next one. Care must be taken when

```
TFORMAT: Generic SCSI Format Program. Version 1.77
Copyright (C) 1988-90, Trantor Systems, Ltd.
```

```
Card Address: 3BCH, SCSI Device Address: 4
```

```
Device vendor: SyQuest
Device name: S0555
```

```
Is this the drive you would like to format?
Type 'yes' to confirm or anything else to abort:
```

```
Polling (328,4) SyQuest S0555
```

Figure 21 Opening TFORMAT Screen

more than one device from the same vendor is connected to the **MiniSCSI Plus**, as the same vendor name will be shown on screen each time but with a different SCSI device address.

After confirming that you wish to proceed with the format, TFORMAT displays the technical characteristics of the drive and pauses to wait for a key to be pressed. After doing so, TFORMAT will then ask if you wish to do a "low-level" format.

A low-level format is a complete, total erasure of the entire disk surface, and usually must be done once on brand-new media. This is in contrast to a "high-level" format, which only erases the drive's subdirectory and file directory information. In most cases, a high-level format is sufficient to clear out all data from the drive and is much faster than a low-level format.

If you elect to perform a low-level format, TFORMAT will ask you to supply an "interleave" value (enter 0 to use the drive's default interleave value, unless otherwise instructed by your dealer) and to confirm that you truly wish to destroy all data on the device. TFORMAT will then proceed with the low-level format, showing elapsed format time.

6 Hard Disk Software Operation

WARNING

If you have any concerns about the security of your data, you should perform a low-level format on the media. A DEL command issued from DOS, or a high-level format, is no guarantee that data is irretrievably erased. Given a moderate level of knowledge, it is possible to "unerase" data under these circumstances. A low-level format will erase data for good, and should be used in sensitive circumstances. For government-classified data, even this is probably not sufficient; seek assistance if you have any doubts. This potential for unerase is true of any DOS device, not just SCSI devices.

If you elect not to perform a low-level format, or upon completion of low-level formatting, TFORMAT will ask if you wish to do a high-level format. At this point, you will "partition" the drive (assignment of multiple drive letters to one device). For instance, with a large hard disk, you might wish to assign both a D drive and an E drive, to divide up the large capacity. These are considered multiple "partitions" of a device. TFORMAT gives you the option of using one or more partitions (up to four partitions per physical device) in the high-level format routine.

If you choose to perform a high-level format, you'll see a screen similar to that in *Figure 22*.

```
TFORMAT: Generic SCSI Format Program. Version 1.77
Copyright (C) 1988-90, Trantor Systems, Ltd.

-----
                Total Partitions  1
          SCYL  ECYL  BOOT  TYPE          SCYL  ECYL  BOOT  TYPE
1.  0      349  N      FAT12              2.
3.                                     4.
-----

Options:
S(single) Partition.
T(two) Partitions (A small one for booting and the remainder)
C(custom) Partitioning.
Q(quit).
Selection -

-----
Polling (328,4)      SyQuest  S9555
```


Figure 22 TFORMAT High-Level Format Options

Here you have the option of setting up single or multiple partitions. In general, for hard/cartridge drives smaller than 32 MB, a single partition should be used for convenience. For large drives, you may create multiple partitions of any size you wish, except that if you wish to make a drive

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bootable the first partition may be no larger than 32 MB (except under DOS version 4 or later, where the first bootable partition may be up to 512 MB) to conform with DOS 3 restrictions.

Even though you may create a bootable partition with your **MiniSCSI Plus** using TFORMAT, you will not be able to boot your computer with this partition through your **MiniSCSI Plus**. This is simply due to the fact that your computer does not expect to boot from a device connected to the parallel port. Therefore, your **MiniSCSI Plus** device drivers must be loaded during the boot process from another hard disk. However, you can use a bootable partition created by your **MiniSCSI Plus** when the SCSI drive is connected to any of Trantor's other SCSI Host Adapters (which plug into a conventional expansion slot). If you do not plan to use the drive with any other host adapter, a bootable partition is not necessary.

 In order to create a partition larger than 32 MB, your system must be running DOS version 3.3 or later. Earlier versions of DOS will limit you to a maximum of four partitions per physical disk drive, with each partition a maximum of 32 MB. Under DOS 3.3, the SCSI device sector size begins at 512 bytes for up to a 32-MB partition, and doubles with each doubling of partition size, due to the requirements of DOS. So, for instance, a 64-MB partition would use 1 KB sectors, a 128-MB partition would use 2 KB sectors, etc. Therefore, if you wish to store a large number of small files, keeping each partition size (and therefore, the sector size) small would be the best arrangement. DOS versions 4 and 5 have no such limitation: sector size is always 512 bytes.

One of the options which will be presented for drives larger than 32 MB is "T(wo)" partitions, which on a hard disk will create a small partition for bootup, and another large partition with the rest of the drive's capacity. This offers a couple of advantages: it protects your data by keeping the bootup information in a separate partition (away from your data partition) in the event of a problem with the drive, and it allows you to have all the advantages of one very large drive (which exceeds DOS 3.x's normal capabilities) while tying up only the minimum amount of disk space necessary for booting.

Another option is custom partitioning, which will allow you to specify exactly how many (up to four) partitions you wish to have, and how large they should be. The size is specified in "cylinders," which is a measure of the drive's capacity. For instance, if a drive has 430 cylinders (TFORMAT tells you this information), and you wish to have two equal-sized partitions, you would specify the first partition to be from cylinders 0-215, and the second partition from 216-429 (cylinder counts start from 0). You may use any combination of cylinders you wish to define your partitions.

6 Hard Disk Software Operation

After you choose the type of partitioning you wish to use, TFORMAT will ask if you wish to “verify” the partitions. Verification is the process of examining each storage sector on the drive, to make sure that it will reliably store data. It is a good idea, especially if the media is new, to run the verification process (which will “lock out” any bad areas), but it takes time to perform this operation. If you are just repartitioning the drive, and you are sure the media is in good shape, verification may not be necessary.

After you finish specifying your choices, TFORMAT will remind you that repartitioning will **destroy** all data on the drive. After confirming this, TFORMAT will proceed with the partitioning (and verification, if requested), informing you of its progress. Upon completion, TFORMAT will remind you that a reboot of your computer (and possible installation of the software) may be necessary. This will complete TFORMAT’s operation.

6.2 TSPAN (span one partition over several drives)

TSPAN allows you to create a single large logical drive from two or more erasable SCSI devices by combining or “spanning” them under software control. These devices need not be identical, however, they must be either all fixed or all removable devices. It is possible to span, for instance, two 40-MB cartridge drives to create a single 80-MB removable drive. Note that the ASPI Manager (MA348.SYS) must be installed and loaded before TSPAN will work; this is normally set up automatically during software installation (see *Chapter 4*).

TSPAN uses the entire SCSI device, no matter how many partitions you have previously created on it. Partitions are eliminated and the whole drive becomes part of the newly spanned logical drive. Prior to running TSPAN, TFORMAT must be run with at least one partition defined in each drive that is going to become part of the spanned set. TSPAN can be run from the HDINSTALL menu by choosing the **SCSI Drive Spanning** option. It can also be run from DOS by typing TSPAN at the DOS command line. For example:

TSPAN

will poll all the devices attached to your SCSI card(s) and give you a menu (*Figure 23, next page*) of available SCSI devices listed by Drive #, SCSI address, capacity, and drive type (fixed or removable).

Select in turn the **Drive Number** of each device you wish to span into a single partition, and press [Enter] to continue.

WARNING

Spanning will erase **all** the information on a device!

TSPAN: Build Spanned Volume Record. Version 1.20
Copyright (C) 1988-90, Trantor Systems, Ltd.

Dru#	SCSI ADRS	Capacity	DruType	Dru#	SCSI ADRS	Capacity	DruType
1.	3BCH,0	10.2MB	Removable	2.	3BCH,4	42.3MB	Removable

Select Dru# to combine or press return to terminate:


Figure 23 TSPAN List of Available Drives

After confirming that spanning the drives will destroy all the data on them, you will have the option of doing a surface verify of your spanned drive. If you chose to verify, each sector on your drives will be evaluated and TSPAN will “lock out” any bad areas on your disk to prevent data from being written there. This will take some time, especially on large drives. This step must be done even if the drives had been verified after they were formatted with TFORMAT, just to make sure that the spanned partitions are correctly established. Therefore, to speed up the installation, skip the verify step in TFORMAT for those drives that you intend to combine in a spanned volume.

TSPAN will notify you that it is initializing the Spanned Drive, clearing the FATs (File Allocation Tables) and Directory and then either proceeding to the verify procedure or exiting the program. You must reboot your system to make the new spanned drive available.

6.3 TSTATUS (checks status of your system)

If you have installed the hard disk driver, TSTATUS gives you a simple summary screen (see *Figure 24*) of the version of TSCSI.SYS loaded in memory, how many bytes of memory it uses, and the drive letters and capacity of SCSI devices currently active on your system. It's a useful utility to run anytime, but it's a good idea to run TSTATUS immediately after installing or changing any of your hardware or software configuration settings, just to make sure that your SCSI equipment is operating as you expect.

 TSTATUS does not apply for CD-ROM, tape drive, or scanner installations.

6 Hard Disk Software Operation

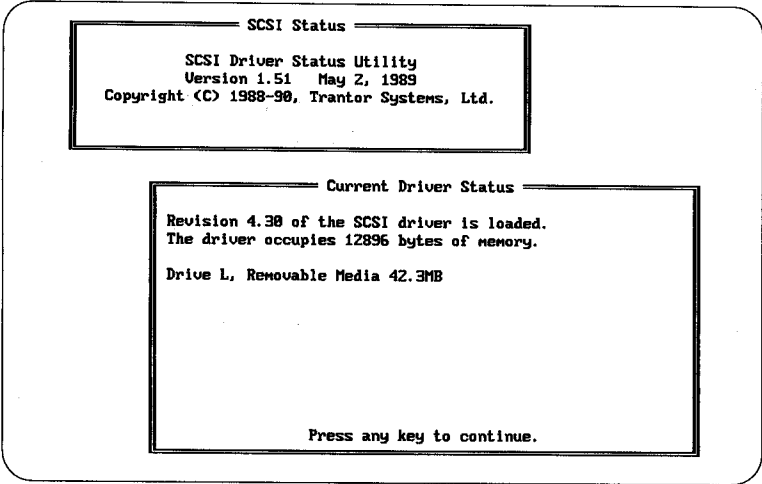


Figure 24 TSTATUS Summary Screen

7 Scanner Operation

This chapter describes how your scanner functions with **MiniSCSI Plus** and how to use the diagnostics program.

7.1 How Your Scanner Functions

Since a scanner cannot function as a drive, your operating system by itself does not know how to access the scanner. It's important to note that your scanner will operate only through a compatible scanner application, see your scanner supplier for details.

Referring to *Figure 25*, you can see that the scanner application works through the scanner driver supplied with the **MiniSCSI Plus**. And the scanner driver accesses the scanner through the ASPI Manager. See *Appendix B* for a complete ASPI explanation.

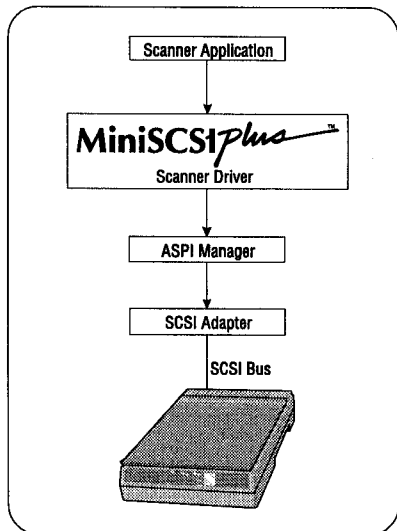


Figure 25 Scanner Interface Diagram

7.2 Scanner Diagnostics

Since you cannot use any DOS commands to check your scanner, your **MiniSCSI Plus** includes a scanner diagnostic program. This diagnostic program provides you with information about the installed scanner and driver. It also enables you to perform a scanner self test and check communications between the scanner and the driver. To execute this program, at the DOS command line, type: **TSJDIAG**.

8 Device Driver Options

This chapter describes command-line options (commonly called “switches”) for various files. Normally, the defaults for these switches (as set during installation) will work fine; these options are available primarily for fine-tuning and troubleshooting. We recommend that you do not change the default settings unless it’s necessary and only if you clearly understand what you are doing.

8.1 How to Identify Software Versions

Occasionally, for technical support or other reasons, you may need to determine the version number of our software drivers. The version is shown on screen as the software loads, but you may also find it by using the TYPE command from your DOS command line. This applies to the .SYS driver files and is performed as follows (using the CD-ROM driver as an example):

```
TYPE TSLCDR.SYS
```

8.2 Driver Updates

If you use a modem, you may get selected software updates and technical support of our drivers via our technical support BBS; see *Chapter 12* for more information.

8.3 Driver Command Line Switches

The following files list command line parameters or switches. These parameters can be used as startup options shown in the format **/Xn**, where **X** is the command line switch, and **n** is the option passed to it.

These parameters can be listed directly after their appropriate file name in CONFIG.SYS. For example, the line in CONFIG.SYS for the scanner driver could read:

```
DEVICE = C:\TSCSI\TSJII.SYS /I4 /W3
```

ASPI Manager (MA348.SYS)

/Mn	Mode configuration switch. See <i>Chapter 9</i> for details about the /M switch	
	<u>Mode</u>	<u>Bidirectional Sense</u>
0	Full Handshake	Auto-determine (default)
1	Blind	Auto-determine
2	Full Handshake	Force unidirectional
3	Blind	Force unidirectional

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- /Wn** Pause (warning) mode
 - 0** Pause for a keypress if no SCSI device is detected (default)
 - 2** Pause for a keypress if SCSI device is detected
 - 3** Do not pause at all; useful if you often boot with no SCSI devices connected

TSCSI.SYS

- /An** Allocates a particular maximum sector size under DOS 3.x Used with removable media. The default is to recognize standard 32 MB or smaller partitions. Larger partitions can be allocated as follows, where the number indicates the sector size in Kilobytes (KB):
 - 1** 32 MB–64 MB partitions
 - 2** 64 MB–128 MB partitions
 - 4** 128 MB–256 MB partitions
 - 8** 256 MB–512 MB partitions
 - 16** 512 MB–1 GB partitions
- /Kn** Reserves drives to prevent “phantom” drives. When booting from a non-Trantor SCSI adapter, both the ROM and the Trantor software driver manage the SCSI device, creating a “phantom” drive. This feature forces the ASPI driver to ignore devices managed by the ROM. “**n**” indicates the number of drives the driver should ignore.
- /R** Reset. This will send a RESET command to the SCSI bus before the driver loads.
- /Un** Restrict maximum number of Logical Units (LUNs) available. Useful when a device has multiple logical units that are not all being used. This allows you to select, for instance, only the first three LUNs and ignore the others.
- /Wn** Pause (warning) mode
 - 0** Pause for a keypress if no SCSI device is detected (default)
 - 2** Pause for a keypress if SCSI device is detected
 - 3** Do not pause at all; useful if you often boot with no SCSI devices connected

TSLCDR.SYS

- /D:driver_name** Specifies internal driver name for CD-ROM driver in CONFIG.SYS. This must match the name in the MSCDEX command line in AUTOEXEC.BAT.

8 Device Driver Options

- /Pn** Allow Prefetch and/or Seek
- 0** Seek and Prefetch are disabled (default)
 - 1** Allows Prefetch
 - 2** Allows Seek
 - 3** Allows both Seek and Prefetch
- /R** Reset. This will send a RESET command to the SCSI bus before the driver loads.
- /Un** Restrict maximum number of Logical Units (LUNs) available. Useful when a device, such as a Pioneer CD-ROM changer, has multiple logical units that are not all being used. This allows you to select, for instance, only the first three LUNs and ignore the others.
- /Wn** Pause (warning) mode
- 0** Pause for a keypress if no SCSI device is detected (default)
 - 2** Pause for a keypress if SCSI device is detected
 - 3** Do not pause at all; useful if you often boot with no SCSI devices connected

TSJL.SYS

- /In** instructs the driver to search for the installed scanner at SCSI ID **n**, where **n** ranges from 0 to 7. Normally the driver polls each device on the SCSI bus searching for the scanner. This parameter overrides the startup search, unless the driver does not find the scanner at this SCSI ID.
- /Wn** Pause (warning) mode
- 0** Pause for a key to be pressed if no SCSI device is detected (default)
 - 2** Pause for a key to be pressed if SCSI device is detected
 - 3** Do not pause at all; useful if you often boot with no SCSI devices connected.

OS/2 .ADD drivers


- /O** Enables an optical drive to emulate a hard disk drive. Useful in situations where IBM's OPTICAL.SYS file is not available.
- /U** Restrict maximum number of Logical Units (LUNs) available to one. Default is seven LUNs in the August, 1992 driver.

TFORMAT

- /S60** Formats SCSI drives for compatibility with original T128/T228 Boot ROM release 1.x. If a SCSI drive connected to a T128 or T228 will not boot with a version 1.x ROM because it isn't in the ROM tables, this option should fix it. It is not possible to boot your system through the parallel port.

9 Maximizing Performance

After your **MiniSCSI Plus** has been installed and tested, and you are sure it's working properly, it may be possible to improve its performance even further. We've found that, in many system configurations, implementing a special data-transfer mode can result in a 15-20% speed improvement!

-  Prior to trying out the techniques described below, make sure that your SCSI hardware and software is properly installed, configured and running without problems. As described below, attempts to improve performance may not work on your particular installation. Knowing that the basic installation is working will aid in determining whether performance enhancements will work as well. In addition, there is a small chance that data corruption may occur with incompatible configurations, so make sure that important data on your SCSI device(s) is backed up prior to trying this technique.

9.1 What is this Technique?

By default, your **MiniSCSI Plus** software is configured to operate in "full handshaking" mode. This means that data transfer between your computer and the SCSI device(s) via the **MiniSCSI Plus** is performed in a manner that automatically confirms its accuracy. If there are timing, electrical noise or other problems that disturb accurate data flow, the error is automatically detected and corrected without any user intervention. This assures that movement of information back and forth is error-free.

Nothing's free in this world, however. Full handshaking requires more interaction by the **MiniSCSI Plus** software, which results in somewhat lower performance than if handshaking were disabled.

The good news is that you have the option to disable full handshaking and operate your SCSI installation in so-called "blind" mode. We've discovered that many **MiniSCSI Plus** configurations will operate perfectly well (and faster) in blind mode. Full handshaking mode is safe for all installations, so that's the default configuration, but the /M software option switch allows you to turn it off to test whether you can use the faster blind mode.

The /M switch has four possible settings and is set in your CONFIG.SYS file on the ASPI Manager line:

/M	0	Standard full handshaking mode (default)
	1	Blind mode enabled for higher performance
	2	Full handshaking, force unidirectional (see <i>page 49</i>)
	3	Blind mode, force unidirectional (see <i>page 49</i>)

So /M1 enables blind mode, and /M0 (or no /M entry) is standard full handshaking. The change is made to the line beginning with **DEVICE=MA348.SYS** in your CONFIG.SYS file, using any standard text editor, such as DOS 5's EDIT command. So, for example, to turn full handshaking off for better performance, the line should look something like:

```
DEVICE=\TSCSI\MA348.SYS /M1
```

Of course, after making this change and saving CONFIG.SYS back to your boot drive, you must reboot your system for the change to take effect.

9.2 Testing Blind Mode Operation


After modifying your CONFIG.SYS file and rebooting, you should immediately conduct some simple tests to determine whether your installation is compatible with blind mode. We recommend following this sequence:


1. Observe the system bootup closely. As the CD-ROM and/or hard disk drivers load, watch for messages like **No SCSI devices detected, No Boot Record Found**, etc. As MSCDEX loads, watch for a **CDR103: CDROM not High Sierra or ISO-9660 format error** message. If any of these messages appear, your system configuration does not support blind mode.
2. If step 1 reveals a problem, you **might** be able to operate in blind mode by setting your computer's CPU speed to a lower value. This is generally done with a software setup routine—see your computer's documentation for details.
3. If step 1 reveals a problem and a computer speed decrease doesn't help, then you must remove the /M1 switch from CONFIG.SYS immediately and reboot. Continued operation of an incompatible system will result in SCSI data corruption!
4. If step 1 reveals no problems during bootup, we recommend the following additional tests:
 - Perform a DIR command on all SCSI devices to see if the directory structure is correctly reported. Do not run any other DOS commands yet. If a problem is evident (such as incorrect filenames, garbage characters appearing in the directory listing, etc.), you probably do not have blind mode compatibility and should remove the /M1 switch from CONFIG.SYS. If no problems are noted, proceed to the next step.
 - Perform a CHKDSK command on all hard disk drives (without the /F option!) and/or a CHKCD (supplied with your Trantor adapter) command on all CD-ROM drives. If a problem is evident (such as absurdly wrong numbers being reported), you probably do not

9 Maximizing Performance

have blind mode compatibility and should remove the /M1 switch from CONFIG.SYS. If no problems are noted, proceed to the next step.

- If no problems are found so far, try copying a large (greater than 100 KB, if possible) file from the SCSI device to a non-SCSI hard disk or floppy drive. After the copy is complete, use the DOS COMP command to compare the new copy to the original file. If a problem is evident (such as the file comparison failing), you probably do not have blind mode compatibility and should remove the /M1 switch from CONFIG.SYS. If no problems are noted, proceed to the next step.
 - If no problems are found, copy a large file from your non-SCSI drive to the SCSI device(s). Again, compare the two files with the COMP command and if a problem is evident (such as the file comparison failing), you probably do not have blind mode compatibility and should remove the /M1 switch from CONFIG.SYS.
5. If, after following these procedures, you've found no problems—congratulations! It's likely that your system is fully compatible with blind mode and your **MiniSCSI Plus** will now operate considerably faster than before (but see the next section).

 If you change your computer's SCSI device configuration, you should rerun the above test sequence to make sure any newly-added devices are compatible with blind mode. It's possible to add a new device to a compatible system and in doing so eliminate blind-mode compatibility.

 We recommend that, if you share your **MiniSCSI Plus** among several systems or carry it for use on other people's systems, you do not run with the /M1 switch enabled unless you are absolutely sure that the other systems are compatible. Changes may take place to the system configuration in your absence! It's better to run a little slower than to take a chance of possibly corrupting data.

9.3 Additional /M switch options

In addition to /M0 and /M1, there are two additional settings: /M2 and /M3. These correspond to /M0 and /M1, but force the **MiniSCSI Plus** to operate in unidirectional mode. A few computers (such as the NEC Prospeed SX/20) are incorrectly seen by the **MiniSCSI Plus** as being equipped with a bidirectional parallel port, instead of the actual unidirectional configuration. This situation can cause data corruption, but using /M2 (instead of /M0) or /M3 (instead of /M1) will force the **MiniSCSI Plus** to use unidirectional mode and should fix the problem.

10 SCSI Connector Pinouts

This chapter documents both the SCSI interface connector on the **MiniSCSI Plus** as well as typical connectors found on SCSI devices such as hard disk and CD-ROM drives. Your **MiniSCSI Plus** has been designed with ease of connection in mind, therefore the SCSI connector is completely compatible with that used for external connection of virtually all SCSI devices.

But, for those who are making their own cable assembly or who need the connector details for other reasons, the following provides the necessary information. *Figure 26* illustrates the pin arrangement of a typical single-ended shielded 50-pin connector. The female connector is shown; this is typically chosen by device manufacturers for external SCSI products, and the male **MiniSCSI Plus** SCSI connector mates with it.

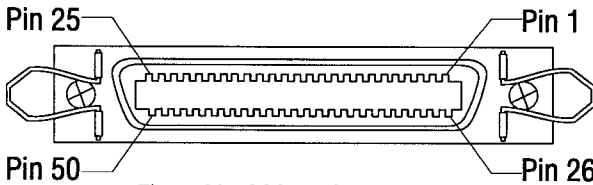


Figure 26 SCSI Device Connector

Table 1 (next page) lists the pin assignments for the SCSI connector. Definitions of the various signals may be found in any SCSI design reference book. The SCSI interface is fully defined in **ANSI X3.131-1986**; this document is available from Global Engineering Documents, 2805 McGaw Ave., Irvine, CA 92713-9539 USA, telephone (714) 261-1455.

Pin #	Function	Function	Pin #
1	Gnd	-DB0	26
2	Gnd	-DB1	27
3	Gnd	-DB2	28
4	Gnd	-DB3	29
5	Gnd	-DB4	30
6	Gnd	-DB5	31
7	Gnd	-DB6	32
8	Gnd	-DB7	33
9	Gnd	-DBP	34
10	Gnd	Gnd	35
11	Gnd	Gnd	36
12	Gnd	Gnd	37
13	Open	Tempwr	38
14	Gnd	Gnd	39
15	Gnd	Gnd	40
16	Gnd	-ATN	41
17	Gnd	Gnd	42
18	Gnd	-BSY	43
19	Gnd	-ACK	44
20	Gnd	-RST	45
21	Gnd	-MSG	46
22	Gnd	-SEL	47
23	Gnd	-C/D	48
24	Gnd	-REQ	49
25	Gnd	-I/O	50

Table 1 SCSI Connector Pinouts

11 OS/2 Software Installation

This chapter documents the drivers supplied by Trantor called Adapter Device Drivers (.ADD), which are supported by the **MiniSCSI Plus**. These drivers provide an interface between the **MiniSCSI Plus** and the OS/2 version 2.0 or above operating system. Support for different SCSI devices is not done by Trantor, but by IBM with their OS/2 high-level drivers. Therefore, other Trantor device drivers and utilities function under DOS only, not OS/2.

In order to use the **MiniSCSI Plus** with OS/2, you must first install the OS/2 SCSI support, the DASD support for hard disk drives and the CD-ROM support for CD-ROM drives. These drivers are included with OS/2, but were probably not installed when you first set up OS/2 on your computer. DOS support is usually automatically installed in the \OS2\MDOS directory so you will see the virtual device drivers in that directory (VCDROM.SYS, etc). Do not delete these files if you want to use DOS as well.

To install the IBM-supplied CD-ROM support drivers on a running OS/2 system, you need to click on the **System Setup** icon in the OS/2 SYSTEM folder. Click on the **Selective Install** icon and select **OK** from the first screen.

A second screen of options will appear. For CD-ROM select the first option, CD-ROM Device Support and then click on the **More** button associated with this choice. Check both the **CD-ROM IFS** and **IBM CD-ROM Device Drivers** check boxes and then **OK** to proceed with the installation.

IFS=C:\OS2\CDFS.IFS
BASEDEV=OS2DASD.DMD
BASEDEV=OS2CDROM.DMD
BASEDEV=OS2SCSI.DMD
BASEDEV=T348SCSI.ADD

This is the CD-ROM file system.
 This is the hard disk driver.
 This is the CD-ROM driver.
 This is the SCSI driver.
 This is the Trantor driver.

Every device connected to the **MiniSCSI Plus** must have, in addition to the Trantor .ADD, the IBM SCSI driver (OS2SCSI.DMD), the File System driver (CDFS.SYS for CD-ROM, HPFS.IFS for HPFS partitions, etc.), and the media support driver (OS2DASD.DMD for hard disks, OS2CDROM.DMD for CD-ROM drives, etc.). If any of these three levels is missing, your installation will not work!

MiniSCSI^{plus} User Guide

The order of the files usually does not matter, but if you are having trouble, put the files in the order shown above, with the IFS files at the beginning of your CONFIG.SYS and the rest of the files at the end of the CONFIG.SYS. We have found this always works for us!

11.1 Removable Media Drives (Magneto-Optical, SyQuest, Bernoulli, etc.)

IBM treats removable media drives as though they were a very large floppy. This means you cannot interchange removable media between DOS and OS/2.

To format a removable-media drive for OS/2, you first have to do a low level format under MS-DOS with the TFORMAT utility. Select a single partition, the IBM driver can not handle multiple partitions on removable media.

Boot up your OS/2 system with this formatted cartridge in the drive. From the OS/2 SYSTEM folder, select the **Drives** icon and double click on it. Select the removable media drive (which will show up with a floppy icon) and click the center button. Select **Format Disk** and use any available capacity; 2.88 MB will work just fine. The removable media drive will be formatted to its correct capacity with an OS/2 partition.

You can now use the drive cartridge under OS/2. It will not be readable by an MS-DOS system.

11.2 Setting Up a Hard Drive for OS/2 Use

If you have an existing hard disk drive on your **MiniSCSI Plus** set up as a single partition under MS-DOS 4.01 or 5.0, you should be able to install it under OS/2 with no special requirements other than those discussed earlier.

If you have a disk partitioned under DOS 3.3 larger than 32 MB, you will need to re-format it under DOS 4.01 or later for OS/2, since partition sizes over 32 MB are non-standard.

WARNING

All your data will be lost if you format your disk drive unless you back it up first!

To format your hard disk drive, you must run the DOS-based TFORMAT program supplied with the **MiniSCSI Plus**. There is no OS/2 version of this program, but it will run from a DOS box or VDM on your OS/2 system.

11 OS/2 Software Installation

Support for Trantor's OS/2 drivers is available from the Trantor BBS, see *Chapter 12*. There is no support available by telephone on this product due to the complexity of the CONFIG.SYS. Or you can FAX your questions, a copy of the errors you see, and a copy of your CONFIG.SYS to Trantor OS/2 Technical Support, or leave this information as a message on the Trantor BBS.

11.3 OS/2 Error Messages

The System Cannot Find the File "C:\OS2\SYSTEM\COUNTRY.SYS" Specified in the COUNTRY Command. The System is Stopped.

This error usually happens if the OS2DASD.DMD driver is not installed in the CONFIG.SYS. Make sure you have **BASEDEV=OS2DASD.DMD** in the CONFIG.SYS right after the **BASEDEV=IBM1FLPY.ADD** statement. If you installed the SCSI support on the OS/2 Installation, you should not get this message.

SYS1718: The System Cannot Find the File "... "

The file indicated has not been installed. This most commonly happens when CD-ROM files are not copied to the System subdirectory. Use the OS/2 Selective Install program to install your CD-ROM support files.

SYS1201: The Device Driver "OS2CDROM.DMD" Specified in the DEVICE Command on Line... Was Not Installed. Line is Ignored.

The .ADD driver for the **MiniSCSI Plus** did not load. Either there is no SCSI device attached, the **MiniSCSI Plus** is not installed, or there is a hardware conflict with the **MiniSCSI Plus**. Check under DOS with SCSITEST to see if the SCSI device is identified.

SYS1201: The Device Driver "T348SCSIADD" Specified in the BASEDEV=Command on Line... Was Not Installed. Line is Ignored.

The .ADD driver for the **MiniSCSI Plus** did not load. Make sure the SCSI device is plugged in and powered up correctly. Check your installation under DOS and with SCSITEST to see if the SCSI device is identified correctly.

12 Troubleshooting Notes

12.1 Technical Support BBS

Trantor Systems maintains a Technical Support Bulletin Board System (BBS) at our Fremont offices for use by our registered customers with modems. You are welcome to contact us via the BBS with questions and suggestions and share these with other users. Update notifications, new product announcements and technical tips will be available on-line. The FAX number is 510-770-9910; please fill out the Fax Form on *page 59*. The BBS number is 510-656-5159 available 24 hours per day. When you call, set your modem and communications software to 8 data bits, 1 stop bit, no parity, and V.32 bis operation.

12.2 Common Error Messages and Remedies

"No SCSI Host Adapter Detected" Message Appears During Bootup

- Improper or missing SCSI device termination power.
Your **MiniSCSI Plus** requires SCSI termination power in order to operate. Check to be sure that there is proper termination power available from your SCSI device. You can do this with a voltmeter by measuring the voltage available between pin 38 and ground on the SCSI device's connector (see *Chapter 10* for pinout details). Check this voltage with power to the SCSI device(s) on; it should measure approximately +5 volts. Very low or no voltage at pin 25 indicates a problem with termination power; this condition will disable the **MiniSCSI Plus**.

During Bootup, the Driver Recognizes the MiniSCSI Plus and the SCSI Device(s), Then Stops With a "No SCSI Functions in Use" Message

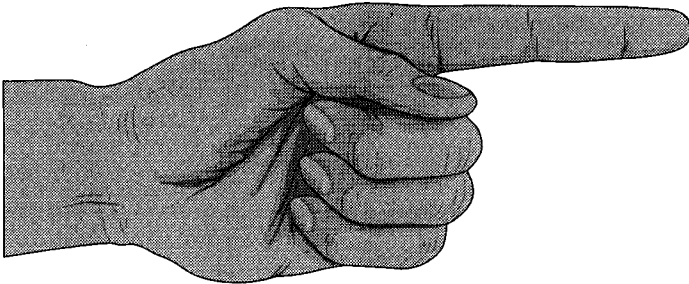
- The software driver is looking for a different device.
For example, you may have the CD-ROM driver loaded, but you are trying to work with a hard disk drive or vice versa. Each Trantor software driver recognizes the existence of all SCSI devices attached to the SCSI chain but will only work with the device it is written to communicate with. Install the correct driver or remove an unwanted driver from your CONFIG.SYS file with a text editor program.

12.3 Notes

- MS-DOS (or PC-DOS) 3.1 or higher is required (3.3 or higher to format and use partitions larger than 32 MB). Older laptops with DOS 2.x in ROM will have to be booted and operated with DOS 3 on floppy disk, unless the ROM version of DOS is upgraded.

- For erasable devices, such as hard disks and SyQuest or Bernoulli cartridges, you **must** use the TFORMAT program supplied with your **MiniSCSI Plus** to perform both low-level and high-level media formatting and partitioning. The standard DOS FORMAT program is not compatible with SCSI devices connected to the **MiniSCSI Plus**.
- If your computer is part of a network installation, your printer port may be “redirected” to a network printer. For instance, Novell[®] NetWare[™] uses the CAPTURE command for this purpose. If this is the case, the **MiniSCSI Plus** software will not detect the hardware at bootup. The simplest solution is to change your computer’s parallel port hardware to LPT2 or LPT3, or change your network redirection to a different port.
- Some older-model 8086-based Sharp[®] laptops have a problem with their parallel port, and will not work properly with the **MiniSCSI Plus**, or with other programs that use high speed parallel port data transfer, such as LapLink[™] or DeskLink[™] from Traveling Software[®]. Sharp offers a free hardware upgrade for customers experiencing this problem; contact your Sharp dealer for details.
- If an initialization error occurs when loading the scanner driver, the driver will abort the installation and remove itself. Initialization will fail if TSJII.SYS cannot access an installed ASPI Manager or cannot locate the appropriate scanner on the SCSI bus. Otherwise, TSJII.SYS will print a status message including the scanner model number and SCSI ID.

Use the Troubleshooting Form!



Be sure to photocopy it, fill it out, and then fax it to Trantor for troubleshooting assistance!



Troubleshooting Form

Fax to: (510) 770-9910

Name: _____

Address: _____ Phone: _____

_____ Fax: _____

Trantor Adapter: _____

Software Ver.#*: MA348.SYS _____ TSCSI.SYS _____

TSLCDR.SYS _____

Switch Settings: 1 2 3 4 5 6 7 8

ON

OFF

SCSI Device(s) attached to Trantor Adapter:

CD-ROM Hard Disk Removable Cartridge

Tape Drive Other _____

Device Model Numbers: _____

Operating System: DOS Windows OS/2 Windows NT

Version# _____

Computer Model: _____

CPU: 286 386 486 Other _____

Speed: _____

Parallel Port: Built-in Plug-in card

Parallel Port Type: Unidirectional Bidirectional EPP Don't Know

Do you use a modem? Yes No

Use additional sheets for the following (print screens if available):

CONFIG.SYS

AUTOEXEC.BAT

ERROR MESSAGES (Please provide **exact** message or information)

OTHER CARDS INSTALLED IN THE SYSTEM

Dealer Name (Purchased from): _____

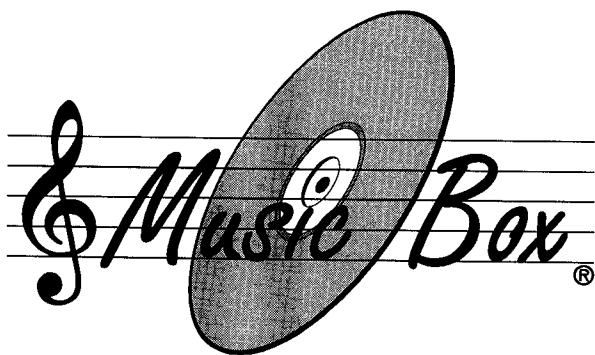
Dealer Address: _____

Dealer Phone Number: _____

Date Purchased: _____

Notes: _____

* Use the DOS "TYPE" command to get the version #, for example at the DOS prompt enter: **TYPE MA348.SYS**
Trantor Systems, Ltd. 5415 Randall Pl., Fremont, CA 94538-3151 USA (510)656-5169 BBS



Audio Control Software for CD-ROMs

Music Box

13 *Music Box* Operation

This chapter describes installation and operation of Trantor's *Music Box* CD audio disc control software for MS-DOS operation with CD-ROM drives (hereafter referred to as "*Music Box*"). *Music Box* gives your CD-ROM drive most of the features of a sophisticated CD player! It supports any CD-ROM drive which implements Microsoft's MSCDEX extensions to MS-DOS for CD-ROM (version 2.1 and above), supports audio functions and has a software driver that implements audio functions. This package includes a standard MS-DOS command-line version with graphical interface (which may optionally be run in memory-resident mode) and a Microsoft Windows 3.x version which also incorporates a disc database feature.

13.1 *Music Box* Files

Your distribution diskette has a \MUSICBOX subdirectory, containing the following files:

MUSICBOX.EXE

The standard version of *Music Box*, with graphical interface, designed to run from the MS-DOS command line. This version of *Music Box* may be optionally run as a memory-resident application (referred to as *Music Box TSR*). Once installed, *Music Box TSR* takes up about 18 KB of memory, and provides most of the commands available in graphical interface mode. When memory resident, *Music Box TSR* uses keyboard control only, and provides audio feedback to the user through the computer's speaker, thus making it usable in any screen mode, even when graphical software (except Windows) is running.

MBOXRES.EXE

A version of *Music Box* which invokes the memory-resident option, then immediately returns to the DOS command line. See *Section 13.5.5*.

MBOXRES.OVL

An overlay file used by the memory-resident version of *Music Box*. This file must be in either the current directory or the DOS path when the memory-resident version of *Music Box* is loaded into memory.

MBOXWIN.EXE

The Microsoft Windows version of *Music Box*, for use with Windows version 3.0 or later. Includes a disc database to store disc/track titles and play-order preferences.

MBOXREAD.ME

A text file which may be included, containing up-to-date information since this manual was printed. It is important that you look for this file and, if it exists, read it carefully.

13.2 Requirements

The following are hardware and software requirements specific to Music Box; see *Appendix A* for more details.

13.2.1 Hardware

Music Box is designed to operate with virtually any CD-ROM drive for IBM-compatible computers. No specific CD-ROM hardware configuration is required, but it is presumed that your CD-ROM drive is properly installed and functioning prior to installation of *Music Box*.

The MS-DOS command-line version of *Music Box* will automatically recognize and operate with the following video graphics card standards:

CGA, EGA, VGA and Hercules Monochrome Graphics

Other video card designs may work, but are not certified to do so. You must have a graphics card installed to use the graphical and Windows versions of *Music Box*; text-only displays are not compatible. CGA displays will run *Music Box* in relatively low resolution compared to the others. The Windows version of *Music Box* will function with any graphic display supported by your version of Windows. *Music Box*, in memory-resident mode, may operate properly with text-only video display systems, but is not certified to do so.

13.2.2 Software

Since MS-DOS (through version 5.0, as of this writing) does not directly support CD-ROM drives, *Music Box* requires that Microsoft's CD-ROM software extensions for CD-ROMs (MSCDEX) and an audio-capable CD-ROM driver be installed. Both are supplied with your **MiniSCSI Plus**—see *Chapter 3* for installation instructions.

13.3 Music Box Installation

Prior to installation and first use of *Music Box*, you should make sure your CD-ROM software driver and hardware are completely installed and working properly (see *Chapters 3* and *4* for details).

Installation of *Music Box* consists of copying the contents of the \MUSICBOX subdirectory on your software distribution diskette to your own hard disk drive. We recommend that you place the *Music Box* files in the same location as your other CD-ROM files, which is typically the \TSCSI subdirectory on your hard disk. For convenience, the location of

13 Music Box Operation

the *Music Box* files should be in a PATH statement in your AUTOEXEC.BAT file, so that *Music Box* may be loaded from any current directory on your system. See your MS-DOS documentation if you are not familiar with the PATH command.

To copy the files, first move to your desired diskette or subdirectory, then use the DOS COPY command to copy the files as follows:

```
COPY B:\MUSICBOX\*.* (assuming the software distribution diskette is in Drive B)
```

No additional preparation is necessary, as *Music Box* will automatically recognize and adapt to your video display and CD-ROM hardware.

13.4 Running Music Box

This section details running *Music Box* both from the MS-DOS command line and from Windows. If you plan to use *Music Box* with Microsoft Windows, skip to Section 13.4.2.

13.4.1 From the MS-DOS Command Line

To run *Music Box* in the graphical non-resident mode, type **MUSICBOX** from your DOS prompt. The memory-resident option is described below, but running *Music Box* first in non-resident mode will help you to learn its functions.

When run from the command line, *Music Box* displays a brief copyright notice, then switches to graphics mode for operation (see Figure 27).

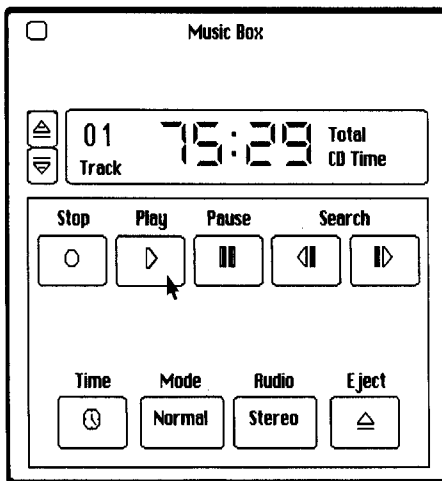


Figure 27 Music Box Command-line Graphical Interface

If you are running *Music Box* with a Hercules-compatible monochrome graphics adapter, you will be asked to confirm the switch to graphics mode.

Now that *Music Box* is running, please skip to *Section 13.5* for a full description of the commands available to you.

13.4.2 Running Music Box with Microsoft Windows

If you wish to use *Music Box* in the Microsoft Windows 3 environment, you should first install *Music Box* as a "Windows Application" in the Program Manager. See your Windows manual for instructions on how to do this. For convenience, you may wish to load *Music Box* automatically, when Windows is loaded, by adding it to the "RUN =" line in WIN.INI. See your Windows manual for information about how to do this.

To start *Music Box* in the Windows environment, simply double-click on its icon to bring up its Main Control Panel (*Figure 28*).

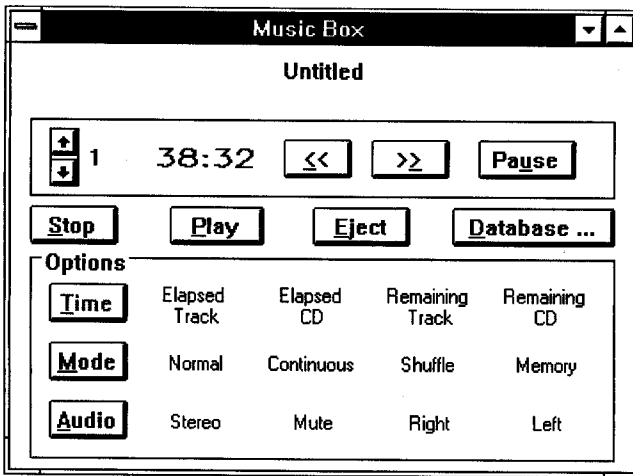


Figure 28 Windows 3 Main Control Panel

Once loaded in Windows, *Music Box* may then be run like any other Windows application, including resizing, moving and minimizing it to an icon. If you are unfamiliar with standard Windows-application functions such as these, see your Windows manual for a complete description. When minimized, the *Music Box* icon will display and update the current time display information. As long as you remain in the Windows environment, *Music Box* will continue to monitor and control the audio operation of your CD-ROM drive.

13 *Music Box* Operation

Please continue with *Section 13.5* for a full description of the commands available to you.

13.5 Learning Music Box

Once running, the graphical command-line version of *Music Box* and the Windows version operate similarly (except for the disc database feature available in the Windows 3 version only, described below in the *Section 13.5.4*) with some differences in their appearance. Refer to *Figures 27* and *28*.

If you haven't loaded a disc, *Music Box* will indicate "no CD" in the display window, and will indicate track #00. If you have loaded a disc with data tracks only (no audio tracks), *Music Box* will indicate "no CD" in the display window, and will indicate track #01. In this event, inserting a disc with audio tracks and clicking on Play will reset *Music Box* and begin play; it is not necessary to exit the program and restart.

Music Box allows you to select any track on your audio disc and play it on your audio-capable CD-ROM drive. If you have loaded a mixed-media disc which also contains digital data, non-music tracks will be skipped and *Music Box* will begin operation at the next available audio track on the CD

Most functions are self-explanatory, and work in a fashion similar to conventional CD audio players, but there are some additional features which are explained below.

Music Box displays the total CD time when it is first activated. To the left of the time display is the Track Number indicator. For an all-audio disc, this will display Track 1 when *Music Box* is first loaded; a mixed media disc will display the number of the first audio track.

To exit *Music Box* at any time, press [Escape] or use your mouse to click on the small "Close Box" in *Music Box's* upper left corner. If the current CD is playing, it will continue to do so until the end of the disc is reached. If you exit and then reload *Music Box*, the current play information is displayed.

13.5.1 Mouse Control

If you have a mouse installed, a mouse cursor will appear (as shown in *Figure 27*) in the graphical command-line and Windows versions, permitting point-and-click interaction with *Music Box*. Operation is very simple—clicking anywhere inside the perimeter of a button will perform the desired function.

13.5.2 Keyboard Control

Whether or not you have a mouse, *Music Box* may also be controlled from the keyboard. In the function explanations which follow, the equivalent key is listed in parentheses, and is usually the same as the first letter of the function.

13.5.3 Music Box Control Functions



Just to the left of the Track Number display are the Track Skip buttons. The upper button (or [Up Arrow] or **U** on your keyboard) will skip forward to the beginning of the next track, the lower button (or [Down Arrow] or **D** on your keyboard) will skip backward to the beginning of the current track on the first click, then back to the beginning of previous tracks with subsequent clicks. Note that if *Music Box* is in Shuffle mode (see **Mode**, below) the **Track Skip** buttons will skip to a randomly-chosen track, not necessarily the next or previous track.



When you click on the **Play** button (**P** on the keyboard), the CD begins playing and the elapsed time of the track you are playing is displayed.



You can change the time display by clicking on the **Time** button (**T** on the keyboard), which has a clock icon displayed on it. Each click will cycle the time display through Elapsed Track Time, Elapsed CD time, Remaining Track Time, and Remaining CD Time. You must be in the Play mode to select these alternate time displays with the **Time** button.



Clicking on the **Stop** button (**S** on the keyboard) will cause the CD-ROM drive to stop playing and to return to the first audio track.



The **Pause** button (or [Spacebar]) will stop at the current play location and resume playing when either the **Pause** or the **Play** button is clicked.



The **Search** buttons will move the play point quickly in either direction. (The **F** or [Right Arrow] to search forward, the **R** or [Left Arrow] key to search in reverse.) If you continue to hold down the **Search** button or key, the search speed will increase and larger jumps between audio segments will be made, up to a maximum of 30 seconds per jump. When the **Search** button or key is released, the CD will continue in Play mode from that point.





The **Mode** button (**M** on the keyboard) allows you to select the various operating modes available as follows:


13 *Music Box* Operation

- Normal—the CD is played starting at track 1 and continuing to the end of the disc.
- Continue—the CD will continuously play through to the end of the disc, then restart from the beginning.
- Shuffle—*Music Box* will randomly play all tracks on the CD before beginning the shuffle play again.
- Memory—*Music Box* will query the disc database for the play order designated (Windows 3 version only).

Note that, when running from the DOS command line, Shuffle and Continue modes require that *Music Box* remain on screen to control CD operation. If either Shuffle or Continue mode is selected, and *Music Box* is closed, the CD will continue sequential play from the current play location to the end of the disc. In Windows, you may resize or minimize *Music Box* without disturbing play operation.

 The **Audio** button (**A** on the keyboard) allows you to select either Stereo, Right, or Left channel output, or you may Mute the output entirely on CD-ROM drives that support these commands. Repeated pressing of this button cycles through the various options.

 The **Eject** button (**E** on the keyboard) will stop playing the disc, and eject the disc carrier on CD-ROM drives that support the Eject function.

 The “Close Box” in the upper left corner ([Escape] on the keyboard) exits *Music Box* and returns you to the MS-DOS command line or Windows, depending on which version you are running. Note that the standard Windows Close Box is used for the Windows version of *Music Box*.

13.5.4 Using the Windows 3 Version

There are a few differences between the Windows 3 version of *Music Box* and the DOS command-line graphical version.

Minimized Icon Display

If you minimize *Music Box* to an icon in Windows 3, the currently programmed play settings will continue to govern operation of the CD-ROM and the icon itself will display and update the time display normally shown in the *Music Box* window (we don't want you to feel left out!).



Fine-Tuning the Windows 3 Version

Music Box "polls" the CD-ROM disc during play mode to update the time and track display information. By default, polling occurs every two seconds, and on slower computers or with slow CD-ROM drives polling can slow down overall Windows performance.

If you discover that some programs are operating sluggishly under Windows when *Music Box* is running, try reducing the polling rate by adding the following to your WIN.INI file using any text editor:

```
[MUSICBOX]
POLLRATE=5000
```

The POLLRATE is expressed in milliseconds; 5000 causes polling to occur every five seconds (instead of the default of two seconds), 10000 would poll every ten seconds, etc.

Disc Database Operation

The **Database** button brings up an additional Windows 3-only *Music Box* feature. The first time you use run the Windows 3 version, *Music Box* will create empty database files on your system, and inform you of this fact. Then, from the Database Control Panel (Figure 29), you can enter CD disc names, track names and play order.

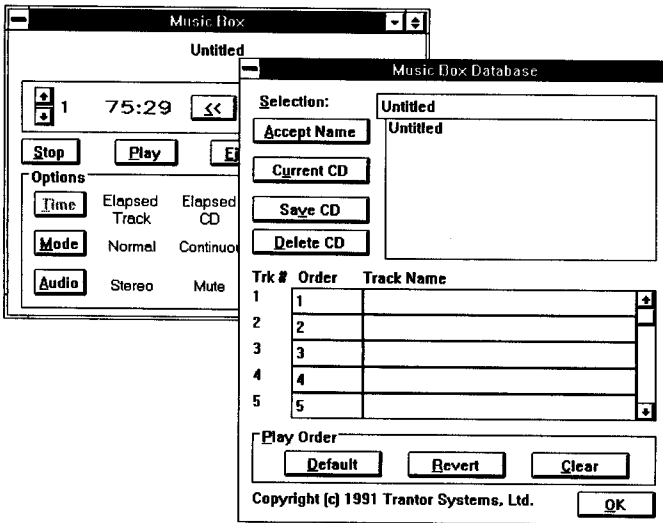



Figure 29 Windows 3 Database Control Panel

13 Music Box Operation

-  To play tracks in the sequence you've set in the Database Control Panel, remember to select the Memory mode by pressing the **Mode** button on the Main Control Panel.

Each CD audio disc has a unique ID that is automatically logged into the database. Additional information such as the number and length of each track is also encoded directly on the disc, but name information is not, so you'll have to manually enter this information into the database (one time only) if you wish to make use of it. To enter a CD into the database, insert the CD into your drive and click on the **Current CD** button. If the CD is not recognized by *Music Box*, it will be given a default name of "Untitled" (see *Figure 29*). This name must be changed for it to be saved into the database, so type a new name into the **Selection** box, then click on **Accept Name**. The CD name is now saved in the database and will be recognized whenever it is inserted and **Current CD** is clicked.

To enter track names and play order into the database, make sure the correct CD is inserted in the drive, then click on **Current CD**. The CD will be recognized and any already existing track information will be displayed. Use the scrollbar and the edit table to change/enter any track name and the play order desired.

The **Default** play order button can be used to reset the play order to sequentially play all tracks in standard order. The **Clear** play order button clears all play order fields; you may then enter a new play-order sequence for any or all tracks. For example, if you click on **Clear** then enter "1" for the third track and "2" for the first track, the Memory mode will play tracks 3 and 1 in sequence—no other tracks will play. As an added feature, you can specify playing track 3 twice for each play of track 1, by entering "1 2" for the third track (make sure a space separates the numbers) and "3" for the first track. To skip a track entirely, make sure the Order column has no entries.

Example

Figure 30 illustrates an example of track resequencing. As shown, *Music Box* will play the disc tracks in the following order:

Track #	1	2	3	4	5
Play Order	3	not played	1 & 2	5 & 6	4

The **Revert** button will read the last-saved play order back into the database, in case you change your mind about the current changes. When you are finished editing the track name and play order list, click on the **Save CD** button to save the track list and play sequence permanently.

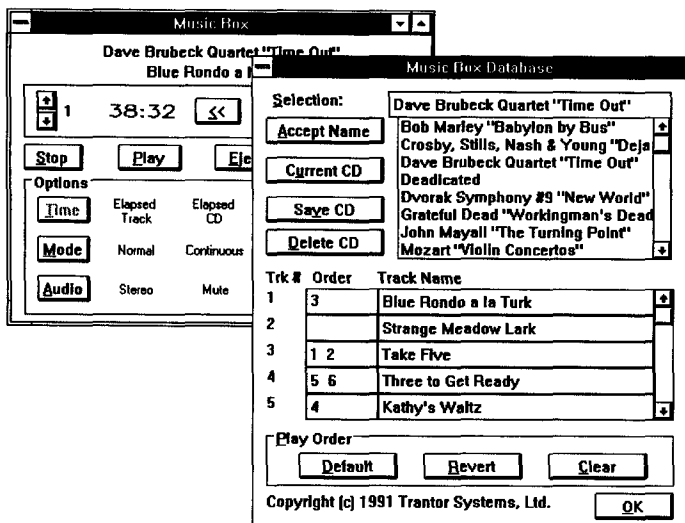



Figure 30 Database Entries, with Track Resequencing

Over time, you'll probably enter a number of disc titles into the database. These will appear in the name-list box, with a scrollbar if necessary to accommodate a large number of discs (Figure 30). CDs other than the current one in the drive may be edited by clicking on the desired CD in the name-list box. The **Delete CD** button will delete the selected CD from the disc database. If the CD being deleted is the selected CD then the reserved name "Untitled" will be created for that CD. The name of a CD may be changed by selecting the desired CD, typing a new name, and clicking on the **Accept Name** button.

When you're finished editing the database, close the database control panel by clicking on OK or using the Close Box provided in the upper left corner.

13.5.5 Running Music Box in Memory-Resident Mode

You may choose to load the DOS version of *Music Box* as a *Terminate and Stay Resident* application (referred to as "*Music Box TSR*"). When memory-resident, *Music Box TSR* occupies about 18 KB of memory, and once loaded, may be invoked at any time, even while running other applications (except Windows).

 *Music Box TSR* should not be used if you run Microsoft Windows, as Windows inhibits the keystrokes necessary to operate *Music Box TSR*. Use MBOXWIN instead.

13 *Music Box* Operation

There are two ways to load *Music Box TSR*: either directly into memory from the MS-DOS command line, or while simultaneously invoking the standard graphical interface.

- If you choose to load *Music Box TSR* at the same time you invoke the graphical interface, simply type **MUSICBOX** with one of the command-line switch options shown below.
- If, however, you wish to load *Music Box TSR* directly into memory, type **MBOXRES**, optionally adding one of the command-line switches shown below. Loading *Music Box TSR* in this manner returns you directly to the DOS command line, and is particularly useful for loading *Music Box TSR* from a batch file, such as AUTOEXEC.BAT.

Note that MBOXRES.OVL, included on your *Music Box* diskette, must be available either in the current directory, or via the PATH command of MS-DOS, for *Music Box TSR* to load properly.

The command line switch options for *Music Box TSR* are as follows (note that either upper or lowercase characters are acceptable):

/R to make *Music Box* memory-resident. The “hotkey” is the key combination which, when pressed, suspends your current application and invokes *Music Box TSR*. [Ctrl]-[Left Shift]-[Tab] is the default hotkey. Note that all three keys must be pressed simultaneously. This switch is the default when MBOXRES is executed.

/Rx to change the resident version’s “hotkey” combination from the default of [Ctrl]-[Left Shift]-[Tab], where x is the keyboard character desired (allowed characters are A-Z and 0-9). The chosen character is always used in conjunction with [Ctrl]-[Left Shift].

For example:

MUSICBOX /R

invokes *Music Box* in memory-resident mode, with the default [Ctrl]-[Left Shift]-[Tab] hotkey, then presents the graphical interface. When you exit the graphical mode, *Music Box TSR* remains in memory.

MUSICBOX /RM

invokes *Music Box* in memory-resident mode, with the hotkey set to [Ctrl]-[Left Shift]-**M**, then presents the graphical interface. When you exit the graphical mode, *Music Box TSR* remains in memory.

MBOXRES /R

invokes *Music Box* in memory-resident mode, with the default [Ctrl]-[Left Shift]-[Tab] hotkey, then immediately returns you to the MS-DOS command line prompt. This is equivalent to typing **MBOXRES** by itself, as the **/R** switch is assumed.

Music Box

MBOXRES /R5

invokes *Music Box* in memory-resident mode, with the hotkey set to [Ctrl]-[Left Shift]-5, then immediately returns you to the MS-DOS command line prompt.

Note that if you wish to change the hotkey combination after *Music Box TSR* has been loaded, you must first completely unload *Music Box TSR* (with the [Ctrl]-X command), then reload it with your new hotkey selection. If you attempt to load *Music Box TSR* with a different hotkey when *Music Box TSR* is already loaded, the new loading attempt will be ignored.

13.5.6 Music Box TSR Commands and Audio Interface

In memory-resident mode, *Music Box TSR* uses audio feedback, rather than a screen display, to convey information (that's why you don't get any pretty screen illustrations in this section). This method allows *Music Box TSR* to operate in conjunction with virtually any non-Windows application you may be running, including programs that run in graphics mode, and greatly reduces the amount of memory needed to remain resident.

When the hotkey combination is pressed, *Music Box TSR* responds with a series of descending tones to inform you that it is in operation. Until you exit back to your application (with the [Escape] key), *Music Box TSR* will either execute CD-ROM audio commands or respond with a low error tone if an inappropriate key is struck. When a keystroke command is entered, *Music Box TSR* acknowledges it with a tone.

When running, *Music Box TSR* uses the same keyboard commands as those which are allowed in the non-resident graphical mode:

P	begin or resume play
S	stop playing and return to track 1
[Spacebar]	pause or restart play
U or [Up Arrow]	skip to next track
D or [Down Arrow]	skip to beginning of the current or previous track
F or [Right Arrow]	search in the forward direction
R or [Left Arrow]	search in the reverse direction
E	stop play and eject the CD disc
M	cycle through the various Mode options
A	cycle through the various Audio options

Note that the Time command is not functional in TSR mode, as there is no information display.

13 *Music Box* Operation

There are also two special keystrokes for use with *Music Box TSR*:

[Escape] to exit *Music Box TSR* back to your application
[Ctrl]-**X** unloads *Music Box TSR* from memory (see below)

13.5.7 Unloading *Music Box TSR*

To unload the memory-resident version of *Music Box* from memory, press [Ctrl]-**X** (i.e. hold down [Ctrl] while pressing **X**) while you are at the MS-DOS command line level and *Music Box TSR* is running. Note that *Music Box TSR* must be the last memory-resident application loaded into memory in order to unload it, to avoid disturbing the operation of other memory-resident programs. Otherwise, *Music Box TSR* will be disabled, but will still occupy memory space. An attempt to unload *Music Box TSR* from within another application will be ignored.

13.5.8 Reloading *Music Box TSR*

If *Music Box TSR* has been removed from memory or disabled via the [Ctrl]-**X** keystroke, you may reload it at any time. If disabled, reloading will re-enable *Music Box TSR*, otherwise the reloading will place *Music Box TSR* back in memory. Reloading will never cause more than one copy of *Music Box TSR* to be in memory at any time. Refer to *Section 13.5.4* and *13.4.2* for information on .INI files.

13.6 *Music Box* Troubleshooting

Refer to *page 59* for further technical support; be sure to use the Troubleshooting Form located on that page.

*The Windows Version of *Music Box* Doesn't Recognize My CD-ROM*

- First, make sure that your CD-ROM drive is properly installed and configured and that MSCDEX has been loaded. If the CD-ROM is installed and operating properly, you should be able to use the MS-DOS DIR command with the CD-ROM drive when a data disc is loaded.
- If you believe your CD-ROM drive is installed properly, try running the command-line version of *Music Box* by typing **MUSICBOX**. If this version operates properly, your CD-ROM drive installation is operating correctly.
- Make sure you are not attempting to use the standard DOS version of *Music Box* (MUSICBOX.EXE) from within the Windows environment. To operate properly with Windows, you must use the Windows-only version (MBOXWIN.EXE).

When Music Box is Running, Windows Operation Seems Sluggish

This is probably due to the polling rate of the Music Box time and track information display. See *Section 13.5.4* for details of how to change the polling rate.

Tape Mate II

Tape Backup Software

Tape Mate II

14 Tape Mate II Introduction

This section contains installation, configuration, and operational instructions for **Tape Mate II** SCSI Tape Backup Software. This chapter is an introduction to *Part III*.

14.1 Product Description

Tape Mate II is a powerful archiving and data management system designed for single-user computer systems. **Tape Mate II**'s backup, file restore and verify capabilities can minimize the amount of time that is spent protecting data, while increasing the level of protection. **Tape Mate II** provides the flexibility of backing up or restoring all or part of one or more disk drives. Operations can be performed in attended or unattended modes.

14.1.1 Hardware Support

Tape Mate II supports a wide range of hardware devices and media including fixed and removable disk, tape, DAT, and magneto-optical drives. Any device (fixed and removable hard disk, and optical drive) that has an MS-DOS drive designation is supported through an MS-DOS driver. **Tape Mate II** supports tape drives through SCSI interface cards. Nearly every SCSI 1/4-inch cassette and DAT drive made is supported. Please review the SUPPORT.LST file on your distribution diskette for currently supported devices.

14.1.2 Product Features

Mouse Support	Tree Select
Verify to Source	Quick File Access
Open File Log	Create Subdirectories
Batch Operation	Backup Empty Directories
Script Editor	Volume/Session Database
Multiple Sessions Per Volume	Data Encryption
Multiple Volumes Per Session	Session Passwords
Skip/Retry Open Files	Session Retention Date
Automated Script Processing	Unattended Operation
Job Status Displays and Reports	

14.1.3 Operational Features

There are many **Tape Mate II** features that make the program easier to learn and use which are consistent with common PC usage patterns. These features include mouse support, dialog boxes, and on-line help.

Backup Operation

To backup files, **Tape Mate II** has a wealth of file selection options. Global and wild card options; before, after, and between dates; exclusion or inclusion lists; and Archive flag setting or by entire directories can be used for selecting files to be backed up. **Tape Mate II** also allows the backup of system files and empty directories. After selecting the files, the selection can be previewed. Backup volumes can be appended, and there is no limit to the number of volumes (tape cartridges) used in a single session (a single backup operation). When performing a Backup Operation, **Tape Mate II** provides a write retention date option to prevent the possibility of accidentally overwriting a piece of valuable media.

Restore Operation

Tape Mate II allows files to be restored using the same file selection parameters as those available for the Backup Operation. Additionally, there are two operational features and several runtime options including restore newest file, restore read only files, restore empty directories, and prompt user on file overwrites. The operational features include a tree select option and Quick File Access (QFA). Using the tree select feature allows you to specify files and/or directories to be restored. If an archiving device supports QFA, then a higher-speed file retrieval results. **Tape Mate II** will also create directories as needed.

Verify Operation

After a Backup or Restore Operation, a Verify Operation can be performed. **Tape Mate II**'s Verify Operation is a bit-by-bit verification between the data on the archive media and the source (Backup) or destination (Restore) data.

Job Status Displays and Reports

A history file shows details of operation activity including an "open file" and "retry" log. The task of keeping an accurate record of the contents of each archive volume becomes infinitely easier when using **Tape Mate II**'s Volume/Session database. This database keeps track of each volume by recording such information as the names of all the sessions on the volume.

Security Features

Tape Mate II has many unique security features. Session passwords are provided for Backup, Restore, and Verify Operations. Files can also be encrypted for additional security.

15 Installation and Configuration

This chapter describes how to install and configure **Tape Mate II**. Be sure to consider the items listed in *Section 15.1* prior to installing it.

15.1 Before You Begin

Before installing the **Tape Mate II** software, perform the following:

1. Read the contents of the TMT_READ.ME file on the **Tape Mate II** distribution diskette. If included, this file contains information about recent changes that may not be included in this manual. Read it by inserting the **Tape Mate II** distribution diskette in drive A (for example) and entering the following command.

TYPE A:TMT_READ.ME [Enter]

2. Verify that your archiving device is supported before installing the device or **Tape Mate II**. A list of supported devices is given in SUPPORT.LST and TMT_READ.ME files on your distribution diskette.
3. Verify that system requirements have been met (see *Appendix A*).
4. Install the archiving hardware prior to installing the **Tape Mate II** software to ensure successful installation.

15.2 Software Installation

Follow these instructions for installing **Tape Mate II**:

1. Insert the Program Diskette in drive A (or B, as appropriate) and type the following command on the DOS command line:

A: [Enter]

2. Enter to following command to run the installation program:

INSTALL [Enter]

3. Enter the Target Drive ID to specify the drive which **Tape Mate II** is to be installed.
4. Enter the Target Path ID to specify the directory to contain **Tape Mate II**. If the directory does not exist, the install program will request verification to create the directory.
5. Enter the Company Name and User Name to whom the software will be registered.
6. The AUTOEXEC.BAT file prompt requests verification to modify the file so that **Tape Mate II** is easier to use. Enter YES to modify the PATH environment variable to include the new DRIVEDIRECTORY specifications and include the BREAK ON

command to permit proper use of [Ctrl]-[Break]. The original file is copied and stored in a file called AUTOEXEC.SAV.

7. The CONFIG.SYS file prompt requests verification to update this file to add the following two lines:

```
FILES=20  
BUFFERS=20
```

These values are minimums. If the current values are larger than 20 **Tape Mate II** will not make any changes. If changes are made, then the original CONFIG.SYS file will be copied and stored in a file called CONFIG.SAV.

8. Re-boot the system before using **Tape Mate II**.

15.3 Software Configuration

Before **Tape Mate II** can be used, the type of archiving device (i.e. tape drive, floppy drive, etc.) must be defined. Run **Tape Mate II** by typing the following command on the DOS command line (if the AUTOEXEC.BAT file was not updated, then first change to the directory containing **Tape Mate II**):

```
TMATE [Enter]
```

When you run **Tape Mate II** for the first time, a message displays on the screen indicating that the configuration file cannot be found. Press [Esc], and **Tape Mate II** will automatically open the correct dialog boxes to define the archive device(s). *Chapter 22* contains detailed information on how to set these parameters.

If you run **Tape Mate II** the first time and the screen is distorted, press [Ctrl]-[Alt]-[Del] to reboot the system. Enter **Tape Mate II** again and enable the Force Monochrome Display option by typing the following at the DOS prompt::

```
TMATE /MONO [Enter]
```

Change the Force Monochrome Display option to **YES** on the Global Configuration Parameters screen (Configuration menu). Otherwise, the next time you run **Tape Mate II**, the same problem will occur.

16 Getting Started

This chapter provides general information on using **Tape Mate II** including entering and exiting the main menu. The *Section 16.7* defines several terms you need to understand when reading this manual and using **Tape Mate II**.

16.1 Entering Tape Mate II

Enter **Tape Mate II** by typing the following command on the DOS command line:

TMATE [Enter]

After entering this command, the company name, user name, and serial number of **Tape Mate II** briefly displays and then the main menu displays.

16.2 Learning About the Screen

There are two parts of the main menu: the information header and the operation/menu bar. The Information Header contains the name of the application, the version number, the day of the week, the date, and the current time. The Operation/Menu Bar is a horizontal list of operations and menus. There are four operations: Backup, Restore, Verify, and Quit; and two menus: Utility and Configuration. When an operation is selected, a dialog box displays to define the options and parameters available. A menu contains a list of options or utilities.

Select operations, menus, items, or fields in one of the following ways:

1. Press the first or bolded letter of the operation, menu name, or item (press **B** for Backup). These bolded or highlighted letters are called "hotkeys."
2. Use the [Left Arrow], [Right Arrow] or [Tab] keys to move the cursor from title to title or field to field. Press [Enter] to open the highlighted option.
3. Move the mouse to point and click on an operation title or menu title. Click the left mouse button to perform the desired function.

16.3 Keyboard Keys

The keyboard keys that perform special functions in **Tape Mate II** dialog boxes are described as follows; these options appear at the bottom of each screen when available:

- | | |
|------|---|
| [F1] | displays a help screen on a highlighted field |
| [F2] | initiates or executes the operation; saves the information entered in the desired field or screen |

- [F3] updates the Storage Location field (*Chapter 21*) after a new location has been entered
- [F4] lists volumes (*Chapter 21*)
- [F5] marks or unmarks a selection to be modified or deleted.
- [F7] closes the dialog box without performing the operation
- [F8] displays the Delete Database Records dialog box (*Chapter 21*).
- [F9] prints a report on screen or to the printer connected to LPT1
- [Arrows] moves the cursor through the fields
- [Escape] closes the dialog box without making any changes
- [Enter] selects the entry; accepts text entered in a field and moves the cursor to the next field; allows you to modify the marked item.
- [Tab] moves the cursor to the next field
- [Ins] adds another path and file specification to a list.
- [Del] delete the highlighted path and file specification

16.4 Entering Information

Whether performing an operation (Backup, Restore, etc.) or setting program parameters, **Tape Mate II** displays dialog boxes that require user input. Where applicable, a default answer is provided and can be changed once the field is highlighted.

If the field requires a YES or NO answer, simply press **Y** or **N** as desired. If the field requires an ENABLE or DISABLE entry, then press **E** or **D** to enable or disable the function.

If the field requires the input of a name, like a password or a file name, then highlight the field and type in the new name. Default entries can be typed over.

Some fields require a selection to be made from a second dialog box. This additional dialog box displays by highlighting the field and pressing [Enter] or by clicking on the field with the mouse. Highlight an item and then press [F2] to select the item from the list provided in the second dialog box. Multiple items can be selected in some dialog boxes by highlighting each item and pressing [F5]. In some cases, highlight the choice and press [Enter] to select from the displayed list.

16.5 Quitting Tape Mate II

On the right-hand side of the main menu is a Quit title. To quit **Tape Mate II**, highlight the Quit title by using [Tab] or the [Arrow] keys and press [Enter] to display the Exit **Tape Mate II** dialog box.

16.6 Using the Mouse

A mouse compatible with the Microsoft Mouse Interface can be used within **Tape Mate II** to highlight and select items in dialog boxes. The mouse can also be used to open menus and select items from the menu by

pointing to the item and clicking the left mouse button. Press the right mouse button to escape back to the previous menu without saving information.

Some dialog boxes have a horizontal list of key definitions that are located and displayed across the bottom of the dialog box. These key definitions are also mouse buttons. Click on one of these mouse buttons or press the defined key to execute the function. For example, to save the new data entered in a dialog box, press [F2]; or place the mouse cursor over the F2=Save designation and press the left mouse button.

An exception to this is when the key definitions appear in reverse video (white background with black letters), then those definitions are not mouse buttons, and the designated key must be pressed.

16.7 Terms You Should Know

This section contains definitions of words that are important to understand when reading *Part III* of this manual.

Click(ing)

“Click” or “clicking” means positioning the mouse cursor on the item to be selected and pressing the left mouse button.

Dialog Box

“Dialog box” is a notation used in the **Tape Mate II** documentation to describe the various boxes (windows) that appear on screen as a result of selecting an item or field. These boxes may contain information, questions that require answers, options to be enabled or disabled, or a list of items to choose from. Dialog boxes are typically closed by pressing [F2], which saves the entered information. Press [F7] to close a dialog box without saving any changes.

Highlight

When the term “highlight” is used, it means to use the [Arrow] keys or [Tab] to move the cursor to another location. When a dialog box is displayed on screen, one field is usually highlighted.

Select(ing)

When the word “select” is used in an instruction, it means to highlight the item and press [Enter]. Some dialog boxes have fields that require input from another dialog box.

16.8 Do's and Don'ts in Tape Mate II

The following list of things are guidelines that will help avoid costly and time-consuming mistakes:

1. Do not wait until you really need it to run a Restore Operation. Perform a small test backup with your computer running in its everyday configuration. Restore files to a different directory and run the DOS COMPARE command on the original and restored data.
2. Use **Tape Mate II** as a fast way of transferring files between computers.
3. Retest **Tape Mate II** after installing any new memory-resident software.
4. Run the DOS CHKDSK command before backing up. If any files have been corrupted, then use a disk utility to recover at least some of the data. More of the data may be able to be recovered from the set of old backup disks that are about to be overwritten.
5. Do at least two fresh backups (and verifies) before formatting or replacing a hard disk.
6. Set up a backup media rotation schedule and keep a set of backup archive media at an off-site location.

17 Backup Operation

There are two types of Backup Operations: Attended and Unattended. The Attended Backup Operation is performed in an interactive mode with user input in the Backup Parameters dialog box. An Unattended Backup Operation is performed using a script file without operator intervention and is discussed in *Chapter 20*. This chapter describes how to perform an Attended Backup Operation.

17.1 Setting the Configuration Parameters

Prior to performing a Backup Operation, the local and global configuration parameters must be set using the selections on the Configuration menu. All of the configuration parameters are saved in a configuration file after being set for the first time or when changes are subsequently made. If these parameters have previously been set, then a Backup Operation can be performed.

If these parameters have not been set, or if the settings need to be changed for any parameter, refer to *Chapter 22* for additional information.

17.2 Setting the Backup Parameters

The Backup Operation has several parameters that must be set in the Backup Parameters dialog box before executing. Highlight the **Backup** title on the main menu and press [Enter], and the Backup Parameters dialog box displays as shown in *Figure 31*.

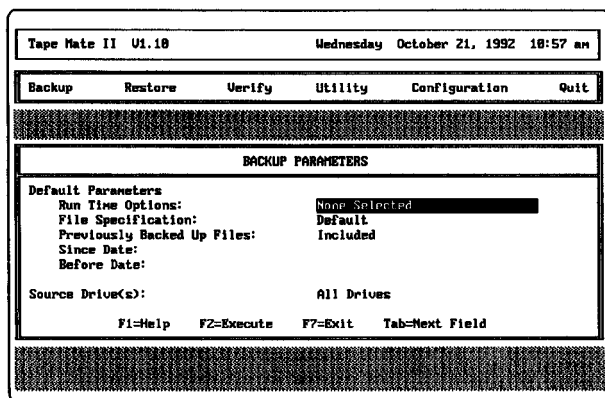


Figure 31 Backup Parameters Dialog Box

17.2.1 Default Parameters

There are five default parameter fields. The information entered in these fields is only used if a selected drive does not have a specific set of backup parameters defined. When a drive is selected to be used in a Backup Operation, a Drive ? Backup Parameters dialog box displays (where ? is replaced by the drive letter). This dialog box is used to specifically define backup parameters for a single drive. When a second drive is selected, the Drive ? Backup Parameters dialog box displays again, which allows a whole new set of specifications to be defined. Therefore, the file criteria, options, and parameters selected for each drive can be different.

The default parameters are used for any selected drive where no specific parameters are defined. In other words, a drive can be selected, but if the specific parameters are not defined, then the default parameters will be used for that drive. If all drives are to be backed up in the same way, it may be easier to define the default parameters on the main Backup Parameters dialog box.

For clarity and indexing purposes, the five default parameter fields have "Default" added to the beginning of the section title for each of these fields. Since these same fields appear on the Drive ? Backup Parameters dialog box and make reference from one section of information to the other, it was necessary to have different section titles.

Default Run Time Options

Highlight this field, Default Run Time Options, and press [Enter] to display the Backup Run Time Options dialog box as shown in Figure 32.

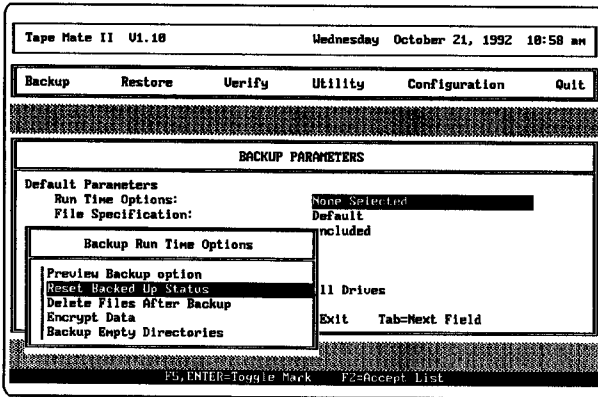


Figure 32 Backup Run Time Options Dialog Box

17 Backup Operation

When one of the run time options is selected, the letter representing that option displays on the Backup Parameters dialog box. The options and the letters that represent the options are listed below:

P	Preview Backup Option
A	Reset Backed Up Status
D	Delete Files After Backup
E	Encrypt Data
Y	Backup Empty Directories

More than one run time option can be selected; and **Tape Mate II** will allow most combinations. When a combination of options has been selected that is not allowed, a message displays indicating the options are not compatible. **Tape Mate II** then disables one or more of the options.

Use [F5] or [Enter] to select options. Press [F2] to close the dialog box and save the list of options. Each of the options are described in the following paragraphs.

Preview Backup Option—allows the Backup Operation to be performed without affecting the source data or writing to the archive media. It provides a way to validate the selected options. Only the Backup Empty Directories option can be selected when the Preview option is selected. Otherwise, an error message displays, and one or more of the options are disabled.

Reset Backed Up Status—resets the Archive flag for each file as it is backed up. When a file is modified, DOS sets the Archive flag. This option follows the DOS design to indicate whether a file has been modified since the last backup.

If this option is selected as a run time option, then the Archive flag for each file will be reset when the file is backed up. If this option is not selected, then no change will be made to the Archive flag for each file. See *page 94*.

Delete Files After Backup—provides the ability to “relocate” data to a new drive or purge old files from a selected drive. **Tape Mate II** provides the facility to delete the original data upon the completion of a successful backup. Because this option results in the destruction of data, you are prompted to verify this selection.

Encrypt Data—encrypts the data being stored on the archive media for security purposes. The encryption is performed at the data source and no unencrypted data is either transmitted over a LAN or stored on the archival media. The encrypted data is automatically unencrypted when it is restored using the Restore Operation.

Backup Empty Directories—backs up empty directories/subdirectories.

Default File Specification

Highlight this field and press [Enter] to display the default File Specification dialog box as shown in *Figure 33*.

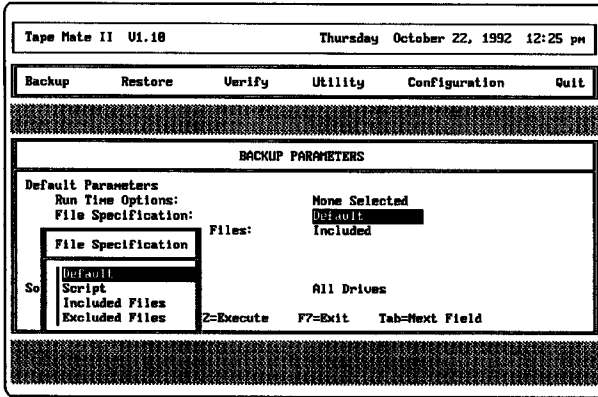


Figure 33 File Specification Dialog Box

There are four options in this dialog box: Default, Script, Included Files, and Excluded Files. These options are used in determining the directories, subdirectories, and files that are to be used in the Backup Operation for any drive that is not specifically defined. Any file selection criteria that is defined for a specific individual drive takes precedence over options selected in the default File Specification dialog box. The four options in this dialog box are described in the following paragraphs.

Default—If the Default option is selected, then all files meeting the other specifications entered in the Backup Parameters dialog box are used in the Backup Operation. These specifications include the contents of the Source Drive(s), date criteria (Since and Before Dates), and the Previously Backed Up Files fields. If the default file specifications are used, then the Source Path is assumed to be the root directory. If the file selection criteria has been defined for any individual drive specified in the Source Drive(s) field, then those specifications take precedence.

Script—If the Script option is selected, then the contents of the specified attended script file determine which files will be used in the backup for any drive where the file specification was not specifically defined. A script file is an ASCII text file that contains INCLUDE and EXCLUDE commands. These commands emulate user input on the Inclusive and Exclusive File Selections lists. If the same include and exclude lists are frequently used, then using a script file saves the time of re-entering the same path and file specifications each time the operation is performed.

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When this option is selected, a dialog box displays listing all the attended script files as shown in *Figure 34*. Note that these script files have .NSS extensions. Select the script file to be used in the operation.

Tape Mate II U1.10 Thursday October 22, 1992 12:25 pm

Backup Restore Verify Utility Configuration Quit

Default Parameters

Run Time Options:

File Specification:

File Specification

Default Script

Included Files

Excluded Files

Script Selection List

SCRIPT1.NSS

SCRIPT2.NSS

Next Field

Figure 34 Script Selection List Dialog Box

If there are no script files and the Script mode is selected, a message displays indicating that there are no script files in the list.

Included Files—This mode is used to generate a list of path and file specifications for any drive where the file specification was not specifically defined. Highlight this mode and press [Enter]. The two dialog boxes shown in *Figure 35* display on screen.

Tape Mate II U1.10 Wednesday October 21, 1992 10:58 am

Backup Restore Verify Utility Configuration Quit

Inclusive File Selections

Path and File Name

ENTER Accept Exit

Figure 35 Include Files Dialog Boxes

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The dialog box in the foreground is labeled Path and File Name. This dialog box requires a full path and file name specification. The following examples show the type of path and file name specifications that can be entered in this dialog box:

```
\*.*  
\*.C  
\TMATE\*.EXE  
\TMATE\FILE.NAM
```

This dialog box is used for generating a list of files (one path and file specification at a time) to include in the Backup Operation. Path names including subdirectories can be entered in this dialog box. As shown above, DOS wild card characters can be used to include complete groups of files or just files with the same file name extension.

After entering a path and file specification, press [Enter]. The Path and File Name dialog box closes, and the Process Subdirectories dialog box displays. See *Figure 36*.

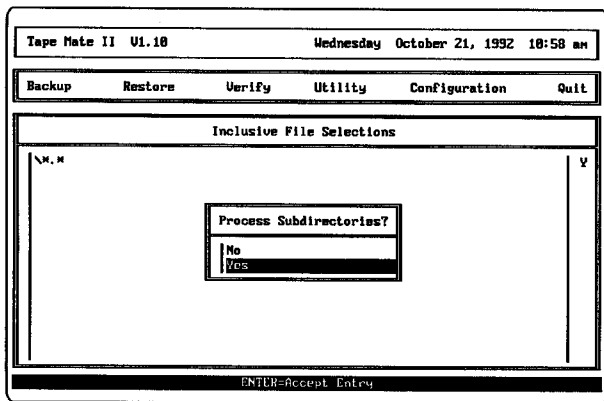


Figure 36 Process Subdirectories Dialog Box

This dialog box inquires whether the subdirectories of the specified path should be included in the operation. If YES is entered, then the subdirectories and the files of the entered path and file specification are included in the Backup Operation. If NO is entered, then only the contents of the path and file specification entered in the Path and File Name dialog box will be backed up.

Select either YES or NO and press [Enter]; this will add the path and file specification to the list in the Inclusive File Selections dialog box. A

17 Backup Operation

column on the right side of the screen indicates whether subdirectories will be included. See *Figure 36 (above)*.

To add another path and file specification to the list in the Inclusive File Selections dialog box, press [Ins]. Repeat this process until the list in the Inclusive File Selections dialog box defines the directories and files that are to be used in the Backup Operation.

Delete path or file name specifications from the list by marking them using [F5] and pressing [Del]. A confirmation message displays requesting verification for the deletion.

To modify a path and file specification after it has been added to the Inclusive File Selections list, highlight the selection and press [Enter]. Make any required changes and press [Enter]. At the Process Subdirectories dialog box displays, select either YES or NO and press [Enter].

The list that is generated in the Inclusive File Selections dialog box, from the input entered in the Path and File Name dialog box, is used in the Backup Operation. When the list is complete, press [F2] to accept and save the list. The Inclusive File Selections dialog box closes and the File Specification dialog box displays.

Press [F2] to close the File Specifications dialog box and return to the Backup Parameters dialog box. Or, highlight and select the Exclude Files mode to create a list of files to exclude from the Backup Operation.

Excluded Files—The Excluded Files mode is used to exclude files from the list generated in the Include Files mode, or exclude files or directories from the default list of files used when the file specification is not defined for a specific drive. When this mode is selected, a dialog box labeled Exclusive File Selections appears on screen.

The list generated in this dialog box is compared to the list generated in the Inclusive File Selections dialog box. Any file specifications appearing on both lists will be excluded from the Backup Operation.

Adding, deleting, and modifying a path and file name specification to the list generated in the Exclusive File Selections dialog box is identical to that previously described in *Included Files*, see *page 91*.

The Included Files and Excluded Files modes can be used in conjunction. This feature adds flexibility in specifying the files to be backed up. When lists are generated in both the Included Files mode and the Excluded Files mode, then the Inclusive File Selections list is compared with the path and file specifications on the Exclusive File Selections list. A new list is generated from the comparison that removes any file or path name that

appears on both lists. This generated list is then used in the Backup Operation.

Default Previously Backed Up Files

The advantage of using this feature is to reduce the amount of time required to perform a Backup Operation by only backing up those files that have been modified since the last backup. If the files have not been modified since the last backup, then they do not need to be backed up.

This option permits “intermediate” Backup Operations. The field for this option is toggled between INCLUDED and NOT INCLUDED by pressing **I** or **N** or pressing [Enter].

If INCLUDED is selected, then all files meeting the drive, path name, and path and file specifications listed in previous fields will be backed up. The setting of the Archive flag for each file is ignored.

If NOT INCLUDED is selected, then the program looks at the Archive flag for each file that meets the drive, path name, and path and file specifications listed in previous fields. Only the files that have changed since the last backup, where the Archive flag is set, are used in the Backup Operation. If the Archive flag is cleared, then the file has not been modified since the last backup, and therefore the file is skipped.

The state of this option has no effect on the Reset Backed Up Status option that resets the Archive flag. However, the setting of the Reset Backed Up Status option does have an effect on the Default Previously Backed Up Files option; refer to *Figure 32*.

There are two types of intermediate backups: differential and incremental. The setting of the Reset Backed Up Status option determines which type of intermediate backup is performed. Both types of intermediate backups are based on the setting of the Archive flag, and only those files with the flag set are backed up. When an incremental backup is performed, the Archive flag for each file is cleared after the file is backed up. With a differential backup, the Archive flag is not reset.

A differential backup will take longer to perform as each day everything that has changed since Monday will be backed up. However, the restore procedure will be quicker as only two sessions will need to be restored. The full backup is restored first and then the last daily differential backup is restored. Restoring these two sessions will rebuild the system as completely as possible.

An incremental backup will take less time each day, since only those files that have been changed that day will be backed up. However, the restore procedure will take longer since the full backup from Monday will have to

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be restored and then each incremental backup from the intervening days (Tuesday, Wednesday, and so on) will need to be restored.

Default Since Date

This field is used as a default for any drive where the file selection criteria was not specifically defined and is used for backing up files within a certain time frame. For any valid date entered, the default selection of files to be backed up will be confined to those files that have dates the same as or more recent than the specified date. The format for specifying this date is (MM/DD/YY).

Example—To enter the date October 20, 1992, type 10/20/92 in the field. Preceding zeros are not required for single digit days or months.

Default Before Date

This field is also used as a default for any drive where the files selection criteria was not specifically defined and is used for backing up files that were created or modified prior to a specific date. For any valid date entered, the selection of files to be backed up will be confined to those files that have dates equal to or prior to the date specified. The format for setting the date is (MM/DD/YY). Refer to the example given in the previous section.

The Since Date and the Before Date options can be used together to select a narrow range of files to backup. If the date specified in the Before Date field is more recent than the date specified in the Since Date field, then only the files with dates the same as or between the two specified dates will be used in the Backup Operation.

17.2.2 Source Drive(s)

The Source Drive(s) field allows more than one drive to be specified and used in the Backup Operation. Select **Source Drives** and the Select Drive to Add dialog box displays containing a list of the valid drives. Select the drive letter and press [Enter], the drive will appear in the Selected Drives dialog box (see *Figure 37*). A second drive can be added to the list by pressing [Ins], selecting another drive, and pressing [Enter].

Press [Enter] again when a drive name is highlighted in the Selected Drives dialog box and the Drive ? Backup Parameters dialog box displays. This dialog box is used to set the different file selection criteria for the selected drive (see *Figure 38*).

The Source Path and Tree Select options are the only parameters in the Drive ? Backup Parameters dialog box that differ from the Default Parameters previously described. The remaining parameters function in the same manner as the Default Parameters described earlier in this chapter.

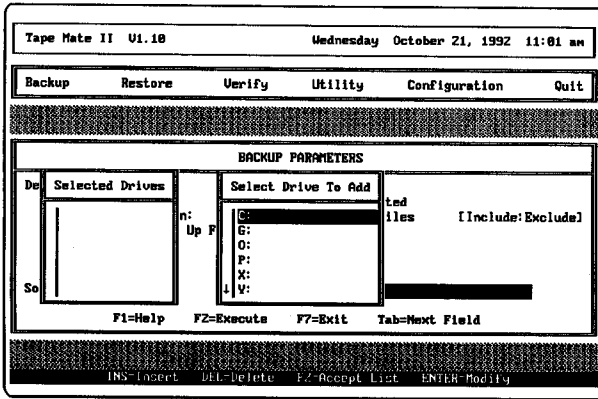


Figure 37 Select Drive to Add Dialog Box

Source Path

Enter the path name from which the Backup Operation is to begin copying data for this drive. The root directory is the default for this field, which will result in the entire drive being backed up. If you want only part of a drive backed up, then enter a specific path name in this field.

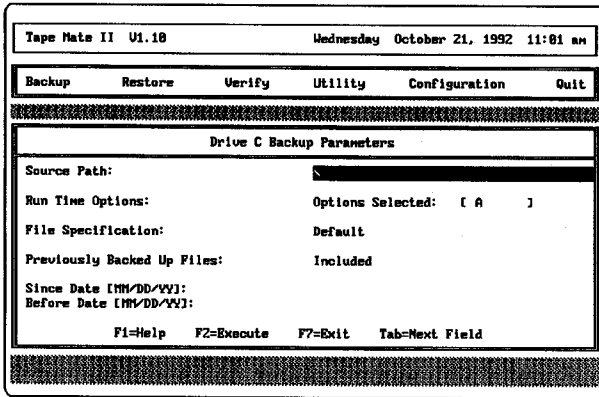


Figure 38 Drive C Backup Parameters Dialog Box

Tree Select

Once you have specified the drive, the File Specification Dialog Box will allow you to select your files to be backed up on the drive. This dialog box contains four options: Default, Include Files, Excluded Files, and Tree Select. These options are used in the same manner as the options described in Section 17.2.1, *Default File Specification*. However, The options in this

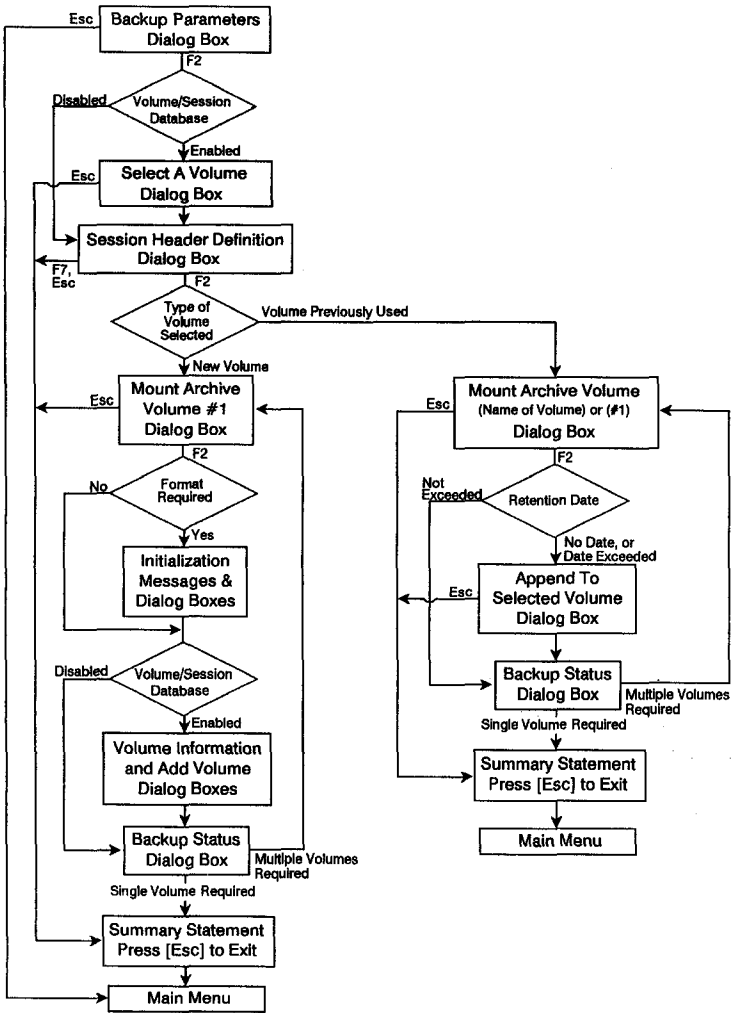


Figure 40 Backup Operation Flow Chart

This sequence includes dialog boxes for initializing the media, if required, and creating a volume header for the volume. The sequence of dialog boxes on the right is for media that has already been used by **Tape Mate II**. If a volume has already been used by **Tape Mate II**, then the append dialog box may display depending upon the retention date.

17.3.1 Select a Volume Dialog Box

This dialog box is used for selecting the volume to be used in the Backup Operation. If the volume has never been used by **Tape Mate II** before, then select **New Volume**. If the Backup Operation is to be appended to a volume that has previously been used by **Tape Mate II**, then select the volume name from the list.

With the **Volume/Session Database** enabled, press [F2] from the Backup Parameters dialog box and the Select a Volume dialog box appears. If the **Volume/Session Database** is disabled, then this dialog box will not display. The next dialog box that appears is the Session Header Definition dialog box, regardless of whether **New Volume** or a specific volume title is selected in this dialog box as shown in *Figure 41*.

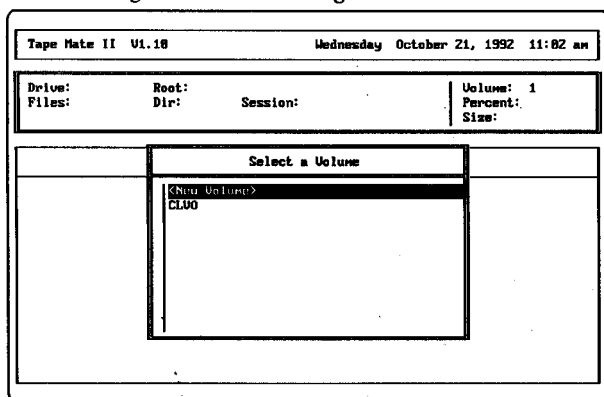


Figure 41 Select a Volume Dialog Box

The selection made in the Select a Volume dialog box determines which Mount Archive Volume dialog box displays after the Session Header Definition dialog box. It also determines which sequence of dialog boxes on the flow chart will follow.

17.3.2 Session Header Definition Dialog Box

With the **Volume/Session Database** disabled, press [F2] from the Backup Parameters dialog box and the Session Header Definition dialog box appears as shown in *Figure 42*. This dialog box also displays after a selection has been made in the Select a Volume dialog box.

You can specify a session title, a session-specific password, and a retention date using this dialog box, however it is not required. The default Session Title can be used, and the Password and Retention Date fields can be left blank.

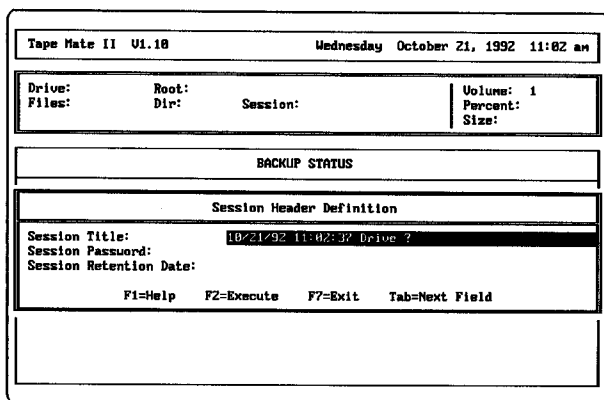


Figure 42 Session Header Definition Dialog Box

Session Title

A default Session Title is given in the form of the current date and time. This title can be changed by highlighting the field and entering a new name. This new name can be a text string that describes the current operation (e.g., Backup of server #1). If a question mark is placed in the title, then it will be replaced with the drive letter for the drive being backed up. This title is retained and presented to you for verification during Restore and Verify Operations.

Session Password

The Session Password is specific to this session. The password is not required, and this field can be left blank. When a password is entered, the typed characters do not display on screen for security purposes. However, after entering the password and pressing [Enter], the password must be retyped to verify that it was entered correctly the first time. It is important to remember this password. Verify and Restore Operations to the data require entering this same password.

Session Retention Date

The Retention Date is used to protect the data on the media from being overwritten up until the specified date. This feature was added to provide data protection. A Retention Date is not required and this field can be left blank; however, the data would be susceptible to overwriting.

Press [F2] to continue with the Backup Operation after entering all the information in the Session Header Definition dialog box.

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17.3.3 Mount Archive Volume Dialog Boxes

Press [F2] in the Session Header Definition dialog box and a dialog box displays with either a message to mount a specific volume or to mount volume #1. The dialog box displayed is determined by whether the volume has previously been used by **Tape Mate II** and whether the Volume/Session Database is enabled or disabled.

If a specific volume is selected from the Select a Volume dialog box, then the Mount Archive Volume dialog box with a specific volume name display. See *Figure 43*.

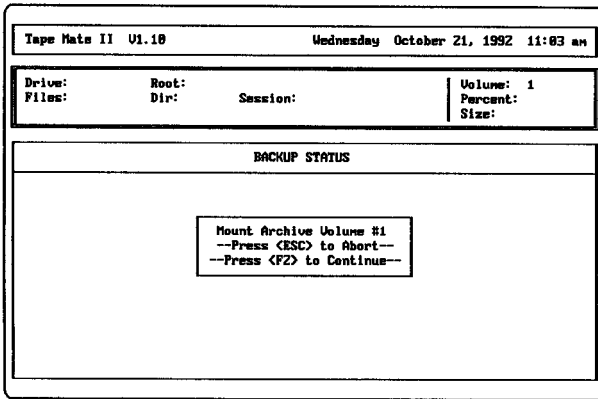


Figure 43 Mount Specific Archive Volume Dialog Box

If New Volume is selected in the Select a Volume dialog box or if the Volume/Session database is disabled, then the Mount Archive Volume #1 dialog box displays.

If more than one volume is required in order to complete a backup of all the specified files, then a message displays after the first volume has been filled. This message is described in the *Section 17.3.8*.

17.3.4 Initialization Messages and Dialog Boxes

The initialization messages and dialog boxes may appear when New Volume is selected in the Select A Volume dialog box or when the media has not been formatted. There are three dialog boxes that appear on screen if the media has not been formatted. The first dialog box indicates that the media is not a valid **Tape Mate II** volume and asks if the media should be initialized. The second indicates that the media is about to be erased and requests verification to continue. The third indicates that the media is being formatted.

17.3.5 Volume Information Dialog Box

This dialog box displays only when the media has never been used by **Tape Mate II** and only if the Volume/Session Database is enabled. The Volume Information dialog box is shown in *Figure 44*.

Tape Mate II U1.18		Tuesday October 28, 1992 3:29 pm	
Drive:	Root:	Session:	Volume: 1
Files:	Dir:		Percent:
			Size:
BACKUP STATUS			
Volume Information			
Volume Title:		[REDACTED]	
Storage Location:		[REDACTED]	
F1=Help F7=Exit F2=Save Tab=Next Field			

Figure 44 Volume Information Dialog Box

A volume header is written to the media using the information in this dialog box. The volume header is used in the Volume/Session Database resource and supplies information about the contents of the volume. Use the following information to fill in the different fields in the Volume Information dialog box.

A Volume Title must be assigned. The Volume Title should correspond to the label that is attached to the outside of the archive media. The Storage Location field is an optional field. This field is used for indicating where this volume will be physically stored when not in use.

To save the information in the Volume Information dialog box, press [F2]. A dialog box displays that asks if the volume is to be added to the database. In most cases YES should be entered. If a one-time backup is being performed for which a record does not need to be kept, then enter NO.

17.3.6 Append Dialog Boxes

The Append dialog boxes will only display if the media contains one or more sessions and one of the following conditions is met:

1. No date was entered in the Retention Date field on the Session Header Definition dialog box for the session(s) that is already on the media.
2. The specified date in the Retention Date field has been exceeded for a session that is already on the media.

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The Append dialog boxes are shown in *Figure 45*. The Append dialog box at the top of the screen is a warning that if NO is selected in the lower dialog box, then the listed sessions will be overwritten on the media.

The screenshot shows a dialog box titled "Tape Mate II V1.10" with a date and time of "Wednesday October 21, 1992 11:21 am". Below the title bar, there are fields for "Drive:", "Files:", "Root:", "Dir:", "Session:", "Volume:", "Percent:", and "Size:". The "Session:" field contains the value "2". Below these fields is a section titled "BACKUP STATUS" which contains a warning message: "Not Appending Will DELETE the Following Sessions on this Volume". Below the warning, there is a list of sessions: "10/20/92 15:52:43 Drive C" and "Any Other Appended Sessions". At the bottom of the dialog box, there is a question "Append to Selected Volume?" with two radio buttons: "No" and "Yes".

Figure 45 Append Dialog Boxes

Select YES to append the new data to end of the last session on the media. Selecting NO will overwrite the data in the sessions listed in the first dialog box and delete the corresponding session entries in the database.

17.3.7 Backup Status Dialog Box

A Directory Pre-Scan is performed on the first specified source drive and source path. This pre-scan generates file and directory statistics for the current session, which are displayed across the top of Backup Status dialog box (see *Figure 46, next page*).

Following the Directory Pre-Scan, the actual backup and copying of files begins. As files are copied, a percent (%) complete number displays in the dialog box at the top of the screen. Each specified subdirectory and each file within the subdirectory displays along with its size and date as it is copied to the archive media. Files found in each subdirectory display on a single line as the backup process proceeds. Open files cannot be backed up. At the end of the backup session, **Tape Mate II** retries any files that were open.

If no errors occur when the backup of a subdirectory is complete then the active display line advances; and the completed subdirectory displays. Should errors occur during the Backup Operation, they display beneath the file associated with the error.

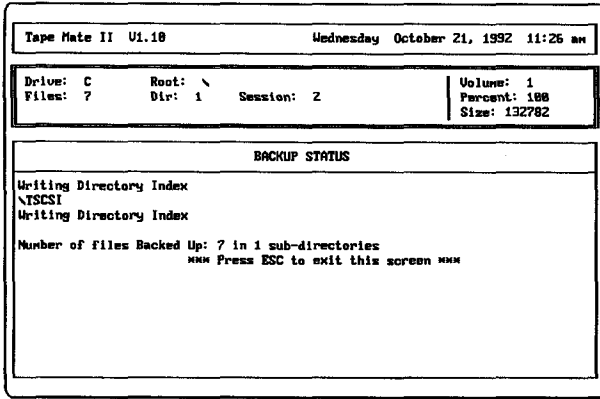


Figure 46 Backup Status Dialog Box

If a multiple number of drives were selected for the Backup Operation, then the process is started over for the next drive beginning with the Directory Pre-Scan.

17.3.8 Multiple Volumes Required Dialog Box

This dialog box displays (this screen is similar to *Figure 43*) when the contents of the specified Backup Operation do not fit on one piece of media (volume). If the selected archive device is a tape drive, then an uninitialized tape can be placed in the drive. The Initialize and Volume/Session Database dialog boxes appear as shown in the sequence of dialog boxes on the left side of *Figure 40*.

17.3.9 Summary Statement

When the Backup Operation is completed, a summary statement of the operation displays on screen. This summary statement includes the number of files and subdirectories backed up. A summary statement also displays if the Backup Operation is aborted. When completed, press [Esc] to clear the screen and to return to the main menu.

18 Restore Operation

The Restore Operation restores files to a hard disk that were stored using the Backup Operation. This chapter describes the restore parameters, the actual restore process, the dialog boxes and messages that appear on the screen.

18.1 Setting the Restore Parameters

The Restore Operation copies data from an archive volume (media) to a specified disk drive and directory. These destination parameters are required and must be set in the Restore Parameters dialog box.

Highlight the **Restore** title on the main menu and press [Enter], the Restore Parameters dialog box displays as shown in *Figure 47*.

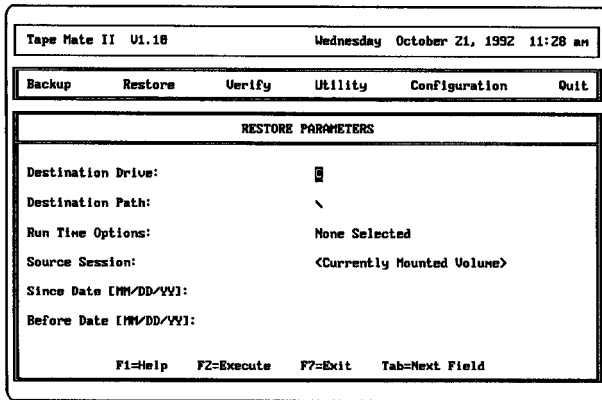


Figure 47 Restore Parameters Dialog Box

There are six fields in this dialog box and are used for specifying the destination drive, destination path, and other useful options.

18.1.1 Destination Drive

The single DOS drive letter entered in this field specifies the volume where the data is to be copied. In a Restore Operation the archived data is copied (restored) to the specified destination drive. The entered drive letter can be any valid DOS drive (A to Z), including re-directed drives and RAM drives.

18.1.2 Destination Path

The Destination Path is the directory or subdirectory to which **Tape Mate II** will begin restoring the archived files. The Destination Path relates to the Destination Drive that was specified in *Chapter 17*. If files are to be restored to the same directory from which they were backed up, this field must contain the same path specification used in the Backup Operation. Files can be relocated on the hard disk by entering a different path name than was used in the Backup Operation.

18.1.3 Run Time Options

Highlight this field and press [Enter] to display the Restore Run Time Options dialog box. See *Figure 48*.

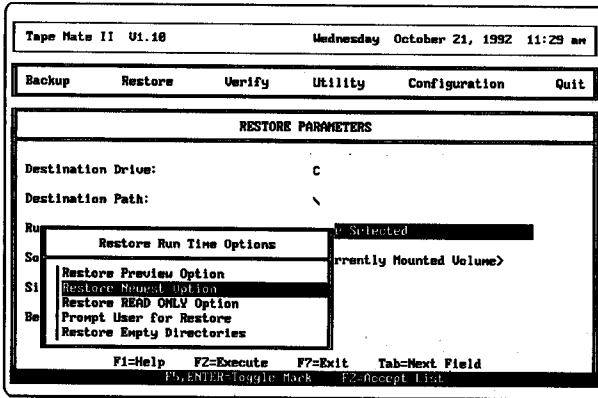


Figure 48 Restore Run Time Options Dialog Box

More than one run time option can be selected. Letters representing these options are displayed inside the brackets to the right of this parameter. These letters represent the following options are enabled:

- P Restore Preview Option
- N Restore Newest Option
- R Restore READ ONLY Option
- Q Prompt User for Restore
- Y Restore Empty Directories

Multiple options can be selected by marking them by pressing [F5] or [Enter]. These keys toggle an option between selected and not selected. Press [F2] to save the selected options and close the dialog box.

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Restore Preview Option

This run time option allows the Restore Operation to be performed without writing the data to the specified Destination Drive and Destination Path. This option provides a way to validate the selected options.

Restore Newest Option

Restore Newest Option allows you to designate the restoration of only those files in which the archived version has a later date than the version in the specified Destination Drive and Destination Path. If the file exists on the target drive and has a more recent date than the version on the archive media, then that file will not be restored.

Restore READ ONLY Option

Restore READ ONLY Option permits restoring READ-ONLY files. The normal mode is to honor the READ-ONLY attribute and not restore the selected file. By selecting this option, READ-ONLY files can be restored.

Prompt User for Restore

For added security during a restore operation, select this option to require a confirmation before overwriting and replacing an existing file. A YES or NO response must be entered for each overwrite case. In this manner, you have manual override on a file-by-file basis.

Restore Empty Directories

This option instructs **Tape Mate II** to restore the empty directories and subdirectories that were backed up.

18.1.4 Source Session

This parameter allows you to specify which session will be restored. Highlight this field and press [Enter] and the Select a Session dialog box displays. The list that appears in this dialog box is determined by whether the Volume/Session Database is enabled or disabled. Default is enabled.

If the Volume/Session Database is disabled, then the list will only contain one item: Currently Mounted Volume. See *Figure 49*. This list is created automatically when Backup Operations are performed with the Volume/Session Database enabled. Therefore, if previous Backup Operations have been performed with the database disabled, then the list will be empty except for the default item of Currently Mounted Volume.

When an item is selected from the Select a Session dialog box, the File Specification dialog box displays on screen, containing several different options for defining which directories and files to use in the Restore Operation. See *Figure 50*.

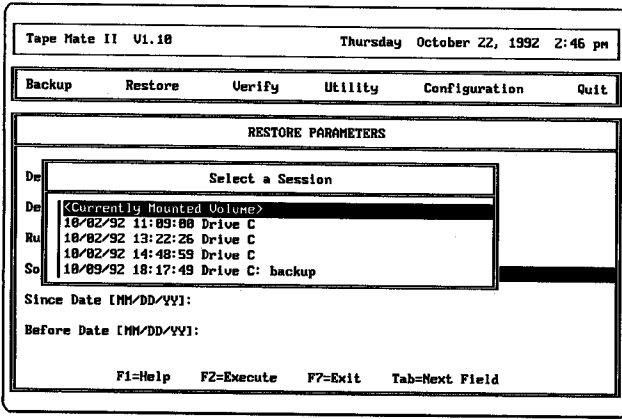


Figure 49 Select a Session Dialog Box

When a specific session is selected, there are five options that appear in the File Specification dialog box. When the Currently Mounted Volume option is selected, then the File Specification dialog box only contains four options; the Tree Select option does not appear. The five options that may appear in the File Specification dialog box are described in the following paragraphs.

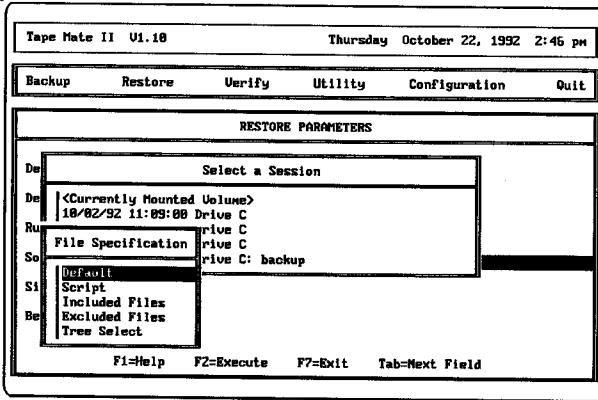


Figure 50 Confirm File Overwrite Message

Default

If the Default option is selected, then all the files in the selected or current session on the media will be restored.

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Script

If the Script option is selected, then the contents of the specified attended script file determine which files will be used in the Restore Operation. A script file is an ASCII text file containing a list of INCLUDE and EXCLUDE statements that emulate user input in the Inclusive and Exclusive File Selection lists. When this option is selected, a dialog box displays listing all the attended script files. Select a script file and press [Enter]. Instructions on how to create a script file can be found in *Section 21.6, Edit Script File*.

Included Files

The Included Files mode is used for generating a list of included path and file specifications to be used in the Restore Operation. Highlight this mode and press [Enter]; two dialog boxes will display on screen. This feature is identical to *Included Files* described in *Chapter 17, see page 91*.

Excluded Files

The Excluded Files mode allows files to be excluded from the list generated in the Included Files mode from the Restore Operation. When this mode is selected from the File Specification dialog box, a dialog box labeled Exclusive File Selections appears on screen. This feature and its options are explained in *Included Files* and *Excluded Files* described in *Chapter 17, see pages 91 and 93*.

Tree Select

Select this item from the File Specification dialog box to display a directory tree of the selected session. Select the a directory or subdirectory name and/or the appropriate files. See *Chapter 17, page 96* for details on this feature.

18.1.5 Since Date

This field allows files to be restored within a certain time frame. For any valid date entered, the selected files must have dates the same as or more recent than the specified date. The format for entering the date is (MM/DD/YY).

18.1.6 Before Date

This field allows files to be restored that were created or modified prior to a specified date. For any valid date entered in this field, the files to be restored will be those with dates the same as or prior to the date specified. The format for entering the date is (MM/DD/YY).

The Since Date and the Before Date options can be used in conjunction to select a narrow range of files to restore. If the date specified in the Before Date field is more recent than the date specified in the Since Date field,

then only the files with dates the same as or between the two specified dates will be restored.

18.2 Executing the Restore Operation

After parameters have been specified, the Restore Operation can be executed. There are two series or sequences of dialog boxes that can appear during a Restore Operation. The series that appears depends on the selection made in the Select a Session dialog box and whether the Volume/Session Database is enabled.

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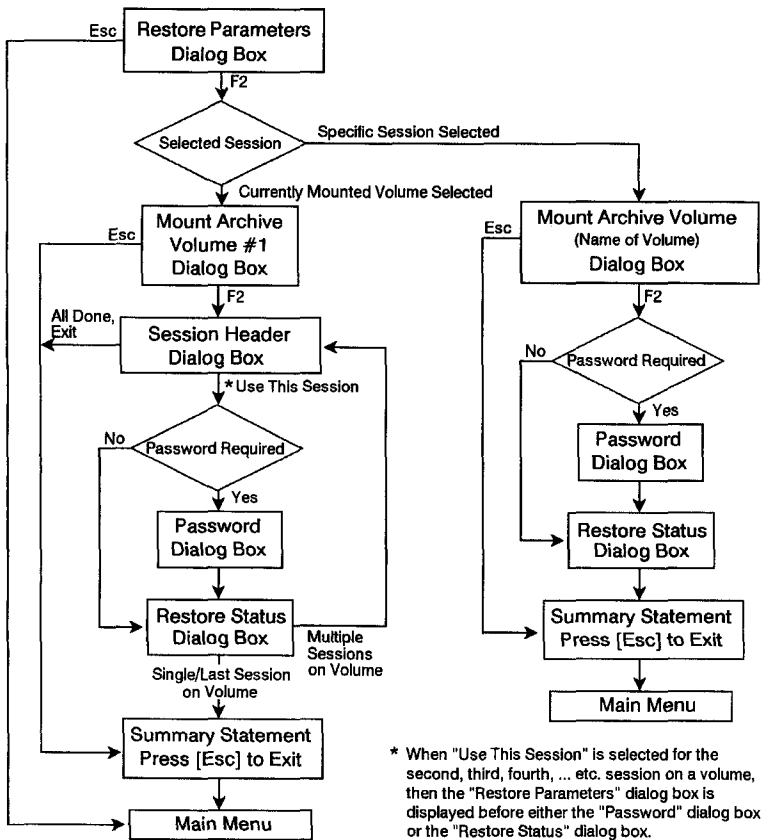


Figure 51 Restore Operation Flow Chart

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Figure 51 shows a flow chart of the Restore Operation. The two different sequences of dialog boxes are shown in this figure. Each box in the flow chart represents a dialog box that can appear on screen during the Restore Operation.

Because of the similarities of the Mount Archive Volume dialog boxes, they are described in the same section. Other duplicate dialog boxes will only be described once. The Summary Statement is actually not a dialog box but a single-line summary that is added to the information in the Restore Status dialog box.

18.2.1 Mount Archive Volume

Press [F2] in the Restore Parameters dialog box and one of two Mount Archive Volume dialog boxes displays. Press [F2] to execute the Restore Operation.

Either a dialog box display with a message to mount a specific volume, or a message displays to mount volume #1. This difference is determined by the selection made for Source Session, *page 107*. If a specific session title is selected, then a Mount Archive Volume dialog box with a specific volume name displays. If Currently Mounted Volume is selected for Source Session, the Mount Archive Volume #1 message displays. See *Figure 52*.

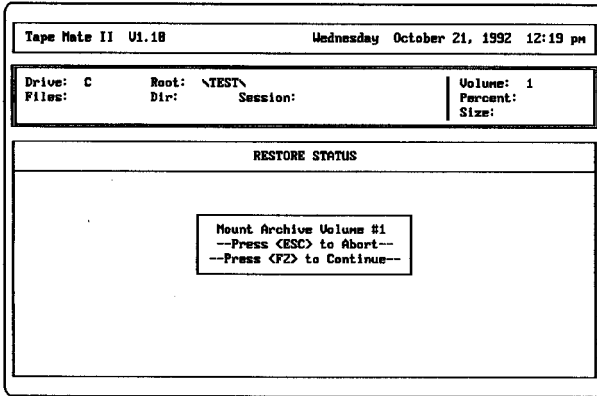


Figure 52 Mount Archive Volume #1 Message

If a password is required for the Restore Operation of the selected session, then the Password dialog box displays. If a password is not required for the selected session, then the actual restore process begins and the Restore Status dialog box displays on screen.

18.2.2 Session Header Dialog Box

Press [F2] when the Mount Archive Volume #1 message is on screen, and the Session Header dialog box displays along with a Confirm Session I.D. dialog box. See *Figure 53*.

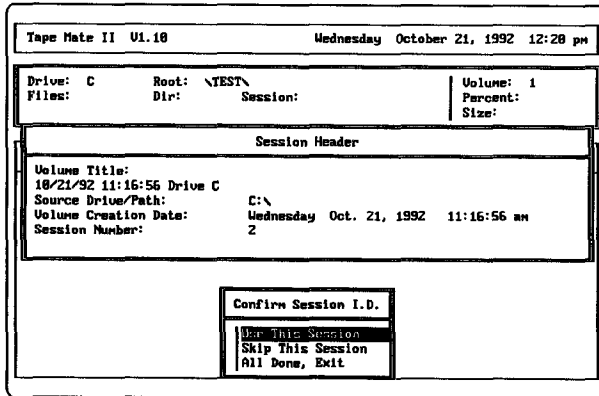


Figure 53 Confirm Session I.D. Dialog Box

When this dialog box first displays, it contains the session information for the first session on the mounted media. If the displayed session information is not the session to be restored, then select the **Skip This Session** option from the Confirm Session I.D. dialog box. When the displayed session information shows the correct session header for the data to be restored, highlight the **Use This Session** option and press [Enter].

Select the **All Done, Exit** option to exit the restore process. A summary statement displays when this option is selected or when there are no more sessions on the volume.

When there is more than one session on the mounted volume, the two dialog boxes shown in *Figure 53* redisplay after each completed Restore Operation. If another session is selected, then the Restore Parameters dialog box displays on screen. This dialog box (not shown in the flow chart) displays so that the Destination Drive and Path fields can be changed as required for the new session.

18.2.3 Password Dialog Box

If a password is required, then a dialog box displays on screen requesting the assigned password to be entered. The Password dialog box is shown in *Figure 54*. If a password was used in the Backup Operation for the data being restored, then the password must be entered in this dialog box before you can perform the Restore Operation. After three failed attempts for

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password verification, **Tape Mate II** aborts the operation. If a password is not required, then the restore procedure starts and the Restore Status dialog box displays.

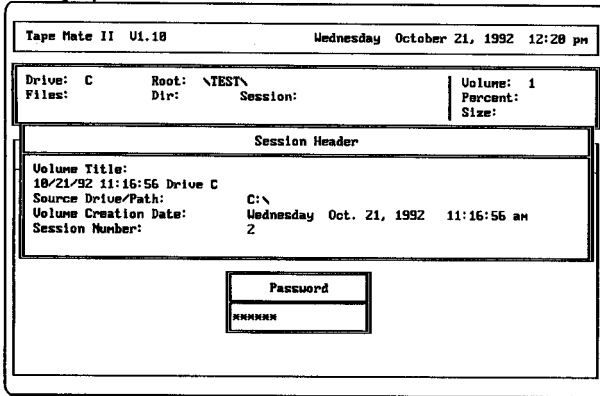


Figure 54 Restore Password Dialog Box

18.2.4 Restore Status Dialog Box

The Restore Status dialog box displays when the actual restoration of files begins. If the archive device supports Quick File Access (QFA), then a message displays indicating that the QFA process is being performed. QFA is a feature that provides a higher-speed file retrieval from certain supporting tape devices.

The Restore Status dialog box is shown in *Figure 55*. During the restore process, many of the parameters in the Restore Status dialog box constantly change. As files are copied, a percent (%) complete number displays on the top right-hand side of the screen. Each specified sub-path and file displays along with the size and date. To permit the display of the maximum amount of useful information, files found in each subdirectory display on a single line as the operation proceeds.

If no errors occur, then when a subdirectory has been restored, the active display line advances, and the subdirectory name displays. If an error occurs during the Restore Operation, then the error displays on screen beneath the file associated with the error, and the processing of the current directory continues.

When the restore process is completed, the next dialog box that displays is dependent upon several factors. If a specific session was selected in the Select a Session dialog box, then a summary statement displays. If Currently Mounted Volume was selected, then when the operation is completed a Session Header dialog box displays for the next session on the

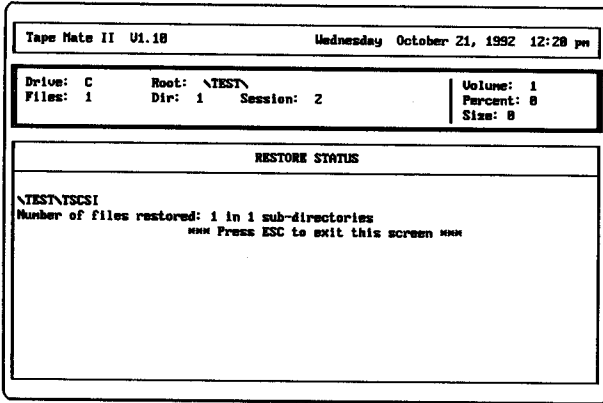


Figure 55 Restore Status Dialog Box

volume if the mounted volume has a multiple number of sessions on it. If the volume contains only one session or if the previous restore was for the last session on the volume, then a summary statement displays. Press [Esc] to return to the main menu.

18.3 Restoring a Multi-Volume Session

In a multi-volume restore, after the first volume of data is restored a prompt displays on screen indicating that volume #2 should be mounted. If more than two volumes are required in order to complete the restore, then a prompt will display requesting each additional volume to be mounted. Besides having to place two or more volumes in the archive device, the multi-volume restore is performed in the same manner as outlined in *Section 18.2, Executing the Restore Operation*. The instructions provided in *Section 18.1, Setting the Restore Parameters* also apply with no differences.

19 Verify Operation

This chapter describes how to perform the Verify Operation. Verification of a Backup or a Restore Operation is important in maintaining data integrity. While many archive devices, such as tapes, perform an automatic verify-after-write function, that type of verify does not explicitly compare the source data to the data written on the archive media.

Tape Mate II's Verify Operation verifies that the data written to the archive media during a Backup Operation is the same as the source data. The Verify Operation that is performed after a Restore Operation, compares the data that was written during the Restore Operation with the data on the archive media. The data on the archive media is compared byte for byte with the source data or the restored data. Any non-compare conditions are reported on a file-by-file basis. A choice of continuing or aborting the Verify Operation is presented on each non-verify condition.

19.1 Setting the Verify Parameters

The Verify Operation has two parameters that must be specified before executing. These parameters specify where the source or restored data is located; to access these parameters, highlight the **Verify** title on the main menu and press [Enter] and the Verify Parameters dialog box displays as shown in *Figure 56*.

Tape Mate II U1.18		Wednesday, October 21, 1992 12:21 pm	
Backup	Restore	Verify	Utility
Configuration		Quit	
VERIFY PARAMETERS			
Source Drive(s):	C:		
Source Path:	\		
F1=Help		F2=Execute	F7=Exit
Tab=Next Field			

Figure 56 Verify Parameters Dialog Box

19.1.1 Source Drive

The Source Drive is a single DOS drive letter and specifies the volume that contains the source data from the Backup Operation, or the restored data

from the Restore Operation. This drive can be any valid DOS drive that is physically attached, including virtual drives or RAM drives.

19.1.2 Source Path

The Source Path is the directory or subdirectory that **Tape Mate II** will use when comparing archived data. If the Verify Operation is being performed after a Backup Operation, then enter the same path specification used in the Source Path field on the Drive ? Backup Parameters dialog box. If the verify is being performed after a Restore Operation, then enter the same path specification that was entered in the Destination Path field on the Restore Parameters dialog box.

19.2 Executing the Verify Operation

After the information has been entered in each field of the Verify Parameters dialog box, you can execute the Verify Operation. There are two series or sequences of dialog boxes that can appear on screen during a Verify Operation. The series that appears is determined by the selection made in the Select a Session dialog box.

Figure 57 shows a flow chart of the Verify Operation. Each box in the flow chart represents a dialog box that can appear on screen during the Verify Operation.

A careful study of the two sequences in the flow chart will show that after the second sequence breaks off from the first, there is only one dialog box that is different. In the second sequence a generic Mount Archive Volume #1 box displays, where in the first sequence a Mount Archive Volume dialog box displays with a specific volume name. Because of their similarity, these two dialog boxes will be described in the same section. The following sections describe the various dialog boxes in this flow chart.

19.2.1 Select a Session Dialog Box

Press [F2] in the Verify Parameters dialog box to begin the verify process. The Select a Session dialog box displays. The list that appears in the Select a Session dialog box is created automatically when Backup Operations are performed with the Volume/Session Database enabled. Therefore, if previous Backup Operations have been performed with the database disabled, then the list will be empty except for the default item of Currently Mounted Volume.

When the default item, **Currently Mounted Volume**, is selected, then the sequence of dialog boxes on the right-hand side of the flow chart are the dialog boxes that appear on screen. The correct volume containing the data to be verified must be placed in the drive when the Mount Volume #1 dialog box displays.

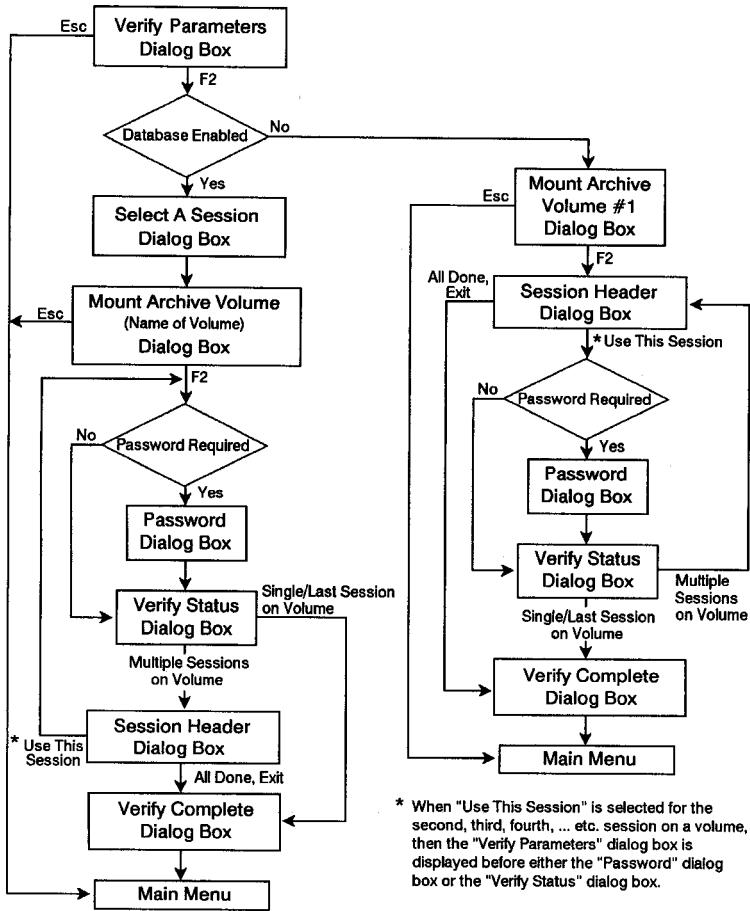


Figure 57 Verify Operation Flow Chart

If previous Backup Operations have been performed with the database enabled and if the database is currently enabled, then the list of previous Backup Operations appears in the Select a Session dialog box. *Figure 58* shows a Select a Session dialog box containing several sessions.

Select the backed-up or restored session to be verified. When a specific session is selected from the Select a Session dialog box, the series of dialog

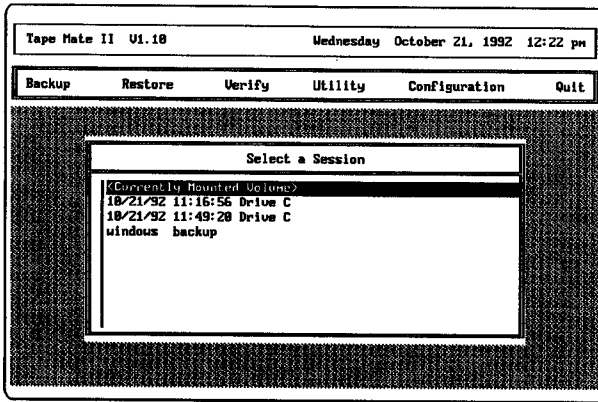


Figure 58 Select a Session Dialog Box

boxes on the left-hand side of the flow chart in *Figure 57* display during the Verify Operation. When the Mount Archive Volume dialog box displays, the name of the volume containing the requested session also displays.

19.2.2 Mount Archive Volume Dialog Box

There are two different Mount Archive Volume dialog boxes. One dialog box provides a specific volume name to mount, and the other indicates to mount volume #1. The dialog box containing the specific volume name appears only when a session name is selected in the Select a Session dialog box.

If the Currently Mounted Volume item is selected from the Select a Session dialog box, then the message to mount volume #1 displays.

19.2.3 Password Dialog Box

If a password is required, then a dialog box displays requesting the assigned password to be entered. See *Figure 59*. If a password was used in the Backup or Restore Operation, then the same password must be entered in this dialog box before the Verify Operation can be performed. After three failed attempts for password verification, **Tape Mate II** aborts the operation. If a password is not required, then the comparison process begins, and the Verify Status dialog box displays.

19.2.4 Verify Status Dialog Box

A Verify Status dialog box displays when the verify comparison begins and is shown in *Figure 60*. The parameters in this dialog box constantly change during the comparison process.

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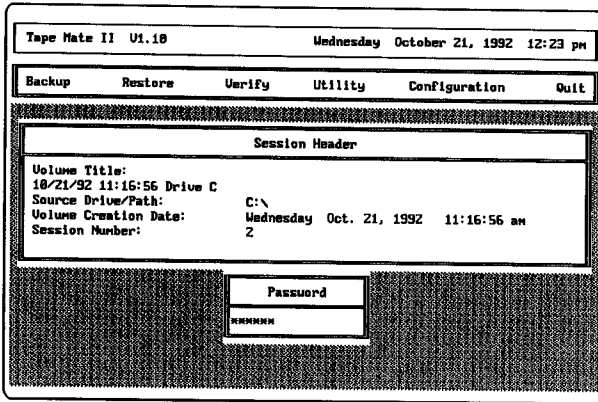


Figure 59 Password Dialog Box

During the verify process, each archived file or path object displays and the real-time number of compared bytes displays. In addition, a percent complete number displays in the Verify Status dialog box. The percent complete value displayed is the percent of total archive data processed. This number also changes during the Verify Operation.

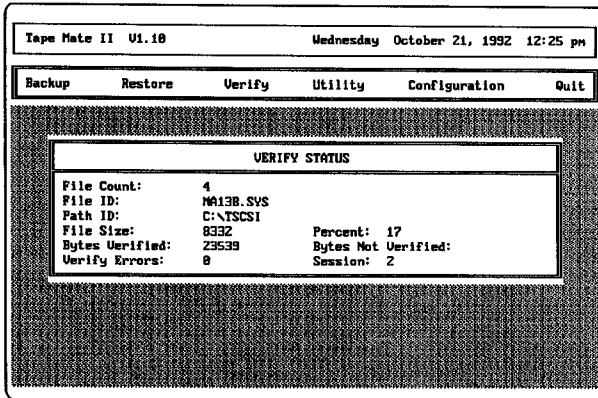


Figure 60 Verify Status Dialog Box

When a discrepancy occurs between the archived data and the source or restored data, an error message displays along with a continue or abort query. If the continue option is selected after an error has occurred, then the Bytes Not Verified field is updated to reflect the size of the rest of the current file. It is assumed that at the point of non-verification, the

remaining data in that file will not compare either. The number of Verify Errors is updated and displayed on screen.

If the volume contains only one session, then when the Verify Operation is completed, the Verify Complete dialog box displays. When completed, press [Esc] to return to the main menu.

If the volume has a multiple number of sessions on it, then a Session Header dialog box for the next session on the volume displays. The Verify Complete dialog box does not display.

If a multiple number of volumes were used for the session that is being verified, then a message displays requesting the next volume to be mounted.

19.2.5 Session Header Dialog Box

There are two different times when the Session Header dialog box displays. First, it appears after the **Mount Volume #1** message displays and the volume has been mounted. Second, this dialog box appears when the mounted volume contains more than one session and one Verify Operation has already been performed. These two different cases are described as follows.

After Mount Volume #1 Message

When the Session Header dialog box appears on screen after the **Mount Volume #1** message, the dialog box contains the header information for the first session on the mounted volume. The Confirm Session I.D. dialog box also displays as shown in *Figure 61*.

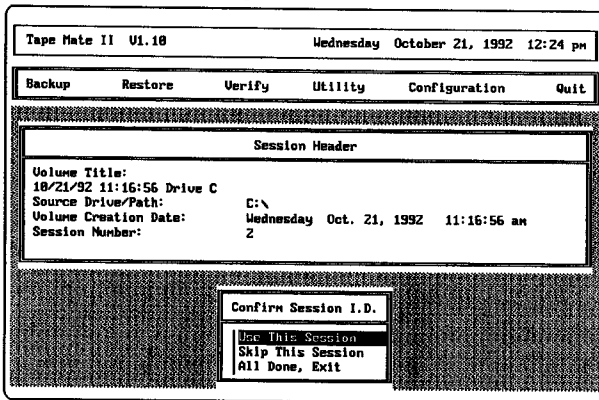


Figure 61 Confirm Session I.D. Dialog Box

If the displayed data is not the correct session header, then select the **Skip This Session** option. When the correct information displays, for the

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session that is to be verified, highlight the **Use This Session** option and press [Enter]. Then select the **All Done, Exit** option to exit the Verify Operation and display the Verify Complete dialog box.

After selecting **Use This Session**, the Password dialog box displays on the screen if it is required. Otherwise the comparison process begins and the Verify Status dialog box displays.

After A Verify Operation

After a Verify Operation has been performed on one session, a Session Header dialog box displays for the next session on the volume. Notice in *Figure 62* that the Session Number indicates session 3, where in *Figure 61* the Session Number is 2.

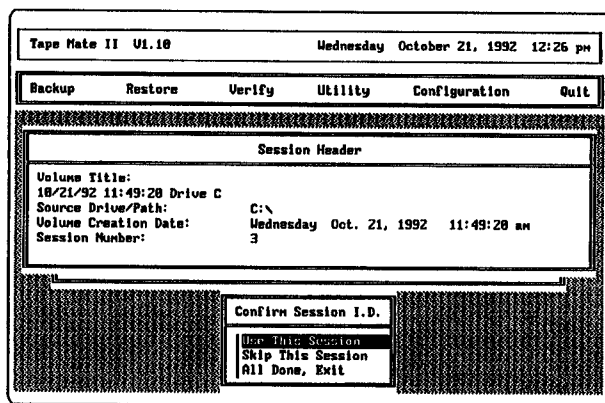


Figure 62 Header for Second Session on Volume

When the Session Header dialog box displays for a second, third, fourth, etc., session on a volume, then the Verify Parameters dialog box displays on screen. This dialog box is not shown on the flow chart. After the **Use This Session** option is selected, the Verify Parameters dialog box displays so that the Source Drive and Source Path specifications can be changed for the new session. Press [F2] to execute the Verify Operation. If required, the Password dialog box then displays.

If the **Skip This Session** option is selected, then the Session Header dialog box for the next session on the volume displays. Select the **All Done, Exit** option to quit the Verify Operation. When the Verify Complete dialog box displays, press [Esc] to return to the main menu.



20 Unattended Operations

An unattended operation is a Backup, Restore, or Verify Operation performed using a script file and accomplished without user intervention. There are two types of unattended script operations: immediate and delayed. The Immediate Unattended Operation is performed from the DOS command line. The Delayed Unattended Operation is set up within **Tape Mate II** and is executed without operator intervention at the specified time. This chapter describes how to execute both the Immediate and Delayed Unattended Operations.

The script file used in the unattended operation is an ASCII text file containing a series of commands. These commands are **Tape Mate II** Script Language commands that emulate the interactive user input of selecting and specifying options to use in **Tape Mate II**. Instructions for creating an unattended script file can be found in *Section 21.6, Edit Script File*.

20.1 Immediate Unattended Operations

An immediate unattended operation is performed from the DOS command line by typing the unattended script file name. The commands in the specified script file are then executed immediately; this, for example, is the type of unattended operation that might be performed at the end of the work-day.

The immediate unattended operation is performed by typing **TMATE** on the DOS command line with the name of the script file afterwards. The following example shows the command that would be entered if the name of the script file is BACKUP1.NSF. The file name can be entered with or without the file name extension.

```
TMATE BACKUP1 [Enter]
```

If the AUTOEXEC.BAT file was modified when **Tape Mate II** was installed, then the command shown above could be entered from any DOS prompt. If the AUTOEXEC.BAT file was not modified, then change the directory and drive (if a multiple drive system) to where **Tape Mate II** is located and enter the command shown above.

When the operations described in the script file have been completed, then **Tape Mate II** closes and a DOS prompt displays again on screen.

If the immediate unattended operation does not work and the operation is aborted, then an error message displays. If the Log History option on the Global Configuration Parameters dialog box is enabled, then the log

history file can be checked. This file will contain more information as to why the unattended operation was aborted.

20.2 Delayed Unattended Operations

A delayed operation is set up and scheduled using the Unattended Parameters option on the Utility menu. To schedule a delayed unattended operation, the following procedures must be performed as discussed in the following sections:

1. Schedule the Delay Start Time.
2. Activate the **Tape Mate II** Scheduler.
3. Enable the Log History option on the Global Configuration Parameters dialog box.

20.2.1 Schedule the Delay Start Time

An unattended delayed operation is scheduled by setting the parameters listed in the Unattended Parameters dialog box. Follow these instructions to set these parameters:

1. Open the Utility menu and select **Unattended Parameters**. The Unattended Parameters dialog box displays as shown in *Figure 63*.

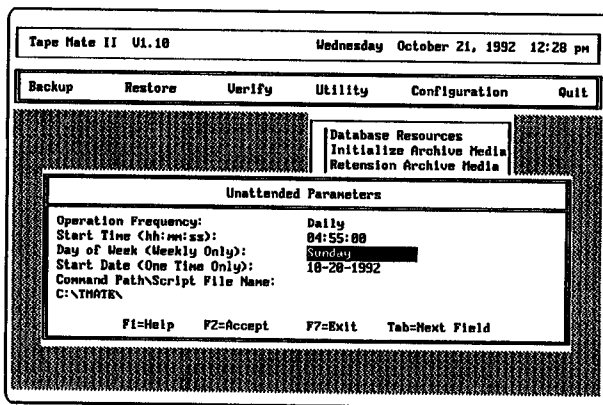


Figure 63 Unattended Parameters Dialog Box

2. Select an **Operation Frequency**. The Operation Frequency dialog box displays. Highlight the desired frequency and press [Enter].
3. Use the [Tab] or [Arrow] keys to move the cursor to the Start Time field. Enter the time for the unattended operation to begin. Use the HH:MM:SS time format. Enter a time using the 24 hour time format with HH representing the hour (1-23), MM representing minutes, and SS representing seconds.

20 Unattended Operations

The clock hours and corresponding 24 hour time are given below:

1:00 am	01:00:00	1:00 pm	13:00:00
2:00 am	02:00:00	2:00 pm	14:00:00
3:00 am	03:00:00	3:00 pm	15:00:00
4:00 am	04:00:00	4:00 pm	16:00:00
5:00 am	05:00:00	5:00 pm	17:00:00
6:00 am	06:00:00	6:00 pm	18:00:00
7:00 am	07:00:00	7:00 pm	19:00:00
8:00 am	08:00:00	8:00 pm	20:00:00
9:00 am	09:00:00	9:00 pm	21:00:00
10:00 am	10:00:00	10:00 pm	22:00:00
11:00 am	11:00:00	11:00 pm	23:00:00
12:00 am	12:00:00		

Example—If the unattended operation is to begin at 8:05 pm, then enter 20:05:00 in the Start Time field. The leading zeros in single digit hours, minutes, or seconds are required.

- If **Weekly** is the specified frequency, use the [Tab] or [Arrow] keys to move the cursor to the **Day of Week** field. Press [Enter] to display the Day of Week dialog box. If **One Time Only** or **Daily** was the specified frequency, then the contents of this field are ignored. Select a day of the week, if required.
- Use the [Tab] or [Arrow] keys to move the cursor to the **Start Date** field. Today's date is the default date that appears in this field. To change the date, type in a new date using the MM:DD:YY format. Preceding zeros are not required in the date format.
Example—If the unattended operation is to begin on October 20, 1992, then highlight the **Start Date** field and enter 10-20-92.
- Use the [Tab] or [Arrow] keys to move the cursor to the **Command Path\Script File Name** field. The drive specification, path name, and file name for the unattended script file must be entered in this field. This script file has a .NSF file name extension. The default directory for the unattended script files is the same directory that contains **Tape Mate II**. If the script file was saved to a different directory other than the one containing **Tape Mate II**, then move it to the directory containing the **Tape Mate II**.
- Press [F2] to save the information entered in the Unattended Parameters dialog box.
- Press **X** or highlight the **Exit** option on the menu and press [Enter] to close the Utility menu.

20.2.2 Activate the Tape Mate II Scheduler

In order to support an unattended operation in a single tasking MS-DOS environment, Trantor supplies a scheduler, which is a Terminate and Stay Resident (TSR) application. If the **Tape Mate II** scheduler is not memory resident, then the delayed unattended operation will not be performed.

The **Tape Mate II** scheduler continually monitors the system clock and compares it to the start time specified in the Unattended Parameters dialog box. At the specified time, the scheduler opens the **Tape Mate II** application and executes the commands in the specified script file.

The **Tape Mate II** scheduler is a program called START.EXE. This TSR application can be loaded into system memory using the AUTOEXEC.BAT file. It can also be run right before leaving work for the day by typing the following line at a DOS prompt:

START [Enter]

START will reside in system memory until the system is powered down or until it is removed. START can be removed from system memory by typing the following key combination (press keys simultaneously):

[Ctrl]-[Alt]-**R**

The delayed unattended operation can be executed immediately, regardless of the start time specified in the Unattended Parameters dialog box, by using the following key combination:

[Ctrl]-[Alt]-**S**

20.2.3 Enable the Log History Option

This option is enabled on the Global Configuration Parameters dialog box. Refer to *Section 22.2*.

21 Utility Menu Operations

This chapter describes the operations and utilities of the Utility menu. The Unattended Parameters option, however, was described in *Chapter 20* and will not be described here.

21.1 Database Resources

This utility is used for keeping track of the volumes and sessions that are used by or created with **Tape Mate II**. A volume is a piece of media (tape cartridge or a removable disk), and a session is the resulting group of files from the execution of a single Backup Operation.

The setting of the Volume/Session Database option on the Global Configuration Parameters dialog box determines whether the database is updated for each session. If the Volume/Session Database field is not enabled, then the volume and session information will not be recorded in the database.

This utility can be used to look up volume or session information for any volume or session defined in the database. The information in this database is cross-referenced so that a volume can be selected and a list of the associated sessions displayed. If a session is selected, then the volume or volumes associated with that session display. The database resource can be used to add new volumes and delete volume and session entries from the database. When **Database Resources** is selected from the Utility menu, the Database Selection dialog box appears on screen as shown in *Figure 64*.

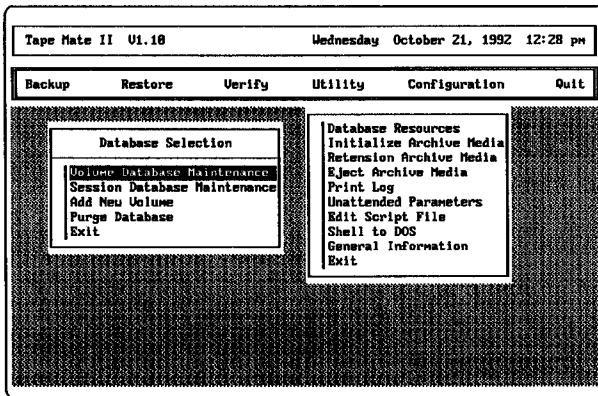


Figure 64 Database Selection Dialog Box

21.1.1 Volume Database Maintenance

Select this item from the Database Selection dialog box, and a list of all the defined volumes displays in the Volume Database Information dialog box. See *Figure 65*.

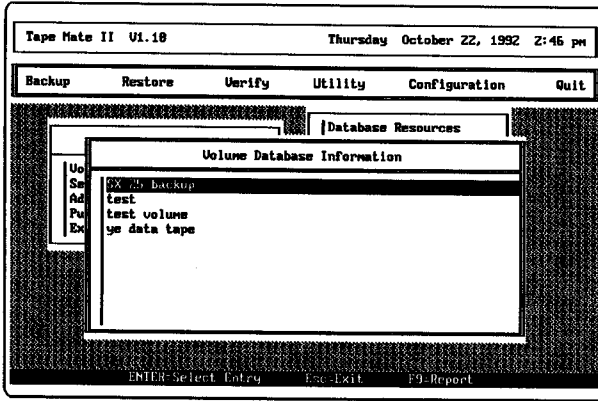


Figure 65 Volume Database Information Dialog Box

For a report of the volume, select a volume and press [F9]. The Volume Summary Report dialog box displays summarizing information about the volumes defined in the database. Press [Esc] to display any additional records that did not fit in the dialog box and to exit the Volume Summary Report dialog box.

Select a volume title and press [Enter], and the Volume Detail Information dialog box displays containing information about the selected volume title.

Part of the information in the Volume Detail Information dialog box is derived from the Volume Information dialog box that appears when a new volume is used for a Backup Operation. The only field in this dialog box that can be changed is the Storage Location field. Change it by typing in a new storage location description and then pressing [F3].

The Creation Date in the Volume Detail Information dialog box indicates the date a volume header was written on the volume. The Media Count indicates the number of volumes (media) used in the Backup Operation. The Session Count indicates the number of sessions on the volume. The Device Type indicates the type or class of device used for the Backup Operation; this information is useful for media interchange purposes. The Data Quantity (Bytes) indicates the total amount of data stored on the volume.

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Unique function keys associated with the Volume Detail Information dialog box are defined as follows:

- [F3] updates the Storage Location field after a new location is entered
- [F4] lists volumes
- [F8] displays the Delete Database Records dialog box. Decide whether to delete only the session records or both the volume and session records. If only the session records are deleted from the database, then the number in the Session Count field is reset to zero. If both the volume and session records are deleted from the database, then the volume title will not appear on the list of volume names when Volume Database Maintenance is selected from the Database Selection dialog box. Press [Esc] to close the Delete Database Records dialog box without deleting any records.
- [F9] prints a report on screen or to the printer connected to LPT1

21.1.2 Session Database Maintenance

Select this option in the Database Selection dialog box to display a list of the sessions recorded in the database. This information displays in the Session Database Information dialog box. See *Figure 66*.

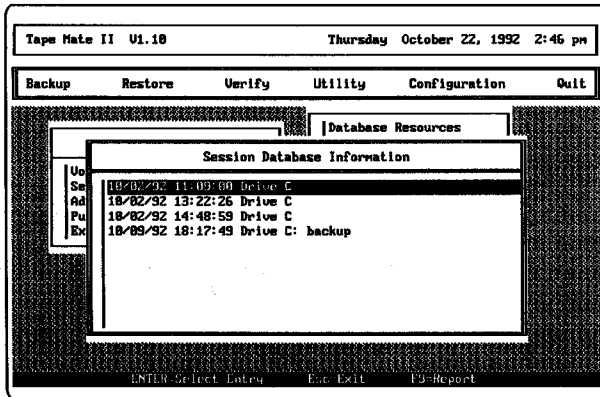


Figure 66 Session Database Information Dialog Box

Press [F9] to display Session Summary Report on screen. This report includes information about the list of sessions in the Session Database Information dialog box. Press [Esc] to display any additional records that did not fit in the dialog box and when completed, press [Esc] to exit.

Additional information about a specific session can be obtained by highlighting the session title and pressing [Enter]. The Session Detail Information dialog box displays. See *Figure 67*.

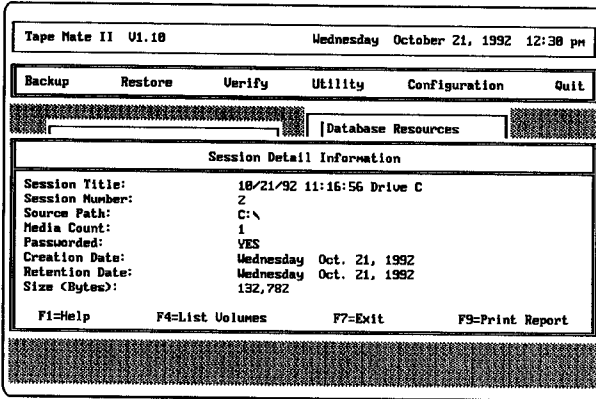


Figure 67 Session Detail Information Dialog Box

This dialog box lists the title of the session, the sequential number of the session as it appears on the volume, and the data path of the copied information. The Media Count field indicates the number of volumes used in the session, whether passwords were used in the Backup operation, the date the operation was performed, the retention date, and the size (in bytes) of the data copied.

21.1.3 Add New Volume

Follow these instructions to add a volume to the database:

1. Select the **Add New Volume** item from the Database Selection dialog box. A message displays to mount the archive media.
2. Mount the volume and press [F2]. The Volume Detail Information dialog box and the Add Volume dialog box display. See *Figure 68*.
3. Select **NO** if you do not want the volume to be added to the database. Select **YES** to add the volume to the database. After selecting **YES**, a Storage Location dialog box displays.
4. Add the storage information if desired, and press [Enter]. After the Storage Location dialog box, the Add Sessions dialog box displays.
5. Add the sessions on the current volume to the database by selecting **YES**. Select **NO** to add only the volume name. Several messages display before the message that the new volume has been added displays.
6. Press [Esc] to return to the Database Selection dialog box.

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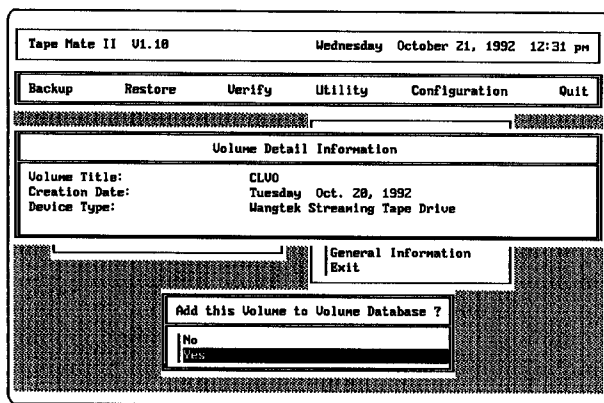


Figure 68 Volume Detail Information Dialog Box

21.1.4 Purge Database

This operation is used to delete all session and volume entries from the database. When this item is selected from the Database Selection dialog box, a dialog box prompting you to delete all database records displays.

This dialog box requests verification that all database records are to be deleted. Select **YES** to clear the database of all volume and session records. Select **NO** to exit without deleting any records.

21.2 Initialize Archive Media

This operation is used for erasing or formatting media from within **Tape Mate II**. The initialize operation is performed by selecting Initialize Archive Media from the Utility menu and responding to the dialog boxes that are displayed on screen.

The series of dialog boxes that appear on screen during this operation differs depending on whether the media is new or if it has previously been used by **Tape Mate II**. *Figure 69* shows a flow chart of the Initialize Operation. Each box in the flow chart represents a dialog box that may appear on screen. Each dialog box represented in the flow chart is described in a separate subsection.

21.2.1 Mount Archive Media Dialog Box

After Initialize Archive Media has been selected from the Utility menu, a message displays asking for the archive media to be mounted in the archive device. After mounting the media, press [F2] to continue. If the media has never been used by **Tape Mate II**, then the Erase or Format dialog box displays on screen. This dialog box is described later in this section. If the

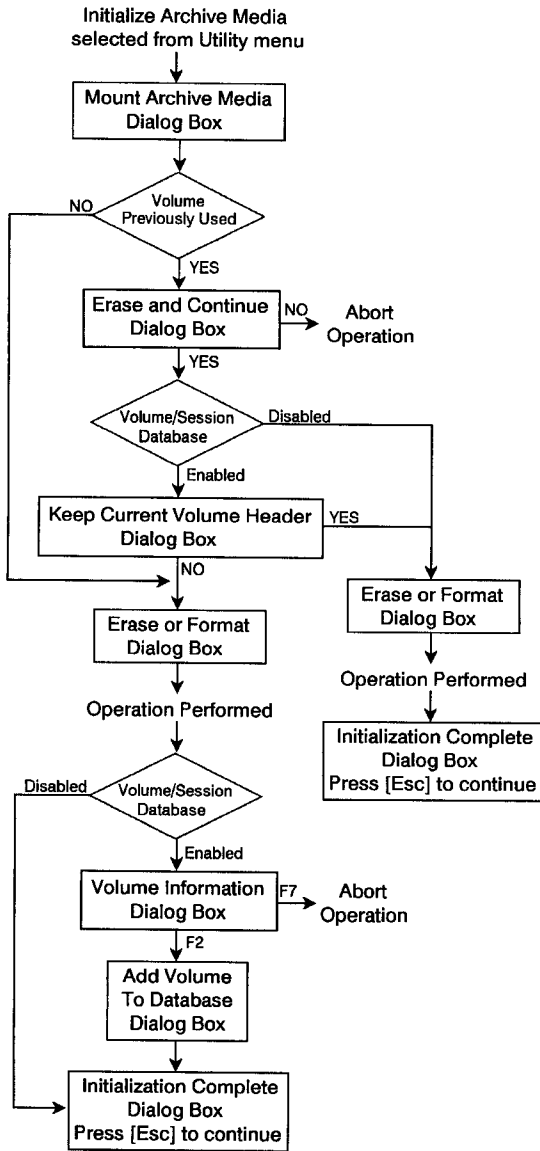


Figure 69 Initialize Archive Media Flow Chart

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media has previously been used by **Tape Mate II**, then the Erase and Continue dialog box displays.

21.2.2 Erase and Continue Dialog Box

This dialog box displays if the media has previously been used by **Tape Mate II**, and it requests verification to continue the initialization operation.

If NO is entered, then the initialize operation is aborted. If YES is entered, then the Keep the Current Volume Header dialog box displays, if the Volume/Session Database option on the Global Configuration Parameters dialog box is enabled. If the Volume/Session Database option is disabled, then the Erase or Format dialog box displays on screen.

If this operation violates a specified retention date for any session on the mounted volume, then the dialog box shown in *Figure 70* appears.

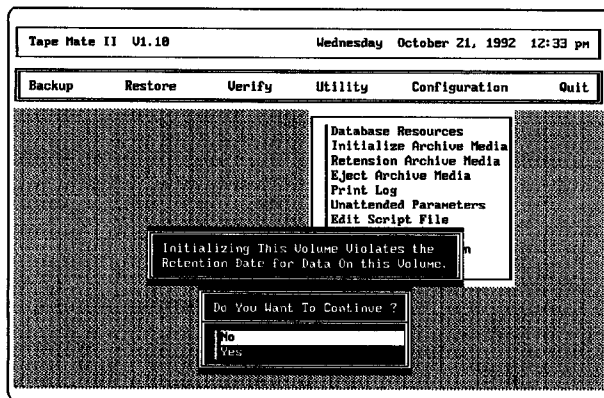


Figure 70 Violation of Retention Date Message

21.2.3 Keep Current Volume Header Dialog Box

This dialog box displays only when the media has previously been used by **Tape Mate II** and the Volume/Session Database option is enabled as specified in the Global Configuration Parameters dialog box. The first time that media is used by **Tape Mate II**, a valid volume title is assigned. The Keep the Current Volume Header dialog box allows you to change the assigned volume header if the Volume/Session Database option is enabled.

If NO is entered in this dialog box, then the Volume Information dialog box displays after the media is formatted or erased. If YES is entered in this dialog box, then the currently assigned volume header is used, and the Erase or Format dialog box displays on screen.

21.2.4 Erase or Format Dialog Box

The Erase or Format dialog box is used to determine whether the media should be erased or formatted. See *Figure 71*.

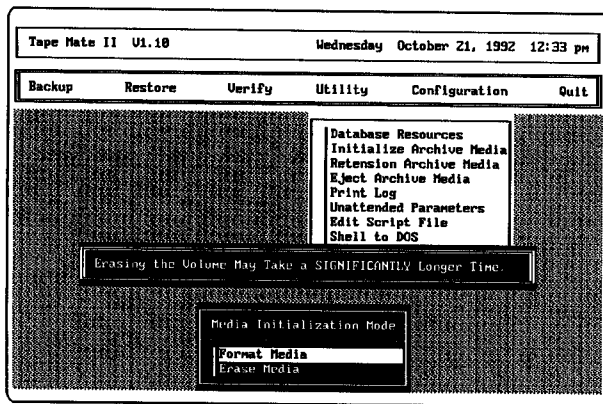


Figure 71 Format or Erase Dialog Box

Format is the shorter procedure of the two options. Format rewrites the header information and functionally erases the tape. Normally, this is all that is required. Erase literally and physically erases the tape from beginning to end and may take several hours if the installed archive device is a DAT or 8-mm drive. Select either **Format** or **Erase** as required.

The erase or format operation will be performed in a manner that is consistent with the hardware architecture. After the selected operation is performed, one of two dialog boxes displays on screen.

If the Volume/Session Database option on the Global Configuration Parameters dialog box is enabled, then the Volume Information dialog box displays on screen.

If YES was entered in the Keep Current Volume Header dialog box or if the Volume/Session Database option is disabled, then the Initialization Complete dialog box is the next dialog box displayed.

21.2.5 Volume Information Dialog Box

The Volume Information dialog box displays only if the Volume/Session Database option is enabled on the Global Configuration Parameters dialog box. *Figure 72* shows the Volume Information dialog box.

Enter a **Volume Title** and a **Storage Location**. The Storage Location field is optional. Press [F2] to write the information entered in the Volume

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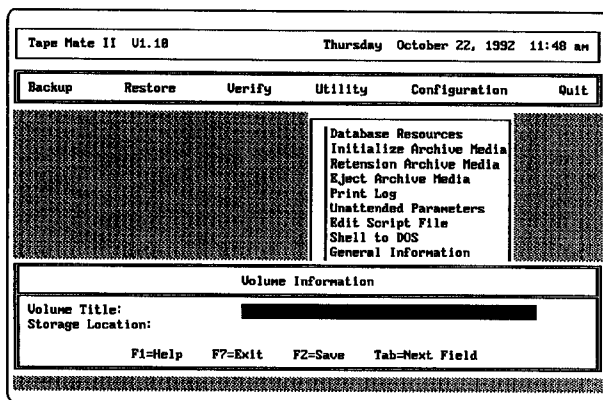


Figure 72 Initialize Volume Information Dialog Box

Information dialog box on the media. Press [F7] to exit and abort the initialize operation.

If the media had previously been used by **Tape Mate II** and YES was selected in the Keep Current Volume Header dialog box, then the Volume Information dialog box does not display.

21.2.6 Add Volume To Database Dialog Box

The Add Volume to Database dialog box only appears if the Volume Information dialog box displayed. That is, the Volume/Session Database option on the Global Configuration Parameters dialog box is enabled.

Add the volume to the database by selecting YES. The Initialization Complete dialog box display after an entry is made in the Add Volume to Database dialog box. Press [Esc] to return to the Utility menu.

21.3 Retension Archive Media

The retension operation winds the tape from one spool in the tape cartridge to the other and back again. The manufacturers of tape cartridges and tape drives publish recommendations on how often a tape cartridge should have a retension operation performed. Generally, if a tape cartridge has not been used in over a month, then the tape should have a retension operation performed prior to use. Use the following instructions to retension a tape:

1. Select **Retension Archive Media** from the Utility menu. A prompt to mount the archive media displays on screen.
2. Press [F2] to continue after mounting the media. Press [Esc] to abort the operation.

When the retention process is complete, the dialog box displays.

3. Press [Esc] to return to the Utility menu.

21.4 Eject Archive Media

This operation is used to eject archive media from tape devices that support media ejection via software control. Select **Eject Archive Media** from the Utility menu. When the media has been ejected, the dialog box displays. Press [Esc] to return to the Utility menu.

21.5 Print Log

This option can be selected and used to print or review any log history file generated by **Tape Mate II**. Log history files are generated and stored on the hard disk only if the Log History option on the Global Configuration Parameters dialog box is enabled. Log history files contain a list of operations performed, initialization parameters, files involved, and any errors that occurred during the operation.

Log history files are assigned an .HST file name extension. The file name for the log history file is generated from the date the operation was executed (YYMMDD). Multiple executions of **Tape Mate II** are made unique with a letter appended to the file name. Refer to the following example.

Use these instructions to print a log history file:

1. Select the **Print Log** operation from the Utility menu, and a dialog box containing a list of all the log history files, created when the database was enabled, displays on screen. See *Figure 73*.

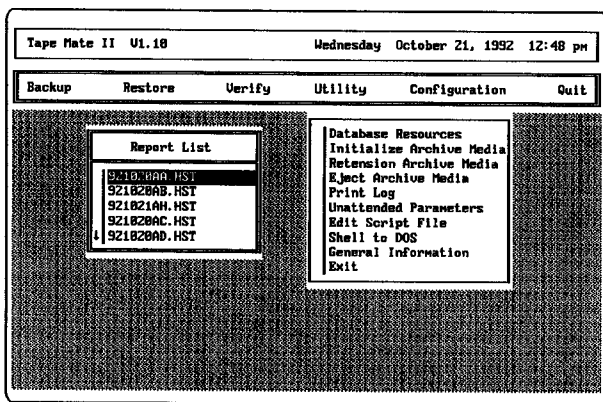


Figure 73 Report List Dialog Box

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To delete log history files from this dialog box, highlight a log history file name and press [Del]. Log history files can also be deleted using the DOS Delete command.

2. Highlight a log history file using the [Up Arrow] and [Down Arrow] keys, and press [Enter]. The Print to Printer dialog box displays and presents the option of reviewing the history file on screen or printing a hard copy on a printer.
3. Select **NO** and press [Enter] to review the contents of the file on screen. Select **YES** to print a hard copy of the file on the printer connected to LPT1. Verify that the printer (at LPT1) is powered up, on-line and has paper.

21.6 Edit Script File

This option on the Utility menu is used for creating and editing script files. There are two types of script files: attended and unattended. Unattended script files are used to perform Immediate or Delayed Unattended Operations.

Attended script files are used in an interactive mode by the system administrator to perform routine Backup and Restore Operations. The attended script files are the files that appear in the Script Selection List dialog box when Script is selected from the File Specification dialog box for either a Backup Operation or a Restore Operation. These dialog boxes are shown in *Figure 74*.

Tape Mate II U1.10		Thursday October 22, 1992 12:25 pm			
Backup	Restore	Verify	Utility	Configuration	Quit
Default Parameters		Script Selection List			
Run Time Options:		SAMPLE.NSV			
File Specification:		SAMPLE2.NSV			
File Specification					
So					
Default Script					
Included Files					
Excluded Files					
Z=		b=Next Field			

Figure 74 Script Selection List Dialog Box

21.6.1 Editing a Script File

Select the **Edit Script File** option, and the Select Script Type dialog box displays on screen. This dialog box is used to specify which type of script

file is to be modified. Select either the **Attended Script** file option or the **Unattended Script** file option.

After making a selection, the Select Script File dialog box, which contains a list of files, displays on screen. If Attended Script was selected, then only the attended script files that have been previously created display in the second dialog box. If Unattended Script was selected, then the unattended script files that have been previously created display. Unattended script files have a .NSF file name extension, while attended script files have a .NSS file name extension.

To edit a specific script file, highlight a file name in the Select Script File dialog box and press [Enter]. The contents of the selected script file display on screen.

When the modifications are complete, press [Esc]. The Save Changes dialog box displays on screen. This dialog box queries whether the changes should be saved or not. If no changes were made to the file, then the Save Changes dialog box will not display.

21.6.2 Creating a New Script File

Attended or unattended script files can be created using **Tape Mate II** or an ASCII text editor. Use the following instructions to create a new script file using **Tape Mate II**.

1. Select either **Attended Script** file or **Unattended Script** file (from the Select Script Type dialog box) depending on the type of script file that is to be created.
2. Press [Ins] to create a new script file at the Select Script File dialog box. The Enter Script File Name dialog box appears.
3. Enter a file name in the Enter Script File Name dialog box. The file name can have eight alpha-numeric characters. Do not add a file name extension. The extension is added to the file name by **Tape Mate II**, depending on the type of script file that was selected in the Select Script Type dialog box. If **Attended Script** was selected, then **Tape Mate II** will add a .NSS extension. If **Unattended Script** was selected, then **Tape Mate II** will add a .NSF file name extension.

After entering a file name, a new blank file is opened. The **Tape Mate II** Script Language commands can be used to create a script file. These commands are described in the following section.

21.6.3 Tape Mate II Script Language Commands

Script files contain a list of commands that perform the same function as specifying all the different parameters in a backup, restore or verify operation. Using a script file in an attended operation can save time,

21 Utility Menu Operations

particularly if there are archive operations that are frequently performed with include or exclude file specifications.

An unattended script file with the information entered in the Unattended Parameters dialog box could be used on a routine basis to perform archive operations while you are away from your computer.

Any of the commands defined in this section can be used in an unattended script file. A notation is added to the end of each command description to indicate whether the command is required or optional. This notation only applies to unattended script files, since the attended script file can only have INCLUDE and EXCLUDE commands.

The commands can be entered in the script file using uppercase letters, lowercase letters, or a combination of the two. The commands are entered in the script file using the following format:

COMMAND = COMMAND_SYNTAX

The following list briefly describes the **Tape Mate II** Script Language commands. The pages following the list contain more detailed descriptions of each command. Most of these descriptions contain an example of how the command is used.

Tape Mate II Script Language Command Summary

APPEND	Appends current session to existing sessions (optional)
BATCH	Supports execution of a DOS batch file within an Tape Mate II script
BEFOREDATE	Specifies "before" date (MM/DD/YY) (optional)
DRIVE	Specifies a source or target drive (required)
EJECT	Sets Eject Tape Flag (optional)
END	Ends terminator command for operation (required)
EXCLUDE	Specifies path\file for exclusion. Process subdirectories? ",Y" or ",N" (optional)
INCLUDE	Specify path\file for inclusion. Process subdirectories? ",Y" or ",N" (optional)
INTERMEDIATE	Perform an intermediate backup (optional)
MODE	Selects Backup , Restore , or Verify . (required)
MOUNTWAIT	Allows specification of a hardware "wait" time to account for robotic insertion of tapes on certain devices (Exabyte EXB-10)
OPTIONS	Specifies run time options (optional)
	A Reset the DOS Archive flag
	D Delete file after backup
	E Encrypt data
	M Append this session to the existing session

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- N** Restore the file only if the archive version has more recent date
- P** Preview mode
- Q** Query overwrite. Do not overwrite existing files
- R** Restore "read-only" files
- Y** Backup or restore empty directories

OVERWRITE The selected tape will be overwritten and not appended (optional)

PATH Specify a source or target path (required)

RDATE Specifies retention date (MM/DD/YY) (optional)

REM Specifies a remark or description of the script file. (optional)

SESSION Specifies session number for Restore and Verify (optional)

SESTITLE Specifies session title (optional)

SINCE DATE Specifies "since" date (MM/DD/YY) (optional)

VOLTITLE Specifies volume title (optional)

REM

A brief remark about the script file can accompany this command. This will not affect the specified operation. (Optional)

MODE

Specify one of the three modes: Backup, Restore, or Verify. (Required)

MODE = BACKUP

DRIVE

Select and specify a source drive for Backup and Verify Operations, or a target drive for Restore operations. All drives to be used in the operation must be listed on a separate line as a different DRIVE command. The *Section 21.6.4, Basic Script File Format* contains additional instructions on using this command. (Required)

DRIVE = D:

PATH

Specify the source path for Backup and Verify Operations or the target path for Restore Operations. This command cannot be used globally; it only affects the data on the drive specified with the DRIVE command listed previously in the script file. A separate PATH command must be used for each drive. If the script file does not contain a PATH command, then the root directory is assumed. (Optional)

PATH = \TMATE

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INTERMEDIATE

This command would be used in the script file to perform an intermediate backup operation. Only those files that have been modified since the last backup will be included in this operation. The inclusion or exclusion of OPTION A in the script file determines whether the intermediate operation is a differential or an incremental operation. See *Default Previously Backed Up Files*, page 94 for more information. (Optional)

INTERMEDIATE

INCLUDE

This command is used to specify file specifications (path\file) for inclusion in the operation. A multiple number of INCLUDE commands can be used in the script file. If this command is not specified, then all files (*.*) will be assumed. Use a separate INCLUDE statement for each path\file that is to be included. Adding a "Y" or a "N" indicates whether the subdirectories will be processed or not. (Optional)

INCLUDE = *.ASM, Y OR INCLUDE = *.DRV, N

EXCLUDE

This command is used to specify file specifications (path\file) that are to be excluded from the operation. A multiple number of EXCLUDE commands can be used in the script file. If this command is not specified, then no files will be excluded. Use a separate EXCLUDE statement for each path\file that is to be excluded. Adding "Y" or "N" indicates whether the subdirectories of the specified directory are to be processed. (Optional)

EXCLUDE = *.EXE, N OR EXCLUDE = *.COM, Y

OPTIONS

This command is used to specify the run time options. Options are specified with a single character and multiple options are specified by listing several letters in any order. These options are defined as follows:

- A** Reset the DOS Archive flag
- D** Delete file after backup
- E** Encrypt data
- M** Append this session to the existing session
- N** Restore the file only if the archive version has more recent date
- P** Preview mode
- Q** Query overwrite. Do not overwrite existing files
- R** Restore "read-only" files
- Y** Backup or restore empty directories

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The following example shows the command line that would be used for an operation that resets the DOS Archive flag and includes empty directories. (Optional)

OPTIONS = YA

SINCEDATE

This command is used when performing an operation on data that was created or modified after a given date. The specified operation will be performed on any file having a date equal to or more recent than the date specified. The date format is MM/DD/YY. The following example shows the operation is to be performed only on data that was created or modified after January 15, 1991. (Optional)

SINCEDATE = 1/15/91

BEFOREDATE

This command is used to perform an operation on data that was created or modified prior to a given date. The operation will be performed on any file having a date equal to or prior than the date specified. The date format is MM/DD/YY. The following example shows the operation is to be performed on data that was created or modified prior to July 30, 1991. (Optional)

BEFOREDATE = 7/30/91

APPEND

This command is used to append the current session to the existing sessions on the media when performing a Backup Operation. Once the APPEND command appears in a script file, it applies to all of the remaining sessions. (optional)

APPEND

OVERWRITE

This command, used in the first backup sequence of a script, specifies that the data on the mounted tape is to be overwritten. The default procedure is to impose and "append" in order to preserve any previously written data to the target tape.

BATCH

This new command allows system administrators greater flexibility in the operations performed in **Tape Mate II** script processing. Any standard DOS BATCH file may be specified and executed via this command. Since these commands are executed from within a **Tape Mate II** operation, consideration must be taken for memory requirements. No TSR should be

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loaded by such batch files nor execution of applications accessing the tape drive.

BATCH = C:\BATCH\RUN.BAT

MOUNTWAIT

This command is specifically useful in support of the Exabyte EXB-10 (auto-changer). **Tape Mate II** does not support autochangers, but this command is maintained for upward compatibility.

MOUNTWAIT = 200

SESSION

This command is used to specify the session number for Restore and Verify Operations if other than the first session is to be used. (Optional)

SESSION = 2

SESTITLE

This command is used for specifying a session title. (Optional)

SESTITLE = FILESERVER 1 BACKUP

VOLTITLE

This command is used for specifying a volume title. (Optional)

VOLTITLE = FULL BACKUP #1, TAPE #1

RDATE

This command is used for specifying a retention date for the current (new) session. The format for this command is MM/DD/YY. (Optional)

RDATE = 1/1/92

EJECT

This command is used to eject the media at the end of an operation. Media is only ejected if the archive device supports media ejection by software control. This command should only appear in the last session in the script file. (Optional).

EJECT = ENABLE

END

End terminator command for the operation. (Required)

21.6.4 Basic Script File Format

This section describes the required command sequence for both the attended and unattended script files. The requirements and restrictions are different for the two types of script files.

Attended Script Files

An attended script file can only have INCLUDE and EXCLUDE statements. Attended script files are used in an interactive mode; this means that the name of the script file is entered as a parameter on the Backup or Restore Parameters dialog box. Therefore, the MODE, DRIVE, and END statements are not required. No other commands are needed in the attended script file because it is merely a substitute for entering path and file name specifications in the Inclusive and Exclusive File Selections dialog boxes. The information on how to use and specify an attended script file has previously been defined in Section 17.2, *Setting the Backup Parameters* or Section 18.1, *Setting the Restore Parameters*. Figure 75 shows the contents of an attended script file.

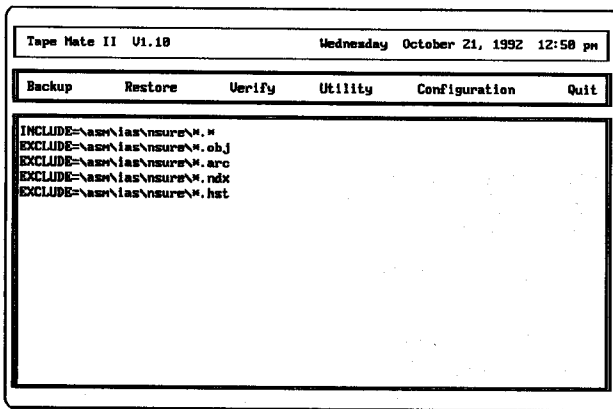


Figure 75 Example of an Attended Script File

Unattended Script Files

The requirements for an unattended script file are more extensive because all the parameters normally defined on the Backup, Restore, or Verify Parameters dialog box must be specified in the script file. In addition, the order that the commands appear in the script file determines what actually happens in a given operation.

There are three required commands that must appear in all unattended script files. These commands are listed below:

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MODE
DRIVE
END

The remaining commands are optional and can be used as needed to perform certain functions during an operation.

The command sequence for an unattended script file must begin with the **MODE** command and terminate with an **END** command. A **DRIVE** command must be entered for each drive that is to be used in the operation. There are several commands that can be used globally, which will affect all specified drives and can also be used to apply to one drive. Whether a command is used globally for all drives or for one specific drive is determined by where the command appears in relation to the **DRIVE** command(s) in the script file.

The optional commands that can be used globally or specifically are listed below:

INTERMEDIATE
INCLUDE
EXCLUDE
OPTIONS
SINCE DATE
BEFORE DATE

If any of the optional commands shown above appear prior to the first **DRIVE** command, they will be used as global commands that apply to all specified drives. If any of the optional commands listed above appear in the script file after one **DRIVE** command, but prior to a second **DRIVE** command, then those commands will only apply to the first drive.

Example—

INTERMEDIATE	These optional commands apply to all drives.
OPTIONS = AE	
DRIVE = C	
OPTIONS = Y	These optional commands apply to drive C.
EXCLUDE = *.EXE	
DRIVE = D	
OPTIONS = P	These optional commands apply to drive D.
EXCLUDE = \VENT*.*	

The **PATH** command can only be used after a **DRIVE** command. If a **PATH** command is not specified for each **DRIVE** command that is used, then for those drives without a **PATH** command, the root directory will be used as the path.

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The remaining optional commands can be used as needed. These commands can appear anywhere in the script file after the MODE command and before the END command. The REM command is the only command that can appear prior to the MODE command. These commands are listed below:

APPEND
SESSION
SESTITLE
VOLTITLE
RDATE
EJECT

The following list shows the required command sequence for the unattended script file:

MODE

·
· (At least one **DRIVE** command and any optional commands)

END

A command set is a list of commands starting with the MODE command and ending with the END command. A script file may contain one or more command sets.

Example—

MODE = BACKUP

INTERMEDIATE

OPTIONS = AE

INCLUDE = *.*

DRIVE = C:

EXCLUDE = *.EXE

DRIVE= D:

PATH = \VENTURA

INCLUDE *.* ,N

DRIVE = E:

INCLUDE = *.EXE

END

specifies only those files that have been modified since the last backup will be used in the operation specifies the Archive flag reset after the backup and the data encrypted on the archive media

includes all files on all drives

drive C will be used in the backup

excludes the \.EXE files on Drive C from the backup operation

drive D will be used in the backup

starts copying files in the \VENTURA directory

overrides the global INCLUDE command above;

restricts the global INCLUDE command, by

stating not to backup subdirectories

drive D will be used in the backup

overrides the global INCLUDE command;

therefore, on drive E, only the \.EXE files will be

backed up

the script file is terminated

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21.6.5 How to Save the Script File

After the commands have been entered in the script file, press [Esc]. The program queries whether to save the changes. The file is saved in the same directory that contains **Tape Mate II**.

If the script file was created with an ASCII text editor or a word processor, then save it as an ASCII text file in the same directory containing **Tape Mate II**, or the file name will not appear in the list of unattended script files.

It is important to give the script file the correct file name extension. An unattended script file should be given a .NSF extension, and an attended script file should be given a .NSS extension. The correct file name extension is added automatically when using the **Tape Mate II** text editor.

21.6.6 How to Validate the Script File

An unattended script file can be verified—that it performs the specified operations in the correct manner—by executing the command sequence in attended mode. The PREVIEW run time option can be added temporarily to the script file to decrease the execution time of the script.

To add the PREVIEW option, modify the script file to include the following line:

OPTIONS = P

By adding this line temporarily, both syntax and workstation configurations can be validated without actually writing to the archive media or to the specified Destination Drive. **DO NOT FORGET** to remove the **OPTIONS = P** line from the script file. If this line remains in the file, then when the unattended operation is performed, the data will only be written to the computer screen instead of to the media or to the specified Destination Drive.

To validate a script file, type **TMATE** with the name of the script file given as an argument on the DOS command line. Refer to the example shown below:

TMATE SCRIPT_FILE_NAME [Enter]

21.7 Shell to DOS

When this option is selected from the Utility menu, the screen clears and the DOS prompt appears. Any normal DOS operation can be performed, with the exception of applications requiring more memory than is available while **Tape Mate II** is running.

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To return to **Tape Mate II**, enter the following command on the DOS command line:

EXIT [Enter]

21.8 General Information

Selecting this option on the Utility menu, displays a dialog box containing general information about **Tape Mate II** including, version number, options, serial number, company name, user name, copy number, and **Tape Mate II** developers.

21.9 Exit

The Utility menu can be closed in one of three ways: highlight the **Exit** option on the menu using the [Arrow] keys and press [Enter]; press **X** or [Esc].

22 Configuration Menu Parameters

This chapter describes each option on the Configuration menu and the associated dialog boxes. The Configuration menu is used to set the configuration parameters that define the operating environment for **Tape Mate II**. The local configuration parameters define the type of archive device that will be used in the operations. The global configuration parameters include specifying whether to save log history files, to force **Tape Mate II** to work in a monochrome mode, and to enable Volume/Session database. It can also be specified whether to eject the media, if applicable, from the archive device at the end of a job.

22.1 Local Configuration Parameters

This section describes the Local Configuration Parameters option and Local Archive Device Selection dialog box. The first time the Local Archive Device Selection dialog box displays, the Current Archive Device field is highlighted and indicates "No Device Selected."

The Local Archive Device Selection dialog box allows you to define the local hardware device to be used in the **Tape Mate II** archive operations. The name of the selected device is stored in a configuration file.

22.1.1 Current Archive Device

The Current Archive Device field is used to specify the type of archive device that will be used in **Tape Mate II** operations. The software contains an extensive list of supported devices. To bring up this list, press [Enter] as shown in *Figure 76*.

Tape Mate II V1.18		Wednesday October 21, 1992 12:51 pm			
Backup	Restore	Verify	Utility	Configuration	Quit
Local Archive Device Selection					
Current Archive Device:		Mangtek SCSI Streaming Tape Drive			
F1=Help	F2=Save	F7=Exit	ENTER=Edit		
Archive Device Type Selection			Currently Selected Drivers		
↑ Tangberg TDC 4100 SCSI-2 Series Tape TEAC HT-25T/26S Streaming Cassette MangDAT Model 1300 DDS DAT Drive MangDAT Model 2500 DDS DAT Drive Mangtek Model 6130HS DDS DAT Mangtek Model 6200HS DDS DAT Mangtek SCSI Streaming Tape Drive VD-7100 Series Streaming Cassette			Mangtek SCSI Streaming Tape Drive MANGTSTR.DRU, Version 1.10 ASPI for DOS Driver ASPI.DRU, Version 1.12		

Figure 76 Archive Device Type Selection List

[Arrows] may appear on the left side of the list, which indicate that there are additional devices that are not shown. Select the appropriate device, press [Enter], and the device name displays in the Current Archive Device field. If [Esc] is used to close the supported device list, then the device name that is highlighted displays in the Current Archive Device field. The device name is saved in the configuration file only if you select YES in the Save Changes dialog box.

Some devices may require additional device configuration information; in this case one or more Device Configuration dialog boxes display on screen when the device is selected. The different parameters that can appear in a Device Configuration dialog box are described in the following section. Refer to the archive device documentation as required for additional information. Once you have specified the device configuration, press [F2] to save these changes.

Compression

When this field is selected three options are presented in a second dialog box: Default, Disabled, and Enabled. Selecting Default uses media in the same way that it has previously been used. If the media was used with compression enabled, then compression will be used. If the media was used with compression disabled, then compression will not be used.

Tape Format

Select this option and a list of the supported tape formats for the selected device displays in a second dialog box as shown in *Figure 77*.

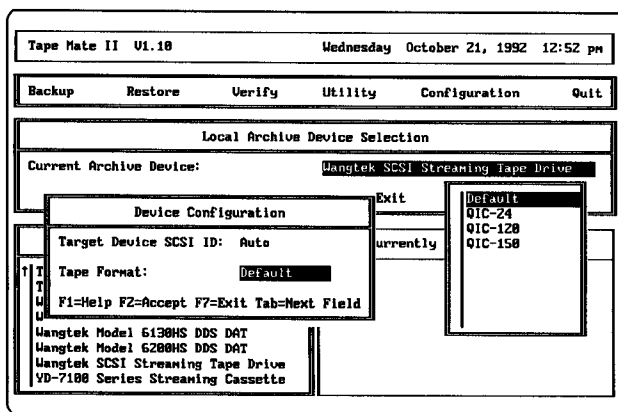


Figure 77 Tape Format Device Configuration

Select the appropriate format for the media that will be used in the archive operation. To change the format of the given media, change this option,

22 Configuration Menu Parameters

and format it using the Initialize Archive Media option on the Utility Menu.

Target Device SCSI ID

The Target Device SCSI ID field allows you to select the SCSI ID for the device. When selected the SCSI Bus ID dialog box displays, containing a list of SCSI identification numbers, as shown in *Figure 78*. The default is AUTO and the SCSI ID choices are 0–7. When AUTO is selected, the driver will use the first device of this product type that it finds on the SCSI bus.

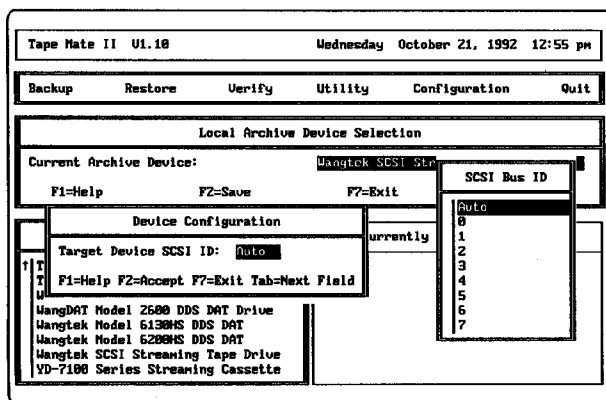


Figure 78 Target Device SCSI ID Configuration

22.1.2 Archive Device Type Selection

Once you have specified the device and configured it accordingly, press [F2] to save. The Archive Device Type Selection dialog box then displays containing one option, ASPI for DOS Driver. Press [Enter] to continue, and another Device Configuration dialog box displays (see *Figure 79*).

Adapter

This field allows you to specify which adapter you have installed (see *Figure 79*). Select the appropriate card and press [F2] to save. Card 0 is default; if you have multiple adapters running under ASPI, you may need to select the appropriate card number for the device. First try card 0, and if **Tape Mate II** does not recognize the device, try another card number up to 4.

22.1.3 Save Changes Dialog Box

After completing all the required parameter specifications, the selected device and controller (if applicable) names appear in the lower right box on

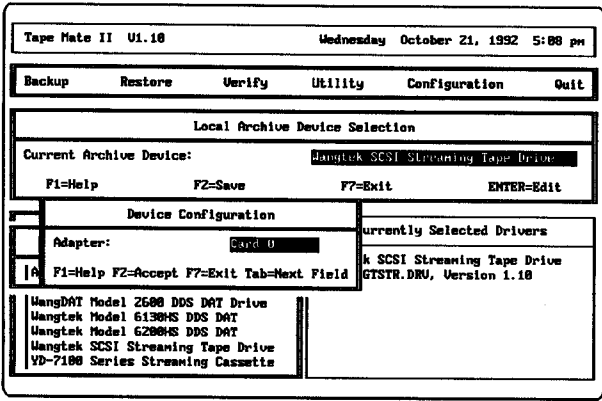


Figure 79 Device Configuration Dialog Box

the screen. The selected device name is also placed in the Current Archive Device field. Press [F2] to save the selected archive device and configuration information. These changes will be saved in the configuration file for the next time you use **Tape Mate II**.

22.2 Global Configuration Parameters

This section describes the Global Configuration Parameters dialog box as shown in *Figure 80*. All the parameters set in this dialog box are permanently saved in a configuration file.

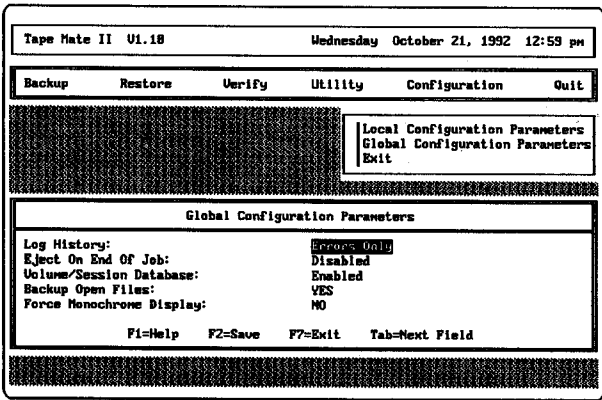


Figure 80 Global Configuration Parameters Screen

Tape Mate II

22 Configuration Menu Parameters

22.2.1 Log History

With this option, the header and selection information for each operation (backup, restore, or verify) is recorded along with any processing errors that occur. A log history file is created for each operation (i.e., Backup, Restore, or Verify) that is performed and contains a list of:

- the functions performed during an operation
- the initialization parameters
- the file involved (FULL)
- any errors that occurred during the processing

There are three options for History logging: None, Errors Only, and Full. The default setting for this option is Errors Only.

22.2.2 Eject on End of Job

For devices that support software “eject” control, enabling this parameter will instruct **Tape Mate II** to eject the media at the completion of the current operation. To disable this option, press **D** on the keyboard, or select **Disable**.

22.2.3 Volume/Session Database

Tape Mate II has its own database which contains information about the volumes that have previously been used by **Tape Mate II**. This database also records session information. A session is the resulting group of files from a single operation. The type of information gathered and stored in the database for a volume includes the volume title, storage location, creation date, media count, session count, and device type. The type of information that is gathered and stored for a session includes the title, session number, source path, media count, whether it requires a password, creation date, retention date, and session size.

The default setting for this option is Enabled. If Disabled is selected for this option, then the Database Resources utility on the Utility menu cannot be used, since the database will not contain any information. If Enabled is selected for this option, then volume and session information will be kept and stored in the database.

22.2.4 Backup Open Files

In order to obtain a completely valid backup image of a file, it must be read in an exclusive access mode. That is, no other application may have the file open during the backup operation. However, some installations are required to support mission critical applications that may be active almost 24 hours a day. With these files, it is impossible to be assured of gaining exclusive access during the backup.

In order to provide some facility for backing up such files, selecting YES allows **Tape Mate II** to open these files (on retry) in a READ/SHARE mode and attempt a complete backup. In this mode, if records are not locked, a valid copy of the file in question can be obtained. For the case of locked records, **Tape Mate II** will “read around” these locked file regions, and replace the corresponding record locations with binary zeros. The file in such cases, are compromised, but some databases supply utilities to “rebuild” such corrupted files. The default setting for this option is NO.

22.2.5 Force Monochrome Display

This option forces **Tape Mate II** to operate in a monochrome mode. **Tape Mate II** was designed for color monitors, and some monochrome monitors attempt to display the screens in color. This results in a distorted screen image. To force **Tape Mate II** to operate in a monochrome mode select YES. The default setting is NO.

If you enter **Tape Mate II** the first time and the screen is distorted, press [Ctrl]-[Alt]-[Del] to reboot the system. Force monochrome display from the command line by entering from the DOS command line:

TMATE /MONO [Enter]

After you are in **Tape Mate II**, be sure to change the Force Monochrome Display option to YES, so that it is saved in the configuration file..

22.3 Exit

To close the Configuration menu, highlight the **Exit** option on the menu and press [Enter]; or press **X**, [Esc] or click the right mouse button.

MiniSCSI*plus*TM

Appendices

Appendices



A System Requirements

MiniSCSI Plus Requirements

- The parallel port must be “standard,” i.e. have a fully IBM-compatible hardware design, including all ground lines. For highest performance, the computer’s parallel port must be capable of bidirectional operation.
- The SCSI device(s) connected to the **MiniSCSI Plus** must have the standard ANSI SCSI-specification TERMPOWER implemented, as the **MiniSCSI Plus** draws its power from this line. See your dealer for details.
- The SCSI device chain must be properly terminated as per ANSI SCSI specifications.
- IBM or compatible AT, PS/2, or similar computer.
- MS-/PC-DOS 3.1 or above. DOS 3.3 or above is required to format and use partitions larger than 32 MB.
- A 100% IBM-compatible BIOS. Operation with some incompatible BIOSs may be possible but is not guaranteed.
- At least 640 KB of system memory.

Additional Music Box Requirements

- Any CD-ROM drive which supports the MSCDEX CD-ROM extensions to DOS and which has audio-play capabilities.
- MSCDEX, version 2.1 or above, and a CD-ROM software driver which implements the appropriate audio-mode commands. These are included with your **MiniSCSI Plus**.
- The MS-DOS command-line version of *Music Box* will automatically recognize and operate with the following video graphics card standards: CGA, EGA, VGA and Hercules Monochrome Graphics
- Windows version 3.0 or later for the Windows version of *Music Box*.

Additional Tape Mate II Requirements

- A logical or local hard disk with at least 1.5 MB of free disk space.
 - A local hard disk, tape drive, or other supported archive device.
- Optional Requirements**
- A mouse compatible with the Microsoft Mouse Interface.
 - A dot matrix, daisy wheel, or laser printer to use **Tape Mate II**’s report feature.

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Memory Usage

Drivers

- The ASPI Manager, MA348.SYS, requires about 7 KB of system memory once loaded. TSCSI.SYS uses about 11 KB of system memory. In addition, at least 512 bytes of buffer space is required. TSLCDR.SYS uses about 10 KB of system memory. In most cases, both Trantor drivers should be able to be "loaded high" on 386 and 386SX computers using memory managers such as QEMM™ from Quarterdeck® and 386Max™ from Qualitas®.

DOS Extensions

- MSCDEX typically requires about 20 KB of system memory, depending on how many buffers are allocated.

Music Box

- *Music Box* needs about 128 KB of system memory to run in non-resident graphical mode. The memory-resident option requires about 18 KB of memory when loaded.

B Introduction to ASPI

What Is ASPI?

ASPI (Advanced SCSI Programming Interface) is a software interface standard originally proposed by Adaptec® (Milpitas, CA). ASPI entered the public domain when Adaptec presented it to the SCSI CAM Committee (SCSI Common Access Method Committee) as a model for a public interface standard. Your Trantor SCSI host adapter supports ASPI.

The idea behind ASPI is to create a “black box” software interface—one which allows programmers to create software without having to know anything about the details of the SCSI interface hardware used in your computer system. With ASPI, it’s possible to write programs that can be used with any SCSI-based device used on a computer system that supports ASPI. While things are not always 100% perfect in all cases, ASPI greatly reduces potential compatibility problems for you, the user. And, of course, ASPI also reduces the need for detailed technical support by us. For both reasons, Trantor Systems fully endorses and supports widespread use of the ASPI standard.

How Does ASPI Work?

Essentially, there are two parts to an ASPI implementation, the ASPI “Manager,” a device driver supplied by the hardware manufacturer, and the ASPI software application. Applications range from the ASPI-compatible CD-ROM and hard disk drivers supplied by Trantor to our **Tape Mate II** tape backup, scanner control applications from other companies or any other type of software designed to work with SCSI devices.

It’s important to note that without an ASPI Manager, ASPI compatibility is not possible. It’s the Manager that creates the standard ASPI compatibility layer between the SCSI host adapter hardware and the ASPI-compatible application. The Manager is very hardware-specific, and is almost always supplied by the manufacturer of your SCSI host adapter. Trantor has supplied an ASPI Manager in your **MiniSCSI Plus** package; you can identify it by its filename of MA348.SYS. During the software installation process, our Manager and the appropriate CD-ROM or hard disk drivers are copied to your computer by the INSTALL program and are loaded through your CONFIG.SYS file during bootup.

Referring to *Figure 81*, you can see that the ASPI CD-ROM and hard disk drivers actually work through the ASPI Manager to perform their functions. Also, DOS applications which access your SCSI devices work through both the drivers and the Manager. ASPI applications (such as tape backup software) usually access the ASPI Manager directly.

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From the standpoint of your ASPI-compatible software, all SCSI host adapters and devices connected to your system work the same way. The secret is the ASPI Manager; it translates ASPI commands to those commands necessary for the specific SCSI adapter for which it was created.

SCSI software, interface and device compatibility has traditionally been a source of concern and confusion for many users. ASPI compatibility goes a long way toward alleviating these problems and as a result is beginning to be widely adopted by many manufacturers. As an early supporter of ASPI, Trantor strongly encourages this trend.

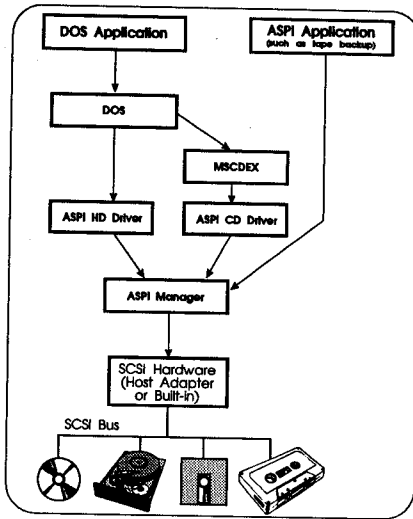


Figure 81 ASPI Block Diagram

So, What Does All This Mean To Me?

For most users, it's not important to understand the details of how ASPI works. You only need to realize that if you use software designed to work with ASPI, it should operate without problems on Trantor's ASPI-compatible SCSI host adapters, as well as those from other ASPI-compatible manufacturers. For more information about ASPI, please contact us through our technical support BBS (see *Chapter 12*).

NOTE

The information in this appendix describes Trantor's implementation of ASPI, a SCSI access model originally proposed by Adaptec to the SCSI CAM Committee.

Trantor's implementation is based on Adaptec's ASPI Revision 1.1 (dated May 30, 1989) and MS-DOS Access Method Revision 2.5 (dated October 2, 1989). However, Trantor's implementation is a superset of Adaptec's original specification, most notably adding SCSI target functions.

We believe the information contained herein to be accurate, but shall incur no liability for the use or misuse of this information. We reserve the right to modify the contents of this appendix without obligation to notify any individual or organization of such modification.

The original ASPI documents were copyrighted by Adaptec, Inc. These documents are now in the public domain.

C **Tape Mate II Upgrade Options**

Since you have already received Trantor's **Tape Mate II**, you have the option of upgrading this valuable standalone archiving application to a network archiving version. Trantor has arranged with FortuNet (developers of **Tape Mate II**) to provide these archiving products to you at a discount.

Nsure Overview

FortuNet's Nsure products provide cost effective solutions to safeguarding your valuable data with extensive features today and an upgrade path for tomorrow. Nsure products vary from network products for DOS workstations to Novell NLM (NetWare Loadable Module) products with autochanger support.

Nsure is distributed across the network as separate application modules: Nsure Manager and Nsure Client. This architecture provides the flexibility to backup and restore virtually any device on a network. The Nsure Manager supports the LAN Administrator in performing necessary operations from a single station within the network. The Nsure Client provides the support for backing up client stations in the foreground or background.

As a distributed application, Nsure is the most advanced data management application available today for networked storage resources. Nsure is fully independent of operating systems, network operating systems, communication protocols and storage devices. Please read the next two sections and if you have any other questions about Nsure products, please call FortuNet at 1-800-959-0718 or 1-801-467-6887.

Nsure Features

Nsure features wildcard selection, empty subdirectory selection, before and after data ranges, incremental and differential modes, inclusive and exclusive selection, and restore directory (tree) selection.

Nsure's other features include open file retry, history log, unattended operation scheduling, script language, data encryption, volume/session database, client workstation backup/restore, Novell NetWare 2.2 and 3.1x support, Apple Macintosh backup/restore on NetWare servers, multi-level password security, Quick File Access (QFA), multiple drive support ("node" level backup/restore), autochanger support, dynamic server login/logout, and NetWare Trustee/Bindery support.

Nsure will work with most popular network operating systems including Novell's NetWare/286/386, NetWare Lite, Microsoft's Lan Manager,

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Artisoft's Lantastic, and many others. Nsure requires either MS/PC-DOS (3.1 or greater) or DR-DOS (5.0 or greater). Nsure requires 512 KB of available memory from the network manager and 44 KB from the client. Client access protocols include NetBIOS and NetWare IPX. Nsure products support the following archive devices:

- *Floppy Disk—DOS Addressable Devices* (5¼ & 3½-inch, etc.)
- *¼-inch Tape Devices* (QIC-DC600), QIC-02 (Archive, Irwin, Mountain, Tandberg, Wangtek, Teac), SCSI (Archive, Tandberg, Wangtek, Sankyo, Y-E Data).
- *Digital Audio Tape* (4-mm & 8-mm) including Archive, ARDAT, Exabyte, JVC, Wangtek, WangDAT, Hewlett-Packard, Sony.
- *Other Media-Addressable Devices* including Removable Hard Disks, Optical-WORM Drives, Optical-Multifunction Devices.
- *Autochangers* including ADIC 1200 and 1200C; Exabyte EXB-10 and EXB-10i; Soltronic PROTEC 50/55 and 10/15; Colorado Technical Designs COL/8L, COL/8SL and COL/4L; Spectra Logic BTL-8000; WangDAT LD-4; and others.

Nsure Versions

The following paragraphs detail Nsure upgrade versions:

OneNet— a network backup and restore product for multiple servers.

AllNet— a network backup and restore product for unlimited number of servers or DOS workstations.

NLM/AllNet— an NLM network backup and restore product for unlimited number of servers or DOS workstations, with full selection and scheduling capabilities. NLM/AllNet complements the above DOS-based products and provide the higher performance and security of a server-based solution.

OS/2 Client— allows your AllNet or NLM/AllNet to support backup of OS/2 "client" stations on multiple OS platforms. Client modules are supplied for OS/2 V1.1, 1.3, & 2.0. OS/2 Client runs in the background and permits seamless operations from a master workstation.

NLM AutoChanger (Server-Based)— includes the NLM/AllNet with support for 4-mm & 8-mm autochangers for the highest capacity backup needs with capacities ranging from 8 GB to over 300 GB.

To insure your discount, order your FortuNet Nsure Upgrade from Trantor, simply tear out the coupon on the following page and send it to Trantor or call Trantor direct at 1-800-TRANTOR or 1-510-770-1400. Additional technical information and support for these products is available from FortuNet at 1-800-959-0718 or 1-801-467-6887.

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To earn 30% off any version of Nsure, simply tear out this page and send to Trantor.

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NLM/AllNet	Novell's 3.x NLM network backup/restore for unlimited number of servers/DOS workstations	NS-NLM-AN	\$995	\$696.50
OS/2 Client	OS/2 Client support for workstation & server-based solutions	NSC-OS2	\$195	\$136.50
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