



**Burroughs**

**XE 500**  
**CENTIX™**  
**centrEASE™**

Operations  
Reference  
Manual

Relative To Release Level 6.0  
Priced Item  
December, 1986

Distribution Code SA  
Printed in U S America  
1207784



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## About This Manual

centrEASE is a software package that provides CENTIX system administrators with an easy-to-use, menu-driven facility for performing standard administrative tasks.

centrEASE serves as an interface between you and the CENTIX operating system. When you select an administrative task from a centrEASE menu, centrEASE automatically executes all of the CENTIX commands required to perform that task. By taking on many of the detailed commands you would otherwise have to execute, it simplifies many tasks.

### Purpose

This manual shows you how to perform administrative tasks using the centrEASE facility.

### Scope

This manual describes the centrEASE procedures that permit you to perform basic administrative functions without using the more complex procedures described in the *XE 500 CENTIX Administration Guide*.

### Audience

This manual is intended for system administrators.

Even if you have little CENTIX background, you should be able to execute any centrEASE function after reading the information contained under "Executing the Function." You are also encouraged to use the many Help screens throughout the centrEASE program.

If you have more experience with CENTIX you may find the material found under "Tasks Performed by centrEASE" and "Files Modified by centrEASE" useful. These subsections explain the CENTIX commands executed to carry out functions and list the affected files.

## Prerequisites

Before you use centrEASE, you should be familiar with operating a PT 1500 and have a rudimentary knowledge of the basic CENTIX commands and BTOS configuration files.

## How to Use This Manual

After you decide to perform a particular administrative task, check the table of contents and the section describing the organization of this reference manual and read the appropriate section.

## Organization

This manual contains the following sections:

Section 1 describes centrEASE and introduces many of its features and special functions. It explains how to invoke centrEASE and describes how to use the various menus, screens, forms, and special keys. It also describes how to exit centrEASE and how to recover an aborted session.

Section 2, Managing User Accounts, describes how to manage user accounts.

Section 3, Managing CENTIX File Systems, describes how to manage file systems.

Section 4, Issuing BTOS Commands Through CENTIX, describes how to issue BTOS commands through CENTIX.

Section 5, Reconfiguring the System, describes how to reconfigure your system.

Section 6, Installing CENTIX Products, describes how to install separately packaged CENTIX software products.

Section 7, *Printing Configuration Reports*, describes how to print system configuration reports.

Section 8, *Backing Up and Restoring Files*, describes how to back up and restore files.

Section 9, *Managing Log Files*, describes how to manage centrEASE log files.

Section 10, *Maintaining Other Products*, describes how to maintain other CENTIX software products.

Section 11, *Restoring System Files*, describes the procedure for restoring system files.

Section 12, *Designating a Printer*, explains how to specify your printer type when centrEASE prompts you for this information.

Section 13, *Running centrEASE from a non-PT 1500 Terminal*, explains how to define an RS-232-C (ASCII) terminal to centrEASE and how to map keys.

A glossary and an index follow Section 13.

## Conventions Used in This Manual

The following conventions are used throughout this manual:

- Commands in the text appear in **bold**.
- Variable file parameters appear in *italics*. A variable parameter may either be a numerical value (for example, *n* sectors) or a name (for example, a file name or a device name).

## **Related Product Information**

### *XE 500 CENTIX Administration Guide*

This guide describes how to administer the XE 500 CENTIX System without using the administrative facility, centrEASE.

### *XE 500 CENTIX Installation and Implementation Guide*

This guide describes how to install and implement the CENTIX operating system on the XE 500 System.

### *XE 500 CENTIX Programming Guide*

This guide describes CENTIX system level programming, programming support, and programming tools for programmers at all levels.

### *XE 500 CENTIX Operations Guide*

This guide describes how to operate the CENTIX system. The CENTIX text editors are also described in detail.

### *XE 500 CENTIX Operations Reference Manual*

This manual lists and describes all CENTIX shell commands, library functions, system calls, and special files.

### *XE 550 CENTIX Capabilities Overview*

This manual is a technical overview of the hardware and software on the XE 500 CENTIX System.

### *XE 500 BTOS Administration Guide*

This guide describes administrative tasks for the XE 500 BTOS system, such as managing files, system security, archiving, and so on.

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## Overview

### What is centrEASE?

Installed with the CENTIX software, the centrEASE facility lets you perform standard administrative tasks without any knowledge of CENTIX shell commands.

CENTIX is a powerful operating system that is based upon an operating system called UNIX System V, which was developed by Bell Laboratories. For some computer operators, CENTIX has two drawbacks.

First, because CENTIX was designed for experienced computer users, the shell commands can be difficult for someone with limited computer experience to learn and to use effectively.

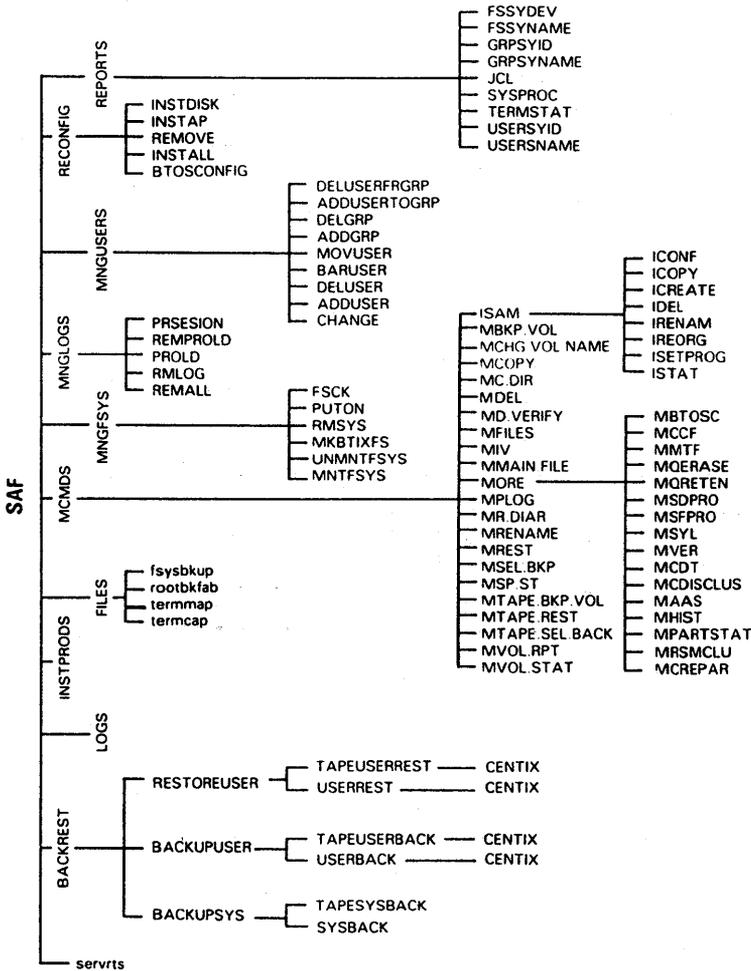
Second, CENTIX does not usually provide an acknowledgment indicating that a command has executed successfully or as you had intended. Therefore, there may not be a caution sign displayed on the screen if you are about to execute a command that has potentially destructive consequences to your work or file system.

The centrEASE facility overcomes these limitations. It handles many of the details that you would otherwise have to remember; you can perform administrative tasks with great accuracy and, in many instances, with far greater speed than might otherwise be possible. Also, centrEASE contains many safeguards which protect you from unknowingly executing a command that could destroy your files.

### Directory Hierarchy

CENTIX keeps track of all files in the system by grouping related sets of files into areas called directories. Starting with the first directory, called the root directory, the organization of the subsequent directories resembles a tree structure. Under the root directory are grouped subdirectories and files, and under those subdirectories are additional subdirectories and files, and so on. This organization leads to the file system structure shown in Figure 1-1.

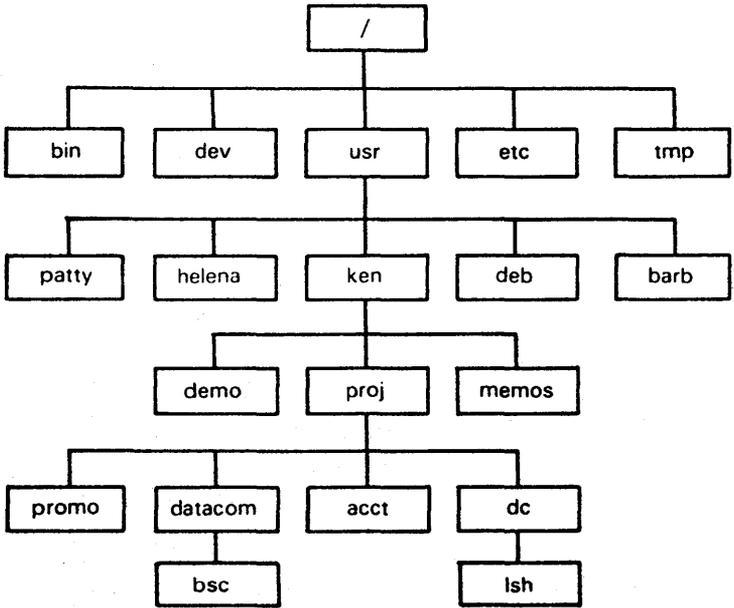
Figure 1-1 CENTIX File System Structure



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The directory hierarchy for centrEASE software is similarly structured. An example of the centrEASE directory hierarchy is shown in Figure 1-2. Note, however, that your centrEASE software may be different from the one shown here, depending on the release level of your system software.

Figure 1-2 Sample centrEASE Directory Hierarchy



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## CENTIX and BTOS

The XE 500 CENTIX system actually uses two operating systems, CENTIX and a Burroughs workstation-based system called BTOS. While CENTIX runs on the Application Processor (AP) in the XE 500, BTOS runs on the other processors in the system. The BTOS-based processors support most of the major internal services, such as disk access, terminal I/O, printer spooler, data comm I/O, and so on.

centrEASE does not require you to know anything about BTOS to perform administrative functions successfully, but having some general background may be helpful. BTOS comes into play in system configuration, file system management, and in MCommands issued through CENTIX.

Both CENTIX and BTOS contain a set of system files necessary to boot the system. These system files describe the system hardware and, together with the hardware, they determine the system configuration at boot time.

When you create a file system, CENTIX creates a partition on a disk controlled by BTOS. The BTOS partition acts as a warehouse for the data contained in all the files of any particular file system. Each CENTIX file is identified by its unique path name.

The file system is a BTOS file until you bridge the two operating systems by issuing the **mount** command through CENTIX. The **mount** command provides a link to the partition and allows the data held in that particular file system to be accessed.

## Installing centrEASE

As a product included in the standard CENTIX software release, centrEASE is installed during the initial software installation procedure. For detailed installation procedures, refer to the *XE 500 CENTIX Software Installation Guide*.

Note that centrEASE is loaded in the root file system under the /SAF directory. The run file "saf" (which starts a centrEASE session) is installed under the /etc directory. Therefore, its full path name is /etc/saf.

---

## Invoking centrEASE

*Note: centrEASE is usually run on a PT 1500 terminal. If you are using an ASCII terminal, the GO, NEXT, and CANCEL keys may not be literally designated. Refer to Section 13 for more information.*

To invoke centrEASE after the initial system boot, follow these steps:

- 1 Enter **root** when you receive a login prompt, and then press the RETURN key. "Root" is synonymous with the system administrator and may be password protected.

*Note: Enter all input exactly as shown because CENTIX differentiates between uppercase and lowercase letters.*

- 2 When you receive the superuser shell prompt (#), enter **saf** (the acronym for System Administrative Facility) and press the RETURN key.
- 3 The centrEASE main menu shown in Figure 1-3 appears.

Figure 1-3 centREASE Main Menu

centREASE - B6.00

centREASE -- SYSTEM ADMINISTRATOR FACILITY  
=====

- 1) Manage User Accounts
- 2) Manage CENTIX File Systems
- 3) Issue BTOS Commands Through CENTIX
- 4) Reconfigure the System
- 5) Install CENTIX Products
- 6) Print Configuration Reports
- 7) Backup and Restore
- 8) Manage Log Files
- 9) Maintain Other Products
- 10) EXIT

For assistance in providing screen responses, press HELP.  
Enter a number and press GO to transmit.

## System Protections and Documentation

When a centrEASE session is initiated, four files are automatically created. These files act to protect, aid, and document each centrEASE session. They are the lock file, the temporary directory, the log file, and the cleanup file.

### Lock File

The lock file is an empty file that is automatically created when each centrEASE session is initiated. This file is a marker file and ensures that only one person at a time is using centrEASE. If this file already exists before you log on, centrEASE does not permit a new session to be initiated. The lock file is removed after a session is successfully completed. (The lock file path name is /SAF/LCKFILE.)

### Temporary Directory

The temporary directory is automatically created when a centrEASE session is initiated. This directory acts as a temporary location for storing files that require modification before certain functions are executed. After the successful completion of each session, the temporary directory is removed. (The temporary directory's path name is /SAF/tempdrnn, where *nn* represents the session's process identification number.)

The following is an example of a temporary directory path name:

```
/SAF/tempdr1587
```

### Log File

A log file is automatically created when a centrEASE session is initiated. centrEASE copies a report of all the activity during the session into this log file. These files are permanently stored and record your administrative activity. (The log file directory is /SAF/LOGS.)

The following is an example of a log file name:

```
/SAF/LOGS/L8512190930
```

For further information about log files, see Section 9.

## Cleanup File

A cleanup file, /SAF/.cleanup, is also automatically created when a centrEASE session is initiated. This file contains the identification number of the process which invoked centrEASE and the date and time when it was invoked. The cleanup file is particularly useful when you are recovering from an aborted centrEASE session.

## Using centrEASE Menus and Forms

The interface to the centrEASE facility consists of menus and forms. You choose which task you wish to perform by selecting it from one of the menus. After you make a selection from a menu, centrEASE displays a series of forms. These forms prompt you to enter the information necessary to complete the task you have selected.

*Note: You can press the HELP key to obtain on-line information about the menu or form on which you are currently working.*

## Menus

The centrEASE main menu, shown in Figure 1-3, is an example of the kind of menu used throughout centrEASE. Like all of the menus, it displays a numbered list of selections. To choose one of the selections, type in the number of the selection you would like and press the GO key.

Menus have selections called Return and EXIT. Selecting the Return option causes the previous menu to be displayed. The main menu does not have a Return selection because there is no previous menu to which to return.

EXIT terminates your centrEASE session and returns you to the shell prompt. Select this option if you decide not to execute a particular administrative function, or when you want to terminate your session (that is, after you have already run a function).

## Forms

Once you have made a selection from a menu, a series of forms follow. The centrEASE facility contains three distinct types of forms: a field form, a variable length form, and a value form. Because each displays its own characteristics, you should be able to differentiate between them.

### Field Form

A field form contains a series of unprotected fields into which you must enter data. Figure 1-4 is an example of a field form used in centrEASE. An unprotected field appears on your screen as a highlighted block. The length of the highlighted block indicates the maximum number of characters that may be entered for a given field. Enter only one response for each field.

Figure 1-4 **Field Form**

```
Issue BTOS Commands                                >>> MRESTORE <<<
=====

[Archive file]
[File list from]
[File list to]
[Overwrite OK?]
[Confirm each?]
[Sequence number]
[Merge with existing file?]
[List files only?]
[Log file]
```

## Variable Length Form

A variable length form displays a list of options that is dynamically created at run time. For example, this form might contain a list of existing file systems or a list of current user names. The contents of these lists might change from day to day and may be displayed on a number of screens.

Figure 1-5 illustrates this type of form. Enter only one response for the form.

Figure 1-5 Variable Length Form

```
Manage User Accounts                >>> ADD USER TO A GROUP<<<
*****

User Name
(14) debbie
(15) ted
(16) dan
(17) michele
(18) john
(19) gary
(20) helena

Enter the number of the User you wish to add:
(Press the "NEXT" key to view more choices)
```

## Value Form

A value form appears as a screen containing a numbered list of options. You can tell the difference between a value form and a menu because the value form has no return or Exit selections. In many cases, a value form asks you to make a "Yes" or "No" choice by entering a 1 or a 2. Enter only one response for the form. Figure 1-6 illustrates this type of form.

Figure 1-6 Value Form

```
TAPE or QIC Backup and Restore                >>> RESTORE USER <<<

                                OVERWRITE or NO OVERWRITE?

Since NEWER versions of some backed-up files may currently
exist on disk:
Choice 1 WILL replace CURRENT (disk) versions with OLDER
versions.
Choice 2 will NOT restore OLDER (backed-up) versions if
they CURRENTLY exist.
=====
NOTE:
IF THIS IS A MULTIPLE TAPE RESTORE, CHECK THAT TAPE #1
IS IN DRIVE.
=====

                                CHOICES

1) OVERWRITE current versions with backed-up versions
2) DO NOT OVERWRITE any current versions

Enter a number and press GO to transmit:
```

## **Exiting a Form**

To exit any type of form, press either the CANCEL or GO key. Press the CANCEL key to abort the function or current step, discarding the information you have entered on the form; press the GO key to continue to the next step of the function and to record the information you entered on the form.

## **Fields**

The unprotected fields which appear on the forms contain either a default value or are blank. Certain blank fields require information, while in others, the information is optional. Each of these situations requires a particular treatment.

### **Entering Data in Fields with Default Values**

Some of the fields which appear on the forms have appropriate default values already supplied. Default values are provided when the same information can be correctly applied for the majority of users. When the cursor is positioned on a field containing a default value, the information appears in reverse video.

If the default value is correct for your application, move on to the next field by pressing the RETURN key. After you have completed the form, the default information is automatically entered when you press the GO key.

To supply your own information, type it over the default value. However, once you have typed over it, you can retrieve the default value only by pressing the CANCEL key and starting over again from the previous menu.

### **Entering Data in Blank Fields**

If no default value is supplied, the field appears blank. To enter the appropriate information, type it into the blank field.

Note that with some fields the information is optional. This kind of field may be left blank. An optional field is always enclosed by square brackets. Press the RETURN key to move the cursor to the next field.

If a field contains a value that you want to make null, position the cursor at the beginning of the field and press the space bar once. Then press the BACKSPACE key once.

When all the fields on a form are completed, press the GO key to move to the next form or to initiate processing. If you have not provided information in a field where it is required, centrEASE displays a short, highlighted error message at the bottom of the screen. The cursor moves to the first field that requires information.

After entering a value in the required field, you can either press the RETURN key to move to other fields or press the GO key to reinitiate processing.

If you have inadvertently supplied information that might be incorrect or harmful to system performance, centrEASE displays an error message when you press the GO key. The error message, displayed at the bottom of the screen, indicates in which field the erroneous information appears. The cursor appears on that field.

Certain errors are detected before you press the GO key. For example, if you are prompted to enter "1" or "2" and you enter "0," and press the RETURN key, the error is immediately detected.

After you have received an error message, you may press the CANCEL key to cancel the function. You may also press the HELP key to obtain a description of the information that should be supplied for that field.

After correcting the error, press the GO key again.

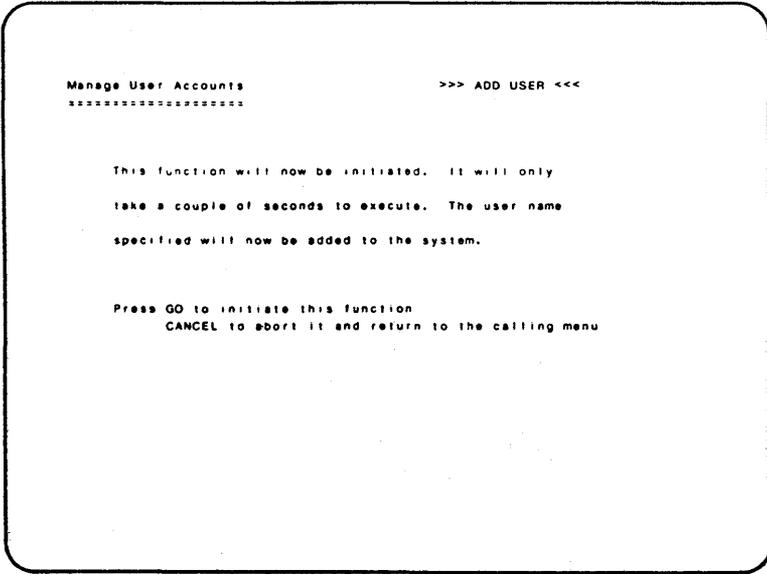
***Note:** If you enter incorrect information into a field and do not notice it until you have already moved to another field, keep pressing the RETURN key until the cursor cycles through the fields on the screen and returns to the field containing the error. Then you can make your correction.*

## **Tell Screen**

The Tell screen is a screen of text informing you that a particular function is about to begin. It serves as the boundary between data entry on the forms and the actual execution of the function. At this point you can press the CANCEL key to abort a function or step or press the GO key to execute the function.

Tell screens may also give information that can only be determined dynamically, such as the name of a new file, the number of disk cartridges needed for a backup, and so on. Tell screens also display error messages when an unusual error condition occurs. Figure 1-7 is an example of a Tell screen.

Figure 1-7 Tell Screen



## Help Screen

The Help screen provides you with further information about a particular screen or field. Pressing the HELP key calls up the Help screen that applies to the menu or field in which you are currently working. Use the HELP key whenever you are in doubt.

The help information for a particular field is sometimes longer than three lines. Press the NEXT key to scroll through the information.

Figure 1-8 shows the kind of information you might expect to find in a Help screen.

Figure 1-8 **Help Screen**

```
INSTALL A TERMINAL--modifies BTOS and CENTIX files
([sys]<sys>CpXX.cnf or [sys]<sys>TpXX.cnf, and /etc/inittabXX);
adjusts terminal TTY numbers in /etc/inittabXX and /etc/conrcXX
files; creates TTY node in /dev directory.

Caution:

You must make sure that there are no system
services running on the specified async port
before installing a terminal on it
```

## Using Special Key Functions

A few special keys on the PT 1500 keyboard provide certain functions that are necessary to operate the centrEASE facility. These keys are HELP, NEXT, RETURN, CANCEL, GO, and FINISH.

*Note: On an ASCII terminal these keys must first be defined. Refer to Section 13 for more information.*

### Getting Help

Press the HELP key for information about the menu or form on which you are currently working.

On menus and value forms, pressing the HELP key clears the screen and presents a full page of information about that menu, as shown in Figure 1-8. The information includes a brief description of each option on the menu. Pressing the NEXT key restores the menu or displays any additional information.

To get information about a particular field on a field form, move the cursor to the field in question and press the HELP key. Three lines of information are then displayed at the bottom of your screen. Remember that the information shown refers to the field on which the cursor rests.

To obtain help while on a variable length form, press HELP. Three lines of information about that form are displayed at the bottom of the screen.

### Scrolling on a Form or Help Screen

When a variable length form contains too many selections to fit onto a single screen, press the NEXT key to see the next screen of selections.

If the help information for a field is longer than three lines, use the NEXT key to scroll through the information.

## **Moving the Cursor to a Different Field**

To move the cursor from one field to the next on a field form, press the RETURN key. If you skip a field and wish to return to it, keep pressing the RETURN key until you reach the last field on the form. Press the RETURN key once more and the cursor returns to the first field on the form. Continue pressing the RETURN key until you reach the field. Note that while you are on a form, the arrow keys have no effect on the cursor.

## **Canceling a Function**

To cancel from a function, press the CANCEL key. This action returns you to the previous menu (or main menu) from any menu or form. (Information you typed onto a canceled form is not saved in the log file.) You can cancel a function as long as a menu or a form is displayed. However, you cannot cancel a function once it has begun executing. Note that the DELETE key for CENTIX is disabled while you run centrEASE.

## **Entering a Menu Selection or Form Entries**

To enter a menu selection or form entries, press the GO key.

Pressing the GO key from a menu moves you to the next menu or to the first form of the function you selected from the menu.

Pressing the GO key from a form moves you to the next form in the function you are using. Also, depending on where you are in the program, it can initiate the processing of that function.

The selection you made from a menu or information you typed into a form is saved in the log file once you press the GO key (provided you do not cancel the function at a later time).

## Escaping to Shell

To escape to shell, press the FINISH key.

Pressing the FINISH key while running centrEASE allows you to interact with the CENTIX shell directly. However, you may escape to shell only from a menu, form, or tell screen. A # prompt appears if you are using a PT 1500 terminal; if you are using an ASCII terminal, refer to Section 13.

You may enter commands at the shell level, but you should realize that you are doing so outside of the realm of centrEASE. Therefore, your shell commands do not appear in the log file, but the times of escape and return are recorded.

*Note: When you escape to shell, the current working directory is root. Therefore, if you want to create any files while at the shell level, change your directory to the appropriate path.*

---

*Caution: Beware of commands that affect the configuration or status of the system when you escape to shell. Unexpected results could occur. In particular, do not edit configuration files, or mount or unmount file systems.*

---

After completing your tasks at the shell level, you may return to the exact point from which you exited centrEASE by pressing the FINISH key.

When you return from an escape to shell to the current screen, the screen is repainted with the current values.

## Exiting centrEASE

The only way you can successfully complete a centrEASE session is by choosing the Exit option on any menu. The Exit option removes the lockfile and the temporary directory and closes the current logfile.

When a centrEASE function terminates successfully, the following message appears on your screen in nonblinking, reverse video:

```
Press NEXT. This function has been completed.
```

When a centrEASE function terminates due to an error, the following message appears on your screen in blinking, reverse video:

```
Press NEXT. This function has been canceled.
```

On non-PT 1500 terminals these messages do not appear in reverse video.

After the function completes or is canceled, press the NEXT key and you are returned to an earlier menu. From here you may exit by selecting the EXIT option.

## Recovering an Aborted centrEASE Session

If the system should either crash or abnormally terminate before you have successfully completed your centrEASE session, you must take several steps before continuing any further.

To recover, you must delete the lock file and the temporary directory.

## Removing the Lock File and the Temporary Directory

If centrEASE crashes (usually the normal CENTIX prompt appears and the terminal does not echo your input), take the following steps.

- 1 Press the NEXT key.
- 2 Make the following entry (note that this entry is not echoed to the screen):

```
# stty sane
```

- 3 Press the NEXT key.
- 4 Enter the following command:

```
# /SAF/.cleanup
```

This procedure simultaneously removes the lock file and the temporary directory. The CENTIX prompt then is returned to the screen. The terminal setting returns to its pre-centrEASE state; this may differ from what #stty sane does.

*Note: The preceding steps should be performed on the terminal running centrEASE. /SAF/.cleanup detects whether centrEASE crashed or whether another user is running centrEASE and takes appropriate action.*

## **Limitations**

Do not use centrEASE from the Window Manager.

Do not use centrEASE when the system is in single-user mode, except to back up or restore system files.

## Managing User Accounts

This section explains how to add or delete a user from your system. It also explains the less drastic step of barring or restoring a user's access to the system. This section shows you how to change a user's account, how to move that account to another file system, and how to apply these same functions to manage group accounts.

After you select the Manage User Accounts option from the main menu, centrEASE displays the menu shown in Figure 2-1.

Figure 2-1 **Manage User Accounts Menu**

```

                                Manage User Accounts
                                =====

1) Add User
2) Delete User
3) Bar/Restore User
4) Change User Account
5) Move User Account to Another File System
6) Add a Group
7) Delete a Group
8) Add a User to a Group
9) Delete a User from a Group
10) RETURN
11) EXIT

Enter a number and press GO to transmit:
```

### Adding a User

This function allows you to add a new user to a CENTIX file system.

## Executing the Function

After you select the Add User function, the form shown in Figure 2-2 appears on your screen.

*User Name.* Enter the new user's name in the first field on this form. A user's name is also known as a log-in name because this is the name a user enters when logging on to the system. The user's name may contain any letters of the alphabet and any numbers between 0 and 9.

Be sure you enter a name unique to the system; otherwise, an error message will appear. To help ensure the uniqueness of a user's name, it is a good practice to mix upper and lowercase letters with digits. For example, John Smith could be encrypted as JOhnSm1th56.

Figure 2-2 Add User Form

```
Manage User Accounts                >>> ADD USER <<<
=====

User Name:

Miscellaneous:

Program to use as Shell:

NOTE:

* The User Id for this user will be generated
  automatically. It will be the next available
  number above 51.

* On the next two menus you will be prompted for:
  1) The File System the user will belong to.
  2) The Group Id of the user.
```

*Miscellaneous.* Below the user's name is the Miscellaneous field where normally the user's full name is entered. However, any other identifying information may be entered here, such as a department name or the class to which the user belongs.

*Program to use as shell.* The third field on this form asks which program is to be used as the shell when the user logs onto the system. This field requires you to enter the full path name of the program to be executed when the user logs onto the system. Usually this program is /bin/sh (the standard CENTIX shell), but it may be any executable program. When you enter a program in this field, full path names are required.

After you complete this form, two more forms follow. These other two forms require you to choose (1) the file system under which the user's directory will be placed, and (2) the group name to which the new user will be assigned.

Enter the appropriate information and press the GO key.

Note the message that now appears on the Tell screen. Press the GO key to initiate the function; press the CANCEL key to return to the Manage User Accounts Menu.

If you press the GO key after the function is completed, another form appears on the screen. It asks whether you would like to add another user account to a CENTIX file system. This form also asks whether you want to use the same parameters that were specified for the previous user.

To add another user while keeping the same parameters, enter "Yes" in both fields. The Add User Form reappears on the screen. Enter the required information (user name, miscellaneous information, and program to use as shell) and press the GO key. The new user retains the same group name and file system as previously specified.

This looping feature allows you to avoid having to return to the Manage User Accounts Menu when you want to add a number of users to the same group and file system.

To add another user and change the parameters, enter "Yes" on the first field and "No" on the second. The forms will appear on the screen for you to enter the new group name and file system information.

## Tasks Performed by centrEASE

After you initiate the Add User function, centrEASE performs the following tasks:

- Ensures that you have placed the user directory in a file system recognized by centrEASE.
- Assigns the next available user identification number (the next available integer after 51 and before 9999).
- Creates and adds an appropriate entry to the CENTIX /etc/passwd file.
- Adds the user's name to the appropriate entry in the CENTIX /etc/group file.
- Creates the user's home directory under the specified file system.

## Files Modified by centrEASE

- /etc/passwd
- /etc/group

## Deleting a User

This function allows you to delete a user from a CENTIX file system.

---

**Caution:** *The Delete User function erases all the user's files. Once this function is executed, the files can not be recovered unless they have been previously backed up.*

---

## Executing the Function

To keep the user's files for reference, back them up before executing this function. (For instructions on backing up and recovering files, refer to Section 8.)

After you select the Delete User function, centrEASE generates a current list of all the system users. Choose the name of the user whose account you want to remove and enter its corresponding number in the field provided. Then press the GO key.

Note the message that now appears on the Tell screen. Press the GO key to initiate the function; press the CANCEL key to return to the Manage User Accounts Menu.

### **Tasks Performed by centrEASE**

After you initiate the Delete User function, centrEASE performs the following tasks:

- Mounts the file system in which the user account is located (if necessary).
- Deletes all the user files, including the user log-in directory.
- Removes the user entry from the `/etc/passwd` file.
- Deletes the user name everywhere it appears in the `/etc/group` file.
- If it was mounted in the first step, unmounts the file system in which the user is located when the function is completed.

### **Files Modified by centrEASE**

- `/etc/passwd`
- `/etc/group`

### **Barring or Restoring a User**

This function allows you to bar a user from your system without deleting the account or the account's files. Barring a user disables that person's ability to log into the system.

This function also allows you to restore a previously barred user to your system.

## Executing the Function

After you select the Bar/Restore function, the form shown in Figure 2-3 appears on your screen.

Enter your choice of function, and a current list of system users appears on your screen. Pick the name of the user whose account you want to bar or restore, and enter its corresponding number in the field provided. Then press the GO key.

Note the message that now appears on the Tell screen. Press the GO key to initiate the function; press the CANCEL key to return to the Manage User Accounts Menu.

Figure 2-3 Bar/Restore User Form

```
Manage User Accounts                >>> BAR/RESTORE USER <<<
*****

Choose whether you want to bar a user from using the
system or to restore to the system a user that is
presently barred.

*****

                CHOICES
                .....
```

1) Bar User  
2) Restore User

Enter a number and press GO to transmit:

## Tasks Performed by centrEASE

After you initiate the Bar/Restore function, centrEASE performs the following tasks:

- When you bar a user, centrEASE inserts a percent sign (%) in front of the first character of the user's encrypted password. This password is found in the `/etc/passwd` file.
- When you restore a barred user, centrEASE removes the percent sign from the front of the user's encrypted password.

## Files Modified by centrEASE

- `/etc/passwd`

## Changing a User's Account

This function allows you to change any of four areas of the user's account: the user's name, the miscellaneous information, the user's shell program, and the user's group assignment.

## Executing the Function

After you select the Change User function, centrEASE generates a current list of all the system users. Choose the name of the user whose account you want to change, and enter its corresponding number in the field provided.

The form that is shown in Figure 2-4 allows you to change any of the four areas of the user's account.

If you want to change a user's group, another form appears and lists the different group names from which you may make your new choice. Enter the appropriate information and press the GO key.

Note the message that now appears on the Tell screen. Press the GO key to initiate the function; press the CANCEL key to return to the Manage User Accounts Menu.

Figure 2-4 Change User Form

```
Manage User Accounts                >>> CHANGE USER <<<
=====

User Name:

Miscellaneous:

Program to use as Shell:

Change Login Group?:
  1) Yes
  2) No

* If you select 1 for Change Login Group, the next
  screen will prompt you for the new group of the user.
```

## Tasks Performed by centrEASE

After you have initiated the Change User function, centrEASE performs the following tasks:

- Mounts the file system in which the user is located (if necessary).
- If the user's name is changed, centrEASE
  - 1 Changes the user's name in the /etc/passwd file and changes the name of the initial log-in directory.
  - 2 Changes the user's name everywhere in /etc/group file.
  - 3 Moves all user files to the new log-in directory.

- If miscellaneous information is changed, centrEASE changes the miscellaneous field in the `/etc/passwd` file.
- If the shell program is changed, centrEASE changes the log-in shell program field in the `/etc/passwd` file.
- If the group name is changed, centrEASE
  - 1 Changes the group identification number in the `/etc/passwd` file.
  - 2 Appends the user's name to the newly chosen group entry in the group file.
  - 3 Removes the user name from the group entry to which it had been previously assigned.
- Unmounts the file system the user is under when the function is completed.

### Files Modified by centrEASE

- `/etc/passwd`
- `/etc/group`

### Moving a User's Account to Another File System

This function allows you to move all of a user's files from one file system to an entirely different file system.

*Note: This action is different from changing a user's log-in directory by changing the user name. Changing the log-in directory causes the user's account to move within the same file system.*

*Moving a user's account to another file system can be useful if you run out of disk space in one file system and want to transfer the files to a new (larger) file system.*

### Executing the Function

After you select the Move User function, centrEASE generates a current list of all the system users. Choose the name of the user whose account you would like to move and enter its corresponding number in the field provided.

The next form to appear contains a list of all the file systems. Enter the number of the file system to which you want to move the user, and press the GO key.

Note the message that now appears on the Tell screen. Press the GO key to initiate the function; press the CANCEL key to return to the Manage User Accounts Menu.

Execution may take several minutes because all the user's files must be copied to the new file system and be removed from the old file system.

### **Tasks Performed by centrEASE**

After you have initiated the Move User function, centrEASE performs the following tasks:

- Mounts the file system in which the user is located (if necessary).
- Mounts the file system to which the user is moving (if it is not already mounted).
- Creates the user log-in directory under the file system to which the user is moving.
- Moves all the user's files to the new file system.
- Deletes all the user's files contained in the old file system, as well as the user's log-in directory.
- Modifies the user's log-in directory in the /etc/passwd file to reflect the new file system in which the user's account now resides.
- If it was mounted in the first step, unmounts the file system in which the user is located when the function is completed.

### **Files Modified by centrEASE**

- /etc/passwd

### **Adding a Group**

This function allows you to add a group to your CENTIX system.

## Executing the Function

After you select the Add Group function, a form appears that requires you to enter the new group name. Enter the new group name and press the GO key.

Note the message that now appears on the Tell screen. Press the GO key to initiate the function; press the CANCEL key to return to the Manage User Accounts Menu.

## Tasks Performed by centrEASE

After you initiate the Add Group function, centrEASE performs the following tasks:

- Appends the new group to the /etc/group file.
- Assigns a new group identification number (the next available integer between 51 and 9999).

## Files Modified by centrEASE

- /etc/group

## Deleting a Group

This function allows you to delete a group from your CENTIX system.

*Note: If a user's log-in group is deleted, the user will not be able to log into the system. Therefore, before deleting a user's log-in group, use the Change User function to reassign that user to a different group.*

## Executing the Function

After you select the Delete Group function, centrEASE generates a list of all the current group names. Choose the name of the group you want to delete and enter its corresponding number in the field provided. Then press the GO key.

Note the message that now appears on the Tell screen. Press the GO key to initiate the function; press the CANCEL key to return to the Manage User Accounts Menu.

## Tasks Performed by centrEASE

After you initiate the Delete Group function, centrEASE performs the following tasks:

- Deletes that group entry in the /etc/group file.
- Deletes all the occurrences of the group's identification number from the entries in the /etc/passwd file.

## Files Modified by centrEASE

- /etc/passwd
- /etc/group

## Adding a User to a Group

This function allows you to assign a user to another group in the CENTIX system.

## Executing the Function

After you select the Add User to Group function, centrEASE generates a current list of all the system users. Choose the name of the user you want to add to another group, and enter its corresponding number in the field provided.

After you enter the user's name, centrEASE generates a list of all the system group names on your screen. Choose the group to which you want the user to belong. This is done by entering the appropriate number in the field provided and pressing the GO key.

Note the message that now appears on the Tell screen. Press the GO key to initiate the function; press the CANCEL key to return to the Manage User Accounts Menu.

## Tasks Performed by centrEASE

After you initiate the Add User to Group function, centrEASE performs the following tasks:

- Adds the user's name to the specified group entry in the `/etc/group` file.

*Note: This function does not affect the group to which the user is assigned in the `/etc/passwd` file. The group identification field in this file can be changed only by executing the Change User Account function found under "Managing User Accounts."*

## Files Modified by centrEASE

- `/etc/group`

## Deleting a User from a Group

This function deletes a user's name from a group entry.

## Executing the Function

After you select the Delete User from Group function, centrEASE generates a current list of all the system users. Choose the name of the user you want to delete from a particular group, and enter its corresponding number in the field provided.

After you enter the user's name, centrEASE generates a list of all the system group names. Choose the group from which you want to delete the user. Enter the appropriate number in the field provided and press the GO key.

Note the message on the Tell screen. Press the GO key to initiate the function; press the CANCEL key to return to the Manage User Accounts Menu.

## Tasks Performed by centrEASE

After you have initiated the Delete User from Group function, centrEASE performs the following task:

- Deletes the user's name from the specified group entry in the `/etc/group` file.

## Files Modified by centrEASE

- `/etc/group`

*Note: Do not use this function to delete a user from the user's log-in group. If a user is deleted from his or her log-in group, he or she will not be able to log in.*

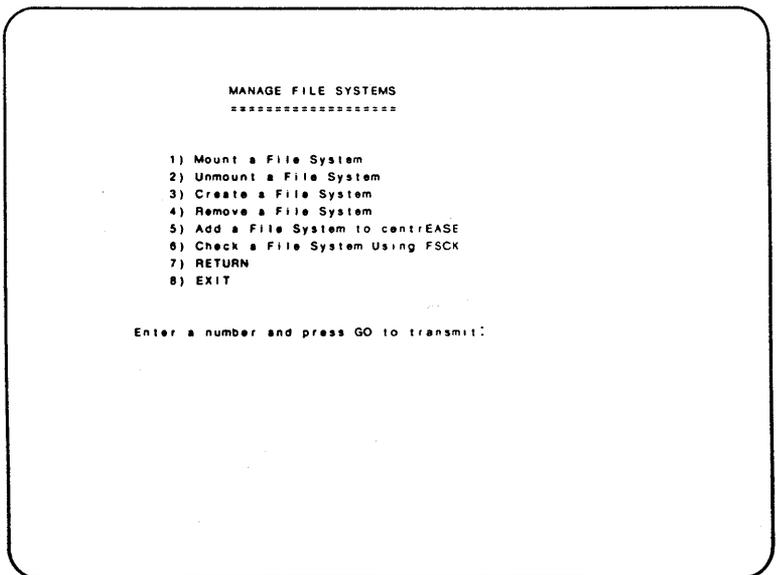
*To delete a user from the log-in group, first change the user's log-in group by using the Change User Accounts function, and then delete him or her from the old group by using the Delete User from Group function.*

## Managing CENTIX File Systems

This section explains how to mount and unmount a file system, how to create and remove a file system, how to add a file system, and how to check the integrity of an existing file system using **fsck**, the CENTIX file system check.

After you select the Manage CENTIX File Systems option from the main menu, centrEASE displays the menu shown in Figure 3-1.

Figure 3-1 **Manage CENTIX File Systems Menu**



### Mounting a File System

This function allows you to mount a file system onto a CENTIX directory.

## Executing the Function

After you select the Mount File System function, centrEASE generates a list of all the file systems which are not currently mounted. This list includes only those file systems which were either created by or added to centrEASE. Choose the file system that you want to mount, and enter its corresponding number in the field provided. Then press the GO key.

Note the message that now appears on the Tell screen. Press the GO key to initiate the function; press the CANCEL key to return to the Manage File Systems Menu.

## Tasks Performed by centrEASE

After you initiate the Mount File System function, centrEASE performs the following tasks:

- Mounts the specified file system (that is, centrEASE mounts a CENTIX disk device onto the CENTIX directory).
- Displays an error message if the function does not complete successfully.

## Files Modified by centrEASE

- No files are modified during this function.

## Unmounting a File System

This function allows you to unmount a file system from a CENTIX directory.

## Executing the Function

After you select the Unmount File System function, centrEASE generates a list of all the file systems which are currently mounted. This list includes only those file systems which were either created by or added to centrEASE. Choose the file system that you want to unmount, and enter its corresponding number in the field provided. Then press the GO key.

Note the message that now appears on the Tell screen. Press the GO key to initiate the function; press the CANCEL key to return to the Manage File Systems Menu.

### **Tasks Performed by centrEASE**

After you initiate the Unmount File System function, centrEASE performs the following tasks:

- Unmounts the specified file system (that is, centrEASE unmounts a CENTIX disk device from the CENTIX directory).
- Displays an error message if the function does not complete successfully.

### **Files Modified by centrEASE**

- No files are modified during this function.

### **Creating a File System**

This function allows you to keep a large group of related files together by creating a CENTIX file system. It issues all the necessary CENTIX commands using the parameters you enter on the forms.

Since CENTIX file systems are accessed by referring to the specific directory on which they are mounted, you can assign a project to its own directory. Then you can mount a project's file system to its newly assigned directory. In this manner, you can do a separate backup for the project simply and conveniently.

### **Executing a Function**

To execute the Create File System function successfully, you must supply the parameters for the new file system. Enter this information on the first form that appears on your screen after you choose the function. Figure 3-2 shows this form with the following fields:

*Device Type.* Enter your choice of device type. This choice determines the kind of disk on which your new file system will reside. The device type must either be entered as "c0" for a disk connected to a File Processor or "c1" for a disk connected to a Disk Processor.

*Disk Number.* Enter the disk number on which the new file system will reside. FP disks are numbered disk 0, disk 1, disk 2 and so on. DP disks are also numbered disk 0, disk 1, disk 2, and so on). Be sure that you do not enter a value that is greater than the number of the last disk on your system.

Note that FP disk 0 for disk cartridges is different from any other disk. A file system can be created on volume d0, but centrEASE does not acknowledge it. To create a file system that centrEASE recognizes on disk cartridge, first use the Create a File System function, then use the Add a File System function.

*Note: Do not create any user file systems on the same disk that contains the root file system, unless it is absolutely necessary. There are two reasons for this recommendation.*

*First, if the root becomes corrupted, you will have to reload system software. If you have put user data on this disk, the information will be destroyed by the disk initialization step during the software reload procedure.*

*Second, disk activity is greatly increased when many files on the same disk are accessed simultaneously. This can adversely affect system performance.*

Figure 3-2 Create File System Form

```
Manage File Systems          >>> CREATE A FILE SYSTEM <<<
*****

This file system will be created on the disk you specify
below with the exact size that you provide below. It is
recommended that you do not place any file systems on the
same disk as the root file system.

Device Type          (c0,c1)  :
Disk Number         (0,1, . . .) :
Size of File System (blocks)  :
[Number of I-nodes] (CENTIX files):
Directory Name      :
[PILF cluster factor]      :
```

**Size of File System.** Specify the size of the new file system. A file system's size is the number of blocks allocated to a file system on a specified disk (a physical block equals 512 bytes; a logical block equals 1024 bytes). You are prompted for the number of physical blocks for the file system. The size you specify is used to create the BTOS partition within which the new file system will reside.

A maximum of 8 partitions may exist on a disk at one time. The largest file system that can be assigned to a single disk cartridge is about 9000 blocks.

*Number of l-nodes.* Enter the number of l-nodes (CENTIX files). This number (up to 800) indicates the number of individual files that may be created on this file system. The default value is the logical block size of the file system divided by 4, which is equivalent to the number of physical blocks entered above divided by 8. This value is optional.

*Directory Name.* Enter a valid directory name for the new file system. This directory name is the path name for the file system you are creating. It must begin with the slash character (/). Do not use "/" by itself because this symbol is reserved for the root directory.

*Note: centrEASE permits file systems to contain multiple directory levels (that is, /a/b/c). However, if you wish to create /a/b/c, /a and /a/b must already exist as directories or file systems that centrEASE recognizes.*

*This means that file systems may be mounted to any existing directory, even a directory contained within another file system, as long as that file system has been created through or added to centrEASE.*

*PILF Factor.* The PILF (performance improving for large files) factor is the base 2 exponent of block allocation in kilobytes. If 3 is entered in this field, the logical block size of your system increases to 8 kB (that is,  $2 \times 2 \times 2 = 8$ ). By specifying a higher PILF factor you can increase system efficiency. If no value is entered in this field, the logical block size of the file system defaults to 1 kB blocks.

*Note: For more information on how and when to use the PILF factor, refer to the XE 500 CENTIX Administration Guide.*

After you enter the required information, a form first asks whether you would like centrEASE to mount the file system automatically at boot time, and then whether you would like the **fsck** command to check the file system at boot time.

*Note: It is recommended that the file system be both mounted and checked at boot time. This helps to ensure the integrity of the data within the file system.*

Next, a Tell screen displays the new file system's partition number. This number represents the system's corresponding BTOS partition number (0-7). centrEASE automatically assigns the partition number. To continue, press the GO key.

Note the message that now appears on the Tell screen. Press the GO key to initiate the function; press the CANCEL key to return to the Manage File Systems Menu.

Execution takes from 3 to 5 minutes.

*Note: When the function has completed successfully, the new file system remains mounted on the directory name.*

### Tasks Performed by centrEASE

After you initiate the Create File System function, centrEASE performs the following tasks:

- Finds the first available BTOS partition number between 0 and 7 on the specified disk.
- Creates a BTOS partition.
- Creates the CENTIX file system.
- Creates a CENTIX directory.
- Mounts the CENTIX disk device that corresponds to the BTOS partition onto the CENTIX directory.
- Makes the lost and found directory for the new file system.
- Appends an entry containing the specific partition reference and CENTIX directory name onto the bottom of the /etc/rc.mounts file (if you have designated that the new file system be mounted at boot time).
- Appends an entry containing the specific partition reference to the bottom of the /etc/checklist file (if you have designated that the **fsck** command be run to check the new file system at boot time).

### Files Modified by centrEASE

- /SAF/FILES/fsysbkup
- /etc/rc.mounts
- /etc/checklist

## Removing a File System

This function allows you to remove a specified CENTIX file system.

---

*Caution: The Remove File System function erases all the files under this file system, including its directory. Once this function is executed, the files can not be recovered unless they have been previously backed up.*

---

### Executing the Function

After you select the Remove File System function, centrEASE generates a current list of all the file systems. Choose the name of the file system you want to remove, and enter its corresponding number in the field provided.

Note the message that now appears on the Tell screen. Press the GO key to initiate the function; press the CANCEL key to return to the Manage File Systems Menu.

### Tasks Performed by centrEASE

After you initiate the Remove File System function, centrEASE performs the following tasks:

- Unmounts the specified file system.
- Deletes the BTOS partition containing the specified file system.
- Removes the file system's directory.
- Deletes the file system entries in the three files listed below.

### Files Modified by centrEASE

- /SAF/FILES/fsysbkup
- /etc/rc.mounts
- /etc/checklist

## Adding a File System to centrEASE

This function allows you to add a file system to centrEASE (that is, one created outside of centrEASE). centrEASE recognizes only those file systems which are contained on an internal file system table, called the /SAF/FILES/fsysbkup file. A file system entry is automatically placed in this table when it is created by centrEASE.

A file system added to centrEASE, the file system retains all of its original attributes, including size, PILF factor, I-nodes, and so on.

*Note: The file system you want to add to centrEASE must be one that was not previously created by centrEASE (that is, the Create File System function was not used.)*

### Executing the Function

To execute the Add File System function, you must supply centrEASE with the file system's existing parameters (for example, device type, disk number, partition number, directory name). After choosing the function, enter this information on the form which appears on your screen. Figure 3-3 shows this form with the following fields.

*Device Type.* Enter the device type on which you originally created the file system. The device type must either be entered as "c0" for a disk connected to a File Processor or "c1" for a disk connected to a Disk Processor.

*Disk Number.* Enter the number of the disk on which you originally created the file system.

*Partition Number.* Enter the number of the BTOS partition that corresponds to the file system you are adding. This number must be between 0-7.

*Directory Name.* Enter the file system's directory name. This directory name is the file system's full path name. It must begin with the slash character (/).

*Note: centrEASE permits file systems to contain multiple directory levels (that is, /a/b/c). However, if you wish to create /a/b/c, /a and /a/b must already exist as directories or file systems that centrEASE recognizes.*

*This means that file systems may be mounted to any existing directory, even a directory contained within another file system, as long as that file system has been created through or added to centrEASE.*

Figure 3-3 Add File System Form

```

Manage File Systems  >>> ADD A FILE SYSTEM TO centrEASE <<<
*****

Enter the proper information below. The file system that
you wish to add to centrEASE must be one that was
previously created without the use of centrEASE (Create
a File System function).

Device Type (c0,c1)      :
Disk Number (0,1,2, . . .) :
Partition Number (0...7) :

What is the directory name of the file system:

```

After you enter the required information, a form first asks whether you would like centrEASE to mount the file system automatically at boot time, and then whether you would like the **fsck** command to check the file system at boot time.

*Note: It is recommended that the file system be both mounted and checked at boot time. This helps to ensure the integrity of the data within the file system.*

After entering the two choices, press the GO key.

Note the message that appears on the Tell screen. Press the GO key to initiate the function; press the CANCEL key to return to the Manage File Systems Menu.

### **Tasks Performed by centrEASE**

After you initiate the Add File System function, centrEASE performs the following tasks:

- Creates an entry for the existing file system in the `/SAF/FILES/fsysbkup` table.
- Appends an entry containing the specific partition reference and CENTIX directory name onto the bottom of the `/etc/rc.mounts` file (if you have designated that the new file system be mounted at boot time).
- Appends an entry containing the specific partition reference to the bottom of the `/etc/checklist` file (if you have designated that the **fsck** command be run to check the new file system at boot time).

### **Files Modified by centrEASE**

- `/SAF/FILES/fsysbkup`
- `/etc/rc.mounts`
- `/etc/checklist`

## Checking a File System Using FSCK

This function uses **fsck** to check the consistency of a file system. For example, this function can check a user file system before adding another user to it.

### Executing the Function

After you select the Check File System function, centrEASE generates a list of current file systems. Choose the name of the file system you would like to check, and enter its corresponding number in the field provided.

Note the message that now appears on the Tell screen. Press the GO key to initiate the function; press the CANCEL key to return to the Manage File Systems Menu.

### Tasks Performed by centrEASE

After you initiate the Check File System function, centrEASE performs the following function:

- Executes the **fsck** command on the specified file system.

### Files Modified by centrEASE

- No files are modified during this function.

## Issuing BTOS Commands Through CENTIX

The centrEASE facility provides a function that issues various BTOS commands through CENTIX. This function also allows you to issue ISAM commands.

Refer to the *XE 500 CENTIX Administration Guide* and the *XE 500 ISAM Reference Manual* for detailed information on executing any of the commands available to you through this function. Only the BTOS command **MIVolume** is described in detail in this section because it differs from the BTOS command format.

After you select the function "Issue BTOS Commands Through CENTIX," centrEASE displays the menu shown in Figure 4-1. Note that two related command menus appear in Figures 4-2 and 4-3.

*Note: The menu shown in Figure 4-2 requires you to use code-G instead of the CANCEL key. If you are using a non-PT 1500 terminal, refer to Section 13.*

To call up the second menu of BTOS commands, enter 22 on the first menu and press the GO key.

To call up the the third menu, enter 10 on the second menu and press the GO key. This returns you to the original menu shown in Figure 4-1. Then enter 23 and press the GO key. The menu that now appears on the screen contains a list of the available ISAM commands.

Together, these three menus contain the lists of all the commands currently supported by centrEASE, including ISAM.

Figure 4-1 Issue BTOS Commands Through CENTIX Menu (1)

```

ISSUE BTOS COMMANDS THROUGH CENTIX
*****

1) MBackup Volume           13) MRestore
2) MChange Volume Name     14) MSelective Backup
3) MCopy                   15) MSpooler Status
4) MCreate Directory       16) MTape Backup Volume
5) MDelete                 17) MTape Copy
6) MDisk Verify            18) MTape Restore
7) MFiles                  19) MTape Selective Backup
8) MVolume                 20) MVolume Report
9) MMaintain Files         21) MVolume Statusz
10) MPLog                  22) ADDITIONAL BTOS MCOMMANDS
11) MRemove Directory      23) ISAM COMMANDS
12) MRename                24) RETURN
                           25) EXIT

To see menu with additional MCommands, enter 22
Enter a number and press GO to transmit:

```

Figure 4-2 Issue BTOS Commands Through CENTIX Menu (2)

```

ISSUE BTOS COMMANDS THROUGH CENTIX
*****

1) MBTOS Config            10) MPartition Status
2) McdtIO                  11) MQIC Erase
3) MCreate Configuration File 12) MQIC Retension
4) MCreate Partition       13) MResume Cluster
5) MDisable Cluster        14) MSet Directory Protection
6) MFAdmin Agent Status    15) MSet File Protection
7) MHistogram              16) MSystemload
8) MInstall Server         17) MVersion
9) MMake Translation File  18) RETURN
                           19) EXIT

* Use "code-G" instead of CANCEL; press HELP for more key
substitutions *

To see menu with additional MCommands, enter 18
Enter a number and press GO to transmit:

```

Figure 4-3 Issue ISAM Commands Through CENTIX Menu

```
ISSUE ISAM COMMANDS THROUGH CENTIX
*****
1) ISAM Configure XE500
2) ISAM Copy
3) ISAM Create
4) ISAM Delete
5) ISAM Rename
6) ISAM Reorganize
7) ISAM Set Protection
8) ISAM Status
9) RETURN
10) EXIT

Enter a number and press GO to transmit:
```

## Executing the Function

After you select any of the commands from the menu shown in Figures 4-1 through 4-3, a form or Tell screen appears on your screen. The form asks you to provide information about the command before it can be executed.

The forms used in this function are similar to the ones used throughout centrEASE. Figure 4-4 is an example of the kind of form you might expect to find for executing any of the BTOS commands.

For information on using the BTOS commands, refer to the *XE 500 CENTIX Administration Guide*. In that guide the BTOS commands are referred to as M commands or the M utilities. The guide also contains detailed descriptions of the information required for each field on the BTOS command forms.

For information on using the ISAM commands, refer to the *XE 500 ISAM Reference Manual*.

*Note: Use the "Index Keys" field in ISAM Create and ISAM Reorganize only to specify single key ISAM data sets.*

Figure 4-4 Sample BTOS Command Form

```
Issue BTOS Commands          >>> MBACKUP VOLUME <<<
*****

Volume or device name
[Volume or device password]
[Incremental from
  (e.g., Mon Jun 1 1982 8:00 pm)]
[Suppress backup?]
[Suppress verification?]
[Archive file]
[Delete existing archive file?]
[Log file]
[Display structures?]
```

## MIVolume

The procedure for executing the **MIVolume** command through centrEASE differs somewhat from how it is normally executed in BTOS.

## **MIVolume Command Description**

**MIVolume** prepares a disk cartridge, an XE 500 FP disk, or a DP disk for use as an XE 500 volume. **MIVolume** formats the disk, performs read/write tests to identify surface defects (bad spots), writes volume control structures on the disk, and creates system files.

---

*Caution: The **MIVolume** command erases all existing data from the disk.*

---

**MIVolume** performs a surface test to identify bad spots on the storage medium. Certain areas may be marginal; that is, they may pass the **MIVolume** surface tests but have the potential to fail with use. These areas should be included in the bad spot listing. Each new disk comes with a factory report that lists all bad spots, including marginal ones. These should be entered as bad spots the first time you initialize the disk. Later, if you suspect that you are encountering problems caused by marginal bad spots not previously detected, use **MDisk Verify**. This command does extensive testing on the disk and should detect marginal areas. You can then update the bad spot listing by reinitializing the disk.

## **Identifying Bad Spots**

A list of bad spots is provided for each XE 500 FP disk in a plastic envelope attached to the inside rear door of the XE 500 enclosure. The position of the plastic envelope corresponds to the drive position of the disk in the enclosure.

A list of bad spots for each disk cartridge is attached to the top of the cartridge.

Once a disk has been initialized, a (nonreadable) list of the bad sectors is maintained in the file <sys>BadBlk.sys.

A sector is identified as defective (and therefore omitted from the Allocation Bit Map) for three reasons:

- 1 A bad spot in the sector was specified in the **MIVolume** command form.
- 2 Before initialization, the medium contained a valid BTOS volume and the sector was previously identified in the bad sector file as defective.
- 3 The surface tests of the MIVolume utility identified the sector as defective.

Bad spots are identified by their location on the disk. A disk location is designated by cylinder/head/sector or cylinder/head/byte (a cylinder is sometimes referred to as a track).

Bad spot locations are designated by

*c/h/#s* or *c/h/b/n*

where

- c* is the cylinder number
- h* is the head number
- s* is the sector number
- b* is the start byte number of the sector containing a bad spot. The numeral one (1) that follows the *b* designation causes the entire sector in which the byte is located to be treated as a bad sector.
- n* is the number of contiguous bytes of bad spots from *b* byte.

All numbers used in identifying bad spots are in base ten.

### Listing Current Bad Spots

To get an updated listing of bad spots, use the **MVVolume Report** command on the volume immediately after it has been initialized, specifying a print file to which the report is to be copied.

The report generated by the **MVolume Report** command includes a list of the bad spots currently stored in the <sys>BadBik.sys file. This file should be printed out so that you have a copy of the known bad spots in case you have to reinitialize the volume if it becomes corrupted.

The print file should also be saved on another volume or backed up. You can use the information in this print file when entering known bad spots as required by the MVolume command form.

The bad spot entries in this file take the form c/h/#s.

### Notes About Bad Spots

- FP disk drives are formatted for 591 bytes per sector (512 of which are for data), 16 sectors (0-15), 7 heads (0-6), and 645 cylinders (0-644). A defect on a cylinder greater than 644 or having a byte value greater than 9455 cannot be entered. Do not enter bad spots for cylinder 644, head 6, because it is the last track on the disk and is reserved.
- DP disk drives are formatted for 630 bytes per sector (512 of which are for data), 32 sectors (0-31), 10 heads (0-9), and 823 cylinders (0-822). A defect on a cylinder greater than 822 or having a byte value greater than 20159 cannot be entered. Do not enter bad spots for cylinder 822, head 9, because it is the last track on the disk and is reserved.
- Disk cartridges are formatted for 591 bytes per sector (512 of which are for data), 17 sectors (0-16), 2 heads (0-1), and 288 cylinders (0-287). A defect on a cylinder greater than 287 or having a byte value greater than 10046 cannot be entered.

Disregard any bad spots listed as being on cylinders beyond 287; these are on the inner areas of the disk, which are not used. Do not enter bad spots for cylinder 287, head 1, because it is the last track on the disk and is reserved.

- Two things should be noted about the defect reports attached to a disk cartridge. First, ignore any error count information appearing on the report (for example, "HD 0 ERR CNT 3"). Second, if there are numerous defects on a cylinder, the byte count is listed in the report as "misc." This means that the entire cylinder/head area of the disk should be designated as being defective. This is done by using the following bad spot designation:

*c / h*

where

*c* is the cylinder number

*h* is the head number

For example, if a defect report lists

Cyl	Hd	Byte
275	1	misc.

the corresponding bad spot entry is

275/1

### **Executing the MIVolume Command**

From the centrEASE main menu, select option 3, Issue BTOS Commands Through CENTIX. The initial menu containing a list of the BTOS commands appears on your screen. Next, enter the number corresponding to the MIVolume command, and the MIVolume Command form shown in Figure 4-5 appears on your screen.

Figure 4-5 **MIVolume Command Form****MIVolume**

Device Name	-----
Device Password	-----
Volume Name	-----
[Volume Password]	-----
[System Image (default = 470)]	-----
[Log file (default = 32)]	-----
[Crash file (default = 0)]	-----
[Max. directories]	-----
[Max. files on volume]	-----
[Primary file headers only?]	-----
[Max. files in Sys directory]	-----
[Sys directory password]	-----
[Write protect Sys directory?]	-----
[Suppress format of medium?]	-----
[Surface tests]	-----
[Debug?]	-----
[Log file]	-----
[Device type]	-----
Any New Bad Spots (1--Yes, 2--No)	-----

---

**Entering Information in the MIVolume Command Form****Device Name**

A disk device connected to an FP is defined by the corresponding FP configuration file. Default names are d0, d1, d2, and so on.

A disk device connected to a DP is defined by the corresponding DP configuration file. Default names are s0, s1, s2, and so on.

You can assign an FP or DP disk device any name up to 12 characters if it does not duplicate any other volume or device name. This is done by modifying the appropriate configuration file.

**Device Password**

The default password for a disk device is the same as its default device name. As with the device names, device passwords are defined in the FP and DP configuration files.

**Volume Name**

This is the name to be assigned to the volume. It can be up to 12 characters long and must not duplicate another device or volume name.

**[Volume password]**

This is the password (up to 12 characters) you assign to this volume. It is used when creating directories or creating and opening files on this volume.

If no password is specified, the volume is unprotected. No directories or files can have passwords, and the volume can be overwritten at any time. Volume protection can be specified later with the **MChange Volume Name** command.

**[System Image (def - 470)]**

This is the number of sectors required for an XE 500 system image (operating system run file).

For the XE 500 system disk, the system image size should be at least 470 sectors. To initialize a nonsystem disk, enter 0.

- [Log file (def = 32)] Enter the number of sectors required for the [sys]<sys>log.sys file, also referred to as the Log file. The default value is 32.
- The Log file is used by the **MPLog** command to report system status and error conditions. Specify a larger number if the Log file tends to fill before it is convenient for you to print it. Log entries are written only to the system disk. If this volume is not to contain a system image, enter 0.
- [Crash file (def = 0)] The number of sectors required for the Crash Dump file is specified in this field.
- Allocate two sectors for each kB of memory to be dumped. If a number is not specified, a Crash Dump file is not written when the operating system is bootstrapped (started up).
- [Max. directories] This parameter is the approximate number of directories that can be created on this volume. It must be less than 65535.
- [Max. files on volume] This parameter is the approximate number of files that can be created on this volume. Allow a sufficient number for future expansion (for example, 1000) on an FP disk. It is not possible to expand this number at a later date without reinitializing the volume.
- [Primary file headers only?] To have only primary file headers, enter Yes; No is the default. Specify Yes to allocate space for only a primary File Header Block for each file. Specifying No allocates space for primary and secondary File Header Blocks.
- [Max. files in sys Directory] This field is an approximate number of files that can be created in the <sys> directory, for example, 250 on an FP disk. It must be less than 65535.

[Sys Directory password]

This is the password (up to 12 characters) you assign to the <sys> directory. Leave this field blank if files in the <sys> directory are not to be password-protected. If specified, this password must be presented whenever a file is created in this directory.

[Write protect Sys Directory]

Specify Yes to set the default file protection level of the files in the <sys> directory to "modify protected" (protection level 5); No is the default. A volume and <sys> directory password must also be specified in this command form.

[Suppress format of medium]

To suppress formatting, enter Yes; No is the default. Specify Yes to reduce the time to reinitialize a medium that was previously a formatted volume. Leave this field blank when initializing a new disk.

[Surface tests]

This field represents the number of surface tests performed on each disk. The recommended number for disk cartridges and FP disks is 3. The recommended number for DP disks is 8.

[Debug]

No is the default.

[Log file]

is the name of the file to which the report of the volume initialization is to be written. If the log file already exists, the new report is appended to it. If it does not exist, the log file is created.

If a print queue is specified, the report is copied to a temporary print file and sent to the specified print queue. The print queue name must be enclosed in square brackets.

If a log file is not specified, the report appears only on the terminal screen.

[Device Type]

Enter the device type of the disk that you are initializing. Valid type names are:  
SYQUEST6 for disk cartridge.  
ATASI46 for XE 500 FP disk.  
MEMOREX166 for DP disk.  
MICROPOLIS85 for an FP disk.

This field is mandatory only the first time a disk is initialized. On subsequent initializations, the default becomes what was entered for the first MIVolume.

---

**Caution:** *Entering the wrong type of FP disk in this field will ruin the disk and the drive.*

---

Any New Bad Spots? (1=Yes,  
2=No)

This is a required field. Refer to the following subsection "Entering Bad Spots for MIVolume" for information on entering bad spots in the MIVolume command form.

### Entering Bad Spots for MIVolume

Normally you create a file containing a list of the known bad spots and enter this file name into the last field of the MIVolume command form. However, when you execute MIVolume through centrEASE, the centrEASE facility creates this file for you. All you have to do is list the known bad spots when prompted.

**Note:** *You may create a file containing a list of the known bad spots by escaping to shell and using an editor. centrEASE prompts you for the file name. (You may also call up and edit a file containing a bad spot list created earlier outside of centrEASE.)*

If you are initializing a disk for the first time or a disk that has become corrupted (that is, the disk is no longer mountable by the system), you must select option 1 (Yes) in the Any New Bad Spots? field of the MIVolume Command form. (Entering option 2 (No new bad spots) executes the MIVolume command with the assumption that there are no new bad spots to report.)

After entering option 1 (Yes, there are new bad spots), the next form to appear asks whether the bad spots already exist in a file:

1 Yes

2 No

Select option 1 if a file containing the disk's bad spots has already been created (either by you or through centrEASE). This may be the quicker method if there are a large number of bad spots.

If you are initializing a disk for the first time, the bad spots do not already exist in a file, since there would not have been any reason to create it. (A file containing the disk's bad spots also may not exist because it was not saved.) In either case, choose option 2. When you select this option, centrEASE creates a file containing the bad spots for you. All you have to do is list the bad spots when prompted.

**Choosing Option (1) Bad Spots Already Exist in a File.** If you select option (1), Bad spots already exist in a file, press the GO key. This option assumes that you have already created a file containing a complete list of the known bad spots. It also assumes that you know the name of this file.

The next form to appear asks you to enter the name of the file that contains the bad spots for this disk. You must specify whether this is a CENTIX file or a BTOS file. Skip the field that does not apply to you by pressing the RETURN key. Then press the GO key.

The next form asks "What would you like done with the bad spots file?" and provides the four following choices:

- 1 Print the file.
- 2 Delete the bad spot file after use.
- 3 Both (Print and delete the bad spot file).
- 4 Neither.

The fourth choice means that the bad spot file will not be printed, and that the file will be retained in the system.

It is recommended that you select option 1. This option prints and saves the bad spot file.

If you choose to have the bad spot file printed, the next form to appear asks you to specify what type of printer you are using. For information on completing the printer form, refer to Section 12.

Next, you are prompted to insert the disk to be initialized. Note the message that appears on the Tell screen. To execute the **MIVolume** command, press the GO key; press the CANCEL key to return to the initial Issue BTOS Commands Through CENTIX Menu.

**Choosing Option (2) Bad Spots Do Not Already Exist in a File.** After selecting option 2, Bad spots do not already exist in a file, the next form that appears on the screen allows you to enter the names of all the known bad spots. centrEASE then creates the bad spot file for you.

Use the following syntax to identify bad spots on an FP disk:

track number/head number/#sector number

Example: 3/0/#2

Use the following syntax to identify bad spots on a disk cartridge:

cylinder number/head number/byte number/number of bytes

*Note: Enter 1 for the number of bytes.*

Example: 252/1/8512/1

For a disk cartridge you may also make the following alternate entry:

cylinder number/head number/#sector number

Example: 252/1/#2

*Note: For disk cartridges, do not enter a cylinder head number greater than 287.*

The fields for entering bad spots allow room for only five at a time. If you must enter more than five bad spots, press the GO key after making your fifth entry. The fields will reappear to accept more bad spots. Repeat this procedure as necessary. Then press the GO key once more to signal centrEASE that your list is ready.

To enter fewer than five bad spots, press the GO key only once.

The next form asks whether you would like to save the bad spots in a file. Select either (1) Yes—Save as a CENTIX file or (2) Yes—Save as a BTOS file. (centrEASE supplies the bad spot file name in the next form.) You may also select option 3, in which case the bad spot information is used and then discarded.

The same form also asks whether you would like to print this file. To get to this field, press the RETURN key.

If you selected option 1 or 2, the next screen supplies the name of the file in which the bad spots have been saved. Be sure to make a note of this file name for future reference.

If you chose to have the bad spot file printed, the next form asks you to specify the type of printer you are using. For information on filling out the printer form, refer to Section 12.

Next, you are prompted to insert the disk to be initialized. Note the message that appears on the Tell screen. To execute the **MIVolume** command, press the GO key; press the CANCEL key to return to the Issue BTOS Commands Through CENTIX Menu.

## Reconfiguring the System

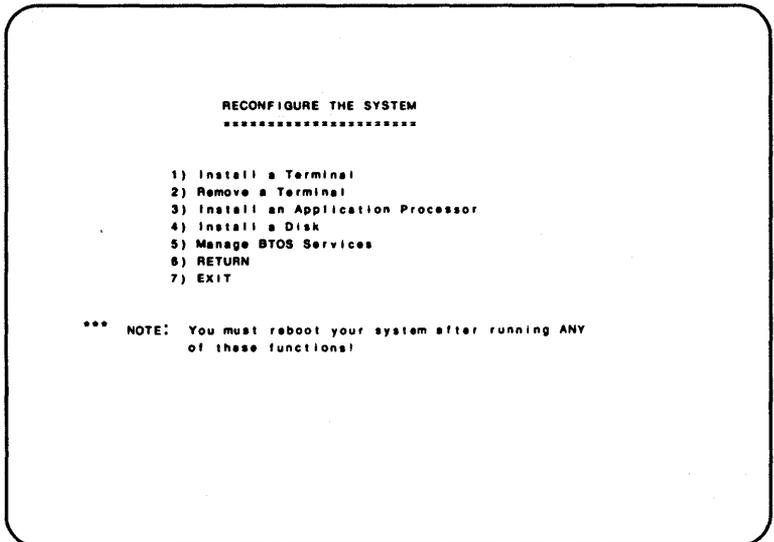
The centrEASE facility can reconfigure your XE 500 CENTIX System. You can either install or remove a terminal, install an Application Processor (AP), and install a new disk.

### **Notes:**

- 1 centrEASE permits you to install only an Application Processor. Use the MBTOS Config utility to configure all other boards.*
- 2 You must reboot the system to implement the changes you have made using any of the Reconfigure System functions.*
- 3 When you install a disk, a ufs.run server must be installed on an existing FP or DP processor initialization file before you reboot.*
- 4 You should back up system files before you do any reconfiguration.*

After you select the Reconfigure System option from the main menu, centrEASE displays the menu shown in Figure 5-1.

Figure 5-1 **Reconfigure System Menu**



## Installing a Terminal

The centrEASE facility allows you to add a terminal to an XE 500 CENTIX system.

### Executing the Function

*Note: This description assumes that the terminal has already been physically connected to the system by a qualified field engineer.*

After you select the Install Terminal function, centrEASE generates a current list of all the existing CP and TP boards. Identify the processor board on which the new terminal has been installed, and enter its corresponding number in the field provided. Then press the GO key.

The kind of processor you enter on the initial form (whether a CP or TP) determines the next form that appears on your screen.

If you indicate that the new terminal has been attached to a port on a CP, the form shown in Figure 5-2 appears on your screen. This form shows the CP at the back of the cabinet enclosure.

If you indicate that the new terminal has been attached to a channel port on a TP, the form shown in Figure 5-3 appears on your screen. This form shows the TP at the back of the cabinet enclosure.

Identify the new terminal's installation channel (the channel to which it is physically attached), and enter its corresponding number in the field provided.

Options 1, 2, and 3 select channels 1, 2, and 3 respectively; each connects to an individual RS-232-C serial device, such as an ASCII terminal. The fourth option is for RS-422 cluster ports. Up to four RS-422 terminals may be daisy chained to each cluster. Therefore, a maximum of 16 RS-422 terminals are allowed on each CP.

Note the difference between channel ports and cluster ports. A channel port links a single RS-232-C terminal to a processor. A cluster port links up to four RS-422 terminals to a processor.

Figure 5-2 CP Configuration Form

```

Reconfigure The System          >>> INSTALL A TERMINAL <<<
*****

  [ ] (1) = Channel 1
  [ ] (2) = Channel 2  > ..... up to 3 RS232
                        terminals
CLUSTER
PROCESSOR  [ ] (3) = Channel 3
           [ ] (1A)
           [ ] (1B)
           [ ] (2A) (4) = Clusters 1A- 2B ..... up to 16 RS422
           [ ] (2B)                               terminals

Enter the number which corresponds to the exact port
in which the new terminal is installed (1- 4):
    
```

Figure 5-3 TP Configuration Form

```

Reconfigure The System          >>> INSTALL A TERMINAL <<<
*****

  [ ](1)
  [ ](2)
  [ ](3) [ ](4)
  [ ](5) [ ](6)
  [ ](7) [ ](8)
  [ ](9) [ ](10)
TERMINAL
PROCESSOR

> .....> ten RS232 channels

Enter the number which corresponds to the exact channel
in which the new terminal is installed (1- 10):
    
```

The next screen requests the mode in which you would like the new terminal to run. There are three choices: (1) Terminal, (2) Administrator, and (3) Console. Generally, you will select the first option, and run the new terminal in the regular terminal mode. Any terminal in this mode receives a log-in prompt (a getty) when the system is in the multi-user state.

A terminal set in the Administrator mode does not receive a getty when the system is in the multi-user state. Select this mode if you intend to use this terminal only in the single-user system state. The Administrator mode is used to perform certain administrative tasks such as backing up system files and fixing corrupted file systems.

The Console mode combines the powers of both the Terminal and Administrative modes. A terminal set to the Console mode can be run in the single-user state, while it also receives a log-in in the multi-user state. If the corresponding `/etc/conrc` file exists and has an entry that contains the tty number of this console, it also receives error messages from its AP.

After you select the appropriate mode, another form appears on your screen. It asks you to assign the new terminal to a specific AP. Enter a number corresponding to one of the APs.

Enter the required information, and press the GO key.

Note the message that now appears on the Tell screen. Press the GO key to initiate the function; press the CANCEL key to return to the Reconfigure System Menu.

After the function is successfully completed, a Tell screen shows the tty number of the terminal you just installed, the CP or TP number, the AP number on which it was installed, and the type of terminal (RS-232-C or RS-422). Then you are asked whether you want to add another terminal or exit the function.

You may execute the function again using the same parameters or you may change the parameters. If you choose to keep the same parameters, centrEASE adds another terminal to the same processor board, the same AP, and so on, as was specified for the previous terminal.

If you choose to execute the function again with different parameters, centrEASE repeats the forms for adding a terminal.

If you choose to exit the function, centrEASE returns you to the Reconfigure System Menu.

*Note: Reboot the system after adding a new terminal. Installing a new terminal may cause the old tty numbers to shift to different terminals. There may be problems if the tty number of a PT 1500 has been reassigned to an asynchronous line.*

## Tasks Performed by centrEASE

After you initiate the Add Terminal function, centrEASE correctly modifies the necessary BTOS configuration file. Then it adjusts the terminal teletype (tty) numbers in the `/etc/conrcnn` and `/etc/inittabnn` files, where `nn` is the corresponding AP number. If necessary, centrEASE creates the tty node in the `/dev` directory.

When you initiate the Add Terminal function, centrEASE performs the following tasks:

- Determines the tty number of the terminal being installed. (The tty count starts at 000.) To determine the tty number, centrEASE initiates this routine:
  - 1 Counts all the terminals configured in the CPs and TPs
    - a For each CP found, the tty number is incremented:
      - once for every asynchronous entry in the CP or TP configuration file.
      - by the number in the pt entry (total pt count).
    - b For each TP found, the tty number is incremented once for every asynchronous entry in the CP or TP configuration file.
  - 2 Finds the configuration file for the processing board on which the new terminal is installed.

If the new terminal is an RS-232-C, centrEASE counts the number of asynchronous terminals on ports with lower numbers than the port on which the new terminal is being installed.

If the new terminal is an RS-422, centrEASE counts the total number of asynchronous entries plus the total number of PT 1500s in the configuration file.

- 3 Adds the figures derived from the first two steps, plus one for the terminal being installed. This provides the actual tty number of the new terminal.
- If the terminal added is an RS-232-C, centrEASE determines whether the entry in the BTOS configuration file exists. If the asynchronous entry exists, centrEASE assumes that the line is in use and no new terminal is added.

If the terminal is an RS-422 or if the asynchronous entry does not exist, centrEASE performs several tasks:

- 1 Adds the asynchronous entry to the BTOS configuration file, if the terminal added is an RS-232-C.

Increments the pt count of the BTOS configuration file by 1, if the terminal added is an RS-422.

- 2 Checks to see whether the tty number for any entry in either the `/etc/inittabnn` or `/etc/conrcnn` files is greater than the tty number of the new terminal. If so, centrEASE increases those entries by one.

- Assigns the terminal to the appropriate AP by inserting the new terminal entry into the corresponding `/etc/inittabnn` file. If the inittab file already has the maximum number of log-ins for this AP, a warning is issued.

#### **Notes:**

*centrEASE looks for available asynchronous lines in the processor configuration file. If the file entries already exist, centrEASE assumes that the asynchronous line is being used, even if it is not.*

*For example, the default TP configuration file is released with entries for asynchronous lines 5 through 10. As a result, centrEASE can add terminals only to asynchronous lines 1 through 4.*

*Therefore, be aware of the following limitations: on a CP, centrEASE can add a terminal only to asynchronous lines 1 and 2. On a TP, centrEASE can add a terminal only to asynchronous lines 1 through 4.*

## Files Modified by centrEASE

- /etc/inittab*nn*
- /etc/conrc
- /etc/conrc*nn*
- Either [sys]<sys>C*ppnn*.cnf or [sys]<sys>T*ppnn*.cnf

## Removing a Terminal

This function allows you to remove a terminal from an XE 500 CENTIX system.

## Executing the Function

After you select the Remove Terminal function, centrEASE generates a current list of all the existing CP and TP boards. Identify the processor board from which you want to remove the terminal and enter its corresponding number in the field provided. Then press the GO key.

The kind of processor you enter on the initial form (whether a CP or TP) determines the next form that appears on your screen.

If you indicate that the terminal is to be removed from a channel port on a CP, a form similar to the one shown in Figure 5-2 appears on your screen. This form shows the CP from the back of the enclosure. Identify the port from which the terminal is to be removed, and enter its corresponding number in the field provided.

Enter a 1, 2, or 3 if you are removing an RS-232-C terminal from one of the three channels. Enter a 4 if you are removing an RS-422 terminal from one of the four cluster ports (1A, 2A, 1B, and 2B).

Note the difference between channel ports and cluster ports. A channel port links an RS-232-C terminal and a processor. A cluster port links up to four RS-422 terminals and a processor.

If you indicate that the terminal is to be removed from a channel port on a TP, a form similar to the one shown in Figure 5-3 appears on your screen. This form shows the TP from the back of the enclosure. Identify the channel from which the terminal is to be removed, and enter its corresponding number in the field provided.

If the terminal you want to remove is an RS-232-C, another form appears on your screen. All RS-232-C terminals have an asynchronous entry in the appropriate BTOS configuration file. This form asks whether you want to remove this asynchronous entry or leave it in the file, even if no terminal is assigned to it. Retain the asynchronous entry only if you plan to install another system service (like BMULTI) that will use that port.

Enter the required information and press the GO key.

Note the message that now appears on the Tell screen. Press the GO key to initiate the function; press the CANCEL key to return to the Reconfigure System Menu.

After the function is completed, you are asked whether you want to remove another terminal or leave the function.

You may execute the function again using the same parameters or you may change parameters. If you choose to keep the same parameters, centrEASE removes another terminal from the same processor board, as was specified for the previous terminal.

If you choose to execute the function again with different parameters, centrEASE repeats the forms for removing a terminal.

If you choose to exit the function, centrEASE returns you to the Reconfigure System Menu.

## Tasks Performed by centrEASE

After you initiate the Remove Terminal function, centrEASE adjusts the tty numbers. Then it correctly modifies all necessary BTOS and CENTIX files.

When you initiate the Remove Terminal function, centrEASE performs the following tasks:

- Determines the tty number of the terminal being removed. To determine the tty number, centrEASE initiates this routine:
  - 1 Counts all the terminals configured in the CPs and TPs.
    - a For each CP found, the tty number is incremented:
      - once for every asynchronous entry in the CP or TP configuration file.
      - by the number in the pt entry (total pt count).
    - b For each TP found, the tty number is incremented once for every asynchronous entry in the CP or TP configuration file.
  - 2 Finds the configuration file for the processing board on which the terminal is being removed.

If the terminal is an RS-232-C, centrEASE counts the number of asynchronous terminals on ports with lower numbers than the port on which the terminal is being removed.

If the terminal is an RS-422, centrEASE counts the total number of asynchronous entries plus the total number of PT 1500s in the configuration file (minus one for the terminal being removed).
  - 3 Adds the figures derived from the first two steps, plus one for the terminal being removed. This provides the actual tty number of the terminal being removed.

- Finds the number of APs on the system, and searches each inittab file for the tty number of the terminal to be removed.
  - 1 If the entry exists, centrEASE removes it from the appropriate inittab file.
    - a If you remove a regular terminal or administrator terminal entry, centrEASE removes one entry in one inittab file.
    - b If you remove a console terminal, centrEASE removes two lines associated with the same tty entry.
- Checks each entry in all the `/etc/inittabnn` and `/etc/conrcnn` files to see whether each tty number is greater than the tty number of the terminal being removed. If so, centrEASE decrements those entries by 1.

This step occurs when centrEASE removes both an RS-232-C terminal and its asynchronous entry from a specified CP/TP configure file. It also occurs when centrEASE removes an RS-422 tty number from a CP other than the last CP.

### **Files Modified by centrEASE**

- `/etc/inittabnn`
- `/etc/conrcnn`
- Either `[d1]<sys>Cpnn.cnf` or `[d1]<sys>Tpnn.cnf`

### **Installing an Application Processor**

This function allows you to add an AP. The same procedures apply whether you are installing an AP1 or an AP2. During the function, centrEASE creates a BTOS swap partition and updates the necessary files associated with the new processor.

*Note: This description assumes that the AP has already been physically connected to the system by a qualified field engineer.*

## Executing the Function

After you select the Install Application Processor function, centrEASE provides an initial screen that requires you to enter the parameters for the swap partition that the AP uses for its virtual memory activity (see Figure 5-4). These parameters are the device type and disk number of the disk on which the partition resides, and the size of the partition (in 512-byte blocks).

Figure 5-4 Swap partition Parameters Form

```

Reconfigure The System >>>  INSTALL AN APPLICATION PROCESSOR <<<
*****

Specify the device type and disk number where the swap
partition for the new AP is to reside, and the size of the
swap.  The device type is "c0" for a device whose Controller
is an FP and "c1" for a device whose Controller is a DP.
The disk number is the drive slot number of the disk (e.g.,
"3" for d3, "0" for s0).

Device type where swap area will reside (c0, c1):

Disk number where swap area will reside           :

Size of the swap area (blocks)                   :
  
```

**Disk Number.** Enter the disk number on which you want the swap partition to reside. It is recommended that d1 be reserved for BTOS activity and d2 for root activity.

**Note:** For optimum system performance, do not put multiple swap partitions on the same disk.

**Device Type.** Enter the device type of the disk to which you assign the swap partition. Enter "c0" for a device whose controller is an FP and "c1" for a device whose controller is a DP.

*Partition Size.* Create a minimum size partition of 20k blocks (about 10 MB) for an AP that supports 8 or 16 users and 60k blocks (about 30 MB ) for an AP that supports up to 32 users. The swap space required by an AP is a function of the number of processes running on the AP and of the amount of virtual memory each needs. You may need to modify the size of the swap partition to adjust it to the actual requirements of your system.

---

**Caution:** *Making the swap file too small (for example, 4 MB) may result in frequent system crashes.*

---

The next form asks whether you want to redistribute any terminals to the new AP. Enter "1" if you do not want to redistribute terminals. To redistribute terminals, select the number (from 2, 3, or 4) that corresponds to the type of AP you are installing (that is, the number of concurrent log-ins that this new AP will support (8, 16, or 32). centrEASE will not assign more terminals to an AP than the number of concurrent users it supports.

**Note:** *The terminal redistribution option does not preserve the previous terminal status. If you choose this option, all old terminal-to-AP assignments are lost.*

The next form gives you the option of assigning a console to the new AP. If you assign a console to an AP, any processor error that occurs on that AP appears on the assigned console screen. (However, even if you do not assign a console, it is possible to retrieve AP error messages with the **pbuf** command. Refer to the *XE 500 CENTIX Operations Reference Manual* for more information.)

The form that follows lists the terminals from which you choose the console for the new AP. Enter the number corresponding to the terminal you wish to assign as the console, and press the GO key.

Note the message that now appears on the Tell screen. Press the GO key to initiate the function; press the CANCEL key to return to the Reconfigure System Menu.

## Tasks Performed by centrEASE

After you initiate the Install Application Processor function, centrEASE performs the following functions:

- Creates the swap partition on the specified disk.
- Inserts the swap entry into the [sys]<sys>configufs.sys file.
- Inserts an AP board entry into the [sys]<sys>master.cnf file.
- Creates the new /etc/inittab*nn* file for the newly installed AP, where *nn* is the number of the AP.
- Creates an /etc/conrc file if you chose to assign a console to the new AP and enters the console tty number selected.
- Offers the user the option of either adjusting all the /etc/inittab*nn* files or leaving them unchanged.
- Redistributes terminal entries horizontally if the user chooses this option. To do this, centrEASE initiates the following routine:
  - 1 Makes a console entry for the first terminal in each /etc/inittab*nn* file if a console is assigned.
  - 2 Reassigns the tty entries starting with the lowest tty number in the /etc/inittab00 file, and proceeds to the last /etc/inittab*nn* file in the system.
  - 3 Repeats the second step until all the terminals are assigned a tty entry in each /etc/inittab*nn* file.
- Creates a console entry in the new /etc/inittab*nn* file with the proper tty number if you chose not to redistribute the terminals but did choose to assign a new console.

## Files Modified by centrEASE

- [sys]<sys>master.cnf
- [sys]<sys>configufs.sys
- [sys]<sys>C*pnn*.cnf files
- [sys]<sys>T*pnn*.cnf files
- /etc/conrc*nn* files
- /etc/inittab*nn* files

## Installing a Disk

This function allows you to install a disk connected to an FP or to a DP. The installation of either disk is similar; however, there are several differences between the two disks.

*Note: In the following discussion, a disk is referred to as assigned to a particular processor. Keep in mind that it is not the actual disk that is being assigned to the processor; the partitions contained on that disk are assigned to the processor.*

## Executing the Function

After you select the Install Disk function, a menu appears on the screen. It asks you to specify whether your disk is connected to a File Processor (FP) or to a Disk Processor (DP).

Figure 5-5 Install a Disk

```

Reconfigure The System                >>> INSTALL A DISK <<<
*****

A disk may be physically connected to either a File
Processor (FP) or a Disk Processor (DP). The physical
connection is determined by the actual cable linking
the new disk to either an FP or a DP.

To which Processor will the new disk be connected?

    1) File Processor
    2) Disk Processor

Enter a number and press GO to transmit:
  
```

## Installing an FP Disk

After you choose to install an FP disk, the form shown in Figure 5-7 appears, showing how the disks are positioned when you look at the back of the enclosure.

Figure 5-6 appears only if you have entered an invalid disk number.

Figure 5-6 Install an FP Disk (1)

```
Reconfigure the System                >>> INSTALL A DISK <<<
=====

Disk number      must be physically connected to

At the present time, this processor is not
installed on your system. Without the presence
of this processor board, the disk cannot be
accessed after installation. If you plan to
install the processor after installing the
disk, Press GO to continue with the disk
installation.

Press GO to initiate this function

CANCEL to abort it and return to the calling menu
```

There are a maximum of four FP disks in each enclosure. The disks numbered from 0 through 3 in enclosure 1 are assigned to FPO0, and disks 4 through 7 in enclosure 2 are assigned to FPO1. Note that even if disk 3 were missing, disk 4 would still be considered disk 4. The disk number represents the disk slot, not how many disks exist in the system.

The form shown in Figure 5-7 asks you to determine the position in which the new disk was inserted and to enter its corresponding number in the field provided. Be sure to enter the disk's position, not the number of disks in your system.

Figure 5-7 Install an FP Disk (2)

```

Reconfigure the System          >>> INSTALL AN (FP) DISK <<<
=====

The picture below represents how your disks are numbered when
looking at the enclosure(s) from the BACK. Determine the
disk position that you inserted your new disk into, and enter
it below:

      |-----|-----|
      | 4 | 5 |
      |-----|-----|
      | 7 | 6 |
      |-----|-----|
Enclosure #2

      |-----|-----|
      | 0 | 1 | 1 |
      |-----|-----|
      | 3 | 2 |
      |-----|-----|
Enclosure #1

Disk Position:

```

**Notes:**

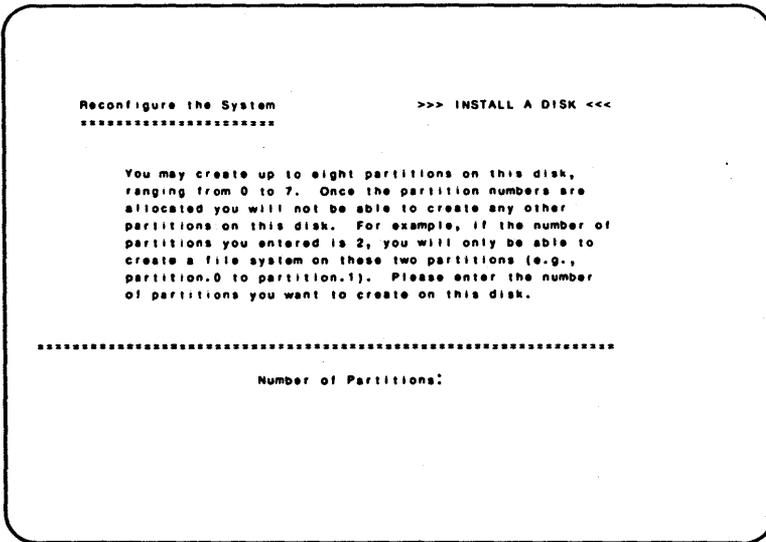
**1** *centrEASE* checks that the disk number you enter is a valid disk number. This check ensures that the appropriate board for the new disk is on the system.

**2** When you select a processor in which to map the new disk, be sure that the processor has the *ufs.run* server installed.

After you enter a valid new disk position, a form appears showing the rear of two enclosures. This form asks you to assign the new disk to a file processor (FP). (Each of the disk's partitions must map to a specified FP.) This form is shown in Figure 5-8.

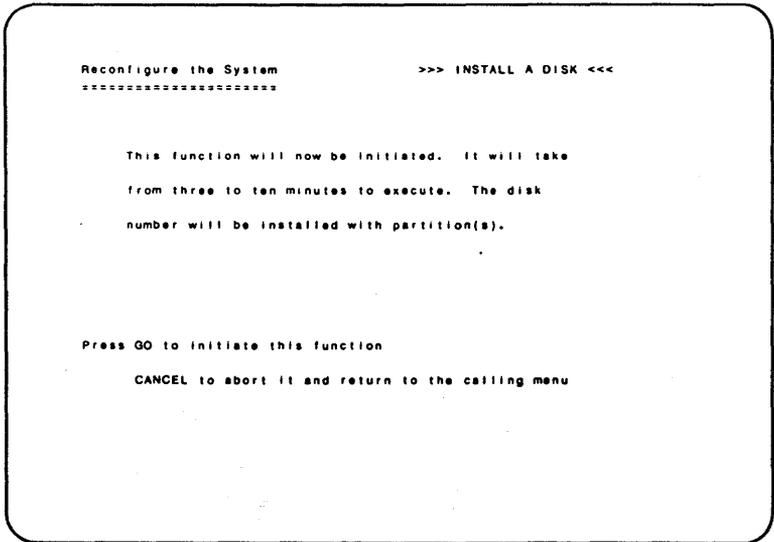


Figure 5-9 Install an FP Disk (4)



Note the message that now appears on the Tell screen (Figure 5-10). Press the GO key to initiate the function; press the CANCEL key to return to the Reconfigure System Menu.

Figure 5-10 Install an FP Disk (5)



### Tasks Performed by centrEASE

After you initiate the function to install an FP disk, centrEASE performs the following functions:

- Creates the partition entries for the new disk, and inserts them in the correct order in the [sys]<sys>configufs.sys file.
- Generates the number of nodes necessary for the specified number of partitions in the /dev directories /dev/dsk and /dev/rdisk under the root.
- Creates a [sys]<sys>Fpnn.cnf file for the selected FP (if the file did not previously exist).
- Checks that the specified disk number is possible, based on the processor boards available on the system.
- Checks for the presence of a ufs.run server on the processor to which the new disk is logically assigned.

### Files Modified by centrEASE

- [sys]<sys>configufs.sys
- [sys]<sys>Fpnn.cnf

## Installing a DP Disk

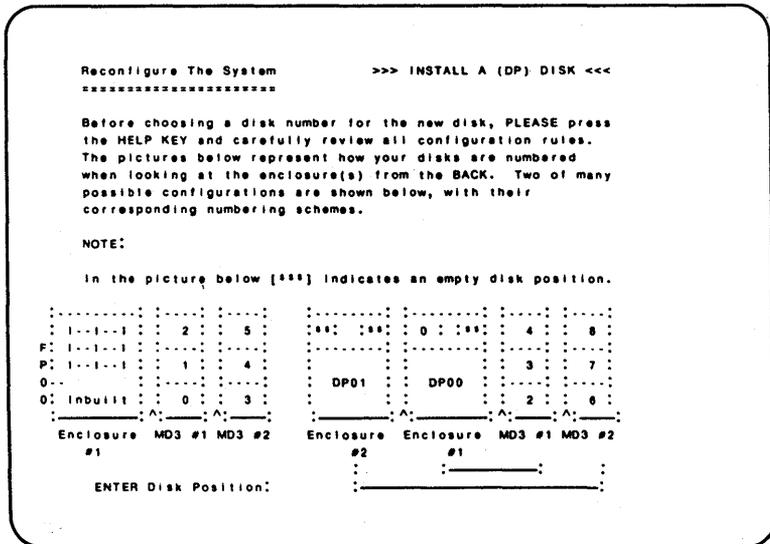
After you enter the selection to install a DP disk, the first form to appear shows how the disks are positioned at the back of the enclosure. This form is shown in Figure 5-11.

There are up to three DP disks in an MD3 enclosure. The disks, in most cases, are numbered from 0 through 2. Note that even if disk 1 were missing, disk 2 would still be considered disk 2. The disk number represents the disk slot, not how many disks exist in the system.

If you have an enclosure with two DP disks, as shown on the right in Figure 5-11, the first two disk locations are always numbered 0 and 1, respectively.

There are up to six disks per DP. The disks are numbered from 0 through 5 for DP00 and 6 through 11 for DP01, and so on. Do not assign disks in different MD3 enclosures to the same DP.

Figure 5-11 Install a DP Disk (1)



The form shown in Figure 5-11 asks you to determine the position in which the new disk was inserted and to enter its corresponding number in the field provided. Be sure to enter the disk's position, not the number of disks in your system.

If you enter an invalid disk number, the screen shown in Figure 5-12 appears.

Figure 5-12 Install a DP Disk (2)

```
Reconfigure the System                >>> INSTALL A DISK <<<
*****

Disk number      must be physically connected to      .

At the present time, this processor is not
installed on your system. Without the presence
of this processor board, the disk cannot be
accessed after installation. If you plan to
install the processor after installing the
disk, Press GO to continue with the disk
installation.

Press GO to initiate this function

CANCEL to abort it and return to the calling menu
```

**Note:** *centrEASE* checks that the disk number you enter is a valid disk number. This check ensures that the appropriate board for the new disk is on the system.

After you enter the new disk's position, the next form (Figure 5-13) asks you to assign the disk to a processor. (The disk partitions must map to a specified processor.) A DP disk may be assigned either to an File Processor (FP) or a Disk Processor (DP). Usually, you assign a DP disk to a DP, but the DP must have associated with it a memory expansion board containing at least 1/2 MB of memory. Otherwise, you must assign the new disk to an FP.

Figure 5-13 Install a DP Disk (3)

```

Reconfigure the System                >>> INSTALL A (DP) DISK <<<
*****

The new disk must logically be assigned to a processor
running a ufs.run server. Please enter the processor type
and processor number that map to your new disk. A disk
usually maps to the DP or FP that it is physically attached
to. If a disk is assigned to a Data Processor (DP), the
Processor must have 1/2 megabyte (MB) of memory expansion
(ME). Otherwise, a new disk must map to a File Processor
(FP).

Enter the processor type (FP, DP) :
Enter the processor number (0, 1, etc.) :

```

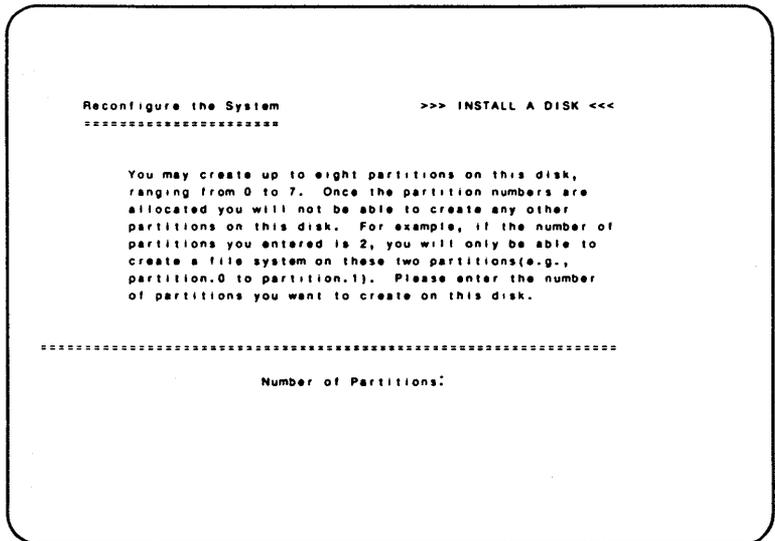
Only one FP and one DP may exist per enclosure. Usually, a DP disk is assigned the DP to which it is physically attached. Enter "0" if you want the new DP disk to map to FP00 or DP00 (the processors found in enclosure 1), or enter "1" if you want the new DP disk to map to FP01 or DP01.

**Notes:**

- 1 When you select a processor in which to map the new disk, be sure that the processor has the ufs.run server installed.
- 2 If your DP does not have a 1/2 MB memory expansion board, and you assign the disk to it, CENTIX does not acknowledge the disk.

The next form to appear during this installation sequence (Figure 5-14) asks how many partitions you would like to create on the new DP disk. You may create as many as eight partitions per disk, and as few as one. Depending on how many partitions you wish to create, enter a number from 1 through 8. (Remember that the actual partitions are numbered 0 through 7.)

Figure 5-14 Install a DP Disk (4)

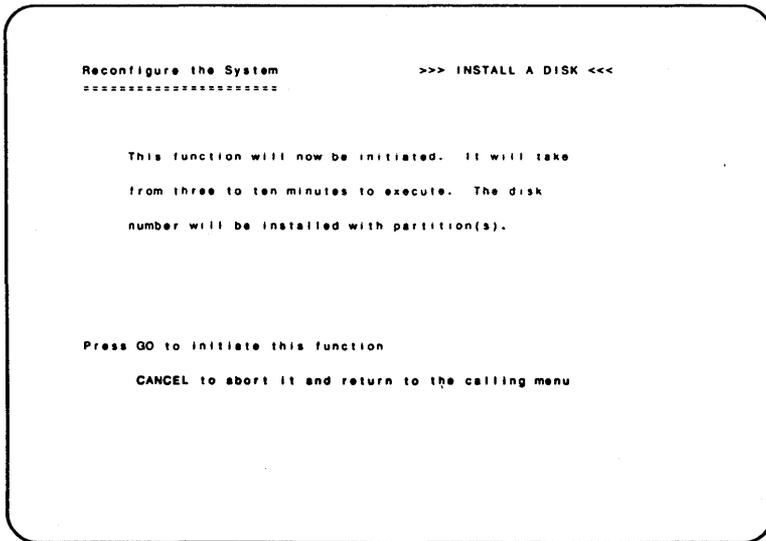


Once you specify the number of partitions to exist on a DP disk, you know which partitions you may use for file systems. For example, if the number of partitions stipulated is 2, you can create a file system only on those two partitions, partition 0 and partition 1.

Enter your selection and press the GO key.

The screen shown in Figure 5-15 appears. Press the GO key to initiate the function; press the CANCEL key to return to the Reconfigure System Menu.

Figure 5-15 Install a DP Disk (5)



### Tasks Performed by centrEASE

After you initiate the function to connect a disk to a DP, centrEASE performs the following functions:

- Creates the partition entries for the new disk, and inserts them in the correct order in the [sys]<sys>configufs.sys file.
- Generates the number of nodes necessary for the specified number of partitions in the /dev directories /dev/dsk and /dev/rdisk under the root.
- Creates a [sys]<sys>Xpnn.cnf file for the selected DP (if the file did not previously exist).
- Checks that the specified disk number is possible, based on the processor boards available on the system.
- Checks for the presence of a ufs.run server on the processor to which the new disk is logically assigned.

**Files Modified by centrEASE**

- [sys]<sys>configufs.sys
- [sys]<sys>Fpnn.cnf or [sys]<sys>Dpnn.cnf

**Managing BTOS Services**

The Manage BTOS Services function allows you to add or delete BTOS-based system services. After selecting this function, control is passed from the centrEASE facility to the MBTOS Config utility. For this reason the screens that follow the initial Reconfigure the System Menu appear slightly different from what you may be used to seeing in centrEASE.

**Notes:**

**1** *The Manage BTOS Services function is only part of the MBTOS Config utility. Only the part of MBTOS Config which deals with system services is available to you.*

**2** *If you wish to do more than modify processor initialization files, exit this function and select option 3, Issuing BTOS Commands Through CENTIX, from the main menu. Then select MBTOS Config from the list of available BTOS commands.*

For information on using the MBTOS config utility, refer to the *XE 500 CENTIX Software Installation Guide*.



---

## Installing CENTIX Products

The centrEASE facility installs CENTIX application software products (software such as CENTIX programming languages, ISAM, centreSCREEN).

The centrEASE installation function loads the software onto an XE 500 disk and brings the software into the CENTIX operating system.

CENTIX products are released on disk cartridges and tapes. The same disk or tape may contain more than one CENTIX product. To be certain which products you have, consult the documentation that accompanies your new software.

---

*Caution: Software products released before the 5.0 release are still initially installed onto d1 of the XE 500; however, centrEASE now does this task automatically. Do not use the keyswitch procedure, as was previously required.*

*When installing pre-5.0 software products, be sure that you have at least 6500 sectors available on d1 to store the product's temporary partition.*

---

## Executing the Function

After you select the Install CENTIX Products function, centrEASE displays a Tell screen informing you that some products require specific procedures before they can be installed. The screen refers you to the product documentation so that you can become familiar with it before using this function.

The form that follows the Tell screen asks you to specify the medium on which the new software product is loaded. This form includes the following three choices:

- 1 Disk cartridge.
- 2 Half-inch tape.
- 3 Quarter-inch cartridge (QIC) tape.

If the new software is loaded on half-inch tape (option 2), centrEASE assumes that the product to be installed will be found in the first half-inch tape or first quarter-inch cartridge installed on the system. The device name for the half-inch tape is `/dev/rmt/0`; the device name for the quarter-inch cartridge is `/dev/rmt1`.

The screen prompts you to insert the disk cartridge or tape into the drive. Wait for it to come on-line, and press the GO key to execute the installation.

After you press the GO key, centrEASE calls up either the MSysLoad utility or the CentixLoad utility, depending on the application software product.

For most application software products available before the 5.0 level release of the CENTIX system software, centrEASE calls up the MSysLoad utility. The software is initially installed onto a temporary partition on the BTOS system disk (d1). The software is then copied from the temporary partition into the CENTIX file system.

Some pre-5.0 release application software products may require special BTOS system services. The run statement for one of these services is automatically added to the appropriate processor initialization file during the installation.

If you want to move a run statement to another processor initialization file, you cannot use the MBTOS Config utility; you must modify the appropriate initialization files manually, using an editor.

For application software products available with the 5.0 level release of CENTIX system software, centrEASE calls the CentixLoad utility to install the software directly from the release medium into the CENTIX file system.

Install scripts cause any other system operations that are necessary to install the software to be run. For example, after the CentixLoad utility installs the software into the CENTIX file system, some 5.0 release software application products are also set to cause the MBTOS Config utility to be invoked.

This occurs when a software product requires that the configuration files be modified. Before initiating this function, you should know which boards need to be modified. For this information, refer to the product's release notes.

For instructions on how to complete the installation procedure from the point in which the utilities are called, refer to the *XE 500 CENTIX Installation and Implementation Guide*.

After CentixLoad has installed the new product, centrEASE checks to see that the `/.RunCust` file is present. If it is, centrEASE invokes the customizer to set up the new kernel for both the AP1 and AP2 processors.

After the installation is completed, another form appears. It asks if you have more CENTIX products to install. Enter 1 for Yes or 2 for No.

If you select option 1, centrEASE returns you to the previous form, which prompts you to specify the medium on which the new application software product is loaded. If you select option 2, No, centrEASE returns you to the main menu.

**Note:** *The system may have to be rebooted before the new software can take effect. Refer to your product release letter for specific instructions.*



## Printing Configuration Reports

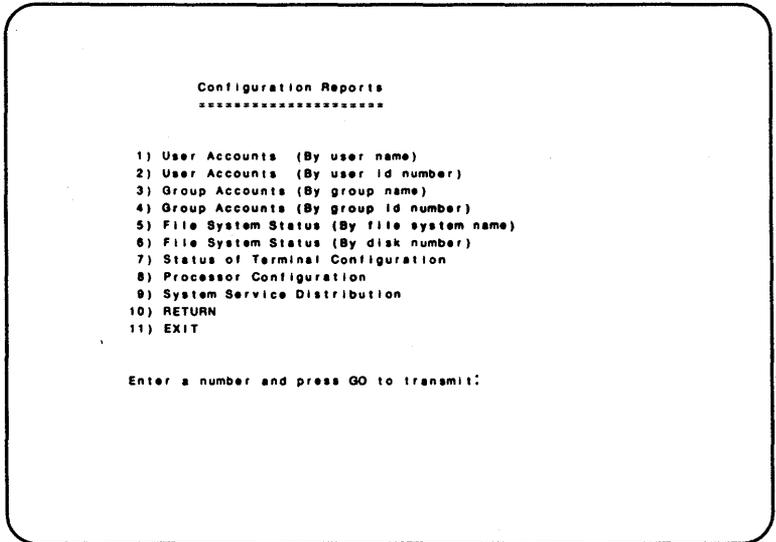
You can use centrEASE to obtain reports on the current status of the XE 500 System.

### Executing the Function

After you select the Print Configuration Reports option from the main menu, centrEASE displays a form on which you must specify what type of printer you are using to print out your reports. For information on filling out the printer form, refer to Section 12.

After you enter the appropriate printer information and press the GO key, the menu shown in Figure 7-1 appears on your screen.

Figure 7-1 Print Configuration Reports Menu



## User Accounts Report (By User Name)

Select option 1, User Accounts Report (By user name), to obtain information on user accounts. The information in this report is sorted by user names.

All current user names appear in alphabetical order and are found in the the first column of the report. Other information includes user identification number, group identification number, log-in directory, and log-in shell.

An example of a User Accounts Report (By user name) appears in Figure 7-2.

### Files Referenced

- /etc/passwd

Figure 7-2 Sample User Accounts Report (By User Name)

USER ACCOUNTS				
User Name	User Id	Group Id	Login Directory	Login Shell
adm	4	4	/usr/adm	
bin	2	2	/bin	
daemon	1	1	/	
lp	71	2	/bin	
nuucp	8	1	/usr/spool/uucp	/usr/lib/uucp/u...
root	0	0	/	
surge	0	0	/users/surge	/bin/sh
sys	3	3	/usr/src	
tdl	0	0	/	/usr/local/bin/...
user1	100	100	/usr/tmp	
uucp	5	1	/usr/lib/uucp	

## User Accounts Report (By User Identification Number)

Select option 2, User Accounts Report (By user identification number), to obtain information on user accounts. The information in this report is sorted by user identification number.

All current user identification numbers are listed in numerical order and are found in the the first column of the report. Other information includes user name, group identification number, log-in directory, and log-in shell.

An example of a User Accounts Report (By user identification number) appears in Figure 7-3.

### Files Referenced

- /etc/passwd

Figure 7-3 Sample User Accounts Report (By User ID Number)

USER ACCOUNTS				
User Id	User Name	Group Id	Login Directory	Login Shell
0	lpp	1	/	/usr/local/bin...
0	root	0	/	
1	daemon	1	/	
1	ptdt	1	/	/usr/local/bin...
2	bin	2	/bin	
3	sys	3	/usr/src	
4	adm	4	/usr/adm	
5	uucp	1	/usr/lib/uucp	
6	nuucp	1	/usr/spool/uucp...	/usr/lib/uucp/u...
7	lp	2	/bin	
8	rje	8	/	
9	cms	9	/CMS	
100	user1	100	/usr/tmp	

## Group Accounts Report (By Group Name)

Select option 3, Group Accounts Report (By group name), to obtain information on the groups in your system. The information in this report is sorted by group name.

All current group names appear in alphabetical order and are found in the the first column of the report. The other members of each group appear in the right-hand column.

An example of a Group Accounts Report (By group name) appears in Figure 7-4.

### Files Referenced

- /etc/group

Figure 7-4 Sample Group Accounts Report (By Group Name)

GROUP ACCOUNTS *****				
Group Name	Group id	Users in Group		
-----	-----	-----		
adm	4	root	adm	daemon
bin	2	root	bin	daemon
		lp		
cms	9	cms		
daemon	1	root	daemon	uucp
		nuucp	ptd1	lpp
mail	6	root	k	
other	100	user1	newuser	
rje	8	rje	me	
root	0	root	fritz	
sys	3	root	bin	sys
		adm		

## Group Accounts Report (By Group Identification Number)

Select option 4, Group Accounts Report (By group name), to obtain information on the groups in your system. The information in this report is sorted by group identification number.

All current group numbers appear in numerical order and are found in the first column of the report. The other members of each group appear in the right column.

An example of a Group Accounts Report (By group identification number) appears in Figure 7-5.

### Files Referenced

- /etc/group

Figure 7-5 Sample Group Accounts Report (By Group Identification Number)

```
USER ACCOUNTS
Group
  id      Group Name
  0       root
  1       daemon
  2       bin
  3       sys
  4       adm
  6       mail
  8       rje
 100      other
```

## **File System Status Report (By File System Name)**

Select option 5, File System Status Report (By file system name), to obtain information on the file systems existing on your system. The information in this report is sorted by file system name.

All current file system names appear in alphabetical order and are found in the the first column of the report. A File System Status Report includes the following information on each file system:

- Disk number.
- Partition number.
- File System Name.
- Partition size.
- Last full backup.
- Last incremental backup.
- Device type.

An example of a File System Status Report (By file system name) appears in Figure 7-6.

### **Files Referenced**

- /SAF/FILES/fsysbkup

Figure 7-6 Sample File System Status Report (By File System Name)

```

FILE SYSTEM STATUS (By file system name)

File System Disk Partition Partition Last Full Incremental Device
Name      No.      No.      Size      Backup      Backup      Type
/tapetest 00      1      20000    Wed Aug 7   --         C1
/tempfs3  02      2      194      Thu Dec 12  --         C0
/tmp/KBS   03      0      200      Mon Oct 7   --         C0
/users/mark
  /fs     01      1      44      Wed Dec 11  Fri Dec 13  C0
/users    01      0      20000    --         --         C1

```

### File System Status Report (By Disk Number)

Select option 6, File System Status Report (By disk number), to obtain information on the file systems on your system. The information in this report is sorted by file system disk number.

All current file systems appear in numerical order and are found in the the first column of the report. Each File System Status Report includes the following information on each file system:

- Disk number.
- Partition number.
- File System Name.
- Partition size.
- Last full backup.
- Last incremental backup.
- Device type.

An example of a File System Status Report (by disk number) appears in Figure 7-7.

## Files Referenced

□ /SAF/FILES/fsysbkup

Figure 7-7 Sample File System Status Report (By Disk Number)

```
FILE SYSTEM STATUS (By Disk Number)
Disk Partition File System Partition Last Full Incremental Device
No.   No.   Name      Size  Backup  Backup  Type
00    1    /tapetest 20000 Wed Aug 7  --   C1
01    1    /users/mark 44    Wed Dec 11 Fri Dec 13 C0
02    0    /users    20000 --     --     C1
03    2    /tempfs3  194   Thu Dec 12 --   C0
04    0    /tmp/KBS  200   Mon Oct 7  --   C0
```

---

## Status of Terminal Configuration Report

Select option 7, Status of Terminal Configuration Report, to obtain information on which terminals are assigned to which applications processor.

The report contains the following information for each terminal:

- Terminal numbers (the number contained in the /dev/tty file) appear in numerical order.
- Terminal mode (administrator or terminal).
- Processor attachment.
- Port type.
- Logical AP assignment.
- getty status.

An example of a Status of Terminal Configuration Report appears in Figure 7-8.

### Files Referenced

- [sys]<sys>master.cnf
- [sys]<sys>Cpnn.cnf
- [sys]<sys>Tpnn.cnf
- /etc/inittabnn

Figure 7-8 Sample Status of Terminal Configuration Report

STATUS OF TERMINAL CONFIGURATION						
Terminal Number (TTY#)	Terminal Mode	Cluster or Processor	Terminal Attachment	Port Type	Logical AP Assignment	getty Status
000	-----	----	----	----	----	-----
001	console	CP-00	RS-422	AP-00	respawn	
002	terminal	CP-00	RS-422	AP-00	respawn	
003	terminal	CP-00	RS-422	AP-00	respawn	
004	terminal	CP-00	RS-422	AP-00	respawn	
005	terminal	CP-00	RS-422	AP-00	respawn	
006	terminal	CP-00	RS-422	AP-00	respawn	
007	terminal	CP-00	RS-422	AP-00	respawn	
008	terminal	CP-00	RS-422	AP-00	respawn	
009	terminal	CP-00	RS-422	AP-00	respawn	
010	terminal	CP-00	RS-422	AP-00	respawn	
011	terminal	CP-00	RS-422	AP-00	respawn	
012	terminal	CP-00	RS-422	AP-00	respawn	
013	terminal	CP-00	RS-422	AP-00	respawn	
014	terminal	CP-00	RS-422	AP-00	respawn	
015	terminal	CP-00	RS-422	AP-00	respawn	
016	terminal	CP-00	RS-422	AP-00	respawn	
017	-----	----	----	----	----	-----

## Processor Configuration Report

Select option 8, Processor Configuration Report, to obtain information on the processors in the system.

The type of processor appears in the first column and is followed by the processor sequence number. Note that the sequencing is zero relative (for example, the first CP is numbered CPO0). APs are numbered regardless of their type.

An example of a Processor Configuration Report appears in Figure 7-9.

## Files Referenced

- The centrEASE facility obtains processor configuration information from a program which interrogates the master FP. This program includes the file /usr/include/sys/icc.h. The /usr/include/sys/icc.h file contains a table structure called "cdt," which is filled with the entire system configuration by a syslocal call. The data obtained comes from the BTOS configuration table, which is filled by the master FP at boot time.

Figure 7-9 Sample Processor Configuration Report

PROCESSOR CONFIGURATION	
*****	
File Processor	00
Cluster Processor	00
Application Processor 1	00
Cluster Processor	01
File Processor	01
Application Processor 1	01
Disk Processor	00
Application Processor 11	02

## System Service Distribution Report

Select option 9, System Service Distribution Report, to obtain information on which system service is executing on which processor. You should use this option before moving a system service from one processor to another. Refer to the *XE 500 CENTIX Installation and Implementation Guide* for guidelines concerning which system services can be run on each processor.

*Note: centrEASE generates this report from the processor initialization files. The System Service Distribution Report reflects changes made to these files since the last system boot up, even though those changes do not take effect until the next system boot up.*

An example of a System Service Distribution Report appears in Figure.7-10.

### Files Referenced

- All processor initialization files are referenced for this report.

Figure 7-10 Sample System Service Distribution Report

```

SYSTEM SERVICE CONFIGURATION

File Processor 00:
  1. $continueonerror
  2. $run [sys]<sys>MinstallQMgr.run
  3. $run [sys]<admin>MCreatePartition.run,150k,UFS
  4. $run [sys]<admin>MinstallServer.run,UFS,[sys]<sys>UFS.run
  5. $run [sys]<sys>MAdminAgent.run

Cluster Processor 00:
  1. $run [sys]<sys>MSpoolerMgr.run

Cluster Processor 01:
  ** There are no system service entries for this processor **

File Processor 01:
  ** There are no system service entries for this processor **

Disk Processor 00:
  1. $run [sys]<admin>MTapeServer.run,2,16

```

## Backing Up and Restoring Files

The BackUp and Restore function allows great flexibility for specifying what to back up, what to restore, and how you want to restore your data. The function is complex, but after you gain a general understanding of the options, you can supply centrEASE with the required information fairly simply. Like all centrEASE functions, it is straightforward, and the menu-driven forms provide helpful information throughout each procedure.

Because this centrEASE function allows great flexibility, it is not possible here to detail each backup and restore procedure that you might execute. However, to plan your backup and restore strategies effectively, you should develop a general idea of how the function works.

After you select the Backup and Restore function from the main menu, centrEASE displays the menu shown in Figure 8-1.

Figure 8-1 Backup and Restore Menu

```

                                     BACKUP & RESTORE
                                     *****

1) BACKUP USER  File(s) or File System
2) RESTORE USER File(s) or File System
3) BACKUP SYSTEM Files
   (Includes CENTIX Root and BTOS System files)
4) RETURN
5) EXIT

(Choices 1 and 2 refer exclusively to CENTIX
 files or file systems.)

NOTE:

To RESTORE SYSTEM FILES, you must select the
"Restore" choice from the "RESTRICTED MODE"
menu which is only accessible via the REMOTE
keyswitch position. See documentation for
details.

Enter a number and press GO to transmit:
```

## What Can Be Backed Up

The Backup and Restore function provides three choices for what can be backed up:

- Specific CENTIX files.
- Entire CENTIX file systems.
- System files.

The Backup and Restore function recognizes a CENTIX file as any file recognized by CENTIX, that is, a non-BTOS file.

When backing up specific CENTIX files, you must create a list containing only those files that you want to back up. This file list may include non-directory files, files and directories, directories only, or files from more than one CENTIX file system.

When you back up a file system, the Backup and Restore function presents a list of all the currently recognized file systems for you to choose from. The Backup and Restore function recognizes only those file systems that have been created or added through the centrEASE function called Manage File Systems.

System files that may be backed up include the CENTIX files in the root file system and BTOS system files. CENTIX system files exclude files in user-created (or centrEASE-created) file systems.

## Where You Can Back Up Your Files

The Backup and Restore function provides three choices for selecting the medium on which to store your files:

- Disk cartridge.
- Half-inch tape.
- Quarter-inch cartridge (QIC) tape.

The medium to which your files are backed up later determines the options available for restoring the files.

---

**Caution:** *Never use centrEASE to back up data to a tape or cartridge that already contains information you want to keep. The backup procedure does not append the files to the medium; it overwrites whatever was previously on the medium.*

---

## What Can Be Restored

The Backup and Restore function provides three choices for selecting what can be restored:

- Specific files.
- Entire file system.
- A subset of a file system.

Although system files can be backed up, they cannot be restored through the Backup and Restore function. System files may be restored only from the Restricted Mode's Main Menu which appears when the keyswitch is reset to the REMOTE position. For instructions on restoring system files, refer to Section 11.

## Backing Up CENTIX Files

To back up CENTIX files you must identify what it is you want to back up and the medium on which you want to store it.

### Creating a File list for Backing Up CENTIX Files

Before invoking the centrEASE facility to back up CENTIX files, (as opposed to an entire file system) you should first create a file list, a CENTIX file in which you list only the files that you want to back up. Then centrEASE uses the file list to identify the files you have specified for backup.

Use an editor to construct the file list according to the following specifications:

- The file list may contain file names or directory names in any order or combination.
- The file list's full path name can be no longer than 70 characters.
- Each entry in the file list must also be no longer than 70 characters and must be the full path name of that file. Therefore, each entry must begin with a slash (/).
- Each file listed in the file list must appear on a separate line.

- If only one file is to be backed up, it is the only entry in the file list.
- No wildcards are permitted in the file list (for example, a question mark or asterisk).
- No blank lines, white space, or comments are permitted in the file list.

To back up an entire directory, include its full path name in the file list.

The same form that asks for the file list name also asks whether this list contains any directories to be expanded (the default value is "no"). When "yes" is selected, centrEASE expands the file list so that every file in each directory specified is added to a revised file list. The revised file list is used by centrEASE, and the original file list remains unchanged.

*Note: For an example of a file list, refer to "Example of Backing Up CENTIX Files."*

## **Executing the Function**

After invoking the centrEASE facility, select option 7 from the main menu. This brings up the opening menu for the Backup and Restore function, shown in Figure 8-1.

Next, after determining that what you want to back up are CENTIX files, choose the first option, Back Up CENTIX File(s) or File System(s).

Then indicate on which medium you want to back up the files: disk cartridge, half-inch tape, or quarter-inch cartridge (QIC) tape.

After indicating that you want to back up CENTIX files (not file systems), centrEASE asks what type of printer you are using. For information on completing this form, refer to Section 12.

Next, centrEASE prompts you to specify the name of the file list that you created before beginning the backup procedure.

If you have not created a file list, you must do so at this time. Follow these instructions, using the specifications previously noted:

- 1 Press the FINISH key to escape to shell.
- 2 Change the directory to the directory in which you want to store your file lists. (You may want to call such a directory `"/backups"` and create subdirectories under `/backups` to hold specific lists.)

*Note: After escaping to shell, be sure to change directories before creating a file list.*

- 3 Then use an editor to create the file list according to the specifications described above.
- 4 After you have finished creating the file list, press the FINISH key once more to return to where you originally were in the Backup and Restore function.

The file list's full path name must be supplied when centrEASE prompts you for it. If your file list is named `"85mar23"` and it resides in `/backups/dbase`, you must make the following entry:

```
/backups/dbase/85mar23
```

If your file list contains the names of directories that you want to expand, indicate that you want to do so.

After the file list's full path name has been entered, centrEASE processes the file list to determine which files exist and how much space each occupies. After this is completed, centrEASE tells you how many cartridges or tapes are required for the files you want to backup.

*Note:*

**1** *If you do not have the required number of tapes or cartridges on hand, cancel the backup function. To do so, press the CANCEL key.*

**2** *centrEASE assumes that a half-inch tape is a large one, and that a quarter-inch cartridge has a 60 MB capacity. Therefore, you will usually be told that only half-inch tape or quarter-inch tape is required. Avoid small-diameter half-inch tape. Quarter-inch tape cartridges less than 60 MB are not supported.*

The next form prompts you to insert the first tape or cartridge. The backup may take between 5 to 60 minutes per cartridge or tape, depending on the size of the files and the number of files listed in the possibly expanded file list.

### **Documenting the Backup Procedure**

The next form asks whether you want to save the list of exactly what has been backed up on each cartridge or tape. You should do so, particularly if this list differs from your original file list (remember that file lists are expanded when they contain a directory entry). Saving this list enables you to restore the data more easily.

To save the list, enter the full path name of the directory where you want to save the file list. The suffix `.n` is appended to the end of the path name and refers to the sequence number of the cartridge or tape. This allows you to use the same path name regardless of the number of cartridges or tapes required to perform the backup.

At the end of the path name include the date of backup. In this way your lists will always have unique names, and an earlier list will not be overwritten by a later one with the same name.

For example, assume that you have just backed up a file list and want to store it in a directory called `/backups/dbase`. By entering `/backups/dbase/85aug21`, the full path names for the first three cartridges used to backup the file list would appear as follows:

```
/backups/dbase/85aug21.1
```

```
/backups/dbase/85aug21.2
```

```
/backups/dbase/85aug21.3
```

As the backup function executes, various information is displayed on the screen. Although this information may scroll past before you have a chance to read it, it is automatically printed out in a backup log. The display merely shows the progress and status of the function's execution.

## Backup Log

When you back up CENTIX files, a detailed backup log is automatically created and printed. The backup log documents each backup procedure and provides the information necessary for restoring the files at a later time. Be sure to attach the printed backup log to each medium used to back up files. The backup file contains the following information:

- The name of the file list.
- The files contained in the file list.
- The date and time of the backup.
- A breakdown of files backed up on each cartridge or tape.
- Any names of files on the file list that were not found on the system disk.
- Any names of files that were too large to fit on the medium selected.
- The names of directories (if any) found in the file list, including the names of files added during expansion.

Each backup log is automatically printed out during the backup procedure. You specify which printer at the beginning of the procedure. (If you press the CANCEL key at this point, you are returned to the main menu.)

The backup log is also appended to the centrEASE session log file. Should a backup procedure fail, bring up the Manage Log Files menu from the centrEASE main menu and select the option to print the current session log. The current session log may contain important error messages that are not contained in the backup log (for example, error messages from CENTIX commands).

## Files Not Backed Up

Files that are not backed up are listed in the backup log. Usually one of the following conditions causes incomplete backup:

- The file's size exceeds the storage capacity of the medium selected. Tape has the greatest storage capacity and is especially recommended for files occupying more than 8900 blocks.
- The file entered in the file list does not exist on the system disk. (Check the full path name and spelling.)

If either of these conditions occur, you are given a chance either to cancel or to continue to back up the remaining valid files.

## Considerations for Backing Up CENTIX Files

### Backing Up to Disk Cartridge

Before backing up data onto a disk cartridge, you must initialize and test the surface of the cartridge. During the actual backup procedure, centrEASE executes its own quick **MIVolume** command, which is required for the backup function. For a description of the **MIVolume** command, refer to Section 4, "Issuing BTOS Commands Through CENTIX."

More than one cartridge is required if the combined block size of the files listed exceeds 8900 blocks. This figure assumes that no more than 400 entries appear in the file list. If your file list contains more than 400 entries, you should not attempt to backup files greater than 8000 blocks. Split the file list into several smaller file lists. Refer to the **split** command in the *XE 500 CENTIX Operations Reference Manual*.

The centrEASE facility cannot back up a single file exceeding 8900 blocks onto a disk cartridge. However, such a file can be backed up onto tape.

When a disk cartridge is used, centrEASE assumes that one is not already inserted in the drive. (centrEASE prompts you to insert and remove the cartridge at the appropriate times.) centrEASE also assumes that the proper mount and unmount procedures were followed.

---

*Caution: Never back up to a disk cartridge unless you have previously initialized and surface-tested it. Three surface tests are recommended. You cannot restore data backed up on bad spots.*

---

### **Backing Up to Half-Inch Tape or Quarter-Inch Cartridge**

Half-inch tape or quarter-inch cartridge (QIC) tape is the recommended medium for backing up very large files (over 8900 blocks) and for a large number of small files.

### **Backing Up CENTIX Files: Example**

The following example demonstrates how to use the Backup and Restore facility to back up several specific CENTIX files. Because of the great flexibility this function allows, the actual procedure you perform on your own system may be quite different from the one shown here.

Assume that you want to back up an entire directory that contains 18 files, as well as 5 files from another directory, and that you want to back them up onto a disk cartridge. Assume also that you have previously initialized and surface tested the disk cartridge.

- 1** Prepare a file list that contains the full path names of the 5 files and the full path name of the directory that you want to back up. Using an editor, create the file list as described earlier in "Creating a File list."

Call the new file containing the list of files that you want to back up `"/backups/85nov11."` It might look like this (these entries appear in the first column on the left side of the screen):

```
/useraccounts/dbase/proj1
/useraccounts/dbase/proj2
/useraccounts/dbase/data
/useraccounts/dbase/proj4
/useraccounts/dbase/proj5
/useraccounts/dataentry
```

- 2 Invoke the centrEASE facility and select the Backup and Restore option from the main menu. Select option 1, Backup CENTIX File(s) or File System(s).
- 3 The next screen asks you to specify the medium onto which you will back up your data. Select option 1, disk cartridge.
- 4 The next screen asks "What do you want to backup to a disk cartridge?" Select option 1, CENTIX file list.
- 5 Next, specify the type of printer you are using. The default for this form is a parallel printer. If you have a parallel printer configured, simply press the GO key.
- 6 On the next form enter the name of the file list that specifies the files you want to back up.  
  
On the same form (for this example), indicate that directories should be expanded by changing the default from 2 to 1, (that is, from "no" to "yes").
- 7 After you enter the file list name and press the GO key, centrEASE performs the following tasks:
  - Displays the original file list's contents.
  - Expands the directories and displays the revised file list.
  - Displays files contained in the file list that have a bad status (that is, they do not exist).
  - Displays a list of of the files backed up on each disk cartridge.

- Displays the number of disk cartridges required, and the names of any files that are too large for the medium or are not found on the disk.
  - If any files are “not found” or “too large,” you are given a chance to cancel.
- 8** centrEASE then asks you to insert the first disk cartridge into the drive, where it performs a quick MIVolume. (Remember that this step erases any files previously stored on the cartridge.)
- 9** Next, centrEASE asks whether or not you want to save the list of files backed up onto this disk cartridge. Since the directories were expanded in this example, the expanded list should be saved even though only one disk cartridge was used. (This step makes a subsequent restoration procedure much easier.)
- 10** After the backup log is printed, a reverse-video message appears on the screen and signals whether or not the backup procedure was successful.

## Restoring CENTIX Files

To restore CENTIX files you must identify what it is you want to restore, and have at hand the medium or media to which the data was backed up.

It is helpful to have the information in the backup log that was printed out at the time of the backup procedure.

***Note:** Only files that have been backed up through the centrEASE facility can be restored through this procedure.*

The option to restore CENTIX files provides great flexibility for specifying exactly which you want to restore any CENTIX file previously backed up through centrEASE. CENTIX files may be restored from any one of the following media:

- Disk cartridge.
- Half-inch tape.
- Quarter-inch cartridge (QIC) tape.

***Note:** The medium to which your files were backed up determines some of the options available for restoring the files.*

## Selecting Files to Be Restored

You can restore files from any of the three backup media:

- Entire medium (restore everything, depending on overwrite choice).
- One directory (restore files under a specific path name).
- One or more files (restore from a file list).

When restoring one or more files from a file list, you are not required to use the entire file list that was created during the backup procedure.

For example, you may decide to back up a file list containing 100 files, and then a month later need to restore 5 of them because they were accidentally deleted. In this case, you would not restore the entire file list.

*Note: If some of the file names in the file list refer to files from a mountable file system, that file system must be mounted before you initiate the restore function.*

If backed up files were linked, the restore retrieves the links. However, the restore log and screen message may incorrectly indicate that linked files were not restored. Ignore these messages.

## Overwrite Options

Regardless of how many CENTIX files you want to restore, you may specify whether or not you want to overwrite the existing current files with the backed up version.

### Enabling the Overwrite Option

Choosing the overwrite option causes centrEASE to replace a file with its previously backed up version. For instance, if files A, B, and C are in the system and the same files exist on the backup medium, the backed up versions of files A, B, and C replace the versions residing on the system disk. This occurs even if the system's current files have been modified since the files were originally backed up.

Overwriting is a desirable option if a user has corrupted the system disk version of a file that had been previously backed up. Although the backed up version may be out of date, it may be preferable to the corrupted version.

### **Disabling the Overwrite Option**

Disabling the overwrite option causes centrEASE to restore only those files from the backup medium that are not found on the system disk. Files having identical path names are not restored.

Disabling the overwrite option is desirable if you want to restore only those files that have been accidentally deleted from the system disk. For example, assume that you have a file list of backed up files A,B,C,D, and E, and that file C is accidentally deleted from the system disk.

If you specify "No Overwrite," centrEASE recognizes files A, B, D, and E and does not overwrite them with the possibly outdated backed up versions. However, because file C no longer exists on the system disk, centrEASE restores it. Although the backed up version may be out of date, it is preferable to having no copy at all.

When restoring from a disk cartridge you may also specify that the backed up version be restored to a different directory. This is another way to avoid overwriting your current files. However, this option is not available when you restore from half-inch tape or QIC tape.

### **Executing the Function**

After invoking the centrEASE facility, select option 7 from the main menu. This brings up the opening menu for the Backup and Restore function.

Next, after determining that you want to restore one or more CENTIX files, choose the second option, Restore CENTIX File(s) or File System(s).

Then indicate the medium from which you are restoring the files: disk cartridge, half-inch tape, or QIC tape.

After indicating that you want to restore CENTIX files (not file systems), specify the type of printer you are using. For information on completing this form, refer to Section 12.

Next, centrEASE displays a number of screens that vary according to which of the three media was chosen.

Then centrEASE prompts you to determine how much you want to restore:

- 1 Entire medium (that is, everything that was backed up).
- 2 One directory (that is, files with a certain path name).
- 3 One or more files (that is, specific files contained in a file list).

Each of these options is affected by your overwrite choice.

Remember that choosing the third option does not mean that you must use the original file list that was created for the backup procedure.

If you select either option 2 or option 3 from this form, centrEASE prompts you to enter the full path name for either the directory or the file list. The syntax for entering the directory name varies according to the specific restore function. The appropriate screen indicates whether or not the name should begin with a slash. If the file list entered does not exist, you are prompted to enter the name of a different file list.

The next form asks whether or not you want to overwrite any existing files with the backed up versions. If you are restoring files from a disk cartridge, you have the additional choice of restoring the files to a different directory.

**Note:** *The option to restore files to another directory is discussed under "Restoring from a Disk cartridge."*

After you enter the full path name, centrEASE restores the requested files or the entire medium.

centrEASE can perform more than one restore procedure without leaving the Backup and Restore function. After the first restoration has been successfully completed, a form appears and asks, "Would you like to perform another restoration?"

If you select "Yes," centrEASE assumes that the same type of medium will be used. A separate restore log is printed for each restoration.

## Restore Log

When restoring CENTIX files, centrEASE automatically creates a detailed restore log. The restore log documents each restore procedure and provides information on which files were restored and which files were not. This information is helpful for determining why certain files (if any) were not restored.

The restore log contains the following information:

- The specifications of how much to restore and the overwrite choice.
- The files contained in the restore list (if specified).
- The date and time of the restore.
- A list of the files successfully restored.
- The names of files not restored (if any).
- Information stored with the medium at the time of backup.

Each restore log is automatically printed out and displayed on your screen right after the restore procedure takes place. You specify the printer at the beginning of the procedure.

The restore log is also appended to the centrEASE session log file. Should a restore procedure fail, bring up the Manage Log Files menu from the centrEASE main menu and select the option to print the current session log. The current session log may contain important error messages that are not contained in the restore log (for example, error messages from CENTIX commands).

## Files Not Restored

Usually one of the following conditions causes one or more files not to be restored:

- The tape or cartridge did not contain the files specified in the file list.
- No overwrite was selected and some of the files had been modified since the time of the backup.

If some files are not restored, centrEASE makes another pass through the medium to log information to help you to determine why these files were not restored.

## Considerations for Restoring CENTIX Files

### Restoring from a Disk Cartridge

When restoring from a disk cartridge you may specify that the backed up versions be restored to a different directory. This option is particularly useful when you are uncertain about the state of your current disk files and want to compare them with the backed up versions.

When this option is specified, centrEASE prefixes the files contained in the file list with the name of the directory that you designate. centrEASE automatically creates directories and subdirectories as required.

*Note: The option to restore files to a different directory implies no overwrite. If your system already contains files with the identical path name as those you are restoring, the backed up files will not be restored.*

As an example of restoring files to a different directory, assume that you have the following files backed up to a disk cartridge:

```
/users/jones/file1  
/users/smith/file2  
/database/sep09.85
```

If you specify that these files be restored to the directory /oct15.85, they will be restored as shown below:

```
/oct15.85/users/jones/file1  
/oct15.85/users/smith/file2  
/oct15.85/database/sep09.85
```

Therefore, when the backed up versions of these files are restored into another directory, the current disk versions are not affected.

### Restoring from Half-Inch Tape or QIC Tape

Keep the following points in mind when you restore files from half-inch tape:

- The backup header information is logged only if you select to restore the entire tape.
- You can see a list of what is on the tape before you begin to restore files from it. Note that this option requires an additional pass through the tape, a process that may require a significant amount of time, if you backed up many large files.

To see what is on the half-inch tape, you can get either the file names only or the details concerning each file. The details resemble `ls -l` command output.

- There is a limit to the size of the file list you may use when restoring from half-inch tape.

centrEASE automatically calculates the size of the overhead and the size of the restore list in bytes. If the combined total exceeds 5,120 bytes, centrEASE informs you that the file list must be split. centrEASE also displays the current maximum allowed for the particular file list.

To split the file list, press the FINISH key to escape to shell. Then edit the file list into two separate lists. Use the `wc -c` command to ensure that neither list exceeds the current maximum limit allowed. You may have to repeat this procedure if the list is extremely large. You can also use the `split` command.

The number of files that may fit in a restore-from-tape file list is between 60 and 100, depending on the length of the files' full path names. (The limit is 4,000 bytes.)

**Note:**

**1** *If you select the option to restore the entire tape, there is no restriction on file list size because no file list is required.*

**2** *You can use the "no overwrite" option to limit what will be restored from the entire tape.*

When you restore from a multi-reel tape backup, the following limitations should be noted:

- 1 centrEASE prompts for the first tape. cpio then prompts the user for each additional tape. The user must be sure that the next tape is loaded and on-line.
- 2 When asked whether you would like to see what files are on the tapes:
  - a If you choose to see only the file names, there is no need to remove the first tape from the drive.
  - b If you choose to see the detailed listing of the files, it is necessary to insert EACH tape in the order of the backup (cpio prompts for the additional tapes as it does during backup).
- 3 If you put the second (or subsequent) tape in the drive when prompted for the first, an error screen appears suggesting possible error causes. However, in this case, just replace the second tape with the first tape and press the GO key from the error screen and the function will continue properly.
- 4 When cpio prompts for the next tape, if you press the RETURN key before the next tape is actually loaded, you will see a message such as:

Out of phase—get help

Perhaps the "-c" option should not be used

The cpio command terminates and you have to begin the restoration again.
- 5 Restoring a Single Directory from a multi-reel backup requires an additional pass through each of the tapes of the backup. Again, cpio prompts for each additional tape when it is needed. After the LAST tape is examined, centrEASE prompts for the FIRST tape to begin the actual restoring. Then cpio prompts for additional tapes as needed.
- 6 If centrEASE detects that some of the files requested for restoration have not been restored (usually when the user selects DO NOT OVERWRITE), the logging process requires an additional pass through each of the tapes of the backup. Again, cpio prompts for each additional tape when it is needed.

When selecting the single directory restore option, enter the directory's full path name terminated with a slash. This ensures that only files with that particular directory name will be restored.

*Note: Because the single directory restore option also uses a file list (which centrEASE creates), the file list restrictions still apply.*

### **Restoring CENTIX Files: Example**

The following example demonstrates how you might go about restoring some specific CENTIX files through the centrEASE facility. Again, because of the great flexibility this facility allows, the actual procedure you perform on your own system may be different from the one shown here.

For this example, assume that you want to restore the files that you backed up in the example found under "Backing Up CENTIX Files." In that example an entire directory and five files from another directory were backed up onto a disk cartridge.

Assume that it is a month later and that all five files have inadvertently been deleted. However, during this time the files under the directory that had been backed up in its entirety have been modified. The files contained in that backed up version of the directory are now out of date.

To restore only the five deleted files without affecting the modified files contained in the other directory:

- 1** Invoke the centrEASE command and select the Backup and Restore option from the main menu. After the opening menu for the Backup and Restore option appears, select option 2, Restore CENTIX Files or File Systems.
- 2** The first form asks you to specify the medium from which you want to restore your data. Select option 1, Disk cartridge, since this is the medium to which the files were originally backed up.
- 3** Next, indicate what you want to restore from the disk cartridge. Of the three choices (1) CENTIX Files, (2) Entire File system, and (3) One or more files from a File System, choose option 1, CENTIX Files.

- 4 Specify the type of printer you are using. (The default for this form is set for a parallel printer.) Then press the GO key.
- 5 After pressing the GO key, specify how much of the disk cartridge you want to restore. The choices include restoring the entire cartridge, one directory, or one or more files.

In this example, you can restore the five deleted files by selecting any of these three choices, by selecting the proper overwrite options from the form that follows.

For this example, choose the third option and request that one or more files be restored.

- 6 The next form to appear asks you to give the full path name of the file list containing the files that you want to restore. Then centrEASE displays the contents of this file list if it passes the validation tests.

The original file list, /backups/85nov11, might look something like this (these entries appear in the first column on the left side of the screen):

```
/useraccounts/dbase/proj1  
/useraccounts/dbase/proj2  
/useraccounts/dbase/data  
/useraccounts/dbase/proj4  
/useraccounts/dbase/proj5  
/useraccounts/dataentry
```

where /useraccounts/dataentry is the directory containing files you do not want to restore.

- 7 When the form displaying the overwrite options appears, choose the second option "No Overwrite." This option requests that centrEASE not overwrite any current versions.

The modified files will not be overwritten by the backed up versions, but the five deleted files will be restored since they do not currently exist.

- 8 The next form requests that you insert the disk cartridge containing the backed up data. After the cartridge is inserted, centrEASE checks the header files stored during the backup procedure. centrEASE then displays and logs the names of the files and the header information.
- 9 Next, centrEASE restores the 5 deleted files. The names of each restored file is displayed and logged.

A warning that 19 files were not restored also appears. This indicates that the 18 files from the expanded directory and the directory itself were not restored. The names of the files that were not restored are also displayed and logged. Note that this is what you specified.

- 10 Detailed backup information is logged (including the time and date that the backed up files were last modified) because in this case you did not intend to restore all files. The restore log is then printed.
- 11 In this example only one disk cartridge was used for the backup session. If there had been more than one, steps 6 through 10 would be repeated for each additional disk cartridge.
- 12 After the files have been restored and the log printed, the next screen asks whether or not you want to initiate another procedure to restore other CENTIX files from a different backup session.
- 13 Since the task set for this example is completed in one round, choose the option not to begin another restore procedure.

centrEASE then returns you to the opening Backup and Restore menu. From here you may return to the main centrEASE menu, or you may begin another Backup and Restore function.

## Backing Up and Restoring File Systems

The centrEASE facility backs up and restores file systems.

*Note: The Backup and Restore function recognizes only those file systems that have been created or added to disk through the centrEASE function called Manage File Systems.*

---

*Caution: The Backup and Restore of file systems fails if the user is in the directory where the file system resides. You should use the **wall** command to tell users you are about to back up or restore the file system and ask them to change to another directory until the function is completed.*

---

### Backing Up File Systems

This function allows you to back up file systems to any one of three media: disk cartridge, half-inch tape, or QIC tape. It also allows you to specify whether you want to perform an incremental or full backup.

#### Executing the Function

Invoke the centrEASE command and select the Backup and Restore option from the main menu. After the opening menu for the Backup and Restore option appears, select option 1, Backup CENTIX File(s) or File System(s).

The next screen asks you to specify onto which medium you would like to back up your file system: disk cartridge, half-inch tape, or QIC tape. For this discussion select option 1, which specifies backing up the file system onto a disk cartridge.

The next screen asks "What do you want to back up to a disk cartridge?" The choices include option 1, CENTIX File list, and option 2, Entire File System. Select option 2.

centrEASE then presents a list of all the known file systems. For a file system to be recognized by centrEASE, it must have been created or added through the Manage File Systems function. Choose the file system that you want to back up and enter its corresponding number in the field provided.

*Note: If your file system does not appear in the list, return to the centrEASE main menu and select the Manage File Systems function. Then add the missing file system through the Add a File System option.*

In addition to the names of the file systems, the list also shows the dates of the most recent full and incremental backups for each file system. A dashed line indicates that no backup has been performed.

The next form to appear asks whether you want centrEASE to perform a full or incremental backup. A full backup copies every file in the file system to the backup medium. An incremental backup copies only those files that have been created or modified since the last full backup.

*Note: If a file system is backed up incrementally, the file system attributes (for example, disk, partition size, or l-nodes) cannot be changed during the restore procedure.*

You should choose to do a full backup if you have never done a full backup of this file system. Also, doing a full backup of a file system reduces the amount of time and media space required when you perform a subsequent incremental backup. For this discussion choose a full backup (the procedure to perform an incremental backup is very similar).

centrEASE tells you how many disk cartridges are required. If you have fewer cartridges than required, cancel the backup function and use the BTOS **MiVolume** command described in Section 4 to prepare more cartridges. Do this through the Issue BTOS Commands Through CENTIX facility (option 3 on the centrEASE main menu).

Next, centrEASE asks you to insert the first disk cartridge into the drive, where it performs a quick MIVolume. (Remember that this step erases any data previously stored on the cartridge).

---

**Caution:** *Never back up to a disk cartridge unless you have previously initialized and surface-tested it. Three surface tests are recommended. You cannot restore data backed up on bad spots.*

---

Files that are backed up now appear on the screen. Number each cartridge in the order in which it is used during the backup procedure. The files must be restored in the same order in which they were backed up.

Press the NEXT key after the backup function is completed to return to the opening Backup and Restore menu.

### **Documenting the Backup Procedure**

After completing the backup, be sure to document all pertinent information. Unlike the backup procedure for CENTIX files, no log is kept when file systems are backed up.

It is a good idea to label each cartridge with the following information:

- Date of backup.
- File system name.
- Full or incremental backup.
- Cartridge sequence number.

To create a printout of backed up files outside of centrEASE, type the following:

```
find fs name -print | lpr
```

where *fs name* is the name of the file system (top directory).

To generate a file list, enter the following:

```
find fs name -print > filelist_name
```

## Restoring File Systems

The procedure for restoring file systems offers two main options: restoring the entire file system or restoring part of a file system.

### Restoring Entire File Systems

You can restore an entire file system or relocate a file system to a different partition.

*Note: When this function is executed, the backed up version overwrites the file system on the system disk (if any).*

**Executing the Function.** Invoke the centrEASE command and select the Backup and Restore option from the main menu. After the opening menu for the Backup and Restore option appears, select option 2, Restore CENTIX File(s) or File System(s).

The next screen asks you to specify from which medium you will restore your data: disk cartridge, half-inch tape, or QIC tape. For this discussion select option 1, which specifies backing up the data onto a disk cartridge.

The next screen asks "What do you want to restore from a disk cartridge?" The choices are option 1, CENTIX Files; option 2, Entire File System; and option 3, One or More Files from a File System. Select option 2.

centrEASE then presents a list of all the known file systems. For a file system to be recognized by centrEASE, it must have been created or added through the Manage File Systems function. Choose the file system that you want to back up and enter its corresponding number in the field provided.

If the list does not contain the file system you want to restore, select the last choice "Other." This option allows you to restore a file system originally backed up through centrEASE that centrEASE no longer acknowledges. (For example, you would use this option to restore a file system removed from the system through centrEASE that still exists on a backup medium.)

*Note: After restoring a file system in which "Other" has been specified, you must use the Manage File System function to add the "Other" file system to centrEASE so that centrEASE will subsequently list it as a file system.*

centrEASE then displays the backup header information that was stored on the backup medium. You may change any of the values displayed on this screen (see Figure 8-2).

Figure 8-2 Backup Header Information

```
Backup and Restore      >>> RESTORE USER FILE SYSTEMS
                        FROM TAPE OR QIC <<<

File System Name:
Disk Number:
Partition Number:
Total Blocks:
Total Inodes:
PIIF Factor:
Device Type (d/s):
Auto Mount (y/n)?
Auto Check (y/n)?
* If you do not change BOTH the File System Name AND the
  Device Type, Disk Number, or Partition, the File System
  SHALL be removed (you will be prompted for confirmation).
```

*Note: You cannot change the top file system name when you restore a multi-level file system (one that has other file systems mounted under it).*

Because restoring user file systems provides a great deal of flexibility, you should think carefully about what you want to do. Use the following guidelines when you respond to the screen shown in Figure 8-2:

**Desired Result**

1. Basic restore (retaining same location and other attributes)
2. Change name of file system, but leave other attributes unaffected
3. Have file system automatically mounted and/or checked at boot time
4. Change location of file system (e.g., if you suspect disk is corrupted).
5. Only way to retain the current files on disk. Duplicate a file system (keep current disk version and restore backup copy elsewhere; useful for comparing two versions).
6. Expand a file system's size or increase pilf factor or inodes.
7. Recover a file system that is no longer known to centrEASE.

**What You Must Do**

1. Press the GO key.
2. Change *only* the file system name field.
3. Change auto mount and/or auto-check field from "no" to "yes"
4. Change disk number or device type (and, optionally, partition number) but do *not* change file system name.
5. Change file system name *and* either the disk number *or* the partition number.
6. Change only the relevant field.
7. Select "other" from the previous list of file systems screen.

**Note:**

- 1 *Results 3 and 6 can be accomplished in conjunction with any of the others.*
- 2 *Results 1, 2, and 4 delete current file system that exists on system.*
- 3 *Only 5 retains the current files on disk.*
- 4 *Result 7 recreates the old file system; there are no old files to destroy.*

The PILF factor is the base 2 exponent of block allocation in kilobytes. If 3 is entered in this field, the logical block size of your system increases to 8k (that is,  $2 \times 2 \times 2 = 8$ ). By specifying a higher PILF factor you can increase the file system's efficiency in certain I/O intensive applications. If no value is entered in this field, the logical block size of the file system defaults to 1k blocks.

---

**Caution:** *Increasing the PILF factor without increasing the file system size (blocks) may cause a restore to fail. When such a failure occurs, the message "cannot create directory" is displayed, indicating that the restored file system has no free blocks. Therefore, do not increase the PILF factor if the size of the file system is inadequate.*

---

**Increasing the PILF Factor.** To increase the PILF (cluster) factor when you are restoring a file system, increase the file system size according to the following formula:

$$\text{Increase in 512-byte blocks} \geq \frac{\text{num\_files} \cdot (2^{**} \text{New\_PILF} - 2^{**} \text{Old\_PILF})}{2}$$

where:

**num-files** = the number of files currently in the file system, that can be determined by the following command:

```
find file-system-name -print ' wc -l
```

**New-PILF** = desired PILF factor (base 2 exponent)

**Old-PILF** = previous PILF factor (base 2 exponent); if the file system never had a PILF factor, then Old-PILF = 0 and  $2^{**}0 = 1$

**>=** means that the computed size must always be rounded up.

**\*\*** indicates exponentiation (for example,  $2^{**}3 = 2 * 2 * 2 = 8$ ).

Example:

In a file system containing 117 files, to increase the PILF factor to 2 if the file system has never had a PILF factor (New-PILF = 2, Old-PILF = 0), make the following calculation:

$$\text{Increase} = \frac{117 * (2^{**2} - 2^{**0})}{2} = \frac{117 * (4 - 1)}{2} = \frac{117 * 3}{2} = \frac{351}{2} = 175.5$$

This means that you must increase the file system size by at least 176 blocks.

It is more likely that you would be increasing from a non-PILF file system to a small PILF factor. If the initial PILF factor is zero, use the following chart to simplify your calculations:

If this is the desired PILF factor,	multiply num-files by	to obtain number of blocks by which to increase file system size.
1	0.5	Round up result
2	1.5	
3	3.5	
4	7.5	
5	15.5	
6	31.5	
7	63.5	
8	127.5	
9	255.5	

For more information about the PILF factor, refer to the *XE 500 CENTIX Administration Guide*.

It is more likely that you would be increasing from a non-PILF file system to a small PILF factor. If the initial PILF factor is zero, use the following chart to simplify your calculations:

If this is the desired PILF factor,

multiply num-files by

to obtain number of blocks by which to increase file system size.

1

0.5

Round up result

2

1.5

3

3.5

4

7.5

5

15.5

6

31.5

7

63.5

8

127.5

9

255.5

For more information about the PILF factor, refer to the *XE 500 CENTIX Administration Guide*.

If the current file system is about to be overwritten, a Tell screen warns you before it occurs. If you do not want to overwrite the current file system, press the CANCEL key and terminate the function.

Press the GO key to execute the function; the names of the restored files are displayed on the screen.

After the file system is restored, a screen indicates that the file system is currently mounted. Press the GO key to leave it mounted or press the CANCEL key to unmount the restored file system.

Press the NEXT key after the function is completed to return to the opening Backup and Restore menu.

### **Restoring Part of a File System**

This function allows you to restore part of a file system. When restoring part of a file system, you **must** use a file list and you will not be able to relocate the file system.

***Note:** If some of the file names in the file list refer to files from a mountable file system, that file system must be mounted before you initiate the restore function.*

**Overwrite Options.** Regardless of how many files you want to restore from a file system, you may further specify whether or not you want to overwrite the current files with the backed up version.

**Enabling the Overwrite Option.** Choosing the overwrite option causes centrEASE to replace any current file with its previously backed up versions. For instance, if files A, B, and C are in the file system, and the same files are on the backup medium, the backed up versions of files A, B, and C replace the versions on the system disk. This occurs even if the system's current files have been modified since the files were originally backed up.

Use the overwrite option if you have corrupted the system disk version of a file that has been previously backed up. Although the backed up version may be out of date, it may be preferable to the corrupted version.

**Disabling the Overwrite Option.** Disabling the overwrite option causes centrEASE to restore only those files from the backup medium that are not found on the system disk. Files having identical path names are not restored.

Disable the overwrite option if you want to restore a file that has been accidentally deleted from the system disk. For example, assume that you have a file list of backed up files A,B,C,D, and E, and that file C is accidentally deleted from the system disk.

If you specify the option "No Overwrite" centrEASE recognizes the files A, B, D, and E and does not overwrite them with the possibly outdated backed up versions. However, because file C is no longer on the system disk, centrEASE restores it. Although the backed up version may be out of date, it may be preferable to having no copy at all.

When restoring from a disk cartridge you may also specify that the backed up version be restored to a different directory. This is another way to avoid overwriting your current files. However, this option is not available when you restore from half-inch tape or a QIC tape.

**Creating a File list for Restoring Part of a File System.** Before invoking the centrEASE facility to restore part of a file system, you must first create a file list, a CENTIX file in which you list the files that you want to restore. Then centrEASE uses the file list to identify the files you have specified.

*Note: The file list used to restore part of a file system is different from the file list used to backup or restore CENTIX files. The specifications used in creating the two kinds of file lists are not the same.*

To create a file list for restoring part of a file system, use an editor to construct the file list according to the following specifications:

- The name of the file system must not appear in the file list.  
For example, if a file is named */a/b/c/file name* and the file system is named */a/b*, the entry made into the file list must be *c/file name*.
- Each entry must not begin with a slash (/).
- Any file listed in the file list must be either a CENTIX file or a CENTIX directory.
- The file list may contain any number of file names or directory names in any order or combination.

- The file list's full path name can be no longer than 70 characters.
- Each file listed in the file list must appear on a separate line. One entry is permitted per line.
- If only one file is to be restored, it appears as the only entry in the file list.
- No wildcards (such as a question mark or an asterisk) are permitted in the file list.
- No blank lines, white space, or comments are permitted in the file list.

The following is an example of a file list for a file system named "/users/office" (each entry starts in the first column on the left side of the screen). Assume that the full path names of the first two entries, for example, are /user/office/Reports/status.form and /user/office/Otherdir/subdir/file-2. Note that the file system's name must be excluded from the file list and that the lines do not begin with a slash.

Reports/status.form

Otherdir/subdir/file-2

Reports/status.mail

Reports/may.jun.85

Otherdir-2/subdir/file-1

Reports/backrest.plan

Reports/design.review

Otherdir/subdir/file-1

**Executing the Function.** Invoke the centrEASE facility and select the Backup and Restore option from the main menu. After the opening menu for the Backup and Restore option appears, select option 2, Restore CENTIX File(s) or File System(s).

The next screen asks you to specify the medium from which you will restore your data: disk cartridge, half-inch tape, or QIC tape. Select option 1, restoring files from a disk cartridge.

The next screen asks "What do you want to restore from a disk cartridge?" The choices are option 1, CENTIX Files; option 2, Entire File System; and option 3, One or More Files from a File System." Select option 3.

Next, specify the type of printer you are using. For information on completing this form, refer to Section 12.

Enter the name of the file system from which you intend to restore a subset of files.

Then centrEASE asks whether or not you want to overwrite the existing file system with the backed up version. For this example, choose option 1, No Overwrite.

When you restore from a disk cartridge you may also specify that the backed version be restored to a different directory. This option is not available when you restore from half-inch tape or a QIC tape.

***Note:** If you choose to restore the files to a different directory, they do not become part of the file system. This separate set of files can be useful if you are not sure how the backed up files on the disk cartridge compare with the version in the file system.*

Next, centrEASE prompts for you to enter the name of the file list that specifies the files that you want to restore.

You may also create the file list at this time. To do so, follow these instructions:

- 1 Press the FINISH key to escape to shell.
- 2 Change the directory to the directory in which you want to store your file lists. (You may want to call such a directory "/backups.")

- 3 Then use an editor to create the file list according to the specifications described previously.
- 4 After you have finished creating the file list, press the FINISH key once more to return to where you originally were in the Backup and Restore function.

After you enter the full path name of the file system's file list, the file list is briefly displayed on the screen.

Then you are prompted to insert the disk cartridge into the drive.

Press the GO key to execute the function; a restore log is displayed and printed out.

Press the NEXT key after the function is completed to return to the opening Backup and Restore menu.

**Restore Log.** When restoring a subset of a file system, centrEASE automatically creates a detailed restore log. The restore log documents each restore procedure and provides information on which files were restored and which files were not. This information is helpful for determining why certain files (if any) were not restored.

The restore log contains the following information:

- The name of the file system.
- The name of the file list and the overwrite choice.
- The files contained in the restore list.
- The date and time of the restore.
- A list of the files successfully restored.
- The names of files not restored.
- Information stored with the medium at backup.

Each restore log is automatically printed out and displayed on your screen after the restore procedure takes place. You specify the printer at the beginning of the procedure.

The restore log is also appended to the centrEASE session log file. If a restore procedure fails, bring up the Manage Log Files menu from the centrEASE main menu and select the option to print the current session log. The current session log may contain important error messages that are not contained in the restore log (for example, error messages from CENTIX commands).

## Backing Up and Restoring System Files

If the root file system and/or BTOS configuration files become corrupt, the backup version made through the Backup and Restore function can restore your system's ability to operate.

The Back Up and Restore System Files function deals with all the files under the root, except for those in user file systems. Since single user mode is required when system files are backed up or restored, all file systems (except the root) are automatically unmounted by the **halt** or **shutdown** commands.

This is why this function is not intended to back up or restore user file systems. However, if users have created files that are not part of a file system, these files will be included in the system files backup. Thus, if the system files are later restored, the backed up versions replace any current versions. To avoid this, create user files in file systems only.

### Backing Up System Files

The procedure for backing up system files requires you to be in single user mode.

#### Changing to Single User Mode

To obtain single user status, perform the following steps:

- 1 Before invoking centrEASE, enter **cd /** and press the RETURN key.
- 2 Enter **shutdown** and press the RETURN key. **shutdown** gives you a chance to broadcast a message to all users to warn them to log out; therefore do not use **halt**. Wait for the message "OK to stop or reset processor."
- 3 Enter **saf** and press the RETURN key.

After completing these steps, you are ready to proceed with the backup system files routine. Note that there is no need to reset or stop the XE 500 system to make the switch to single user mode.

### Executing the Function

After you select the Backup and Restore function from the main menu, centrEASE displays the initial Backup and Restore menu. Select the third option, "Backup System Files (Includes CENTIX Root and BTOS System Files)" and press the GO key.

The next form requests that you select the type of medium onto which you want to backup your data. You can back up your data onto a disk cartridge, half-inch tape, or QIC tape.

---

**Caution:** *Never back up to a disk cartridge unless you have previously initialized and surface-tested it. Three surface tests are recommended. You cannot restore data backed up to bad spots.*

---

After you enter your choice of medium, the next screen informs you of the last incremental backup and of the last full backup performed. A dashed line indicates that a backup was never performed.

The next screen asks you to select whether you want to perform a full or an incremental backup. When option 1, Full Backup, is selected, centrEASE copies every file in the root onto the backup medium (except files contained in user file systems). When option 2, Incremental Backup, is selected, centrEASE copies only those files that have changed since the last full backup.

**Note:**

**1** *Perform a full backup whenever you change BTOS configuration files (outside of centrEASE), run the centrEASE function called Reconfigure the System, or install new software.*

**2** *Only a full backup of system files to disk cartridge is supported; do not use Incremental Backup to disk cartridge. This limitation does not apply to half-inch tape or quarter-inch tape.*

Next, insert the tape or cartridge and press the GO key. After several minutes the screen displays the first files. The actual procedure takes between 30 and 90 minutes, depending on the medium selected and the number and sizes of the files currently under the CENTIX root.

After the function is completed, pressing the NEXT key returns you to the initial Backup and Restore menu.

### **Log of System Files Backed Up**

The regular session log contains the full path name of every CENTIX and BTOS file that was backed up during this function. To print this log, return to the centrEASE main menu and select the Manage Log Files function. Then choose the option to print the current session's log. This log is usually very large.

### **Restoring System Files**

Although system files can be backed up, they cannot be restored through the Backup and Restore function. System files may be restored only from the Restricted Mode Menu which appears when the XE 500 system is reset to the "Remote" keyswitch position. For instructions on restoring system files, refer to Section 11.

### **Backing Up and Restoring BTOS Files**

You cannot back up and restore BTOS files (except BTOS configuration files) through the Backup and Restore facility. These procedures are done through the centrEASE function called Issue BTOS Commands Through CENTIX, which is the third selection on the main menu.

Refer to the *XE 500 CENTIX Administration Guide* for detailed instructions on executing the following MCommands:

- mcopy
- mselective backup
- mrestore

## Managing Log Files

The centrEASE function manages log files. You can print a current session log, print or remove an old log file separately or in one step, and remove all the log files at one time (except for a current session log file).

*Note: You should periodically use this function's option to "Remove All Logfiles" because the logs accumulate. To see how many 512-byte blocks occupy the logs, enter the following:*

```
du -s /SAF/LOGS
```

### Looking at the Log File

For each session you initiate, centrEASE automatically opens a log file. All the activities performed throughout the session are recorded in this file. All log files are stored in the /SAF/LOGS directory.

Each log file begins with two entries. The first entry appears as "centrEASE SESSION - SAF LOG FILE." This is followed by the log file's alphanumeric name, which uniquely identifies that particular file. An example appears below:

L8506190945

The 10-digit number, 8506190945, represents the session's year, date, and time of initiation (85 stands for 1985; 0619 stands for June 19; and 0945 stands for 9:45 am). The "L" stands for Log.

These logs are also useful in diagnosing function failures.

The following list contains the kind of information you might expect to find in a log file:

- Values entered on various menu and form prompts.
- CENTIX commands issued by centrEASE.
- CENTIX output of those commands.
- Error messages issued by CENTIX.

- Error messages issued by centrEASE.
- Time stamp for every escape to shell and return.
- Time stamp when each function is completed.
- Time stamp for each centrEASE session initiation and completion.

After you select the Manage Log Files option from the main menu, centrEASE displays the menu shown in Figure 9-1.

**Figure 9-1 Manage Log Files**

```
MANAGE LOG FILES
*****
1) Print the Log of the Present Session
2) Print an Old Log File
3) Remove an Old Log File
4) Print and Remove an Old Log File
5) Remove All Log Files (Except for the Present Session)
6) RETURN
7) EXIT

Enter a number and press GO to transmit:
```

## Printing a Current Session Log File

This function allows you to print the current session log file even though the session has not yet been completed.

### Executing the Function

After you select this function, the first form on your screen asks you to designate which printer is to print out the log file. For information on filling out the printer form, refer to Section 12.

After you enter the printer information a Tell screen appears. Press the GO key to initiate the function; press the CANCEL key to return to the main menu.

### Tasks Performed by centrEASE

After you initiate the function, the current log file is printed. It includes information up to, but not including, the execution of this function.

The current log file also appears on your screen.

## Printing an Old Log File

This function allows you to print an old log file.

### Executing the Function

After you select this function, centrEASE generates a list of the log files of all the previous sessions. Choose the log file that you want to print, and enter its corresponding number in the field provided. Then press the GO key.

The next form on your screen asks you to designate a printer for the log file. For information on filling out the printer form, refer to Section 12.

After entering the printer information, note the message that appears on the Tell screen. Press the GO key to initiate the function; press the CANCEL key to return to the main menu.

## **Tasks Performed by centrEASE**

After you initiate the function, centrEASE prints the specified log file and displays the name of the log file on the screen.

## **Removing an Old Log File**

This function destroys your record of what occurred during a particular centrEASE session. If you have not already done so, you can print a hard copy of the log file before you remove it.

## **Executing the Function**

After you select the function, centrEASE generates a list of the log files of all the previous sessions. Choose the log file that you want to remove, and enter its corresponding number in the field provided. Then press the GO key.

Note the message on the Tell screen. Press the GO key to initiate the function; press the CANCEL key to return to the main menu.

## **Tasks Performed by centrEASE**

After you initiate the function, centrEASE removes the log file from the file system.

## **Printing and Removing an Old Log File**

This function prints and then destroys your record of what occurred during a particular centrEASE session.

## Executing the Function

After you select this function, centrEASE generates a list of the log files of all the previous sessions. Choose the log file that you want to print and remove, and enter its corresponding number in the field provided. Then press the GO key.

The next form on your screen asks you to designate a printer for the log file. For information on filling out the printer form, refer to Section 12.

After entering the printer information, note the message that appears on the Tell screen. Press the GO key to initiate the function; press the CANCEL key to return to the main menu.

## Tasks Performed by centrEASE

After you initiate the function, centrEASE prints the specified log file and then removes it from the file system.

## Removing All Log Files

This function destroys all your records of every centrEASE session contained in the SAF/LOGS directory, except for the present session's log.

## Executing the Function

After you select the function to remove all the old log files, centrEASE displays a Tell screen. Press the GO key to initiate the function; press the CANCEL key to return to the Manage Log Files Menu.

## Tasks Performed by centrEASE

After you initiate the function, centrEASE removes every entry under /SAF/LOGS. The only log file remaining contains the activities of the current session.



## Maintaining Other Products

The Maintain Other Products function allows you to administer other products through the centrEASE facility.

After you select the Maintain Other Products function, centrEASE displays a menu of all the products currently available. Choose the name of the product you wish to maintain and enter its corresponding number in the field provided. Then press the GO key.

After choosing a product, control is passed from centrEASE to the executable file provided by that particular product.

Refer to the product's documentation for instructions on how to proceed further.

Your screen may also display the following message after the Maintain Other Products function is selected from the main menu:

```
There are currently no products on your system
which need to be maintained by means of
the centrEASE facility.
```

If this message appears, it means that no products exist on your system that can be maintained. Press the CANCEL key and return to the main menu.



## Restoring System Files

System files may be restored only while the system is in the restricted mode. The restore procedure is not a function of the centrEASE facility; however, the menus and screens are similar to those used for the various centrEASE functions, although responses are transmitted by the RETURN key instead of the GO key.

Because space is limited in restricted mode, there is no on-line help nor escape to shell once you begin to restore.

When you restore system files the restricted mode root (not the normal mode root) must have sufficient free space (about 150 blocks) for temporary files. If there is not enough free space, the program reports the problem at the beginning of the function and suggests a remedy. You must then re-run the function.

### **Notes:**

**1** *You must use a PT 1500 terminal to operate in restricted mode.*

**2** *The procedure to restore system files takes about 30 to 90 minutes to complete, depending upon the medium used and the number and sizes of files that were backed up.*

**3** *Since Incremental Backup of System Files to disk cartridge is not supported, do not attempt to do an Incremental Restore from disk cartridge. This limitation does not apply to half-inch tape or quarter-inch cartridge.*

Four basic steps are required to restore system files:

- 1** Boot up the system in the restricted mode.
- 2** Invoke the Restore utility from the restricted mode's main menu.
- 3** Verify the results.
- 4** Reboot the system in the normal mode.

## Booting Up in Restricted Mode

To boot the system up in the restricted mode, use the following procedure:

- 1 If the keyswitch is currently set to STOP, boot the system by turning it from STOP to REMOTE.
- 2 If the keyswitch is currently set to NORMAL, enter the following commands:

```
# cd /  
# shutdown
```

Then wait for "OK to reset processor" to appear on the screen.

After the message appears, turn the keyswitch from NORMAL to STOP and then to REMOTE.

A banner is displayed that tells you that the system is running in the restricted mode. The system then prompts you to fill in the correct date and time.

- 3 Fill in the date and time and press the RETURN key.

The date and time should be entered in the format shown on the screen. If you make a mistake, you can use the BACKSPACE key to go back over the incorrect characters.

- 4 After the correct date and time have been entered, the system checks the two CENTIX file systems used by the restricted mode software, /dev/root and /dev/fpSAFrestore.

If the check fails, the system prompts you to run the CENTIX **fsck** command manually. The system then runs the superuser shell.

Enter the two **fsck** commands as follows:

```
# fsck /dev/root
# fsck /dev/fpSAFrestore
```

When these file systems have been successfully checked, enter

```
# exit
```

to exit from this subshell. The system then displays the Restricted Mode Main Menu.

---

**Caution:**

**1** *Do not try to execute any other CENTIX commands from this subshell. It is intended strictly for running fsck on the two restricted mode file systems.*

**2** *If the manual file check is not successful, reinstall the restricted mode software.*

---

5 The Restricted Mode Main Menu is displayed as follows:

```

                RESTRICTED MODE MAIN MENU
.....
**              0. Shutdown              **
**              1. Restore                **
**              2. Set up Software       **
**              3. Go into Shell        **
.....

```

The menu is followed by the prompt

Please Select Option ==>

Select option 1, Restore, and press the RETURN key.

## Running the Restore Utility

*Note:* To transmit your response in restricted mode, press the RETURN key unless prompted otherwise.

The next form asks you to specify the medium from which you are restoring your system files. The choices are (1) disk cartridge, (2) half-inch tape, and (3) quarter-inch cartridge (QIC) tape.

If you select (2) half-inch tape or (3) quarter-inch cartridge (QIC) tape, the next form asks you to specify the device type (for example, /dev/rmt0 for half-inch tape drive, /dev/rmt1 for QIC tape drive).

Then you are requested to specify whether you are restoring the system files from a full or an incremental backup.

Next, insert the first of the backup media so that the backup header and the BTOS configuration file [sys]<sys>configufs.sys can be retrieved.

*Note:* This is the last opportunity you have to cancel the restore system files function safely.

### Restoring System Files from Incremental Backup (Half-Inch Tape or Quarter-Inch Cartridge Only)

If your last backup of the root was a full backup, you need to restore only the tape from this full backup. If your last backup of the root was an incremental backup, you must first restore the tape from your last full backup and then restore the tape from the incremental backup.

Enter "1" if the last backup you did was a full backup. Enter "2" if the last backup you did was an incremental backup.

If your last System Files Backup to tape or quarter-inch cartridge was incremental, you must:

- 1 First select Restore from Full Backup. Insert the tape, tapes, or quarter-inch cartridge from the most recent full Backup when prompted. After the files from the full Backup are restored, the Restricted Mode menu again appears.
- 2 Select Restore again, but this time when the FULL/INCREMENTAL screen appears, select Restore from Incremental Backup and insert only the tape or cartridge from the most recent incremental Backup. The function will be completed when the Restricted Mode menu appears for the third time.
- 3 Select Shutdown from the Restricted Mode menu.

If the last System Files Backup to tape or quarter-inch cartridge was full, follow step 1. above, skip step 2., and do step 3.

### **Moving or Resizing the Root Partition**

Before files are retrieved from the backup media, the system displays the location of the existing root partition. It then asks whether or not you want to move the root partition.

- 1 To move the root partition, enter "y" and press the RETURN key.
- 2 The system asks whether or not you want the root partition on the default disk.
  - To put the root partition on the default disk, enter "y" and press the RETURN key. Then go to step 4.
  - To put the root partition on another disk, enter "n" and press the RETURN key. Then go to step 3.
- 3 You are prompted to select the disk on which you want the root to be located. Valid entries are any fp disks (d1, d2, d3, and so on) or dp disks (s2, s3, s4, and so on) in the system.

Enter the name of the desired disk and press the RETURN key. Then go to step 4.

**Notes:**

**1** Because disk d1 is the system disk for BTOS and already contains valid software, it must not be initialized. Because of space limitations, you should not put the root partition on d1.

**2** If you do select d1, you will not be prompted to initialize it. Go to step 8.

**4** You are asked whether you want to initialize the disk you have just selected.

If you do not want to initialize the disk, enter "n" and press the RETURN key. Then go to step 8.

If the disk has never been initialized or you want to reinitialize it, enter "y" and press the RETURN key. Then go to step 5.

**5** You must enter parameter values when you initialize the disk. These parameters correspond to the fields of the BTOS MIVolume utility, which is used to initialize all XE 500 System disks.

Refer to *XE 500 BTOS Operations Reference Manual* for an explanation of the MIVolume parameters.

To set a parameter, enter the value you want after the prompt and press the RETURN key. The next parameter prompt is displayed. If the parameter value is optional and you want to use the default, do not enter anything; press the RETURN key to display the next parameter prompt.

To set a parameter, enter a value in response to the prompt and press the RETURN key. The next parameter prompt is displayed. If the parameter is optional and you want to use the default value, do not enter anything; press the RETURN key to display the next parameter prompt.

- 6 The last parameter asks you whether there are any new bad spots to enter.

If the disk has previously been initialized, enter "n" and press the RETURN key. Then go to step 7.

If the disk has not previously been initialized, enter "y" and press the RETURN key. You are prompted to enter bad spots. Enter the disk's bad spots, pressing the RETURN key after each entry (refer to your *XE 500 CENTIX Administration Guide* for a discussion of disk bad spots.)

After entering the last bad spot, press the GO key. Then go to step 7.

- 7 The parameter list is displayed again. The values you have entered are shown next to the parameter prompts. The system asks whether you want to change any of the parameter values you have entered.

To change a value, enter "y" and press the RETURN key. The entire series of MIVolume parameter prompts is displayed again.

If you are satisfied with the values, enter "n" and press the RETURN key. Then go to step 8.

- 8 The system prompts you for the partition number of the root partition. Valid partition numbers are 0 through 7. This number is used to identify the BTOS partition file on the disk in which the root is to be stored.

Enter a valid partition number and press the RETURN key.

- 9 The system displays the size of the existing root partition in blocks. It then asks whether or not you want to change the size of the root partition.

To change the size of the root partition, enter "y" and press the RETURN key. Then go to step 10.

To leave the root partition at its current size, enter "n" and press the RETURN key. The root partition is moved.

- 10** The system displays the minimum sizes for a CENTIX Entry System and a CENTIX Development System root. It then prompts you to supply a size in blocks for the root, with the minimum sizes serving as guidelines (1 block = 512 bytes).

For normal operations, a minimum of 45,000 blocks is required. To conserve disk space, you can select the minimum values; however, system performance may be affected. (Increasing the root size provides more space for temporary files and additional software.)

Enter the number of blocks corresponding to the desired size and press the RETURN key.

The root partition is moved and resized.

Moving and/or resizing the root partition includes the following operations:

- The BTOS partition file for the root is created according to the specifications given.

If a new size was specified, the partition is created with the new size. Otherwise, the size of the root remains the same.

- The BTOS configuration file (`{sys}<sys>configufs.sys`) is modified to reflect the disk and partition to which the root has been moved.

### **Moving and/or Resizing the Swap File**

After the operations for moving and/or resizing the root have been performed, the system displays the location of the existing swap file associated with APOO. It then asks whether or not you want to move and/or resize the swap file.

- 1** To move the swap file, enter "y" and press the RETURN key. Then go to step 3.

To leave the swap file at its current location, enter "n" and press the RETURN key. Then go to step 8.

- 2 The system asks whether or not you want the swap file on the default disk.

To put the swap file on the default disk, enter "y" and press the RETURN key. Then go to step 5.

To put the swap file on another disk, enter "n" and press the RETURN key. Then go to step 3.

- 3 You are prompted to select the disk on which you want the swap to be located. Valid entries are any FP disks (d1, d2, d3, and so on) or DP disks (s2, s3, s4, and so on) in the system.

Enter the name of the desired disk and press the RETURN key. Then go to step 4.

**Note:** Because disk d1 is the system disk for BTOS and already contains valid software, it must not be initialized. If you have selected d1 for the swap file, you will not be prompted to initialize it. Go to step 8.

- 4 You are asked whether you want to initialize the disk you have just selected.

If you do not want to initialize the disk, enter "n" and press the RETURN key. Then go to step 8.

If the disk has never been initialized or you want to reinitialize it, enter "y" and press the RETURN key. Then go to step 5.

- 5 You are asked to fill in parameter values for initializing the disk. These parameters correspond to the fields of the BTOS MIVolume utility, which is used to initialize all XE 500 System disks.

Refer to the *XE 500 CENTIX Administration Guide* for an explanation of the MIVolume parameters.

To set a parameter, enter a value in response to the prompt and press the RETURN key. The next parameter prompt is displayed. If the parameter is optional and you want to use the default value, do not enter anything; press the RETURN key to display the next parameter prompt.

- 6 The last parameter asks you whether there are any new bad spots to enter.

If the disk has previously been initialized, enter "n" and press the RETURN key. Then go to step 7.

If the disk has not previously been initialized, enter "y" and press the RETURN key. You are prompted to enter bad spots. Enter the disk's bad spots, pressing the RETURN key after each entry (refer to your *XE 500 CENTIX Administration Guide* for a discussion of disk bad spots.) After entering the last bad spot, press the GO key. Then go to step 7.

- 7 The parameter list is displayed again. The values you have entered are shown next to the parameter prompts. The system asks whether you want to change any of the parameter values you have entered.

To change a value, enter "y" and press the RETURN key. The entire series of MIVolume parameter prompts is displayed again.

If you are satisfied with the values, enter "n" and press the RETURN key. Then go to step 8.

- 8 The system displays the size of the existing swap file in blocks. It then asks whether or not you want to change the size of the swap file.

To change the size of the swap file, enter "y" and press the RETURN key. Then go to step 9.

To leave the swap file at its current size, enter "n" and press the RETURN key. The swap file is moved to the disk that you have selected. If there is another swap file in the system, the utility cycles again through the series of prompts described in steps 1 through 8.

- 9 Enter the size of the swap file in blocks and press the RETURN key. A size between 20,000 and 60,000 blocks should be sufficient. [The minimum size of a swap file is 20,000 blocks (10 MB).]

After you enter the size and press the RETURN key, the swap file is moved to the disk that you have selected and is resized. If there is another swap file in the system, the utility cycles again through the series of prompts described in steps 1 through 8.

Moving and/or resizing the swap file includes the following operations:

- The new swap file is created according to the specifications given by the user. If a new size was specified, the file is created with the new size.
- The BTOS configuration file is modified to reflect the disk to which the swap has been moved.

## Restoring

After the program verifies that everything is as it should be, the CENTIX system files are restored. Then the BTOS system files are restored. (If you are restoring your data from a disk cartridge, the BTOS files are all on the last cartridge in the backup series.)

The message "Root file system successfully restored" appears on the screen. This screen also tells you where all restore procedure information has been logged.

Then the screen clears and control returns to the Restricted mode Main Menu.

## Verifying Results

The procedure to restore system files produces a log called /restore.log. To check the results of the system files restoration as reported in this log, enter option 3, "Go to Shell" from the Restricted Mode Main Menu.

When the shell prompt appears, enter the following command:

```
# more /restore.log
```

The /restore.log contains the following information:

- Date and time system file restoration began and ended.
- Medium from which files were restored.
- Information on old root disk and partition.
- Information on new root disk and partition.
- Information on old swap disk and partition.
- Information on new swap disk and partition.
- Validation of root and swap resizing and relocation.
- List of BTOS files restored.

**Note:** *The list of restored CENTIX files is not logged because space is limited in the restricted mode. To obtain this list, enter the following commands after rebooting the system and putting it in single user mode through "init s."*

```
# find / -depth -print > /files_restored
```

```
# lpr files_restored
```

When you have completed your check of the system files restoration log, press the FINISH key and return to the Restricted Main Menu of Restricted Mode.

## Rebooting the System

You must reboot the system so that the system files restoration can take effect.

Enter option 0, Shutdown, from the Restricted Mode Main Menu. Then wait for the message "OK to stop or reset processor" to appear.

After the message appears, turn the keyswitch from REMOTE to STOP, and then to NORMAL.

After you reboot the system, the system files which were restored will be accessible.



## Designating a Printer

When you use functions that include printing information or reports, centrEASE requires you to specify your printer type. Manage Log Files, Print Configuration Reports, and Back Up and Restore require you to designate your printer type on the form shown in Figure 12-1.

Figure 12-1 **Printer Designation Form**

```

                                PRINTER SELECTION
                                *****

The option you choose sends output to a printer, and
allows you to select the printer.  If the printer is
configured to lp Spool Server, enter "lp" in the first
field below.  If the printer is configured to lpr Spool
Server, enter "lpr" in the first field.

Enter lp or lpr:

If you entered lp, you must specify a destination.

Enter destination:

If you entered lpr, you must specify a printer type:

Enter 1 or 2:          1) parallel
                       2) serial

```

If your printer is configured to the lp printer spooler, enter "lp" in the first field. If your printer is configured to the lpr printer spooler, enter "lpr" in the first field.

You can determine whether your printer is configured to the lp or lpr spooler. Exit to shell by pressing the FINISH key. Then enter the following command to obtain a listing of the appropriate processor initialization file using the ofvi editor.

```
# ofvi '[sys]<sys>InitXpnn.jcl'
```

where *Xpnn* is the processor to which the printer is connected (for example, CP00 or TP01).

An entry for [sys]<sys>LpSpooler.run indicates that the lp spooler is running. An entry for [sys]<sys>MSpoolerMgr.run indicates that the lpr is running.

*Note: If you are using ofvi editor to check the node number, you must enter :q, press the RETURN key, and answer "n" not to overwrite the file to return to centrEASE. This returns you to the shell level. Press the FINISH key. Pressing the FINISH key while in the vi editor will not return you to the centrEASE facility.*

If you entered "lp" on the first field, you must specify a destination. A destination may be a printer or a printer class. To obtain a list of valid printer destinations, escape to shell by pressing the FINISH key. Then enter the following command:

```
# lpstat -a
```

Use only the destinations that are currently accepting print requests.

If you entered "lpr" on the first field, you must specify whether your printer is parallel or serial.

Finally, when you have completed the form as required, press the GO key.

## Running centrEASE from a Non-PT 1500 Terminal

### How to Define a New Terminal to centrEASE

The centrEASE facility is ordinarily run on a PT 1500 terminal. However, it may also be run on an ASCII terminal, as a non-PT 1500 terminal is referred to in this section.

#### Terminal Type

When you type "saf" to run centrEASE, a check is made to determine whether or not the environmental variable TERM is currently set. (This variable is usually set in /etc/profile and/or the user's \$HOME/.profile and exported). For example:

```
TERM=vt100 ; export TERM
```

If this variable is not set, or if TERM is set to an invalid terminal type (that is, there is no corresponding entry in a subdirectory of /usr/lib/terminfo), centrEASE immediately exits and displays the following message:

```
This version of centrEASE has been enhanced to allow
interaction on ASCII terminals.  In order to use this
version, shell variable TERM must be set.
```

```
IF you are using a pt 1500, type    TERM=pt;export TERM
IF you are using an svt-1210, type  TERM=vt100;export TERM
IF you are using an svt-1220, type  TERM=vt100;export TERM
```

**NOTE:** The terminal type must be valid for centrEASE to function properly.

*Note:* You cannot run centrEASE successfully until you have set this variable.

## Mapping Keys

### Default Key Mappings for SVT-1210 and SVT-1220 terminals

The centrEASE facility provides default key mappings for SVT-1210 and SVT-1220 terminals. You must define TERM to be "vt100", "svt1210", or "svt1220" to use the default settings. The default key mappings are as follows:

**CANCEL** PF1 (Function Key 1)

**HELP** PF2 (Function Key 2)

**GO** ESC (Escape Key)

**NEXT** Line Feed Key

**FINISH** PF3 (Function Key 3)

**MAPKEY** PF4 (Function Key 4)

If you do not want to use the default key mappings, first edit the /SAF/FILES/termcap and /SAF/FILES/termmap files. Remove the corresponding terminal entries in these files. For example, if TERM is set to "vt100", remove the two subsequent lines beginning with "vt100" from the /SAF/FILES/termcap file and remove the line labeled "vt100" from the /SAF/FILES/termmap file. Then define special keys.

## Defining Special Keys on a Non-PT 1500 Terminal

When centrEASE is invoked, it first checks the /SAF/FILES/termcap file for an entry for that terminal before the "centrEASE—copyright Burroughs" banner is displayed.

- If no appropriate entry exists (for example, special key mapping has never been defined for this ASCII terminal), you are prompted to define the keystroke and associated mnemonic name for each of the six keys (CANCEL, HELP, GO, NEXT, FINISH, and MAPKEY). Limit your key selections to nonprintable characters, such as ESCAPE or LINE FEED keys, FUNCTION or PF keys. Do not use any key that the CENTIX system recognizes as special, such as DELETE, RUBOUT, or BREAK. Do not use control keys or duplicate keys. For example, do not define CANCEL and HELP as the same key.
- After the six keys have been defined, the "centrEASE—copyright Burroughs" banner is displayed, and the main menu appears to remind you how you have defined the MAPKEY. When you press the MAPKEY in response to a prompt, a table of all six keys is displayed. For example:

```

.....
.
.   CANCEL  PF1 (Function Key 1)  .
.   HELP   PF2 (Function Key 2)  .
.   GO     ESC (Escape Key)     .
.   NEXT   Line Feed Key        .
.   FINISH PF3 (Function Key 3)  .
.   MAPKEY PF4 (Function Key 4)  .
.
.....

```

HIT NEXT to continue

In this example, the NEXT key is labeled LINE FEED; therefore you would press LINE FEED.

- If an entry already exists for the current terminal (the default or a previously defined entry), centrEASE requires no further user-input. The screen displays a message indicating the key you previously defined as the MAPKEY. Therefore, if you forget a key you have defined, the CANCEL key, for example, press the MAPKEY to see the CANCEL key and the other five key mappings.
- During any centrEASE function, if an invalid keystroke is entered instead of a special key (for example, GO or CANCEL), the terminal beeps, and the message indicating the MAPKEY is again displayed.

## How to Define Special Keys

To run centrEASE on a non-PT 1500 terminal, first map the keys. If you have not done so, you are prompted for the following information:

- 1 Key types (Press the key or key sequence you want to use for the CANCEL key. For example, press the function key, PF1).
- 2 Key descriptions (Type, literally, P, then F, then 1, or whatever you want to use to call the function key. Do not press the function key again).

Do not define the ENTER key as a special key.

### *Note:*

- 1 *When you respond to the first prompt, press only the key being defined (the key you are designating as the CANCEL key, for example). Do not press the RETURN key.*
- 2 *When you respond to the second prompt, enter the name of the key as it appears on your terminal. For example, if you press a key marked PF1 for the first prompt, type P,F, and 1 and the RETURN key for the second prompt. A key description may be up to 30 characters long.*

## Files Modified by centrEASE

/SAF/FILES/termcap

/SAF/FILES/termmap

## Aborting the Key Mapping Procedure

When you define keys for an ASCII terminal, you can abort the definition procedure at three points: before key mapping begins, during key mapping, and after the special keys have been defined. To abort, type an "a" at any of these points. The screens inform you of these options.

Note that special key definitions apply only to centrEASE screens. They do not carry over to escape-to-shell or to BTOS commands invoked from centrEASE functions. For example, if you execute Mcommands through centrEASE, the key meanings are temporarily changed back to their original definitions.

## Escape-to-Shell

When you are using a non-PT 1500 terminal and try to escape to shell from centrEASE by pressing what you have defined as the FINISH key, the following message is displayed:

```
"You are about to escape from centrEASE into the Bourne shell. When you exit this shell you will return to centrEASE. To exit the shell, you must type either exit or ctrl-d. Hit Next to continue."
```

## Prompt for Escape-to-Shell

During an escape-to-shell from a non-PT 1500 terminal, the following prompt replaces the normal (root-user) prompt, "#":

```
SAF-SHELL:
```

To terminate this sub-shell and return to centrEASE, type either "exit" or "ctrl-d."

## Setting Up SVT-1210 and SVT-1220 Terminals at 9600 Baud

The following are the basic settings for running the centrEASE facility on SVT-1210 and SVT-1220 terminals. It is assumed that the terminal is connected to the XE 500 System through the main port.

You can set up an SVT-1210 or SVT-1220 terminal in two ways. The first method, recommended if you have never set up these terminals before, destroys previous settings. The second method, which retains previous settings, is suggested only if you are an experienced user.

### Setting Up a Terminal with New Settings

*Note: The following procedures destroy previous terminal settings.*

#### Setting UP the SVT-1210 Terminal

- 1 After the terminal is powered up, press the SET-UP key at the top left corner of the keyboard.
- 2 Press the 0 (RESET) key to clear the terminal settings. After this operation is completed, the contents of the screen are destroyed.
- 3 Press the SET-UP key and then the 5 (SET UP A/B) key to enter Set-Up Screen B.
- 4 Move the cursor to the right using the right arrow key until "Margin Bell ON/OFF (I/O)" is displayed. Adjust this setting to 0 by pressing the 6 (toggle I/O) key once.
- 5 Hold the SHIFT key and press the S key to save the settings.
- 6 Press the SET-UP key, then the RETURN key to return to the normal screen. Your terminal is now properly set to run the centrEASE facility.

### Setting Up the SVT-1220 Terminal

- 1 After the terminal is powered up, press the SET-UP key at the top left corner of the keyboard.
- 2 Move the cursor to "Default," using the arrow keys, then press the ENTER key. Wait until "Done" is displayed at the bottom of the screen.
- 3 Move the cursor to "General," using the arrow keys. Press the ENTER key, then move the cursor to "VT200 Mode, 7-Bit Controls". Press the ENTER key three times. You will see the setting changed to "VT100 Mode VT220 ID."
- 4 Move the cursor to "To Directory" and press the ENTER key.
- 5 Move the cursor to "Comm" and press the ENTER key.
- 6 Move the cursor to "Transmit=4800" and press the ENTER key to change the setting to "Transmit=9600."
- 7 Move the cursor to "To Directory" and press the ENTER key.
- 8 Move the cursor to "Keyboard" and press the ENTER key.
- 9 Move the cursor to "Margin Bell" and press the ENTER key to change the setting to "No Margin Bell."
- 10 Move the cursor to "To Directory" and press the ENTER key.
- 11 Move the cursor to "Save" and press the ENTER key. Wait until "Done" is displayed at the bottom of the screen.
- 12 After the settings are saved, press the SET-UP key again. Your terminal is now properly set to run centrEASE.

### Setting Up a Terminal Retaining Settings

Use this method to set up a terminal only if you are an experienced user.

**Required Settings for the SVT-1210 Terminal**

The following are the minimum settings required for running centrEASE on an SVT-1210 Terminal.

Cursor Underline or Cursor Block

Cursor Blinking

8 Bit (Main)

Parity OFF

Main Speed 9600

Margin Bell OFF

**Required Settings for the SVT-1220 Terminal**

The following are the minimum settings required for running centrEASE on an SVT-1220 Terminal.

Cursor Type	Blinking Block or Underline Cursor
Terminal Type	VT100 Mode
Host Bit/Parity	8 Bit, No Parity
Host Transmit Speed	9600, Receive=Transmit
Margin Bell	No Margin Bell

# Glossary

**Applications Processor (AP).** Processor board in the XE 500 system that runs the CENTIX operating system.

**AP.** *See Applications Processor.*

**ASCII (American National Standard Code for Information Interchange).** Control and graphic character set consisting of 7-bit coded characters (8 bits including parity check), used for information interchange between data communications systems.

**block.** On a disk device, a 512-byte subdivision of data on the disk. Also referred to as a *sector*.

**block device.** A hardware device that handles I/O data in 1024 bytes (1 kB) blocks. The I/O size is controlled by the operating system's buffer size and is independent of the user's I/O size. Disk and tape devices can be configured as block devices.

**Bourne Shell.** A command-oriented shell used to search for programs in specific places on the CENTIX file system.

**BTOS.** Burroughs workstation operating system. All XE 500 boards except the Applications Processor run a version of BTOS. BTOS-based processors handle all of the actual data transfers for CENTIX between the XE 500 and I/O devices (such as disk drives, tape drives, terminals, and modems).

**CENTIX shell.** Command interpreter; program acting as interface between operating system and users.

**centrEASE.** A menu-driven, interactive facility that you can use to perform many administrative tasks on the CENTIX system.

**character device.** A hardware device that handles raw data streams. The size of I/O transfers in raw data streams are determined either by the software design of the device itself (for terminals and printers) or by the program controlling the device (for disks and tapes).

**Cluster Processor (CP).** Board in XE 500 system; runs communications software and supports PT 1500 terminals, B 20 workstations, a parallel printer, and up to three RS-232-C serial devices.

**Computer Management System (CMS).** Operating system; run-time system and post-compilation system.

## Glossary-2

---

**console.** The terminal designated by the system software for use by the system administrator.

**CP.** *See* Cluster Processor.

**data communication (data comm).** The transfer of data between a data source and data link using one or more data links according to the designated protocol.

**device.** A terminal, printer, disk, tape, or other input/output medium that can be attached to the system. A device can be physical or logical.

**device file.** In the CENTIX file system, a file in the /dev directory that represents a terminal, printer, disk, tape, or other input/output device.

**directory.** In CENTIX, a directory is a list of files that are assigned to the directory. A directory can also contain other directories.

**disk cartridge.** Magnetic disk storage medium utilizing a hard disk enclosed in a portable cartridge. Disk cartridges are used with a disk cartridge drive of an XE 500 base enclosure.

**disk extent.** One or more contiguous disk sectors that contain all or part of a file.

**Disk Processor (DP).** Processor board in an XE 500 system that is formed by connecting SC to SP. The DP supports I/O to half-inch magnetic tape drives and MD3 disks.

**DP.** *See* Disk Processor.

**dumb terminal.** Unprogrammable terminal that uses ASCII code.

**/etc/checklist.** File that lists the CENTIX file systems that are checked by **fsck**, the file system checking program, at boot time.

**/etc/getty.** Process that readies terminal connections for login.

**/etc/gettydefs.** File that contains line communications information on terminals. It is read by the /etc/getty process.

**/etc/inittabnn.** CENTIX files that defines the CENTIX terminal assignments and the CENTIX processes that are started at boot time.

**/etc/passwd.** File that lists information about each user on the system, including the user's login name, password, home directory, and so on.

**/etc/profile.** A shell script that defines the users' terminal environment when the system is booted.

**File Processor (FP).** Processor board in an XE 500 system that supports I/O operations to disk devices.

**file system.** In CENTIX, a collection of files that are all stored on the same logical disk device. A file system must be attached to, or is "subordinate to," a directory. The file system physically contains the files that are logically contained in that directory. The term can also be used, as in "the CENTIX file system," to describe the entire hierarchy of directories, specific file systems, and files in a CENTIX system.

**FP.** *See* File Processor.

**home directory.** For a user, the directory into which the user is automatically placed when he or she logs onto the system.

**Indexed Sequential Access Method (ISAM).** Programming tool that uses an index to sequence file records on disk and to access those records directly.

**inode.** In a CENTIX file system, there is one inode for each file and directory in the file system. The inode contains status information for its file or directory, such as the size, its owner and permissions, its disk address list, and whether it is a directory, an ordinary file, or a special file.

**I/O.** Input/output.

**ISAM.** *See* Indexed Sequential Access Method.

**kernel.** Portion of the CENTIX operating system that controls system processes and allocates system resources.

**Master Commands.** The BTOS commands that can be accessed through CENTIX to administer the BTOS portion of the operating system.

**Master Utilities.** Utilities that are invoked when the BTOS Master Commands are used.

**MCommands.** *See* Master Commands.

**MD3.** Enclosure containing up to three Memorex 166 SMD disk drives.

**ME.** *See* Memory Expansion Board.

**Memory Expansion Board (ME).** Board attached to a processor board to supply 1/2 M-byte or 1 M-byte additional memory capacity.

**multiuser mode.** An operating state defined in the /etc/inittab $nn$  files. In multiuser mode, user terminals are readied for login.

**MUtilities.** *See* Master Utilities.

## Glossary-4

---

**ofcli.** CENTIX command used to access the BTOS Command Line Interpreter (CLI) mode, from which BTOS MCommands can be initiated.

**partition.** The name of a BTOS file that is associated with a CENTIX logical disk device.

**path name.** For a CENTIX file, the name that identifies the file's position in the CENTIX file system. A complete (absolute) path name always begins with /, which stands for the root directory.

**Pifl factor.** A value that can be specified when you create a file system to control the size of the blocks of data that are moved in and out of the file system in I/O operations.

**pipng.** Linking of programs so that the output of one program becomes the input for another program.

**port.** The part of a data processor dedicated to a single data channel for receiving data from, or transmitting data to, one or more external remote devices.

**printer spooler.** A system service that manages the transfer of data from disk files to printers.

**QIC.** See Quarter-Inch Cartridge Tape.

**Quarter-Inch Cartridge (QIC) Tape.** Magnetic tape storage medium that utilizes quarter-inch-wide tape enclosed in a portable cartridge. QIC tapes are used with a disk cartridge drive of an XE 500 base enclosure.

**raw device.** A block device configured to accept raw data. The size of I/O transfers for a raw data stream is determined by the design of the device itself or by the program controlling the device.

**root.** The base directory of the CENTIX file system. Every CENTIX directory must either be subordinate to root, or subordinate to a directory that is subordinate to root, or subordinate to a directory that is subordinate to a directory that is subordinate to root, and so on. In a file path name, root is represented by a slash (/).

**Run-Time System.** CENTIX shell commands and software to support an office environment running office application programs.

**saf.** Command entered that initiates the centrEASE administrative facility.

**SCCS.** See Source Code Control System.

**sector.** See block.

**shell.** The portion of the CENTIX operating system that provides a user interface to the kernel.

**shell script.** An executable CENTIX file that contains a program comprised of shell commands.

**single user mode.** An operating state defined in the */etc/inittab* files. In single user mode, only the system console can access the system.

**SMD.** *See* Storage Module Device.

**Source Code Control System (SCCS).** A group of software commands that control and account for changes to text files.

**SP.** *See* Storage Processor.

**Storage Module Device (SMD).** 132-byte (formatted) Memorex 166 Disk Drive.

**Storage Processor (SP).** Processor board in XE 500 system; controls half-inch magnetic tape.

**superblock.** The portion of a CENTIX file system that contains descriptions of the file system, including the file system name, its size in blocks, the number of blocks reserved for inodes, the free inode list, and the free block list.

**superuser.** The name by which the system administrator is called in CENTIX documentation. To become superuser, the administrator signs onto the system as "root".

**system bus.** Path over which the system processors communicate.

**terminal.** A device, usually equipped with a keyboard and a display, which is capable of sending and receiving information over a communication channel.

**Terminal Processor (TP).** Processor board in XE 500 system that supports a parallel printer and up to ten RS-232-C serial devices.

**TP.** *See* Terminal Processor.

**UNIX.** AT&T Bell Laboratories operating system designed for application program development on various computer systems.

**volume.** In BTOS, the complete file system unit of information stored on a formatted disk.

**XE 550 System.** Burroughs multiprocessor computer; runs CENTIX, a UNIX-based operating system.



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