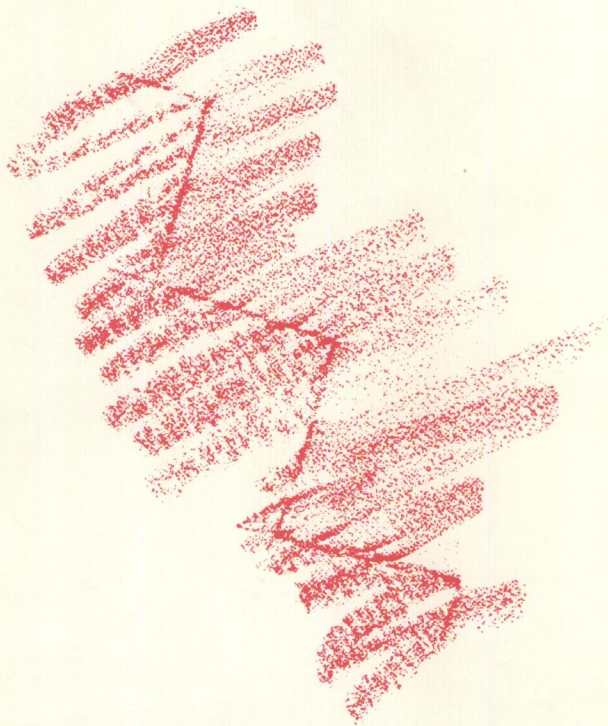
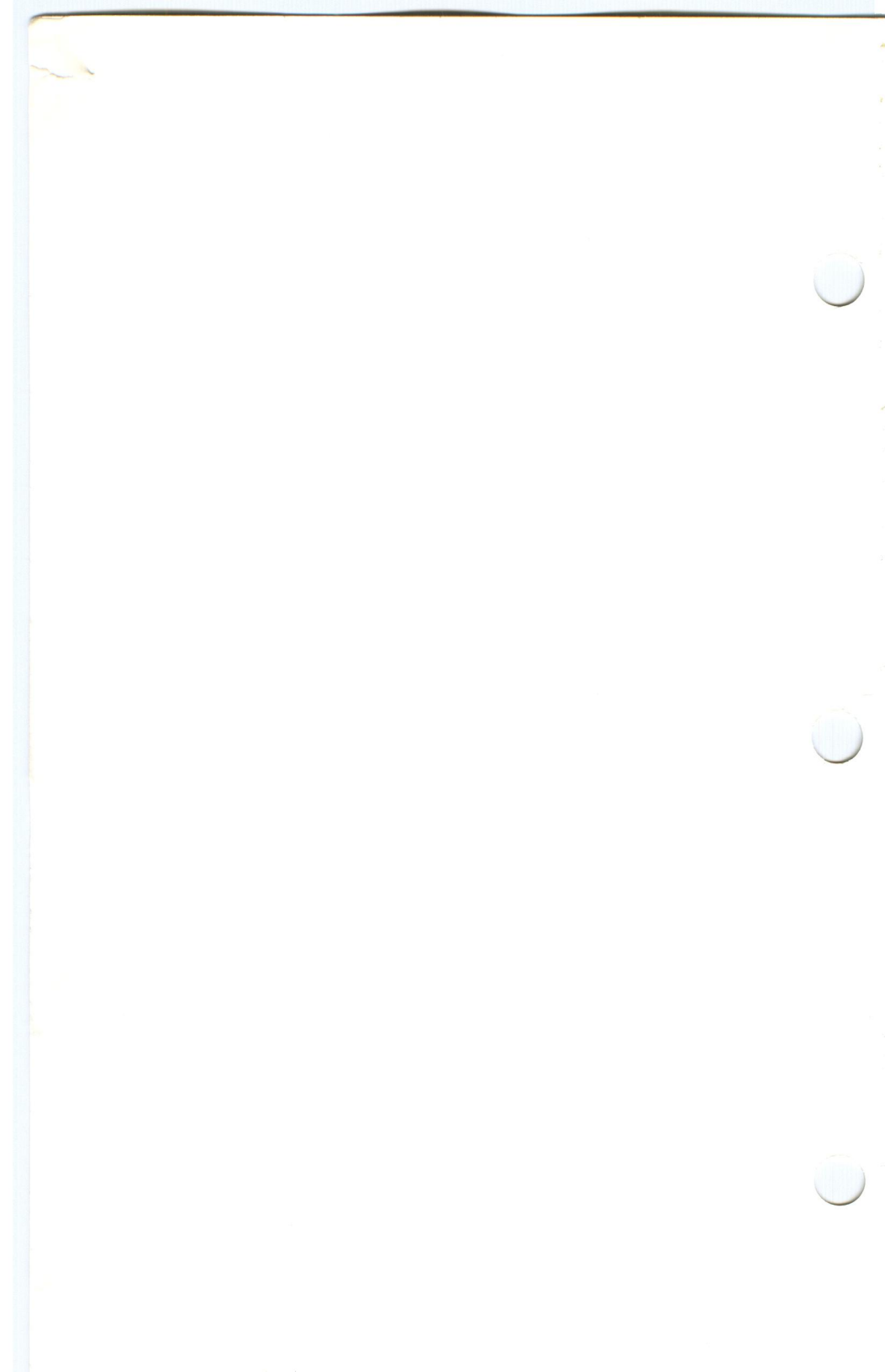


SY-TOS[®]

*Tape
Operating
System*



User's Guide
For the DOS Environment



SY-TOS[®]

*Tape
Operating
System*



User's Guide

For the DOS Environment

Revised Edition (March 1989)

Changes are made periodically to the information herein: these changes will be incorporated in new editions of this publication.

References in this publication to Sytron products, programs, or services do not imply that Sytron intends to make these available in all countries in which Sytron operates. Any reference to a Sytron program in this publication is not intended to state or imply that only Sytron's program may be used. Any functionally equivalent program may be used instead.

Address comments concerning the content of this publication to Sytron Corporation, Software Support Division, 117 Flanders Road, P.O. Box 5025, Westboro, Massachusetts, 01581-5025. Sytron may use or distribute whatever information you supply in any way it believes appropriate without incurring any obligation to you.

© Copyright 1986, 1989 Sytron Corporation
All rights reserved.

SY-TOS and SY-CLOCK are registered trademarks of Sytron Corporation.

MS, MS-DOS and XENIX are registered trademarks of Microsoft Corporation.

MS NET is a product of Microsoft Corporation.

NetWare and Novell are trademarks of Novell, Incorporated.

IBM is a registered trademark of International Business Machines Corporation.

Personal System/2 is a trademark of International Business Machines Corporation.

PC LAN is a product of International Business Machines Corporation.

COMPAQ is a registered trademark of Compaq Computer Corporation, registered United States Patent and Trademark Office.

3COM is a registered trademark of 3COM Corporation.

3+ is a trademark of 3COM Corporation.

Printed in the United States of America

Preface

The SY-TOS[®] system (pronounced *sigh-toss*) is a powerful tape backup and restore utility that allows you to protect your data by backing it up on to magnetic tape. You can use SY-TOS on IBM[®] Personal Computers, IBM Personal System/2[™] computers, COMPAQ Personal Computers or those that are compatible. It is designed to operate with a variety of network and hardware configurations.

This manual assumes you have knowledge of the fundamental operations of your computer system. The manual is organized as follows:

- Chapter 1 Tells you how to install the SY-TOS software. The last section in this chapter is a sample SY-TOS session.
- Chapter 2 Presents points to consider when implementing a backup strategy. Sample strategies are provided which you may modify to fit your backup needs.
- Chapter 3 Gives an overview of the SY-TOS system. It explains the two menu systems that you can use and discusses concepts that are used throughout the manual.
- Chapter 4 Describes how to use the ST-CONFIG utility that comes with the SY-TOS software. This utility gives you the ability to customize SY-TOS for different hardware as well as to set SY-TOS default settings for SY-TOS operations. The chapter explains in detail how to use each command in the order that they appear on the screen.
- Chapter 5 Presents all the commands that are available in SY-TOS. The descriptions include step-by-step instructions on how to use each command.
- Chapter 6 Explains how to enter SY-TOS commands at the DOS command prompt.
- Chapter 7 Describes how to create custom batch files using the ST-BATCH utility.

- **Chapter 8** Explains how to use SY-CLOCK[®], a multi-function "software alarm clock", that allows you to run SY-TOS batch files or any other executable DOS programs at any time of day, completely unattended. This is a SY-TOS product enhancement that you may have already, or that you may purchase by contacting Sytron Corporation's Order Entry department.
- **Appendix A** Offers some suggestions for taking care of your tapes.
- **Appendix B** Describes how to operate SY-TOS under a network environment.
- **Appendix C** Describes possible problems that may occur when operating SY-TOS and what to do to solve them.
- **Appendix D** Gives a pictorial roadmap of the Advanced menu system and the ST-CONFIG utility.
- **Glossary** Defines the terms used in this manual.

You should read the first three chapters at once. Use the remaining chapters and appendixes as you need them.

Conventions Used in this Manual

Throughout this manual, you will see different type styles used. We use:

This typeface to illustrate which commands to select and keys to press,

This typeface for messages and prompts from the SY-TOS system,

This typeface to show your entry in examples.

Additionally, we use the names of keys as they appear on the keyboard and surround the name with angle brackets. For example:

<Esc>.

When two keys appear together, you must press and hold the first key while pressing the second key. For example:

<Ctrl> <PgUp>.

Table of Contents

Chapter 1. Getting Started	
What Do You Need to Get Started?	1-1
Hardware Requirements	1-1
Software Requirements	1-1
Copying the SY-TOS Diskette	1-2
Installing the SY-TOS Software	1-2
Starting the ST-INSTAL Program	1-3
Responding to ST-INSTAL's Questions	1-4
Completing the Installation of SY-TOS	1-4
Executing SY-TOS	1-5
A Quick Look at SY-TOS	1-5
Starting the Practice Session	1-5
Chapter 2. Implementing a Tape Backup Strategy	
What Should I Consider	2-2
SY-TOS' Tape Backup Methods	2-2
A File-by-File Backup	2-3
A DOS Disk Backup	2-4
A Device Backup	2-4
Creating a Backup Policy	2-5
How Many Tapes Will I Need?	2-5
Data Security	2-6
Labeling Your Tape Volumes	2-6
Sample Backup Strategies	2-7
Starting Out	2-7
Sample 1 - Incremental Backups	2-7
Sample 2 - A Rotation Backup	2-9
Sample 3 - An Automated Backup Strategy	2-10
A Reminder	2-10
Chapter 3. An Overview	
The Novice Menu System	3-2
Selecting a Novice Command	3-3
The Advanced Menu System	3-5
STATUS Indicator	3-6
Command Bar	3-6
Error Messages	3-7
MESSAGES Window	3-7
DISK Window	3-7

TAPE Window	3-8
STATISTICS Window	3-8
Selecting a Command	3-9
The On-Line Help Facility	3-10
Specifying Filenames	3-11
Wildcards	3-11
Tree Structured Directories	3-12
Pathnames	3-13
Selecting Files	3-13
How Does File Selection Work?	3-14
Easy-List File Selection	3-17

Chapter 4. Customizing the SY-TOS System

Using the ST-CONFIG Utility	4-1
Configure Commands	4-4
Configure DMA	4-4
Configure Interrupt	4-5
Configure Address	4-5
Configure Network	4-6
Configure Correction	4-7
Options Commands	4-9
Options Append	4-9
Options Restore	4-10
Options Prompt	4-11
Options Break	4-12
Options Library Active	4-12
Options Library Disk	4-13
Options Menu	4-14
Options Translate	4-14
Options Color	4-15
Select Commands	4-18
Select Include	4-19
Select Exclude	4-20
Select Changed	4-21
Select Date	4-22
Select Trees	4-23
Select Session	4-24
Access Commands	4-26
Access Active	4-27
Access User View	4-28
Access User Add	4-29
Access User Change	4-31
Access User Delete	4-32
Access Remove	4-34
Help Command	4-35
Quit Command	4-36

Chapter 5. The Advanced Menu System Commands

Backup Commands	5-2
An Overview of Backup Operations	5-2
Backup File List	5-3
Backup File Selected	5-6
Backup Disk	5-8
Verify Commands	5-11
An Overview of Verify Operations	5-11
Verify File List	5-12
Verify File Selected	5-14
Verify Disk	5-15
Restore Commands	5-17
An Overview of Restore Operations	5-17
Determining Where SY-TOS Will Place	
Restored Files	5-18
Restore File List	5-19
Restore File List Examples	5-20
Restore File Selected	5-22
Restore File Selected Examples	5-23
Restore Disk Entire	5-26
Restore Disk Entire Examples	5-28
Restore Disk List	5-29
Restore Disk List Examples	5-31
Restore Disk Selected	5-34
Restore Disk Selected Examples	5-36
Directory Commands	5-40
Directory Disk List	5-40
Directory Disk Selected	5-41
Directory Tape File List	5-42
Directory Tape File Selected	5-42
Directory Tape Disk List	5-43
Directory Tape Disk Selected	5-44
Directory Library	5-45
Directory Library Volume	5-46
Directory Library File List	5-47
Directory Library File Selected	5-47
Directory Library Disk List	5-48
Directory Library Disk Selected	5-49
Set Commands	5-51
Set Tape Prepare	5-51
Set Tape Format	5-52
Set Tape Create	5-53
Set Tape Identify	5-55
Set Tape Retension	5-55
Set Tape Erase	5-55
Set Disk	5-56

Set Path	5-57
Set Select	5-57
Set Select Include	5-58
Set Select Exclude	5-59
Set Select Changed	5-61
Set Select Date	5-62
Set Select Trees	5-63
Set Select Session	5-63
Options Commands	5-65
Options Append	5-65
Options Restore	5-66
Options Prompt	5-67
Options Break	5-67
Options Journal Begin	5-68
Options Journal End	5-70
Options Journal Review	5-70
Options Library Active	5-71
Options Library Update Add	5-72
Options Library Update Remove	5-72
Options QIC40	5-74
Options Device Backup	5-75
Options Device Verify	5-77
Options Device Restore	5-78
Help Command	5-80
Quit Command	5-81

Chapter 6. Command Line Operation

Executing SY-TOS Commands at the

DOS Command prompt	6-1
Example	6-2
Creating Batch Files under DOS	6-4
Example 1 - Backing up All Files	6-5
Example 2 - Backing up a Disk	6-6
Example 3 - Backing up Files on Multiple Disks	6-6
Example 4 - Using Multiple @ Files	6-8
Example 5 - Using Multiple Tapes	6-9
An Overview of SY-TOS' Command Switches	6-11

Chapter 7. The ST-BATCH Utility

Creating a Batch File Using the ST-BATCH Utility	7-1
Executing a Batch File Created by ST-BATCH	7-4
A Sample Batch File	7-5
Examples of Batch Files	7-8
Example 1 - Backing up Modified Files	7-9
Example 2 - Backing up a DOS Disk	7-10

Example 3 - Backing up Files on Multiple Disks	7-12
Example 4 - Using Multiple @ Files	7-13
Example 5 - Creating a Batch File to be Used as an @ File	7-16

Chapter 8. The SY-CLOCK[®] Automatic Timed Backup Utility (Optional)

An Overview	8-1
Installing the SY-CLOCK Utility	8-1
Using the SY-CLOCK Utility	8-3
The SY-CLOCK Screen Display	8-3
STATUS Indicator	8-4
Command Bar	8-4
Selecting a Command	8-4
Error Messages	8-5
EVENT Window	8-5
The SET FOR Field	8-6
The AT Field	8-6
The MODE Field	8-8
The FILENAME Field	8-8
The DESCRIPTION Field	8-10
CALENDAR Window	8-10
Moving around the Calendar	8-11
SY-CLOCK Commands	8-13
Set Command	8-13
Edit Command	8-15
Copy Command	8-17
Remove Command	8-17
View Command	8-18
Install Command	8-19
Uninstall Command	8-19
Help Command	8-20
Quit Command	8-21
Executing a Program Recorded in the Calendar	8-21
Turning SY-CLOCK on and off at the DOS Command Prompt	8-22

Appendix A. Taking Care of Your Tapes

A-1

Appendix B. SY-TOS Operation in a Network Environment

Network Overview	B-1
Installing SY-TOS on a Network	B-2
Running SY-TOS under a Network Environment	B-2

Backing up Files under a Network	B-4
Restoring Files under a Network	B-5
Special Considerations when Running under NetWare ..	B-6

Appendix C. Problem Solving

Sytron's Software Support Services	C-1
Problem Solving	C-2
General Problems/Solutions	C-2
Network Specific Problems/Solutions	C-9

Appendix D. Finding Your Way around SY-TOS

Advanced Menu Command Structure	D-2
ST-CONFIG Command Structure	D-4

Glossary	Glossary-1
-----------------------	------------

Index	Index-1
--------------------	---------

Chapter 1. Getting Started

This chapter explains how to install and execute the SY-TOS[®] software. It also offers a practice backup session to help you become familiar with SY-TOS.

What Do You Need to Get Started?

Before installing SY-TOS, make sure you have the following hardware and software.

Hardware Requirements

You will need the following hardware in order to use SY-TOS.

- An IBM[®] Personal Computer, IBM Personal System/2[™], a COMPAQ Personal Computer or one that is compatible.
- A monochrome or color monitor.
- At least 512KB of memory. To obtain maximum performance, 640KB of memory is recommended.
- A tape system.

NOTE

SY-TOS is designed to operate on a variety of tape systems. Refer to your tape system's hardware reference manual for installation and set up procedures. You should become familiar with the hardware options (for example, board switches and jumpers) before reading further.

Software Requirements

The SY-TOS software runs on the following operating and network systems:

- Version 2.1 or a later version of the PC-DOS or MS-DOS[®] operating system.

- Novell, Incorporated's Advanced NetWare™ 1.01 or later versions. This also includes ELS Level I and SFT Levels I and II as well as SFT Level II with TTS.
- IBM PC LAN 1.12 or later versions, MS-NET and compatible networking environments.
- Version 1.2 of the 3COM™ 3+® network environment.

SY-TOS has other versions that support different operating systems such as Santa Cruz Operations' XENIX® V 2.1.3 or later releases. Call your SY-TOS Dealer or Sytron Corporation directly for the latest listing of SY-TOS supported tape drives and operating systems.

NOTE

You can use the current version of SY-TOS to access information on a tape created with earlier versions of SY-TOS. However, because Sytron continues to enhance SY-TOS to be compatible with the latest advancements in personal computer technology (such as operating systems and tape drives), previous versions of SY-TOS cannot access information on tapes created with a later version of SY-TOS.

Copying the SY-TOS Diskette

We recommend that you make a copy of the SY-TOS distribution diskette. Use the DOS command DISKCOPY. (Note that using the DOS command COPY will not make a complete backup copy of the SY-TOS distribution diskette.) Label this diskette with the information that appears on the SY-TOS diskette (for example, the part number in the upper-right corner). Use this copy to install SY-TOS and store the original in a safe place to use as a backup in case something happens to the copy diskette.

Note that SY-TOS is licensed to be used in conjunction with only one tape controller card (or equivalent) and one central processing unit at a time.

Installing the SY-TOS Software

The ST-INSTAL program copies all of the SY-TOS utilities to a user specified disk and directory.

Before installing the SY-TOS software, insert the SY-TOS diskette into drive A and use the DOS command DIR to determine if a README.BAT file is present on the diskette. This is a batch file containing additional information that was not included in this manual. If the file exists, you should review its contents before continuing with the SY-TOS installation.

To review the README file, insert the SY-TOS diskette into drive A.

At the DOS command prompt, type **A:** and press <Enter>.

Type the following:

```
A:\>README <Enter>
```

You can also print the file by directing it to a printer. For example:

```
A:\>TYPE README.BAT >> PRN <Enter>
```

SPECIAL NOTES

- Before installing SY-TOS, we recommend you use the DOS command CHKDSK. This command checks the directories and File Allocation Table (FAT) for any errors. Refer to your operating system's manual for more information on the CHKDSK command.
- If you plan to operate SY-TOS under a network environment, please refer to Appendix B in conjunction with the following sections. Appendix B describes special considerations which must be made when running SY-TOS under a network environment.

Starting the ST-INSTAL Program

This section describes how to use ST-INSTAL to copy the SY-TOS files to the appropriate location on a disk.

Insert the SY-TOS diskette into drive A.

At the DOS command prompt, type **A:** and press <Enter>.

Type **STINSTAL** and press <Enter>.

Follow the instructions that appear on the screen. ST-INSTAL will prompt you through the installation process.

NOTE

The README.BAT file is not copied to disk during the installation process. Use the DOS COPY command if you want to copy this file to your hard disk.

Responding to ST-INSTAL's Questions

ST-INSTAL prompts you for the hard disk where you want to install SY-TOS.

Type the disk letter and press <Enter>.

To accept the disk letter displayed on the screen, simply press <Enter>.

ST-INSTAL next prompts you for the directory where you want ST-INSTAL to place the SY-TOS files. If the directory does not exist, ST-INSTAL will create it for you.

Type the directory where you want the SY-TOS files to reside and press <Enter>.

To install SY-TOS in the root directory, simply press <Enter>.

ST-INSTAL will display a confirmation prompt before copying the SY-TOS files to the specified disk and directory.

Completing the Installation of SY-TOS

ST-INSTAL copies the SY-TOS utilities and other files necessary to run SY-TOS to the specified disk and directory.

SY-TOS informs you when the installation is complete and returns you to the DOS command prompt on the disk and in the directory where SY-TOS is installed.

Before executing SY-TOS, you must edit the CONFIG.SYS file to include the BUFFERS and FILES statements if they do not already exist. The values for these statements must be set to at least 20 (for example, BUFFERS=20).

After editing the CONFIG.SYS file, you must reboot the system in order for the new values to take effect.

Executing SY-TOS

To use SY-TOS, make sure you are in the directory where SY-TOS is installed.

Type **SYTOS** and press **<Enter>**.

NOTES

- You can access any of the SY-TOS utilities from a floppy disk drive. Simply insert the SY-TOS diskette into the disk drive and type **SYTOS**, **STCONFIG**, **STBATCH** or **SYCLOCK** and press **<Enter>**. Note that when executing **ST-CONFIG** and **SY-CLOCK** from a floppy disk drive, the diskette cannot be write protected.
- Because mini data cartridge tape systems use the floppy controller, you cannot access the floppy drive when running SY-TOS on one of these systems.

A Quick Look at SY-TOS

This section presents a sample session which demonstrates how you can quickly and easily back up and verify files using SY-TOS' Advanced menu system. It does not illustrate all of SY-TOS' capabilities, but merely introduces some basic tasks so that you can be more comfortable when using the product for the first time.

Starting the Practice Session

Before starting this SY-TOS session, insert a blank tape into the tape drive.

Make sure you are in the directory where SY-TOS is installed. (Use the DOS command **CD** to change the directory.)

At the DOS command prompt, type **SYTOS** and press **<Enter>**.

The Advanced menu system will appear on your screen. This is the starting point for all SY-TOS operations. The selection cursor is highlighting the Backup command on the command bar. Your screen will look similar to Figure 1-1.

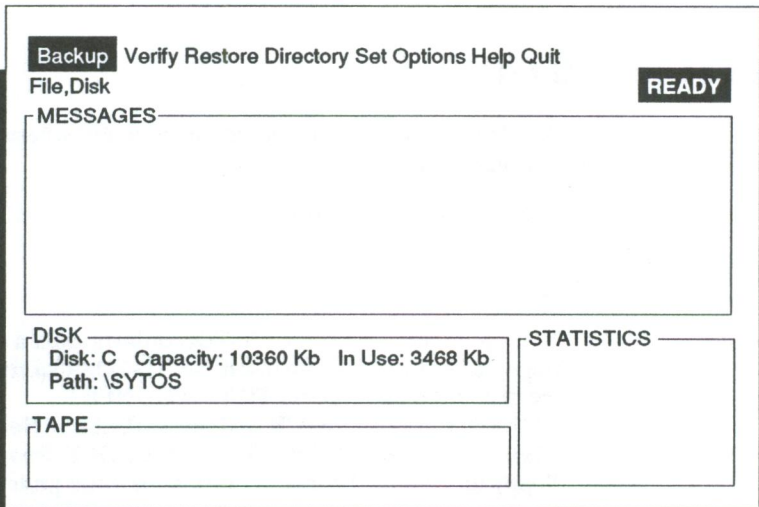


Figure 1-1 The Screen Display of the Advanced Menu System

There are several options that you can select to customize your backup, verify and restore operations.

Press the **<→>** or **<Space Bar>** key five times to move the selection cursor to the **Options** command.

Notice how the second line changes as you move from command to command. SY-TOS displays the associated subcommands on this line.

The second line contains the various options that you can select.

Press **<Enter>**.

SY-TOS displays the **Options** commands on the command bar at the top of your screen and places the default settings for each one in the **MESSAGES** window. Your screen will look similar to Figure 1-2.

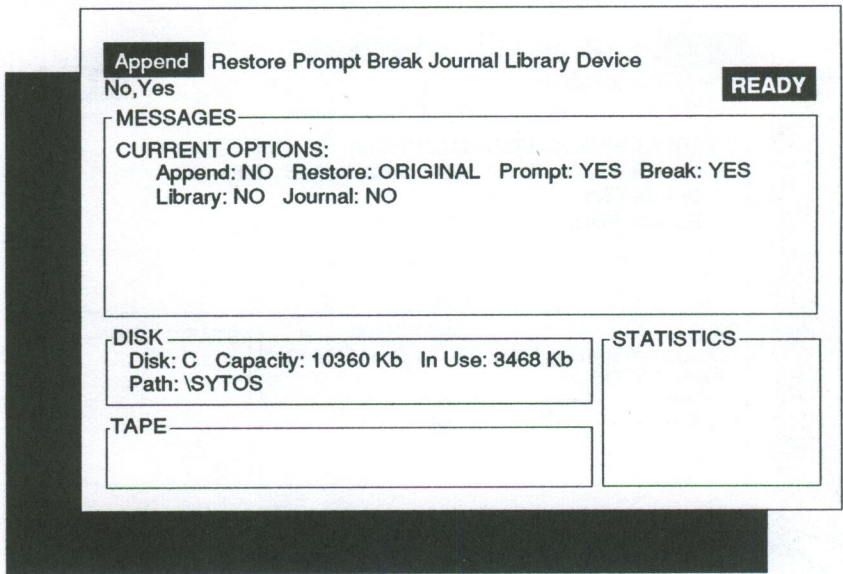


Figure 1-2 Choosing the Options Command

For this session, we will use the default settings that come with SY-TOS. You can read about the Options commands in the manual at a later time.

Press the <Esc> key to return to the command bar, then press the <<-> key once and press <Enter> to select the Set commands.

SY-TOS displays the Set commands. When backing up, verifying, displaying or restoring files, you can specify certain files or have SY-TOS automatically select files based on the preset values for the Select commands.

Press the <S> key to choose the Select command.

Notice that you can select a command by typing the first letter of the command name.

SY-TOS displays the Set Select commands on the command bar at the top of your screen and places the default settings for each one in the MESSAGES window. Your screen will look similar to Figure 1-3.

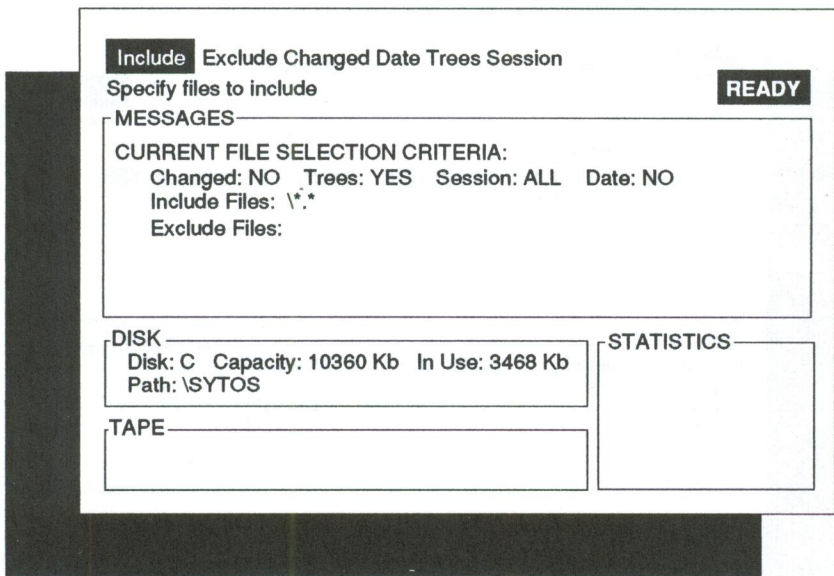


Figure 1-3 Choosing the Set Select Command

We will not change the settings for this sample session. However, you can see the values that can be assigned for the Set Select commands.

Wherever the selection cursor appears on the command bar, you can press the <F2> function key to obtain help on the highlighted command.

Press the <F2> function key.

After accessing the Help facility, SY-TOS displays a description of the Set Select Include command in the MESSAGES window. Figure 1-4 gives an example of SY-TOS' on-line help.

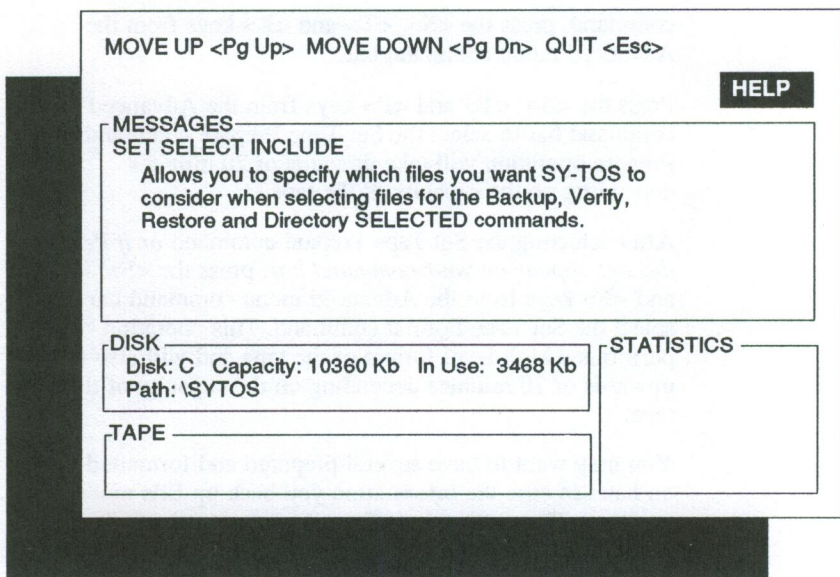


Figure 1-4 A Sample Help Display

You can use the <PgDn> key to scroll additional Help text onto the screen when it exists.

Press the <Esc> key to exit the Help facility and return to the command bar.

Press the <F1> function key to return to the Advanced menu command bar. The values for the Set Select commands will remain displayed in the MESSAGES window.

We will be using the Backup File Selected command to back up all the files and directories on disk C. SY-TOS will use the values displayed on the screen for the Set Select commands.

Attention Mini Data Cartridge Tape System Users

If you are using a mini data cartridge tape system and you are not using a factory preformatted tape, you must follow these steps before continuing with this session.

Press the <S> and <T> keys from the Advanced menu command bar to select the Set Tape command.

If the Prepare command appears on the command bar, you will need to initialize the inserted tape for formatting.

Erase the tape using either a bulk eraser or the SY-TOS Set Tape Erase command. To select the Set Tape Erase

command, press the <S>, <T> and <E> keys from the Advanced menu command bar.

Press the <S>, <T> and <P> keys from the Advanced menu command bar to select the Set Tape Prepare command. The Prepare operation will take upwards of 20 minutes depending on the capacity of the tape.

After selecting the Set Tape Prepare command *or if Prepare did not appear on your command bar*, press the <S>, <T> and <F> keys from the Advanced menu command bar to select the Set Tape Format command. This operation performs a high-level format of the tape and will also take upwards of 20 minutes depending on the capacity of the tape.

You may want to have several prepared and formatted tapes on hand in case the information you back up fills more than one tape. That way, you will not have to terminate the backup operation to format a new tape. You may now continue with the sample backup session. The Set Tape commands are described in more detail in Chapter 5.

From the Advanced menu command bar, press <Enter> and then press the <F> and <S> keys to select the Backup File Selected command.

The system displays the following prompt:

Enter a tape VOLUME NAME:

SY-TOS prompts you for the tape name before it executes the Backup command. It then starts at the beginning of the tape to back up the preselected files. (In this case, all the files and directories on disk C.)

Type a name that you want to assign to the tape and press <Enter>.

If you make a mistake, use the <←> (Backspace) key to erase the letters, then retype it. The name can be up to 47 characters in length.

SY-TOS displays the next prompt.

Enter optional tape PASSWORD, <Enter> if none:

Press <Enter>.

We will not specify a password for this session.

NOTE

Passwords protect the tape against unauthorized access. Be sure to record the password in a safe, secure place because without the password, a tape cannot be accessed. You cannot remove a password without destroying the tape's contents.

Notice that the **READY** indicator changes to **WAIT** as SY-TOS backs up the preselected files. The filenames will appear in the **MESSAGES** window as SY-TOS backs up each one.

The tape's name as well as the creation date and time appear in the **TAPE** window. SY-TOS gives the tape a volume number which also appears in this window.

The total time, the backup time, the number of files backed up, and the size of the files in kilobytes appear in the **STATISTICS** window. The total time includes any tape overhead (that is, time spent not actually backing up information; for example, rewinding the tape).

After you back up, Sytron highly recommends that you specify the appropriate **Verify** command to ensure that the information has been placed correctly on the tape. SY-TOS will compare the information on the tape with the corresponding information on the disk.

Press the **<->** key to move the selection cursor to the **Verify** command and then press **<Enter>**. Press the **<F>** and **<S>** keys to choose the **Verify File Selected** command.

SY-TOS displays the values for the **Set Select** commands in the **MESSAGES** window before starting to verify the preselected files. As SY-TOS verifies each file, its name will appear in the **MESSAGES** window. If SY-TOS cannot verify a file, it will notify you. SY-TOS will also notify you when the verification has been completed.

To end this sample session, press the **<Q>** key.

You exit the **Advanced** menu system and return to the **DOS** command prompt.

You are now ready to use SY-TOS to create and maintain a backup system that best suits your needs. Remember, you can

press the <F2> function key to obtain help on any highlighted command and after any prompt or error message.

You should read Chapter 2 to obtain an understanding of general backup strategies and to learn about the different backup methods SY-TOS offers. Chapter 3 provides an overview of SY-TOS. After establishing a backup strategy, you will want to read Chapter 4 to learn how to customize SY-TOS for your specific needs. Chapter 5 gives detailed instructions on how to use each command in the Advanced menu system.

Chapter 2. Implementing a Tape Backup Strategy

Establishing a backup strategy to meet each user's needs requires careful planning. After reading this chapter you should be able to establish a strategy with reasonable ease. In this chapter, we present points you should consider, describe the various backup methods SY-TOS has to offer and give several sample strategies that you may use or modify to fit your backup needs.

With the amount of information that is available to you in a typical office, comes a certain level of responsibility - a responsibility often ignored until it is too late. Everyone relying on personal computers must take precautions to ensure data is not lost.

To protect your data, it is important that the person responsible for backing up your system understands the rudimentary elements of the computer and of the backup process. If you are not this individual, you must make sure the person who is responsible has this knowledge.

Losing information due to hardware or power failure, or through operator error, can be costly and in some cases devastating. The time and effort required to retrieve lost information can translate into a substantial amount of wasted money.

The implementation of a plan to recover from this "disaster waiting to happen" should, therefore, be an essential policy for anyone interested in his/her investment in computing data and productivity. A well tailored backup strategy must not only meet the present needs, but should also provide an avenue to tailor and expand this strategy as your needs change or expand.

What Should I Consider?

You have purchased SY-TOS as an insurance package for your data. Before implementing a backup strategy, you must first ask yourself the question *"How much time, effort and money will be lost if I should lose any data?"* The answer will set the tone for creating a backup strategy to best suit your needs.

For example, if you rely on several databases to produce reports, payroll checks or even customized letters, losing a database could be disastrous. In this scenario, you would want to back up the databases each day so that if something were to happen to one, you could reconstruct it with little effort.

If you are responsible for protecting the data existing on a network, you would want to back up the information on a daily basis. If time is a factor, you might want to exclude system files or only back up files that have changed each day. On a weekly basis, you could back up your entire system.

If you are a casual computer user, backing up your system each day does not make sense. It may be easier to back up only the files you have worked with on a particular day.

When information is vital to you, such as payroll files, legal files, ledger files and financial information files, it becomes imperative to back up all the information each day. Losing a style sheet or even a chapter of an elaborate document would take too much time to recreate.

The following section describes the various backup methods that SY-TOS has to offer. Upon reading this section, you can determine which method suits your backup requirements.

SY-TOS' Tape Backup Methods

SY-TOS offers different backup methods to suit each user's needs. The flexibility of backing up information is also true when retrieving the information. With SY-TOS, you can list individual files to back up, preselect a series of files that SY-TOS will automatically back up, or back up the entire contents of a DOS disk partition or an entire physical hard disk. Refer to Chapter 5 for detailed descriptions of each SY-TOS command.

A File-by-File Backup

When you back up files, SY-TOS copies the files onto tape contiguously. That is, each file is complete and written to tape one after another. Using the file-by-file method, SY-TOS locates all the fragments of the file to copy in its entirety to tape. Because SY-TOS has to locate all file fragments, this method may take slightly longer than the DOS Disk backup method. However, the file-by-file method offers more security and flexibility because you can retrieve individual files as entire units. For example, if a file-by-file backup tape becomes damaged, you are more likely to be able to recover files because complete file information has been recorded throughout the tape.

Using SY-TOS, you can specify a list of files to back up or preselect a series of files that SY-TOS will automatically copy to tape.

Backing up a List of Files

SY-TOS' Backup File List command enables you to specify particular files to copy to tape. You can enter filenames at the SY-TOS prompt or mark the files using SY-TOS' easy-list file selection method. The Backup File List command gives you the opportunity to list specific files. This feature is useful when you want to quickly select a few files for archival reasons or to transfer data. However, if you want to back up all the files on your system or a subset, you might find the Backup File Selected command a faster and easier method.

Backing up Preselected Files

Using the Backup File Selected command to copy preselected files to tape offers the most flexibility in SY-TOS. SY-TOS selects the files to back up based on the criteria you have established with the Set Select commands. You can configure the Set Select commands to include all files on your system or only a subset.

For example, the Set Select Changed command enables you to create incremental backup tapes. SY-TOS will back up only files that have changed or have been created since the last backup session.

You can further tailor your backup tapes to include files with specific creation dates. Using the Select commands in conjunction with the Backup File Selected command gives you an entire range of criteria to work with to create customized backup tapes.

A DOS Disk Backup

When you back up a DOS disk partition using the Backup Disk command, SY-TOS sequentially copies only blocks of existing information. This method is faster than the file-by-file method; however, it offers less flexibility during a backup. For example, you may have many files that have not changed since the last backup session. Using the DOS Disk method, the entire DOS disk partition that is in use will be backed up to tape, including unchanged information.

When you want to retrieve information from a DOS Disk backup, SY-TOS offers several alternatives. You may access specific files using the Restore Disk List command, retrieve a series of files using the Restore Disk Selected command or restore the entire DOS disk. When restoring information from a DOS Disk backup tape, SY-TOS uses DOS' assistance to ensure that information is not placed on possible bad disk sectors on the target disk.

NOTE

Unlike the file-by-file method where SY-TOS locates all fragments of each file, the DOS Disk backup method simply copies block segments as they appear on the disk. Using the DOS Disk method SY-TOS places the file structure information at the beginning of the backup tape as opposed to throughout the tape as with file-by-file. If for some reason the beginning of the tape becomes damaged, SY-TOS will not be able to retrieve any DOS disk information past the damaged spot.

A Device Backup

SY-TOS offers an additional backup method: a device backup. When you specify this option, SY-TOS backs up an exact image of your entire physical hard disk, sector by sector. This method gives you less flexibility and reliability for restore operations due to the lack of file structure during the backup operation. It will also back up unused space even if only a small

portion of the disk is actually being used. Because the device backup is an exact image of a hard disk, it is possible that when you restore an image backup to a different disk, information could be placed in a bad sector on the target disk; thus, losing the information.

The device backup is not recommended unless it is necessary to back up DOS and non-DOS partitions that reside on the same physical disk.

Creating a Backup Policy

You should never try to maintain a backup strategy with only one tape. We recommend that you have a minimum of three tape volume sets that you rotate. In addition, you should keep a master tape volume set off site or in a fire proof unit.

How Many Tapes Will I Need?

The number of tapes that compose a tape volume set is determined by the amount of information you want to copy to tape and the type of tape system you are using. There are basically two types of tape systems: streaming tape systems and floppy-interface tape systems.

The *streaming tape system* requires the DC600 series tape cartridges. Using these systems, SY-TOS copies information to a quarter inch tape cartridge, about the size of a small paperback book. Each tape can hold 45 to 150 megabytes or more of information depending on the tape drive and tape cartridge.

Peak performance occurs when the tape is "streaming," or moving past the tape drive read/write head as quickly as the tape system's motor can drive it - hence the name.

The *floppy-interface tape system* uses the DC2000 series tape cartridges, which are the size of a deck of cards. These systems copy information to quarter inch tape mini cartridges. Each cartridge can hold 20 to 80 megabytes or more of information depending on the tape drive and tape cartridge.

When backing up a DOS disk, you can use the DISK window in SY-TOS to calculate the approximate number of tapes your backup will require. The DISK window displays the storage capacity and the amount in use.

When backing up files, you can use the Directory Disk feature to display the files on disk that you want to back up. The Directory display lists the size of each file and the STATISTICS window shows you the total size of the specified files. You can use the total size to calculate how many tapes the backup will require.

If your backup session requires more than one tape volume, SY-TOS will prompt you to insert another tape when the first tape is full. SY-TOS records the number of tapes used and will prompt you for the correct order upon verifying and/or restoring information from a multi-volume backup session.

Another factor that determines how many tapes you will need is the Options Append feature. SY-TOS allows multiple disk and file-by-file backups to be placed on the same tape. A new tape is not needed for each backup session. If the Options Append command is set to Yes, SY-TOS will automatically append information to existing information on the inserted tape.

Data Security

SY-TOS offers multi-level password protection that limits access to tapes, disks and disk file directories.

If you are concerned about protecting your data on disk, you can give users limited access to directories and files when using SY-TOS on your system.

In addition, you can assign a password to each tape volume set. If a tape volume has a password assigned to it, then no one can access the contents of the tape without specifying the correct password. Once you assign a password to a tape, it cannot be removed without destroying the tape's contents. Consequently, when assigning a password to a tape volume, record it in a safe and secure place.

Although password protection will guard against unauthorized access to information on tape, you may prefer to physically lock the tapes away.

Labeling Your Tape Volumes

In addition to assigning a name and optional password to a tape volume set, you should label the tape volumes so that you can

easily recognize them. Establish a standard naming convention such as:

Tape Name, Date and Time, Volume Number, Description of Backup (for example, full file-by-file, changed files, etc.).

Sample Backup Strategies

This section presents several backup strategies that we believe will create a good insurance policy against losing data. Upon reviewing the samples, you may want to modify them to fit your backup needs.

Note that both sample strategies instruct you to verify immediately after each backup session. The Verify commands compare information on tape to the information on disk. If there are any problems with the data you backed up to tape, you will know immediately upon verifying. You can then repeat the backup and ensure that the information is placed correctly on tape.

If you postpone the verification and there are problems with the information on tape, you may only discover the problem when you attempt to retrieve the information from the tape. At this point you are relying on your backup tape to contain uncorrupted information. However, you may find that this is not true and you may not be able to restore the information to its original condition.

Starting Out

After purchasing SY-TOS, start out with a full file-by-file backup of your system and then verify the backup session. Store this copy in an off site location. Depending upon the backup strategy chosen, the off site backup should be periodically replaced with a more recent backup of the entire system.

You may then want to use the following samples as models in creating your own backup strategy.

Sample 1 - Incremental Backups

Using SY-TOS, you may back up each day only those files that have changed or have been created since the last backup. You request this by first using the Set Select commands. Refer to

Chapter 5 for details on each command. Chapter 3 offers an overview on other file criteria that you may want to consider.

To back up the files, you specify the Backup File Selected command. Next, select the Verify File Selected command to verify that all changed and created files since the last backup were correctly copied to tape.

Although one tape may be able to hold more than one day's files, it is better to reserve a tape for each day.

Using this backup strategy, you would need a total of six tape volume sets: one for each day Monday through Thursday, and two tapes to alternate Friday master backups. For example, begin with a full file-by-file backup and verification on Friday. Then on Monday through Thursday back up only the files that have changed and have been created since the previous backup session. You would overwrite each tape's contents on the same day of the following week. (For example, use the Monday tape each Monday.)

On the following Friday, you would back up your entire system with a new tape and repeat the incremental backup on the rest of the days. On the subsequent Friday, you would overwrite the first Friday's master tape to back up your entire system. Figure 2-1 illustrates this incremental backup strategy.

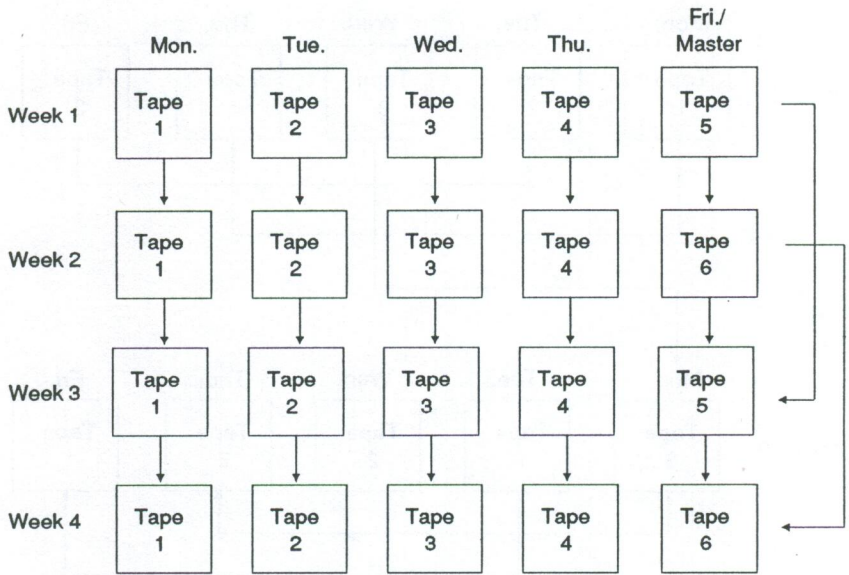


Figure 2-1 A Sample Incremental Backup Strategy

NOTE

You may modify the Set Select criteria to suit your backup needs. With this backup strategy, you ensure that if information is lost on disk, you have captured each day's activity and each week's entire system information. You would not spend many hours recreating the lost information.

If the information is critical to you, modify this backup strategy to back up all files each day. You would then have a daily record of your system.

Sample 2 - A Rotation Backup

Another backup strategy would be to have three tape volume sets and rotate them. The tape you would be using would be the tape containing the oldest backup. In this case, you would back up and verify all disk contents to each tape. You could use the Backup Disk command or the Backup File Selected command.

Even if an entire system backup fills up only part of one tape, we recommend that you use a different tape volume for each backup session.

Figure 2-2 illustrates a three tape rotation backup strategy.

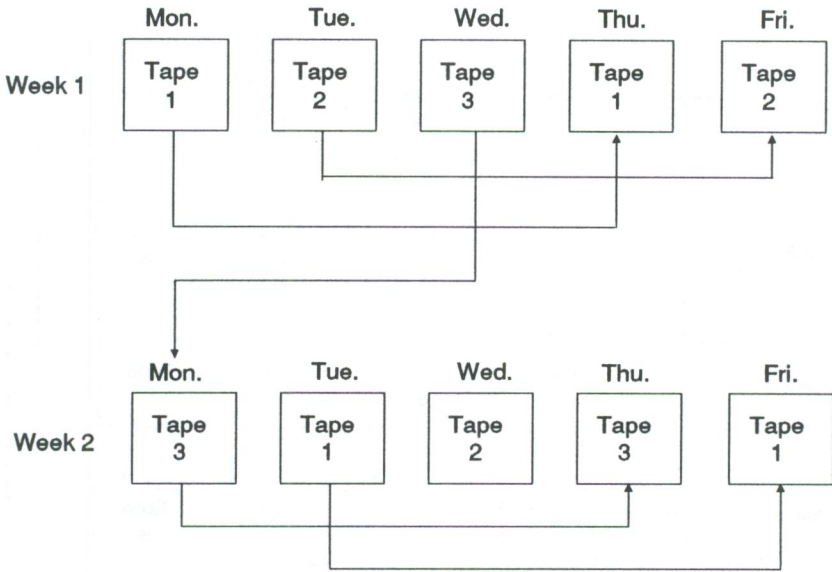


Figure 2-2 A Sample Rotation Backup Strategy

Sample 3 - An Automated Backup Strategy

You can execute SY-TOS from DOS created batch files or ST-BATCH created batch files. Using the previous sample backup strategies, you could create batch files to back up and verify your system each day. Instead of entering SY-TOS, you would simply type the batch file's name and SY-TOS would automatically perform the necessary tasks.

In addition, you can make the batch files execute automatically at the same time each day using the optional SY-CLOCK utility. This would result in a fully automated backup strategy. Refer to Chapters 6, 7 and 8 for information on how to use these SY-TOS features.

A Reminder

It is your decision in the end on how and when you back up and verify the information on your system. Keep in mind the question "*How important is my data?*" Do not put off the inevitable and find yourself learning much too late what you should have done to prevent the loss of data.

Chapter 3. An Overview

SY-TOS is a powerful tape backup and restore utility that combines high performance with ease of use. It comes with two menu systems:

- Novice.
- Advanced.

In addition to the menu systems, SY-TOS gives you the opportunity to enter SY-TOS commands directly at the DOS command prompt or to create a batch file using the ST-BATCH utility. You may also use the optional SY-CLOCK[®] utility to execute SY-TOS batch files or any other executable DOS programs at a specified time, completely unattended. Chapters 6, 7 and 8 explain these features.

SY-TOS provides the ST-CONFIG utility which enables you to customize SY-TOS to fit your needs. Chapter 4 describes how to use this utility.

You will find the following features in SY-TOS:

Password Security System - SY-TOS' password protection limits access to tapes, disks and directories.

Flexible Restore - You can restore selected files from a DOS Disk backup or you can restore the entire disk. SY-TOS also allows you to restore information from tape to a new disk or a new directory.

Tape Library System - SY-TOS keeps track of tape volumes in use. You can quickly view or search the contents of tape volumes recorded in the Library.

System Activity Logging - The Journal provides comprehensive monitoring of SY-TOS operations. It can be reviewed on the screen or through printout.

Backup Verification - The Verify command checks the accuracy of backed up information by comparing the information on tape to that on disk.

Append Feature - You can append multiple file-by-file, DOS Disk or Device backups to the same tape.

Multi-Volume Support - During backup, SY-TOS allows you to create several tape volumes for systems whose disk capacity is larger than the tape's capacity. SY-TOS will prompt you to insert the correct tape upon verifying and/or restoring information from a multi-volume backup session.

File Selection Criteria - You may use specified file selection criteria to preselect files for SY-TOS' operations.

Responsive On-Line Help - Contextual help is available at the touch of a key.

The Novice Menu System

The Novice menu system offers a subset of SY-TOS' features. Using this system, you can quickly back up, verify or restore files or DOS disks by simply pressing a function key.

Using the ST-CONFIG utility you can specify which menu system you want to appear each time you use SY-TOS. Chapter 4 explains how to select a menu system.

When in the Novice menu system, SY-TOS uses the Options and Select default settings specified in the ST-CONFIG utility to select files to back up, verify and restore. Refer to Chapter 4 for more information about preselecting files through the ST-CONFIG utility.

Before using the Novice menu system, you might want to check the default settings for the Options and Select commands in the ST-CONFIG utility to ensure they are the ones you want.

When you first enter the Novice menu system, your screen looks like Figure 3-1.

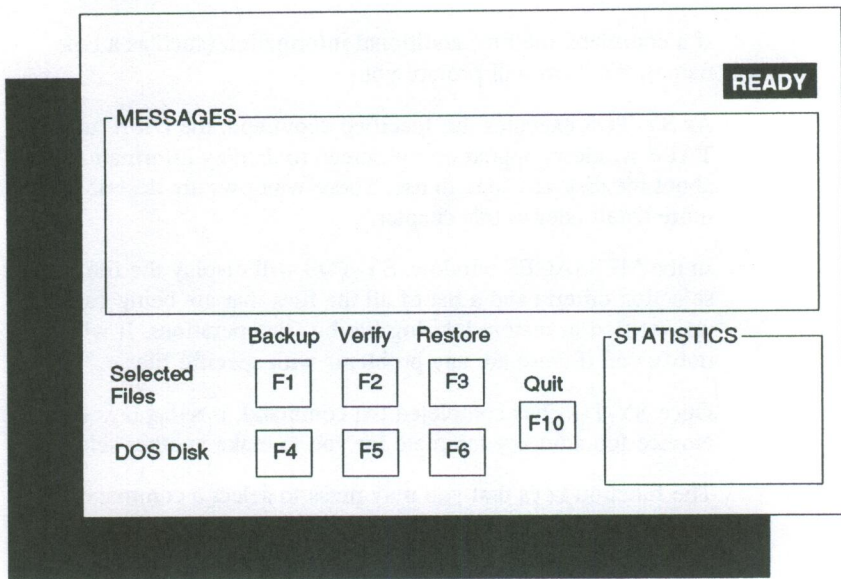


Figure 3-1 Novice Menu System Screen Layout

SY-TOS displays information in the MESSAGES window about the information that is currently being backed up, verified or restored.

Below the MESSAGES window is the function key template. To select a command, you press a function key that corresponds to the command you want to execute.

SY-TOS displays information in the STATISTICS window about the current task. It will display the time it takes to perform a task, the number of files backed up, verified or restored and the total size of the files (in kilobytes).

The word READY appears at the upper-right corner of the screen. This serves as an indicator which confirms that SY-TOS is ready to accept your commands. When SY-TOS needs additional information from you, it changes the indicator to INPUT. The indicator changes to WAIT when SY-TOS is executing a command.

Selecting a Novice Command

In the Novice menu system, you select a command by pressing a function key. You then press <Enter> to confirm your request or press <Esc> to cancel the task.

If a command requires additional information (such as a tape name), SY-TOS will prompt you.

As SY-TOS executes the specified command, the DISK and TAPE windows appear on the screen to display information about the disk and tape in use. These windows are described in more detail later in this chapter.

In the MESSAGES window, SY-TOS will display the file selection criteria and a list of all the files that are being backed up, verified or restored during file-by-file operations. It will notify you if there are any problems with specific files.

Once SY-TOS has completed the command, it redisplay the Novice function key template for you to make another selection.

The function keys that you may press to select a command are the following.

Key to Press Activity

<F1> Backs up preselected files onto tape from a disk.

If the Options Append command is set to No, SY-TOS will prompt you for a tape name and an optional password. If information exists on the current tape, SY-TOS will prompt you. You may choose to overwrite the contents of the tape or cancel the Backup command.

If the Options Append command is set to Yes, SY-TOS will automatically append preselected files to the tape.

<F2> Verifies preselected files contained on the current tape with the corresponding files on the disk.

<F3> Restores preselected files contained on the current tape to a disk.

SPECIAL NOTE

Because SY-TOS writes file information to disk when you restore, you might want to check the ST-CONFIG utility to make sure that the selection criteria are the ones you want. Make sure that Options Prompt is set to Yes and Options Restore is set to Original. This will ensure that the correct files are restored and that you are prompted for

confirmation to overwrite system, changed or read-only files. If you want to restore files to a new location, use the Advanced menu system.

<F4> Backs up the contents of a DOS disk onto tape.

If the Options Append command is set to No, SY-TOS will prompt you for a tape name and an optional password. If information exists on the tape, SY-TOS will prompt you. You may choose to overwrite the tape or cancel the Backup command.

If the Options Append command is set to Yes, SY-TOS will automatically append information to the tape.

SY-TOS will prompt you for the disk letter identifying the disk you want to back up.

<F5> Verifies the contents of a DOS disk residing on a backup tape with that of the corresponding disk.

<F6> Restores a DOS Disk backup on tape to a disk.

<F10> Exits SY-TOS and returns to DOS.

The Advanced Menu System

The Advanced menu system allows you to access all of SY-TOS' features. When you first use SY-TOS, the Advanced menu system is in effect. Your screen will look similar to Figure 3-2.

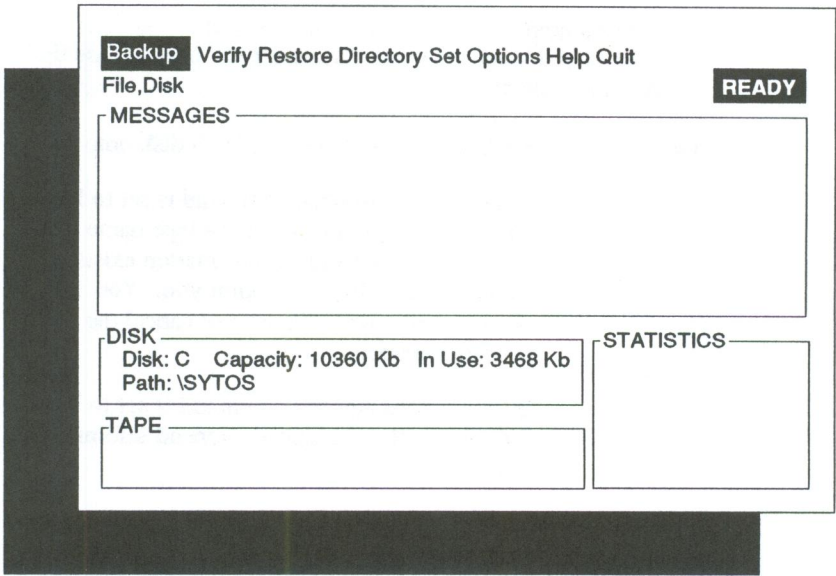


Figure 3-2 Advanced Menu System Screen Layout

The following sections describe the Advanced menu systems screen layout and command selection.

STATUS Indicator

The word **READY** appears at the upper-right corner of the screen. This serves as an indicator which confirms that SY-TOS is ready to accept your commands. When SY-TOS needs additional information from you, it changes the indicator to **INPUT**. The indicator changes to **WAIT** when SY-TOS is executing a command and to **BATCH** when SY-TOS is running as a batch file. When you request help, the indicator changes to **HELP**.

Command Bar

A horizontal list of commands appears on the top line of the screen. We refer to this line as the *command bar*. Reverse video serves as a *selection cursor* to highlight one command at a time. A list of subcommands appears below the highlighted command. When there are no more subcommands, a description appears.

The commands are organized in tree structures. Related tasks are grouped together. This makes it easy to find a command and to choose between its options. Figure 3-3 gives an example of the tree structure for the Backup command.

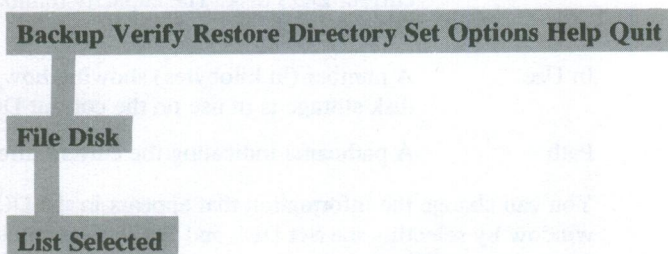


Figure 3-3 The Tree Structure for the Backup Command

Appendix D contains a map illustrating SY-TOS' entire command tree structure.

Error Messages

When an error occurs during a SY-TOS task, SY-TOS will display an error message on the third line of the screen in reverse video accompanied by an audible tone or will display it in the MESSAGES window.

MESSAGES Window

SY-TOS displays informational messages in the MESSAGES window. These messages alert you to what is currently happening or the status on what has just happened. File listings from disk and tape directories as well as file selection criteria and Options command settings appear in this window.

When SY-TOS' Journal is open, SY-TOS places these messages in a file or sends them to a printer so that you can review them.

DISK Window

The DISK window displays the current information about the disk and directories that you are using. The fields that appear in this window are the following:

Field	Description
Disk	A single letter identifying the current DOS disk in use.
Capacity	A number showing the storage capacity of the current DOS disk. The capacity number will be in kilobytes.
In Use	A number (in kilobytes) showing how much disk storage is in use on the current DOS disk.
Path	A pathname indicating the current directory.

You can change the information that appears in the DISK window by selecting the Set Disk and Set Path commands. These commands allow you to change the current disk and path for SY-TOS operations.

TAPE Window

When you access a tape during a SY-TOS session, the following information appears in the TAPE window:

Field	Description
Name	A tape name. When you create a tape, you specify a name. Each time you access that tape, the name will appear in the TAPE window.
Created on, at	The date and time the tape was created.
Volume #	The tape number. When the amount of information on the disk exceeds the capacity of the tape during backup operations, SY-TOS will prompt you to insert another tape and will assign the tape a number. Upon verifying, restoring or displaying the information on multiple tapes, SY-TOS will prompt you to insert the next tape in the correct order.

STATISTICS Window

When you select the Backup, Verify, Restore or Directory commands, SY-TOS displays the number of files included in the operation and the total size of those files (in kilobytes). For Backup, Verify and Restore operations, SY-TOS will also

display the time the task began and the time required to complete the task.

When SY-TOS' Journal is open, SY-TOS places these statistics in the Journal file or sends them to a printer so that you can review them.

NOTE

Because SY-TOS considers the disk space used by all directory entries and any bad sectors on the disk, the STATISTICS window values may differ from the "In Use" value in the DISK window. These values may also differ from those returned by the DOS CHKDSK command and between the SY-TOS DOS Disk commands themselves.

Selecting a Command

To select a command, move the selection cursor to highlight it and then press <Enter>. If there are subcommands which must be selected, highlight them (one after another) and press <Enter> until there are no more available. Pressing the <Enter> key at the last option will execute the command.

Some commands require you to type information at a prompt (for example, a filename). SY-TOS displays the prompts on the first line on the screen.

You may press the following keys to move the selection cursor to highlight and then select a command:

Key to Press	Activity
<End>	Highlights the last command.
<Enter>	Selects the highlighted command. Any subcommands from the second line move up to the command bar so that you may select one. When there are no further options to highlight, the final pressing of <Enter> executes the command.
<Esc>	Displays the previous level of commands in the command tree structure system.
<F1>	Displays the top level of commands when on the command bar.
<Home>	Highlights the first command.

<←> Left arrow or <←> Backspace	Highlights the command to the left, wrapping around to the last command when you have reached the first command.
<→> Right arrow or <Space Bar>	Highlights the command to the right, wrapping around to the first command when you have reached the last command.

A Short Cut to Command Selection

You can also type the first letter of the command to select it. SY-TOS will automatically display the next level of commands until there are no further commands to select. For example, to select the Backup File Selected command, press the <F> and <S> keys. The command descriptions in Chapters 5 and 6 list the initial letters you are required to type for each command. The initials appear in angle brackets next to each command name at the beginning of each section. This method allows you to move directly to a command and may be helpful when you want to quickly specify a SY-TOS operation. However, moving the selection cursor gives you the opportunity to read a description below the highlighted command.

When there is a command that requires you to input additional information, SY-TOS will prompt you to type the information on the first line on the screen. SY-TOS will sometimes provide a default value at the prompt which you may want to select. Type the required information and press <Enter>, or press <Enter> to accept the default value.

The On-Line Help Facility

In addition to providing one line descriptions for each command, SY-TOS displays additional help text in the MESSAGES window when you request it. To request help on a command, first highlight it and then press the <F2> function key. Help text pertaining to the highlighted command will appear in the MESSAGES window. You may use the <PgUp> and <PgDn> keys to view additional lines of help text if they exist.

In addition to help for commands, SY-TOS also offers help text for prompts and error messages. Simply press the <F2> function key at a prompt or upon receiving an error message to display the help text in the MESSAGES window. You may

access the on-line help facility through ST-CONFIG, ST-BATCH and the Advanced menu system.

Specifying Filenames

Sometimes SY-TOS requires you to specify a filename(s) or directory before executing a command. The following sections explain the rules for specifying files and how to select them.

Wildcards

When SY-TOS requests you to enter filenames, you may use the DOS wildcards to quickly specify a group of files that have similar names.

There are two wildcards that you may use: ? and *. Wildcards represent any character(s) that is a valid filename character(s).

The ? indicates that any one character may occupy its position. You may use the ? wildcard anywhere within a filename or in its extension. For example, suppose you had the following list of files that you wanted SY-TOS to back up:

test1.ext	test4.ext
test2.ext	test5.ext
test3.ext	test6.ext

Instead of typing each filename at the Backup File List prompt, you could type:

```
Enter FILENAMES (press <Enter> for
directory) :TEST?.EXT
```

SY-TOS would select all of the above files.

The * indicates that any character may occupy its position or any remaining positions. You may use the * in a filename or in its extension. For example, suppose you had the following list of files that you wanted SY-TOS to back up:

test.txt	test01.txt
tests.txt	testa.doc
test2	testn2.txt

Instead of typing each filename, you could type:

```
Enter FILENAMES (press <Enter> for
directory) :TEST*.*
```

SY-TOS would select all of the above files.

Tree Structured Directories

DOS organizes files in a tree structured set of directories. Tree structured directories are useful for organizing large numbers of files, similar to the way a company has various departments and various jobs under those departments. Top directories name general categories while subsequent directories are more specific.

For example, company ABC has two divisions: sales and finance. Using one computer, they might set up a tree structure of directories as shown in Figure 3-4.

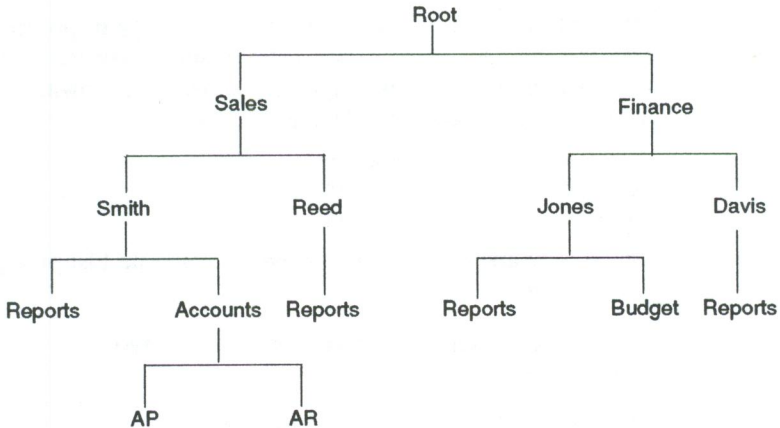


Figure 3-4 Example of a Tree Structure of Directories

In Figure 3-4, the top directory is called **root**, which is represented by the backslash (\) in DOS. A root directory may contain names of files and/or names of other directories. Each DOS disk or DOS disk partition has one root directory.

The other directories are referred to as **subdirectories**. Subdirectories may also hold both files and other subdirectories. A root directory and its subdirectories make up a tree structure.

Pathnames

When specifying a file, you must specify where to locate it. This is necessary because of the many paths available in tree structured directories. A *pathname* refers to a path of directory names that must be followed to find a particular file. The pathname you enter must be exactly as it appears on the disk.

Using Figure 3-4 as an example, if you wish to access all files within the Accounts directory during a Backup File List operation, you would specify the path to be:

```
Enter FILENAMES (press <Enter> for
directory) : \SALES\SMITH\ACCOUNTS\*.*
```

You may look at the information in the DISK window to see how complete a pathname you need to specify when backing up files. The DISK window displays the current DOS disk and path.

Selecting Files

When using the Backup, Verify, Restore and Directory commands, it is often convenient to be able to selectively specify different files and conditions to consider when choosing these files. The Select commands are available for this type of specification. We refer to them as *file selection criteria*. You specify file selection criteria either from the Select commands in the ST-CONFIG utility or from the Set Select commands in the Advanced menu system.

The following are the file selection criteria that you can establish for SY-TOS to consider when selecting files:

- Include specified files.
- Exclude specified files.
- Consider only files that have changed since the last backup.
- Use a specified date to select files.
- Include files within subdirectories.
- Consider one or all tape backup sessions.

How Does File Selection Work?

SY-TOS uses the file selection criteria to select different files and conditions which are applicable to a specific task. Before SY-TOS backs up, restores, verifies or displays a directory of preselected files, it reviews the file selection criteria that you have specified. These criteria only apply to the following file-by-file Selected commands:

- Backup File Selected.
- Verify File Selected.
- Restore File Selected.
- Restore Disk Selected.
- Directory Disk Selected.
- Directory Tape File Selected.
- Directory Tape Disk Selected.
- Directory Library File Selected.
- Directory Library Disk Selected.

A description of each command appears in Chapter 5.

The combination of all the criteria dictates which files SY-TOS will select for a particular task. For example, Figure 3-5 illustrates sample values for the file selection criteria.

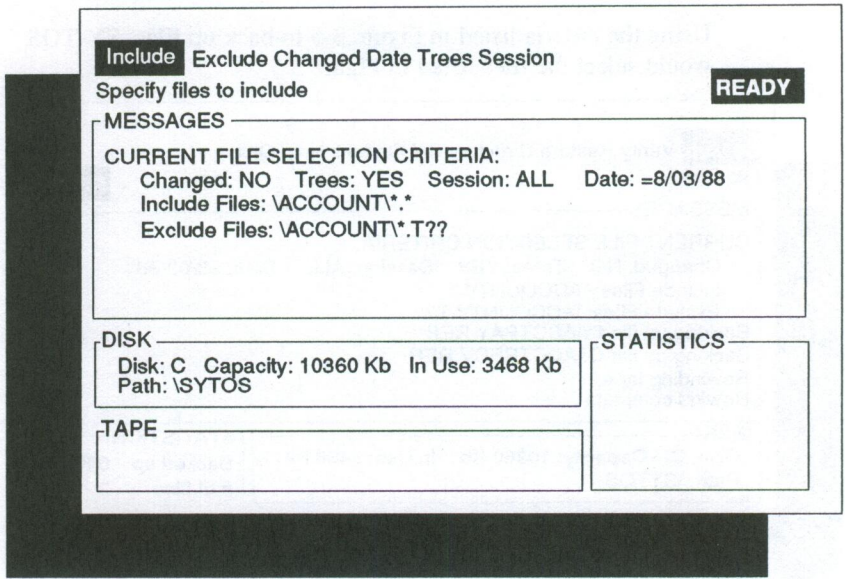


Figure 3-5 Sample Settings for Selection Criteria

Suppose you have the following DOS directory on your system as shown in Figure 3-6.

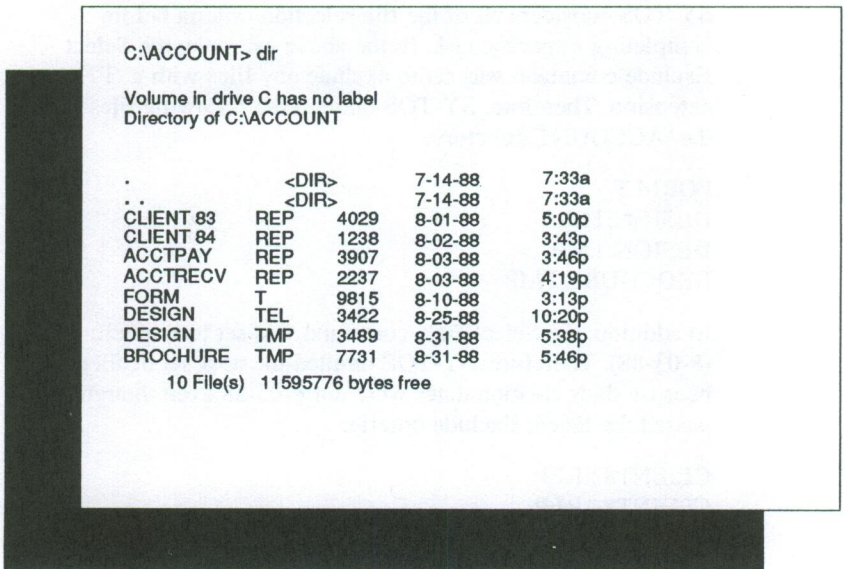


Figure 3-6 Sample DOS Directory

Using the criteria listed in Figure 3-5 to back up files, SY-TOS would select the files listed in Figure 3-7.

Backup Verify Restore Directory Set Options Help Quit	
File, Disk	READY
MESSAGES	
CURRENT FILE SELECTION CRITERIA: Changed: NO Trees: YES Session: ALL Date: =8/03/88 Include Files: \ACCOUNT*. * Exclude Files: \ACCOUNT*.T?? Backing up file C:\ACCTPAY.REP Backing up file C:\ACCTRECV.REP Rewinding tape Rewind complete	
DISK	STATISTICS
Disk: C Capacity: 10360 Kb In Use: 3468 Kb Path: \SYTOS	Backed up 6 Kb # of files 2
TAPE	Backup time 00:00:15 Total time 00:00:25
Name: TEST Created on: 09/14/88 at 11:14:40 am Volume #: 1	

Figure 3-7 Files Selected

SY-TOS considers all of the file selection criteria before completing a specific task. In the above example, the Select Exclude command was set to exclude any files with a .T?? extension. Therefore, SY-TOS omitted the following files from the \ACCOUNT directory:

FORM.T
DESIGN.TEL
DESIGN.TMP
BROCHURE.TMP

In addition, the Select Date command was set to a specific date (8-03-88). Therefore, SY-TOS omitted the next set of files because their creation dates were not 8-03-88 even though they passed the Select Exclude criteria:

CLIENT83.REP
CLIENT84.REP

The remaining files in the \ACCOUNT directory met all of the file selection criteria and were backed up:

ACCTPAY.REP
ACCTRECV.REP

You specify the default settings for the file selection criteria using the ST-CONFIG utility. When you want to temporarily change the default file selection criteria, use the Set Select commands from the Advanced menu system in SY-TOS. When you want to see what the current settings are, simply specify the Set Select command from the Advanced menu command bar and SY-TOS will display the settings in the MESSAGES window. When using the ST-CONFIG utility, the selection criteria settings appear in the SELECT window at all times.

Easy-List File Selection

Instead of SY-TOS automatically selecting files, you can type a file pathname or use SY-TOS' *easy-list file selection* feature. This option displays a list of files and directories contained within the current disk and directory. You may then point to the files or directories you want and then mark them for selection. You may also move up and down through the directory structure and choose other subdirectories to scan.

You can use easy-list file selection with the following SY-TOS commands:

- Backup File List.
- Verify File List.
- Set Select Include.
- Set Select Exclude.

To use easy-list file selection, simply press the <Enter> key when SY-TOS prompts you for a filename. It will then display files within the current disk directory in the MESSAGES window.

You may press the following keys to move the pointers to mark a file or directory:

Key to Press	Activity
< ← → ↑ ↓ >	Moves the pointers to the left, right, up or down the list.
<Ctrl><PgDn>	Displays a subdirectory if the pointers are located on a subdirectory name.
<Ctrl><PgUp>	Displays the parent directory.

	Unmarks a file for file selection.
<End>	Moves the pointers to the last file on the last page.
<Enter>	Executes the command on the marked files.
<Esc>	Exits out of file selection.
<F1>	Unmarks all marked files.
<Home>	Moves the pointers to the first file on the first page.
<Ins>	Marks a file for file selection.
<PgDn>	Displays the next page of a multi-page list.
<PgUp>	Displays the previous page of a multi-page list.

You may select a maximum of 40 files and/or directories at a time.

Chapter 4. Customizing the SY-TOS System

When you first execute SY-TOS, it assumes the default values specified in the ST-CONFIG utility. However, you can use the ST-CONFIG utility to change the settings. It is from the ST-CONFIG utility where you may permanently:

- Set the hardware configurations, which include the DMA channel, Interrupt number, I/O Base Address and whether or not SY-TOS will be used on a network. In addition, you can specify whether SY-TOS places Error Correction Code (ECC) on the tape each time you back up when using certain tape systems.
- Select SY-TOS' supplied options (such as choosing a menu system or selecting the color for the SY-TOS screens).
- Choose the file selection criteria that you want SY-TOS to consider when selecting files to back up, verify, restore and display.
- Establish a security system which will allow you to determine who can use SY-TOS on your system and which files may be accessed.

The next sections explain how to use the ST-CONFIG utility. The sections describe each command in the order it appears on the command bar. It gives step-by-step instructions on the choices you have to make.

Using the ST-CONFIG Utility

The ST-CONFIG utility gives you the opportunity to set various SY-TOS defaults. Each time you execute SY-TOS these defaults will be in effect.

You may temporarily change some default settings (such as file selection criteria) from the Advanced menu system. To permanently change the default settings, you need to use the ST-CONFIG utility.

To use the ST-CONFIG utility, make sure you are in the directory where the SY-TOS software is installed. Type **STCONFIG** and press <Enter>.

After you press <Enter>, the ST-CONFIG display appears on the screen.

Figure 4-1 illustrates the screen display. The command settings may vary from those on your screen.

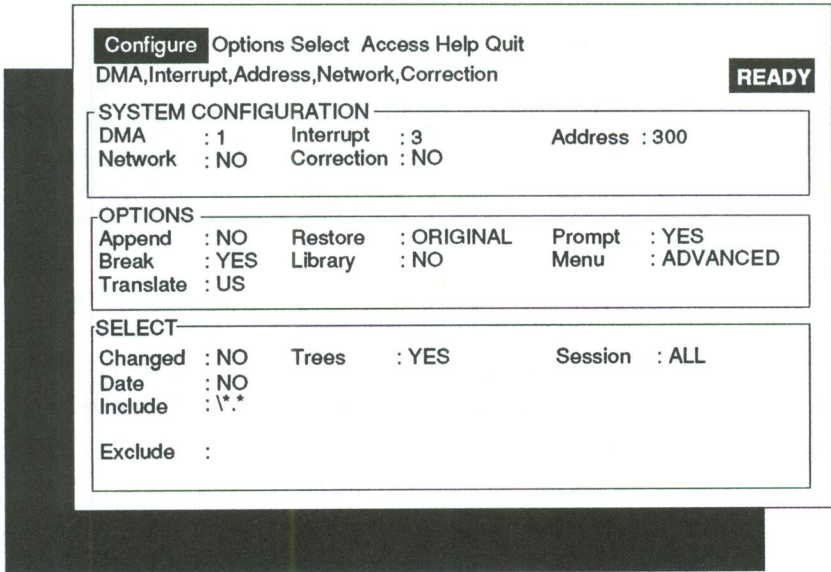


Figure 4-1 The ST-CONFIG Screen Display

The commands appear on the command bar at the top of your screen. You select them just as you would when using the Advanced menu system. (See *Selecting a Command* in Chapter 3 for more information.)

When a command requires additional information, ST-CONFIG prompts you for it on the first line on the screen.

As you change the settings for the Configure, Options and Select commands, ST-CONFIG updates the information displayed in the windows.

The word **READY** appears at the upper-right corner of the screen. This serves as an indicator which confirms that ST-CONFIG is ready to accept your commands. When

ST-CONFIG needs additional information from you, it changes the indicator to INPUT. When you request help, the indicator changes to HELP.

The next sections describe the commands according to the order in which they appear on the command bar. The commands are: Configure, Options, Select, Access, Help and Quit. A tree structure showing each command and its subcommands appears at the beginning of each section. The letters that you can type to quickly select a command appear in angle brackets immediately following the command's name. This is provided to help you become more familiar with the method of simply typing command initials to quickly specify a ST-CONFIG operation. Refer to Appendix D for a complete picture of the ST-CONFIG utility's command tree structure.

Configure Commands

The Configure commands allow you to specify hardware configuration values that are appropriate for your system. All are preset at the factory and, in most cases, will not need to change.

The values for the DMA (Direct Memory Access) channel, Interrupt number and I/O Base Address displayed in the SYSTEM CONFIGURATION window must match the settings on your tape controller board.

Configure DMA <cd>

The Configure DMA command allows you to change the Direct Memory Access channel to correspond to the DMA setting on the tape controller board.

NOTE

If you are using a computer with Micro Channel Architecture (for example, a PS/2 Model 50), the DMA command will appear on the screen, but you do not use the ST-CONFIG utility to change it. The DMA value is changed by using your system's configuration utility.

Procedure

1. Select **Configure** from the ST-CONFIG command bar.
2. Choose the **DMA** command.

The system displays the following prompt:

Enter new DMA channel:

3. Type **1, 2** or **3** and press **<Enter>**.

The system updates the SYSTEM CONFIGURATION window to reflect the change.

Configure Interrupt <ci>

The Configure Interrupt command allows you to change the Interrupt number to correspond to the Interrupt setting on the tape controller board. You may choose a number from 2 through 7.

NOTE

If you are using a computer with Micro Channel Architecture (for example, a PS/2 Model 50), the Interrupt command will appear on the screen, but you do not use the ST-CONFIG utility to change it. The Interrupt value is changed by using your system's configuration utility.

Procedure

1. Select **Configure** from the ST-CONFIG command bar.
2. Choose the **Interrupt** command.

The system displays the following prompt:

Enter new Interrupt channel:

3. Type a number from 2 through 7 and press <Enter>.

The system updates the SYSTEM CONFIGURATION window to reflect the change.

Configure Address <ca>

The Configure Address command allows you to change the I/O Base Address to correspond to the Address setting on the tape controller board.

NOTE

If you are using a computer with Micro Channel Architecture (for example, a PS/2 Model 50), the Address command will appear on the screen, but you do not use the ST-CONFIG utility to change it. The I/O Base Address

value is changed by using your system's configuration utility.

Procedure

1. Select **Configure** from the ST-CONFIG command bar.
2. Choose the **Address** command.

The system displays the following prompt:

Enter new I/O Base Address:

3. Type a number that reflects the new address and press **<Enter>**. For example: **330**. Refer to your tape system's hardware reference manual for information on what values to specify.

The system updates the SYSTEM CONFIGURATION window to reflect the change.

Configure Network <cn>

The Configure Network command allows you to specify whether you are operating SY-TOS under a network environment.

Procedure

1. Select **Configure** from the ST-CONFIG command bar.
2. Choose the **Network** command.
3. Select one of the following options:

No SY-TOS will not be used in a network environment.

Yes SY-TOS will be used in a network environment.

The system updates the SYSTEM CONFIGURATION window to reflect the change.

NOTE

SY-TOS is designed to operate under a variety of

networking environments. Refer to Appendix B for information about running SY-TOS under a network.

Configure Correction <cc>

The Configure Correction command allows you to specify whether or not SY-TOS places Error Correction Code (ECC) on the tape during a Backup operation.

During normal wear and tear on tapes, it is possible for defects to occur. Turning Configure Correction on *before* a Backup operation increases the chances of recovering information should the tape become damaged.

NOTE

Some tape systems may not use this feature or may have it built in to their hardware. If you are using one of these tape systems, this command will not appear on the Configure command bar.

Procedure

1. Select **Configure** from the ST-CONFIG command bar.
2. Choose the **Correction** command.
3. Select one of the following options:

No SY-TOS will not place ECC on the tape.

Yes SY-TOS will place ECC on the tape.

Turning Correction to Yes will slightly reduce the amount of data that may be backed up to tape. Also, since very complex calculations are performed during a backup procedure, the speed at which data is backed up may be slightly slower than if Correction were set to No.

The system updates the SYSTEM CONFIGURATION window to reflect the change.

NOTE

Each time you create a tape by assigning a volume name, SY-TOS checks the setting for the Configure Correction command. If Correction is set to Yes upon creation of a tape, SY-TOS will place ECC on the tape each time it appends information to the tape, regardless of the Configure Correction setting.

For example, suppose Configure Correction is set to Yes and Options Append is set to Yes. You select the Set Tape Create command to give a tape the volume name "Daily Backup." Each time you append information to this tape, it will contain ECC, even if you change the Configure Correction setting to No at a later time.

Error Correction will remain in effect for the tape until you set Configure Correction to No and give the tape a new volume name.

If Configure Correction is set to No when you specify a volume name, SY-TOS will not place ECC on the tape when you append backup sessions, regardless of the Configure Correction setting for the sessions being appended.

Options Commands

The Options commands enable you to select various system options that are available when performing SY-TOS operations. For example, you can request SY-TOS to prompt before restoring over information on the disk. In addition, you can specify which menu system you want to use and the colors for the SY-TOS screens.

Like the other commands in the ST-CONFIG utility, the Options commands come with default settings. You will want to check these to see if they are the correct ones for you. The following Options commands are also available from the Advanced menu system:

- Options Append.
- Options Restore.
- Options Prompt.
- Options Break.
- Options Library.

When you change an Options command from the Advanced menu system, its new value is in effect only for the duration of a SY-TOS session. Upon exiting the system, the values in the ST-CONFIG utility are in effect for the next SY-TOS session.

Options Append <oa>

With the Options Append command, you can instruct SY-TOS to place backed up information after the information currently on tape or to overwrite any information on the tape.

Procedure

1. Select **Options** from the ST-CONFIG command bar.

2. Choose the **Append** command.
3. Choose one of the following options:
 - No** SY-TOS will start backing up information at the beginning of the tape, overwriting any existing information on the tape after receiving confirmation. SY-TOS will prompt you for a volume name and password each time you back up.
 - Yes** SY-TOS will automatically append backups to the current tape. It will NOT prompt you for a volume name. If the tape has not been initialized to the system, you should select the Set Tape Create command in order to give it a name and an optional password before backing up.

Once you have selected an option, ST-CONFIG updates the OPTIONS window to reflect the change.

Options Restore <or>

With the Options Restore command, you can instruct SY-TOS to restore files to their original pathnames or to a new location when using the Restore File List and Selected or the Restore Disk List and Selected commands.

Procedure

1. Select **Options** from the ST-CONFIG command bar.
2. Choose the **Restore** command.
3. Choose one of the following options:
 - New** To restore files to disk according to the current disk and path as displayed in the DISK window in SY-TOS. SY-TOS will ignore the specified disk and pathnames on the backup tape, unless it is a DOS Disk backup on tape.
 - Original** To restore files to disk according to the original disk and pathnames from which the files were backed up, regardless of the current disk and path displayed in the DISK window in SY-TOS.

Once you select an option, ST-CONFIG updates the OPTIONS window to reflect the change.

CAUTION

- When using the Restore Disk List or Selected commands with Options Restore set to Original, SY-TOS will always restore the files to their original pathnames on the *current disk as displayed in the DISK window, regardless of the disk associated with the file(s) on tape.* SY-TOS will create the subdirectories when necessary.
- The setting for the Options Restore command does not affect a Restore Disk Entire operation. When you choose the Restore Disk Entire command, SY-TOS will prompt you for the disk where you want to place the information. At this point, you can specify a different disk. (See the Restore Disk Entire command section in Chapter 5 for more information.)

Options Prompt <op>

With the Options Prompt command, you can instruct SY-TOS to prompt you for confirmation before it overwrites system, changed or read-only files on disk during a restore operation.

Procedure

1. Select **Options** from the ST-CONFIG command bar.
2. Choose the **Prompt** command.
3. Choose one of the following options:

No SY-TOS will automatically restore over system, changed or read-only files on disk with the corresponding files on tape.

Yes SY-TOS will prompt you before restoring over system, changed or read-only files on disk.

Once you have selected an option, ST-CONFIG updates the OPTIONS window to reflect the change.

Options Break <ob>

With the Options Break command, you can specify whether or not pressing the <Ctrl> <Break> or <Ctrl> <C> key combinations will interrupt a SY-TOS activity.

Procedure

1. Select **Options** from the ST-CONFIG command bar.
2. Choose the **Break** command.
3. Choose one of the following options:

No SY-TOS will not allow the <Ctrl> <Break> or <Ctrl> <C> key combinations to interrupt an activity. This option is useful when a series of SY-TOS tasks are performed while unattended.

Yes SY-TOS will allow the <Ctrl> <Break> or <Ctrl> <C> key combinations to interrupt an activity. This option is useful when you accidentally request an undesired task.

Once you select an option, ST-CONFIG updates the OPTIONS window to reflect the change.

Options Library Active <ola>

With the Options Library command, you can open and close the SY-TOS Library.

SY-TOS gives you the opportunity to keep track of all files and disks that you back up as well as each tape's volume name. It stores this information in a disk file. When using SY-TOS, you can select the Directory Library commands to view the Library. The Library must be open in order to view its contents. If the security system is on, you will be able to view only the Library file assigned to you by the System Administrator.

Procedure

1. Select **Options Library** from the ST-CONFIG command bar.
2. Choose the **Active** command.

3. Choose one of the following options:

No The Library will be closed. SY-TOS will not keep track of any new tapes that are initialized, existing tapes when re-initialized, or additional backups to a tape currently in the Library.

This option is useful when you are creating or updating tapes that will be used at a different location.

Yes The Library will be opened. When you open the Library for the first time, SY-TOS creates a \STLIB directory. It places this directory in the root directory on the disk you specify using the Options Library Disk command.

SY-TOS places the Library files in the \STLIB directory. Make sure you have enough disk space to allow SY-TOS to store the Library files. Removing this directory will delete the Library's contents.

The system updates the OPTIONS window to reflect the change.

NOTES

- When you want to update the Library, you can select the Options Library Update command from the Advanced menu system. This command allows you to add SY-TOS tapes to the Library. You may then view its contents at any time by using the Directory Library commands.
- When the Library is open during a file-by-file backup operation, SY-TOS updates the Library files. You will therefore receive a message stating that these files are active when verifying.

Options Library Disk <old>

With the Options Library Disk command, you can specify the disk where SY-TOS will store the Library information.

Procedure

1. Select **Options Library** from the ST-CONFIG command bar.

2. Choose the **Disk** command.

The system displays the following prompt:

**Enter default disk for Tape Library
Files:**

3. Type the disk letter followed by a colon and press **<Enter>**.

The system updates the **OPTIONS** window to reflect the change.

Options Menu **<om>**

With the Options Menu command, you can choose which menu system will appear each time you execute SY-TOS.

Procedure

1. Select **Options** from the ST-CONFIG command bar.
2. Choose the **Menu** command.
3. Choose one of the following:

Novice The Novice menu will appear each time you execute SY-TOS. This system provides a subset of SY-TOS' features. You press function keys to back up, verify and restore preselected files or a DOS disk.

Advanced The Advanced menu will appear each time you execute SY-TOS. This system offers all of the SY-TOS features.

Once you selected an option, ST-CONFIG updates the **OPTIONS** window to reflect the change.

Options Translate **<ot>**

With the Options Translate command, you can select the language in which SY-TOS will appear.

Procedure

1. Select **Options** from the ST-CONFIG command bar.
2. Choose the **Translate** command.

The system displays a list of available languages in the LANGUAGE window. They appear in abbreviated form. For example: FR represents French, GR represents German and US represents English.

3. Press the following keys to select a language file.

Key to Press	Activity
< ↑ ↓ ← → >	Moves the pointers up, down, to the left or to the right.
<End>	Moves the pointers to the last language file in the list.
<Enter>	Accepts the language file as the one you want to use, converts the text into the specified language and returns you to the Options command bar.
<Esc>	Cancels the Translate command and returns you to the Options command bar.
<Home>	Moves the pointers to the first language file in the list.

Once you have made a selection, the system returns you to the Options command bar and all the text on the screen will be in the language you selected.

Options Color <oc>

With the Options Color command, you can specify the screen colors for SY-TOS and the ST-CONFIG and ST-BATCH utilities.

The screens are divided into the following sections. You can specify a different color for each one.

Screen Sections	Section Description
Contents	The display area within each window.
Border	The double lined border surrounding each windowed area.
Titles	The heading name for each windowed area.
Selected	The current command on the command bar.

Unselected	The alternate commands on the command bar as well as subcommands.
Messages	Any message or prompt appearing on the screen outside a windowed area. In addition, this includes the last line on the screen where the program name, and system date and time appear.

Procedure

1. Select **Options** from the ST-CONFIG command bar.
2. Choose the **Color** command.
3. Select the part of the screen whose color you want to change.

The system displays the available colors in the COLOR PALETTE window. You can choose colors for the foreground and background of the screen. A blinking asterisk points to your location in the COLOR PALETTE. The Foreground and Background color descriptions in the COLOR SELECTED window reflect the blinking asterisk's location.

The colored asterisks represent the available colors for the foreground. The colored bars represent the available colors for the background.

4. Press the <→> and <←> keys to select the color you want for the foreground.

The Foreground color name will change to reflect where you are in the color palette.

5. Press the <↑> and <↓> keys to select the color you want for the background.

The Background color name will change to reflect where you are in the color palette.

NOTE

Up to this point, you can press <Esc> to cancel the color selection command.

6. When you have selected the colors for the foreground and background, press <Enter>.

The colors you have selected for the specified part of the screen are in immediate effect.

7. Select another part of the screen whose color you want to change or press the <F1> function key to return to the ST-CONFIG command bar.

When you have finished selecting screen colors, the system returns you to the command bar and the screen will appear in the colors you have chosen.

Select Commands

With the Select commands in the ST-CONFIG utility, you can specify criteria for SY-TOS to consider when selecting files to back up, verify, restore or display.

Each time you request SY-TOS to back up, verify, restore or display preselected files, it reviews each file criterion before selecting the files. For an example of how the file selection criteria work, see the Selecting Files section in Chapter 3.

When you want to use different selection criteria for just one SY-TOS session, you can use the Set Select commands in SY-TOS to reset the criteria values. SY-TOS will then use the new values when selecting files for the duration of the current SY-TOS session. Once you exit SY-TOS, the default file selection values in the ST-CONFIG utility are in effect. If you want to permanently change the criteria SY-TOS uses to select files, simply change them in the ST-CONFIG utility.

The file selection criteria are only considered when you choose the following SY-TOS commands:

- Backup File Selected.
- Verify File Selected.
- Restore File Selected.
- Restore Disk Selected.
- Directory Disk Selected.
- Directory Tape File Selected.
- Directory Tape Disk Selected.
- Directory Library File Selected.
- Directory Library Disk Selected.

The **SELECT** window displays a list of the current file selection criteria values. Figure 4-2 shows the **SELECT** window with sample default settings.

```
SELECT
Changed : NO      Trees      : YES      Session : ALL
Date     : NO
Include  : \*. *
Exclude  : \WP\*. *
```

Figure 4-2 An Example of the **SELECT** Window

Select Include <si>

With the **Select Include** command, you can instruct SY-TOS to include certain files during its file selection process.

Procedure

1. Choose **Select** from the **ST-CONFIG** command bar.
2. Select the **Include** command.

The system displays the following prompt:

Enter FILENAMES:

3. You have the following choices:
 - Type the files that you want SY-TOS to consider and press <Enter>. You may enter a maximum of 80 characters. For example:

Enter FILENAMES:C:\SYTOS.EXE
C:\NEW\FILES.DOC

You may specify multiple disk criteria. For example:

Enter FILENAMES:C:*.* D:*.*

- Type the name of a file that contains a list of files that you want to include. Precede the complete pathname with an @ symbol. For example:

Enter FILENAMES:@C:\SYTOS\INCLUDE.LST

Use a text editor or the DOS EDLIN program to create the list and save it in a file which is referred to as an *@ file*. Make sure you include the pathname to the files and separate each name with a comma, space or <Enter>. You may specify a maximum of 40 files and/or directories in the @ file. To include more files refer to Example 4 in Chapters 6 and 7.

NOTE

The @ file must exist before you specify it in this command.

ST-CONFIG updates the SELECT window to reflect the new Include criteria.

Select Exclude <se>

With the Select Exclude command, you can instruct SY-TOS to exclude certain files during its file selection process.

Procedure

1. Choose **Select** from the ST-CONFIG command bar.
2. Select the **Exclude** command.

The system displays the following prompt:

Enter FILENAMES:

3. You have the following choices:

- Type the files that you want SY-TOS to exclude and press <Enter>. You may enter a maximum of 80 characters. For example:

```
Enter FILENAMES:C:\*.TMP \WP\*.*
```

You may specify multiple disk criteria. For example:

```
Enter FILENAMES:C:\*.BAK D:\*.CIF
```

- Type the name of a file that contains a list of files that you want to exclude. Precede the complete pathname with an @ symbol. For example:

```
Enter FILENAMES:@C:\SYTOS\EXCLUDE.LST
```

Use a text editor or the DOS EDLIN program to create the list and save it in a file which is referred to as an @ file. Make sure you include the pathname to each file and separate each name with a comma, space or <Enter>. You may specify a maximum of 40 files and/or directories in the @ file. To exclude more files refer to Example 4 in Chapters 6 and 7.

NOTE

The @ file must exist before you specify it in this command.

ST-CONFIG updates the SELECT window to reflect the new Exclude criteria.

Select Changed <sc>

With the Select Changed command, you can instruct SY-TOS to consider all files or only those which have changed or have been created since the last backup session. Select Changed only applies as a file selection criterion during Backup File Selected and Directory Disk Selected operations.

When using the Directory Disk Selected command, you may choose either the Set or Keep options to view the files on disk which have changed or have been created since the last backup. Selecting Set in this instance will not change the files status to unmodified.

Procedure

1. Choose **Select** from the ST-CONFIG command bar.
2. Select the **Changed** command.
3. Select one of the following options:
 - No** SY-TOS will consider all files, regardless of whether they have changed or have been created since the last backup.
 - Set** SY-TOS will consider only those files which have changed or have been created since the last backup and will reset their file status to unmodified. SY-TOS will not consider those files again until they have changed.
 - Keep** SY-TOS will consider only those files which have changed or have been created since the last backup, but will keep the current changed file status. This option is useful when you want to create more than one backup tape containing the same updated files.

After you make a selection, ST-CONFIG will update the SELECT window to reflect the change.

Select Date <sd>

With the Select Date command, you can instruct SY-TOS to consider all files or only those created on, before or after a specific date.

Procedure

1. Choose **Select** from the ST-CONFIG command bar.
2. Select the **Date** command.
3. Select one of the following options:
 - No** SY-TOS will not use a file's creation date when determining which files to select.
 - After** SY-TOS will consider files created on or after a specified date.

Before SY-TOS will consider files created on or before a specified date.

Equal SY-TOS will consider files that have a specific creation date.

When you select the After, Before or Equal options, ST-CONFIG displays the following prompt:

Enter DATE for file selection:

4. Type the date that you want SY-TOS to use when considering files for file selection. Use the MM/DD/YY or MM-DD-YY format when entering the date.

To accept the default value (the current date), press <Enter>.

NOTE

If the COUNTRY command in the DOS CONFIG.SYS file has been set, you will need to specify that country's date format. For example, if the country code is set to 033 (France), you will need to use the DD/MM/YY or DD-MM-YY date format.

After you have selected one of the Date options, ST-CONFIG updates the SELECT window to reflect the change.

Select Trees <st>

With the Select Trees command, you can instruct SY-TOS to search down subdirectories when it selects files or to consider only those files within a specific directory.

Procedure

1. Choose **Select** from the ST-CONFIG command bar.
2. Select the **Trees** command.
3. Select one of the following options:

No SY-TOS will omit subdirectories when it selects files. This option is useful when you want to isolate the files within a directory without including files within subdirectories.

Yes SY-TOS will search down subdirectories when it selects files. This option is useful when you want to include all files within a disk.

After you have made a selection, ST-CONFIG updates the SELECT window to reflect the change.

Select Session <ss>

With the Select Session command, you can instruct SY-TOS to search for files in all tape backup sessions or only in one specific backup session when it verifies, restores or displays files.

Each time you back up files to a tape using the *Backup File List* or *Backup File Selected* commands, SY-TOS records it as a session. A tape may contain one session if Options Append were set to No or many sessions if Options Append were set to Yes. Recording sessions is helpful when you place several backup sessions on the same tape and then want to verify, restore or view a particular session using the Verify File Selected, Restore File Selected or Directory Tape File Selected commands.

SPECIAL NOTE

The Session command only pertains to file-by-file backup operations. You cannot use Session as a selection criterion for any List, DOS Disk or Device operations.

Procedure

1. Choose **Select** from the ST-CONFIG command bar.
2. Select the **Session** command.
3. Select one of the following options:

All SY-TOS will search all file backup sessions when selecting files to verify, restore and display.

Specific SY-TOS will search a specific file backup session when selecting files to verify, restore and display.

ST-CONFIG will display the following prompt:

Enter SESSION number:

4. Type the session number (a maximum of 255) that you want SY-TOS to search and press <Enter>.

After you have selected an option, ST-CONFIG updates the SELECT window to reflect the change.

NOTE

The Select Session command works in conjunction with the Options Append command. If Options Append is set to Yes, then more than one backup session can reside on a tape. When Options Append is set to No, only one backup session may exist on a tape.

Configure Options Select Access Help Quit

Active User Remove

No Yes

View Add Change Delete

Access Commands

The ST-CONFIG utility allows you to create and maintain a security system which restricts users within the SY-TOS system to files specified in their access paths.

When creating a security system, you must first establish a System Administrator. Once you identify the System Administrator, only he/she can maintain the security system by selecting the Active, User and Remove commands to disable, modify or remove it.

The security system consists of the following information for each user:

Username	The name the user must specify before accessing SY-TOS or the ST-CONFIG and ST-BATCH utilities.
Password	The password the user must specify before entering SY-TOS or the ST-CONFIG and ST-BATCH utilities.
Access Path	The disks, directories or files that this user can access.
Library	The name for the Library file associated with this user. SY-TOS records the user's backup activities in this file.

The ST-CONFIG utility stores this information in a security file. When a security system has been created, but the security file has been deleted, you will need to re-install SY-TOS.

Access Active <aa>

The Access Active command allows you to turn on and off the security system. If the security system has not been created, ST-CONFIG will create it when you select the Yes option.

Procedure

1. Select **Access** from the ST-CONFIG command bar.
2. Choose the **Active** command.
3. Select one of the following options:
 - No** Disables the security system. When you disable the security system, any user can access SY-TOS and the ST-CONFIG and ST-BATCH utilities.
 - Yes** Enables the security system. If it has not been created, ST-CONFIG will create it at this time.

When you select the Yes option, ST-CONFIG displays the following prompt:

Enter Administrator's NAME:

4. Type the System Administrator's username (a maximum of 20 characters) and press <Enter>.

The system displays the next prompt:

Enter Administrator's PASSWORD:

5. Type the password for the System Administrator (a maximum of 5 characters) and press <Enter>.

NOTE

The system does not display the password. An X will appear for each letter you type. This is to ensure maximum security.

If you are creating a security system, ST-CONFIG will display the password confirmation prompt.

Re-Enter Administrator's PASSWORD:

6. Retype the password and press <Enter>.

If the password you just typed is incorrect, ST-CONFIG informs you and redisplay the password prompt. You will need to repeat steps 5 and 6.

NOTES

- By default, the System Administrator's access path is *.* and the Library file is called **admin.lbr**.
- Because the System Administrator is the only user who can change, disable or remove the security system, we strongly recommend that you record the System Administrator's name and password and keep it in a secure place. If the System Administrator's name and/or password are forgotten, no one will be able to select the Access commands to modify the security system.
- Once a security system has been activated, each user will be prompted for a name and password before being allowed access to the ST-CONFIG and ST-BATCH utilities or SY-TOS. The system will not display the actual password a user enters. An X will appear for each letter that is typed. Only the System Administrator will be allowed to select the Access commands.

Access User View <auv>

The Access User View command allows the System Administrator to display a list of users in the security system and select a username whose security information he/she wishes to see.

Procedure

1. Select **Access User** from the ST-CONFIG command bar.
2. Choose the **View** command.

The system displays a list of users who can access SY-TOS in the top window. Two symbols point to the first name. That user's security information appears in the USER INFORMATION window.

3. Press the arrow keys, <PgDn>, <PgUp>, <End> or <Home> keys to point to other names.

NOTE

As you move the pointers from name to name, ST-CONFIG displays the security information for that user in the USER INFORMATION window.

When you are through viewing the security system, press <Esc> or <Enter> to return to the command bar.

Access User Add <aua>

The Access User Add command allows the System Administrator to add a user to the security system.

Procedure

1. Select Access User from the ST-CONFIG command bar.
2. Choose the Add command.

The system displays the following prompt:

Enter USERNAME:

3. Type the username (a maximum of 20 characters) that you want to add to the system security and then press <Enter>.

The system displays the name you typed in the USER INFORMATION window and then displays the next prompt.

Enter User PASSWORD:

4. Type the password (a maximum of 5 characters) for this user and press <Enter>.

The system displays the password in the USER INFORMATION window and then displays the following prompt:

Enter User PATH:

5. Type the disk path that you will allow for this user and press <Enter>. The path can be a maximum of 64 characters and you may use the DOS wildcards.

The following examples show the paths that you may use:

Path	Access to
.	All disks and directories defined to the system.
C:	The C hard disk. The user will have the ability to back up multiple partitions that may exist on this disk by using the Options Device commands.
C:\	The C disk DOS partition only. The user has the ability to back up a DOS disk on C only. The user cannot perform multiple partition backups with this path.
C:\SYTOS\	The SYTOS directory located on the C disk and all subdirectories contained within the SYTOS directory. The user cannot access any other directory on the C disk.
C:\SYTOS\ET.EXE	The ET.EXE program in the SYTOS directory on the C disk. This is the only file that the user can access through SY-TOS.

After you specify the path, ST-CONFIG updates the USER INFORMATION window and displays the following prompt:

Enter User Library NAME: SYTOS

6. You have two choices:

- To accept the default value, press <Enter>.
- Type a name for the Library file (a maximum of 8 characters) and press <Enter>.

The Library file will contain a listing of all tapes a user creates and the contents of these tapes. The System Administrator can assign each user a separate file or a single one for several users. For example, all users in the accounting department could share the common Library file called ACCT.

When the user executes SY-TOS, he/she can only view the Library file associated with his/her username. SY-TOS will place information in Library files only when the Library is

open. You open the Library from the Options Library Active command either in the ST-CONFIG utility or in the Advanced menu system.

The Library name you specify will appear in the USER INFORMATION window. ST-CONFIG places the Library file in the \STLIB directory.

After specifying the Library name, the system displays the command bar.

Access User Change <auc>

The Access User Change command allows the System Administrator to edit user information in the security system.

Procedure

1. Select **Access User** from the ST-CONFIG command bar.
2. Choose the **Change** command.

The system displays the following prompt:

Enter name to change (or <Enter> for list):

3. You have two choices:
 - Type the username whose security information you want to change and then press <Enter>.
 - Press <Enter> to display a list of users in the top window. You can press the **arrow keys**, <PgDn>, <PgUp>, <Home> or <End> keys to point to the user whose security information you want to change and then press <Enter>.

NOTE

As you move the pointers from name to name, ST-CONFIG displays the security information for that user in the USER INFORMATION window.

After you specify the username, the system displays the following prompt:

Enter USERNAME:

4. To make any changes, type the new information at the prompt and press <Enter>.

To keep the existing information, press <Enter>.

ST-CONFIG prompts you for the password.

5. Type the new password and press <Enter>.

To keep the current password, press <Enter>.

ST-CONFIG prompts you for the disk, directory and file path that the user can access.

6. Type the new access path and press <Enter>.

To keep the current access path, press <Enter>.

ST-CONFIG prompts you for the Library file.

7. Type the name for the Library file and press <Enter>.

To keep the current name, press <Enter>.

ST-CONFIG displays the following prompt:

```
Is all this information correct? (Y/N)
[Y]
```

8. Press <Enter> to add the changes to the security system and return to the command bar.

Type N and press <Enter> to cancel the information you just specified for this user.

After you make the necessary changes, ST-CONFIG redisplay the command bar.

Access User Delete <aud>

The Access User Delete command allows the System Administrator to remove a user from the security system.

Procedure

1. Select **Access User** from the ST-CONFIG command bar.
2. Choose the **Delete** command.

The system displays the following prompt:

Enter name to remove (or <Enter> for list):

3. You have two choices:

- Type the username that you want to remove and then press <Enter>.
- Press <Enter> to display a list of users in the top window. You can press the arrow keys, <PgDn>, <PgUp>, <Home> or <End> keys to point to the user you want to remove and then press <Enter>.

NOTE

As you move the pointers from name to name, ST-CONFIG displays the security information for that user in the USER INFORMATION window.

After you specify a user to remove, the system displays the following prompt:

Confirm. Do you wish to REMOVE this user? (Y/N) [N]

4. You have two choices:

- Press <Enter> to keep the user in the security system and return to the command bar.
- Type Y and press <Enter> to delete the specified user information from the security system.

NOTES

- When you remove a user from the security system, that user can no longer access SY-TOS or the ST-CONFIG and ST-BATCH utilities when the security system is activated.
- You cannot remove the System Administrator's name from the security system. You may change the name with the Access User Change command or you may delete the entire security system by selecting the Access Remove command.

Access Remove <ar>

The Access Remove command permanently deletes the security information. Any user can access SY-TOS and ST-CONFIG utility as well as create a new security system.

Procedure

1. Select Access from the ST-CONFIG command bar.
2. Choose the Remove command.

The system displays the following prompt:

```
Do you wish to REMOVE the security
system? (Y/N) [N]
```

3. Type Y and press <Enter> to remove the security system, or press <Enter> to keep it.

Chapter 5. The Advanced Menu System Commands

This chapter contains step-by-step instructions on how to perform each SY-TOS task in the Advanced menu system. The chapter describes each command in the order it appears in the Advanced menu system. A tree structure showing each command and its subcommands appears at the beginning of each section.

The top line on the Advanced menu system displays a horizontal list of commands. We call this line the *Advanced menu command bar*. A list of subcommands appears below the highlighted command. When there are no more subcommands, a description appears.

The syntax for directly specifying SY-TOS commands at the DOS command prompt ("command line operation") appears in angle brackets immediately after the command's name. (For example, **Backup File List <bfI>**.) Chapter 6 explains command line operation.

You select commands in the Advanced menu system either by typing their initial letters as in the method presented above for command line operation, or by moving the selection cursor to highlight the command and then pressing the <Enter> key. The second selection method gives you the opportunity to scan the command trees. You may press the <F2> function key at any time to display a help message on the highlighted command. For more information about selecting commands, refer to Chapter 3.

If you are operating SY-TOS under a network environment, please refer to Appendix B in conjunction with the following sections. Appendix B describes special considerations which must be made when running SY-TOS under a network environment.

Backup Commands

The Backup commands allow you to copy information from a disk to a tape. By backing up, you can keep records of your files from years past, transfer data from one computer to another and free disk space.

Probably the most important reason for backing up is to ensure that data is not lost. When a hardware problem occurs and data is lost on your disk, you may retrieve it from the backup tape. However, the information backed up to tape is only as error free as it existed on the disk at the time of the backup. If there were problems with your disk, they may appear on the backup tape. *Therefore, it is advisable to perform a DOS CHKDSK operation prior to backing up data.* The CHKDSK command checks the disk for errors with the directories and the File Allocation Table. Although this may take a few extra seconds, it may save you weeks of trying to restore data that was damaged on the disk and therefore on the tape.

An Overview of Backup Operations

Before backing up files, you may want to check the settings for the Options commands since some of the settings may not be what you want. For example, the Options Append command determines whether or not SY-TOS appends information to a tape. The Options Break command allows you to interrupt a SY-TOS operation. Other Options commands allow you to keep track of the contents of backup tapes via a Library, and to maintain a Journal that records all messages that appear in the MESSAGES and STATISTICS window. The Journal information can either be stored in a disk file or can be logged to a printer.

You can determine what the Options settings are by selecting the Options command from the Advanced menu command bar. SY-TOS will then display the current settings in the MESSAGES window.

Each time you back up files to a tape using the Backup File List or Selected commands, SY-TOS assigns the backup a *session number*. Each time you back up a DOS disk using the Backup Disk or Options Device Backup command, SY-TOS assigns a *sequence number*. You may back up multiple sessions or sequences to the same tape if Options Append were set to Yes or only one if Options Append were set to No.

If a backup procedure fills a tape with information, SY-TOS will prompt you to insert as many tapes as needed to complete the backup. You may want to label the tapes so their order can be determined easily for future SY-TOS operations.

See Chapter 2 for more information about backup strategies.

The following are detailed descriptions explaining how to execute each Backup command.

Backup File List <bfl>

The Backup File List command allows you to copy specified files from disk to tape. When you choose this command, SY-TOS will disregard the file selection criteria.

You may enter specific filenames or mark files using SY-TOS' easy-list file selection feature. SY-TOS will back up only the designated files. If complete pathnames have not been specified, subdirectories will not be included even if Set Select Trees is set to Yes.

NOTES

- When backing up files for the first time to a new or erased tape with Append set to Yes, you should first use the Set Tape Create command to specify a tape volume name and an optional password.
- The Backup File List command is designed to back up files only. Therefore, this command will not back up an empty directory if it is at the bottom of a tree structure. (If its parent directory is also empty, it will not be

backed up either.) If you wish to include these types of directories, use the Backup Disk command.

Procedure

1. Select **Backup File** from the Advanced menu command bar.
2. Choose the **List** command.

The system displays the following prompt:

Enter FILENAMES, (press <Enter> for directory):

3. You have three choices:
 - Type the filename(s) that you want to back up. You may enter a maximum of 80 characters. For example:

Enter FILENAMES, (press <Enter> for directory): *.EXE \SYTOS*.BAT

- Press <Enter> to display the contents of the current directory in the MESSAGES window and then select the files to back up by marking them. Refer to the Easy-List File Selection section in Chapter 3 for information on how to mark files.
- Type the name of the file that contains the list of files you want to back up. Precede the complete pathname with an @ symbol. For example:

Enter FILENAMES, (press <Enter> for directory): @C:\SYTOS\DAILY.LST

Use a text editor or the DOS EDLIN program to create the list and save it in a file which is referred to as an @ file. Make sure you include the pathname to each file and separate each name with a comma, space or <Enter>. You may specify a maximum of 40 files and/or directories in the @ file. To include more files, refer to Example 4 in Chapters 6 and 7.

NOTE

The @ file must exist before you specify it in this command.

If the Options Append command is set to Yes, SY-TOS will back up the specified files, placing them at the end of any existing information on the tape. You may then disregard the following steps.

If the Options Append command is set to No, SY-TOS will display the following prompt:

Enter a tape VOLUME NAME:

4. Type the name of the tape and press <Enter>. The name can have a maximum of 47 characters and can contain spaces.

The system displays the next prompt:

Enter optional tape PASSWORD, <Enter> if none:

SPECIAL NOTE

Passwords protect the tape against unauthorized access. Be sure to record the password in a safe, secure place because without the password, a tape cannot be accessed. You cannot remove a password without destroying the tape's contents.

5. If you do not wish to assign a password, simply press <Enter>.

If you want to assign a password, type the password (a maximum of 19 characters) and press <Enter>.

The system prompts you again.

Re-enter PASSWORD to confirm:

6. Retype the password and press <Enter>.

If the password you just typed is incorrect, SY-TOS informs you and redisplay the optional password prompt. You will then need to repeat steps 5 and 6.

If the tape contains data, the system will display the following prompt:

THIS TAPE CONTAINS DATA - Press <Enter> to OVERWRITE, <Esc> to QUIT

7. Press either <Enter> to continue or <Esc> to stop the backup procedure.

If you press <Enter>, SY-TOS will overwrite the existing information on tape.

It is recommended that you now select the Verify commands to ensure that the files on the tape correctly match the corresponding files on the disk.

Backup File Selected <bfs>

The Backup File Selected command copies preselected files from disk to tape. SY-TOS selects files to back up according to the file selection criteria specified either from the Select commands in the ST-CONFIG utility or from the Set Select commands in the Advanced menu system.

NOTE

The Backup File Selected command is designed to back up files only. Therefore, this command will not back up an empty directory if it is at the bottom of a tree structure. (If its parent directory is also empty, it will not be backed up either.) If you wish to include these types of directories, use the Backup Disk command.

Procedure

1. Before choosing the Backup File Selected command, make sure the file selection criteria are assigned the settings you want. Refer to the Select commands in Chapter 4 or in this chapter for information about setting the file selection criteria. Refer to Chapter 3 for an overview.

To view the current file selection criteria, choose the Set Select command. SY-TOS will display the selection criteria in the MESSAGES window. You may change the criteria and then return to the Advanced menu command bar.

NOTE

When backing up files for the first time to a new or erased tape with Append set to Yes, you should first use the Set Tape Create command to specify a tape volume name and an optional password.

2. Select **Backup File** from the Advanced menu command bar.
3. Choose the **Selected** command.

If the Options Append command is set to Yes, SY-TOS will back up the preselected files, placing them at the end of any existing information on the tape. You may then disregard the following steps.

If the Options Append command is set to No, SY-TOS will display the following prompt:

Enter a tape VOLUME NAME:

4. Type the name of the tape and press <Enter>. The name can be a maximum of 47 characters and can contain spaces.

The system displays the next prompt:

**Enter optional tape PASSWORD, <Enter>
if none:**

SPECIAL NOTE

Passwords protect the tape against unauthorized access. Be sure to record the password in a safe, secure place because without the password, a tape cannot be accessed. You cannot remove a password without destroying the tape's contents.

5. If you do not wish to assign a password, simply press <Enter>.

If you want to assign a password, type the password (a maximum of 19 characters) and press <Enter>.

The system prompts you again.

Re-enter PASSWORD to confirm:

6. Retype the password and press <Enter>.

If the password you just typed is incorrect, SY-TOS informs you and redisplay the optional password prompt. You will then need to repeat steps 5 and 6.

If the tape contains data, the system will display the following prompt:

**THIS TAPE CONTAINS DATA - Press <Enter>
to OVERWRITE, <Esc> to QUIT**

7. Press either <Enter> to continue or <Esc> to stop the backup procedure.

If you press <Enter>, SY-TOS will overwrite the existing files.

It is recommended that you now select the Verify commands to ensure that the files on the tape correctly match the corresponding files on the disk.

Backup Disk <bd>

The Backup Disk command backs up the complete contents of a DOS disk partition. When you choose this command, SY-TOS will disregard the file selection criteria.

If you have used the ST-CONFIG utility to set Configure Network to Yes because you are running SY-TOS across a network, this command will not appear on the command bar.

NOTE

When backing up information for the first time to a new or erased tape with Append set to Yes, you should first use the Set Tape Create command to specify a tape volume name and an optional password.

Procedure

1. Select **Backup** from the Advanced menu command bar.
2. Choose the **Disk** command.

SY-TOS displays the following prompt:

```
Enter DISK letter(s) for a DOS DISK  
BACKUP:
```

3. Type the letter(s) followed by a colon that identifies the disk whose contents you want to back up to tape and press <Enter>. For example:

```
Enter DISK letter(s) for a DOS DISK  
BACKUP:C:
```

When more than one DOS disk partition is available on your computer system, you can back up more than one disk at the same time. Type both disk letters at the prompt and separate them with a space. For example:

```
Enter DISK letter(s) for a DOS DISK  
BACKUP:C: D:
```

If the Options Append command is set to Yes, SY-TOS will back up the specified disk(s), placing the information at the end of any existing information on the tape. You may then disregard the following steps.

If the Options Append command is set to No, SY-TOS will display the following prompt:

Enter a tape VOLUME NAME:

4. Type the name of the tape and press <Enter>. The name can be a maximum of 47 characters and can contain spaces.

The system displays the next prompt:

**Enter optional tape PASSWORD, <Enter>
if none:**

SPECIAL NOTE

Passwords protect the tape against unauthorized access. Be sure to record the password in a safe, secure place because without the password, a tape cannot be accessed. You cannot remove a password without destroying the tape's contents.

5. If you do not wish to assign a password, simply press <Enter>.

If you want to assign a password, type the password (a maximum of 19 characters) and press <Enter>.

The system prompts you again.

Re-enter PASSWORD to confirm:

6. Retype the password and press <Enter>.

If the password you just typed is incorrect, SY-TOS informs you and redisplay the optional password prompt. You will then need to repeat steps 5 and 6.

If the tape contains data, the system will display the following prompt:

**THIS TAPE CONTAINS DATA - Press <Enter>
to OVERWRITE, <Esc> to QUIT**

7. Press either <Enter> to continue or <Esc> to stop the backup procedure.

If you press <Enter>, SY-TOS will overwrite the existing files.

It is strongly recommended that you now select the Verify Disk command to ensure that the information on the tape correctly matches the information on the disk.

NOTES

- When SY-TOS backs up a disk, it backs up the information contained in that DOS disk partition. For example, suppose a 20 megabyte DOS hard disk partition contains only 5 megabytes of information and the remaining 15 megabytes are available. SY-TOS will back up only the 5 megabytes in use. Because SY-TOS does not back up unused disk space when using this command, backup time is reduced.
- When the Journal is open during a Backup Disk operation, SY-TOS updates the Journal file; thereby, altering the information on the disk. Upon verifying the backup, you may receive an error message stating that certain blocks failed verification. We therefore recommend that you log to a printer or alternate disk during Disk backup and verify operations.

File Disk

List Selected

Verify Commands

The Verify commands allow you to confirm that SY-TOS correctly backed up on tape the files or disk you specified. When verifying files, SY-TOS scans the tape for the specified files and then compares them with the corresponding files on the disk. If you are verifying a disk, SY-TOS will compare the information on the tape with the information on the disk. It is strongly recommended that you use the Verify commands after each backup session to ensure the validity of the information on tape.

An Overview of Verify Operations

Each time you back up files to a tape, SY-TOS assigns a session number. A tape may contain one session if Options Append were set to No or many sessions if Options Append were set to Yes.

If you have multiple sessions on tape and would like to determine the number of the session you would like to verify, make sure the Set Select Session command is set to All and set the file selection criteria according to the information you want to verify. Then select either the Directory Tape File Selected or Directory Library File Selected command if the Library is open. SY-TOS will display the session numbers and the associated file information. You can then find the session you want to verify.

Once you have determined which session you want to verify, choose the Set Select Session Specific command and enter the desired session number. Then choose the Verify File Selected command; SY-TOS will only include that particular session when verifying the specified files. If the Set Select Session command is set to All and there is more than one session

residing on the tape, SY-TOS will verify all files that satisfy the selection criteria in each session on the tape from the first session consecutively through the last.

If you verify all backup sessions after appending information to a tape, any files that have been modified on the disk will fail verification when compared to older backup sessions. Therefore, you will probably want to verify only the most recent backup session using the Verify File Selected command with Set Select Session Specific equal to the number of this latest session (make sure Set Select Include is set to *. * and Trees is set to Yes), regardless of whether you performed a Backup File List or a Backup File Selected operation.

Each time you back up a DOS disk partition using the Backup Disk command, SY-TOS assigns it a sequence number (for example, C:1, C:2, D:1, D:2, D:3). When you verify a DOS Disk backup, you can specify the sequence number associated with it if more than one exists on the tape. You can see the sequence numbers that SY-TOS assigns each DOS Disk backup when you select the Directory Tape File Selected command with Set Select Include equal to *. * and Set Select Trees equal to Yes. To see a list of the DOS Disk backups on all tapes in the Library system, select the Directory Library Disk List or Selected command. The Library must be open in order to view its contents.

If the backup procedure filled more than one tape, you will need to insert the first tape before beginning the Verify operation. SY-TOS will then prompt you to insert the remaining tapes to be verified.

The following are detailed descriptions explaining how to execute each Verify command.

Verify File List <vfl>

The Verify File List command allows you to compare specific files on tape to the corresponding files on disk.

When you choose this command, SY-TOS will disregard all of the file selection criteria including the Set Select Session command. Since you cannot specify a session, SY-TOS will verify all occurrences of the specified file(s) on tape if more than one backup session exists on the tape. SY-TOS verifies information from the first session consecutively through the last.

You may enter specific filenames or mark files using SY-TOS' easy-list file selection feature. SY-TOS will verify only the designated files. If complete pathnames have not been specified, subdirectories will not be included even if Set Select Trees is set to Yes.

Procedure

1. Select **Verify File** from the Advanced menu command bar.
2. Choose the **List** command.

The system displays the following prompt:

Enter FILENAMES, (press <Enter> for directory) :

3. You have three choices:

- Type the filename(s) that you want to verify and press <Enter>. You may enter a maximum of 80 characters. For example:

Enter FILENAMES, (press <Enter> for directory) : *.EXE \SYTOS*.BAT

- Press <Enter> to display the contents of the current directory in the MESSAGES window and then select the files by marking them. Refer to the Easy-List File Selection section in Chapter 3 for information on how to mark the files.
- Type the name of a file that contains a list of files you want to verify. Precede the complete pathname with an @ symbol. For example:

Enter FILENAMES, (press <Enter> for directory) : @C:\SYTOS\DAILY.LST

Use a text editor or the DOS EDLIN program to create the list and save it in a file which is referred to as an @ file. Make sure you include the pathname to each file and separate each name with a comma, space or <Enter>. You may specify a maximum of 40 files and/or directories in the @ file. To include more files refer to Example 4 in Chapters 6 and 7.

NOTE

The @ file must exist before you specify it in this command.

SY-TOS will notify you in the MESSAGES window whether the file(s) verified. If the verification failed, repeat the backup and verify it again. A verification will fail if files have changed on the disk since the last backup, if information was not correctly backed up to tape or if the tape has been damaged.

Verify File Selected <vfs>

The Verify File Selected command compares preselected files on tape to the corresponding files on disk. SY-TOS selects files to verify based on the file selection criteria specified from the Select commands in the ST-CONFIG utility or from the Set Select commands in the Advanced menu system.

Procedure

1. Before choosing the Verify File Selected command, make sure the file selection criteria are assigned the settings you want. Refer to the Select commands in Chapter 4 or in this chapter for information about setting the file selection criteria. Refer to Chapter 3 for an overview.

To view the current file selection criteria, choose the Set Select command. SY-TOS will display the selection criteria in the MESSAGES window. You may change the criteria and then return to the Advanced menu command bar.

2. Select **Verify File** from the Advanced menu command bar.
3. Choose the **Selected** command.

SY-TOS will display the current file selection criteria in the MESSAGES window and will then verify the files based on those criteria.

SY-TOS will notify you in the MESSAGES window whether the files verified. If the verification failed, repeat the backup and verify it again. A verification will fail if files have changed on the disk since the last backup, if information was not correctly backed up to tape or if the tape has been damaged.

Verify Disk <vd>

The Verify Disk command compares the information placed on tape during a DOS Disk backup with the information on the disk. When you choose this command, SY-TOS will disregard the file selection criteria.

If you have used the ST-CONFIG utility to set Configure Network to Yes because you are running SY-TOS across a network, this command will not appear on the command bar.

Procedure

1. Select **Verify** from the Advanced menu command bar.
2. Choose the **Disk** command.

The system displays the following prompt:

```
Enter DISK letter(s) for a DOS DISK  
VERIFY:
```

3. Type the letter(s) followed by a colon that identifies the DOS Disk backup(s) whose contents you want to verify.

If you specify different disks to verify, SY-TOS will switch disks when verifying the different DOS Disk backups. For example, suppose your current disk is C and you specified the following:

```
Enter DISK letter(s) for a DOS DISK  
VERIFY:C: D:
```

SY-TOS would first verify the C disk backup, then switch to drive D, update the DISK window and verify the D disk backup.

You may also specify the DOS Disk backup sequence number to verify a specific backup when more than one exists on tape. For example:

```
Enter DISK letter(s) for a DOS DISK  
VERIFY:C:1 D:2
```

SY-TOS will verify the first C Disk backup sequence and the second D Disk backup sequence.

SY-TOS will notify you in the MESSAGES window whether the disk verified. If the verification failed, repeat the DOS Disk backup and verify it again. A verification will fail if information has changed on the disk since the last backup, if information was not correctly backed up to tape or if the tape has been damaged.

NOTE

When the Journal is open during a Backup Disk operation, SY-TOS updates the Journal file; thereby, altering the information on the disk. Upon verifying the backup, you may receive an error message stating that certain blocks failed verification. We therefore recommend that you log to a printer or alternate disk during Disk backup and verify operations.

Help Command <h>

The Help command describes how to access contextual help in the ST-CONFIG utility.

To display the help text, follow these steps.

Procedure

1. Move the selection cursor to highlight the command in which you want help.

2. Press the <F2> function key.

Help text pertaining to the highlighted command will appear in the MESSAGES window.

3. Press the <PgDn> or <PgUp> keys to view additional text when it exists.

Press <Esc> to exit Help.

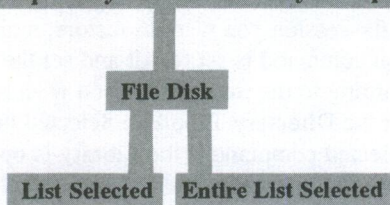
NOTES

- For additional help, you may also press the <F2> function key at a prompt. Help text explaining what ST-CONFIG expects you to enter will appear in the MESSAGES window.
- ST-CONFIG provides help text for error messages. When an error message appears on the third line of the screen, press the <F2> function key. Help text describing the error and a possible solution will appear in the MESSAGES window.

Quit Command <q>

Select the Quit command when you want to exit the ST-CONFIG utility.

The settings you specified for each command will always be in effect unless you temporarily change them in the Advanced menu system within SY-TOS.



Restore Commands

The Restore commands give you the ability to copy information from a tape to a disk. The backup method used determines how you retrieve information from the tape. If a file-by-file backup exists on the tape, you would specify either the Restore File List or Restore File Selected command. If a DOS Disk backup resides on the tape, you would use the Restore Disk Entire command to retrieve the entire contents. However, you may select the Restore Disk List or Restore Disk Selected commands to retrieve individual files from a DOS Disk backup tape.

The manner in which information is restored is also dependent on the settings for various Options commands. For example, the Options Restore command determines whether information will be restored to its original disk and pathname or to a new location. The Options Prompt command allows you to specify whether or not SY-TOS will prompt you before overwriting system, changed or read-only files. You should check the settings for these commands before performing a Restore operation.

SPECIAL NOTE

Great care should be taken when restoring DOS system or program files to a hard disk which is running a different version of DOS than the version on tape. Certain utilities, CHKDSK.COM for example, are DOS version specific.

An Overview of Restore Operations

Each time you back up files using the Backup File List or Selected commands, SY-TOS assigns a session number. A tape may contain one session if Options Append were set to No or many sessions if Options Append were set to Yes.

If you have multiple sessions on tape and would like to determine the number of the session you want to restore, make sure the Set Select Session command is set to All and set the file selection criteria according to the information you wish to restore. Then select either the Directory Tape File Selected or Directory Library File Selected command if the Library is open. SY-TOS will display the session numbers and the associated file information. You can then find which session you want to restore.

Once you have determined which session you want to restore, choose the Set Select Session Specific command and enter the desired session number. Then choose the Restore File Selected command; SY-TOS will only include that particular session when restoring the specified files. If the Set Select Session command is set to All and there is more than one session residing on the tape, SY-TOS will restore all files that satisfy the selection criteria in each backup session on the tape from the first session consecutively through the last.

When you back up a DOS disk partition using the Backup Disk command, SY-TOS assigns it a sequence number (for example, C:1, C:2, D:1, D:2, D:3). When you restore a DOS Disk backup, you can specify the sequence number associated with it if more than one exists on the tape. You can see the sequence numbers that SY-TOS assigns each DOS Disk backup when you select the Directory Tape File Selected command with Set Select Include equal to *.* and Set Select Trees equal to Yes. To see a list of the DOS Disk backups on all tapes in the Library system, select the Directory Library Disk List or Selected command. The Library must be open in order to view its contents.

Determining Where SY-TOS Will Place Restored Files

Prior to selecting the Restore commands, you need to determine where SY-TOS will place the restored information by setting the Options Restore command to Original or New.

To restore files to their original disk and pathnames using the Restore File List and Selected commands, select the Options Restore Original command. When you specify the files that you want to restore, SY-TOS will restore them to their disk and

pathnames as recorded on the tape regardless of the current disk and path as displayed in the DISK window.

When you want to restore the backed up files to a new location, select the Options Restore New command. Make sure the disk and path where you want to place the files are indicated in the DISK window. To change the disk and path, use the Set Disk and Set Path commands.

When Options Restore is set to New, SY-TOS strips the file pathname that was specified from the original pathname and restores the files to the current path as displayed in the DISK window.

The following are detailed descriptions explaining how to execute each Restore command. Because restore operations should be performed carefully, examples have been included to help clarify each type of operation. For each command, there is one example which illustrates restoring information to its original location and one which illustrates restoring to a new location.

Restore File List <rfli>

The Restore File List command allows you to restore to disk any files that were previously backed up on tape during a file-by-file backup.

SY-TOS will restore only the files you specify at the Restore prompt. If complete pathnames have not been specified, subdirectories will not be included even if Set Select Trees is set to Yes.

When you choose this command, SY-TOS will disregard all of the file selection criteria including the Set Select Session command. Since you cannot specify a session, SY-TOS will restore all occurrences of the specified files on the tape when more than one file backup session exists on the tape. SY-TOS restores information from the first session consecutively through the last.

Procedure

1. Select **Restore File** from the Advanced menu command bar.
2. Choose the **List** command.

The system displays the following prompt:

Enter FILENAMES:

3. You have two choices:

- Type the filename(s) that you want to restore. You may enter a maximum of 80 characters. For example:

Enter FILENAMES: *.EXE \SYTOS*.BAT

- Type the name of a file that contains a list of files that you want to restore to disk. Precede the complete pathname with an @ symbol. For example:

Enter FILENAMES: @C:\SYTOS\DAAILY.LST

Use a text editor or the DOS EDLIN program to create the list and save it in a file which is referred to as an @ *file*. Make sure you include the pathname to each file and separate each name with a comma, space or <Enter>. You may specify a maximum of 40 files and/or directories in the @ file. To include more files refer to Example 4 in Chapters 6 and 7.

NOTE

The @ file must exist before you specify it in this command.

Restore File List Examples

The following are examples of restoring a *specific list of files* to:

- Their original disk and pathnames.
- A new location.

Example 1 - Restoring a List of Files to their Original Pathnames

This example illustrates how to restore a specific list of files from a file-by-file backup to their original disk and pathnames.

Suppose your current disk is set to C and the path is \SYTOS. The files on the tape that you want to restore have the following pathnames:

```
D:\ACCOUNTS\PAYABLE\FILE1.ABC
D:\ACCOUNTS\PAYABLE\FILE2.TXT
D:\ACCOUNTS\PAYABLE\FILE3.DTF
D:\ACCOUNTS\PAYABLE\FILE4.WKS
```

You want to restore the files to disk D and to their original pathnames.

You would follow these steps:

1. Select the **Options Restore Original** command to specify that you want to restore to the original disk and pathnames.
2. Select the **Options Prompt Yes** command to ensure SY-TOS will prompt you before overwriting any system, changed or read-only files on the disk.
3. Select the **Restore File List** command.

The system displays the following prompt:

Enter FILENAMES:

4. Type **D:\ACCOUNTS\PAYABLE\FILE?.*** and press **<Enter>**.

In this example, SY-TOS will locate the specified files on tape and will copy them to disk according to the following pathnames:

```
D:\ACCOUNTS\PAYABLE\FILE1.ABC
D:\ACCOUNTS\PAYABLE\FILE2.TXT
D:\ACCOUNTS\PAYABLE\FILE3.DTF
D:\ACCOUNTS\PAYABLE\FILE4.WKS
```

Example 2 - Restoring a List of Files to a New Location

This example illustrates how to restore a specific list of files from a file-by-file backup to a new disk and new pathnames.

Suppose your current disk is set to C and the path is \SYTOS. The files on the tape that you want to restore have the following pathnames:

```
C:\ACCOUNTS\PAYABLE\FILE1.ABC
C:\ACCOUNTS\PAYABLE\FILE2.TXT
C:\ACCOUNTS\PAYABLE\FILE3.DTF
C:\ACCOUNTS\PAYABLE\FILE4.WKS
```

You want to restore the files to disk D under the directory \BACKUP because you do not want to change the files in the C:\ACCOUNTSPAYABLE directory.

You would follow these steps:

1. Change the current disk by selecting the **Set Disk** command and typing **D:**.
2. Change the current directory by selecting the **Set Path** command and typing **\BACKUP**. Note that the directory you specify must exist; SY-TOS will not create it for you.
3. Select the **Options Restore New** command to specify that you want to restore files to a new directory.
4. Select the **Options Prompt Yes** command to ensure SY-TOS will prompt you before overwriting any system, changed or read-only files on the disk.
5. Select the **Restore File List** command.

The system displays the following prompt:

Enter FILENAMES:

6. Type **C:\ACCOUNTS\PAYABLE\FILE?.*** and press **<Enter>**.

In this example, SY-TOS will locate the specified files on tape and will copy them to disk, ignoring the tape path of C:\ACCOUNTSPAYABLE. The files will be restored according to the following pathnames:

```
D:\BACKUP\FILE1.ABC  
D:\BACKUP\FILE2.TXT  
D:\BACKUP\FILE3.DTF  
D:\BACKUP\FILE4.WKS
```

Restore File Selected <rfs>

The Restore File Selected command restores preselected files from a file-by-file backup on tape to a specified disk. SY-TOS selects files to restore based on the file selection criteria specified from the Select commands in the ST-CONFIG utility or from the Set Select commands in the Advanced menu system.

Procedure

1. Before choosing the Restore File Selected command, make sure the file selection criteria are assigned the settings you want. Refer to the Select commands in Chapter 4 or in this chapter for information about setting the file selection criteria. Refer to Chapter 3 for an overview.

To view the current file selection criteria, choose the Set Select command. SY-TOS will display the selection criteria in the MESSAGES window. You may change the criteria and then return to the Advanced menu command bar.

If there is more than one session on the tape, you can use the Set Select Session command to specify a particular session to restore.

2. Select **Restore File** from the Advanced menu command bar.
3. Choose the **Selected** command.

SY-TOS will restore specific files based on the file selection criteria.

Restore File Selected Examples

The following are examples of restoring *files and subdirectories located within a directory* to:

- Their original disk and pathnames.
- A new location.

Example 1 - Restoring Files and Subdirectories to their Original Pathnames

This example illustrates how to restore files and subdirectories to their original disk and pathnames.

Suppose your current disk is set to C and the path is \SYTOS.

There are two file-by-file backup sessions on tape and the files you want to restore exist on the second session. They have the following pathnames:

```
D:\ACCOUNTS\FILE1.TXT  
D:\ACCOUNTS\FILE2.TXT  
D:\ACCOUNTS\PAYABLE\FILE3.DTF
```

D:\ACCOUNTS\PAYABLE\FILE4.DTF
D:\ACCOUNTS\PAYABLE\ELEC_CO\FILE5.WKS
D:\ACCOUNTS\PAYABLE\ELEC_CO\FILE6.WKS

You want to restore the files and subdirectories within
D:\ACCOUNTS to disk D under their original pathnames.

You would follow these steps:

1. Specify the following selection criteria:

Set Select	Assigned Setting
Include	D:\ACCOUNTS*.*
Exclude	No files specified
Changed	No
Date	No
Trees	Yes
Session	2

2. Select the **Options Restore Original** command to ensure that the files are restored to their original pathnames.
3. Select the **Options Prompt Yes** command to ensure SY-TOS will prompt you before overwriting any system, changed or read-only files on the disk.
4. Select the **Restore File Selected** command.

In this example, SY-TOS will locate the preselected files on tape and will copy them to disk according to the following pathnames:

D:\ACCOUNTS\FILE1.TXT
D:\ACCOUNTS\FILE2.TXT
D:\ACCOUNTS\PAYABLE\FILE3.DTF
D:\ACCOUNTS\PAYABLE\FILE4.DTF
D:\ACCOUNTS\PAYABLE\ELEC_CO\FILE5.WKS
D:\ACCOUNTS\PAYABLE\ELEC_CO\FILE6.WKS

Example 2 - Restoring Files and Subdirectories to a New Location

This example illustrates how to restore files and subdirectories to a new disk and new pathnames.

Suppose your current disk is set to C and the path is \SYTOS.

There are two file-by-file backup sessions on tape and the files you want to restore exist on the second session. They have the following pathnames:

C:\ACCOUNTS\FILE1.TXT
C:\ACCOUNTS\FILE2.TXT
C:\ACCOUNTS\PAYABLE\FILE3.DTF
C:\ACCOUNTS\PAYABLE\FILE4.DTF
C:\ACCOUNTS\PAYABLE\ELEC_CO\FILE5.WKS
C:\ACCOUNTS\PAYABLE\ELEC_CO\FILE6.WKS

You want to restore the files to disk D under the \BACKUP directory and include all files and subdirectories within C:\ACCOUNTS.

You would follow these steps:

1. Change the current disk by selecting the **Set Disk** command and typing **D:**.
2. Change the current directory by selecting the **Set Path** command and typing **\BACKUP**. Note that the directory you specify must exist; SY-TOS will not create it for you.
3. Specify the following selection criteria:

Set Select	Assigned Setting
Include	C:\ACCOUNTS*.*
Exclude	No files specified
Changed	No
Date	No
Trees	Yes
Session	2

4. Select the **Options Restore New** command to specify that you want to restore to a new directory.
5. Select the **Options Prompt Yes** command to ensure SY-TOS will prompt you before overwriting any system, changed or read-only files on the disk.
6. Select the **Restore File Selected** command.

In this example, SY-TOS would locate the preselected files on tape and would copy them to disk, ignoring the tape path of C:\ACCOUNTS. The files would be restored according to the following pathnames:

```
D:\BACKUP\FILE1.TXT  
D:\BACKUP\FILE2.TXT  
D:\BACKUP\PAYABLE\FILE3.DTF  
D:\BACKUP\PAYABLE\FILE4.DTF  
D:\BACKUP\PAYABLE\ELEC_CO\FILE5.WKS  
D:\BACKUP\PAYABLE\ELEC_CO\FILE6.WKS
```

Restore Disk Entire <rde>

The Restore Disk Entire command restores to disk the entire contents of a DOS Disk backup from a tape. The disk being restored to must have the same parameters (such as logical disk size, DOS version, cluster size and sector size) as the disk that was backed up on that tape. When you choose this command, SY-TOS will disregard the file selection criteria.

If you have used the ST-CONFIG utility to set Configure Network to Yes because you are running SY-TOS across a network, this command will not appear on the command bar.

CAUTION

- The setting for the Options Restore command does not affect a Restore Disk Entire operation. When you choose the Restore Disk Entire command, SY-TOS will prompt you for the disk where you want to place the information. At this point, you can specify a different disk. See the example that follows for a description of how to restore the contents of a DOS Disk backup to a new location.
- Because DOS remains in memory during Restore Disk operations, we strongly recommend that you reboot the system after executing a Restore Disk Entire command. This will ensure that DOS is updated with respect to the information on disk that has been restored; thereby, preventing possible data corruption or loss.

Procedure

1. Select **Restore Disk** from the Advanced menu command bar.

2. Choose the **Entire** command.

The system displays the following prompt:

```
Enter DISK letter(s) for a DOS DISK
RESTORE:
```

3. Type the letter(s) followed by a colon identifying the disk(s) that you want to restore from tape and press <Enter>. For example:

```
Enter DISK letter(s) for a DOS DISK
RESTORE:C:
```

You may choose a specific sequence to restore if there are multiple DOS Disk backups of the same DOS partition on a tape. You may also specify more than one DOS disk partition to restore if there are DOS Disk backups of different partitions residing on a tape.

```
Enter DISK letter(s) for a DOS DISK
RESTORE:C:1 D:2
```

SY-TOS will restore the first C Disk backup sequence and the second D Disk backup sequence from tape to the C and D partitions respectively.

You can also specify where you want to restore the DOS Disk backup from tape. Type the letter followed by a colon and sequence number identifying the DOS Disk backup that you want to restore from tape. Enter a slash "/" and then specify the disk followed by a colon to indicate where you want the backup restored. For example:

```
Enter DISK letter(s) for a DOS DISK
RESTORE:C:2/D:
```

SY-TOS will restore the second sequence of the C disk backup to the D disk.

SPECIAL NOTE

When restoring a DOS Disk backup to a disk that has different parameters (such as logical disk size, DOS version,

cluster size and sector size) from the backup disk, use the Restore Disk List or Selected commands.

Restore Disk Entire Examples

The following are examples of restoring the entire contents of a DOS Disk backup to:

- The original disk.
- A new disk.

Example 1 - Restoring a DOS Disk Backup to the Original Disk

This example illustrates how to restore the entire contents of a DOS Disk backup to the original disk.

Suppose you have two backups of your C drive on tape and you have reformatted your disk. You now want to restore the information from the second DOS Disk backup sequence to its previous location. You would follow these steps:

1. Select **Restore Disk** from the Advanced menu command bar.
2. Choose the **Entire** command.

The system displays the following prompt:

```
Enter DISK letter(s) for a DOS DISK  
RESTORE:
```

3. Type the letter followed by a colon and sequence number identifying the disk that you want to restore from tape and press <Enter>. For example:

```
Enter DISK letter(s) for a DOS DISK  
RESTORE:C:2
```

SY-TOS will restore the information from the second C Disk backup sequence on tape to the C drive.

Example 2 - Restoring a DOS Disk Backup to a New Location

This example illustrates how to restore the entire contents of a DOS Disk backup to a new location.

Suppose you have two backups of your C drive on tape and you want to restore the information from the first backup sequence to disk D. Both are 20MB DOS formatted hard disks with the same parameters (DOS version, cluster size and sector size, for example). You would follow these steps:

1. Select **Restore Disk** from the Advanced menu command bar.
2. Choose the **Entire** command.

The system displays the following prompt:

```
Enter DISK letter(s) for a DOS DISK
RESTORE:
```

3. Type the letter followed by a colon and sequence number identifying the DOS Disk backup that you want to restore from tape. Enter a slash "/" and then specify the disk followed by a colon to indicate where you want the backup restored. For example:

```
Enter DISK letter(s) for a DOS DISK
RESTORE:C:1/D:
```

SY-TOS will restore the contents of the first C disk backup on tape to the D disk.

Restore Disk List <rdl>

The Restore Disk List command allows you to restore individual files from a DOS Disk backup on tape to a specified disk. When you choose this command, SY-TOS will disregard the file selection criteria.

You may enter specific filenames and SY-TOS will restore only these designated files. If complete pathnames have not been specified, subdirectories will not be included even if Set Select Trees is set to Yes.

If you have used the ST-CONFIG utility to set Configure Network to Yes because you are running SY-TOS across a network, this command will not appear on the command bar.

CAUTION

- When performing a Restore Disk List operation, SY-TOS must first allocate space on disk for the files you intend to restore. In order to do this, SY-TOS must create

temporary files on disk which have the same filenames, pathnames and sizes as the files on tape. Therefore, if the restore procedure is terminated while space is being allocated or while files are actually being restored, the files on disk will appear to have been restored although they actually do not contain the correct data.

You must also ensure that there is enough free disk space for all of the files you plan to restore; otherwise, the operation may be terminated while space is being allocated.

- You may want to select the Options Prompt Yes command before restoring files to request SY-TOS to notify you before overwriting any system, changed or read-only files on the disk.
- When using the Restore Disk List command with Options Restore set to Original, SY-TOS will always restore the files to their original pathnames on the *current disk as displayed in the DISK window, regardless of the disk associated with the file(s) on tape.* SY-TOS will create the subdirectories when necessary. An example has been provided which illustrates how to restore files to their original location.
- Because DOS remains in memory during Restore Disk operations, we strongly recommend that you reboot the system after executing a Restore Disk List command. This will ensure that DOS is updated with respect to the information on disk that has been restored; thereby, preventing possible data corruption or loss.

Procedure

1. Select **Restore Disk** from the Advanced menu command bar.
2. Choose the **List** command.

The system displays the following prompt:

Enter FILENAMES to RESTORE to disk:

3. You have two choices:

- Type the filename(s) that you want to restore. You may enter a maximum of 80 characters. For example:

Enter FILENAMES to RESTORE to disk:
`*.EXE \SYTOS*.BAT`

- Type the name of a file that contains the list of files you want to restore. Precede the complete pathname with an @ symbol. For example:

Enter FILENAMES:@C:\SYTOS\DAILY.LST

Use a text editor or the DOS EDLIN program to create the list and save it in a file which is referred to as an @ file. Make sure you include the pathname to each file and separate each name with a comma, space or <Enter>. You may specify a maximum of 40 files and/or directories in the @ file. To include more files, refer to Example 4 in Chapters 6 and 7.

NOTE

The @ file must exist before you specify it in this command.

After you specify the files you want to restore, SY-TOS displays the following prompt:

**Enter DISK letter(s) for a FILE FROM
DOS DISK RESTORE: C:1**

4. Type the disk letter(s) followed by a colon that is associated with the files on the DOS Disk backup that you want to restore and press <Enter>.

Press <Enter> to accept the default disk and sequence number.

You may also specify the DOS Disk backup sequence number if there is more than one DOS Disk backup residing on the tape.

Restore Disk List Examples

The following are examples of restoring a *specific list of files* from a DOS Disk backup to:

- Their original disk and pathnames.
- A new location.

Example 1 - Restoring a List of Files from a DOS Disk Backup to their Original Pathnames

The following example illustrates how to restore a specific list of files from a DOS Disk backup to their original disk and pathnames.

Suppose your current disk is set to C and the directory is \SYTOS.

You have 2 sequences of disk D backed up on tape and you want to restore the files from the second sequence. The files that you want to restore are:

```
D:\ACCOUNTSPAYABLE\FILE1.ABC
D:\ACCOUNTSPAYABLE\FILE2.TXT
D:\ACCOUNTSPAYABLE\FILE3.DTF
D:\ACCOUNTSPAYABLE\FILE4.WKS
```

You want to restore the files to disk D to their original pathnames.

SPECIAL NOTE

Because the Restore Disk List command will always restore files to the current disk, even if Options Restore is set to Original, you must be sure that the disk where you wish to restore the files appears as the current disk in the DISK window. You can change the current disk by selecting the Set Disk command. Files will then be restored to the original pathnames even if the original pathname does not appear as the current path in the DISK window.

You would follow these steps:

1. Change the current disk by selecting the **Set Disk** command and typing **D:** to be sure that the files will be restored to the correct disk.
2. Select the **Options Prompt Yes** command to ensure SY-TOS will prompt you before overwriting any system, changed or read-only files on the disk.
3. Select the **Restore Disk List** command.

The system displays the following prompt:

Enter FILENAMES to RESTORE to disk:

4. Type **D:\ACCOUNTS\PAYABLE\FILE?.*** and press **<Enter>**.

The system displays the following prompt:

**Enter DISK letter(s) for a FILE FROM
DOS DISK RESTORE:C:1**

5. Type **D:2** and press **<Enter>**.

In this example, SY-TOS will locate the specified files from the second D Disk backup on tape and will copy them to disk according to the following pathnames:

D:\ACCOUNTS\PAYABLE\FILE1.ABC
D:\ACCOUNTS\PAYABLE\FILE2.TXT
D:\ACCOUNTS\PAYABLE\FILE3.DTS
D:\ACCOUNTS\PAYABLE\FILE4.WKS

Example 2 - Restoring a List of Files from a DOS Disk Backup to a New Location

The following example illustrates how to restore a specific list of files from a DOS Disk backup to a new disk and new pathnames.

Suppose your current disk is set to C and the directory is **\SYTOS**.

You have 2 sequences of disk C backed up on tape and you want to restore the files from the first sequence. The files that you want to restore are:

C:\ACCOUNTS\PAYABLE\FILE1.ABC
C:\ACCOUNTS\PAYABLE\FILE2.TXT
C:\ACCOUNTS\PAYABLE\FILE3.DTF
C:\ACCOUNTS\PAYABLE\FILE4.WKS

You want to restore the files to disk D under the directory **\BACKUP** because you do not want to change the files in **C:\ACCOUNTS\PAYABLE**.

You would follow these steps:

1. Change the current disk by selecting the **Set Disk** command and typing **D:**.

2. Change the current directory by selecting the **Set Path** command and typing `\BACKUP`. Note that the directory you specify must exist; SY-TOS will not create it for you.
3. Select the **Options Restore New** command to specify that you want to restore files to a new location.
4. Select the **Options Prompt Yes** command to ensure SY-TOS will prompt you before overwriting any system, changed or read-only files on the disk.
5. Select the **Restore Disk List** command.

The system displays the following prompt:

```
Enter FILENAMES to RESTORE to disk:
```

6. Type `C:\ACCOUNTS\PAYABLE\FILE?.*` and press `<Enter>`.

The system displays the following prompt:

```
Enter DISK letter(s) for a FILE FROM  
DOS DISK RESTORE:C:1
```

7. Press `<Enter>` to accept the default disk and sequence of C:1.

In this example, SY-TOS will locate the specified files from the first C disk backup on tape and will copy them to disk, ignoring the tape path of `C:\ACCOUNTSPAYABLE`. The files will be restored according to the following pathnames:

```
D:\BACKUP\FILE1.ABC  
D:\BACKUP\FILE2.TXT  
D:\BACKUP\FILE3.DTF  
D:\BACKUP\FILE4.WKS
```

Restore Disk Selected `<rds>`

The Restore Disk Selected command restores preselected files from a DOS Disk backup on tape to a specified disk: SY-TOS selects the files to restore based on the file selection criteria specified from the Select commands in the ST-CONFIG utility or from the Set Select commands in the Advanced menu system.

If you have used the ST-CONFIG utility to set Configure Network to Yes because you are running SY-TOS across a network, this command will not appear on the command bar.

CAUTION

- When performing a Restore Disk Selected operation, SY-TOS must first allocate space on disk for the files you intend to restore. In order to do this, SY-TOS must create temporary files on disk which have the same filenames, pathnames and sizes as the files on tape. Therefore, if the restore procedure is terminated while space is being allocated or while files are actually being restored, the files on disk will appear to have been restored although they actually do not contain the correct data.

You must also ensure that there is enough free disk space for all of the files you plan to restore; otherwise, the operation may be terminated while space is being allocated.

- You may want to select the Options Prompt Yes command before restoring files to request SY-TOS to notify you before overwriting any system, changed or read-only files on the disk.
- When using the Restore Disk Selected command with Options Restore set to Original, SY-TOS will always restore the files to their original pathnames on the *current disk as displayed in the DISK window, regardless of the disk associated with the file(s) on tape.* SY-TOS will create the subdirectories when necessary. An example has been provided which illustrates how to restore files to their original location.
- Because DOS remains in memory during Restore Disk operations, we strongly recommend that you reboot the system after executing a Restore Disk Selected command. This will ensure that DOS is updated with respect to the information on disk that has been restored; thereby, preventing possible data corruption or loss.

Procedure

1. Before choosing the Restore Disk Selected command, make sure the file selection criteria are assigned the settings you want. Refer to the Select commands in Chapter 4 or in this

chapter for information about setting the file selection criteria. Refer to Chapter 3 for an overview.

To view the current file selection criteria, choose the Set Select command. SY-TOS will display the selection criteria in the MESSAGES window. You may change the criteria and then return to the Advanced menu command bar.

2. Select **Restore Disk** from the Advanced menu command bar.
3. Choose the **Selected** command.

The system displays the following prompt:

```
Enter Disk letter(s) for a FILE FROM  
DOS DISK RESTORE:C:1
```

4. Type the disk letter(s) followed by a colon associated with the files on the DOS Disk backup that you want to restore and press <Enter>.

Press <Enter> to accept the default disk and sequence number.

You may also specify the DOS Disk backup sequence number if there is more than one DOS Disk backup residing on tape.

SY-TOS will restore specific files based on the file selection criteria.

Restore Disk Selected Examples

The following are examples of restoring *files and subdirectories located within a directory from a DOS Disk backup* to:

- Their original disk and pathnames.
- A new location.

Example 1 - Restoring Files and Subdirectories from a DOS Disk Backup to their Original Pathnames

This example illustrates how to restore files and subdirectories located within a directory to their original disk and pathnames.

Suppose your current disk is set to C and the directory is \SYTOS.

You have 2 sequences of disk D backed up on tape and you want to restore the files from the second sequence. The files you want to restore are:

D:\ACCOUNTS\FILE1.TXT
D:\ACCOUNTS\FILE2.TXT
D:\ACCOUNTS\PAYABLE\FILE3.DTF
D:\ACCOUNTS\PAYABLE\FILE4.DTF
D:\ACCOUNTS\PAYABLE\ELEC_CO\FILE5.WKS
D:\ACCOUNTS\PAYABLE\ELEC_CO\FILE6.WKS

You want to restore the files and subdirectories within D:\ACCOUNTS to disk D under their original pathnames.

You would follow these steps:

1. Specify the following selection criteria:

Set Select	Assigned Setting
Include	D:\ACCOUNTS*.*
Exclude	No files specified
Changed	No
Date	No
Trees	Yes

2. Change the current disk by selecting the **Set Disk** command and typing **D:** to be sure that the files will be restored to the correct disk.
3. Select the **Options Restore Original** command to ensure that the files are restored to their original pathnames.
4. Select the **Options Prompt Yes** command to ensure SY-TOS will prompt you before overwriting any system, changed or read-only files on the disk.
5. Select the **Restore Disk Selected** command.

The system displays the following prompt:

```
Enter Disk letter(s) for a FILE FROM  
DOS DISK RESTORE:C:1
```

6. Type **D:2** and press **<Enter>**.

In this example, SY-TOS will locate the preselected files from the second backup of the D disk on tape and will copy them to disk according to the following pathnames:

```
D:\ACCOUNTS\FILE1.TXT  
D:\ACCOUNTS\FILE2.TXT  
D:\ACCOUNTS\PAYABLE\FILE3.DTF  
D:\ACCOUNTS\PAYABLE\FILE4.DTF  
D:\ACCOUNTS\PAYABLE\ELEC_CO\FILE5.WKS  
D:\ACCOUNTS\PAYABLE\ELEC_CO\FILE6.WKS
```

Example 2 - Restoring Files and Subdirectories from a DOS Disk Backup to a New Location

The following is an example of how to restore files and subdirectories located within a directory to a new disk and new pathnames.

Suppose your current disk is set to C and the directory is \SYTOS.

You have 2 sequences of disk C backed up on tape and you want to restore the files from the first sequence. The files you want to restore are:

```
C:\ACCOUNTS\FILE1.TXT  
C:\ACCOUNTS\FILE2.TXT  
C:\ACCOUNTS\PAYABLE\FILE3.DTF  
C:\ACCOUNTS\PAYABLE\FILE4.DTF  
C:\ACCOUNTS\PAYABLE\ELEC_CO\FILE5.WKS  
C:\ACCOUNTS\PAYABLE\ELEC_CO\FILE6.WKS
```

You want to restore the files to disk D under the \BACKUP directory and include all files and subdirectories within C:\ACCOUNTS.

You would follow these steps:

1. Change the current disk by selecting the **Set Disk** command and typing **D:**.
2. Change the current directory by selecting the **Set Path** command and typing **\BACKUP**. Note that the directory you specify must exist; SY-TOS will not create it for you.
3. Specify the following selection criteria:

Set Select	Assigned Setting
Include	C:\ACCOUNTS*.*
Exclude	No files specified
Changed	No
Date	No
Trees	Yes

4. Select the **Options Restore New** command to specify that you want to restore to a new directory.
5. Select the **Options Prompt Yes** command to ensure SY-TOS will prompt you before overwriting any system, changed or read-only files on the disk.
6. Select the **Restore Disk Selected** command.

The system displays the following prompt:

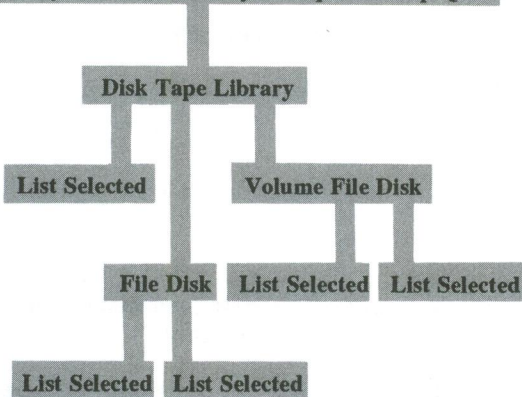
```
Enter Disk letter(s) for a FILE FROM
DOS DISK RESTORE:C:1
```

7. Press <Enter> to accept the default disk and sequence of C:1.

In this example, SY-TOS will locate the preselected files from the first backup of the C disk on tape and will copy them to disk, ignoring the tape path of C:\ACCOUNTS. The files will be restored according to the following pathnames:

```
D:\BACKUP\FILE1.TXT
D:\BACKUP\FILE2.TXT
D:\BACKUP\PAYABLE\FILE3.DTF
D:\BACKUP\PAYABLE\FILE4.DTF
D:\BACKUP\PAYABLE\ELEC_CO\FILE5.WKS
D:\BACKUP\PAYABLE\ELEC_CO\FILE6.WKS
```

Backup Verify Restore Directory Set Options Help Quit



Directory Commands

The Directory commands display a list of files from the current disk, tape or Library.

These commands are useful when you want to locate specific files to back up, restore or just to view the contents of a tape.

For each file you specify, SY-TOS displays the following information in the MESSAGES window:

- Pathname.
- Size of the file in bytes.
- The date and time the file was last changed.

Directory Disk List <ddl>

The Directory Disk List command displays a list of files on the current disk. When you choose this command, SY-TOS will disregard the file selection criteria. If complete pathnames have not been specified, subdirectories will not be included even if Set Select Trees is set to Yes.

Procedure

1. Select **Directory Disk** from the Advanced menu command bar.

2. Choose the **List** command.

The system displays the following prompt:

Enter FILENAMES :

3. Type the filename(s) that you want displayed in the **MESSAGES** window and press **<Enter>**. For example:

Enter FILENAMES : \ACCT*.*
ACCT\PAYROLL*.*

SY-TOS displays the specified file(s) in the **MESSAGES** window.

If you have specified more files than will fit in the **MESSAGES** window, press **<Enter>** to display additional filenames or press **<Esc>** to quit.

Directory Disk Selected <dds>

The Directory Disk Selected command displays a list of preselected files on the current disk. SY-TOS selects files to display based on the selection criteria specified from the Select commands in the ST-CONFIG utility or from the Set Select commands in the Advanced menu system.

Procedure

1. Before choosing the Directory Disk Selected command, make sure the file selection criteria are assigned the settings you want. Refer to the Set Select commands in this chapter for information about choosing the file selection criteria. Refer to Chapter 3 for an overview.

To view the current file selection criteria, choose the Set Select command. SY-TOS will display the selection criteria in the **MESSAGES** window. You may change the criteria and then return to the Advanced menu command bar.

2. Select **Directory Disk** from the Advanced menu command bar.
3. Choose the **Selected** command.

The system displays a list of files in the **MESSAGES** window.

If you have specified more files than will fit in the MESSAGES window, press <Enter> to display additional filenames or press <Esc> to quit.

Directory Tape File List <dtfl>

The Directory Tape File List command displays a list of specified files from file-by-file backups that exist on the current tape in the tape drive. When you choose this command, SY-TOS will disregard the file selection criteria including the Set Select Session command. Therefore, SY-TOS will search for the specified files on all backup sessions on the tape.

If complete pathnames have not been specified, subdirectories will not be included even if Set Select Trees is set to Yes.

Procedure

1. Select **Directory Tape** from the Advanced menu command bar.
2. Choose the **File List** commands.

The system displays the following prompt:

Enter FILENAMES:

3. Type the filename(s) that you want displayed in the MESSAGES window and press <Enter>. For example:

```
Enter FILENAMES: \ACCT\*.*  
\ACCT\PAYROLL\*.*
```

SY-TOS displays the specified filename(s) that exist on tape.

If you have specified more files than will fit in the MESSAGES window, press <Enter> to display additional filenames or press <Esc> to quit.

Directory Tape File Selected <dtfs>

The Directory Tape File Selected command displays a list of preselected files on the current tape. SY-TOS selects files to display based on the selection criteria specified from the Select commands in the ST-CONFIG utility or from the Set Select commands in the Advanced menu system.

Procedure

1. Before choosing the Directory Tape File Selected command, make sure the file selection criteria are assigned the settings you want. Refer to the Set Select commands in this chapter for information about choosing the file selection criteria. Refer to Chapter 3 for an overview.

To view the current file selection criteria, choose the Set Select command. SY-TOS will display the selection criteria in the MESSAGES window. You may change the criteria and then return to the Advanced menu command bar.

2. Select **Directory Tape** from the Advanced menu command bar.
3. Choose the **File Selected** commands.

SY-TOS displays a list of files from the current tape.

If you have specified more files than will fit in the MESSAGES window, press <Enter> to display additional filenames or press <Esc> to quit.

Directory Tape Disk List <dtld>

The Directory Tape Disk List command displays a list of files within DOS Disk backups on the current tape. When you choose this command, SY-TOS will disregard the file selection criteria. If complete pathnames have not been specified, subdirectories will not be included even if Set Select Trees is set to Yes.

Procedure

1. Select **Directory Tape** from the Advanced menu command line.
2. Choose the **Disk List** commands.

The system displays the following prompt:

Enter FILENAMES:

3. Type the filename(s) that you want displayed in the MESSAGES window and press <Enter>. For example:

Enter FILENAMES: \ACCT*. *
\ACCT\PAYROLL*. *

The system displays the following prompt:

Enter DISK letter(s) for a DOS DISK DIRECTORY:

4. Type the disk letter(s) associated with the files on the DOS Disk backup that you want to see and press <Enter>.

You may also specify the disk sequence number if more than one resides on the tape. For example:

Enter DISK letter(s) for a DOS DISK DIRECTORY: C:1 C:2

SY-TOS displays the specified files from the DOS Disk backup(s) that you requested.

If you have specified more files than will fit in the MESSAGES window, press <Enter> to display additional filenames or press <Esc> to quit.

Directory Tape Disk Selected <dt ds>

The Directory Tape Disk Selected command displays a list of preselected files from DOS Disk backups on the current tape. SY-TOS selects files to display based on the selection criteria specified from the Select commands in the ST-CONFIG utility or from the Set Select commands in the Advanced menu system.

Procedure

1. Before choosing the Directory Tape Disk Selected command, make sure the file selection criteria are assigned the settings you want. Refer to the Set Select commands in this chapter for information about choosing the file selection criteria. Refer to Chapter 3 for an overview.

To view the current file selection criteria, choose the Set Select command. SY-TOS will display the selection criteria in the MESSAGES window. You may change the criteria and then return to the Advanced menu command bar.

2. Select **Directory Tape** from the Advanced menu command bar.

3. Choose the **Disk Selected** commands.

The system displays the following prompt:

```
Enter DISK letter(s) for a DOS DISK
DIRECTORY:
```

4. Type the disk letter(s) associated with the files on the DOS Disk backup that you want to see and press **<Enter>**.

You may also specify the disk sequence number if more than one resides on the tape. For example:

```
Enter DISK letter(s) for a DOS DISK
DIRECTORY:C:1 C:2
```

SY-TOS displays a list of preselected files from the DOS Disk backup(s) that you requested.

If you have specified more files than will fit in the MESSAGES window, press **<Enter>** to display additional filenames or press **<Esc>** to quit.

Directory Library <dl>

When you want to view the information in the Library, it must be active. You turn it on using the Options Library Active command from the Advanced menu system or the ST-CONFIG utility. In order for the Directory Library commands to be useful, the Library must have been active during your backups.

The Directory Library commands list the tape volume name(s) recorded in the Library as well as the creation date and time of each volume. When there is more than one backup session or sequence on a tape that is recorded in the Library, SY-TOS allows you to choose the ones you want to view.

With the exception of Directory Library Volume, you may press the following keys after you select the Directory Library commands:

Key to Press	Activity
	Unmarks a tape volume.
<↓> Down arrow	Moves the pointers to the next tape volume name.

<Enter>	Displays the specified files on the marked tape volume(s).
<Esc>	Exits out of the directory display.
<Ins>	Marks the tape volume whose contents you want to view.
<PgDn>	Displays the next page of tape volume names.
<PgUp>	Displays the previous page of tape volume names.
<↑> Up arrow	Moves the pointers to the previous tape volume name.

When you want to view the contents of a tape that is not recorded in the Library, insert the tape in the tape drive and either use the Directory Tape command or the Options Library Update Add command to add it to the Library.

The following sections describe the Directory Library commands.

Directory Library Volume <dlv>

The Directory Library Volume command displays a listing of all tape volumes recorded in the Library.

Procedure

1. Select **Directory Library** from the Advanced menu command bar.
2. Choose the **Volume** command.

If there are more tape volumes than will fit in the MESSAGES window, press<Enter> to display additional tape volume names or <Esc> to quit.

SY-TOS displays the name and creation date of each tape volume in the Library. It also displays the number of files and the number of DOS Disk and Device backups on each tape as well as the number of kilobytes of information recorded in each volume.

Directory Library File List <dlfl>

The Directory Library File List command displays a list of files from file-by-file backups contained within one or more tape volumes recorded in the Library. When you choose this command, SY-TOS will disregard the file selection criteria. If complete pathnames have not been specified, subdirectories will not be included even if Set Select Trees is set to Yes.

Procedure

1. Select **Directory Library** from the Advanced menu command bar.
2. Choose the **File List** commands.

The system displays the following prompt:

Enter FILENAMES:

3. Type the filename(s) that you want displayed in the MESSAGES window and press <Enter>.

SY-TOS displays a list of tape volume(s) that are in the Library.

4. Select the tape volume(s) that contains the file(s) you want displayed.

The system displays the specified file(s) in the MESSAGES window.

If you have specified more files than will fit in the MESSAGES window, press <Enter> to display additional filenames or press <Esc> to quit.

Directory Library File Selected <dlfs>

The Directory Library File Selected command displays a list of preselected files from file-by-file backups contained within one or more tape volumes recorded in the Library. SY-TOS selects files to display based on the selection criteria specified from the Select commands in the ST-CONFIG utility or from the Set Select commands in the Advanced menu system.

Procedure

1. Before choosing the Directory Library File Selected command, make sure the file selection criteria are assigned the settings you want. Refer to the Set Select commands in this chapter for information about choosing the file selection criteria. Refer to Chapter 3 for an overview.

To view the current file selection criteria, choose the Set Select command. SY-TOS will display the selection criteria in the MESSAGES window. You may change the criteria and then return to the Advanced menu command bar.

2. Select **Directory Library** from the Advanced menu command bar.
3. Choose the **File Selected** commands.

SY-TOS displays a list of tape volume names that are in the Library.

4. Select the tape volume(s) whose contents you want to see displayed.

The system displays a list of preselected tape files in the MESSAGES window.

If you have specified more files than will fit in the MESSAGES window, press <Enter> to display additional filenames or press <Esc> to quit.

Directory Library Disk List <dlldl>

The Directory Library Disk List command displays a list of files from DOS Disk backup sequences within a tape volume recorded in the Library. When you choose this command, SY-TOS will disregard the file selection criteria. If complete pathnames have not been specified, subdirectories will not be included even if Set Select Trees is set to Yes.

Procedure

1. Select **Directory Library** from the Advanced menu command bar.
2. Choose the **Disk List** commands.

The system displays the following prompt:

Enter FILENAMES:

3. Type the filename(s) that you want displayed in the MESSAGES window and press <Enter>.

SY-TOS displays the names of the tape volume(s) currently recorded in the Library.

4. Select the tape volume(s) that contains the DOS Disk backups that you want to see displayed.

SY-TOS displays a list of the DOS Disk backups that exist on the specified tape.

5. Select the DOS Disk backup(s) in which you want SY-TOS to scan for the specified file(s).

SY-TOS displays the specified list of files on the first DOS Disk backup that you marked.

If you have specified more files than will fit in the MESSAGES window, press <Enter> to display additional filenames or press <Esc> to quit.

Directory Library Disk Selected <dlds>

The Directory Library Disk Selected command displays a list of preselected files from DOS Disk backup sequences within a tape volume recorded in the Library. SY-TOS selects files to display based on the selection criteria specified from the Select commands in the ST-CONFIG utility or from the Set Select commands in the Advanced menu system.

Procedure

1. Before choosing the Directory Library Disk Selected command, make sure the file selection criteria are assigned the settings you want. Refer to the Set Select commands in this chapter for information about choosing the file selection criteria. Refer to Chapter 3 for an overview.

To view the current file selection criteria, choose the Set Select command. SY-TOS will display the selection criteria in the MESSAGES window. You may change the criteria and then return to the Advanced menu command bar.

2. Select **Directory Library** from the Advanced menu command bar.

3. Choose the **Disk Selected** commands.

SY-TOS displays a list of tape volume(s) that are in the Library.

4. Select the tape volume that contains the DOS Disk backup(s) that you want to see.

SY-TOS displays a list of the DOS Disk backup(s) that exist on the specified tape(s).

5. Select the DOS Disk backup(s) that you want SY-TOS to scan for the preselected files.

SY-TOS displays a list of the preselected files on the DOS Disk backups that you marked.

If you have specified more files than will fit in the MESSAGES window, press <Enter> to display additional filenames or press <Esc> to quit.

Backup Verify Restore Directory Set Options Help Quit

Tape Disk Path Select

Prepare Format Create Identify Retension Erase

Include Exclude Changed Date Trees Session

Set Commands

The Set commands allow you to pre-set conditions for SY-TOS operations. Tape, disk, directory path and file selection criteria can be pre-determined for specified SY-TOS tasks.

Set Tape Prepare <stp>

The Set Tape Prepare command initializes a tape for formatting.

Certain tape systems require that when using a data cartridge in the system for the first time, you must prepare the tape by performing a low-level initialization (Set Tape Prepare) followed by a tape format (Set Tape Format). The Set Tape Prepare operation is similar to the low-level format performed by the DOS diagnostics for a newly installed hard disk. This operation is not necessary if you are using a factory preformatted tape.

This command will only appear on the command bar if you are using certain types of mini data cartridge tape systems.

NOTES

- The Set Tape Prepare operation will take upwards of 20 minutes, depending upon the capacity of the tape.
- If you are using a new tape that has not been factory preformatted, you should erase the tape (using a bulk eraser or the Set Tape Erase command) before selecting Set Tape Prepare. If there is a need to prepare a previously initialized and formatted tape, you must also

erase the tape (using a bulk eraser or the Set Tape Erase command).

Procedure

1. Choose **Set Tape** from the Advanced menu command line.
2. Select the **Prepare** command.

SY-TOS prepares the tape for formatting.

You must now use the Set Tape Format command before backing up information.

Set Tape Format <stf>

The Set Tape Format command performs a high-level format of the data cartridge similar to the DOS command FORMAT. SY-TOS then automatically performs a verify operation which reads the tape and marks any defective areas.

You would select this command before using a new tape or if you have been receiving a lot of errors on a tape which has been previously formatted. Formatting a tape destroys the contents of the tape.

If the Set Tape Prepare command also appears on the command bar you must select it before performing a Set Tape Format operation. Selecting Set Tape Prepare is only necessary the first time you format a tape.

This command will only appear on the command bar if you are using a mini data cartridge tape system.

NOTES

- The format and verify operations each take upwards of 20 minutes, depending upon the capacity of the tape.
- Before formatting (if you have not first selected the Set Tape Prepare command), you may want to erase the tape using the Set Tape Erase command.

Procedure

1. Choose **Set Tape** from the Advanced menu command line.
2. Select the **Format** command.

If the tape has been previously formatted, SY-TOS will prompt you for confirmation to proceed with the operation.

The system formats the tape.

NOTE

Like the DOS disk **FORMAT** command, the Set Tape Format command prepares the tape to accept files. As with the DOS command, any defective areas of the tape are marked so that they will not be used. Therefore, even if errors occur while formatting a tape, SY-TOS will not write to the defective areas.

Usually, you need to format a tape only once. However, if the amount of errors on a tape begin to increase over time you may need to select Set Tape Format again.

You may want to have several formatted tapes on hand before beginning a backup. That way, if the information from disk fills more than one tape you will not have to terminate the backup operation to format another tape.

Set Tape Create <stc>

The Set Tape Create command allows you to initialize a new tape to the SY-TOS system by specifying a tape volume name and an optional password. You will need to select this command when using a new or non-SY-TOS tape for the first time when the Options Append command is set to Yes. If Options Append is set to No, the Set Tape Create command is automatically invoked at the start of the backup.

When you select this command, SY-TOS will prompt you to overwrite any existing information on the tape. Therefore, make sure that the tape does not contain information that you want to keep.

Procedure

1. Choose **Set Tape** from the Advanced menu command bar.
2. Select the **Create** command.

The system displays the following prompt:

Enter a tape VOLUME NAME:

3. Type the name you want to give this tape. It can be a maximum of 47 characters and you may use spaces.

The system displays the next prompt.

**Enter an optional tape PASSWORD,
<Enter> if none:**

4. If you do not want to assign a password to this tape, simply press <Enter>.

If you want to specify a password, type the password (a maximum of 19 characters) and press <Enter>.

SPECIAL NOTE

Passwords protect the tape against unauthorized access. Be sure to record the password in a safe, secure place because without the password, a tape cannot be accessed. You cannot remove a password without destroying the tape's contents.

The system prompts you again.

Re-enter PASSWORD to confirm:

5. Retype the password and press <Enter>.

If the password you just typed is incorrect, SY-TOS informs you and redisplay the optional password prompt. You will then need to repeat steps 4 and 5.

If the tape contains data, the system will display the following prompt:

**THIS TAPE CONTAINS DATA - Press <Enter>
to OVERWRITE, <Esc> to QUIT**

6. Press either <Enter> to continue or <Esc> to quit.

If you press <Enter>, SY-TOS will overwrite the existing files.

NOTES

- You might want to select the Set Tape Erase command to erase the contents of the tape before selecting the Set Tape Create command. This command enhances data reliability when backing up files.

- If the Library is open, SY-TOS will automatically add this tape to the Library.

Set Tape Identify <sti>

The Set Tape Identify command identifies a SY-TOS tape to the system (including one that is password protected). This command is useful for determining the name and volume number of an unknown SY-TOS tape.

Procedure

1. Choose **Set Tape** from the Advanced menu command bar.
2. Select the **Identify** command.

The system displays the tape volume name, creation date and time, and the volume number in the TAPE window.

Set Tape Retension <str>

The Set Tape Retension command winds and rewinds a tape for proper tape tension. Retensioning does not alter the contents of the tape.

Procedure

1. Choose **Set Tape** from the Advanced menu command bar.
2. Select the **Retension** command.

SY-TOS will wind and rewind the tape in the tape system.

You should select this command when you first back up to a new tape or when working with a tape that has not been used recently. You may also want to use the Retension command if you are receiving a lot of errors on the tape.

Set Tape Erase <ste>

The Set Tape Erase command erases the contents of a tape and retensions the tape in the process. Therefore, it is not necessary to select the Set Tape Retension command after erasing a tape.

You may want to use this command before backing up to a new tape to increase reliability, before backing up to a tape that will be used for archive purposes or when you are having problems re-using a tape.

SY-TOS does not prompt you for the password if the tape you are using is password protected.

Procedure

1. Choose **Set Tape** from the Advanced menu command bar.
2. Select the **Erase** command.

If the tape is new or contains non-SY-TOS information, the tape will be erased automatically.

If the tape contains SY-TOS information, the system will display the following prompt:

```
THIS TAPE CONTAINS DATA - Press <Enter>  
to OVERWRITE, <Esc> to QUIT
```

3. Press <Enter> to erase the tape's contents or <Esc> to quit.

Set Disk <sd>

The Set Disk command allows you to choose a different disk for SY-TOS operations.

Procedure

1. Choose **Set** from the Advanced menu command bar.
2. Select the **Disk** command.

The system displays the following prompt:

```
Enter new DISK letter:
```

3. Type the disk letter (followed by a colon), which identifies the disk that you want to access and press <Enter>. For example:

```
Enter new DISK letter:D:
```


NOTE

You may change to any logical DOS device that is defined to your system and is accessible by a drive letter.

When you change disks, SY-TOS updates the DISK window.

After you change the disk, the path displayed in the DISK window will automatically be set to the directory last accessed on the new disk. You may change the current directory using the Set Path command.

Set Path <sp>

The Set Path command allows you to specify a different disk path for SY-TOS operations.

Procedure

1. Choose **Set** from the Advanced menu command bar.
2. Select the **Path** command.

The system displays the following prompt:

Enter new disk PATHNAME:

3. Type the pathname (a maximum of 64 characters) and press <Enter>.

After you change the disk path, SY-TOS updates the DISK window.

When you want to change disks, use the Set Disk command.

NOTE

You cannot create a directory with this command. You may use only existing pathnames.

Set Select <ss>

With the Set Select commands, you can change the file selection criteria for the duration of a SY-TOS session. When you exit the SY-TOS system and then re-enter it, the Select criteria will be assigned the settings which are specified in the ST-CONFIG utility.

With the Set Select commands, you can direct SY-TOS to back up, verify or restore subdirectories, back up only modified files or files with certain creation dates and include or exclude specific files or directories for SY-TOS operations. You can also instruct SY-TOS to consider only one particular backup session when selecting files.

Each time you request SY-TOS to back up, verify, restore or display preselected files, it reviews each file criterion before selecting the files. For an explanation on how the file selection criteria work, see the Selecting Files section in Chapter 3.

When you choose the Set Select command, SY-TOS displays the current file selection criteria in the MESSAGES window. You may then review these criteria to determine if there are any that need to be changed.

SY-TOS considers the file selection criteria in conjunction with the following commands:

- Backup File Selected.
- Verify File Selected.
- Restore File Selected.
- Restore Disk Selected.
- Directory Disk Selected.
- Directory Tape File Selected.
- Directory Tape Disk Selected.
- Directory Library File Selected.
- Directory Library Disk Selected.

Set Select Include <ssi>

With the Set Select Include command, you can instruct SY-TOS to include certain files during its file selection process.

Procedure

1. Choose **Set Select** from the Advanced menu command bar.
2. Select the **Include** command.

The system displays the following prompt:

Enter FILENAMES, (press <Enter> for directory) :

3. You have three choices:

- Type the files that you want SY-TOS to consider and press <Enter>. You may enter a maximum of 80 characters. For example:

Enter FILENAMES, (press <Enter> for directory) : *.EXE \SYTOS*.BAT

You may also specify multiple disk criteria. For example:

Enter FILENAMES, (press <Enter> for directory) : C:*.* D:*.*

- Press <Enter> to display the contents of the current path in the MESSAGES window and then select the files to include by marking them. Refer to the Easy-List File Selection section in Chapter 3 for information on how to mark files.
- Type the name of a file that contains the files you want to include. Precede the entire pathname with an @ symbol. For example:

Enter FILENAMES, (press <Enter> for directory) : @C:\SYTOS\INCLUDE.LST

Use a text editor or the DOS EDLIN program to create the list of files and save it in a file which is referred to as an *@ file*. Make sure you include the pathnames of the files and separate each with a comma, space or <Enter>. You may specify a maximum of 40 files and/or directories in the @ file. To include more files refer to Example 4 in Chapters 6 and 7.

NOTE

The @ file must exist before you specify it in this command.

Set Select Exclude <sse>

With the Set Select Exclude command, you can instruct SY-TOS to exclude certain files during its file selection process.

Procedure

1. Choose **Set Select** from the Advanced menu command bar.
2. Select the **Exclude** command.

The system displays the following prompt:

Enter FILENAMES, (press <Enter> for directory) :

3. You have three choices:
 - Type the files that you want SY-TOS to exclude and press <Enter>. You may enter a maximum of 80 characters. For example:

Enter FILENAMES, (press <Enter> for directory) : *.OLD \WP*.BAK

You may also specify multiple disk criteria. For example:

Enter FILENAMES, (press <Enter> for directory) : C:*.BAK D:*.CIF

- Press <Enter> to display the contents of the current path in the MESSAGES window and then select the files to exclude by marking them. Refer to the Easy-List File Selection section in Chapter 3 for information on how to mark files.
- Type the name of a file that contains the list of files you want to exclude. Precede the entire pathname with an @ symbol. For example:

Enter FILENAMES, (press <Enter> for directory) : @C:\SYTOS\EXCLUDE.LST

Use a text editor or the DOS EDLIN program to create the list of files and save it in a file which is referred to as an @ file. Make sure you include the pathname to each file and separate each with a comma, space or <Enter>. You may specify a maximum of 40 files and/or directories in the @ file. To exclude more files refer to Example 4 in Chapters 6 and 7.

NOTE

The @ file must exist before you specify it in this command.

Set Select Changed <ssc>

With the Set Select Changed command, you can instruct SY-TOS to consider all files or only those which have changed or have been created since the last backup session. Set Select Changed only applies as a file selection criterion during Backup File Selected or Directory Disk Selected operations.

When using the Directory Disk Selected command, you may choose either the Set or Keep options to view the files on disk which have changed or have been created since the last backup. Selecting Set in this instance will not change the file status to unmodified.

Procedure

1. Choose **Set Select** from the Advanced menu command bar.
2. Select the **Changed** command.
3. Choose one of the following options:

No SY-TOS will consider files regardless of whether or not they have changed or have been created since the last backup.

Set SY-TOS will consider only those files which have changed or have been created since the last backup and will reset the file status to unmodified. SY-TOS will not consider these files again until they have been changed.

Keep SY-TOS will consider only those files that have changed or have been created since the last backup, but will keep the current changed file status. This option is useful when you want to create more than one backup tape containing the same updated files.

Set Select Date <ssd>

With the Set Select Date command, you can instruct SY-TOS to consider all files or only those created on, before or after a specific date.

Procedure

1. Choose **Set Select** from the Advanced menu command bar.
2. Select the **Date** command.
3. Choose one of the following options:

No	SY-TOS will not use a file's creation date as a file selection criterion.
After	SY-TOS will consider files created on or after a specified date.
Before	SY-TOS will consider files created on or before a specified date.
Equal	SY-TOS will consider files that have a specific creation date.

When you select the After, Before or Equal options, SY-TOS will display the following prompt:

Enter DATE for file selection:

4. Type the date that you want SY-TOS to use when considering files for selection. Use the MM/DD/YY or MM-DD-YY format when entering the date.

To accept default value (the current date), press <Enter>.

NOTE

If the COUNTRY command in the DOS CONFIG.SYS file has been set, you will need to specify that country's date format. For example, if the country code is set to 033 (France), you will need to use the DD/MM/YY or DD-MM-YY date format.

Set Select Trees <sst>

With the Set Select Trees command, you can instruct SY-TOS to search down subdirectories when it selects files or to consider only those files within a specific directory.

Procedure

1. Choose **Set Select** from the Advanced menu command bar.
2. Select the **Trees** command.
3. Choose one of the following options:

No SY-TOS will omit subdirectories when it selects files. This option is useful when you want to isolate the files within a directory without including files within subdirectories.

Yes SY-TOS will search down subdirectories when it selects files. This option is useful when you want to include all files within a disk.

Set Select Session <sss>

With the Set Select Session command, you can instruct SY-TOS to search for files in all tape backup sessions or only in one specific backup session when it verifies, restores or displays files.

Each time you back up files to a tape using the *Backup File List* or *Backup File Selected* commands, SY-TOS records it as a session. A tape may contain one session if Options Append were set to No or many sessions if Options Append were set to Yes. Recording sessions is helpful when you place several backup sessions on the same tape and then want to verify, restore or view a particular session using the Verify, Restore or Directory Tape Selected commands.

SPECIAL NOTE

The Session command pertains only to file-by-file backup

operations. You cannot use Session as a selection criterion for any List, DOS Disk or Device operations.

Procedure

1. Choose **Set Select** from the Advanced menu command bar.
2. Select the **Session** command.
3. Select one of the following options:

All SY-TOS will search all file backup sessions when selecting files to verify, restore and display.

Specific SY-TOS will search a specific file backup session when selecting files to verify, restore and display.

SY-TOS will display the following prompt:

Enter SESSION number:

4. Type the session number (a maximum of 255) that you want SY-TOS to search and press **<Enter>**.

NOTE

The Set Select Session command works in conjunction with the Options Append command. If Options Append is set to Yes, then more than one backup session can reside on a tape. When Options Append is set to No, only one backup session may exist on a tape.

Options Commands

The Options commands enable you to select various system options that are available when performing SY-TOS operations. For example, you can request SY-TOS to prompt you before restoring over information on disk, or to append information to a tape that contains previously backed up information when a new backup is performed.

In addition, you can open and close the Library and the Journal. The Library keeps track of information on the tape itself; whereas, the Journal keeps track of activities reported in the MESSAGES window during SY-TOS operations. To backup DOS and non-DOS partitions that reside on the same physical hard disk, use the Options Device Backup command. To verify and restore a Device backup, select the Options Device Verify and Restore commands.

When you choose the Options command, SY-TOS displays the current settings in the MESSAGES window. You may then review these values to determine if there are any that need to change.

Options Append <oa>

With the Options Append command, you can instruct SY-TOS to place backed up information after the information currently on tape or to overwrite any information on the tape.

Procedure

1. Select **Options** from the Advanced menu command bar.
2. Choose the **Append** command.
3. Choose one of the following options:

No SY-TOS will start backing up information at the beginning of the tape, overwriting any existing

information on the tape after receiving confirmation. SY-TOS will prompt you for a tape volume name and password each time you back up.

Yes SY-TOS will automatically append backups to the current tape. It will NOT prompt you for a tape volume name. If the tape has not been initialized to the system, you should select the Set Tape Create command in order to give it a name and optional password before backing up.

Options Restore <or>

With the Options Restore command, you can instruct SY-TOS to restore files to their original pathnames or to a new location when you select the Restore File List and Selected or the Restore Disk List and Selected commands.

Procedure

1. Select **Options** from the Advanced menu command bar.
2. Choose the **Restore** command.
3. Choose one of the following options:

New To restore files to disk according to the current disk and path as displayed in the DISK window and ignore the specified disk and pathnames on the tape, unless it is a DOS Disk backup on tape.

Original To restore files to disk by the original disk and pathnames from which the files were backed up, regardless of the current disk and path displayed in the DISK window.

CAUTION

- When using the Restore Disk List or Selected commands with Options Restore set to Original, SY-TOS will always restore the files to their original pathnames on the current disk as displayed in the DISK window, regardless of the disk associated with the file(s) on tape. SY-TOS will create the subdirectories when necessary.
- The setting for the Options Restore command does not affect a Restore Disk Entire operation. When you choose

the Restore Disk Entire command, SY-TOS will prompt you for the disk where you want to place the information. At this point, you can specify a different disk. (See the Restore Disk Entire command section in this chapter for more information.)

Options Prompt <op>

With the Options Prompt command, you can instruct SY-TOS to prompt you for confirmation before it overwrites system, changed or read-only files on disk during a restore operation.

Procedure

1. Select **Options** from the Advanced menu command bar.
2. Choose the **Prompt** command.
3. Choose one of the following options:

No SY-TOS will automatically restore over system, changed or read-only files on disk with the corresponding files on tape.

Yes SY-TOS will prompt you before restoring over system, changed or read-only files on disk.

Options Break <ob>

With the Options Break command, you can specify whether or not pressing the <Ctrl> <Break> or <Ctrl> <C> key combinations will interrupt a SY-TOS activity.

Procedure

1. Select **Options** from the Advanced menu command bar.
2. Choose the **Break** command.
3. Choose one of the following options:

No SY-TOS will not allow the <Ctrl> <Break> or <Ctrl> <C> key combinations to interrupt an activity. This option is useful when a series of SY-TOS tasks are performed while unattended.

Yes SY-TOS will allow the <Ctrl> <Break> or <Ctrl> <C> key combinations to interrupt an activity. This option is useful when you accidentally request an undesired task.

Options Journal Begin <obj>

With the Options Journal Begin command, you can open and close the SY-TOS Journal. The Journal records the information SY-TOS places in the MESSAGES and STATISTICS windows during all Backup, Verify, Restore and Directory operations. You may keep the information within a disk file or send it to the printer by specifying the DOS logical device name for the printer (PRN, LPT1 or LPT2, for example). The Journal command is useful when you want to keep track of SY-TOS' activity while no one is present or to monitor a week's backup activity in an office environment.

Procedure

1. Select **Options Journal** from the Advanced menu command bar.
2. Choose the **Begin** command.

The system displays the following prompt:

```
Enter FILENAME or DEVICE for Activity
Logging: SYTOS.LOG
```

3. You have three choices:
 - Press <Enter> to begin logging information displayed in SY-TOS' MESSAGES and STATISTICS windows. The information is logged to the default file called SYTOS.LOG which is located in the directory where SY-TOS is installed.
 - Type a name for the file or device (such as a printer) where you want SY-TOS to direct the information. For example:

```
Enter FILENAME or DEVICE for Activity
Logging: C:\JOURNAL\DAAILY.LOG
```

- Press <Esc> to cancel the command.

If the file exists, SY-TOS will display the following prompt:

File exists. Press <Enter> to append, or <Esc> to truncate.

4. Press <Enter> if you want to append information to the existing file.

Press <Esc> if you want SY-TOS to erase existing information before starting the Journal.

After you start the Journal, SY-TOS displays the following information in the MESSAGES window:

```
System Activity Logging Started at  
[time] [date] Log File [name] open
```

NOTES

- Once you specify a file for the Journal, it remains on your system until you use the DOS command ERASE to delete it. SY-TOS places the default SYTOS.LOG file in the directory that contains the SY-TOS files and not in the current directory. If you have specified a path for the Journal file, SY-TOS will place it in the specified directory. Make sure you have enough disk space to store the Journal file(s).
- The Journal remains on until either you specify the Options Journal End command or exit SY-TOS.
- You can review the Journal's contents by specifying the Options Journal Review command. If at some point you want to print the file, use the DOS command PRINT. You may also edit the Journal file with most word processing programs.
- When the Journal is open during a Backup Disk or Options Device Backup operation, SY-TOS updates the Journal file; thereby, altering the information on the disk. Upon verifying the backup, you may receive an error message stating that certain blocks failed verification. We therefore recommend that you log to a printer or alternate disk during Disk or Device backup and verify operations.
- If the Journal is open when executing a SY-TOS batch file, it will record the information displayed in the MESSAGES and STATISTICS windows.
- When using an existing Journal file during a batch session, SY-TOS will automatically append information

to the file. After using the same Journal file several times in batch mode, the file can become large. Therefore, you might want to delete the Journal file before executing the batch file or use a different Journal in the batch file.

Options Journal End <oje>

With the Options Journal End command, you can close the SY-TOS Journal.

Procedure

1. Select **Options Journal** from the Advanced menu command bar.
2. Choose the **End** command.

SY-TOS displays the following information in the MESSAGES window:

```
System Activity Logging stopped at  
[time] [date]
```

Options Journal Review <ojr>

With the Options Journal Review command, you can review the contents of the SY-TOS Journal. However, the log file that you want to review must be active.

Procedure

1. In order to review the Journal file, it must be active. Select the Options Journal Begin command to open the file.
2. Select **Options Journal** from the Advanced menu command bar.
3. Choose the **Review** command.

The system displays the contents of the active Journal file in the MESSAGES window.

4. You may press the following keys:

Key to Press	Activity
<PgDn>	Displays the next page of information.

- | | |
|--------|--------------------------------------------|
| <PgUp> | Displays the previous page of information. |
| <Esc> | Exits the Journal file. |

Options Library Active <ola>

With the Options Library Active command, you can open and close the SY-TOS Library.

SY-TOS gives you the opportunity to keep track of all files and disks that you back up as well as each tape's volume name. It stores this information in a disk file which you may view using the Directory Library commands. The Library must be open in order to view its contents. If the security system is on, you will be able to view only the Library file assigned to you by the System Administrator.

Procedure

1. Select **Options Library** from the Advanced menu command bar.
2. Choose the **Active** command.
3. Choose one of the following options:

No The Library will be closed. SY-TOS will not keep track of any new tapes that are initialized, existing tapes when re-initialized, or additional backups to a tape currently in the Library.

This option is useful when you are creating or updating tapes that will be used at a different location.

Yes The Library will be opened. When you open the Library for the first time, SY-TOS creates a \STLIB directory. It places this directory in the root directory on the disk you specify using the Options Library Disk command in the ST-CONFIG utility.

SY-TOS places the Library files in the \STLIB directory. Make sure you have enough disk space to allow SY-TOS to store the Library files. Removing this directory will delete the Library's contents.

NOTE

When the Library is open during a file-by-file backup operation, SY-TOS updates the Library files. You will therefore receive a message stating that these files are active when verifying.

Options Library Update Add <olua>

With the Options Library Update Add command, you can create a new tape volume entry in the Library for those tapes created or updated at a different location, or while the Library was closed. The Library must be open before you can update it.

Procedure

1. Before selecting this command, insert the tape into the tape drive.

To make sure the tape is the one you want, you may select the Set Tape Identify command.

2. Select **Options Library** from the Advanced menu command bar.
3. Choose the **Update Add** commands.

SY-TOS will display the files existing on the tape in the MESSAGES window as it adds the tape to the Library. DOS Disk(s) and/or Device(s) will also appear in the MESSAGES window as the update takes place.

Options Library Update Remove <olur>

With the Options Library Update Remove command, you can permanently remove specified tapes from the Library. You should use this command only when a tape will no longer be used. The Library must be open before you can update it.

NOTE

As your Library grows in size, you might want to remove any tape volumes that you no longer use.

Procedure

1. Select **Options Library** from the Advanced menu command bar.
2. Choose the **Update Remove** commands.

The system displays a list of tape volume names that are recorded in the Library.

3. Press the following keys:

Key to Press	Activity
	Unmarks a tape volume to remove from the Library.
<↓> Down arrow	Moves the pointers down one line.
<Enter>	Removes the marked tape volume(s) from the Library.
<Esc>	Cancels the Remove command and returns you to the Advanced menu command bar.
<Ins>	Marks the tape volume you want removed from the Library.
<PgDn>	Displays the next page of tape volume names.
<PgUp>	Displays the previous page of tape volume names.
<↑> Up arrow	Moves the pointers up one line.

4. When you have selected the tape volume(s) to remove from the Library, SY-TOS displays the first one in the MESSAGES window.
5. You have the following choices:
 - Press <Enter> to remove the displayed tape volume from the Library. If you selected more than one tape volume to

remove, SY-TOS will display the next one until it has exhausted your list and will then return to the Advanced menu command bar.

- Press <Esc> to cancel the removal of the displayed tape volume from the Library. If you selected more than one tape volume to remove, SY-TOS will display the next one until it has exhausted your list and will then return to the Advanced menu command bar.

Options QIC40 <oq>

With the Options QIC40 command, you can specify whether SY-TOS will use the logical QIC-40 format or the SY-40 format when backing up information to tape.

This command will only appear on the command bar if you are using certain mini data cartridge tape systems.

Procedure

1. Choose **Options** from the Advanced menu command line.
2. Select the **QIC40** command.
3. Choose one of the following options:

No SY-TOS will use its SY-40 format when backing up files to tape. This option gives you access to all of SY-TOS' features.

When formatting or initializing a tape, or backing up information to a tape using the SY-40 format, SY-TOS converts a non-SY-TOS tape to a SY-TOS tape. This tape will no longer be compatible when read by a QIC-40 tape drive not using SY-TOS.

Yes SY-TOS will use the logical QIC-40 format when backing up files to tape. This format is useful when you will be interchanging backup tapes on QIC-40 tape drive systems that do not use SY-TOS.

NOTE

When you specify the QIC-40 format, you can use all of SY-TOS' functions except the following:

Backup Disk
Verify Disk
Restore Disk Entire
Restore Disk List
Restore Disk Selected
Directory Library Disk List
Directory Library Disk Selected
Options Device Backup
Options Device Verify
Options Device Restore
Network

Options Device Backup <odb>

With the Options Device Backup command, you can instruct SY-TOS to perform a BIOS image backup. This procedure starts at the first cylinder of a physical disk and continues to the last cylinder.

You would use this command instead of the Backup Disk command when you have more than one operating system residing on a hard disk and you want to back them up.

The information backed up to tape is only as error free as it existed on the disk at the time of the backup. If there were problems with your disk, they may appear on the backup tape. *Therefore, it is advisable to perform a DOS CHKDSK operation prior to backing up data.* The CHKDSK command checks the disk for errors with the directories and the File Allocation Table.

If the normal DOS disk partition limit of 32MB has been exceeded using certain partitioning software, this command will not appear on the command bar.

See Chapter 2 for more information about device backups.

Procedure

1. Select **Options Device** from the Advanced menu command bar.
2. Choose the **Backup** command.

The system displays the following prompt:

Enter HARD DISK to BACKUP:

3. Type the number that identifies the hard disk you want to back up and press <Enter>.

If the Options Append command is set to Yes, SY-TOS will back up the device, placing the information at the end of any existing information on the tape. You may then disregard the following steps.

If the Options Append command is set to No, SY-TOS will display the following prompt:

Enter a tape VOLUME NAME:

4. Type the name of the tape and press <Enter>. The name can be a maximum of 47 characters and can contain spaces.

The system displays the next prompt:

**Enter optional tape PASSWORD, <Enter>
if none:**

SPECIAL NOTE

Passwords protect the tape against unauthorized access. Be sure to record the password in a safe, secure place because without the password, a tape cannot be accessed. You cannot remove a password from the tape without destroying the tape's contents.

5. If you do not wish to assign a password, simply press <Enter>.

If you want to assign a password, type the password (a maximum of 19 characters) and press <Enter>.

The system prompts you again.

Re-enter PASSWORD to confirm:

6. Retype the password and press <Enter>.

If the password you just typed is incorrect, SY-TOS informs you and redisplay the optional password prompt. You will then need to repeat steps 5 and 6.

If the tape contains data, the system will display the following prompt:

**THIS TAPE CONTAINS DATA - Press <Enter>
to OVERWRITE, <Esc> to QUIT**

7. Press either **<Enter>** to continue or **<Esc>** to stop the backup procedure.

If you press **<Enter>**, SY-TOS will overwrite any existing information on the disk.

SY-TOS will back up the entire contents of the hard disk to tape.

It is strongly recommended that you now select the Options Device Verify command to ensure that the information on the tape correctly matches the information on the disk.

CAUTION

Because SY-TOS performs a BIOS image backup, you may lose information if you restore to a different disk that contains bad sectors in places where they did not exist on the backed up disk.

NOTES

- Each time you back up a physical hard disk, SY-TOS assigns a sequence number to it. You may then refer to this number when verifying and restoring Device backups.
- When you want to back up more than one device, simply repeat the Options Device Backup operation and specify the different devices. For example, to back up two devices, you would:

Select Options Device Backup and enter 1 at the prompt. Specify the tape volume name and optional password. When the backup is completed, set the Options Append command to Yes, select the Options Device Backup command and enter 2. You may also use a new tape with the Options Append command set to No.

Options Device Verify <odv>

With the Options Device Verify command, you can instruct SY-TOS to verify the contents of a Device backup on tape with the information on a hard disk.

You would use this command to verify information backed up to tape using Options Device Backup command.

If the normal DOS disk partition limit of 32MB has been exceeded using certain partitioning software, this command will not appear on the command bar.

Procedure

1. Select **Options Device** from the Advanced menu command bar.
2. Choose the **Verify** command.

The system displays the following prompt:

Enter DISK number for HARD DISK VERIFY:

3. Type the number that identifies the hard disk backup whose contents you want to verify and press <Enter>.

You may also specify the Device Backup sequence number if there is more than one. For example:

Enter DISK number for HARD DISK VERIFY: 1 : 2

SY-TOS will verify the second occurrence of the Device 1 backups located on tape.

SY-TOS notifies you in the MESSAGES window whether the verification is successful. If the verification failed, repeat the Device backup and verify it again.

NOTE

When the Journal is open during an Options Device Backup operation, SY-TOS updates the Journal file; thereby, altering the information on the disk. Upon verifying the backup, you may receive an error message stating that certain blocks failed verification. We therefore recommend that you log to a printer or alternate disk during Device backup and verify operations.

Options Device Restore <odr>

With the Options Device Restore command, you can instruct SY-TOS to perform a BIOS image restore of an entire physical device. The hard disk being restored to must be the same size or larger than the hard disk Device backup being restored from tape.

If the normal DOS disk partition limit of 32MB has been exceeded using certain partitioning software, this command will not appear on the command bar.

CAUTION

- Because DOS remains in memory during a Device restore operation, we strongly recommend that you reboot your system after executing the Options Device Restore command. This will ensure that DOS is updated with respect to the information on disk that has been restored; thereby, preventing possible data corruption or loss.
- The Options Device Backup command performs a BIOS image backup of a hard disk, starting from the first cylinder and ending with the last. Because of this backup method, you may lose information if you restore to a different disk that contains bad sectors in places where they did not exist on the backed up disk. Therefore, make sure the hard disk you are restoring to does not have bad sectors.

Procedure

1. Select **Options Device** from the Advanced menu command bar.
2. Choose the **Restore** command.

The system displays the following prompt:

Enter DISK number for HARD DISK RESTORE:

3. Type the number identifying the hard disk whose contents you want to restore from tape and press <Enter>.

You may also specify the Device Backup sequence number if there is more than one. For example:

**Enter DISK number for HARD DISK
RESTORE: 1:2**

SY-TOS will restore the second occurrence of the Device 1 backups located on tape.

Help Command <h>

The Help command describes how to use the on-line help facility in the Advanced menu system.

To display the on-line help text, follow these steps.

Procedure

1. Move the arrow keys to highlight the command in which you want help.
2. Press the <F2> function key.

Help text pertaining to the highlighted command appears in the MESSAGES window.

3. Press the <PgDn> or <PgUp> keys to view additional text if any exists.

Press <Esc> to exit the help facility.

NOTES

- For additional help, you may also press the <F2> function key at a prompt. Help text explaining what SY-TOS expects you to enter will appear in the MESSAGES window.
- SY-TOS provides help text for error messages. When an error message appears on the third line of the screen, press the <F2> function key. Help text describing the error and a possible solution will appear on the screen.

Quit Command <q>

Select the Quit command from the Advanced menu command bar when you want to end a SY-TOS session.

Any changes you made to the Set Select and Options commands will revert back to the settings specified in the ST-CONFIG utility.

Chapter 6. Command Line Operation

In addition to the Advanced and Novice menu systems, SY-TOS gives you the opportunity to execute its commands at the DOS command prompt. Once you become an experienced user, you might find it faster to pass "command switches" to SY-TOS rather than stepping through the cues provided by the menu systems.

You can also execute SY-TOS commands by specifying a "batch" text file. You create the batch file by placing the command switches in a batch text file.

Executing SY-TOS Commands at the DOS Command Prompt

This method actually calls SY-TOS; therefore, you need to be in the directory where SY-TOS is installed. After you type the commands and press <Enter>, the Advanced menu system appears on the screen and the system begins executing the command(s) previously entered. It then redisplayes the DOS command prompt upon completion.

Procedure

1. Type SYTOS, press the <Space Bar> and then type a - (hyphen).
2. Type the command switches you want to execute (a maximum of 127 characters) and press <Enter>.

The command switch format you must follow when executing commands is:

LETTERS SPEC -

LETTERS stand for the first letter of each command (for example, **BFL** for Backup File List). Refer to the table at the end of this chapter for an alphabetical list of the SY-TOS commands and their respective command switches.

SPEC indicates any required specifications to a command (for example, a filename or a volume name). A "," (comma) must separate multiple specifications to a command.

" " (space) and - (hyphen) must follow each command set, which includes any specifications to a command. The space and hyphen are actually an implicit <Enter>. Wherever you press <Enter> in the Advanced menu system, you need to specify a space and hyphen in the command line operation.

Example

Suppose you want to back up files in the \wp and \wp\notes directories and then verify them. You would type the following at the DOS command prompt:

```
C:\SYTOS>SYTOS -OAN -OBN -BFL \WP\*.*,  
\WP\notes\*.* -DAILY_BACKUP -  
-VFL \WP\*.* \WP\notes\*.* -Q <Enter>
```

SYTOS, " " (space), - (hyphen) initiate SY-TOS. The characters following **SYTOS** are switches that SY-TOS will interpret and process.

OAN translates into the Options Append No command. For this example, no matter what the current setting is in the ST-CONFIG utility for the Options Append command, you want to make sure at the time of issuing these SY-TOS commands that you are not appending to a tape. The space and hyphen represent the <Enter> key. It is as if you were in the Advanced menu system with the Options Append No command highlighted and pressed the <Enter> key to request SY-TOS to accept the new setting and return you to the command bar.

OBN translates into the Options Break No command. This will ensure that if the <Ctrl> <Break> or <Ctrl> <C> key combinations are pressed accidentally during the execution of the batch file, SY-TOS will not stop.

BFL translates into the Backup File List command and \WP*.*,\WP\notes*.* is the command specification (in this example, the files in the \wp and \wp\notes directories to be backed up). The space and hyphen following the files represent the <Enter> you must press after specifying filenames.

DAILY_BACKUP, " " (space), - (hyphen) translate into the volume name and <Enter>.

" ", (space) and - (hyphen) translate into a null password and <Enter>. It is as if you simply pressed the <Enter> key at the password prompt in the Advanced menu system.

VFL translates into the Verify File List command and \WP*.*, \WP\notes*.* are the files to be verified. The space and hyphen are the <Enter> key that you would normally press when in the Advanced menu system.

Q is the Quit command to exit SY-TOS. You do not need a space and hyphen following the last command set because you explicitly press <Enter> at the end.

NOTES

- When operating SY-TOS from the command line, you may not use spaces within a volume name or password nor when specifying multiple files or disks.
- The file specification criteria and Options you specified in the ST-CONFIG utility are in effect when you execute commands at the DOS command prompt. To ensure these commands are assigned the settings you want at the time, it is advisable to specify them when entering SY-TOS commands at the DOS command prompt.
- If the security system is on, you must first type a username and password before typing the commands.

The command switch format for entering a username and password before command sets is:

```
USERNAME PASSWORD -LETTERS SPEC -
```

Where **username** and **password** (separated by a space) correspond to the correct user's name and password preceding the command sets.

Using the above example and having the security system on, if your username is smith and your password is smith, you would type:

```
C:\SYTOS>SYTOS SMITH SMITH -OAN -BFL  
  \WP\*.*, \WP\notes\*.* -DAILY_BACKUP -  
  -VFL \WP\*.*, \WP\notes\*.* -Q <Enter>
```

Creating Batch Files under DOS

The SY-TOS command coupled with specified SY-TOS command switches may be placed within a "batch" text file under a user specified filename. This file must have a file extension of **bat**. This extension tells DOS to execute commands indicated within this file. Once the batch file is created and contains the SY-TOS command switches along with any specifications, you simply type its name at the DOS command prompt to execute the SY-TOS commands.

You can use the DOS EDLIN program, or any word processor (in unformatted mode), to create a batch file. Refer to your DOS manual for information about creating batch files under DOS.

The following examples are sample batch files you may wish to create. The command switches you would enter when creating a batch file appear in each example. A table at the end of the chapter lists the commands you can specify and their respective switches.

NOTES

- Because you may not be present to view the verification and/or error messages that SY-TOS displays in the MESSAGES window, these examples have opened the Journal before backing up. You can then review the Journal file at any time. When using the Journal in batch mode, SY-TOS automatically appends information to the file if it already exists.
- When the Journal is open during a Backup Disk or Options Device Backup operation, SY-TOS updates the Journal file; thereby, altering the information on the disk. Upon verifying the backup, you may receive an error message stating that certain blocks failed verification. We therefore recommend that you log to a printer or alternate disk during Disk or Device backup and verify operations.
- When running SY-TOS from a batch file and you are not appending to the tape, SY-TOS will automatically overwrite any information that is on the tape. SY-TOS will not prompt you for confirmation to overwrite.

- You should use extreme caution when creating a batch file to restore files. There is room for errors to occur. For example, if Options Restore is set to New and you forget to create the directory, SY-TOS will not be able to change to the specified directory path; thereby, restoring files to a wrong area. It is advisable to use the Advanced menu system to interactively restore files.

Example 1 - Backing up All Files

This example illustrates a batch file called **backfile.bat** whose contents contain the commands to back up all files on disk C to a tape with the volume name of "all_files_on_c." To ensure that the Options and file selection criteria are assigned the settings you want for this example, they will be specified in the batch file.

The batch file contains the following SY-TOS command switches:

```
SYTOS -OAN -OBN -OBJ SYTOS.LOG -SSI C:\*.* -SSE
-SSCN -SSDN -SSTY -SSSA -BFS ALL_FILES_ON_C -
-VFS -OJE -Q
```

Once you type **BACKFILE** and press <Enter> at the DOS command prompt, SY-TOS assigns the following Options and Select commands these settings:

Command	Assigned Setting
Options Append	No
Options Break	No
Options Journal	Begin
Set Select Include	C:*.*
Set Select Exclude	No files specified
Set Select Changed	No
Set Select Date	No
Set Select Trees	Yes
Set Select Session	All

SY-TOS opens the SYTOS.LOG Journal file and backs up the preselected files to a tape with the volume name of

"all_files_on_c." It then verifies the preselected files, closes the Journal and stops. SY-TOS places any information displayed in the MESSAGES and STATISTICS windows during the backup and verification in the SYTOS.LOG file, which is located in the directory where SY-TOS is installed. You may review the Journal file at any time to ensure that the tasks were completed correctly.

NOTE

You can modify this batch file to request SY-TOS to back up only files that have changed by replacing -SSCN (Set Select Changed No) with -SSCS (Set Select Changed Set) in the batch file. You can also modify this batch file to customize your specific disk needs by changing the Set Select Include specifications and you can enter a different Journal filename.

Example 2 - Backing up a Disk

Example 2 illustrates a batch file called **backdisk.bat** whose contents contain the command switches to back up the complete contents of DOS disk C to a tape with the volume name of "dos_disk_backup_of_c."

The batch file contains the following SY-TOS command switches:

```
SYTOS -OAN -OBN -OJB PRN -BD C :  
-DOS_DISK_BACKUP_OF_C - -VD -OJE -Q
```

Once you type **BACKDISK** and press <Enter>, SY-TOS sets the Options Append command to No, instructs the Journal to log to a printer and backs up the contents of disk C to a tape with the volume name of "dos_disk_backup_of_c." SY-TOS then verifies the disk backup, closes the Journal and stops. SY-TOS will print any information displayed in the MESSAGES and STATISTICS windows during the backup and verification which you may review to ensure that the tasks were correctly completed.

Example 3 - Backing up Files on Multiple Disks

This example illustrates a batch file called **backdsk.bat** whose contents contain the command switches to back up all files on

disks C and D to a tape with the volume name of "all_files_on_c_and_d."

The batch file contains the following SY-TOS command switches:

```
SYTOS -OAN -OBN -OBJ D:DISKS2.LOG -SSI  
C:\*.*,D:\*.*-SSE -SSCN -SSDN -SSTY -SSSA  
-BFS ALL_FILES_ON_C_AND_D - -VFS -OJE -Q
```

Once you type **BACKDSKS** and press <Enter>, SY-TOS assigns the following Options and Select commands these settings:

Command	Assigned Setting
Options Append	No
Options Break	No
Options Journal	Begin
Set Select Include	C:*.*,D:*.*
Set Select Exclude	No files specified
Set Select Changed	No
Set Select Date	No
Set Select Trees	Yes
Set Select Session	All

SY-TOS opens the DISKS2.LOG Journal file on disk D and backs up the preselected files to a tape with the volume name of "all_files_on_c_and_d." It verifies the preselected files, closes the Journal and stops. SY-TOS places any information displayed in the MESSAGES and STATISTICS windows during the backup and verification in the DISKS2.LOG file on disk D. You may review the Journal file at any time to ensure that the tasks were correctly completed.

NOTE

You can modify this batch file to request SY-TOS to back up only files that have changed by replacing -SSCN (Set Select Changed No) with -SSCS (Set Select Changed Set) in the batch file. You can also modify this batch file to customize your specific disk needs by changing the Set

Select Include specifications and you can enter a different Journal filename.

Example 4 - Using Multiple @ Files

An *@ file* is a text file containing names of files that SY-TOS will back up, verify and/or restore. We refer to it as an @ file because an @ symbol precedes the complete pathname when you specify this file at a SY-TOS prompt. This symbol informs SY-TOS that the following file is a special one. You may use @ files with the following commands:

- Backup File List.
- Verify File List.
- Restore File List.
- Restore Disk List.
- Select Include.
- Select Exclude.

When entering the files in the @ file, you must give the complete pathnames and separate each file with either a space, comma or <Enter>. You may include a maximum of 40 files and/or directories in each @ file.

There may be occasions when you have more than 40 files and/or directories that you want to back up, verify or restore. This example illustrates a batch file called **backlsts.bat** whose contents contain the command switches to back up and verify two @ files called **daily.01** and **daily.02** which are located in the \SYTOS directory.

SPECIAL NOTE

This batch file uses the Backup File List command to back up the files listed in each @ file. Because two backup sessions exist on the tape, the Verify File Selected command will be specified to ensure that both sessions are verified. To include both sessions, the Set Select Session command will be configured to All. To make sure that SY-TOS can locate the backed up files and directories in each @ file on the disk, Set Select Include will be

configured to C:*.*, Set Select Trees will be configured to Yes and Set Select Exclude will not have any files specified.

The batch file contains the following SY-TOS command switches:

```
SYTOS -OAN -OBN -OJB DAILY.LOG -BFL
@C:\SYTOS\DAILY.01 -BACKING_UP_@FILES --OAY
-BFL @C:\SYTOS\DAILY.02 -SSI C:\*.* -SSE -SSCN
-SSDN -SSTY -SSSA -VFS -OJE -Q
```

Once you type **BACKLSTS** and press <Enter>, SY-TOS sets the Options Append and Options Break commands to No, opens the DAILY.LOG Journal file and backs up the files listed in daily.01 to the tape called "backing_up_@files." It then resets the Options Append command to Yes and backs up the files listed in daily.02 onto the same tape. SY-TOS assigns the file selection criteria the following settings:

Command	Assigned Setting
Set Select Include	C:*.*
Set Select Exclude	No files specified
Set Select Changed	No
Set Select Date	No
Set Select Trees	Yes
Set Select Session	All

Note that the Set Select Include and Exclude criteria will vary for you depending on the contents of your @ files.

SY-TOS verifies the preselected files, closes the Journal and stops. SY-TOS places any information displayed in the MESSAGES and STATISTICS windows in the DAILY.LOG file which is in the directory where SY-TOS is installed. You may review this file at any time to ensure that the tasks were correctly completed.

Example 5 - Using Multiple Tapes

There may be times when you want to back up more information than will fit on one tape. When your backup session requires more than one tape, SY-TOS informs you and waits for

you to insert another tape. When you verify the backup, you must begin with the first tape; otherwise, the verification will fail. However, when running a SY-TOS batch file, you must have commands in the file to instruct SY-TOS to stop before beginning the verification so you can remove the last tape backed up and insert the first tape. You can use the DOS batch command PAUSE within the SY-TOS batch file. The PAUSE command temporarily stops the execution of a batch file until you press a key.

NOTE

Because you exit SY-TOS before verifying the files in this batch file, SY-TOS resets the Options and Select commands to their default values as specified in the ST-CONFIG utility. To ensure that SY-TOS uses the same settings when verifying, it is necessary to respecify them before executing the Verify File Selected command.

This example illustrates a batch file called **tape2.bat** whose contents contain command switches to back up information on to two tapes.

```
SYTOS -OAN -OBN -OJB SYTOS.LOG -SSI C:\*.* -SSE
-SSCN -SSDN -SSTY -SSSA -BFS
BACKUP_ALL_FILES - -OJE -Q
ECHO OFF
ECHO INSERT FIRST TAPE VOLUME AND PROCEED WITH
VERIFICATION
PAUSE
SYTOS -OAN -OBN -OJB SYTOS.LOG -SSI C:\*.* -SSE
-SSCN -SSDN -SSTY -SSSA -VFS -OJE -Q
```

Once you type **TAPE2** and press <Enter>, SY-TOS assigns the Options and Select commands the following settings:

Command	Assigned Setting
Options Append	No
Options Break	No
Options Journal	Begin
Set Select Include	C:*.*
Set Select Exclude	No files specified
Set Select Changed	No

Set Select Date	No
Set Select Trees	Yes
Set Select Session	All

As SY-TOS backs up all the files on to the tapes with the volume name of "backup_all_files," it prompts you when it needs another tape. When the backup is completed, SY-TOS stops. DOS then displays the following message on your screen: "INSERT FIRST TAPE VOLUME AND PROCEED WITH VERIFICATION."

Once you insert the first tape and press a key, SY-TOS resets the Options and Select commands to the settings you specified for the backup. It then verifies the information on the tape, prompts you to insert the second tape and verifies that tape's contents.

An Overview of SY-TOS' Command Switches

The following table lists in alphabetical order the SY-TOS commands that you can specify at the DOS command prompt or in a batch file. When running SY-TOS under a network environment, the Disk commands are not available; consequently, you may not use their command switches. For example, "bd" for Backup Disk or "rdl" for Restore Disk List.

Command	Switches
Backup Disk	bd
Backup File List	bfl
Backup File Selected	bfs
Directory Disk List	ddl
Directory Disk Selected	dds
Directory Tape Disk List	dtld
Directory Tape Disk Selected	dtlds
Directory Tape File List	dtfl

Command	Switches
Directory Tape File Selected	dtfs
Options Append No	oan
Options Append Yes	oay
Options Break No	obn
Options Break Yes	oby
Options Device Backup	odb
Options Device Restore	odr
Options Device Verify	odv
Options Journal Begin	ojb
Options Journal End	oje
Options Library Active Noolan
Options Library Active Yesolay
Options Library Update Addolua
Options Prompt No	opn
Options Prompt Yes	opy
Options Restore New	orn
Options Restore Original	oro
Restore Disk Entire	rde
Restore Disk Listrdl
Restore Disk Selectedrds
Restore File Listrfl
Restore File Selectedrfs

Command	Switches
Set Disksd
Set Pathsp
Set Select Changed No	sscn
Set Select Changed Keep	ssck
Set Select Changed Set	sscs
Set Select Date After	ssda
Set Select Date Before	ssdb
Set Select Date No	ssdn
Set Select Exclude	sse
Set Select Include	ssi
Set Select Session All	sssa
Set Select Session Specific	ssss
Set Select Trees No	sstn
Set Select Trees Yes	ssty
Verify Disk	vd
Verify File List	vfl
Verify File Selected	vfs
Quit	q

Chapter 7. The ST-BATCH Utility

The ST-BATCH utility allows you to create DOS batch files for operating SY-TOS. You step through the Advanced menu system to select the commands that you want to place into a batch file. Once you create the batch file, you simply type its name and SY-TOS executes the commands. This is useful for daily backup procedures where you can define repeated SY-TOS operations in a single batch file (for example, DAILY.BAT).

The advantage to using the ST-BATCH utility versus the command switch format described in Chapter 6 is that you can specify more commands (the command switch method has a DOS limit of 127 characters), and you can access the Help Facility when using ST-BATCH. You also do not have to worry about specifying the correct command switch format for each command. See the section in Chapter 3 entitled The On-Line Help Facility for more information about the help function.

Creating a Batch File Using the ST-BATCH Utility

The batch file that you create actually calls SY-TOS; therefore, the batch file must be in the same directory as SY-TOS.

SPECIAL NOTES

- When creating a batch file, you should set the Set Select and Options values to those you want for that particular batch job. This will ensure that SY-TOS will use the correct settings each time you execute the batch file.
- You should use extreme caution when creating a batch file to restore files. There is room for errors to occur. For example, you may want to restore files to a new path and set the Options Restore command to New but forget to change the current directory path, which would result in files being restored to the wrong location. It is advisable

to use the Advanced menu system to interactively restore files.

Procedure

1. At the DOS command prompt, type **STBATCH** and press **<Enter>**.

The ST-BATCH display appears on the screen with the following prompt:

Enter FILENAME for batch file or <Esc> to Quit:

2. Type the name for the batch file that you want to create and press **<Enter>**. The name can be a maximum of 8 characters long and cannot contain a period. (ST-BATCH places the file with a **.bat** extension in the current directory.)

If the filename you type already exists, ST-BATCH will prompt you before overwriting the file.

The default file selection criteria settings appear in the **SELECT** window at the bottom of your screen. Figure 7-1 illustrates the screen display with a sample batch filename.

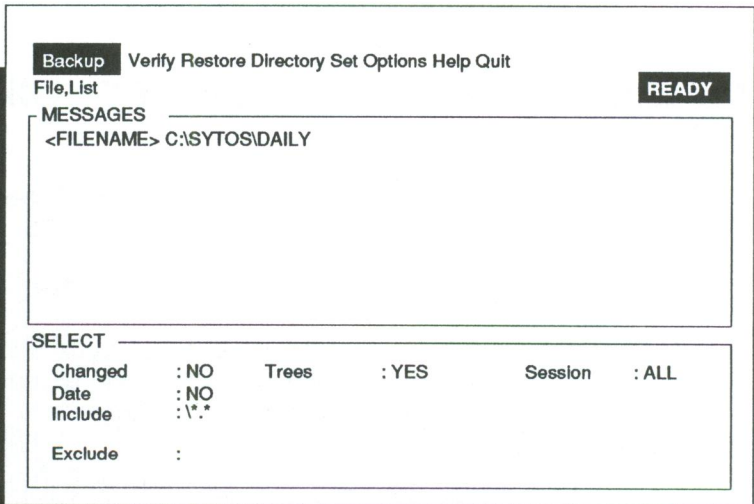


Figure 7-1 The ST-BATCH Screen Display

3. Select the first command set that you want to appear in the batch file.

A command set is one complete task (for example, Backup File List <filename>). You select the commands in the same way as if you were using the Advanced menu system in SY-TOS. Each command you choose appears in the MESSAGES window.

You can cancel a command by pressing <Esc> as long as you have not completed the command set. For example:

Backup File List <Esc>

<Esc> cancels the last command displayed in the MESSAGES window and removes it from the display.

4. Select the next command set that you want to appear in the batch file. Repeat this step until you have selected all of the commands you want to execute from the batch file.

To cancel ALL commands that you have entered and restart the current session, press the <F1> function key. If you have selected any Set Select commands, ST-BATCH will not reset their values. You can view the current settings for the Set Select commands in the SELECT window at the bottom of the screen.

5. Choose the **Quit** command when you have finished entering the commands that you want to appear in this file.

ST-BATCH displays the following prompt:

Do you wish this session saved? (Y/N)
[Y]

6. Press one of the following keys:

Key to Press	Activity
<Enter>	Creates the batch file. (ST-BATCH saves the file in the current directory on the current disk and displays the DOS command prompt.)
<N> and <Enter>	Cancels the current session and returns to the DOS command prompt.

<Esc>

Returns to the command bar and continues the current ST-BATCH session.

NOTES

- If the security system is on, SY-TOS will prompt you for a username and optional password before allowing you access to the ST-BATCH utility.
- ST-BATCH creates two files, one with a .bat extension and one without an extension. The file with the .bat extension contains instructions for SY-TOS. The file without the extension contains the command switches to the commands you selected when using ST-BATCH. SY-TOS will create a third file when you make a batch file containing only a list of files. Refer to Example 5 in this chapter for information on this type of file.

To view the contents of a batch file, use the DOS command TYPE. If you are not in the directory containing that file, specify the complete pathname. For example:

```
C:\>TYPE \SYTOS\DAAILY
```

- To alter a batch file, you can either use the ST-BATCH utility to overwrite the file and create new commands or use an editor and edit the batch file using the command switch format.
- Because you may not be present to view the verification and/or error messages that SY-TOS displays in the MESSAGES window, you may want to open the Journal before selecting the Backup or Verify command.
- When the Journal is open during a Backup Disk or Options Device Backup operation, SY-TOS updates the Journal file; thereby, altering the information on the disk. Upon verifying the backup, you may receive an error message stating that certain blocks failed verification. We therefore recommend that you log to a printer or alternate disk (disk D for example) during Disk or Device backup and verify operations.

Executing a Batch File Created by ST-BATCH

When you execute a batch file, the Advanced menu system appears on the screen. The status indicator will be set to

BATCH to indicate that the SY-TOS session is in batch mode. SY-TOS proceeds to execute the commands specified in the batch file. Upon completing the commands, SY-TOS redisplay the DOS command prompt.

At the DOS command prompt, type the name of the batch file and press <Enter>. For example:

```
C:\SYTOS>DAILY <Enter>
```

NOTES

- When you execute the batch file and the security system is on, SY-TOS checks the username and password before executing the commands in the file.

If the security system has been turned off, SY-TOS will not check the username and password before executing the commands in the batch file.

- When running SY-TOS from a batch file and you are not appending to the tape, SY-TOS will automatically overwrite any information that is on the tape. SY-TOS will not prompt you for confirmation to overwrite.
- When using the Journal in batch mode, SY-TOS automatically appends information to the file if it exists.

A Sample Batch File

Suppose you want to back up all files on the current disk at the end of each day. You could create a batch file called **daily.bat** that would back up preselected files, verify the backup and place the information in a Journal file. You could then review the Journal to ensure that the SY-TOS operations were performed correctly.

To create a batch file that would back up and verify all files on the current disk, follow these steps.

Procedure

1. From the directory where the SY-TOS files reside, type **STBATCH** and press <Enter>.

The ST-BATCH display appears on the screen. You are prompted for a batch filename.

2. Type **DAILY** and press **<Enter>**.

You select commands in the ST-BATCH utility just as you would when using the Advanced menu system in SY-TOS.

3. Select the **Options Append No** command to back up information starting at the beginning of the tape.

As you select commands, ST-BATCH places them in the MESSAGES window. Use the **<Esc>** key to cancel a command or the **<F1>** function key to cancel all of the commands.

4. Choose the **Options Break No** command. This will ensure that if the **<Ctrl> <Break>** or **<Ctrl> <C>** key combinations are pressed accidentally during the execution of the batch file, SY-TOS will not stop.

5. Select the **Options Journal Begin** command to open the Journal.

ST-BATCH prompts you for the name of the Journal file while displaying SYTOS.LOG for the default filename.

6. Press **<Enter>** to accept SYTOS.LOG as the Journal file.

7. Select the **Set Disk** command, specify the disk whose information you want to back up (for example, C:) and press **<Enter>**.

8. Select the **Set Select Include** command, type ***.*** at the Include prompt and press **<Enter>**.

9. Choose the **Set Select Exclude** command and press **<Enter>** twice to leave this field blank.

10. Select the **Set Select Changed No** command.

11. Select the **Set Select Date No** command.

12. Choose the **Set Select Trees Yes** command.

13. Select the **Set Select Session All** command.

You have now established the options and file selection criteria that you want SY-TOS to use when executing this batch file.

14. Choose the **Backup File Selected** command to back up files based on the current file selection criteria you just specified.

The system prompts you for a tape volume name and an optional password because Append is set to No. It will automatically overwrite existing information on the tape.

15. Type **DAILY BACKUP** and press **<Enter>**.
16. Press **<Enter>** at the password prompt. SY-TOS will not assign a password to this tape.
17. Select the **Verify File Selected** command to verify the backup.
18. Select the **Options Journal End** command to close the Journal.

Your screen should now look similar to Figure 7-2.

NOTE

When the commands you select fill the MESSAGES window, they will scroll up and off of the screen as you choose additional commands.

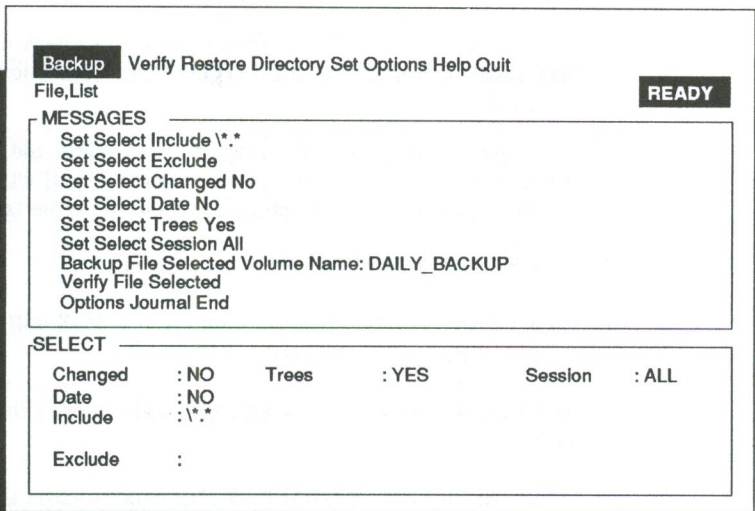


Figure 7-2 Example of a Batch File

19. Choose the **Quit** command.
20. Press **<Enter>** to create this batch file.

You may now use the **daily.bat** file whenever you want to back up preselected files. You can then view the Journal to make sure SY-TOS correctly backed up the files.

If you want to view the contents of the **daily** file, use the DOS command TYPE. For example:

```
C:\SYTOS>TYPE DAILY <Enter>
```

The **daily** file would contain the following SY-TOS command switches:

```
-OAN -OBN -OJB SYTOS.LOG -SD C: -SSI
\*.*, -SSE -SSCN -SSDN -SSTY -SSSA -BFS
DAILY_BACKUP - -VFS -OJE -Q
```

Examples of Batch Files

The following are examples of batch files that you may want to create.

Example 1 - Backing up Modified Files

This example illustrates how to create a batch file to back up only those files that have changed since the last backup and then verify the backup. It also uses the Library feature. If you do not want to activate and use the Library, set the Options Library Active command to No.

Procedure

1. From the directory where the SY-TOS files reside, type **STBATCH** and press <Enter>.

The ST-BATCH display appears on the screen. You are prompted for a batch filename.

2. Type **BACKCHG** and press <Enter>.
3. Specify the following file selection criteria:

Set Select Include *.*
Set Select Exclude (No files specified)
Set Select Changed Set
Set Select Date No
Set Select Trees Yes
Set Select Session All

4. Next, assign the Options commands the following settings:

Options Append No
Options Break No
Options Library Active Yes
Options Journal Begin SYTOS.LOG

5. Select the **Backup File Selected** command to back up files based on the file selection criteria you just specified.

The system prompts you for a tape volume name and an optional password because Append is set to No. It will automatically overwrite existing information on the tape.

6. Type **MODIFIED FILES ON DISK** and press <Enter>.
7. Press <Enter> at the password prompt. SY-TOS will not assign a password to this tape.
8. Select the **Verify File Selected** command to verify the backup.

9. Select the **Options Journal End** command to close the Journal.
10. Choose the **Quit** command.
11. Press **<Enter>** to create this batch file.

You may now use the **backchg.bat** file whenever you want to back up and verify only files that have been modified since the last backup. Note that you may modify this example to customize the file selection criteria and options to meet your backup needs.

If you want to view the contents of the **backchg** file, use the DOS command **TYPE**. For example:

```
C:\SYTOS>TYPE BACKCHG <Enter>
```

The **backchg** file would contain the following SY-TOS command switches:

```
-SSI \*.*, -SSE -SSCS -SSDN -SSTY -SSSA  
-OAN -OBN -OLAY -OJB SYTOS.LOG -BFS  
MODIFIED_FILES_ON_DISK - -VFS -OJE -Q
```

Example 2 - Backing up a DOS Disk

This example creates a batch file to back up the complete contents of the DOS disk C and then verifies that the backup was performed correctly.

Follow these steps.

1. From the directory where the SY-TOS files reside, type **STBATCH** and press **<Enter>**.

The ST-BATCH display appears on the screen. You are prompted for a batch filename.

2. Type **BACKDISK** and press **<Enter>**.
3. Next, assign the Options commands the following settings:

```
Options Append No  
Options Break No  
Options Journal Begin PRN
```

NOTE

When the Journal is open during a Backup Disk operation, SY-TOS updates the Journal file; thereby, altering the information on the disk. Upon verifying the backup, you may receive an error message stating that certain blocks failed verification. To avoid this, you may want to specify PRN when prompted for a Journal file. This will instruct SY-TOS to log to a printer. You may also log to a disk which is not included in the backup operation if you do not have access to a printer (D:SYTOS.LOG for example).

4. Select the **Backup Disk** command.

The system prompts you for the disk letter and displays the default which is C.

5. Press <Enter> to accept the default disk.

(Note that if disk C is not the default, you will need to type C: and press <Enter> after the prompt.)

The system now prompts you for a tape volume name and an optional password because Append is set to No.

6. Type **DOS DISK** and press <Enter>.

7. Press <Enter> after the password prompt.

8. Select the **Verify Disk** command to verify the backup.

The system prompts you for the disk letter and sequence number that you want to verify. It also displays the default settings after the prompt.

9. Press <Enter> to accept the default, or type C:1 and press <Enter>.

10. Choose the **Quit** command.

11. Press <Enter> to create this batch file.

You may now use the **backdisk.bat** file whenever you want to back up and verify the complete contents of a DOS disk C.

If you want to view the contents of the **backdisk** file, use the DOS command TYPE. For example:

```
C:\SYTOS>TYPE BACKDISK <Enter>
```

The **backdisk** file would contain the following SY-TOS command switches:

```
-OAN -OBN -OJB PRN -BD C:, -DOS_DISK -  
-VD C:1 -Q
```

Example 3 - Backing up Files on Multiple Disks

This example illustrates how to create a batch file to back up all files on disks C and D and then verify that the backup was performed correctly.

Procedure

1. From the directory where the SY-TOS files reside, type **STBATCH** and press <Enter>.

The ST-BATCH display appears on the screen. You are prompted for a batch filename.

2. Type **BACKDSKS** and press <Enter>.
3. Assign the Options commands the following settings:

```
Options Append No  
Options Break No  
Options Journal Begin DISKS2.LOG
```

4. Specify the following file selection criteria:

```
Set Select Include C:\*.*;D:\*.*  
Set Select Exclude (No files specified)  
Set Select Changed No  
Set Select Date No  
Set Select Trees Yes  
Set Select Session All
```

5. Select the **Backup File Selected** command to back up files based on the file selection criteria you just specified.

The system prompts you for a tape volume name and an optional password because Options Append is set to No. SY-TOS will automatically overwrite existing information on the tape.

6. Type **ALL FILES ON C AND D** and press <Enter>.

7. Press <Enter> at the password prompt. SY-TOS will not assign a password to this tape.
8. Select the **Verify File Selected** command to verify the backup.
9. Choose the **Options Journal End** command to close the Journal.
10. Select the **Quit** command.
11. Press <Enter> to create this batch file.

You may now use the **backdsk.bat** file whenever you want to back up files on disks C and D. Note that you may modify this example to customize the file selection criteria to meet your backup needs.

If you want to view the contents of the **backdsk** file, use the DOS command TYPE. For example:

```
C:\SYTOS>TYPE BACKDSKS <Enter>
```

The **backdsk** file would contain the following SY-TOS command switches:

```
-OAN -OBN -OJB DISKS2.LOG -SSI  
C:\*.*,D:\*.*, -SSE -SSCN -SSDN -SSTY  
-SSSA -BFS ALL_FILES_ON_C_AND_D - -VFS  
-OJE -Q
```

Example 4 - Using Multiple @ Files

This example illustrates how to create a batch file that uses multiple @ files to back up and verify specific files.

An @ file is a text file containing names of files that SY-TOS will back up, verify and/or restore. We refer to it as an @ file because an @ symbol precedes the complete pathname when you specify this file at a SY-TOS prompt. This symbol informs SY-TOS that the following file is a special one. You may use @ files with the following commands:

- Backup File List.
- Verify File List.
- Restore File List.

- Restore Disk List.
- Select Include.
- Select Exclude.

When entering the files in the @ file, you must give the complete pathnames and separate each file with either a space, comma or <Enter>. You may include a maximum of 40 files and/or directories in each @ file.

There may be occasions when you have more than 40 files and/or directories that you want to back up, verify or restore. This example illustrates how to back up and verify two @ files.

SPECIAL NOTE

This batch file uses the Backup File List command to back up the files listed in each @ file. Because two backup sessions exist on the tape, the Verify File Selected command will be specified to ensure that both sessions are verified. To include both sessions, the Set Select Session command will be configured to All. To make sure that SY-TOS can locate the backed up files and directories in each @ file on the disk, Set Select Include will be configured to C:*.*, Set Select Trees will be configured to Yes and Set Select Exclude will not have any files specified.

Procedure

1. From the directory where the SY-TOS files reside, type **STBATCH** and press <Enter>.

The ST-BATCH display appears on the screen. You are prompted for a batch filename.

2. Type **BACKLIST** and press <Enter>.
3. Assign the Options commands the following settings:

Options Append No
Options Break No
Options Journal Begin DAILY.LOG

4. Choose the **Backup File List** command.

The system prompts you for the filenames.

5. Type the name of the file whose contents contains a list of files that you want to back up. An @ symbol must precede the complete pathname. For example:

Enter FILENAMES, (press <Enter> for directory) :@C:\SYTOS\DAILY.01

The system prompts you for a volume name and an optional password because the Options Append command is set to No. It will automatically overwrite existing information on the tape.

6. Type **BACKING UP @ FILES** and press <Enter>.
7. Press <Enter> at the password prompt. SY-TOS will not assign a password to this tape.
8. Reset the **Options Append** command to **Yes**.
9. Reselect the **Backup File List** command.

Once again, the system prompts you for filenames.

10. Type the name of the second file that contains a list of files to back up and precede it with an @ symbol. For example:

Enter FILENAMES, (press <Enter> for directory) :@C:\SYTOS\DAILY.02

11. Specify the following file selection criteria:

**Set Select Include C:*.*
Set Select Exclude (No files specified)
Set Select Changed No
Set Select Date No
Set Select Trees Yes
Set Select Session All**

12. Select the **Verify File Selected** command to verify the two backup sessions.
13. Choose the **Options Journal End** command to close the Journal.
14. Choose the **Quit** command.

You may now use this batch file or a modified version when you want to back up multiple @ files.

If you want to view the contents of the **backlist** file, use the DOS command **TYPE**. For example:

```
C:\SYTOS>TYPE BACKLIST <Enter>
```

The **backlist** file would contain the following SY-TOS command switches:

```
-OAN -OBN -OJB DAILY.LOG -BFL  
@C:\SYTOS\DAILY.01 -BACKING_UP_@_FILES -  
-OAY -BFL @C:\SYTOS\DAILY.02 -SSI C:\*.*  
-SSE -SSCN -SSDN -SSTY -SSSA -VFS -OJE -Q
```

Example 5 - Creating a Batch File to be Used as an @ File

This example illustrates how to create a batch file to be used as an @ file. The batch file will contain only lists of files.

When you make a batch file containing only a list of filenames (using the Backup File List, Set Select Include or Set Select Exclude commands), ST-BATCH creates three types of files:

```
<batch filename>  
<batch filename>.bat  
<batch filename>.01,02,...
```

The batch file with the .01 (.02, .03, etc.) extension contains the list of files and not the commands. ST-BATCH creates a <batch filename>## for each separate list of files specified in the batch session. For example, if you specified a list of files to include in a batch file called **include** and also specified a list of files to exclude, ST-BATCH would create the following files:

```
include  
include.bat  
include.01  
include.02
```

You may use the files **include.01** and **include.02** as @ files with the following commands:

- Backup File List.
- Verify File List.
- Restore File List.

- Restore Disk List
- Select Include.
- Select Exclude.

This feature is convenient because you do not have to enter the same list of files each time you want to use them during a SY-TOS session. All you need to specify is the batch file with the .01 (.02, .03, etc.) extension preceded by the @ symbol.

The following example illustrates how to create a batch file which will be used as an @ file.

Procedure

1. From the directory where the SY-TOS files reside, type **STBATCH** and press <Enter>.

The ST-BATCH display appears on the screen. You are prompted for a batch filename.

2. Type **INCLUDE** and press <Enter>.
3. Select the **Set Select Include** command.

ST-BATCH displays the following prompt:

Enter FILENAMES, (press <Enter> for directory):

4. You have the following options:
 - You may enter the list of files that you want to include and press <Enter>. Remember to give the complete pathnames. You may specify a maximum of 80 characters.
 - You may also press the <Enter> key at the prompt to select the files using the easy-list file selection method. You may specify a maximum of 40 files and/or directories.

NOTE

If you select the files using the easy-list file selection method, you might need to specify the Set Path or Set Disk command to change the disk and directory to the ones you want.

After you specify the files you want to include, ST-BATCH displays them in the MESSAGES window and updates the SELECT window to reflect the change.

5. Choose the **Quit** command.

ST-BATCH prompts you to save the batch session.

6. Press **<Enter>** to save the session and exit ST-BATCH.

You have now created a batch file called **include** that contains a list of files. If you were to use the DOS DIR command to display the files that ST-BATCH just created, you would see the following files:

```
include
include.01
include.bat
```

You can remove the **include** and **include.bat** files from your directory if you will not be needing them. The **include.01** file contains the list of files you selected in the ST-BATCH session. If you were to specify **TYPE INCLUDE.01**, you would see the list of files displayed on the screen.

You may now use this **include.01** file at any time as an @ file. For example, at the Backup File List prompt in the Advanced menu system, all you would need to enter would be the following:

```
Enter FILENAMES, (press <Enter> for
directory) :@C:\SYTOS\INCLUDE.01
```

The list of files would appear in the MESSAGES window and SY-TOS would back up all the files listed in the **include.01** file.

You may also include the batch file with the .01, .02, etc. extension within another batch file.

Chapter 8. The SY-CLOCK Automatic Timed Backup Utility (Optional)

An Overview

The SY-CLOCK[®] utility is a multi-function "software alarm clock" that allows SY-TOS batch files or any other executable DOS programs to execute at a predetermined time during any specified day, completely unattended.

Before SY-CLOCK can execute a program, you must first set the day and time. SY-CLOCK records each filename as an event by displaying its "wake up" time inside the weekly Calendar. You may then select the Install command to turn on SY-CLOCK.

After establishing a calendar of events, installing SY-CLOCK and then exiting the utility, the software will proceed to execute each event at its associated date and time as long as the computer remains on. At "wake up" time, SY-CLOCK will sound an alarm consisting of three distinct tones. You will need to return the system to the DOS command prompt so that the scheduled event can take place. As long as you remain in a program, SY-CLOCK will issue a low-level tone approximately every 60 seconds until you return to the DOS command prompt.

Make sure the time and date are set properly on your system for reliable operation.

Installing the SY-CLOCK Utility

This section describes how to install the SY-CLOCK utility on your hard disk. Follow this procedure if you received SY-CLOCK as a standalone utility.

If you received SY-CLOCK as part of your SY-TOS software package, SY-CLOCK will automatically be installed along with the SY-TOS files.

1. Place the SY-CLOCK diskette into drive A.
2. If you are not on drive A, type **A:** at the DOS command prompt and press **<Enter>**.
The system displays the **A:** prompt.
3. Type **INSTALL** and press **<Enter>**.
Sytron's Software License Agreement appears on the screen.
4. Press **<Enter>** to accept the terms or **<Esc>** to quit.
Installation instructions next appear on the screen.
5. Press **<Enter>** to continue with the installation or **<Esc>** to quit.
The **INSTALL** utility displays the following prompt:
Enter a <hard disk letter> to place SY-CLOCK onto:
Drive: [C]
6. Type the letter identifying the disk where you want to install the SY-CLOCK utility and press **<Enter>**.
To accept the current value, press **<Enter>**.
The **INSTALL** utility displays the following prompt:
Enter a <directory path> to place SY-CLOCK into:
Directory: [\\]
7. Type the directory path where you want the **INSTALL** utility to place the SY-CLOCK software. If the directory does not exist, the **INSTALL** utility will create it for you.
To install SY-CLOCK in the root directory, press **<Enter>**.
The **INSTALL** utility displays the following prompt:
CONFIRM. Do you wish to install SY-CLOCK? (Y/N) [N]
8. Type **Y** and press **<Enter>** to install SY-CLOCK.
Press **<Enter>** to cancel the installation.

The **INSTALL** utility informs you when the installation is complete and will return you to the DOS prompt on the hard disk and in the directory where the **SY-CLOCK** files are installed.

Using the **SY-CLOCK** Utility

To use the **SY-CLOCK** utility, make sure you are in the directory where the **SY-CLOCK** files are installed. Type **SYCLOCK** and press <Enter>.

The **SY-CLOCK** utility will appear on your screen.

You may use the commands at any time to change or display the information recorded in the Calendar. You may press the <F2> function key at any time to display help on the highlighted command or any of the fields where the selection cursor is positioned.

The **SY-CLOCK** Screen Display

When you first access the **SY-CLOCK** utility, your screen looks like Figure 8-1.

Set Edit Copy Remove View Install Uninstall Help Quit						
Schedule an event in the SY-CLOCK calendar						
READY						
EVENT						
SET FOR:		AT:		MODE:		
FILENAME:						
DESCRIPTION:						
CALENDAR						
Thu. 7th	Fri. 8th	Sat. 9th	Sun. 10th	Mon. 11th	Tue. 12th	Wed. 13th

Figure 8-1 The SY-CLOCK Screen Display

The following sections describe the screen layout.

STATUS Indicator

The word **READY** appears at the upper-right corner of the screen. This serves as an indicator which confirms that SY-CLOCK is ready to accept your commands. When SY-CLOCK needs additional information from you, SY-CLOCK changes the indicator to **INPUT**. The indicator changes to **WAIT** as SY-CLOCK stores information and to **HELP** when you request help.

Command Bar

A horizontal list of commands appears at the top of the screen. We refer to this line as the *command bar*. Reverse video serves as a *selection cursor* to highlight one command at a time. A description appears below the highlighted command.

Selecting a Command

To select a command, you move the selection cursor to highlight the command and then press **<Enter>**. You may

press the following keys to move the selection cursor to highlight and then select a command:

Key to Press	Activity
<End>	Highlights the last command.
<Enter>	Selects the highlighted command.
<Home>	Highlights the first command.
<←> Left arrow or <←> Backspace	Highlights the command to the left, wrapping around to the last command when you have reached the first command.
<→> Right arrow or <Space Bar>	Highlights the command to the right, wrapping around to the first command when you have reached the last command.

You may also type the first letter of a command to select it. For example, press the <S> key for the Set command.

Error Messages

When an error occurs during a SY-CLOCK event, the utility will display an error message above the EVENT window. You may press the <F2> function key to receive help on the displayed message.

EVENT Window

The EVENT window is the area where you specify the following:

- The date for the specified program to be executed.
- The "wake up" time for the specified event.
- Whether you want SY-CLOCK to execute the program once or each week on the same day and time.
- The name of the program (and any associated SY-TOS switches) that you want SY-CLOCK to execute.
- A description of the event.

The SET FOR Field

The SET FOR field in the EVENT window shows the date when SY-CLOCK will execute a specific program. When you are establishing a new event, the current system date appears in this field.

You may press the following keys to select a date:

Key to Press	Activity
<Esc>	Cancels the command and returns you to the command bar.
<Shift><Tab>	Moves the selection cursor to the previous field.
<<-> Left arrow or <<-> Backspace	Displays the previous day.
<-> Right arrow or <Space Bar>	Displays the next day.
<Tab>	Accepts the displayed date and moves the selection cursor to the time field.

NOTE

If the COUNTRY command in the DOS CONFIG.SYS file has been set, the date will appear in the specified country's format.

The AT Field

The AT field shows the time of day when you want SY-CLOCK to execute a program. When you are creating a new event, the current system time appears in this field.

To select a time, press the following keys:

Key to Press	Activity
<Esc>	Cancels the command and returns you to the command bar.

<←> Left arrow or <←> Backspace	Displays the previous hour or minute. When it reaches 1, SY-CLOCK displays 12 for the hour. When it reaches 0, SY-CLOCK displays 59 for the minute.
<→> Right arrow or <Space Bar>	Displays the next hour or minute. When it reaches 12, SY-CLOCK wraps to 1 for the hour display. When it reaches 59, SY-CLOCK wraps to 0 for the minute display.
<Shift> <Tab>	Moves the selection cursor to the previous field.
<Tab>	Moves the selection cursor to the minute or am/pm field. If the selection cursor is at the am/pm field, pressing <Tab> will accept the displayed time and move the cursor to the MODE field.

To quickly select a time, you may type the specified time. For example, suppose you want to enter 12:30 pm as the "wake up time" for an event. You would follow these steps at the time prompt:

1. Type 1 and then 2.
2. Press the <Tab> key.
3. Type 3 and then 0.
4. Press the <Tab> key.
5. Press either the <←> or <→> key to specify am or pm.

You may also interchange typing numbers and pressing keys to select a time for an event. For example, suppose you typed 3 and 0 at the minute field and then pressed the <→> key. SY-CLOCK would display 31 at the minute field.

NOTES

If you have set the country code in the DOS CONFIG.SYS file, SY-CLOCK will use that country's time format.

You select the time as previously described; however, the hour field may range from 0 - 23, and the am/pm field does not appear. Consequently, upon pressing the <Tab> key at

the minute field, the selection cursor moves to the MODE field.

The MODE Field

There are two modes that SY-CLOCK operates under: Specific and Perpetual. When you select the *Specific* mode, SY-CLOCK executes a program on the date and time displayed in the EVENT window. It will then remove the event from the Calendar. When you choose the *Perpetual* mode, SY-CLOCK executes the program on the same day and time each week until you change the mode or time, or remove it from the Calendar.

The MODE field acts like a toggle switch. Simply press the <→> or <Space Bar> and <←> or <←> (Backspace) keys to select Perpetual and Specific, respectively. The <Tab> key accepts the displayed MODE setting and moves the selection cursor to the FILENAME field. The <Shift> <Tab> keys move the selection cursor to the previous field. The <Esc> key cancels the command and returns you to the command bar.

The FILENAME Field

The FILENAME field displays the name of the program. When you are specifying a new program name, this field will be blank.

Depending upon the location of the batch file or program, you may need to specify a partial or complete pathname. You can use a maximum of 125 characters in this field. When specifying a filename that has an extension, remember to include it. For example:

```
FILENAME:C:\SYTOS\TUESDAY.BAT
```

When there are switches associated with a program that you want SY-CLOCK to execute, you must place them after the complete pathname and separated by a space. For example:

```
FILENAME:C:\SYTOS\SYTOS.EXE -BFS DAILY -  
-VFS -Q
```

After you type the filename, press <Tab> to move to the DESCRIPTION field. If you press <Enter>, SY-CLOCK will record the event in the Calendar and return the selection cursor to the command bar. Pressing the <Shift> <Tab> keys would move the selection cursor to the previous field. Pressing <Esc> would cancel the command.

If you make a mistake typing the filename, use the << > (Backspace) key to erase the characters or select the Edit command to change the name.

If the file you specify does not exist, SY-CLOCK will display the following:

**File does not exist. <Enter> to retain,
<Esc> to re-type**

You may press <Esc> to type a new name. If you press <Enter> to keep the file, you will need to create the file in order for SY-CLOCK to execute it.

Instead of typing a filename, you can use SY-CLOCK's easy-list file selection feature. This option displays files contained on the current directory and disk that have an exe, a bat and a com extension. You can use the pointers to mark the file. You can even scan subdirectories to search for a file.

To use the easy-list file selection method, press the <↑> key at the FILENAME field. SY-CLOCK will then display the files within the current disk directory.

You may press the following keys to select the file you want:

Key to Press	Activity
<← →↑↓>	Moves the pointers to the left, right, up or down the list.
<Ctrl> <PgDn>	Displays a subdirectory when the pointers are located on a subdirectory name.
<Ctrl> <PgUp>	Displays the parent directory.
<Enter>	Records the filename you marked and returns you to the SY-CLOCK command bar.
<Esc>	Cancels the command.
<PgDn>	Displays the next page of a multi-page list.
<PgUp>	Displays the previous page when one exists.
Tab	Records the filename you marked and moves the selection cursor to the DESCRIPTION field.

NOTE

As you move the pointers from file to file, SY-CLOCK displays the selection in the EVENT window.

The DESCRIPTION Field

The DESCRIPTION field displays an explanation of the specified event. When you are establishing a new event, the field is blank. The description may be up to 60 characters in length. It is a good idea to include a description so that you can quickly identify an event when viewing the Calendar. Upon pressing <Enter> at this field, SY-CLOCK will record the "wake up" time in the Calendar. To return to the previous field, press the <Shift> <Tab> keys. To return to the first field, press the <Tab> key. To cancel the current command, press the <Esc> key.

CALENDAR Window

The CALENDAR window displays the current week, starting with the current day, and lists the entries for each day. You may have a maximum of 10 entries for each day and may schedule up to a week in advance. It is from the CALENDAR window that you select the event to edit, copy, display or delete. To select an event, you must first move the selection cursor to highlight it and then press <Enter>.

You may use the following keys to move the selection cursor from event to event in the CALENDAR window:

Key to Press	Activity
< ↓ > Down arrow	Moves the selection cursor down the column one event at a time until it reaches the last one.
<End>	Moves the selection cursor to the last event in the column.
<Enter>	Places the selection cursor in the EVENT window when using the Edit command. When viewing the Calendar, <Enter> returns you to the command bar. When clearing an event, <Enter> causes SY-CLOCK to display a confirmation prompt.

<Esc>	Exits the CALENDAR window and returns the selection cursor to the command bar.
<Home>	Moves the selection cursor to the first event in the column.
<< > Left arrow	Moves the selection cursor to the previous column on the same row. If there isn't an event at that location in the previous column, SY-CLOCK will move the selection cursor to the last available event in the previous column. If a column does not have entries, SY-CLOCK will move to the previous column.
<→> Right arrow	Moves the selection cursor to the next column on the same row. If there isn't an event at that location in the next column, SY-CLOCK will move the selection cursor to the last available event in the next column. If the column does not have entries, SY-CLOCK will move to the next column.
< ↑ > Up arrow	Moves the selection cursor to the top of the column one event at a time until it reaches the first one.

Moving around the Calendar

As you move the selection cursor from event to event in the Calendar using the View command, SY-CLOCK displays information for the highlighted "wake up" time in the EVENT window. You can quickly scan the FILENAME and DESCRIPTION fields to see the batch file or program that is associated with the "wake up" time.

For example, suppose you have the following entries in the Calendar as illustrated in Figure 8-2.

Set Edit Copy Remove View Install Uninstall Help Quit
 Schedule an event in the SY-CLOCK calendar **READY**

EVENT

SET FOR: _____ AT: _____ MODE: _____
 FILENAME: _____
 DESCRIPTION: _____

CALENDAR

Fri. 5th	Sat. 6th	Sun. 7th	Mon. 8th	Tue. 9th	Wed. 10th	Thu. 11th
9:00 am 12:00 pm 8:00 pm	12:00 am		8:30 am 12:14 pm 11:00 pm	8:16 am 12:30 pm 6:00 pm	8:17 am 1:00 pm 7:00 pm	8:18 am 12:15 pm 11:30 pm

Figure 8-2 Example of Calendar Entries

You highlight the event on Monday the 8th at 12:14 pm. SY-CLOCK displays the information associated with the highlighted entry in the EVENT window. Your screen might now look like Figure 8-3.

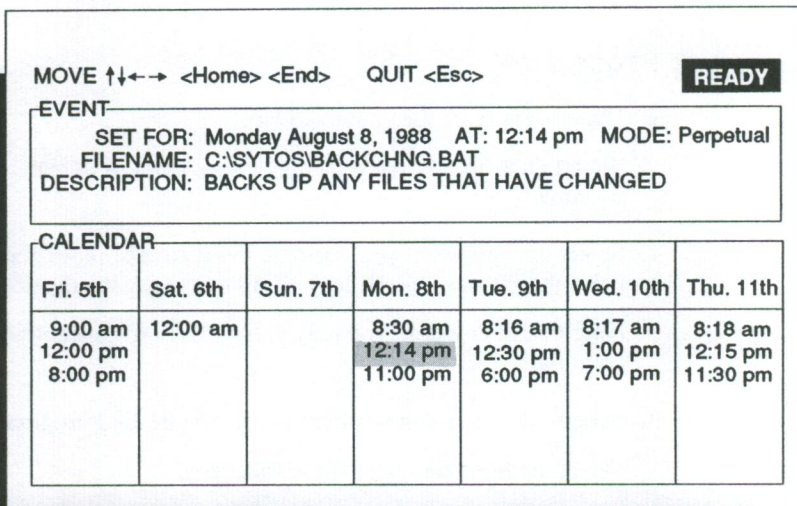


Figure 8-3 Example of a SY-CLOCK Screen Display

If you were to highlight an event in the Calendar for Tuesday the 9th, SY-CLOCK would display information relating to that "wake up" time in the EVENT window.

SY-CLOCK Commands

When using the SY-CLOCK utility, you can install and uninstall it, specify events to take place at future times, edit information associated with an existing time, copy an event to a different date, remove an event from the Calendar or view the events recorded in the Calendar. You may also display help for any highlighted command or field where the selection cursor is positioned by pressing the <F2> function key.

The following sections explain how to use each command.

Set Command

The Set command allows you to specify a new "wake up" time for an event to take place. You may have a maximum of 10 events for each day and you may schedule up to a week in advance.

Procedure

1. Choose **Set** from the command bar.

SY-CLOCK moves the selection cursor to the **EVENT** window.

2. Select the day when you want the event to take place and press the **<Tab>** key. (It may be up to a week in advance.)

Note that at any time you may press **<Esc>** to cancel the **Set** command.

3. Specify the time you want to execute the desired program.

Select the hour and press the **<Tab>** key.

Select the minute and press the **<Tab>** key.

Select am or pm and press the **<Tab>** key.

NOTE

You will not have to select am or pm if you have specified a country code in your **CONFIG.SYS** file which uses a 24 hour clock.

4. Choose the mode (either **Specific** or **Perpetual**) that you want SY-CLOCK to operate under and press the **<Tab>** key.

5. Enter the filename by using one of the following methods:

- Type the name of the file that you want SY-CLOCK to execute and press the **<Tab>** key.

If the file does not exist, SY-CLOCK will prompt you. You may press **<Enter>** to accept it or **<Esc>** to retype the filename.

- Press the **<↑>** key to use the easy-list file selection method to mark the file you want SY-CLOCK to execute. Refer to The **FILENAME** Field section for information on how to use this feature.

Press **<Tab>** to accept the filename, record the "wake up" time and advance to the **DESCRIPTION** field or press **<Enter>** to accept the filename and record the "wake up" time without including a description.

6. Type a description for this event in the Calendar and press **<Enter>**. You may leave the field blank by simply pressing **<Enter>**.

NOTE

If you press the **<Tab>** key after the description, the selection cursor will return to the SET FOR field.

SY-CLOCK records the "wake up" time for the event in the Calendar and returns the selection cursor to the command bar.

SPECIAL NOTE

In order for SY-CLOCK to execute a scheduled event, the computer must be turned on, the DOS command prompt displayed on the screen, and SY-CLOCK must be installed.

Edit Command

The Edit command allows you to change information associated with a "wake up" time recorded in the Calendar.

Procedure

1. Choose **Edit** from the command bar.

SY-CLOCK moves the selection cursor to the first event in the CALENDAR window. Information associated with the highlighted entry appears in the EVENT window.

2. Move the selection cursor to the event that you want to edit and press **<Enter>**.

SY-CLOCK moves the selection cursor to the SET FOR field in the EVENT window where information associated with the highlighted event in the CALENDAR window appears.

3. Select a new date and press the **<Tab>** key.

To keep the existing information, press the **<Tab>** key.

SY-CLOCK moves the selection cursor to the AT field.

NOTE

While editing the EVENT window, you may press

<Enter> at any time to accept the information displayed in the window and return to the command bar.

4. Select the new hour and press the **<Tab>** key.

Select the new minute and press the **<Tab>** key.

Select am or pm and press the **<Tab>** key.

To keep the current time, press the **<Tab>** key three times.

NOTE

You will not have to select am or pm if you have specified a country code in your CONFIG.SYS file which uses a 24 hour clock.

SY-CLOCK moves the selection cursor to the MODE field.

5. Select a different mode and press the **<Tab>** key.

To keep the current mode, press the **<Tab>** key.

SY-CLOCK moves the selection cursor to the FILENAME field.

6. Enter a new filename by using one of the following methods:

- Type the filename and press the **<Tab>** key.
- Press the **< ↑ >** key to use the easy-list file selection to mark the file you want SY-CLOCK to execute. Refer to The FILENAME Field section for information on how to use this feature.
- To keep the current name, press the **<Tab>** key.

SY-CLOCK moves the selection cursor to the DESCRIPTION field.

7. Type a new description and press **<Enter>**.

To keep the current description, press **<Enter>**.

SY-CLOCK records the new information in the Calendar and returns the selection cursor to the command bar.

Copy Command

The Copy command allows you to copy a "wake up" time and its associated event to a different date.

Procedure

1. Choose **Copy** from the command bar.

SY-CLOCK moves the selection cursor to the first event in the CALENDAR window. Information associated with the highlighted event appears in the EVENT window.

2. Move the selection cursor to the event that you want to copy and press <Enter>.

SY-CLOCK moves the selection cursor to the SET FOR field in the EVENT window where information associated with the highlighted event in the CALENDAR window appears.

3. Select the date you want to copy the displayed event information to and press <Enter>.

SY-CLOCK copies the highlighted event to the specified date and returns the selection cursor to the command bar.

NOTES

- When you want to change the information for the highlighted event, choose the Edit command.
- You cannot copy an event to the same day. For example, suppose you have an event scheduled for Friday, November 4. The date you select in the SET FOR field must occur either before or after November 4th.

Remove Command

The Remove command allows you to delete an existing event in the Calendar.

Procedure

1. Choose **Remove** from the command bar.

SY-CLOCK moves the selection cursor to the first event in the CALENDAR window. Information associated with the highlighted event appears in the EVENT window.

2. Move the selection cursor to highlight the event that you want to remove and then press <Enter>.

SY-CLOCK displays the following prompt:

Confirm. Do you wish to REMOVE this event? (Y/N) [N]

3. Type Y and press <Enter>.

SY-CLOCK removes the event from the Calendar and returns the selection cursor to the updated CALENDAR window. You may select another event to delete or press <Esc> to return to the command bar.

When the event you removed is the last one in the Calendar, SY-CLOCK returns the selection cursor to the command bar and notifies you that the Calendar is empty.

NOTE

If you decide not to remove a highlighted event, SY-CLOCK will return the selection cursor to the CALENDAR window.

View Command

The View command allows you to easily view the events recorded in the Calendar. You cannot change or remove the information displayed in the EVENT and CALENDAR windows.

The View command is useful if you forget the information associated with a "wake up" time in the Calendar. You can quickly scan the Calendar to review the events that SY-CLOCK will execute.

Procedure

1. Choose View from the command bar.

SY-CLOCK moves the selection cursor to the CALENDAR window and displays information associated with the highlighted event in the EVENT window.

2. Move the selection cursor to highlight the event you want to review.

SY-CLOCK displays the information in the EVENT window.

3. Repeat Step 2, or press <Esc> or <Enter> to return to the command bar.

Install Command

The Install command allows you to turn on SY-CLOCK so that it can execute programs that have been scheduled in the Calendar.

You may add new events or edit existing ones while SY-CLOCK is installed. Remember that SY-CLOCK does not execute a scheduled event until the DOS command prompt is displayed.

Procedure

1. Select **Install** from the command bar.

Once you exit the SY-CLOCK utility, SY-CLOCK will monitor the "wake up" times and execute any programs at their designated times. It will remain installed until you either select the Uninstall command or turn off the computer.

NOTE

Because SY-CLOCK is automatically uninstalled when the computer is turned off, you will need to select the Install command upon turning on the computer. You may also place this command in your AUTOEXEC.BAT file so that SY-CLOCK will automatically be installed when you turn on your computer. See the section entitled Turning SY-CLOCK on and off at the DOS Command Prompt later in this chapter for more information.

Uninstall Command

The Uninstall command stops SY-CLOCK from monitoring the "wake up" times in the Calendar and thus executing scheduled programs.

This command can be useful when you want to quickly cancel an event before it takes place. For example, suppose you have

scheduled five programs for SY-CLOCK to execute in one day and four have already been completed. You may use the Uninstall command to cancel the fifth program before its scheduled time occurs. Note that SY-CLOCK is automatically uninstalled when you turn off the computer.

Procedure

1. Select **Uninstall** from the command bar.

SY-CLOCK will no longer execute any programs recorded in the Calendar. You may still use any of the commands to set new times, edit existing information or even re-install SY-CLOCK.

NOTE

You may also uninstall SY-CLOCK at the DOS command prompt. See the section entitled Turning SY-CLOCK on and off at the DOS Command Prompt later in this chapter for more information.

Help Command

The Help command describes how to use the on-line help facility in the SY-CLOCK utility.

To display help text, follow these steps.

Procedure

1. Move the selection cursor to highlight the command for which you want help.
2. Press the **<F2>** function key.

Help text pertaining to the highlighted command appears on the screen.

3. You may press the **<PgDn>** or **<PgUp>** key to scroll text on to the screen when it exists.

Press **<Esc>** to exit the help facility.

NOTES

- In addition, you may press the <F2> function key at any field where the selection cursor is positioned to display help on that field.
- Help on error messages is also available in SY-CLOCK. Upon receiving an error message, you may press the <F2> function key. Help text explaining the error will appear on the screen.

Quit Command

The Quit command allows you to exit the SY-CLOCK utility. SY-CLOCK will save any changes to existing entries or additions in the Calendar.

Procedure

1. Choose **Quit** from the command bar.

SY-CLOCK saves any changes you have made to the Calendar and returns you to the DOS command prompt. If you have selected the Install command, you will receive a message stating that SY-CLOCK is installed.

Executing a Program Recorded in the Calendar

When it is time to execute a program recorded in the Calendar, SY-CLOCK sounds an alarm. At the DOS command prompt, it displays the following:

```
SY-CLOCK is ready to execute <PROGRAM  
NAME> Press <Alt><Shift> to cancel
```

SY-CLOCK gives you approximately 10 seconds to press the <Alt> and the left or right <Shift> key combination to cancel the event. Otherwise, it proceeds to execute the program. This feature is useful because you do not have to be present when SY-CLOCK executes a program. For example, you could specify SY-CLOCK to execute a SY-TOS batch file at midnight each day. You would then be able to back up each day's activity without being present as long as the computer remains on and SY-CLOCK is installed.

When you are using a program and it is time for SY-CLOCK to execute an event, SY-CLOCK will issue a low-level tone approximately every 60 seconds until you return to the DOS command prompt. When you exit to the DOS command prompt, SY-CLOCK will display the message stating that is ready to execute.

Turning SY-CLOCK on and off at the DOS Command Prompt

You do not have to be using the SY-CLOCK utility in order to install or uninstall it. However, you must be in the directory where the SY-CLOCK files are installed. For example, if your SY-CLOCK files were in the `syclock` directory, you would type the following at the DOS command prompt:

To install SY-CLOCK type

```
C:\SYCLOCK>SYCLOCK -I and press <Enter>.
```

To uninstall SY-CLOCK type

```
C:\SYCLOCK>SYCLOCK -U and press <Enter>.
```

You may also place the `syclock -i` command format in the `AUTOEXEC.BAT` file located in the root directory. However, you must first change the directory in `AUTOEXEC.BAT` to the directory where the SY-CLOCK files reside. For example, if the SY-CLOCK files are located in your `syclock` directory, your `AUTOEXEC.BAT` file should look like this:

```
...  
CD \SYCLOCK  
SYCLOCK -I  
CD \  
...
```

When you restart DOS, the command processor will automatically install SY-CLOCK for you. Refer to your *Disk Operating System* user's manual for information on how to create and use an `AUTOEXEC.BAT` file.

Appendix A. Taking Care of Your Tapes

This appendix lists some suggestions for taking care of your tapes to ensure maximum performance.

- Never touch the tape surface; always handle the tape cartridge.
- Keep tapes away from magnetic fields (for example, monitors, motors, televisions, and magnetic paper clip holders). Magnetic fields can scramble and erase information on a tape.
- Insert the tape into the tape drive carefully.
- Always return the tape to the plastic case when you are not using it.
- Do not leave a tape in the tape drive when you are not using SY-TOS.
- Store the tape in a safe place when not using it.
- Do not use a tape when the temperature is below 50 degrees or above 120 degrees. Do not leave a tape in the glove compartment of a car and forget about it. Extreme temperature changes can damage it.
- Periodically use the Set Tape Retension command to wind and rewind the tape.

If you suspect a tape is wearing out, execute a Backup command using that tape. If the backup operation doesn't execute properly, the tape is probably worn out.

If the backup is successful, set the tape aside for a few hours. Later verify the information on the tape to that on the disk. If you have not changed the information on the disk and the files do not verify, then the magnetic coating on the tape is too worn to be reliable. Throw the tape away.

Appendix B. SY-TOS Operation in a Network Environment

Network Overview

Under a network system, many users can share the same application programs, data and peripherals. Security may be placed on certain files under the network allowing only certain individuals access to specific information. Files shared under a network may reside on one or more disk systems.

The control of a networking system is maintained by the networking software which is located on a disk referred to as the *file server*. All user systems having access to the network, referred to as *workstations*, are connected to the file server. Under a common networking environment, a network system supervisor monitors the network system via the file server, defining file access rights for network users, and where the files under the network are to be found.

The floppy disk drives and hard disk drives located on each workstation are considered *local disks*. These disks (especially the floppy disk drive) are usually not accessible by other users through the network.

When a user requests and updates a file under the network, that file is "locked" from the rest of the users. Once the file is no longer needed by the user, it becomes "un-locked" so that another user may access it. This process is designed to protect the integrity of the file being accessed and is performed automatically by the networking system, remaining transparent to the user.

Because information on the network system can be accessed by many users, special considerations must be made when operating SY-TOS under a network environment to ensure that all the files specified for SY-TOS operations are included. The following pages describe these considerations. *It is important that you read the following sections carefully if you are running SY-TOS on a network.*

Installing SY-TOS on a Network

We suggest that you consult the network system supervisor before installing SY-TOS.

To ensure optimum performance, install SY-TOS on the fastest workstation with the greatest amount of free RAM. 640KB of memory is recommended.

We also strongly recommend that you install the SY-TOS software on a workstation or run SY-TOS directly from the floppy disk drive rather than installing SY-TOS on the file server.

To operate SY-TOS under your network environment, you must first reconfigure SY-TOS for proper operation. For example, make sure that you change the Configure Network setting in the ST-CONFIG utility to Yes.

You should also be sure that you change the DMA and Interrupt settings to values that are not being used by the network adapter card or other cards in your system. SY-TOS will not operate properly when its tape controller DMA and Interrupt values conflict with those of other controller boards. Use the Configure DMA and Configure Interrupt commands in the ST-CONFIG utility to change these settings. Change the DMA and Interrupt settings on the tape controller board to match those values specified in ST-CONFIG. You may want to try the DMA 3, Interrupt 5 combination (if it is available on your controller board) for all computers except 8086 and 8088 models. The Base Address generally does not need to be changed.

NOTES

If you are using a computer with Micro Channel Architecture (for example, PS/2 Model 50), the DMA and Interrupt values must be changed through your system's configuration utility.

Running SY-TOS under a Network Environment

You may run SY-TOS from any workstation or non-dedicated file server provided that the SY-TOS files, the associated tape

controller card and the tape drive are locally present. If the workstation you want to use does not have a hard disk, you may run SY-TOS from a floppy diskette. We suggest that you first make a copy of the SY-TOS distribution diskette and then use the copy to run SY-TOS since you may need to change the ST-CONFIG utility settings on the diskette. (Use the DOS command DISKCOPY to copy the SY-TOS diskette.) This allows you to preserve the master diskette in its original condition.

If your system does not have a hard disk and you are running SY-TOS from a floppy diskette, you must use the Options Library Disk command in ST-CONFIG to change the default Library Disk (the default disk is C) if you plan to use SY-TOS' Library.

SY-TOS will prompt you to insert new tapes as needed during a backup, verify or restore operation when the information on disk exceeds the capacity of your tape.

SY-TOS is restricted to "file" or "device" oriented operations when configured to run under a network environment. You may use the File operations across the network, but the Device operations to back up, verify and restore information only on your local hard disk. "DOS Disk" operations are removed to help protect the integrity of files being updated while operating SY-TOS.

When configured for network use, SY-TOS automatically adjusts its menu. For example, the DOS Disk options will be removed from the command bar and certain commands will change because only file-by-file operations are allowed. The phrases "In Use:" and "Capacity:" are removed from the DISK window.

The following is a list of the commands that are removed from the command bar under a network environment:

- Backup Disk.
- Directory Library Disk List.
- Directory Library Disk Selected.
- Directory Tape Disk List.
- Directory Tape Disk Selected.

- Restore Disk Entire.
- Restore Disk List.
- Restore Disk Selected.
- Verify Disk.

The following table lists the command names that will change because the DOS Disk options are removed from the command bar under a network environment. You may use this list to refer to the appropriate command description in Chapter 5.

Non-Network Environment	Network Environment
Backup File List	Backup List
Backup File Selected	Backup Selected
Directory Tape File List	Directory Tape List
Directory Tape File Selected	Directory Tape Selected
Restore File List	Restore List
Restore File Selected	Restore Selected
Verify File List	Verify List
Verify File Selected	Verify Selected

Backing up Files under a Network

If you are not logged in to the network as Supervisor or Administrator, you may only access those files and directories to which you have been assigned access rights.

For maximum performance when backing up a file server, we recommend that you log in as Supervisor or Administrator and make sure that no one else is using the network, *especially when you are running SY-TOS from a floppy diskette*. This procedure will guarantee that you will have access to all files and will provide a complete backup.

However, SY-TOS does allow for backup operations when users are accessing files. SY-TOS will try to back up all specified files and will pass over any locked files. SY-TOS

records the names of any files that are locked so that it can try again later to back them up. At the end of the backup operation, SY-TOS will attempt to back up those files that were previously locked. If SY-TOS cannot back up those files because they are still locked, it will display their names in the MESSAGES window.

SPECIAL NOTES

- If you are running SY-TOS from a floppy diskette, make sure that no one is using the network. When operating in a network environment, SY-TOS must create files which record the names of any locked files so that it can try again later to back them up. If the floppy diskette you are using is almost full, SY-TOS may not be able to create these files and the locked files will not be backed up. Making sure that no one is using the network will ensure a complete backup.
- The Backup List/Selected (network) and Backup File List/Selected (non-network) commands are designed to back up files only. Therefore, these commands will not back up an empty directory if it is at the bottom of a tree structure. (If its parent directory is also empty, it will not be backed up either.) If you wish to include these types of directories, you should shut the network down, reboot the system under DOS, and select SY-TOS' Backup Disk command. (In this situation, SY-TOS must be installed on the fileserver.) If you are running under NetWare, see the section later in this chapter entitled *Special Considerations when Running Under NetWare*.

When running SY-TOS in batch mode, you may not be present to view the verification and/or error messages that SY-TOS displays on the screen. Therefore, you may want to open SY-TOS' Journal using the Options Journal Begin command in order to record any error messages that may occur or the names of files that could not be backed up because they were locked. You may then review the Journal file at any time.

To back up files on a local disk drive (not a shared drive), you must set Configure Network to No in the ST-CONFIG utility before selecting the Backup commands.

Restoring Files under a Network

Before restoring files, you may want to select the Directory Tape List or Directory Tape Selected commands to ensure that

the files you intend to restore exist on the tape. By viewing the files on the tape you will also be able to determine the exact pathnames to the desired files. Be sure you specify exact pathnames *including the disk letter* of the files you intend to restore. This is especially important in a networking environment because files with the same names may exist in different locations within the network.

CAUTION

Make sure that no other users are logged in when you are restoring network system files or other shared program or data files.

Special Considerations when Running under NetWare

If you want to install SY-TOS on a non-dedicated file server, we recommend that you first create a DOS partition on the file server and install SY-TOS on this partition. You may then run SY-TOS from the non-dedicated file server.

File and directory names exceeding the DOS eight character limit should be avoided. Their use prevents NetWare backups from being restored to DOS environments. Inconsistent results may also be obtained trying to restore backups containing such files or directories under NetWare.

There are three files that are intentionally not backed up under the NetWare environment. They are NET\$SPL.QUE, NET\$MESSG.SYS and DIRSTAMP.SYS. These are temporary files that do not need to be backed up.

When the Supervisor adds a user to the system, NetWare assigns the user an ID number. The files and directories subsequently created by the user are assigned to their number. However, each user may be assigned a different ID number in other NetWare systems. Therefore, when attempting to restore files to a different file server, SY-TOS will prompt you if the user ID number is not defined in the system to which the files are being restored. If you choose to continue with the restore operation, SY-TOS will assign the files to the group EVERYONE with maximum access rights. You may then change each file's access rights if necessary.

SPECIAL NOTES

- In order to back up the user and group security information recorded in the \SYSTEMNET\$BIND.SYS and \SYSTEMNET\$BVAL.SYS files, you must log in to the network as Supervisor or you must have Supervisor rights. It is important that these files are backed up in the event that a full system restore is required. If these files are not on the backup tape, all security information would have to be recreated.
- The Backup List and Selected commands are designed to back up files only. Therefore, these commands will not back up an empty directory if it is at the bottom of a tree structure. (If its parent directory is also empty, it will not be backed up either.) If you wish to include these types of directories so that their trustee rights and other information are preserved, you must create a file (even if it is 0 bytes in size) in the last subdirectory of this particular tree structure.
- When restoring a complete system, we recommend you follow these steps. Make sure that the hard disk is Novell compatible and then restore *only* the \SYSTEM and \PUBLIC directories from tape using the appropriate command: Restore Selected or Restore List. Use the Set Select Include command to specify these directories when using the Restore Selected command. This process allows NetWare to distinguish all files and directory security correctly.

Reboot the file server to initialize the new system files you have just restored. Then, in SY-TOS, exclude the \SYSTEM and \PUBLIC directories using the Set Select Exclude command and proceed to restore the remaining files using the Restore Selected command.

- Because NetWare remains in memory during Restore operations, we strongly recommend that you reboot the system after executing a Restore command. This will ensure that NetWare is updated with respect to the information on disk that has been restored (such as changed "rights"); thereby, preventing possible data corruption or loss.
- To restore user and group information, restore the \SYSTEM directory.

To restore directory trustee rights and directory information (for example, creation date, maximum rights

mask, owner, trustees), you must first delete the directory and then restore it from tape. This will allow you to restore this information *as it exists on tape*. If you do not remove the directory before restoring, the information and trustee rights will remain as they appear on disk; thereby allowing you to preserve any trustee rights or directory information that has been modified since the last backup.

To restore file attributes (for example, shareable/non-shareable, read-write/read-only, hidden, system) as they appear on tape, without changing directory information or trustee rights, simply restore the desired files. Do not delete the files or directory before restoring.

Appendix C. Problem Solving

Sytron's Software Support Services

To qualify, at no additional charge, for membership to Sytron's full Software Support Services, please complete the Software Support Membership Form included in the SY-TOS package within thirty (30) days of purchase.

Please take the time to complete this form as it will provide us with information to help improve our products to better meet your needs.

Upon Sytron's receipt of this completed form, Sytron shall promptly send you a kit including a member access telephone number allowing you direct entry into Sytron's Software Support Services. You shall also be entitled to advance notices on product updates and enhancements.

Once you have received your member access telephone number, record the telephone number in the space provided below for convenient reference:

In the event that you need assistance from Sytron's Software Support Staff, please be prepared to provide the following information when you call. You may want to record the product information in the spaces provided below:

General Information:

Your name _____

Company name _____

Phone number _____

Software Registration Number _____

(located on bottom of Membership Form/License Agreement)

Product Code _____

(located on SY-TOS Distribution Diskette)

Tape system hardware manufacturer _____

Tape controller model number _____

Operating System version _____

Network Specific Information:

Network:	Type	_____
	Software Version	_____
File Server:	Disk Capacity	_____
	RAM	_____
Network Hardware		_____
Where is SY-TOS installed?		_____

Sytron will be unable to provide support to unregistered customers.

Problem Solving

The following sample cases list possible causes and suggested solutions for errors that may occur while executing SY-TOS. The list is separated alphabetically into general problems that you may encounter while running SY-TOS and those that may arise while operating SY-TOS under a network.

If you should encounter a problem, please read the following sections carefully before calling Sytron's Software Support Division.

General Problems/Solutions

- Problem:** SY-TOS backup, verify, and restore operations are slow to perform.
- Causes:** There is not enough system memory available, or not enough buffers have been allocated under DOS' CONFIG.SYS file.
- Solution:** For maximum performance, 640KB of conventional memory should be available upon execution of the SY-TOS program. Use the DOS command CHKDSK to view how much system memory is available for SY-TOS. Increase system memory (up to 640KB) or remove any overhead or "memory resident" programs that may be taking system memory away from SY-TOS.

To improve performance, you may also want to increase the number of buffers specified in the CONFIG.SYS file. (Create the CONFIG.SYS

file if it does not exist.) You may need to experiment with different values to determine the optimum number of buffers for your applications. Refer to your operating system reference manual for more information on the CONFIG.SYS file and the BUFFERS statement.

Problem: SY-TOS does not execute properly and returns to the DOS prompt after typing SYTOS and pressing <Enter>.

Causes: SY-TOS' configuration file is damaged or not installed properly.

Solution: Re-install SY-TOS using the ST-INSTAL utility.

Problem: SY-TOS appears to hang the system after attempting to copy information from disk to tape or from tape to disk.

Causes: The SY-TOS system configuration is not set properly to correspond to the tape controller board.

A conflict may be occurring with another option board installed in your system.

Solution: SY-TOS requires certain DMA and Interrupt settings to operate properly. Be sure that the settings (if any exist) on the tape controller board correspond to the hardware settings in the ST-CONFIG utility. In some instances, other option boards installed in your system may conflict with the tape controller board (for example, a network board or a mouse). Check the configuration of the option boards that are installed and make sure they do not conflict with the settings used by the tape controller board.

Choose alternative settings that do not conflict with those of another board installed in your system. You will then need to use the Configure DMA and Configure Interrupt commands in the ST-CONFIG utility to change these values to correspond to the settings on

the tape controller board. However, if you are using a computer with Micro Channel Architecture (for example, a PS/2 Model 50), the DMA and Interrupt values must be changed through your system's configuration utility.

Problem: SY-TOS reports "DATA ERROR ON TAPE" or "INVALID TAPE IDENTIFICATION LABEL."

Causes: The tape being used may be damaged.

The hardware settings in the ST-CONFIG utility do not correspond with the settings of the tape controller board.

The controller board may not be seated properly.

Solution: Try using another tape.

Be sure that the settings (if any exist) on the tape controller board correspond to the hardware settings in the ST-CONFIG utility. However, if you are using a computer with Micro Channel Architecture (for example, PS/2 Model 50), use your system's configuration utility to check that the hardware settings do not conflict with the settings of another board.

Reseat the controller board.

Problem: SY-TOS reports "ERROR READING FILE <FILENAME.EXT>."

Causes: There is an error on the disk, therefore, the file requested by SY-TOS is unable to be read successfully by DOS.

Solution: Back up all files on the disk and verify the backup. If necessary, exclude the file that DOS cannot read or try to copy it to a floppy disk. Try to correct the situation so that DOS does not attempt to use this area again. This may be accomplished either by reformatting the hard disk or by using the appropriate disk management utilities to mark the area of the

disk that is bad. *Make sure you have a backup copy of the information on your disk before reformatting.* Restore all uncorrupted files using SY-TOS and copy or recreate the file from the floppy disk. If the damaged file is unrecoverable, you may be able to restore a previously backed up version of the file and rebuild it from that point.

Problem: SY-TOS reports "ERROR READING FILE HEADER. PRESS <ENTER> TO CONTINUE OR <ESC> TO QUIT."

Causes: SY-TOS has encountered an error reading a file on tape. This may occur either because there is an error on the tape or because there is a problem with the tape drive.

Solution: Press <Enter> to skip over this file and continue with the SY-TOS operation. Press <Esc> to stop the operation.

If you receive this message during a Verify operation, it is highly recommended that you repeat the backup and verify it again. If you receive this message during a Restore operation, you will be unable to recover this file if you press <Enter> to continue. Other files will be unaffected.

Problem: SY-TOS reports "INSUFFICIENT MEMORY ..."

Causes: There is not enough conventional memory available for SY-TOS to operate.

Solution: Use the DOS command CHKDSK to view how much system memory is available for SY-TOS. Increase system memory (up to 640KB) and/or remove any overhead or "memory resident" programs that may be taking away system memory from SY-TOS.

Problem: SY-TOS reports "INVALID TAPE FORMAT."

Causes: The tape you are using has not been created by SY-TOS or the drive is having problems reading the tape.

This may occur when transporting a tape to a lower capacity tape drive if the tape was created on a higher capacity drive.

The version of SY-TOS used to create this tape is a later version than that being used to read the tape. Because Sytron continues to enhance SY-TOS to be compatible with the latest advancements in personal computer technology and operating systems, previous versions of SY-TOS cannot access information on tapes created with the latest version of SY-TOS.

There may be a problem with the tape drive.

Problem: SY-TOS reports "NO TAPE CONTROLLER PRESENT".

Causes: The tape controller board may not be seated properly or may be damaged.

The Base Address may not be set correctly.

The tape system may not be powered.

The cable to the tape system may be damaged or not properly installed.

The tape controller board may not be physically present in the system. For example, this may occur in a network when the tape system is attached to a file server but SY-TOS is being executed from a workstation.

Solution: Check to see if the tape controller board installed in your system is seated properly or try a different slot in your system.

The Base Address in the ST-CONFIG utility should match the tape controller board Address setting. However, if you are using a computer with Micro Channel Architecture (for example, PS/2 Model 50), use your system's

configuration utility to check the Base Address setting does not conflict with the setting on another board.

Make sure the tape system is turned on.

If you have an external tape drive, check the cable to your tape system. Make sure it is connected properly, oriented correctly and that it is not damaged.

If you have an internal tape drive, make sure there is a power cable and an interface cable from the controller attached to your drive. Also make sure the cables are oriented correctly.

Problem: SY-TOS reports "REACHED END OF TAPE DOS DISK BEFORE REACHING END OF DISK DOS DISK" during a Verify operation.

Causes: More information exists on the hard disk than is present on the tape when verifying a DOS Disk backup.

The Backup Disk operation might have been stopped before the backup was completed, or the tape may be faulty.

The Library or Journal files may have been open while SY-TOS was backing up information. This could have resulted in a change in the size of either file from the time SY-TOS was backing up to the time it was verifying.

Solution: Close the Library and/or Journal and attempt the operation again or specify a different DOS disk for the Library and/or Journal files to reside on. Back up the disk again and then re-verify.

Problem: SY-TOS reports "TAPE SYSTEM IS NOT READY."

Causes: The tape system is not powered or is not receiving enough power.

The tape cartridge is not properly loaded.

The tape may have broken or may have spun off the reel.

Solution: Check to see if the tape system is turned on.
Make sure that the tape cartridge is properly placed in the drive.

Problem: SY-TOS reports "TROUBLE OPENING SOURCE FILE. INSTALLATION ABORTED!" when attempting to install SY-TOS.

Cause: SY-TOS cannot find all the files it needs to be installed. The diskette used to install SY-TOS may have been made using the DOS COPY command.

Solution: Re-install SY-TOS. If you are use a copy of the master diskette to install SY-TOS, make sure it is made using the DOS DISKCOPY command.

Problem: SY-TOS reports "TROUBLE WITH LANGUAGE FILE!"

Cause: SY-TOS is unable to find the files it needs in order to operate or those files are corrupted.

SY-TOS is not being run from the directory where it resides. SY-TOS cannot be run by issuing a DOS PATH statement in AUTOEXEC.BAT, from the command line or from another batch file; it must be executed from the directory where SY-TOS and its associated files are installed.

Solution: Execute SY-TOS from the directory where SY-TOS and all SY-TOS related files are installed.

If necessary, re-install SY-TOS using the ST-INSTAL utility.

Network Specific Problems/Solutions

Problem: SY-TOS reports "CREATE THE GROUP EVERYONE; ADD ALL USERS TO THAT GROUP; RESTART SY-TOS."

Causes: Under the Novell NetWare environment, this message is displayed when a user who is not logged in to the network tries to execute SY-TOS.

Solution: Log in to the network, preferably as SUPERVISOR.

If the user group EVERYONE doesn't exist, create it and add all users.

Problem: SY-TOS reports "ERROR READING DISK FAT."

Cause: Under the Novell NetWare environment, this message is displayed when the Configure Network command is set to No in the ST-CONFIG utility and a user attempts to access a network drive such as F. For example, if a user attempts to run SY-TOS with Configure Network set to No when he/she is currently on a network drive, or if he/she is currently on his local disk and attempts to change the current disk in SY-TOS to a network drive.

Solution: Set the Configure Network command to Yes in the ST-CONFIG utility and log in to the network.

Problem: SY-TOS reports "FATAL ERROR DURING INITIALIZATION".

Cause: This error may occur if there is not enough system memory.

Solution: Run SY-TOS as if it were on a standalone, non-network system. For example, do not boot the network up, set Configure Network to No

in ST-CONFIG and run SY-TOS. If the error does not appear, it is possible that the network is using too much memory and there is not enough left for SY-TOS to run. It is recommended that you install 640KB of memory.

Problem: SY-TOS reports "LIBRARY DISK IS NOT A VALID DISK".

Cause: May occur when executing SY-TOS on a workstation which does not have a hard disk and the default Library Disk (disk C) was not changed in ST-CONFIG.

Solution: Use the Options Library Disk command in ST-CONFIG to change the default disk for the Library to a disk which is available on the system or set the Options Library command to No in SY-TOS.

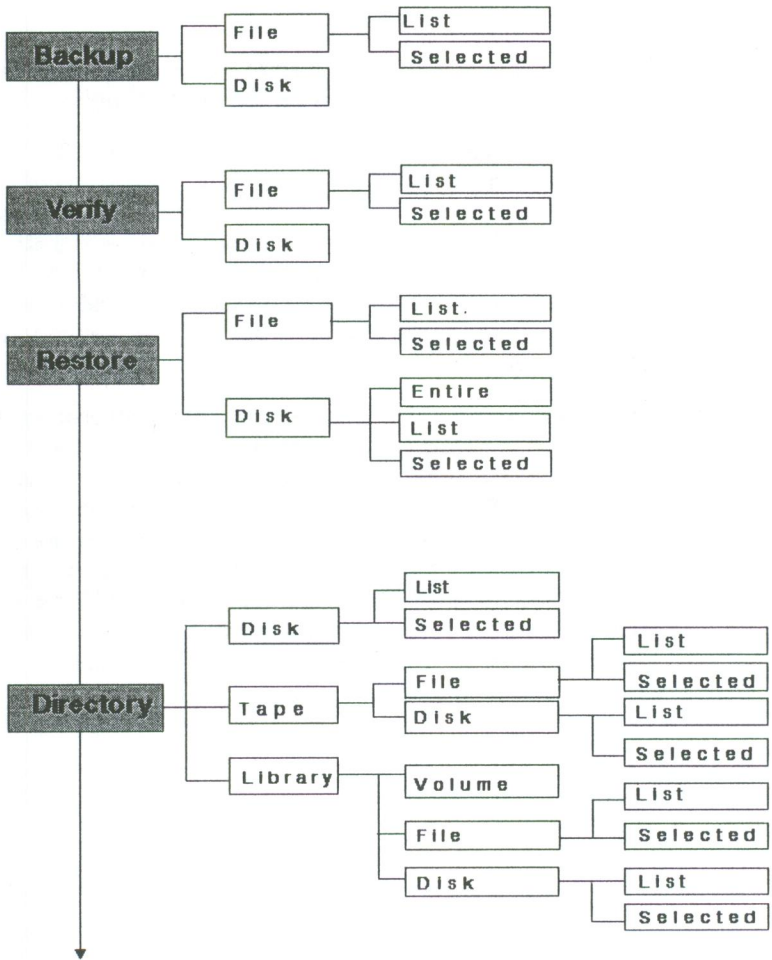
Appendix D. Finding Your Way around SY-TOS

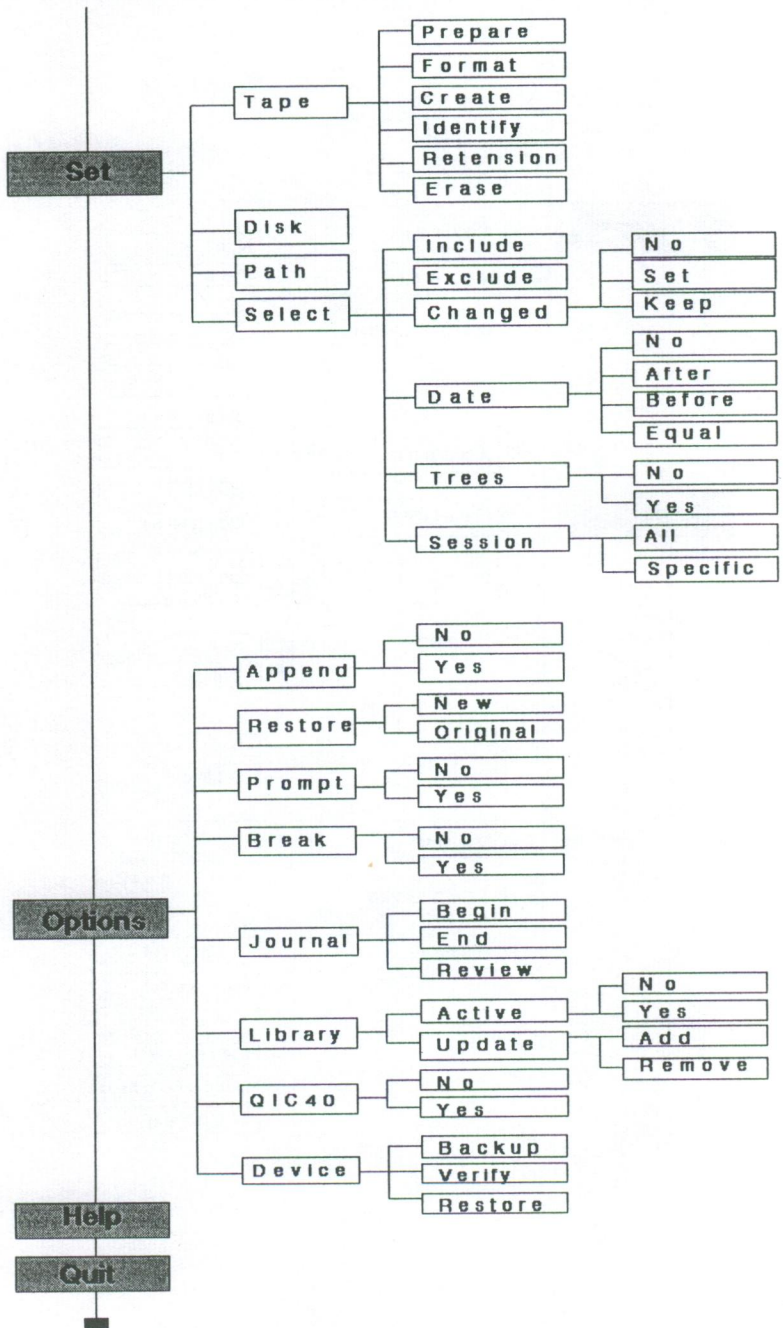
The following pages contain a map of the commands in both the Advanced menu system and the ST-CONFIG utility.

SY-TOS' commands are organized in a tree structure. The command bar at the top of the screen displays one level of commands at a time. When you select a command from the top level, SY-TOS displays the next level of related commands. Until you become familiar with SY-TOS' command tree structure, you may not always know which command to select. Use this appendix to quickly locate the path you need to take when selecting a command.

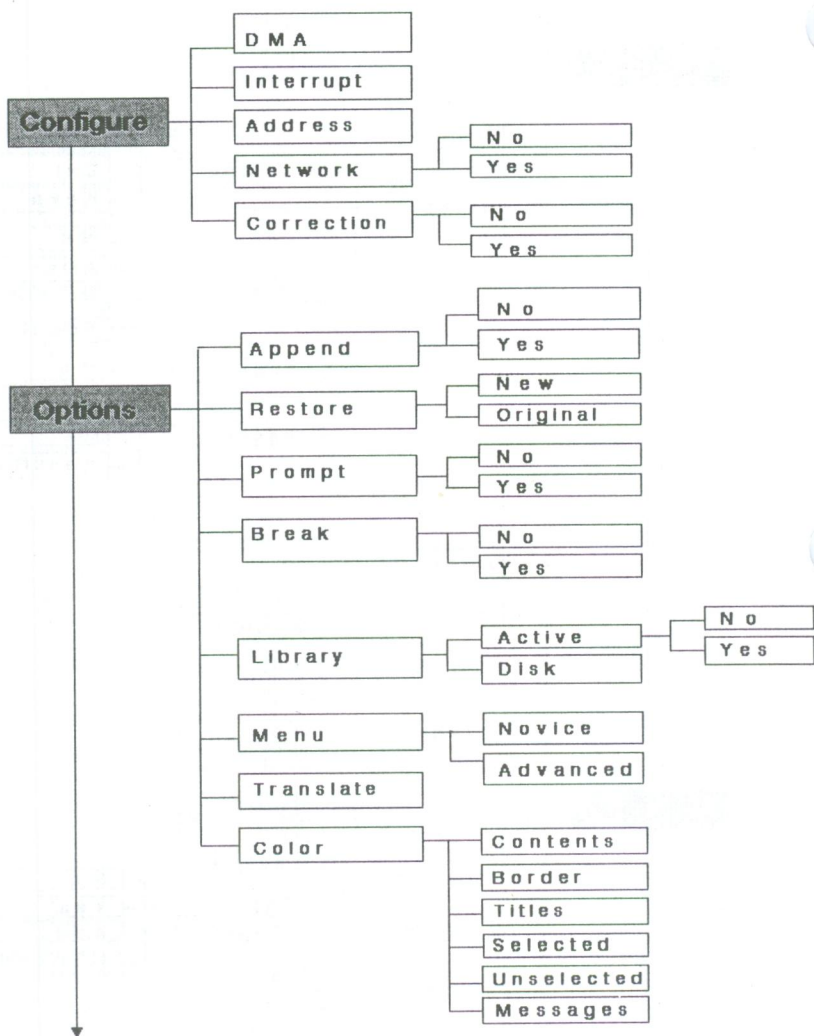
This appendix provides a complete list of SY-TOS commands. Please note that some of the commands in the Advanced menu system change or are removed from the command bar when operating SY-TOS under a network environment. See Appendix B for a list of these commands. Other commands may not appear depending on the type of tape system you are using or whether the normal DOS disk partition limit of 32MB has been exceeded using certain partitioning software. These exceptions are noted within the command descriptions in Chapter 5.

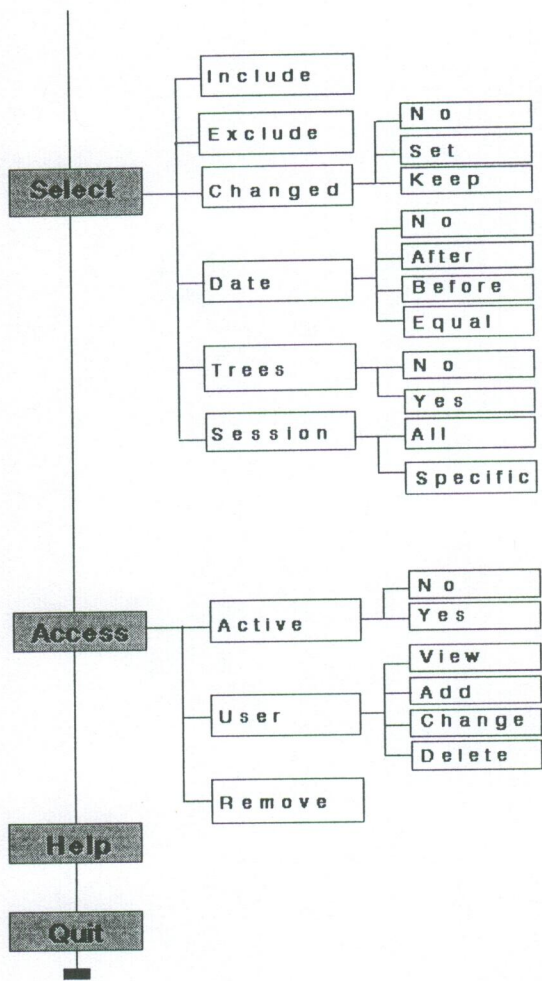
Advanced Menu Command Structure





ST-CONFIG Command Structure





GLOSSARY

@ file A text file containing names of files that SY-TOS will back up, verify and/or restore. The complete pathname of the file is preceded by an "@" symbol.

Backup The ability to store a copy of disk information on a tape. This tape can then be used to recover any information that may have been lost or damaged on the disk.

Batch File A user generated executable text file. This file has the ability to run specified programs which have been identified within this file. It is designated in DOS by its ".bat" file extension.

Buffers A term designating a portion of system memory that DOS sets up and uses as a temporary storage area for transported information.

Bulk Erase To erase data or other magnetic signals from a tape by generating a strong magnetic field.

Byte Is a unit of measure of storage capacity designated as one character of information.

Command Bar A horizontal list of commands or functions that appears at the top of the screen in the SY-TOS Advanced menu system and the SY-TOS utilities.

Command Line Operation A method of executing SY-TOS commands from the DOS command prompt.

Current Disk The disk displayed in the SY-TOS DISK window.

Device Referred to in SY-TOS as the entire physical fixed disk drive unit which is accessible by a drive letter. May also refer to a printer where you may choose to log information using SY-TOS' Journal feature.

Directory A logical subdivision of a disk. A directory is a special kind of file that DOS lets you create to organize the files stored on a disk, much like a cabinet that holds many file folders.

Directory Listing A sequential list of files from the current disk, tape or Library system.

Disk SY-TOS refers to a disk as any logical unit that the DOS operating system designates as one. Generally disks are classified by letters, where "A" and "B" refer to floppy disk drives, and "C" refers to a fixed disk drive. A DOS disk may take up all or part of a physical fixed disk unit. More than one DOS disk may reside on a physical fixed disk unit, each classified with its own unique disk letter.

DMA "Direct Memory Access", refers to the channel or roadway that information travels on between devices, such as from a disk system to a tape system. SY-TOS requires a DMA channel in order to transport information to and from a tape.

DOS Stands for Disk Operating System. It processes the commands that you and SY-TOS send to it. It also controls the various devices that your computer uses such as a disk drive.

DOS Disk All or part of a disk device that is designated as a logical DOS partition where information is kept under a format that is determined by the DOS operating system.

Erase To permanently remove information from a tape.

Error Correction Code (ECC) Is data that SY-TOS places on a tape during a Backup operation which increases the chances of recovering information from a damaged tape. You turn ECC on or off with the Configure Correction command in the ST-CONFIG utility. Each time you create a tape by assigning a volume name, SY-TOS checks the setting for the Configure Correction command.

Error Message Any message that appears on the third line of the screen in reverse video accompanied by a tone when SY-TOS detects a problem and cannot complete a task. Error messages may also appear in the MESSAGES window.

File A term identifying a unique collection of information stored on a disk or tape.

File Extension A suffix attached to a filename which consists of a period followed by up to three characters.

Filename The name you assign to a file. It can be up to eleven characters long (8 characters for the prefix and 3 characters for the extension, with a period separating the two), and can contain letters (A-Z), numbers (0-9) and the following special characters: \$ & # @ % ' ' () - { } _ and !

File Selection Criteria The criteria settings that SY-TOS reviews before backing up, verifying, restoring or listing files. You specify the file

selection criteria from the Select commands in the ST-CONFIG utility or from the Set Select commands in the Advanced menu system.

File Server The system disk which contains the networking software in a network environment.

Image Operations Refers to SY-TOS backup, verify, and restore operations that treat disk information in a non-file-oriented manner which allows faster performance of these operations. (For example, DOS Disk and Device operations.)

Interrupt A channel that SY-TOS uses to control the transport of information to and from a tape. SY-TOS uses an interrupt channel to allow simultaneous operation of the disk and tape systems during a backup, verify, or restore operation.

I/O Base Address A starting location within your computer system's allowable hardware Input/Output ports that is used by SY-TOS to communicate with the tape system.

Journal A file containing the information that SY-TOS displays in the MESSAGES window. You may keep this information within a disk file or send it to a printer.

Kilobytes Is a unit of measure of storage capacity where 1 kilobyte is equal to 1,024 bytes. Kilobyte is abbreviated "KB".

Library System An automatic logging system which keeps track of all tape volumes and their contents created with SY-TOS.

Megabyte Is a unit of measure of storage capacity where 1 megabyte is equal to 1,038,576 bytes. Megabyte is abbreviated "MB".

Modified File A disk file that has been changed or altered since the last time it was backed up.

Non-DOS Partition An area on a disk device that is designated as a logical disk according to another operating system's standards apart from DOS.

Partition A division of the computer's fixed disk. Each partition may contain only one operating system.

Pathnames A path or route that is specified to locate particular files within a directory (if present) on a disk or tape.

Prompt A SY-TOS message that requires you to type information such as a filename before SY-TOS executes the command. The STATUS indicator changes to INPUT to notify you that SY-TOS is waiting for information.

Restore A SY-TOS procedure for copying information from a tape to a disk.

Root Directory Considered as the primary directory having no parent directory under a DOS disk.

Sequence A number referring to a specific occurrence of a disk or device backup recorded on tape.

Session A number referring to a specific file-by-file backup recorded on a tape.

Subdirectory A subdivision of the root directory or another subdirectory.

Switches A sequence of SY-TOS command codes that SY-TOS will translate into its respected commands during its operation from the DOS command prompt.

Tape The medium on which SY-TOS stores information.

Tree Structures The organization of directories or commands into groups of related files or commands. Both DOS' file directories and SY-TOS' command structure utilize this type of organization.

Verify A SY-TOS procedure which assures that information placed onto a tape correctly matches the information on the disk from which it came.

Volume A tape cartridge with an identifying name that contains backed up information.

Wildcard A DOS option for specifying groups of files by using the "*" and "?" characters as substitutes for filename characters.

Workstation User systems in a network environment which have access to the network file server.

Index

Special Characters

@file 4-20..., 5-4, 5-13, 5-20,
5-31..., 5-59, 5-60, 7-4...
3COM 3+ Network 1-2

A

Access commands 4-26...

- Active 4-27...
- Remove 4-34
- User 4-28...

access path 4-26

Active command

- Access 4-27...
- Options Library 4-12..., 5-71...

Add command

- Library 5-72
- User 4-29...

adding tapes 5-72

Address command 4-5...

Administrator, System 4-26...

admin.lbr file 4-28

Advanced menu system 3-1, 3-5...,
5-1...

- changing menus 4-14
- command bar 3-6...
- DISK window 3-7...
- error messages 3-7
- MESSAGES window 3-7

- screen display 3-6
- selecting a command 3-9...
- STATISTICS window 3-8...
- STATUS indicator 3-6
- TAPE window 3-8
- Advanced Netware 1-2, B-6
- After command 4-22, 5-62
- All command 4-24, 5-64
- Append command 1-7, 4-9...,
5-65...
- Backup Disk 5-9
- Backup File List 5-3...
- Backup File Selected 5-6...
- AT field 8-6
- automated backup strategy 2-10

B

background color 4-16...

backing up 5-2...

- device 5-75...
- disks 5-7...
- files 5-4...
- recommendations 2-5..., 2-7...

Backup commands 5-2...

- Device 2-4..., 5-75...
- Disk 2-4, 5-7...
- File List 2-3, 3-17, 5-3..., 7-4
- File Selected 2-3..., 4-18, 5-6...
- Novice menu system 3-4

backup methods

- automated 2-10
- incremental 2-7...
- rotation 2-9...

- backup strategy 2-1...
- bar, command 3-6
- Base Address 4-6
- batch file, readme 1-3
- batch files 6-4..., 7-1...
- BATCH indicator 3-6, 7-5
- Before command 4-23, 5-62
- Begin command 5-68...
- BIOS image 5-75...
- Border command 4-15
- Break command 4-12, 5-67...
- BUFFERS=, DOS command 1-4
- bulk erase 1-9, 5-51

C

- CALENDAR window 8-10...
- Capacity field 3-8
- cartridge, mini data 1-9...
- CD, DOS command 1-5
- Change command 4-31...
- Changed command 4-21..., 5-61
- changed files 4-11, 4-21..., 5-61, 5-67
- changing
 - disks 5-56...
 - menus 4-14
 - paths 5-57...
 - screen colors 4-15...
 - security information 4-31...
- channel
 - DMA 4-4
 - Interrupt 4-5
- CHKDSK, DOS command 1-3, 5-2, 5-17, 5-75
- closing
 - Journal 5-70
 - Library 4-12..., 5-71
- Color command 4-15...
 - background 4-16...

- color palette 4-16...
- foreground 4-16...
- screen sections 4-15...
- COLOR PALETTE window 4-16
- COLOR SELECTED window 4-16
- command bar 3-6..., 4-2, 5-1, 8-4, 8-22
- command line operations 6-1...
- command structure
 - Advanced menu D-2...
 - ST-CONFIG utility D-4...
- command switches 6-1..., 6-11...
- commands, selecting
 - Advanced menu 3-9...
 - Novice 3-3...
 - ST-BATCH 7-3...
 - ST-CONFIG 4-2
 - SY-CLOCK 8-4...
- COMPAQ Personal Computers 1-1
- CONFIG.SYS file 1-4, 4-23, 5-62
- Configure commands 4-4...
 - Address 4-5...
 - Correction 4-7...
 - DMA command 4-4
 - Interrupt 4-6...
 - Network 4-6..., B-2
- Contents command 4-14
- Copy command 8-17...
- COPY, DOS command 1-2
- copying SY-TOS 1-2
- Correction command 4-7..., 5-5, 5-33
- Create command 5-53...
- creating a security system 4-26...
- creating batch files 6-4..., 7-1...
- Creation field 3-8
- criteria, file selection 3-13..., 4-19..., 5-6, 5-14, 5-18, 5-20, 5-22..., 5-24, 5-25, 5-30, 5-34..., 5-37, 5-28, 6-3..., 7-6...
- customizing SY-TOS 4-1...

D

- data, mini cartridge 1-5, 1-9..., 5-51...
- data security 2-6
- Date command 4-22..., 5-62
- DC600 series tapes 2-5
- DC2000 series tapes 2-5
- Delete command 4-32...
- Description field 8-10,
- Device commands 5-50...
 - Backup 2-4..., 5-75...
 - Restore 5-78...
 - Verify 5-77...
- directories
 - empty 5-3..., 5-6, B-5, B-7
 - tree structured 3-7, 3-12...
- Directory commands 5-40...
 - Disk 3-14, 4-18, 5-40...
 - Library 3-14, 4-18, 5-45...
 - Tape 3-14, 4-18, 5-42...
- disabling security 4-27...
- Disk commands
 - Backup 2-4, 5-7...
 - Directory 5-40..., 5-43..., 5-48...
 - Library 4-13..., 5-48...
 - Restore 5-26..., 5-28, 5-29..., 5-31..., 5-34..., 5-36...
 - Set 5-56...
 - Verify 5-15...
- DISKCOPY, DOS command 1-2
- Disk field 3-8
- disks
 - access to 4-30
 - backing up 5-7...
 - changing 5-56...
 - default 4-13...
 - displaying 5-40..., 5-41...
 - path 3-8, 4-26...
 - restoring 3-14, 5-26..., 5-29..., 5-34...
 - verifying 5-15...
 - window 3-7...
- DISK window 3-7...
- displaying files 5-40...

- displaying the Journal 5-70...
- DMA 4-4
- DOS commands
 - BUFFERS= 1-4
 - CD 1-5
 - CHKDSK 1-3, 5-2, 5-17, 5-75
 - COPY 1-2
 - DISKCOPY 1-2
 - ERASE 5-69
 - FILES= 1-4
- DOS disk 2-4
- DOS EDLIN program
 - Backup File List 5-4
 - batch files 6-4
 - Restore Disk List 5-31
 - Restore File List 5-20
 - Select Exclude 4-21, 5-60
 - Select Include 4-20..., 5-59
 - Verify File List 5-13
- DOS wildcards 3-11...

E

- Easy-List File Selection 3-17...
 - commands 3-17, 5-4, 5-13, 5-59...
 - keys to press 3-17...
- ECC *see* Correction command
- Edit command 8-15...
- EDLIN program, DOS
 - Backup File List 5-4
 - batch files 6-4
 - Restore Disk List 5-31
 - Restore File List 5-20
 - Select Exclude 4-21, 5-60
 - Select Include 4-20, 5-59
 - Verify File List 5-13
- ELS Level I network 1-2
- enabling security 4-27...
- End command 5-70

- entering SY-TOS command switches 6-1...
- Entire command 5-26...
- entries, SY-CLOCK 8-8...
- Equal command 4-22, 5-60
- erase, bulk 1-9, 5-51...
- Erase command 5-55...
- ERASE, DOS command 5-69
- erasing information 5-55...
- Error Correction Code *see* Correction command
- error messages 3-7, 8-5, C-2
- events, SY-CLOCK 8-8...
- EVENT window 8-5...
- example, DOS batch
 - @files 6-8...
 - all files 6-5...
 - disk 6-6
 - multiple disks 6-6...
 - multiple tapes 6-9...
- examples, restoring
 - Restore Disk Entire 5-28...
 - Restore Disk List 5-31...
 - Restore Disk Selected 5-36...
 - Restore File List 5-20...
 - Restore File Selected 5-23...
- examples, ST-BATCH
 - @files 7-13..., 7-16...
 - disk 7-10...
 - modified files 7-9...
 - multiple disks 7-12...
- Exclude command 3-17, 4-20..., 5-24..., 5-37..., 5-59...
- executing
 - batch files 6-4..., 7-4...
 - from DOS prompt 6-4...
 - ST-BATCH 7-2...
 - ST-CONFIG 4-2
 - SY-CLOCK 8-3, 8-21...
 - SY-TOS 1-5

F

- features, SY-TOS 3-1...
- fields
 - AT 8-6...
 - Capacity 3-8
 - Creation 3-8
 - Disk 3-7
 - DESCRIPTION 8-10
 - FILENAME 8-8...
 - In Use 3-8
 - Name 3-8
 - MODE 8-8
 - Path 3-8
 - SET FOR 8-6
 - Volume # 3-8
- file allocation table 1-3, 5-2
- File commands
 - Backup List 2-3, 3-17, 5-3...
 - Backup Selected 2-3..., 5-6...
 - Directory Library List 5-47
 - Directory Library Selected 5-47...
 - Directory Tape List 5-42
 - Directory Tape Selected 5-42...
 - Restore List 5-19...
 - Restore Selected 5-22...
 - Verify List 3-17, 5-12...
 - Verify Selected 5-14
- filenames
 - specifying 3-11..., 8-8...
 - wildcards 3-11...
- file selection criteria 3-13..., 4-19..., 5-2, 5-4..., 5-6, 5-14, 5-18..., 5-20, 5-22, 5-24..., 5-34, 5-37..., 6-3..., 7-6...
- files
 - admin.lbr 4-28
 - backing up 2-3..., 5-4...
 - batch 6-4..., 7-4...
 - changed 4-11, 4-21, 5-61, 5-67
 - CONFIG.SYS 1-4, 4-23, 5-62
 - displaying 5-40...
 - overwriting 4-11, 5-5, 5-7..., 5-67

- program 5-17, B-6...
- readme.bat 1-3
- read-only 4-11, 5-67...
- restoring 5-19..., 5-29...
- security 4-26
- selecting 3-13..., 4-18..., 5-6, 5-14, 5-57...
- system 4-11, 5-17, 5-67..., B-7
- SYTOS.LOG 5-69
- verifying 5-12...

FILES=, DOS command 1-4

floppy-interface tape system 2-5

foreground color 4-16...

format

- command switches 6-1..., 6-11...
- date 4-23, 5-62

Format command 5-52

function keys

- Help 3-10, 4-35, 5-80
- Novice menu 3-4...

H

hardware 1-1

Help command

- Advanced 5-80
- overview 3-10...
- sample session 1-8...
- ST-BATCH 7-1
- ST-CONFIG 4-35
- SY-CLOCK 8-20...

HELP indicator 3-6, 4-3, 8-4

I

IBM PC LAN 1-2

IBM Personal Computers 1-1

Identify command 5-55

Include command 3-17, 4-19..., 5-24..., 5-37..., 5-39, 5-58, 7-4...

incremental backups 2-7...

indicator

- BATCH 3-6, 7-5
- HELP 3-6, 4-3, 8-4
- INPUT 3-3, 3-6, 4-3, 8-4
- READY 1-11, 3-3, 3-6, 4-2, 8-4
- WAIT 1-11, 3-3, 3-6, 8-4

initializing tapes 5-53...

INPUT indicator 1-11, 3-3, 3-6, 4-3, 8-4

Install command 8-19...

installing

- SY-CLOCK 8-1..., 8-22
- SY-TOS 1-2...

Interrupt command 4-6...

In Use field 3-8

I/O Base Address 4-6

J

Journal command 5-68..., 7-4, 7-11

K

Keep command 4-22, 5-61

L

- labeling tapes 2-6...
- LANGUAGE window 4-15
- Library commands
 - Active 4-12..., 5-71...
 - admin.lbr file 4-28
 - default disk 4-13...
 - Disk 4-13...
 - Disk List 5-48...
 - Disk Selected 5-49... file 4-28, 4-30...
 - File List 5-47
 - File Selected 5-47...
 - opening and closing 4-12..., 5-71...
 - security system 4-22, 4-24, 4-26, 4-28
 - Update Add 5-72
 - Update Remove 5-72
 - Volume 5-46
- List commands
 - Backup File 2-3, 5-3...
 - Directory Disk 5-40
 - Directory Library Disk 5-48...
 - Directory Library File 5-47
 - Directory Tape Disk 5-43...
 - Directory Tape File 5-42
 - Restore Disk 5-29...
 - Restore File 5-19...
 - Verify File 3-17, 5-12...
- logging, system 5-68...

M

- Menu command 4-14
- messages, error 3-7, 8-4, C-2
- Messages command 4-16

- MESSAGES window 1-6, 3-3, 3-7
- methods, backup 2-2...
- Micro Channel architecture 4-4...
- mini data cartridge tape systems 1-5, 1-9..., 5-51...
- MODE field 8-8
- modified files 4-21..., 5-61
- moving around calendar 8-11...
- MS-DOS 1-1
- MS-NET 1-2

N

- Name field 3-8
- names
 - Journal 5-68..., 6-5..., 7-6..., 7-9...
 - Library 4-30...
 - path 4-29...
 - System Administrator 4-27
 - tape 1-10, 2-6..., 3-8, 5-53...
 - user 4-29...
 - volume 3-8, 5-53...
- Network 1-2, 4-6..., B-1...
 - Advanced Netware 1-2, B-6...
 - ELS Level I 1-2
 - MS-NET 1-2
 - PC LAN 1-2
 - SFT Levels I and II 1-2
 - TTS 1-2
- New command 4-10, 5-66...
- new pathname 5-18...
 - examples 5-21, 5-24..., 5-33..., 5-38...
 - Options Restore 4-10..., 5-66
 - Restore 5-14...
- No command
 - Access Active 4-27
 - Append 4-10, 5-65...
 - Break 4-12, 5-67
 - Changed 4-22, 5-61

- Correction 4-7
- Date 4-22, 5-62
- Library Active 4-13, 5-71
- Network 4-6
- Prompt 4-11, 5-67
- Trees 4-23, 5-63
- Novell Netware 1-2, B-6
- Novice menu system 3-2...
 - changing menus 4-14
 - screen layout 3-3
 - selecting commands 3-3...

number

- sequence 5-3, 5-12, 5-15, 5-18, 5-27..., 5-31, 5-36
- session 4-24..., 5-3, 5-9, 5-13, 5-17..., 5-20

O

opening

- Journal 5-68...
- Library 4-12..., 5-71...

operating systems

- MS-DOS 1-1
- PC-DOS 1-1
- requirements 1-1...

Options commands 4-9..., 5-2..., 5-65...

- Advanced menu 5-65...
- Append 1-7, 4-9..., 5-2, 5-65...
- Break 1-7, 4-12, 5-67...
- Color 4-15...
- Device 5-75...
- Journal 5-68...
- Library 1-7, 4-12..., 5-71...
- Menu 4-14
- Prompt 1-7, 4-11, 5-67
- QIC40 5-74...
- Restore 1-7, 4-10..., 5-18, 5-66...
- ST-BATCH 7-6..., 7-9...

ST-CONFIG 4-9...

- Translate 4-14...

OPTIONS window 4-9...

- Original command 4-10, 5-18, 5-66
- original pathname
 - Options Restore 4-10, 5-66
 - Restore 5-18...
- overview, SY-TOS 3-1...
- overwriting files 4-11, 5-5, 5-7..., 5-67

P

palette, color 4-16...

partitioning software 5-75, 5-78..., D-1

password

- Backup commands 5-5, 5-7, 5-9
- command line operations 6-3...
- length 4-26, 4-29, 5-5, 5-7, 5-9, 5-54
- security system 4-26..., 4-29
- System Administrator 4-29
- tape 1-10..., 5-5, 5-7, 5-9, 5-54, 5-56

Path

- command 5-57...
- field 3-8
- security system 4-26, 4-28...

pathnames 3-13, 4-29...

- length 4-29..., 5-57

PC-DOS 1-1

PC-LAN 1-2

PC-NET 1-2

practice session 1-5...

Prepare command 1-9..., 5-51...

problem solving C-2...

program files 5-17, B-6...

Prompt command 1-7, 4-11, 5-67...

PS/2 computers 4-4..., B-2

Q

- QIC40 command 5-74...
- Quit command
 - Advanced menu 5-81
 - Novice menu 3-5
 - ST-BATCH utility 7-3
 - ST-CONFIG utility 4-36
 - SY-CLOCK utility 8-21

R

- readme.bat file 1-3
- read-only files 4-11, 5-67...
- READY indicator 1-11, 3-3, 3-6, 4-2, 8-4
- rebooting system 1-4, 5-26, 5-30, 5-35, B-7
- recording SY-TOS activities 5-68...
- redirecting disks 5-18..., 5-56
- Remove command
 - Access 4-34...
 - Options Library 5-72...
 - SY-CLOCK utility 8-17...
- removing
 - security 4-34
 - tapes 5-72...
 - user 4-32...
- requirements
 - hardware 1-1
 - software 1-1...
- Restore commands 5-17...
 - Device 5-78...
 - Disk Entire 5-26...
 - Disk List 5-29...
 - Disk Selected 3-14, 4-18, 5-34...
 - examples 5-20..., 5-23..., 5-28..., 5-31..., 5-36...

- File List 5-19...
- File Selected 4-18, 5-22...
- Options 1-7, 4-10..., 5-66...
- restoring subdirectories 5-22...
- Retention command 5-55
- Review command 5-70...
- reviewing the Journal 5-70...
- rewinding tapes 5-55
- root directory 3-12
- rotation backup 2-9...

S

- sample backups 2-7...
- sample session 1-5...
- saving information *see* Backup commands
- scheduling events 8-1..., 8-5..., 8-13...
- screen colors 4-15...
- screen sections
 - Advanced menu 3-6...
 - Color command 4-15...
 - Novice menu 3-2...
 - ST-BATCH 7-2
 - ST-CONFIG utility 4-2...
 - SY-CLOCK 8-4...
- security, data 2-6
- security system 4-26...
 - command switch format 6-3
 - creating 4-27...
 - deleting 4-34...
 - disabling 4-27...
 - enabling 4-27...
 - file 4-26
 - ST-BATCH 7-5
- Select commands 1-8..., 3-13..., 4-18..., 5-57...
 - backing up files 5-6...
 - Changed 4-21..., 5-61...

- Date 4-22..., 5-62...
- displaying files 5-41..., 5-44..., 5-47..., 5-49...
- Exclude 4-20..., 5-59...
- Include 4-19..., 5-58...
- restoring files 5-18, 5-23
- Session 4-24..., 5-63...
- Trees 4-23..., 5-63
- verifying files 5-14...
- SELECT window 4-19...
 - screen display 4-19
 - ST-BATCH 7-2
- Selected commands
 - Backup File 2-3..., 3-14, 4-18, 5-6...
 - Directory Disk 3-14, 4-18, 5-41...
 - Directory Library Disk 3-14, 4-18, 5-49...
 - Directory Library File 3-14, 4-18, 5-47...
 - Directory Tape Disk 3-14, 4-18, 5-44...
 - Directory Tape File 3-14, 4-18, 5-42...
 - Options Color 4-15
 - Restore Disk 3-14, 4-18, 5-34...
 - Restore File 3-14, 4-18, 5-17, 5-22...
 - Verify File 3-14, 4-18, 5-14
- selecting commands
 - Advanced menu 3-9...
 - Novice 3-3...
 - short cut 3-10
 - SY-CLOCK 8-4
- selecting files 3-13...
- selecting languages 4-14...
- selection cursor 3-6, 8-4
- sequence numbers
 - backing up disks 5-3
 - restoring disks 5-18, 5-27, 5-31, 5-36
 - verifying disks 5-10, 5-12
- Session command 4-24..., 5-63...
- session numbers
 - backing up files 5-3
 - restoring files 5-17..., 5-23
 - verifying 5-12, 5-15
- Set command in SY-CLOCK 8-13...
- Set commands 1-7, 5-51...
 - Disk 5-56...
 - Path 5-57
 - Select 1-7, 5-57...
 - Tape 5-51...
- SET FOR field 8-6...
- setting SY-CLOCK 8-13...
- short cut to command selection 3-10
- software
 - executing 1-5
 - installing 1-2...
 - requirements 1-1...
- Software Support Services C-1
- Specific command 4-24, 5-64
- specifying default disks 4-13
- specifying filenames 3-11...
- starting the Journal 5-68...
- STATISTICS window 1-8, 3-3, 3-6, 3-8...
- STATUS indicator 3-6
- ST-BATCH utility 7-1...
 - examples 7-8...
 - sample file 7-5...
- ST-CONFIG utility 4-1...
 - screen display 4-2
- ST-INSTAL utility 1-2...
- STLIB directory 4-13, 4-31, 5-71
- stopping the Journal 5-70
- strategy, backup 2-1...
- streaming tape systems 2-5
- subdirectories 3-12..., 4-23, 5-63
- switches, command 6-1...
- switching
 - current disk 5-56...
 - paths 5-57
- SY-CLOCK utility 8-1...
 - CALENDAR window 8-10...
 - command bar 8-4
 - commands 8-13...
 - error messages 8-5
 - EVENT window 8-5
 - executing 8-3
 - installing 8-1..., 8-22
 - screen display 8-4...

- selecting a command 8-4...
- STATUS indicator 8-4
- System Administrator 4-26...
- SYSTEM CONFIGURATION window 4-4...
- system files 4-11, 5-17, 5-67..., B-6...
- SY-TOS
 - customizing 4-1...
 - executing 1-5
 - features 3-1...
 - installing 1-2...
- SYTOS.LOG file 5-68

T

- taking care of tapes A-1
- Tape commands
 - Create 5-53...
 - Directory 5-42...
 - Erase 5-55...
 - Format 5-52
 - Identify 5-55
 - Prepare 5-51...
 - Retention 5-55
- tape name 1-10, 2-6..., 3-8, 5-53...
- tape systems 2-5...
- TAPE window 1-6, 3-4, 3-8
- tapes, taking care of A-1
- time, setting 8-6..., 8-13...
- Titles command 4-15
- Translate command 4-14...
- tree structured directories 3-7, 3-12...
- tree structures, commands D-1
- Trees command 4-23..., 5-63
- turning off security 4-27.
- turning on security 4-27...

U

- Uninstall command 8-17, 8-22
- Unselected command 4-16
- Update commands
 - Add 5-72
 - Remove 5-72...
- update file status 4-21, 5-61
- User commands
 - Add 4-29...
 - Change 4-31...
 - Delete 4-32...
 - View 4-28...
- USER INFORMATION window 4-28...
- username
 - command line operation 6-3
 - length 4-27, 4-29
 - security system 4-26, 4-29, 4-31, 4-33
- utility
 - ST-BATCH 7-1...
 - ST-CONFIG 4-1...
 - ST-INSTAL 1-2...
 - SY-CLOCK 8-1...

V

- Verify commands 5-9...
 - Device 5-77...
 - Disk 5-15...
 - File List 3-17, 5-12...
 - File Selected 3-14, 4-18, 5-14
 - Novice menu system 3-4
 - sample session 1-11
- View command
 - Access User 4-28..
 - SY-CLOCK 8-18

viewing the Journal 5-70...
volume

Directory Library 5-46
field 3-8
name 1-10, 2-6..., 3-8, 5-5..., 5-7,
5-9, 5-53...
number 2-5..., 3-8
Options Library 4-12..., 5-71...
types 2-5

X

XENIX 1-2

Y

W

WAIT indicator 1-11, 3-3, 3-6, 8-4
wake up time 8-5...
wildcards 3-11...
disk path 4-30
windows
CALENDAR 8-10...
COLOR PALETTE 4-16
COLOR SELECTED 4-16
DISK 3-7...
EVENT 8-5...
LANGUAGE 4-15
MESSAGES 1-6, 3-3, 3-7
OPTIONS 4-9...
SELECT 4-19...
STATISTICS 1-6, 3-4, 3-8...
SYSTEM CONFIGURATION
4-4...
TAPE 1-6, 3-4, 3-8
USER INFORMATION 4-28...

Yes command

Access Active 4-27
Append 4-10, 5-66
Break 4-12, 5-68
Library Active 4-13, 5-71
Prompt 4-11, 5-67
Trees 4-24, 5-63

© Copyright 1989 Sytron Corporation
All rights reserved.

Sytron Corporation
117 Flanders Road
P.O. Box 5025
Westboro, MA 01581-5025

Printed in the
United States of America

90123



© Copyright 1989 Sytron Corporation
All rights reserved.

Sytron Corporation
117 Flanders Road
P.O. Box 5025
Westboro, MA 01581-5025

Printed in the
United States of America

90123

SY-TOS[®]

Tape

TSED-300EVA-3#5

Operating

System

Sytron

© COPYRIGHT 1984, 1988 SYTRON CORP. ALL RIGHTS RESERVED

91255

SY-TOS[®]

TSED-300EVB-3#3

Tape

Operating

System

Sytron

© COPYRIGHT 1984, 1988 SYTRON CORP.
ALL RIGHTS RESERVED

91256

SY-TOS[®]

Tape

TSED-300EVA-3#5

*Operating
System*

Sytron

© COPYRIGHT 1984, 1988 SYTRON CORP. ALL RIGHTS RESERVED

91255

SY-TOS®

TS5D-300EVB-3#3

Tape

Operating

System

Sytron



© COPYRIGHT 1984, 1988 SYTRON CORP.
ALL RIGHTS RESERVED

91256