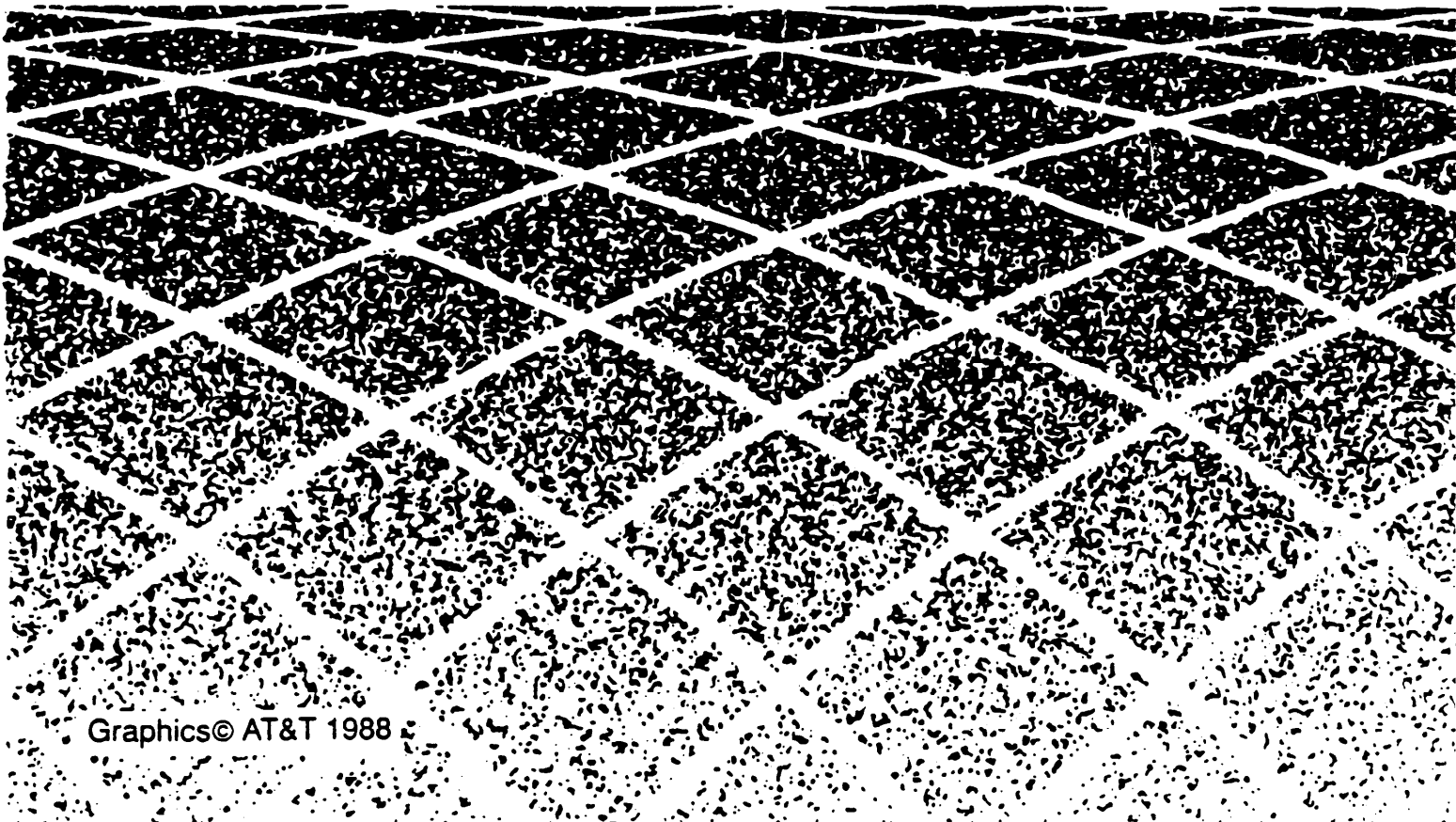




555-230-500
Issue 1, January 1992

DEFINITY[®] Communications System
Generic 1 & Generic 3
System Management



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DEFINITY is a registered trademark of AT&T. In this document, DEFINITY Communications System Generic 3 is often abbreviated to DEFINITY Generic 3 or Generic 3.

DEFINITY Communications System Generic 1 is often abbreviated to DEFINITY Generic 1 or Generic 1.

Acknowledgment

This document was prepared by the AT&T Technical Publications Department Middletown NJ.

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CHAPTER 1. INTRODUCTION

Overview

This manual provides the information necessary for the System Manager to administer the DEFINITY® Communications System Generic 1 and Generic 3 using any of the administration terminals listed in Chapter 2. If system administration will be performed using the DEFINITY® Communications System Generic 3 Management Applications (G3-MA), refer to *DEFINITY® Communications System Generic 3 Management Applications—Operations*, 585-229-202, for system management procedures. Unless otherwise noted, the DEFINITY Communications System will be referred to as the “system” throughout this document.

During the planning process, system requirements were identified by the Account Team and your company. Those requirements were converted into orderable system hardware when the Account Team configured the system. Those features were assigned on a system and per-terminal basis using the forms in the appropriate *DEFINITY® Communications System Implementation* manual for your DEFINITY System.

The forms in your *Implementation* manual provide an accurate representation of the screens that are displayed on the system administration terminal. The forms are a blueprint showing how the system and voice terminal features should be constructed.

In order to administer the system, the following must first be done:

- Attend the System Customer Training Course.
- Be familiar with the information in the *DEFINITY® Communications System Generic 1 and Generic System 3—Description*, 555-230-200, and the *DEFINITY Communications System Generic 1 and Generic 3—Feature Description*, 555-230-201.
- Obtain a list from the Account Team and determine what hardware has been ordered.
- Using your *Implementation* manual, complete:
 - the Communications Survey
 - the applicable system records and forms
- Retain all the completed system forms in the *Implementation* manual for use in initializing and administering the system.

System Management

System Management is the process by which the System Manager controls, maintains, and monitors the system. The System Manager provides reports which enable the manager to assess system functionality and use. System Management also allows the System Manager to make additions and/or changes as necessary to meet business requirements.

System Manager's Role

The System Manager is responsible for the following:

- Adding, changing, removing, and monitoring the system and voice terminal features on a day-to-day basis
- Performing system backup procedures
- Monitoring system performance
- Maintaining system security

Initialization

After the system is installed and initialized, the System Manager can administer the system using the system administration terminal.

Once completed and duplicated, all forms from the *Implementation* manual should be sorted into groups. For example, all voice terminal, hunt group, and trunk group forms should be in separate groups. A copy of the Port Assignment Record should be available to keep track of the items being installed in the system. These records can be used as a permanent record to show how the system was initially set up. These records can be replaced as system and voice terminal features are added or removed.

Ongoing Administration

Ongoing administration is the process of using system commands to perform a variety of functions to meet business requirements. These functions include: add, change, display, set time, list, duplicate, perform system measurements, perform security and alarms, configure, monitor system performance, and remove system and/or voice terminal features.

Record Keeping

Record keeping plays a vital role in system administration. Records provide a current status of what hardware and which features have been installed.

The Port Assignment Record provides a record of how a system is initialized and administered. Ports are the physical location on a circuit pack where terminals, trunks, or system adjuncts are connected. Once port numbers are assigned, they become the “address” of the associated equipment or facility in the system. It is necessary that a record be made and kept of port assignments for system installation/initialization and ongoing administration.

A work request form or worksheet should be used to keep track of people who requested the features and the features they desired.

Follow your company policy concerning keeping records. The applicable *Implementation* manual provides the system-related screen forms.

When to Use This Manual

This manual, along with the *Implementation* manual, provides the necessary guidelines to administer the system. The *Implementation* manual, when completed, contains the filled-out forms that reflect how your company wants to implement the system and voice terminal features. The information on these forms will be electronically entered in the system.

The *Implementation* manual provides all the details for gathering translation data. It also provides detailed questions and procedures required to complete all the screen forms used to enter translation data into the system.

The *System Description* and *Feature Description* manuals should be used to answer any questions concerning system hardware and feature descriptions.

You should have thorough training on the following items before attempting to administer the system:

- System and voice terminal features
- Hardware requirements
- Port assignments
- Manager I terminal operation

Organization

This document consists of the following chapters:

- Chapter 1. Introduction **describes this document.**
- Chapter 2. DEFINITY Administration Terminals **describes the types of terminals which can be used to administer DEFINITY Communications Systems and provides details on keyboard layouts and keyboard mapping.**
- Chapter 3. System Administration **provides the order in which features are to be administered.**
- Chapter 4. Administrative Tasks-System **gives details on performing a variety of system administration tasks.**
- Chapter 5. Administrative Tasks-Voice Terminal **gives details on performing a variety of voice terminal administration tasks.**
- Chapter 6. Hardware Reconfiguration **provides a list of commands to determine if the correct circuit packs are installed so that new voice terminals, trunks, and data modules can be added to the system.**
- Chapter 7. System Backup for DEFINITY G1 and G3i **describes the tasks involved in backing up the DEFINITY G1 and G3i systems, including saving translations, saving and restoring recorded announcements, tape backup, and tape errors.**
- Chapter 8. System Backup for DEFINITY G3r **describes the tasks involved in backing up the DEFINITY G3r system, including saving translations, saving and restoring recorded announcements, backup, restore, and tape errors.**

- Chapter 9. References **provides a list of references for related documents.**
- Chapter 10. Abbreviations and Acronyms **lists abbreviations and acronyms for terms used in the DEFINITY Communications System documentation.**
- Glossary **defines terms used in the DEFINITY Communications System documentation.**
- Index

Conventions Used in This Document

This manual uses the following conventions:

- The names of the commands are shown in the following typeface:
change system-parameters feature
- Information you type is shown in the following typeface: EIA.
- Information displayed on the screen is shown in the following typeface: login:
- Keyboard keys are shown as follows: [RETURN]
- Function keys are shown as follows: [CANCEL]

CHAPTER 2. DEFINITY ADMINISTRATION TERMINALS

Overview

The terminal used to administer a DEFINITY Communications System is identified in this document as the system administration terminal or the terminal.

The terminal supplied with the system must be located within 50 feet of the system cabinet. The terminal consists of a video display and a keyboard that allow a System Manager to communicate with the system. After initialization, the terminal is used to reconfigure translations and to monitor system performance. The terminal can also be used by maintenance personnel.

The system can be equipped with any of the following terminals:

- 715 Multi-Task (MT) Terminal
- 513 BCT
- 610 BCT
- 615 MT Terminal
- 4410 Terminal
- 4425 Terminal
- AT&T Personal Computer (PC) 6300 using an AT&T 513, 4410, or 4425 emulation software package

If your DEFINITY System is being used with a G3-MA, refer to *DEFINITY® Communications System Generic 3 Management Applications—Operations, 565-229-202*, for terminal operating instructions and system management procedures. No operating instructions are given in this document.

The operating instructions in this document cover the 715, 513, 4410, and 4425 terminal types. The operating instructions for the 610 BCT or 615 MT terminal are the same as for the 513 BCT if the 610 or 615 MT terminal is supplied with the 513 emulation cartridge or as for the 4410 if the 513 emulation cartridge is not supplied with the 610 BCT or 615 MT terminal. The instructions describe how the terminal keys can be used, for example, to enter, cancel, display, and change system translations. Instructions on how to use the function keys are also provided.

The terminal key instructions are provided in Table 2-A.

Refer to the following manuals for additional operation information on the 715, 513, 610, 4410, or 4425 terminals:

- *AT&T 715 MT Terminal User's Guide and Service Manual*, 999-300-760, for the 715 terminal
- *AT&T Information Systems 513 Business Communications Terminal (BCT) Users Guide*, 999-700-486IS, for the 513 BCT
- *AT&T Information Systems 610 Business Communications Terminal (BCT) Users Guide*, 999-300-270IS, for the 610 BCT
- *AT&T Information Systems 615 Multi-Tasking Terminal Users Guide*, 999-300-302IS, for the 615 MT terminal
- *AT&T Information Systems Display Terminal Users Guide*, 999-300-180IS, for the 4410 terminal
- *AT&T Information Systems Users Guide*, 999-310-181IS, for the 4425 terminal

715 MT Terminal

The 715 MT terminal emulates the AT&T 615 MT Terminal/System 75 Cartridge combination (513 emulation) when operated in the "BCS" operating mode. The terminal operating mode is set by selecting the `Emulation` option of the `User Preferences` submenu or via an escape sequence.

Keyboard Overview

The 715 keyboard is equipped with special keys that allow the user to make corrections and do editing functions. Various function keys perform specific functions. Figure 2-1 shows a layout of the 715 keyboard.

See Table 2-A for a list of the cursor keys, function keys, and programmable keys and a brief description.

The keyboard's top row includes 14 function keys that provide access to the modules and features of the terminal. They are used as terminal function keys, as screen-labeled keys, or as function keys. For more information on using or programming the 715's function keys, see the *AT&T 715 MT Terminal Users Guide and Service Manual*, 999-300-760.

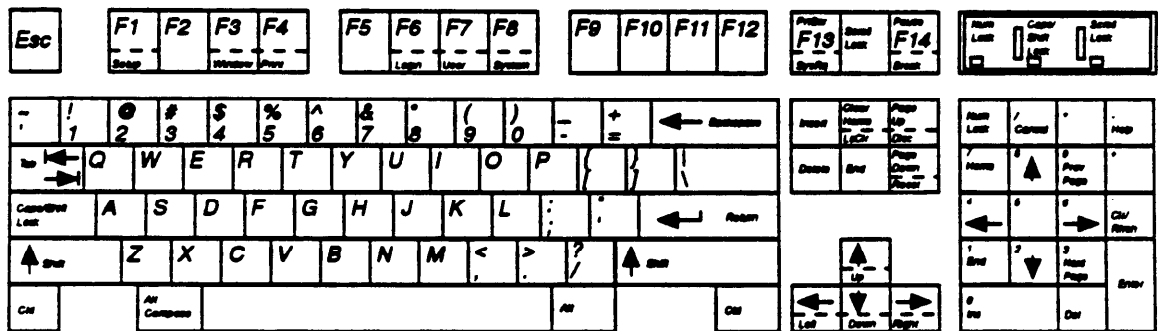


FIGURE 2-1. 715 MT Keyboard

513 BCT Keyboard

The 513 BCT keyboard is equipped with special cursor keys that allow the user to make corrections and perform editing functions. Function keys that allow single keystrokes to do specific functions are also provided. Each type of key used on the 513 BCT is described in the following paragraphs.

See Table 2-A for a list of the cursor keys, function keys, and programmable keys and a brief description.

Cursor Keys

The cursor keys allow the user to move the cursor between fields and pages on a screen form. The cursor must be positioned on a field before the user can change information in that field. The backspace key is used to correct typing mistakes by backspacing and overstriking mistyped characters.

Programmable Keys

The 513 BCT keyboard is equipped with eight programmable keys ([F1] to [F8]) located at the top of the keyboard. Each key can be programmed by the user to perform a specific function. The keys are programmed by accessing the `USER PF KEY SET-UP` screen form. Figure 2-2 shows the layout of the 513 BCT keyboard.

Table 2-A contains a list of the cursor keys, function keys, and programmable keys and a brief description.

Function Keys

Three function keys ([CANCL], [ENTER], and [RETURN]) are provided.

The [CANCL] key is used to erase a form or command. Once the key is pressed, the system returns the user to the `enter command: (tasks request)` level and asks for a new command. Any data entered on a screen form prior to pressing [CANCEL] is ignored. Any command entered is ignored and the user is returned to the `enter command: prompt`.

The [ENTER] key is used to store the data entered on a screen form into the system's memory.

The [RETURN] key, when pressed, automatically moves the cursor to the next field on a screen form.

TABLE 2-A. Terminal Keys

For This Function	Terminal Type			
	715‡	513 or 610* or 615 MT*	4410 or 610† or 615 MT†	4425
Press Key Below:				
To cancel a screen form or command Once the key is pressed, the system returns the user to the enter command: (tasks request) level. Any data entered on a screen form prior to pressing CANCL (Cancel) or [F1] is ignored. For the 4410 or 4425, the associated [F1] screen label (CANCEL) is automatically assigned.	Cancel	CANCL	[F1]	[F1]
To clear and redraw a screen form The system redraws the same screen. For the 4410 or 4425, the associated [F2] screen label (REFRESH) is displayed when the add, change, or display command is entered and the screen form is displayed.	Clr/ Rfrsh	CLEAR RFRSH	[F2]	[F2]
To clear all data in a field The cursor must be positioned at the field the user wants to clear before pressing this key. For the 4410 or 4425, the associated [F4] screen label (CLEAR FIELD) is displayed when the add or change command is entered and the screen form is displayed.	(shift) Clear Home	CLEAR RFRSH (shift)	[F4]	[F4]

* If a 513 emulation cartridge is used for a 610 or 615 MT, the 610 or 615 MT Terminal keys will function the same as the 513 BCT keys.

† If a 513 emulation cartridge is not used with a 610 or 615 MT, the 610 or 615 MT Terminal keys will function the same as the 4410 keys.

‡ The 715 must be set to the “BCS” emulation mode which causes it to function like a 615 MT Terminal equipped with a 513 emulation cartridge.

TABLE 2-A (continued).
Terminal Keys






For This Function	Terminal Type			
	715‡	513 or 610* or 615 MT*	4410 or 610† or 615 MT†	4425
Press Key Below:				
To display the next page of a screen form Used to display the next page of a screen form that has more than one page. For the 4410 or 4425, the associated [F7] screen label (NEXT PAGE) appears when the screen form has more than one page.	Page Down	PAGE	[F7]	[F7]
To display the previous page of a screen form Used to display the previous page of a form which has more than one page. For the 4410 or 4425, the associated [F8] screen label (PREV PAGE) is displayed only when the screen has more than one page.	Page up	PAGE (shift)	[F8]	[F8]
To display the first page of a multiple screen form Used to display the first page of multiple forms when using the command (typical — display station xxxx count 1-10). For the 4410 or 4425, the associated [F6] screen label (NEXT FORM) is displayed only when multiple forms are to be displayed.	—	—	[F6]	[F6]

* If a 513 emulation cartridge is used for a 610 or 615 MT, the 610 or 615 MT Terminal keys will function the same as the 513 BCT keys.

† If a 513 emulation cartridge is not used with a 610 or 615 MT, the 610 or 615 MT Terminal keys will function the same as the 4410 keys.

‡ The 715 must be set to the “BCS” emulation mode which causes it to function like a 615 MT Terminal equipped with a 513 emulation cartridge.

TABLE 2-A (continued)
Terminal Keys



















For This Function	Terminal Type				
	715‡	513 or 610*	4410 or 610†	615 MT* 615 MT†	4425
Press Key Below:					
To display help information for a field or command Used to display help information on the type of data that can be entered into the field associated with the current cursor position. The system delays all the possible entries the user can input for that field. This key can also be pressed at the enter command: level to obtain a list of all the system commands. [HELP] can be pressed at other command levels to obtain a list of objects and entries for identifiers. For the 4410 or 4425, the associated [F5] screen label (HELP) is displayed when the user logs into the system.	[Help]	[HELP]	[F5]	[F5]	
To move the cursor to the next field on a line If the cursor is in the last field on a line, then it moves to the first field on the next line. If the cursor is in the last field on the last line, then it moves to the first field on the first line.	 or [TAB] or [RETURN]	 or [TAB] or 	 or [TAB]	 or [TAB]	

* If a 513 emulation cartridge is used for a 610 or 615 MT, the 610 or 615 MT Terminal keys will function the same as the 513 BCT keys.

† If a 513 emulation cartridge is not used with a 610 or 615 MT, the 610 or 615 MT Terminal keys will function the same as the 4410 keys.

‡ The 715 must be set to the "BCS" emulation mode which causes it to function like a 615 MT Terminal equipped with a 513 emulation cartridge.

TABLE 2-A (continued).
Terminal Keys

For This Function	Terminal Type			
	715‡	513 or 610* or 615 MT*	4410 610† or 615 MT†	4425
Press Key Below:				
To move the cursor to the previous field on a line If the cursor is in the first field on a line, then it moves to the last field of the previous line. If it is in the first field of the first line, then it moves to the last field of the last line.	 or 	 or 	 or 	 or 
To move the cursor to the next line If the cursor is on the last line, it moves to the first line.		ROLL 	 	
To move the cursor to the previous line If the cursor is on the first line, it moves to the last line.		ROLL 	 	
To store the data entered on a screen form Used to enter into system memory the data that is displayed on a screen form. For the 4410 or 4425, the associated [F3] screen label (ENTER) is displayed when the add or change command is entered and the associated screen form is displayed.			[F3]	[F3]

* If a 513 emulation cartridge is used for a 610 or 615 MT, the 610 or 615 MT Terminal keys will function the same as the 513 BCT keys.

† If a 513 emulation cartridge is not used with a 610 or 615 MT, the 610 or 615 MT Terminal keys will function the same as the 4410 keys.

‡ The 715 must be set to the “BCS” emulation mode which causes it to function like a 615 MT Terminal equipped with a 513 emulation cartridge.

TABLE 2-A (continued).
Terminal Keys

For This Function	Terminal Type			
	715‡	513 or 610* 615 MT*	4410 610† or 615 MT†	4425
	Press Key Below:			
<p>To update the BCMS screen form using Monitor commands (G1) Used to obtain immediate update of real time status reports for agents and splits. Used only with the BCMS monitor bcms split and monitor bcms system commands.</p>	[F6]	[F6]	[F6]	[F6]

- * If a 513 emulation cartridge is used for a 610 or 615 MT, the 610 or 615 MT Terminal keys will function the same as the 513 BCT keys.
- † If a 513 emulation cartridge is not used with a 610 or 615 MT, the 610 or 615 MT Terminal keys will function the same as the 4410 keys.
- ‡ The 715 must be set to the “BCS” emulation mode which causes it to function like a 615 MT Terminal equipped with a 513 emulation cartridge.

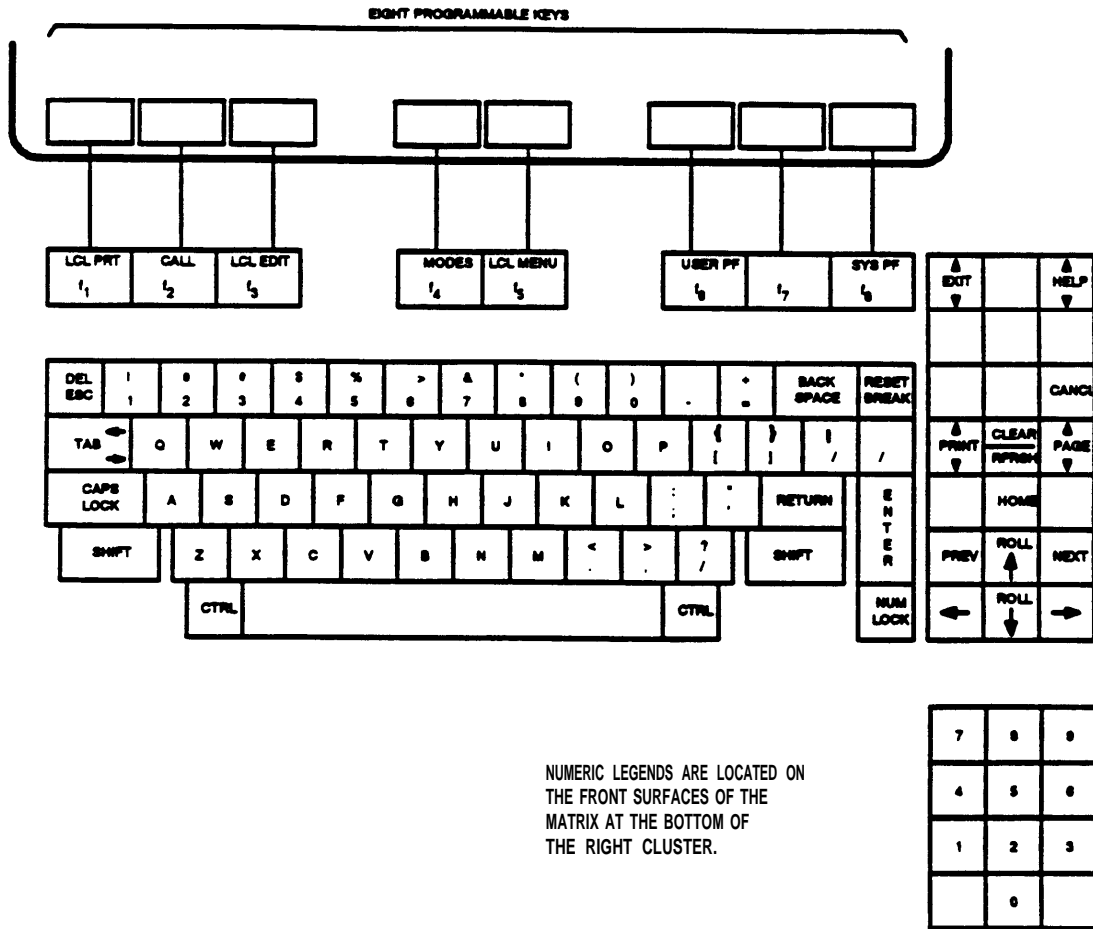


FIGURE 2-2. 513 BCT Keyboard Function Keys and Programmable Keys

How to Program the Function Keys for a 513 BCT

This section covers the procedures used to program the function keys for a 513 BCT. The programmable function keys can be used to save time by eliminating unnecessary typing. For example, a function key can be programmed to type the `change station` command. When the programmed key is pressed, `change station` appears on the terminal screen. The user then enters the extension number associated with the voice terminal. The user should be familiar with the User PF Keys section in the *513 BCT User's Guide*, 999-700-4861S, before attempting to program the function keys. Program the function keys as follows:

1. Turn on the 513 BCT.
2. Log into the system.
3. Press [SHIFT] and [F5] (LCL MENU). See Figure 2-3.
4. The function for each programmable key is displayed at the bottom of the screen. See Figure 2-3.
5. Press [F3] (USER PF SET UP). See Figure 2-4.
6. Screen displays the `USER PF KEY SET-UP` screen form. See Figure 2-4. The values displayed are default values which can be changed.
7. Press [F8] (MONITOR MODE). This allows the user to program control characters associated with the `USER PF KEY SET-UP` screen form. See Figure 2-4 or 2-5.
8. To program [F1] , position the cursor under the Action heading for [F1] .
9. Type in `send`.
10. Position the cursor under the Label heading.
11. Enter the desired administration command. (This command can be typed on two lines.) For example, if you type in `duplicate station`, this is the function assigned to [F1] . See Figure 2-5 for examples on how to enter the `duplicate station`, `display station` and `change station` commands.
12. Position the cursor under the Function String heading.
13. Type in the desired string, up to 80 characters.
14. Repeat the above steps for other keys you want to program.
15. Press the [F6] (SAVE ALL) key. This stores the currently displayed values for all the keys that were programmed. The default values that were not changed remain with the key.
16. The screen is blank except for the labels displayed at the bottom of the screen. See Figure 2-3.

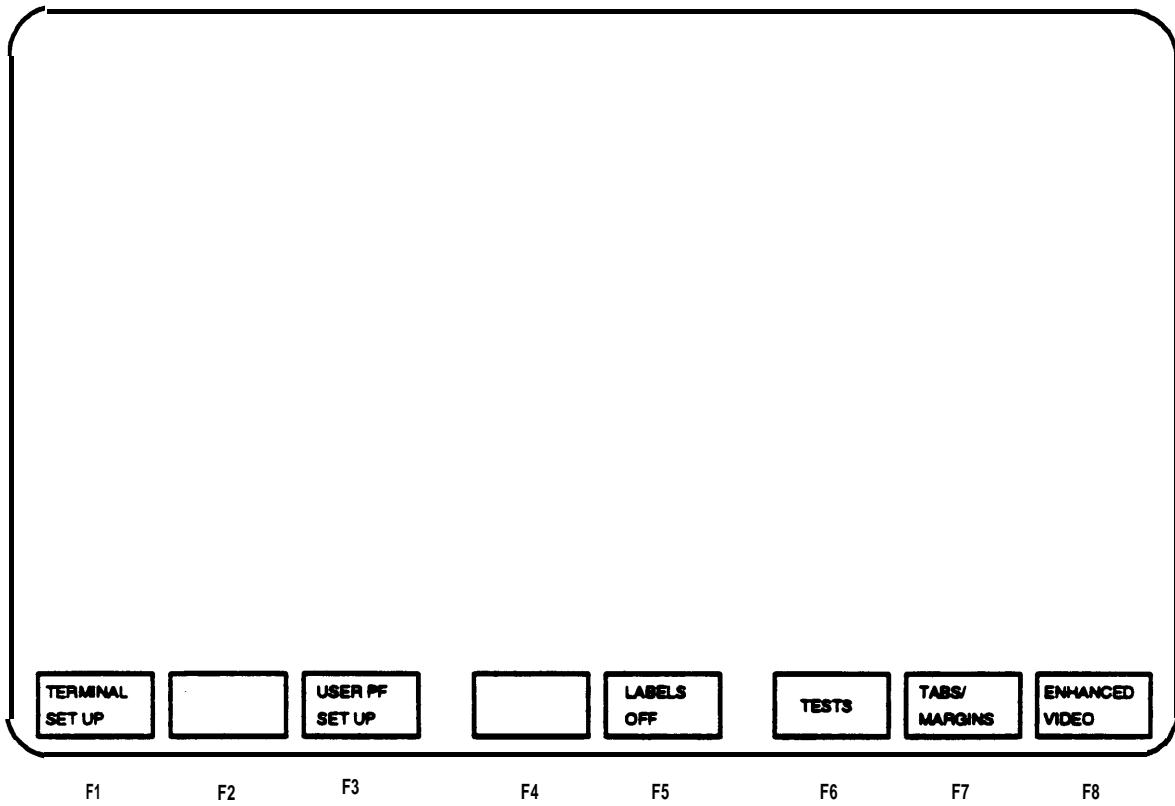


FIGURE 2-3. Screen Labels Displayed When the LCL MENU Key is Pressed on a 513 BCT

USER PF KEY SET-UP

	Action	Label	Function String
f1:	keyed	f 1	Oc
f2:	keyed	f 2	Od
f3:	keyed	f 3	Oe
f4:	keyed	f 4	Of
f5:	keyed	f 5	Og
f6:	keyed	f 6	Oh
f7:	keyed	f 7	Oi
f8:	keyed	f 8	Oj

PREVIOUS
FIELD

NEXT
FIELD

STEP

DEFAULT
VALUES

SAVED
VALUES

SAVE
ALL

PRINT
SCREEN

MONITOR
MODE

F1
F2
F3
F4
F5
F6
F7
F8

FIGURE 2-4. Screen Display When the USER PF SET-UP Key is Pressed on a 513 BCT

USER PF KEY SET-UP

	Action	Label	Function String
f1:	send	DUPLICAT STATION	duplicate station Hc
f2:	send	DISPLAY STATION	display station Hc
f3:	send	CHANGE STATION	change station Hc
f4:	keyed	f4	Of
f5:	keyed	f5	Og
f6:	keyed	f6	Oh
f7:	keyed	f7	Oi
f8:	keyed	f8	Oj

PREVIOUS
FIELD

NEXT
FIELD

STEP

DEFAULT
VALUES

SAVED
VALUES

SAVE
ALL

PRINT
SCREEN

MONITOR
MODE

F1
F2
F3
F4
F5
F6
F7
F8

FIGURE 2-5. Assigning Administrative Functions to Programmable Function Keys (F1, F2, and F3) on a 513 BCT

4425, 4410, 610, and 615 MT Terminals

The 4425, 4410, 615 MT, and 610 terminals can also be used to administer DEFINITY Communication Systems. The 4425, 4410, 615 MT, and 610 terminals have eight function keys ([F1] through [F8]) that are automatically assigned functions by the system software. These keys allow the user to edit and fill out the screen forms and then submit the forms into system translations. Since the keys are assigned by the system, they cannot be programmed by the user.

The function assigned to each of the keys is displayed at the bottom of the 4425 or 4410 screen. Figure 2-6 shows the location of the eight keys and their relationship to the screen for the 4425. Figure 2-7 shows the same information for the 4410. Figure 2-8 shows the information for the 610. Figure 2-9 shows the information for the 615 MT Terminal.

When the user logs into the system and receives the `enter command:` prompt, the system automatically assigns the CANCEL function to [F1] and the HELP function to [F5] .

When the user types in a command, the system automatically assigns the REFRESH function to [F2] , the ENTER function to [F3] , and the CLEAR FIELD function to [F4] . These functions will appear at the bottom of the screen after the station screen form is displayed.

If the screen form has more than one page, the system automatically assigns the NEXT PAGE function to [F7] and the PREV PAGE function to [F8] . See Table 2-A for a description of how to use the keys.

AT&T PC 6300 Keyboard

The PC 6300 function keys will work like a 4410 if the terminal is equipped with an AT&T 4410 emulation software package or a 4425 if it is equipped with an AT&T 4425 emulation software package. The function keys are automatically assigned by system software when the user logs in.

If the PC is equipped with an AT&T 513 emulation software package, the user must assign function keys such as HELP and NEXT PAGE to the function key labels on the PC screen and then use these keys as function keys. The system does not automatically assign the function keys. The escape sequences that must be assigned to the labels for the function keys are in the table below:

TABLE 2-B. Escape Sequences

Label	Escape Sequence
HELP	[ESC] OM
NEXT PAGE	[ESC] [U
PREV PAGE	[ESC] [V
ENTER	[ESC] SB
CANCEL	[ESC] Ow
REFRESH	[ESC] Na

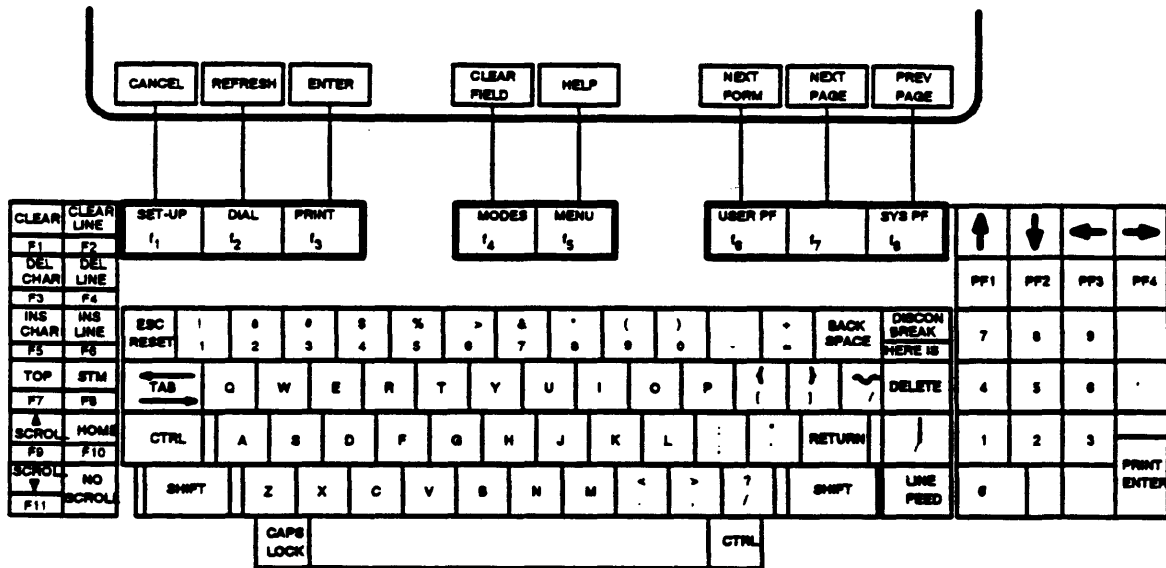


FIGURE 2-6. 4425 Keyboard Assignments

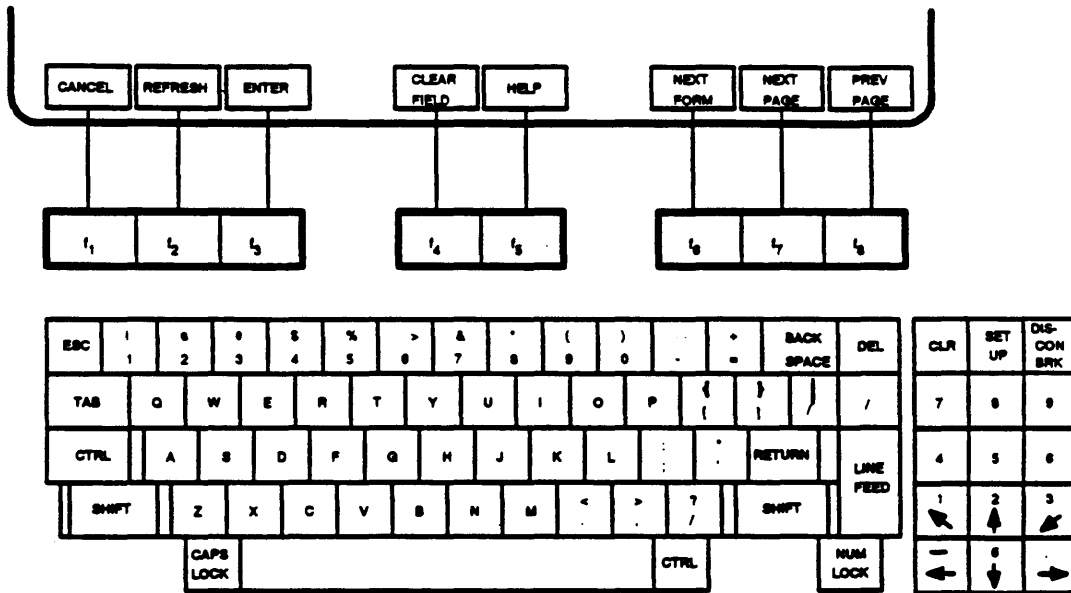


FIGURE 2-7. 4410 Keyboard Assignments

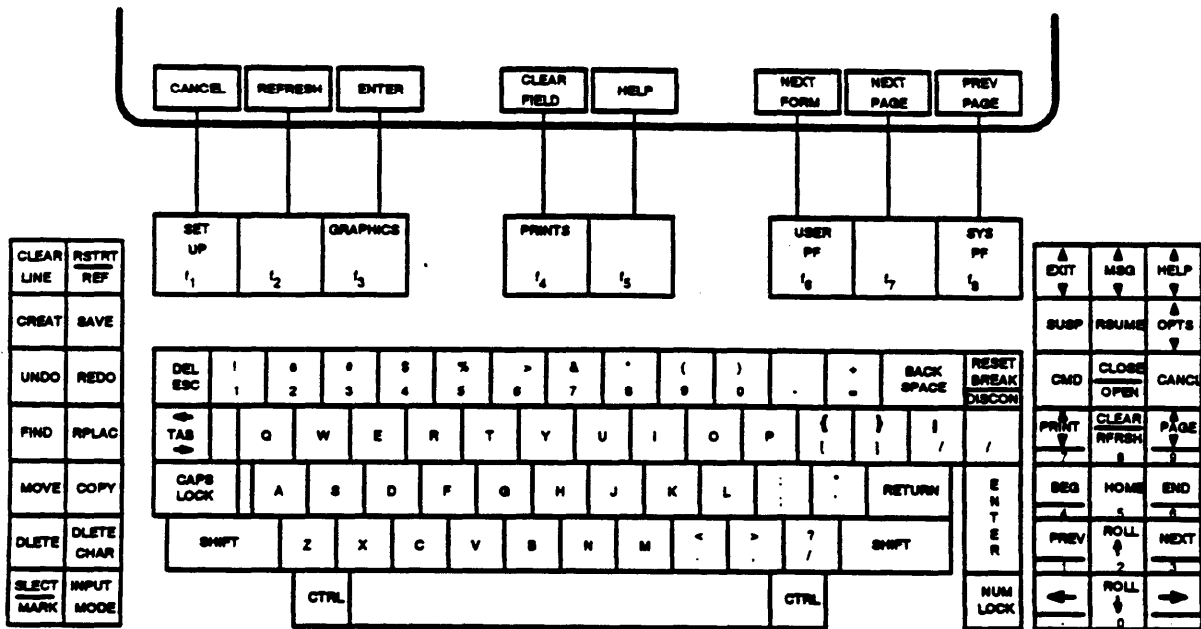


FIGURE 2-8. 610 MT Terminal Keyboard Assignments

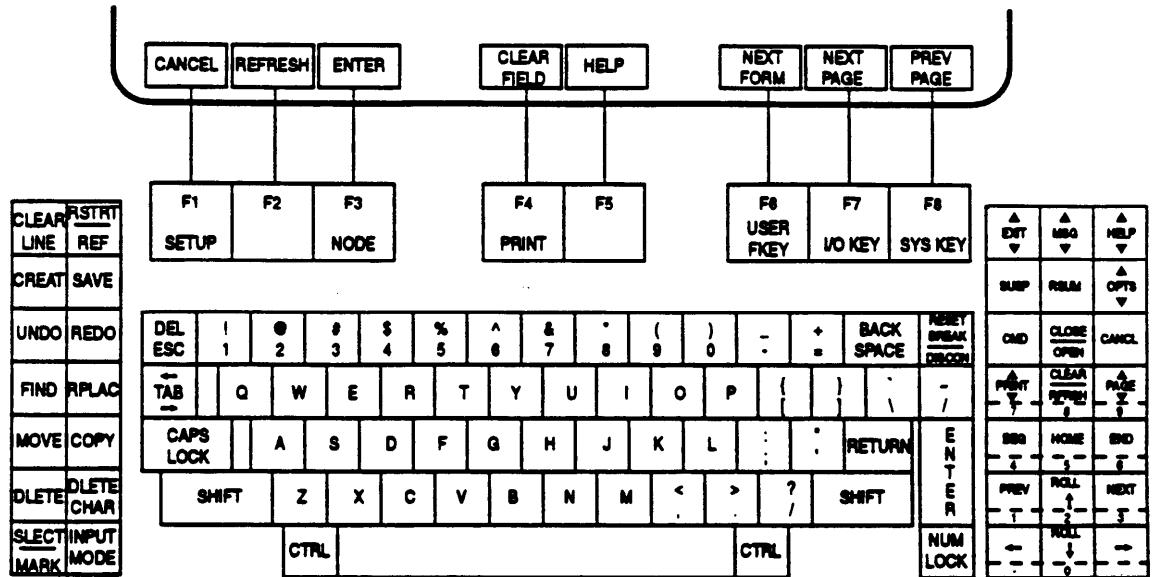


FIGURE 2-9. 615 MT Keyboard Assignments Used Without a 513 Emulation Cartridge

CHAPTER 3. SYSTEM ADMINISTRATION

Administration Sequence

After the system is installed, the System Manager must enter the translation data into the system memory using the system administration terminal.

Before initializing the system, verify that the screen displays `Login:`. If your terminal does not display `Login:`, call your AT&T Account Team.

The *Implementation* manual for your DEFINITY system provides the details for gathering the translation data. It also provides detailed descriptions and procedures required to complete all the screen forms used to enter translation data into the system. The document also provides the administration commands that can be used to administer system and voice terminal features, and error messages.

Obtain all duplicated forms from the *Implementation* manual and sort them into groups. For example, forms for all voice terminals, and hunt and trunk groups should be separated. A copy of the Port Assignment Record should be available to keep track of the items being installed in the system.

When entering the translation data into the system, the System Manager should periodically save the translations on tape. This creates a nonvolatile copy of the translation already entered into the system. If a power outage or system failure occurs, the translation data saved on the tape will not have to be entered again.

The system features should be entered into the switch in an ordered manner. The following is the recommended order in which data should be entered into the system:

1. Login and Password (Change Password, if necessary)
2. Dial Plan
3. Feature Access Codes
4. System Features (Class of Service and Class of Restriction)
5. Console Parameters
6. Attendant Consoles
7. System Parameters
8. Voice Terminals
9. Modules
10. Netcon Channels
11. Groups (hunt groups, pickup groups, etc.)
12. Trunk Groups
13. Automatic Route Selection
14. Administered Connections

These items cannot be added to the system; however, they can be changed to suit business needs by entering the `change` command for that feature and changing the screen form. The `add` command must be used to add trunks, pickup groups, hunt groups, and intercom groups. The `duplicate` command can be used to duplicate voice terminals and data modules.

Login and Password

Once all the forms have been grouped, the System Manager can log into the system using the terminal and receive the `enter` command: prompt. The System Manager can change the password, if so desired.

Establish a Dial Plan

The Dial Plan and Feature Access Codes (FACs) must be administered before voice terminals, hunt groups, pickup groups, coverage groups, and attendant consoles can be administered. The default values for the Dial Plan can be changed if they do not meet business requirements. The Dial Plan can be changed by entering the command `change dial plan` and then changing the default values on the screen form. The Dial Plan can use up to 5 digits.

Feature Access Codes

The defaulted values on the FAC form can be changed if they do not meet business requirements. FACs can be changed by entering the command `change feature-access-codes` and then changing the default values on the screen form. The number of digits assigned to the FAC must agree with the Dial Plan.

System Features

System features include the Class of Service (COS) and Class of Restriction (COR). These features cannot be added; they can only be changed. To change these system features, enter the command `change cos` for COS or `change cor 0-63` for COR. Once the screen form is displayed, the data entries can be changed.

Console Parameters and Attendant Consoles

Attendant consoles must be added one at a time. A vacant port on a digital line circuit pack is required for each attendant console used. For reliability, attendant consoles should not be assigned to the same circuit pack.

System Parameters

System parameters allow the System Manager to assign values for system related features such as Leave Word Calling (LWC), Hospitality Features, and Station Message Detail Recording (SMDR).

Voice Terminals

Once the Dial Plan and FACs have been assigned, the System Manager can add the various voice terminals. The duplicate command can be used to add the same types of voice terminals. The extension number, location, type, and user name should be entered on the form.

Modules

Data modules can be assigned after voice terminal administration. Some data modules must be added during voice terminal administration if the voice terminal has a data module. Other data modules can be added separately.

Netcon Channels

Netcon Channels are used to provide switched data access for the following:

- Station Message Detail Recording
- On-premises administration/maintenance terminal
- Remote administration/maintenance terminal
- Property Management System (PMS) Link
- Station Message Detail Recording
- PMS Log Printer
- Journal Printer
- Recorded Announcements
- System Printer
- Remote Administration/Maintenance Terminal.

Netcon channels are assigned by entering the command `add data-module` (extension number or next) and then entering `Netcon` in the `Type` field. Up to four Netcon channels can be assigned. The channels can be added by entering the command `duplicate data-module XXX` (extension number to be duplicated).

Groups

After the voice terminals are added, the following items can be administered using the `add` commands:

- Abbreviated Dialing (System, Group, Enhanced)
- Hunt Groups
- Call Coverage Answer Groups
- Pickup Groups
- Intercom Groups
- Terminating Extension Groups

Trunk Groups

Trunk groups are assigned by entering the command `add trunk group 1-99` (or next). For the Hospitality Reduction Parameter feature, only 50 trunk groups can be assigned.

The Network Access Features forms are filled out by the Account Team and must always be entered. The Network Access forms are provided in two sections, Private and Public. The Public Network Access includes the Trunk Group forms which, when entered, provide voice terminals and attendants with access to and from the public network.

Private Network Access allows calls to be connected to several networks, such as the following:

- Common Control Switching Arrangement (CCSA)
- Digital Signal Level 1 (DS1) Interface
- Electronic Tandem Network (ETN)
- Enhanced Private Switched Communications Service (EPSCS) Access
- Tandem Tie Trunk Network (TTN)
- Integrated Services Digital Network-Primary Rate Interface (ISDN-PRI)
- Software Defined Data Network (SDDN)

CHAPTER 4. ADMINISTRATIVE TASKS-SYSTEM

This chapter covers administrative tasks that allow the System Manager to change system features to meet business requirements. The following administrative tasks are covered:

- How to login and log off
- How to change your password
- How to set up the system to allow remote administration
- How to administer the system from a remote location
- How to administer Netcon channels
- How to initially administer Dial Plan and Feature Access Codes (FACs)
- How to set date and time
- How to print on demand
- How to list history

How to Log In and Log Off

The system translations are protected by the login/password procedures. The login name identifies the type of terminal user to the system. The password is a personal code that can be changed periodically to enhance system security. Before any system administration commands or functions can be executed, the System Manager must successfully log in to the system and receive the `enter command:` prompt.

WARNING: When logging into the system from a remote location using the asynchronous link, the user should not be on the link too long nor leave the terminal unattended after logging in. This link is used by the system to transmit alarms and errors to the Technical Service Center (TSC).

System Login Procedures

Note: If your DEFINITY system is being used with a G3-MA, refer to *DEFINITY® Communications System Generic 3 Management Applications—Operations*, 585-229-202, for login procedures.

The following procedure is used for logging into the system.

1. Turn on the terminal, if required. Screen displays:

Login:

2. Enter your login name and press **[RETURN]**. Screen displays:

Password:

3. Enter your password and press **[RETURN]**.

For security reasons, the password is not displayed as you type it. The system verifies that a valid login and password have been entered. If an invalid login or password is entered, the system responds with

INCORRECT LOGIN

Login:

4. If **INCORRECT LOGIN** is displayed, you must repeat Steps 2 and 3.
5. If the system recognizes the login and password name,

Terminal Type (Enter 513, 4410, or 4425): [513]

is displayed on the screen.

6. Do one of the following to identify the terminal type:

- If the system is equipped with a 715 BCS, press **[RETURN]**. This will enter [513] which is the default terminal.

Note: The 715 must be set to the “BCS” emulation mode which causes it to function like a 615 MT Terminal equipped with a 513 emulation cartridge.

- If the system is equipped with a 4410 terminal, enter 4410 and press **[RETURN]**.
- If the system is equipped with a 4425 terminal, enter 4425 and press **[RETURN]**.
- If the system is equipped with a 513 BCT, press **[RETURN]**. ([513] is the system default.)
- If the system is equipped with a 610 or 615 MT Terminal that has a 513 emulation cartridge, press **[RETURN]**. ([513] is the system default.)
- If the system is equipped with a 610 or 615 MT Terminal that does not have the 513 emulation cartridge, enter 4410 and press **[RETURN]**.

7. If `enter command:` is displayed, you can enter the desired command. Press **[HELP]** to obtain the list of permissible commands.

System Logoff Procedure

The system logoff procedure should be performed any time the system terminal is not being used. This assures the system translations will not be accidentally corrupted. To log off the system, type `logoff` and press **[RETURN]**. The system automatically disconnects you from the system.

If the user logs off at a terminal located within 50 feet from the switch, the system will automatically request a login. The terminal user accessing the maintenance board, data channel, or Netcon channel will be disconnected from the system when `logoff` is typed in. These users must dial up the system in order to access the system.

How to Change Your Password

Password administration allows the user to change the password used to access the system. This section provides the steps required to change a password.

The password should be changed if another person has discovered it. It should also be changed if someone has gained access to the system and made changes to features that could alter business transactions.

The System Manager's password must be obtained from the installation organization responsible for installing the system. The login name cannot be administered.

The System Manager's password should also be changed each time a new person takes over the System Manager role. The password can be changed once the user has logged onto the system.

Do not give out passwords to anyone. Keep passwords in a locked place. Change passwords periodically, at least every six months.

The following procedure is used to change a password.

1. Verify that the screen displays:

```
enter command:
```

2. Enter `change password xxxxxxx` (where `xxxxxxx` is the login) and press **[RETURN]**.
3. The **Verify Password Change** form is displayed on the screen (see Figure 4-1).
4. The cursor is positioned on `Your Current Password` field.
5. Enter the current password you logged in with and press **[RETURN]**.
6. Cursor is positioned on `New Password For Login Name`.
7. Enter your new password and press **[RETURN]**.

Note: Valid passwords contain four to seven alphabetic or numeric characters, or a combination of alpha and numeric characters.

8. Cursor is positioned on `New Password (enter again):`
9. Re-enter your new password.
10. Press **[ENTER]**.
11. Verify that the screen displays:

```
command completed successfully
enter command:
```

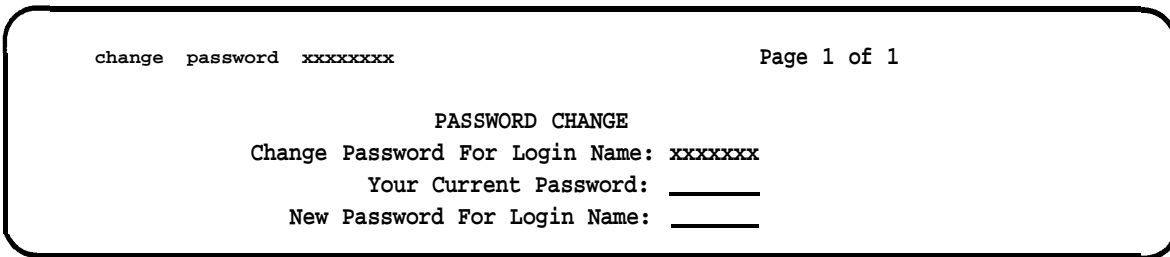


FIGURE 4-1. Password Change Screen Form

How to Set Up the System to Allow Remote Administration

Another way to administer the system, other than the system administration terminal, is from a Remote Terminal. The Remote Terminal can be located either on or off the customer's premises. All functions of the system administration terminal are retained by the Remote Terminal; however, terminal operation speed is limited to 1200 bps (bits per second) from a dial-up facility.

Up to five terminals can be connected to the system. In any type of configuration, only one terminal at a time can be used for administration purposes (such as adding, changing, or deleting system and voice terminal features). The other terminals may be used by Automatic Call Distribution (ACD) supervisors to view Basic Call Management System (BCMS) information. To set up the system to allow for Remote Administration, use the following steps:

Note: Remote Access numbers and barrier code assignments should be kept confidential to prevent unauthorized persons from accessing the system. Toll and service charges resulting from the unauthorized access of the system are the responsibility of the customer. As a result, it is recommended that the Remote Access number and associated Barrier Codes be changed periodically to maintain system security.

Note: Remote Access users should be careful when using any command that requires user input such as `next page`. This command, if not used properly, will not let the system time out after 30 minutes and logoff the user. If the command is not used properly, system alarms cannot be reported which may affect system service.

1. If not translated previously, translate four Netcon channels. (See “How to Administer Netcon Channels” in this chapter.)
2. Translate a Uniform Call Distribution (UCD) Hunt Group using a Hunt Group form.
 - a. In the `Group Extension` field, enter an extension number. If the system is equipped with Direct Inward Dialing (DID), enter a DID extension number.
 - b. In the `Group Members Assignment` field, enter the four extension numbers (non-DID numbers) previously assigned to the four Netcon channels.

If the system will be remotely administered from an on-premises terminal, no additional translations are required.

If the system will be remotely administered from an off-premises location via a dial-up facility, complete Steps 3 and 4.

3. Translate a pooled modem if not translated previously.
4. Translate a trunk group in one of the following ways described in the table below.

DID Equipped Systems	Using a DID Trunk Group form, translate a new trunk. The <code>NAME</code> (Tel. number) assigned in the <code>Group Member Assignments</code> field must be the same DID number assigned to the UCD hunt group (see step 2a).
DID Equipped Systems Using a Non-DID Trunk	Using a CO Trunk Group form, translate a new trunk group. In both the <code>Incoming Destination</code> and <code>Night Service</code> fields, enter the UCD hunt group extension number (see Step 2a).
Non-DID Equipped Systems (calls made from Remote [off-premises] terminal will be to the Listed Directory Number [LDN])	If not translated previously, translate a Trunk Group containing the LDN.
Non-DID Equipped Systems (calls made from Remote [off-premises] terminal will be to a trunk dedicated to Remote Administration)	Using a CO Trunk Group form, translate a new trunk group. In both the <code>Incoming Destination</code> and <code>Night Service</code> fields, enter the UCD group extension number (see Step 2a).

How to Administer the System From a Remote Location

Make sure data terminal speed settings are set at 1200 bps. Top speed for a data or Netcon channel is 1200.

1. Using either the keyboard or a voice terminal, dial the UCD group extension number. This number will be one of the following:
 - a. From off-premises:
 - a DID number (seven or 10 digits)
 - an LDN (seven or 10 digits)
 - a trunk number dedicated to Remote Administration (seven or 10 digits)
 - b. From on-premises:
 - an extension number
2. If a DID number, dedicated trunk number, or extension was dialed, receive data tone or visually receive answer confirmation.

If an LDN was dialed, the attendant will answer. Ask to be transferred to the UCD group extension number. Receive data tone or visually receive answer confirmation.
3. Screen displays `login`.
4. Enter your login and password.
5. Perform system administration.
6. Logoff and disconnect.

How to Administer Netcon Channels

This section contains the procedures required to administer system Netcon channels. The system has four Netcon channels (01 through 04) that are used to provide switched data access.

The system administration terminal, which is located within 50 feet of the system cabinet, is not administered using Netcon channels. The system administration terminal should not be confused with the on-premises or remote system administration terminals.

The Netcon channels are administered separately using the Data Module form and entering `net-con` in the `Type` field. The Netcon channels are assigned to the Network Control circuit pack. One Netcon Channel form must be completed for each channel.

Once the Netcon channel has been assigned, the user must administer the modules or modems required to support SMDR, system administration/maintenance terminals, recorded announcements, and/or the PMS link.

The same commands used to administer data modules are also used to administer Netcon channels. The extension number entered at the end of the data module command determines which Netcon channel will be added, displayed, duplicated, changed, removed, or printed.

All four Netcon channels must be assigned. The following steps can be used to add a data or Netcon channel:

1. Verify that the terminal displays:

```
enter command:
```

2. Enter `add data module 4444` where 4444 is the extension number assigned to the Netcon channel. The extension number will appear in the `Data Extension` field on the screen form. Press `[RETURN]`. The screen displays a Processor Data Module (PDM) form. The cursor is positioned on the `TYPE` field.
3. In the `TYPE` field, enter `netcon` and press `[RETURN]`.
4. Screen displays the Netcon Channel form.
5. The cursor is positioned on the `Physical Channel` field.
6. Enter a Netcon channel number from 01 through 04 and press `[RETURN]`.
7. The cursor is positioned on the `Name` field.
8. Make no entry and press `[RETURN]`.
9. Cursor is positioned on the `COS` field.
10. Enter a COS number from 0 through 15 and press `[RETURN]`.
11. The cursor is positioned on the `COR` field.
12. Enter a COR number from 0 through 63 that will allow or deny access and press `[RETURN]`.
13. The cursor is positioned on the `Abbreviated Dialing (AD) List 1` field.
14. Make no entry and press `[ENTER]`.
15. The screen displays:

```
command successfully completed,
```

```
enter command:
```

16. Repeat Steps 1 through 16 until all four Netcon channels have been established. A different extension number must be entered for each Netcon channel. The system automatically assigns the extension number if `next` is entered at the end of the `add data-module` command (`add data-module next`).

The Netcon channels can be added by entering the command `duplicate data-module xxx` (extension number to be duplicated). This command must be entered for each Netcon channel being added.

If the system is administered for these features, after all four Netcon channels have been assigned, the user can refer to “How to Administer System From a Remote Location” in this chapter for more information.

How to Change a Netcon Channel

Netcon channels can be changed by entering the command `change data module 4444` and pressing **[RETURN]**. Extension number 4444 is the extension number assigned to the data or Netcon channel.

Once the form is displayed on the screen, the user can make changes. Once all changes have been made, press **[ENTER]** to submit the changes into system translations.

How to List Netcon Channels

The list data-module command can be used to display a list of all Netcon channels that have been assigned in the system. The display gives a list of all data modules and Netcon channels and their associated data, which includes:

- Extension
- Port number
- Type of module (Netcon channels are listed along with the other types of modules)
- Name (if assigned)
- Class of Service (COS)
- Class of Restriction (COR)
- Information Systems Network (ISN) (this field shows if the data module is connected to the ISN)

The display data-module xxxx (extension number) **[print]** command can be used to obtain a printout for one Netcon channel.

How to Administer Dial Plan and Feature Access Codes

The Dial Plan Record and the FACs can be administered together to insure continuity for the number of digits assigned to FAC. The number of digits used to dial the FAC must agree with the number of digits assigned to the `FAC` field on the Dial Plan Record. The system does not allow a mismatch between these numbers. For example, if the Dial Plan Record has two digits assigned for FAC, then each FAC must be assigned two digits. The user dials these digits to activate and deactivate a feature.

The Dial Plan Record must be administered before assigning FACs, trunk access codes, and voice terminal extensions. The Dial Plan Record can be administered as a stand-alone screen form as long as the changes being made do not affect the FACs, Trunk Access Codes (TACs), and voice terminal extension numbers. Once the TACs and voice terminal extension numbers have been assigned, the user cannot change the Dial Plan Record.

Once the Dial Plan Record and FACs have been administered, the System Manager can change the digits assigned to FACs as long as they agree with the Dial Plan Record. For example, the System Manager can change a FAC from 12 to 13 as long as no other FAC is assigned to 13.

The following steps give an example of how to change a FAC from three to two digits.

1. Verify that the screen displays:

```
enter command:
```

2. Enter `change feature-access-codes` and press **[RETURN]**.
3. The screen displays the FAC form.
4. Position the cursor over the 3-digit FAC and press the space bar until the 3-digit code disappears.
5. Press **[RETURN]** and repeat the above step until all 3-digit FACs have been removed.
6. Press **[ENTER]**. The screen displays:

```
command successfully completed,
```

```
enter command:
```

7. Enter `change dialplan` and press **[RETURN]**.
8. Screen displays the Dial Plan Record form.
9. Press **[RETURN]** until the cursor is positioned on the 1: Number of Digits field.
10. Enter `2` and press **[ENTER]**. The screen displays:

```
command successfully completed,
```

```
enter command:
```

11. Enter `change feature-access-codes` and press **[RETURN]**.
12. The screen displays the FAC form.
13. Assign 2-digit FACs to the desired features. After all codes have been assigned, press **[ENTER]**. The screen displays:

```
command successfully completed,
```

```
enter command:
```

How to Set Date and Time

The system date and time are set using the Date and Time form (see Figure 4-2). This form is displayed on the terminal screen and is modified using the terminal keyboard. The time must be reset for daylight savings time. The correct time and date assure that SMDR records are correct for the records being kept. SMDR will not work until the date and time have been entered. Use the following procedure to set the system date and time:

1. Log in.
2. Verify that the screen displays:

```
enter command:
```
3. Enter `set time` and press **[RETURN]**.
4. Verify that the screen displays the Date and Time form (see Figure 4-2).

Note: The cursor is positioned on the `Day of the Week:` line.

```

set time                                page 1 of 1
                                DATE AND TIME
DATE
    Day of the Week: _____   Month: _____
    Day of the Month:  _         Year:  ____
TIME
    Hour:  _                   Second: XX
    Minute: _

```

FIGURE 4-2. Date and Time Screen Form

5. Enter the day of the week (Sunday-Saturday) and press **[RETURN]**.

Note: The cursor is positioned on `Month: .`

6. Enter the current month (January-December) and press **[RETURN]**.

Note: The cursor is positioned on `Day of the Month: .`

7. Enter the day of the month (1-31) and press **[RETURN]**.

Note: The cursor is positioned on `Year: .`

8. Enter the current year (1990-2099) and press **[RETURN]**.

Note: The cursor is positioned on Hour: .

9. Enter the current hour (0-23) and press **[RETURN]**. Table 4-A shows the standard time conversion to 24-hour time. Enter the 24-hour time as shown. For example, if the current time is 2:00 p.m., enter 14.

Note: The cursor is positioned on Minute: .

10. Enter the current minute (0-59).

11. Press **[ENTER]**.

12. Verify that the screen displays:

```
The set time form is completed successfully
enter command:
```

Enter save translation and press [RETURN] so the correct time and date will be entered in system translations. See Chapter 6 for save translation information.

13. Verify the date and time data by entering `Display Time` and pressing **[RETURN]**.

Note: The Date and Time form is displayed showing all data entered, followed by:

```
enter command:
```

TABLE 4-A. Conversion to 24-Hour Clock

12-Hour Standard Time Clock	24-Hour Clock
12:00 a.m.	0
1:00 a.m.	1
2:00 a.m.	2
3:00 a.m.	3
4:00 a.m.	4
5:00 a.m.	5
6:00 a.m.	6
7:00 a.m.	7
8:00 a.m.	8
9:00 a.m.	9
10:00 a.m.	10
11:00 a.m.	11
12:00 p.m.	12
1:00 p.m.	13
2:00 p.m.	14
3:00 p.m.	15
4:00 p.m.	16
5:00 p.m.	17
6:00 p.m.	18
7:00 p.m.	19
8:00 p.m.	20
9:00 p.m.	21
10:00 p.m.	22
11:00 p.m.	23

How to Print on Demand

The user can get a printout when `print` or the abbreviated version `pr`, is entered as the last qualifier for the `list` and `display` commands. For example, entering `display abbreviated-dialing group 20 print` provides a printout for AD group number 20.

The terminal must have a printer connected to it before a hard copy printout can be obtained.

The following procedure can be used to obtain a printout of Pickup Group 25.

1. Log on.
2. Enter `display pickup-group 25 print` or `display pickup-group 25 pr` and press **[RETURN]**.
3. The screen displays the form for Pickup Group 25. At the same time, the screen form is also printed out at the printer.

How to List History

This list history command provides a listing of the latest (250 maximum) completed “data affecting” administration and maintenance commands. The following commands are “data affecting”:

<code>add</code>	<code>recycle</code>
<code>busyout</code>	<code>release</code>
<code>change</code>	<code>remove</code>
<code>clear</code>	<code>reset</code>
<code>disable</code>	<code>set</code>
<code>duplicate</code>	<code>test</code>
<code>enable</code>	<code>wp (write physical)</code>

The history listing is stored by the system in a transaction log. This log is saved on tape as data when the `save translations` command is performed. When the system cold starts or reboots, the log is loaded from tape.

Figure 4-3 is an example of a typical list history command as displayed on the terminal. The command results are displayed in last-in first-out order. The date that translations were last saved on tape is printed followed by information under columns as follows:

- Date: Day and month that the command was issued.
- Time: Hour and minute that the command was issued.
- Port: A 3- or 4-character identifier that shows which port or ports the user was connected to. The identifiers and their associated meaning are:

Identifier	Port Connection
Extended Port Network (EPN)	Maintenance circuit pack in expansion port network
NET	Network Control circuit pack
System Administration Terminal	Processor circuit pack
TSC	Processor circuit pack
SMDR	Processor circuit pack

- Login: The login of the user performing the data command.
- Actn: The first four letters of the action command word.
- Object: The first 12 letters of the object command word.
- Qualifier: The first 36 letters of the qualifier (or qualifiers) command word.

```
list history                                     page 1
                                     History
                                     Date of Translation Loaded: 19:53 Wed Jul 19, 1990
Date   Time   Port   Login   Actn   Object   Qualifier
----   -
07/18 12:34 EPN    cust2   add    station 1120
07/18 12:23 EPN    cust2   chan   dialplan
07/16 09:44 SAT    craft   rele   station 504
07/16 09:22 SAT    craft   busy   station 504
07/15 15:25 SAT    cust    chan   station 507
07/15 15:18 SAT    cust    add    station 507
07/15 15:09 SAT    cust    add    station 506
07/15 15:06 SAT    cust    add    station 505
07/15 15:04 SAT    cust    add    station 504
07/15 15:02 SAT    cust    add    station 503
07/15 15:01 SAT    cust    add    station 502
07/15 15:00 SAT    cust    add    station 501
```

FIGURE 4-3. Typical History Form

CHAPTER 5. ADMINISTRATIVE TASKS—VOICE TERMINAL

How to Administer Voice Terminals

Voice terminal administration is an integrated set of procedures that allow the user to add, change, remove, duplicate, display, and list the translation data associated with voice terminals.

The voice terminal must be installed, connected, and initialized in system translations before the user can make a call. Other screen forms may be filled out to assign a voice terminal in a feature operation, such as call pickup, call coverage, etc.

The following are the classes of operations in voice terminal administration:

- Adding a voice terminal refers to entering the translation data needed to originate and/or terminate calls at a terminal and to provide button access to features and functions.
- Changing a voice terminal refers to updating the translation data associated with an existing terminal.
- Removing a voice terminal refers to deleting all the translation data of an existing terminal from the system.
- Displaying a voice terminal refers to displaying the screen form for a voice terminal.
- Duplicating a voice terminal refers to adding a voice terminal which has the same configuration as an existing voice terminal.
- Listing allows the user to obtain a list of all, or a selected range of, voice terminals in the system. The user can also obtain a list of all groups in which the voice terminal is a member.
- List extension type allows the user to identify a specific extension, or examine a range of extensions. This command is also used to identify what types of groups the extension belongs to and to list extension numbers and their types in a given range to help locate and examine voice terminals.
- Enhanced Terminal Administration allows for the administration of new voice terminals that are not supported by the system software. For any new voice terminal type, the Enhanced Terminal Administration feature allows new terminals to be “mapped” to an existing or supported type. The mapping is accomplished by using the Alias Station screen form. The alias name of the station can then be used when administering stations of that type.

Each voice terminal has its own screen form. The form contains fields for every data entry applicable to the terminal. Validity checks assure accurate data entry and consistency between fields. Error messages are displayed whenever invalid data is detected. If an error message appears, the HELP function provides a list of permissible entries for any field.

Before a voice terminal can be removed from the system, it must be removed from the following:

- Code Calling List
- Leave Word Calling (LWC) System Retrievers List
- Hunt Groups Assigned to the Call Management System (CMS)

Translation data change may also be prevented when any affected feature is currently active; for example, a voice terminal cannot be removed while the message waiting indicator is on. The voice terminal must be idle before any features can be added or changed. Certain feature buttons must be unlocked (not in use) before they can be changed. The port number, message waiting indicator, and each button are locked. A voice terminal cannot be removed if one of the locked items is active.

If voice terminal feature buttons are changed on the screen form, the labels for those feature buttons that appear on the voice terminal must also be changed to agree with the associated screen form.

Note: Removing a voice terminal from a hunt group that has CMS will automatically remove the voice terminal from the hunt group and CMS.

The information in the following paragraph must be used when adding, changing, or removing voice terminals. A voice terminal cannot be assigned to a port number that is already assigned.

Note: If the circuit pack is not installed in the carrier, the System Manager can assign a circuit pack to the system by entering the command `change circuit-pack` and inputting the circuit pack code beside the available slot number. Once the circuit pack code has been assigned, the System Manager can then enter the appropriate port number on the screen form for the voice terminal.

- 500, 2500, 2500 YMGK, 7101A, 7103A, 7102, 7102A, 7104A, 8102, or 8110 Voice Terminals: **For all versions, up to eight voice terminals can be assigned to one TN742 Analog Line circuit pack. Up to 16 voice terminals can be assigned to one TN746 or TN746B Analog Line circuit pack. If you are using the 8102 or 8110 voice terminal with a TN746 circuit pack, then auxiliary power is needed. Up to eight voice terminals can be assigned to one TN769 Analog Line circuit pack. Up to 24 voice terminals can be connected to a DS1 Interface TN767 circuit pack**
- 7403D, 7405D Voice Terminals, 510 BCT, or 513 BCT: **Up to eight voice terminals can be assigned to one TN754 Digital Line circuit pack. Up to 16 Digital Line circuit packs may be placed on one port carrier if only 7403D voice terminals are used. Up to 12 Digital Line circuit packs may be placed on one port carrier if 7405D voice terminals are used. In either case, the carrier may be fully loaded with other type circuit packs.**
- 7434D, 7440, 7410D, or 7410 Plus: **Up to eight voice terminals can be assigned to one TN754 Digital Line circuit pack.**
- 7401D, 7401D Plus, 7404D, 7406D, 7406BIS, 7406 Plus, 7407D, Enhanced 7407D (02C), or 7407 Plus Voice Terminals: **Up to eight voice terminals can be assigned to one TN754 Digital Line circuit pack.**

- 7303S, 7305S, or 7309H Voice Terminals: **Up to eight voice terminals can be assigned to one TN762 Hybrid Line circuit pack.**
- 7302H01B, 7303H01B, 7305H01B, or 7305H02B Voice Terminals: **Up to eight voice terminals can be assigned to one TN762 Hybrid Line circuit pack.**
- ISDN 7505, 7508, or 7507 Voice Terminals: **In a multipoint configuration, up to 24 voice terminals can be assigned to the ISDN-BRI circuit pack TN556. In a point-to-point configuration, 12 voice terminals can be assigned.**
- ISDN 8503T Voice Terminal: **In a multipoint configuration, up to 24 voice terminals can be assigned to the ISDN-BRI circuit pack TN556. In a point-to-point configuration, 12 voice terminals can be assigned.**
- 10, 20, or 30 MET Sets: **Up to four voice terminals can be assigned to one TN735 Met Line circuit pack.**
- CALLMASTER® Digital Voice Terminals: **Up to eight CALLMASTER digital voice terminals can be connected to a TN754 or TN784 Digital Line circuit pack.**

A voice terminal cannot have display buttons without having a display module.

Voice Terminal Commands

The following information explains how voice terminal commands are used to administer voice terminals.

Add a Voice Terminal

Two processes are used to add a voice terminal: 1) physically installing the voice terminal and 2) adding voice terminal translations to memory. Adding translations to memory tells the system the characteristics you want associated with the voice terminal and allows processing calls to and from the voice terminal.

Note: Digital-type voice terminals should be assigned in the system before analog-type terminals.

- **To add a voice terminal to the system, enter `add station 3222`. In this example, `add` is the action command, `station` is the object, and `3222` is the qualifier (value). By adding a qualifier (`3222`), the system automatically assigns `3222` as an extension number in the `Extension #` field on the form. Once the Voice Terminal form appears on the screen, you can enter the desired data for that voice terminal.**

When entering the command to add a voice terminal, the system checks to see if the extension number is already assigned and if it is a valid extension number. If the extension number is already assigned, the system responds with `Extension Already Exists`. If it is not a valid extension number, the system responds with `Invalid Extension`. If one of the preceding happens, you must type in a valid extension number that is not assigned to any other voice terminal, hunt group, terminating extension group, data module, or attendant call park extension. You can also enter the command `add station next` which instructs the system to automatically assign the next available extension number.

The 7302H01B and the 7303H01B are assigned using the 7303S Voice Terminal form.

The 7305H01B and 7305H02B are assigned using the 7305S Voice Terminal form.

Change Information on a Voice Terminal

The `change` command allows you to change translations on an existing voice terminal.

- To change information on a voice terminal, enter `change station 3600`. The system displays the screen form that contains all the information currently assigned to extension 3600. Once the form appears on the screen, you can delete, add, or change any information for that extension, except you cannot change the extension number. To change the extension number, you must remove the voice terminal and add it back along with the new extension number, or you can duplicate the voice terminal with a new extension number. Once duplicated, the old voice terminal can be removed from the system. The new (duplicated) voice terminal must be assigned a new port number until the old voice terminal is removed. Press **[ENTER]** after you make your changes to transmit the changed information into the system memory.

When the `change` command is entered, the system checks to determine if the extension number is assigned. If the number is assigned, the screen displays the appropriate screen form. If the extension number is not valid, the system responds with `Invalid Extension`.

The module is automatically removed when the voice terminal is changed.

Remove Voice Terminal

The `remove` command is used to delete a voice terminal from the system memory.

The system allows you to remove things in an orderly fashion, which assures that the system is properly administered. Code calling items must be removed before the voice terminal can be removed from translations.

The LWC super-retrievers list, secondary extension groups, and code calling items must be removed before the voice terminal can be removed from translations.

A station user that is logged in as a CMS agent must be busied out before unplugging the station to prevent faulty CMS reports.

The voice terminal must be busied out when the voice terminal is removed from the Automatic Call Distribution (ACD) system.

Note: When a voice terminal that has a display is being removed from the system, the display should be removed from the form for that voice terminal before the voice terminal is removed from the system.

The `list groups-of-extension (extension) [print]` command provides a list of groups the extension number belongs to.

- To remove a voice terminal, enter `remove station 3600`. The system displays the Voice Terminal form for extension 3600. Either press **[ENTER]** to remove the voice terminal from the system, or press **[CANCEL]** to cancel the request. **[CANCEL]** should be pressed if you entered the wrong extension number.

Display Information on a Voice Terminal

The `display` command allows you to look at a Voice Terminal form in the system. You cannot change, add, or delete anything on the displayed form. If you see something that should be changed, you must enter a change command such as `change station 3600`.

- To look at the features assigned to extension 3600, enter `display station 3600`. The Voice Terminal form for extension 3600 is displayed on the screen. No changes or additions can be done using this command. To obtain a printout of the data displayed on the terminal, enter `print` or `pr` at the end of the display command.

Identify Groups to Which a Voice Terminal Belongs

The System Manager can use the `list` command to obtain a list of all groups to which a voice terminal belongs. The voice terminal must be removed from these groups before it can be removed from the system.

The groups are searched and filed in the following order:

- Code Calling Lists
- Leave Word Calling System-Wide Retrievers List
- Secondary Extension Groups
- Data Extension Groups

The `duplicate station` command allows the user to add up to 16 voice terminals that have basically the same configuration as the voice terminal(s) being duplicated. Voice terminals are duplicated by entering the command `duplicate station <extension> [start <extension>] [board <address>] [count <1-16>] [1endpoint]`. A brief description for each command variable is given below.

- `extension`—is the extension number of the voice terminal to be duplicated.
- `start extension`—is an optional string that instructs the system to find unassigned extension numbers for the voice terminal(s) being added.
- `board address`—is an optional string that inducts the system to find unassigned ports in the system for the voice terminal(s) being added.
- `count n`—is the number of voice terminals to be added (1 to 16). This string also determines the number of lines that appear on the Duplication Station screen form. For example, if a 2 is entered, two lines appear on the form, if 10 is entered, 10 lines will appear on the form.

Once the command is entered, the Duplication Station screen form shown in Figure 5-1 or 5-2 is displayed on the administration terminal. Also displayed are the screen forms for the voice terminals being duplicated. Changes to the Voice Terminal screen form can be made, if desired.

The port number, extension number, and name will not be duplicated.

STATION						
Ext	Port	Name	Security Code	Room	Jack	Cable
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

FIGURE 5-1. Duplication Station Form Without a Data Module

STATION									
Ext	Port	Name	Security Code	Room	Jack	Cable	Data Ext	Data Name	
_____	_____	_____	_____	_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	_____	_____	_____	_____	
_____	_____	_____	_____	_____	_____	_____	_____	_____	

FIGURE 5-2. Duplication Station Form With a Data Module

The following steps give a brief example of how to duplicate two 7403D voice terminals.

1. Enter duplication station 4000 [start extension 4001] [board] [count 2] and press **[RETURN]**. The screen displays the Station Duplication form and the two duplicated Voice Terminal screen forms.
2. Enter information on the appropriate the Station Duplication screen form.
3. Change information on the Voice Terminal screen form if required.
4. Press **[ENTER]**. Forms are submitted and the system is placed in the list station mode. A scan line for each voice terminal added is displayed on the screen prior to being submitted to system translations. After the voice terminals have been listed, the screen displays:

```
command successfully complted,  
enter command:
```

How to Administer Voice Terminals Without Hardware

Administration Without Hardware (AWOH) provides the ability to administer station forms without specifying a port location. Stations administered as such will not cause alarm or errors to be generated when the station is translated but not yet installed. These station types are referred to as “phantom” stations. The AWOH feature supports the following applications:

- Ability to administer station forms without specifying a port location
- Ability to provide call coverage (including AUDIX coverage), by use of phantom extensions, for users who do not have stations physically boated on the switch
- Ability to use phantom extensions for Automatic Call Distribution (ACD) Dialed Number Identification Service (DNIS). This application allows a phantom extension to be administered on the switch for each call type that needs to be identified to ACD agents. The phantom extension is either use “Call Forwarded” (via an attendant console) to an ACD split, or its coverage path is defined to include the ACD split. The `Name` field that is administered for the phantom extension will identify to the ACD agent which service the caller is attempting to reach, allowing the agent to properly address the caller.
- Ability to store station templates that can later be used with the `duplicate station` command when implementing many station forms of the same type in the system.

The primary use of the Administration Without Hardware feature is to streamline system initialization, major additions, and rearrangements/changes by allowing voice terminal translations to be entered before the actual ports are assigned. Port assignments can be done at a later time, as required.

The use of this feature is limited to analog, Digital Communications (DCP) (7400D series of terminals), and hybrid terminal types.

Administration Without Hardware is administered on a per voice terminal basis by the System Manager. Normal station administration is required, with the exception of entering an `X` in the `Port` field to indicate that there is no hardware associated with the station.

Note: This feature is not supported on ISDN-BRI stations or ISDN-BRI data modules.

Appropriate instructions are provided in each of the voice terminal administration instructions located in the *Implementation* manual for your system.

How to Administer Data Modules and Voice Terminal Adjuncts

Data Module Administration

The following types of data modules can be used by the system:

- Recorded Announcement Data Module
- Data Line Data Module (DLDM)
- Digital Terminal Data Module (DTDM)
- Modular Processor Data Module (MPDM)
- Modular Trunk Data Module (MTDM)
- 7400A and 7400B Data Modules
- 7500B Data Module (BRI)

The screen forms used to assign modules are listed below:

- Recorded Announcement Data Module — has a built-in data module when used in conjunction with the Netcon data module which allows the system to transfer the recorded announcements file from the TN750 Announcement circuit pack to the system tape and from the system tape back to the Announcement circuit pack. This module is assigned using the Recorded Announcement Data Module screen form.
- Data Line Data Module — is a data module used to connect EIA-232-C devices to the system. The DLDM provides direct connection for up to eight ports. This module is assigned using the DLDM screen form.
- Modular Processor Data Module — is a multipurpose data module configured to provide the digital switch interface to support various data interface requirements. One screen form must be completed for each MPDM installed. Enter `pdm` in the `Type` field.
- Modular Trunk Data Module — is a multipurpose data module configured to provide digital switch interface to support trunk data requirements. One screen form must be completed for each MTDM installed. Enter `tdm` in the `Type` field.

The DTDM screen form must be administered if “y” is entered in the `Data Module` field for voice terminals that have a `Data Module` field. The extension number of a DTDM cannot be changed. The DTDM must be removed and then added back with a new extension number.

The 7400A and 7400B Data Modules are desktop modules that offer full duplex asynchronous communications for DCP voice terminals and asynchronous devices such as SMDR and PMS. The 7400A and 7400B data modules can also be used on the trunk side which provides connectivity to asynchronous host computers. These modules are assigned using the `Data Module` form assigned to the voice terminal that can have this type of module.

For the 7500B Data Module, multipoint administration is allowed for terminals with Service Profile Identification (SPID) initialization capabilities. If the `duplicate data-module` command is used to add a 7500B and the user wishes to add an SPID value which is different from the extension, the SPID field must be modified after the `Data Extension` field is entered or modified.

The following commands can be used:

- `add data-module xxxx` (ext. number or "next")
If `next` is entered instead of an extension number, the system will automatically select the next lowest available extension number. This command should not be used when prefixed extensions have been assigned on the Dial Plan.
- `change data-module xxxx` (ext. number)
- `display data-module xxxx` (ext. number) [print]
- `duplicate data-module xxxx` (extension number of data-module to be duplicated)
- `list data-module` (starting ext. number) `xxxx` (count)
- `remove data-module or station xxxx` (ext. number)
- `status data-module xxxx` (extension number)

Hardware Requirements

A Digital Line circuit pack must be installed to avoid alarms before a PDM and Trunk Data Module (TDM) can be administered. A TN726 Data Line circuit pack is needed for data line-type data modules. A TN750 circuit pack is needed for the Recorded Announcement data module.

CHAPTER 6. HARDWARE RECONFIGURATION

Overview

Before voice terminals, trunks, and data modules can be added to the system, specific types of circuit pack must already be installed in the cabinet. The System Manager must determine if the required circuit pack exists in the system, and if a port on the circuit pack is vacant. If a vacant port is not available, a circuit pack must be installed before the corresponding voice terminal or trunk can be added.

The System Manager can use the Circuit Pack screen form to assign the circuit packs before voice terminals, trunks, and data modules can be added to the system.

The system provides a set of commands that is used to display system and circuit pack (board) configuration. These commands allow the System Manager to list the current system hardware configuration. From this listing, the System Manager can determine if additional hardware (circuit packs) is required.

When adding a new circuit pack, the carrier loading procedures in the *Implementation* manual must be followed. All items must be entered for the Port Assignment Record.

The following commands are used to list system and circuit pack (board) configurations:

- list configuration all
- list configuration board (3-character board number)
- list configuration station
- list configuration trunk
- list configuration control
- list configuration software-vintage [long]
- list configuration port-network (1-3)
- list configuration carrier 2 character cabinet [1-3], carrier [A-E]

Whenever features are assigned to buttons on voice terminals, the associated button must be labeled.

Circuit Pack Administration

Circuit pack administration is a capability that allows the System Manager to assign circuit packs to carrier slots before the circuit packs are actually installed in the slots. The circuit packs are assigned on the Circuit Pack screen form. The form has five pages, one for each of the port carriers. Page 1 is for Carrier A, page 2 is for Carrier B, etc.

Before any voice terminals, attendant consoles, trunks, pooled modems, etc., can be assigned to the system, the correct type of circuit pack must be installed in the appropriate slot or a circuit pack must be assigned to the slot using the circuit pack administration form. The circuit packs are assigned to slots using the circuit pack (TN circuit pack number) code.

Once the circuit packs have been assigned to a slot in the carrier, the System Manager can add the appropriate voice terminals, trunks, etc., to the system.

The System Manager can assign a circuit pack to the system by entering the command `change circuit-pack` and inputting the circuit pack code beside the available slot number. Once the circuit pack code has been assigned, the System Manager can then enter the appropriate port number on the screen form for the voice terminal, trunks, pooled modem, etc.

If administering without hardware (see “How to Administer Voice Terminals Without Hardware” in Chapter 5 of this document), enter an `X` in the `Port` file on analog, digital, and hybrid voice terminals to indicate that there is no hardware associated with the port assignment. This permits pre-administration of voice terminals that will be implemented at a later time. These voice terminals are referred to as “phantom stations.” Port assignments can be made at a later time.

The following commands can be used to administer circuit packs. Pressing **[HELP]** provides a list of circuit pack codes that can be entered on the form.

- `display circuit-packs [print]`
- `change circuit-pack`

CHAPTER 7. SYSTEM BACKUP FOR DEFINITY G1 AND G3i

DEFINITY G1 and G3i systems use a tape-only backup system with or without a duplication option. In case of a power failure of ten minutes or more, the system translations can be restored using the data on the system or backup tape.

Save Translation

To ensure that the tape drive cassette tape contains the most recent copy of the translation data, the system can automatically save the translation data onto the cassette tape every 24 hours.

Note: Automatic daily backup of the system translation data is controlled by an entry in the system parameters that is defaulted to “y” (yes), which means the system will automatically save the translation data every 24 hours.

If many translation data changes are made, it is recommended that the System Manager save the translation data using the `save translation` command. This will save the new changes on the cassette tape without having to wait for the next automatic daily translation backup. If extensive changes, additions, or deletions are made, translations should be saved more frequently, alternating the two tapes. Then, in case of a power outage, only the data entered since the last “save” will be lost. See the “Tape Backup” sections of this chapter.

WARNING: It is recommended that “save translations” should be performed after business hours so dial tone delays will not be encountered.

WARNING: “save translations” should not be performed if any tape alarm conditions occur or if this system is having problems.

Save and Restore Recorded Announcements

The recorded announcements in the system can be saved on the system cassette tape by entering the command `save announcements spe-active/spe-standby`. These commands should only be used after business hours or when the system is operating during a low usage period. The system takes about 45 minutes to one hour to transfer the recorded announcements from the announcement board to the system tape. During this time period, the administration terminal cannot be used to administer the system until the transfer is complete; however, all other administration terminals, if provided, are allowed to perform administration procedures.

The recorded announcements in the system can be restored back into the system memory from the system tape by entering the command `restore announcement`. The system performs an audit to make sure that the announcements on the announcement board match the announcements administered in the switch. If the restore announcements fails in a duplicated system because of a tape or tape drive failure, the system will alarm the tape drive that didn't restore and switch to the standby Switch Processing Element (SPE) provided the standby is operational. The restore announcements must then be re-entered on the new active SPE to restore the announcements.

Tape Backup for a System Without the Duplication Option

Two cassette tapes are provided with the system. It is recommended that backup copies of the translation data be made weekly, or after many changes have been made to the translation data. This will minimize the loss of recent translation data changes if the cassette tapes in the system become damaged.

The following procedure can be used to make a backup tape:

1. Remove the cassette tape from the tape drive.
2. Insert the backup cassette tape into the tape drive.
3. Login to the terminal.
4. Verify that the screen displays:

```
enter command:
```

5. Enter `save translation` and press [RETURN]. This command instructs the system to take all translation information in memory and write it onto the cassette tape.
6. The screen displays:

```

save translation                                SPE A
                                                SAVE TRANSLATION

Processor          Command Completion Status      Error Code
SPE_A              Success                          0

Command successfully completely
enter command:

```

FIGURE 7-1. Save Translation—SPEA

7. Verify that a 0 is displayed in the `Error Code` column. A 0 indicates that the save translation was successfully completed for the tape drive. If a 0 did not appear, the save translation did not complete. Record the “error code number” and the “error message” and notify maintenance support.
8. If the system is equipped with a TN750 Announcement circuit pack, the recorded announcements can be saved using the `save announcement` commands. Enter `save announcements` and press [RETURN].

9. The screen displays:

```

save announcement                                     SPE A
                                                    SAVE ANNOUNCEMENT

Processor                                             Command Completion Status   Error Code

SPE_A                                               Success                       0

Command successfully completely
enter command:

```

FIGURE 7-2. Save Announcements Screen—SPEA

10. Verify that a 0 is displayed for SPE_A in the Error Code column. A 0 indicates that the save announcement was a success for the tape drive. If a 0 did not appear, the save announcement did not complete. Record the “error code number” and the “error message” and notify maintenance support.
11. Remove the backup cassette tape from the tape drive and insert the original cassette tape into the tape drive.
12. Label the backup cassette tape with the date and time it was updated. A special notation may be put on the tape to clearly distinguish it from other cassette tapes.
13. Store the backup tape in a secure place.

Tape Backup for a System With the Duplication Option

Four cassette tapes are provided with the system. It is recommended that backup copies of the translation data be made weekly, or after many changes have been made to the translation data. This will minimize the loss of recent translation data changes if the cassette tapes in the system become damaged.

The following procedure can be used to make backup tapes:

1. Remove the two original cassette tapes from the tape drives.
2. Insert the two backup cassette tapes into the tape drives.
3. Login to the terminal.
4. Verify that the screen displays:

```
enter command:
```

5. Enter `save translations` and press **[RETURN]**. This command instructs the system to take all translation information in memory and write it onto the two cassette tapes.
6. The screen displays:

```
save translation                                     SPE B
                                                    SAVE TRANSLATION

Processor          Command Completion Status      Error Code
SPE_B              Success                       0
SPE_A              Success                       0

Command successfully completely
enter command:
```

FIGURE 7-4. Save Translation—SPE_B

Administration Nets:

The active SPE's completion status is always displayed first. During the save translation, as illustrated in the above screen, `SPE_B` is displayed as the active SPE in the upper right corner of the screen.

7. Verify that a 0 is displayed for `SPE_B` and `SPE_A` in the `Error Code` column. A 0 indicates that the save translation was a success for each tape drive. If a 0 did not appear for `SPE_B` and `SPE_A`, the save translation did not complete. Record the "error code number" and the "error message" for the SPE that did not have a 0 and notify maintenance support.
8. If the system is equipped with a TN750 Announcement circuit pack the recorded announcements can be saved using the `save announcement` commands. Enter `save announcements` and press **[RETURN]**.

9. The screen displays:

```

save announcements                                     SPE B
                                                    SAVE ANNOUNCEMENT

Processor      Command  Completion  Status      Error Code
SPE_B          Success  Success     Success     0
SPE_A          Success  Success     Success     0

Command successfully completely
enter command:

```

FIGURE 7-4. Save Announcements—SPE_B

Administration Note:

The active SPE's completion status is always displayed first. During the save announcement, as illustrated in the above screen, `SPE_B` is displayed as the active SPE in the upper right corner of the screen.

10. Verify that a 0 is displayed for `SPE_B` and `SPE_A` in the `Error Code` column. A 0 indicates that the save announcement was a success for each tape drive. If a 0 did not appear for `SPE_B` and `SPE_A`, the save announcement did not complete. Record the "error code number" and the "error message" for the SPE that did not have a 0 and notify maintenance support.
11. Remove the two backup cassette tapes from the tape drives and insert the original two cassette tapes into the tape drives.
12. Label the two backup cassette tapes with the date and time they were updated. A special notation may be put on the tapes to clearly distinguish them from other cassette tapes.
13. Store the two backup tapes in a secure place.

Tape Errors

Since the tape drive is a mechanical device, tape-related failures may occur. When these failures occur, the system responds with “tape error messages”. The following is a list of the tape error messages and recommended responses to each. Check for proper operation after each response is done.

1. Tape access error: no tape cartridge or device problem

Indicates that the cassette tape is missing or improperly seated. This error can also occur if the tape drive has a hardware problem.

Response: Check tape drive for missing or improperly seated cassette tape.

Check cassette tape to determine if write-protect indicator points to SAFE. If so, turn pointer away from SAFE to allow “write” capability.

Check for alarm at attendant console. If alarm is present, notify maintenance support to repair tape drive.

WARNING: Check for damaged or worn cassette tape. If the cassette tape is damaged, do not insert the backup tape. If the backup tape is inserted it may also be destroyed. Notify maintenance support to repair the tape drive.

2. Tape currently in use

Indicates that the system is currently accessing the tape for administration or maintenance purposes.

Response: Wait a few minutes and repeat the command that generated the tape error message.

3. Cannot write to tape: cartridge or device problem or Tape write failure: cartridge or device failure

Indicates that there was a failure in writing to the tape.

Response: Refer to the procedures in message 1.

4. Cannot read from tape: cartridge or device problem or Tape write failure: cartridge or device failure

Indicates that there was a failure reading from the tape.

Response: Refer to the procedures in message 1.

5. System 1 error or Internal system error

Indicates that the system software requires reset procedures.

Response: Notify maintenance support.

6. Internal translation data is corrupted

Indicates that the translation data is inconsistent and the translation was not saved on tape.

Response: Replace cassette tape with system backup tape.

Enter the command `reset system 3`. After the command completes, remove the backup tape, install the original tape, and then repeat the command that generated the error message. Notify maintenance support if the same error message is displayed again.

7. Translation file is too large to fit on tape

Indicates that the system software has malfunctioned.

Response: Notify maintenance support.

CHAPTER 8. SYSTEM BACKUP FOR DEFINITY G3r

Overview

The DEFINITY G3r Mass Storage System (MSS) utilizes tape and disk to provide stable storage of switch data. MSS configurations include single Switch Processing Element (SPE) and duplicated systems. There are four basic MSS configurations:

Simplex Tape-Only	In a simplex tape-only system, the tape drive is the primary MSS device. In this configuration, there is no alternate means to boot the system or save system data if the tape drive fails.
Simplex Disk/Tape	In a simplex disk-tape system, the disk drive is the primary MSS device and the tape is the secondary MSS device. If the disk is not available, the tape is available to boot from or to save system data. The tape unit is normally a backup of the disk. In addition, a tape provides a removable backup of the system data.
Duplex Tape-Only	<p>In a duplicated processor system, MSS is provided for each processor. Each processor boots from its local tape unit only. Translation data and the integrated announcement board data can be backed up from memory to the local tape unit, the standby tape unit, or both tape units. Normally, when data is written, both the active and standby tape units are updated simultaneously.</p> <p>In addition, scheduled maintenance is provided to verify that the file systems on each storage device are consistent and that the files are consistent between the different storage devices.</p>
Duplex Disk/Tape	<p>In a duplicated processor system, each processor normally boots from its local disk unit only. Data is backed up from memory to the local disk, the local tape unit, the standby disk unit, the standby tape unit, both disk units, or both tape units. Normally, when data is written, both the active and standby disk units are updated simultaneously.</p> <p>Backup from disk to tape can occur on the active system, the standby system, or on both simultaneously. Restore from tape to disk can occur on the active system, the standby system, or on both simultaneously.</p>

The primary backup operations are:

- **Save translation:** All translation data is kept in memory during system operation. This means that all data would be lost if the switch went down. The save translation operation allows the System Manager to save the in-memory translation data on disk/tape. This operation may be done as part of scheduled maintenance and/or as required.
- **Backup/Restore:** In a disk/tape configuration, additional data integrity is achievable through the disk-to-tape backup process. The backup operation can be done as part of scheduled maintenance and/or as required. The contents of the disk will be copied onto a tape. This tape backup contains enough formatting/structure to allow the system to boot from it.

Command Interface Conventions

In the following sections, the commands used to interface with the MSS are described. The conventions used to describe the commands are:

Optional Command Arguments	A set of brackets [] is used to designate optional groups of arguments to a command. One item listed within each set of brackets can be specified on the command line.
Error Conditions	Following the descriptions of the command operations is a list of error conditions which may occur before or during command execution. Within the command descriptions, error condition notations may appear (E#, where # corresponds to the error condition number). Refer to the “Error Conditions” section of this chapter for explanations of the specific error conditions.

Save Announcement Command

The `save announcements` operation copies announcement data from the announcement board (TN750) to the MSS. By default, announcement data is written to the primary MSS device in a simplex processor system, or to both primary MSS devices in a duplicated processor system. In addition, the `save announcements` command can be directed to write to devices on either of the processors and/or to the secondary device(s).

Command Syntax

```
save announcements [active | standby | PE-A | PE-B | both | either] [disk | tape]
```

The bracketed options specify to which mass storage system the announcements are saved. This set of options only applies in a duplicated system. The options, `active` and `standby`, refer to the currently active and standby processors, respectively, in a duplicated system. The options, `PE-A` and `PE-B`, refer to the processors in carriers A and B, respectively, in a duplicated system.

Invoking the `save announcements` command with the `active` option forces the system to write the announcements data to the specified device in the currently active processor. In a simplex system, `active` is the same as `PE-A` and is the default.

Invoking the `save announcements` command with the `standby` option forces the system to write the announcements data to the specified device in the standby processor.

Invoking the `save announcements` command with the `PE-A` option forces the system to write the announcements data to the specified device in processor A. `PE-A` is the default in a simplex system.

Invoking the `save announcements` command with the `PE-B` option forces the system to write the announcements data to the specified device in processor B.

Invoking the `save announcements` command with the `both` option forces the system to write the announcements data to the specific device in both mass storage systems concurrently. If either access fails, the entire operation fails. In a duplex system, `both` is the default.

Invoking the `save announcements` command with the `either` option forces the system to write the announcements data to the specified device in both mass storage systems concurrently. If there is a failure in accessing one of the devices, the announcements data will still be written to the device that has not failed.

The `[disk | tape]` options specify the device on which to save the announcements data. These options only apply in a system with a disk.

Invoking the `save announcements` command with the `disk` option forces the system to write the announcements data to the disk. In a system configured with both a disk and a tape, disk is the default.

Invoking the `save announcements` command with the `tape` option forces the system to write the announcements data to the tape. In a system configured with only a tape unit, tape is the default.

Command Operation

The `save announcement` command will only be allowed if there is an integrated announcement board in the system (E28).

The `save announcement` command will be denied if:

- No announcement data module has been administered (E29).
- No system port data module has been administered (E35).
- The announcement data module port is out of service (E34).
- The announcement data module port is active (e.g., performing an announcement playback) (E36).
- No announcements are on the ANN board (E33).
- A user is in an integrated announcements session (E31).
- The board is currently being uploaded or downloaded (E29).

A user cannot enter an integrated announcement session after the `save announcements` command has started, although 15 channels are still available for announcement playback (one is reserved for uploading and downloading).

If saving to tape, the `save announcements` command will abort if:

- The tape is not in the tape drive (E37) or the tape is write-protected (E38).
- No system access port is available (E39).
- The MSS is in use by the SPE duplication memory refresh activity (E41).

In addition, the `save announcements` command will not be allowed if the MSS is in use. The MSS maybe in use by either another user (E3) or by maintenance (E42).

Options entered by the user are validated against the system configuration and the target devices for the `save announcement` command are determined (E11, E12).

If the user requests that announcements be saved to a disk the disk must be in service (E13).

If the user requests that announcements be saved to a tape, the tape must be in service (E14).

If the user requests that announcements be saved to the standby processor, the standby processor must be in service and shadowing must be enabled (E16).

If an error is encountered in the above steps, the save operation is not attempted.

When MSS devices on both processors in a duplicated system are specified, the save announcements operation will save announcement data from the announcement board to the active and standby MSS devices in parallel. The status of each save operation is reported to the user separately. If one of the save operations fail, the save operation to the other device continues. The goal is to save the new announcement data on some MSS device so that it is not totally lost; this will cause the announcement data to be inconsistent between these MSS devices.

The command completion status is displayed on the system administration terminal. The screen will be identical to that shown in Figure 5-1, except it will be entitled "Save Announcement." The displayed information includes a success or error message for each processor.

In case of a failure, it is the user's responsibility to make the announcement files on the two MSS devices consistent. The files may become inconsistent due to hardware failures or if "save" to one device fails while the other continues; for example, while using the either option.

If announcement files are inconsistent due to failure on the hardware used during the `save announcements` command, the user should take appropriate action based on the error message returned. Maintenance software monitoring this hardware will log a hardware error with maintenance. Maintenance software will invoke tests to diagnose and attempt to correct the problem. If maintenance software fails to correct the problem, an alarm would be raised and the system technician should take appropriate action.

The `save announcements` command writes two time-stamped identical copies of announcement data to the selected device(s). The time stamp for both copies will be the same (it will be the time of writing to the first copy). Each copy is written as consecutive 2K Blocks. Each block contains a checksum for error detection purpose. Each copy contains the following status information: time stamp, and the state of the copy (i.e., "good" or "bad").

The save operation writes one complete copy first, then writes the second copy in a different area of the device. The save operation only updates one of the copies at a time. The save operation will always choose to overwrite the "least good" copy first. The following selection criteria is applied separately on the active and standby devices:

- If a copy has a bad status, then always overwrite that copy first.
- If both copies have good status, then overwrite the one with the older time stamp. If both time stamps are the same, then it doesn't matter which copy is overwritten first since both copies are identical.

Each copy of the announcement data is marked "bad" prior to an announcement save operation, and it will only be marked "good" after the save operation to that file completes successfully. Any failure during the save operation, including a system crash, should only affect one copy of announcement data. In that case, the affected copy will be marked with a "bad" status indicator and will not be used to restore announcements into the system. Thus, an intact copy of announcement data can be used as a backup. Normally at least one of the two copies should be in a good state.

If a good copy of the announcement file is not available, then the restore announcements operation cannot be executed until the `save announcements` command is successfully completed. The announcements on the board are still accessible and usable.

Restore Announcements Command

The `restore announcements` command copies announcement data from the specified MSS device to the announcement board (TN750).

Command Syntax

```
restore announcements [disk | tape]
```

The announcement file is always restored from the active device.

The `[disk | tape]` options specify the device from which to restore the announcement board data. This set of options only applies in a system with a disk.

Invoking the `restore announcements` command with the `disk` option forces the system to copy the announcement board data from the disk to the announcement board.

Invoking the `restore announcements` command with the `tape` option forces the system to copy the announcement board data from the tape to the announcement board.

Command Operation

There is only one announcement board allowed in the system. The announcement file is always restored from the active processor's device.

The `restore announcements` command will not be allowed if there is no integrated announcement board in the system (E28); or if any port on the ANN board is active (E31).

The `restore announcements` command will be denied if:

- No announcement data module has been administered (E29).
- No system port data module has been administered (E35).
- The announcement data module is out of service (E34).
- A user is in an integrated announcements session (E31).

A user cannot enter an integrated announcement session after the `restore announcements` command has started.

- The MSS is in use.

The MSS maybe in use by either another user or by maintenance (E3).
- The announcement file is not formatted on the MSS (E40).

If restoring from tape, the `restore announcements` command will abort if no tape is in the tape drive (E37).

The `restore announcements` command will also abort if:

- No system access port is available (E39).
- The MSS is in use by the SPE duplication memory refresh activity (E41).

Announcements on the ANN board will not be available until the restore operation is complete. Treatment to calling users will vary according to the feature. Otherwise, normal call processing service continues during the restore announcements operation.

The command completion status is displayed on the system administration terminal. The displayed information includes a success or error message.

In case of a failure, it is the user's responsibility to make sure the announcement file is completely copied to the announcement board, although the system will continually attempt to download the board in 10 minute intervals until a download is successful, announcements are recorded, or a download is initiated from the system administrative terminal. The user should take appropriate action based on the error message returned. If the error is the result of a hardware or firmware failure, the MSS software will log a hardware error with maintenance. Maintenance software will invoke tests to diagnose and attempt to correct the problem. If maintenance software fails to correct the problem, an alarm would be raised and the system technician should take appropriate action.

In the case where the system crashes and/or there is a processor interchange, the restore operation will fail. In this case, there will not be a valid announcement file on the announcement board. The command should be restarted on the newly active processor to copy the announcements from the active processor's MSS device to the announcement board. Until the announcements are successfully and completely copied to the announcement board, calls will not be connected to any announcements on the ANN board.

When the ANN board is plugged in or reset, maintenance will perform a series of tests, including a DRAM Checksum test. The test will fail due to the power loss to the board, resulting in automatic downloading of the announcement file.

Error Conditions

The following is a list of all error messages displayed to the user. If any of these error conditions can be attributed to hardware failures or disk/tape configuration problems, they will be logged with the maintenance subsystem. Error messages that are caused by a user entering improper command operations will not be logged with the maintenance subsystem; the user is notified of the error.

For each error message listed, an identifier is provided which indicates where on the screen the message will occur. If (M) is shown next to the error code, the error message will appear on the message line. If (W) is shown next to the error code, the error message will appear as command output.

A failure can occur on either processor in a duplicated system. When the error is displayed, it is associated with the processor on which the error was encountered.

- E3 (M)** `MSS is currently in use`
- This message means some other administration or maintenance user is currently making use of the MSS device and, therefore, it is not available for the MSS operation requested.
- E11 (M)** `Standby option invalid on a simplex system`
- This message means a duplex option to a command was specified on a simplex system.
- E12 (M)** `The disk option is invalid in a tape-only system`
- This message means that a disk option was entered on an MSS command for a tape-only system.
- E13 (W)** `Disk device is out of service`
- This message means that the disk device has been taken out of service by maintenance.
- E14 (W)** `Tape device is out of service`
- This message means that the tape device has been taken out of service by maintenance.
- E16 (W)** `Standby processor (PE_A) is not available or
Standby processor (PB_B) is not available`
- This message means that the standby processor has been taken out of service by maintenance, that the PE-SELECT switches are not in their normal position, or that some other hardware problem exists. When the standby processor is out of service, memory shadowing from the active processor to the standby processor is disabled.
- E28 (W)** `Integrated announcement board not present`
- This message indicates that the announcement board is not present in the system.
- E29 (W)** `Required data module not administered or unavailable.`
- The required data module is either not administered or is currently in use.

- E31 (W)** Announcement port in use; please try later.
One or more of the announcement ports are in use. The port could be in use for an integrated announcements session or for integrated announcement playback.
- E32 (W)** Bad announcement file on tape (disk).
This message indicates that the announcement file stored on disk or tape is corrupt. A valid file must be stored on the MSS before it can be accessed. This helps to prevent overwriting valid announcements on the ANN board.
- E33 (W)** No announcements on board.
Announcements must be stored on the ANN board in order to proceed with command. This helps to prevent overwriting or corrupting a good announcement file on the MSS.
- E34 (W)** Announcement data module out of service.
This message indicates that the announcement data module has been taken out of service by maintenance. The data module could have been taken out of service because of errors on the data module detected by maintenance.
- E35 (W)** Required system access port not administered or out of service.
A system access port is either not available or is out of service.
- E36 (W)** Announcement data module not available.
Cannot access the announcement data module because the upload/download port is active.
- E37 (W)** Tape access failure; no tape cartridge or tape drive failure.
No tape is in the tape drive.
- E38 (W)** Tape write failure; no tape cartridge or tape drive failure.
The tape is write protected.
- E39 (W)** Required system access port unavailable.
The required system access port is unavailable.
- E40 (W)** Tape (disk) not formatted with announcement file.
Device must be formatted with the announcement file in order to read or write it.
- E41 (W)** Refresh currently in progress, please try again later.
MSS is in use by SPE duplication memory refresh. This is an indication to try the command again later.
- E42 (W)** MSS device is maintenance busy.

Save Translation Command

The `save translation` command copies translation data from memory to the MSS. By default, translation data is written to the primary MSS device in a simplex processor system, or to both primary MSS devices in a duplicated processor system. In addition, the `save translation` command can be directed to write to devices on either of the processors and/or the secondary device(s). The translation data can be automatically backed up as part of regularly scheduled maintenance. It is recommended that automatic backup be performed on a daily basis.

Command Syntax

```
save translation [active | standby | SPE_A | SPE_B | both | either] [disk | tape]
```

The bracketed options specify which mass storage system the translation data is to be saved to. This set of options only applies in a duplicated system. The options, `SPE_A` and `SPE_B`, refer to processors A and B respectively in a duplicated system.

Invoking the command with the `active` option instructs the system to write to the specified device in the active processor.

Invoking the command with the `standby` option instructs the system to write to the specified device in the standby processor.

Invoking the command with the `either` option causes the system to write the translation data to the specified device on both processors. If the standby processor is inaccessible, the command will still execute on the active processor and data will be copied to the specified device.

Invoking the `save translation` command with the `SPE_A` option forces the system to write the translation data to the specified device in processor A. `SPE_A` is the default in a simplex system.

Invoking the `save translation` command with the `SPE_B` option forces the system to write the translation data to the specified device in processor B.

In duplicated systems, `both` is the default option.

The `[disk | tape]` option specifies the device on which to save the translation data. This option set only applies in a system with a disk.

Invoking the `save translation` command with the `disk` option forces the system to write the translation data to the disk. In a system configured with both a disk and a tape, `disk` is the default.

Invoking the `save translation` command with the `tape` option forces the system to write the translation data to the tape. In a system configured with only a tape unit, `tape` is the default.

In a duplex system, the capability to save translation to only one of the MSS devices is provided. This capability should be exercised with extreme caution since it is likely to lead to translation data inconsistencies between the different devices on the two processors.

Command Operation

The `save translation` command writes two time-stamped identical copies of translation data to the selected device(s). The time stamp for both copies will be the same (it will be the time of writing to the first copy). Each copy is written as consecutive 2K blocks. Each block contains a checksum for error detection purposes. Each copy contains a time stamp and the state of the copy (either “good” or “bad”).

The save operation writes one complete copy first; then writes the second copy in a different area of the device. The save operation updates only one copy at a time. The save operation will always choose to overwrite the “least good” copy first. The following selection criteria should be applied on both the active and standby devices:

- If a copy has a bad status, always overwrite that copy first.
- If both copies have good status, overwrite the one with the older time stamp. If both time stamps are the same, it does not matter which copy is overwritten first since the copies are identical.

Each copy of the translation data is marked “bad” prior to a translation save operation, and it will only be marked “good” after the save operation to that file completes successfully. Any failure during the save operation, including a system crash, will usually affect only one copy of translation data. If this occurs, the affected copy will be marked with a “bad” status indicator and should not be used to bad translation into the system. Thus an intact copy of translation can be used as a backup. Normally at least one of the two copies will be in a good state. If `save translation` is performed automatically as part of daily scheduled maintenance, there is a high degree of probability that identical copies of translation exist on the tape.

When MSS devices on both processors in a duplicated system are specified, the save operation will save translation data from the active processor to the active and standby MSS devices in parallel. The status of each save operation is reported to the user separately. If one of the save operations fail, the save operation to the other device continues.

If invoked during regularly scheduled maintenance, the `save translation` command in a duplicated processor system will save the translation to one of the MSS devices even if the other device is out of service.

The command completion status is displayed on the screen, as shown below.

Save Translation		
Processor	Command Completion Status	Error Code
SPE_A*	success/specific error message	n1
SPE_B*	success/specific error message	n2

* In a simplex system, only the active (default) SPE status is given. In a duplex system if a qualifier is used to select save translation for only one SPE, only that SPE's status is given.

FIGURE 8-1. Save Translation Completion Status

The displayed information includes either a success message or an error message and error code for each processor (see Table 8-A). A success message means both copies of translation data were updated successfully on a particular device from the in-memory translation data. The error code for each processor provides further information as to whether only one or two copies of translation data were updated successfully. If only one copy was updated or neither copy was updated, an alarm would be raised on that device so that the system technician can take appropriate repair actions.

TABLE 8-A. Save Translation Command Error Codes

CODE interpretation	
0	The save operation was a complete success; both copies of translation data were updated.
1	The save operation was a partial success; only one of the two copies of translation data was updated.
2	The save operation failed completely; no translation was saved to either copy of translation data.

The following operational rules apply to the `save translation` command:

1. The `save translation` command will only be allowed if there are no translation updates being made. All requests to update translation, after the command starts, will be denied (E1).
If Terminal Translation Initialization (TTI) activation or deactivation is in progress, the `save translation` command will be denied (E2).
2. The `save translation` command will not be allowed if the MSS is engaged by another user or is being used for background maintenance (E3).
3. The options entered by the user are validated against the system configuration and the target devices for the `save translation` command are determined (E11, E12).
4. If the user requests that translation be saved to a disk, the disk must be in service (E13). If the user requests that translation be saved to a tape, the tape must be in service (E14). If the user requests that translation be saved to the standby processor, the standby processor must be in service, shadowing must be enabled, and refresh must be completed (E16).
5. If the file system of the target device is a core-dump file system, the command will be denied (E17).
If the target device is a tape, and the file system type of the tape is an installation file system, and the vintage of the boot image running in the active processor matches the vintage of the boot image on the tape, then the system will first configure the tape with the same configuration as is currently running. If the in-memory vintage does not match the vintage on the tape, the `save translation` command will be denied (E18). In this situation, the user must manually configure the tape by using the `configure` command and then reissue the `save translation` command.
6. If errors are encountered in the operations described above, the `save` operation should not be attempted.

Backup Command

Additional data integrity is achievable through disk to tape backups. These backups may be done on demand or run daily as part of scheduled maintenance. This command is only valid in a system which has both disk and tape as part of its MSS. The backup command will work in either a simplex SPE or a duplex SPE system. When the command is run as part of scheduled maintenance, the default for a simplex system is an incremental backup of SPE A. In a duplex system, the default is an incremental backup on both SPE A and SPE B.

When the backup command is executed on demand the defaults remain the same.

Command Syntax

```
backup disk [active | standby | SPE_A | SPE_B | both | either] [incremental | full]
```

The bracketed options, [active | standby | SPE_A | SPE_B | both | either], specify which mass storage system the user wishes to backup. Invoking the backup command with the SPE_A option causes files from the disk associated with processor A to be copied to the tape cartridge on the same processor. SPE_A is the default in a simplex system. Invoking the backup command with the SPE_B option causes the files on the disk on processor B to be copied to the tape on the same processor.

Invoking the command with the active option causes the files on the disk on the active processor to be copied to the tape on that processor.

Invoking the command with the standby option causes the files on the disk on the standby processor to be copied to the tape on that processor.

Invoking the backup command with the both option causes files on the disk associated with both of the processors to be backed up to their respective tapes concurrently. If the standby processor is inaccessible the command will fail on both processors. No files will be copied from disk to tape on either processor. The default value in a duplex system is both.

Invoking the backup disk command with the either option causes the files on the disks associated with both of the processors to be backed up to their respective tapes concurrently. If the standby processor is inaccessible, the command will still execute on the active processor and the disk files will be copied to tape.

Invoking the command with the incremental option causes a selective backup to be performed. In this case, all files on the disk that are marked as “good files” and which have a newer last file update time than the corresponding tape files, are copied to the tape. Not copying files marked as “bad” ensures that corrupted files do not overwrite good (but possibly older) files. The default value is incremental.

If a full disk backup is specified, the entire disk is copied to tape. All files, “good” and “bad,” regardless of the last file update times, will be copied to the tape.

Command Operation

When an incremental backup is performed, the following procedure governs this operation. Before each file is copied from the disk to the tape, the file on the tape is marked as “bad.” When the file has been completely copied over to the tape, the file is then marked as “good” on the tape. This process ensures that if the system were to reboot in the middle of this operation, files in the process of being copied will not be usable (on the tape) because they will still be marked as “bad.”

When a full backup is performed, the following procedures are used. When the process begins, all files on the tape are marked as “bad.” When the entire disk has been copied, the files on the tape will be marked as “good.” The only exception to this is that a file which is marked as “bad” on the disk will retain this marking on the tape also.

When the backup is performed on both processors, the operation is performed in parallel. If the backup operation fails on one processor the backup operation will proceed on the other processor.

The success or failure of the backup operation for each processor will be displayed on the screen, as shown below.

Backup Disk	
Processor	Command Completion Status
SPE_A*	success/specific error message
SPE_B*	success/specific error message

* In a simplex system, only the active (default) SPE status is given. In a duplex system, if a qualifier is used to select backup disk for only one SPE, only that SPE's status is given.

FIGURE 8-2. Backup Completion Station

The following operational rules apply to the backup command:

1. The backup command will only be allowed if there are no other applications currently using the MSS devices (E3).
2. The options entered by the user are validated against the system configuration and the target devices for the backup command are determined (E11).
3. The disk must be in service (E13). The tape must be in service (E14).

4. If the user requests that the backup take place on the standby processor, the standby processor must be in service, shadowing enabled, and refresh completed (E16). If the file system of the tape is a core-dump file system, the command will be denied (E17).

For incremental backup, if the file system type of the tape is an installation file system, and the vintage of the boot image running in the active processor matches the vintage of the boot image on the tape, then the system will first configure the tape with the same configuration as is currently running. If the in-memory vintage does not match the vintage on the tape, the `backup` command will be denied (E18). The tape must be manually configured in this situation.

If the `incremental` option is specified and the file systems of the disk and tape are not the same, the command will be denied (E23).

5. For full backup, if the tape has installation, large, or core-dump file system, backup will proceed.
6. If errors are encountered in the operations described above, the backup operation should not be attempted.

Restore Command

The `restore` command allows the user to copy files from a tape (which was used to backup the disk) to the disk. This operation will be used for system installation, system upgrades/updates, or after a repair of the disk has occurred.

Command Syntax

```
restore disk [active | standby | SPE_A | SPE_B | both | either] [incremental | full]
```

The options, [active | standby | SPE_A | SPE_B | either | both], specify which mass storage system the user wishes to restore.

Invoking the `restore` command with the `SPE_A` option causes files from the tape associated with processor A to be copied to the disk on that same processor. `SPE_A` is the default in a simplex system.

Invoking the `restore` command with the `SPE_B` option causes files from the tape associated with processor B to be copied to the disk on that same processor.

Invoking the `restore` command with the `active` option causes the files on the tape on the active processor to be copied to the disk on the same processor.

Invoking the `restore` command with the `standby` option causes files from the tape associated with the standby processor to be copied to the disk on that same processor.

Invoking the `restore` command with the `both` option forces the system to copy files from the tape-to-disk device on both mass storage systems concurrently. If the standby processor is inaccessible, the command will fail on both processors. This means that no data will be written on either of the specific processors. The default in a duplex system is `both`.

Invoking the `restore` command with the `either` option forces the system to copy files from tape to disk device in both mass storage systems concurrently. If the standby processor is inaccessible, the command will still execute on the active processor and files will be copied to the disk.

Invoking the command with the `incremental` option causes a selective restore operation to be performed. In this case, all files on the tape that are marked as “good” and which have a newer last file update time than the corresponding disk files, are copied to the disk. Not copying files marked as “bad” ensures that corrupted files do not overwrite good (but possibly older) files. The default value is `full`.

If a full disk restore is specific, the entire contents of the tape are copied to the disk. All files, “good” and “bad,” regardless of the last file update times, are copied to the disk.

Command Operation

For an `incremental` restore, the files are copied in the following manner. Before each file is copied from the tape to the disk, the file on the disk is marked as “bad.” When the file from the tape has been completely copied over onto the disk the file is then marked as “good” on the disk. This process ensures that if the system were to reboot in the middle of the operation, files in the process of being copied will not be usable because they are still marked as “bad.”

For a `full` restore operation, the files are copied in the following manner. When the process begins, all files on the disk will be marked as “bad.” When the entire tape has been copied to disk the files on the disk will be marked as “good.” The only exception to this is that a file which is marked as “bad” on the tape will retain this marking on the disk also.

The success or failure of the command for each processor will be displayed on the screen, as shown below.

Restore Disk	
Processor	Command Completion Status
SPE_A*	success/specific error message
SPE_B*	success/specific error message

FIGURE 8-4. Restore Completion Status

The following operational rules apply to the `restore` command:

1. The `restore` command will only be allowed to run if there are no other applications currently using the MSS devices (E3).
2. The options entered by the user will be validated against the system configuration, and the target devices for the `restore` command are determined (E11).
3. The disk must be in service (E13). The tape must be in service (E14).
4. If the user requests that the restore take place on the standby processor, the standby processor must be in service, shadowing enabled, and refresh completed (E16).
5. If the file system of the tape is a core-dump file system, the command will be denied (E17).
If the file system of the tape is an installation file system, the command will be denied (E22). If the `incremental` option is specified and the file systems of the disk and tape are not the same, the command will be denied (E23).
6. If errors are encountered in the operations described above, the restore operation should not be attempted.

Error Conditions

The following is a list of all error messages displayed to the user. If any of these error conditions can be attributed to hardware failures or disk/tape configuration problems, they will be logged with the maintenance subsystem. Error messages that are caused by a user entering improper command options are not logged with the maintenance subsystem; the user is notified of the error.

For each error message listed, an identifier is provided which indicates where on the screen the message will occur.

A failure can occur on either processor in a duplicated system. When the error is displayed, it is associated with the processor on which the error was encountered.

- E1** `login:cha station 51001 has data locked`
This error message is displayed for the `save translation` command when there is an active `translation update` command.
- E2 (M)** `TTI activation or deactivation is in progress; this command is not allowed at this time`
When TTI activation or deactivation is in progress, `save translation` cannot occur. The TTI activation or deactivation must be suspended first.
- E3 (M)** `'loginid': "command" has cmd conflict`
This message means that the user logged in with 'loginid' has a command that conflicts with the MSS command you are using.
- E4 (W)** `No tape in tape drive`
This message means that the tape cartridge is missing from the drive.

- E5 (W)** Tape write failure: tape cartridge or device failure
This message means that there is a failure in writing to the tape. This maybe caused by the tape cartridge missing from the tape drive, or by non-operational tape hardware.
- E6 (W)** Tape read failure: tape cartridge or device failure
This message means there is a failure in reading from the tape. This maybe caused by the tape cartridge missing from the tape drive, or by non-operational tape hardware.
- E7 (M)** System error; Reboot
This message means there was a severe system error while processing this request. This might require system reboot or craft intervention to resolve.
- E9 (W)** Disk write failure: device failure
This message means that there is a hardware problem with the drive itself.
- E10 (W)** Disk read failure: device failure
This message means there was a failure in reading from the disk. This may be caused by a media error or by non-operational disk hardware.
- E12 (M)** The disk option is invalid in a tape-only system
This message means that the disk option was entered on an MSS command for a tape-only system.
- E13 (W)** Disk device is out of service
This message means that the disk device has been taken out of service by maintenance.
- E14 (W)** Tape device is out of service
This message means that the tape device has been taken out of service by maintenance.
- E16 (M)** Standby processor (SPE_A) is not available or
Standby processor (SPE_B) is not available
This message means that the standby processor has been taken out of service by maintenance, that the SPE-SELECT switches are not in their normal position, or that some other hardware problem exists. When the standby processor is out of service, memory shadowing from the active processor to the standby processor is disabled.
- E17(W)** Tape contains a coredump file system
This message indicates that the wrong type of tape is in the tape drive.
- E18 (W)** Tape vintage does not match in-memory vintage; must configure tape first
By ensuring that the tape vintage matches the in-memory vintage, the system technician is made aware of a possible operational error.

- E19 (W)** Large system boot image is corrupt on the tape
This message means that the large system boot image has been overwritten by a core dump. The tape cannot be converted to a large system tape.
- E22 (W)** Tape file contains an installation file system
This message indicates that the wrong type of tape is in the tape drive.
- E23 (W)** Disk and tape are configured with different file systems
This message occurs when the disk and tape are configured with different file systems and the backup or restore commands are issued with the incremental options.
- E27 (W)** Device access failure: device directory corruption
This message means that the directory files on a device are corrupt.
- E28 (W)** Small file system already exists
This message means that the user is trying to configure a small file system to a tape that already contains a small file system. This operation is not allowed.
- E29 (W)** Large file system already exists
This message means that the user is trying to configure a large file system to a tape that already contains a large file system. This operation is not allowed.

CHAPTER 9. REFERENCES

The following is an abbreviated listing of Generic 1 and Generic 3 documents. Included is a brief description of each document in the list. User instructions are also available for all terminals used with the systems.

To order copies of any of these documents, refer to the address on the back of the title page.

Business Communications Systems Publications Catalog 555-000-010
Provides a list of publications that support AT&T business communications systems. Also provides a brief description of each publication listed.

DEFINITY® Communications System and System 75 and System 85— 555-015-201
 Terminals and Adjuncts—Reference
Provides concise physical and functional descriptions of the peripheral equipment that can be used with DEFINITY Generic 1, DEFINITY Generic 2, System 75, and System 85. It is intended as an aid for both AT&T and customer personnel in selecting appropriate components for these systems and in training and management.

DEFINITY® Communications System and System 75 and System 85— 555-025-101
 DS1/DMI/ISDN-PRI—Reference
Provides a broad, but detailed, description of the DS1 Tie Trunk Service, DMI, and ISDN-PRI features. Introduces and defines concepts and terminology unique to DS1, DMI, and ISDN-PRI. Also includes applications, engineering procedures and considerations, cabling and connection arrangements, administration requirements, restrictions and limitations, etc.

DEFINITY® Communications System Generic 1 and Generic 3—Feature 555-230-201
 Description
Provides a technical description of the system features and parameters. For each feature, the following information is provided:

- **Limitations/considerations**
- **Feature interactions**
- **Administration requirements**
- **Hardware and software requirements**

DEFINITY® Communications System Generic 1 and Generic 3—Console 555-230-700
 Operations
Provides “how-to-operate” instructions for the attendant console. Serves as a reference when defining the console control keys and Incoming Call Identification requirements.

DEFINITY® Communications System Generic 1 and Generic 3— 555-230-701
 Voice Terminal Operations
Describes all the voice features and provides the “how-to-operate” instructions for each voice terminal. Serves as a training guide for system users.

DEFINITY® Communications System Voice Terminal DocuMaster Kit 555-230-750
A multi-element kit for end users to provide them with the information they need to use their voice terminals. The kit includes:

- **A “how-to-use” booklet with procedural instructions plus sample applications**
- **PC Phone Facts, an enhanced version of the Feature Facts programs available for other phone systems. This is a PC-based program compatible with MS-DOS® personal computers. It contains descriptions of all end-user features, operations of all features by type of terminal, and a file for customizing feature access codes.**
- **Selected sample copies of traditional voice terminal user guides**
- **A list of all available user guides, plus ordering information, for Generic 1 and Generic 3**
- **A camera-ready Quick Reference Card the customer can have reproduced which briefly outlines operation of the Hold, Conference, Transfer and Drop features**
- **Line drawings of currently available terminals which the customer can reproduce**
- **A registration card the customer can send to the Customer Information Center to receive future program updates.**

DEFINITY® Communications System Generic 1 and Generic 3— 555-230-722
Automatic Call Distribution—Agent Instructions
Provides information for use by agents after training is completed. The various ACD features are described and the procedures for using them are provided in this document.

DEFINITY® Communications System Generic 1 and Generic 3— 555-230-724
Automatic Call Distribution—Supervisor Instructions
Provides information for use by supervisors after training is completed. The various ACD features are described and the procedures for using them are provided in this document.

DEFINITY® Communications System Generic 1 and Generic 3— 555-230-723
User’s Guide-Hospitality Operations
Contains procedures for using the Hospitality Services of DEFINITY Generic 1 and Generic 3i. These services include a group of system-based features that support the lodging and health industries.

DEFINITY® Communications System Generic 1 and Generic 3— 555-230-104
Installation and Test
Provides the information necessary to perform the tasks of installing and testing the system’s common equipment. Includes a description of the necessary tools and equipment.

DEFINITY® Communications System Generic 1 and Generic 3i— 555-204-105
Maintenance
Provides the information necessary for monitoring, testing, and maintaining DEFINITY Generic 1 and Generic 3i. It is intended to cover many of the faults and troubles that can occur in the system.

DEFINITY® Communications System Generic 3r—Maintenance 555-230-105
Provides the information necessary for monitoring, testing, and maintaining DEFINITY Generic 3r. It is intended to cover many of the faults and troubles that can occur in the system.

- DEFINITY® Communications System Generic 1 and Generic 3i—System Reports 555-204-510
Explains switch-based measurement, traffic, performance, and summary reports. Descriptions include the overall purpose and uses for each report, complete definitions for each field, correlations with other reports, and possible actions that can be taken to further diagnose situations and remedy unsatisfactory conditions.
- DEFINITY® Communications System Generic 3r—System Reports 555-230-510
Explains switch-based measurement, traffic, performance, and summary reports. Descriptions include the overall purpose and uses for each report, complete definitions for each field, correlations with other reports, and possible actions that can be taken to further diagnose situations and remedy unsatisfactory conditions.
- DEFINITY® Communications System Generic 1 and Generic 3i—Upgrades and Additions 555-204-106
Provides procedures and information required to upgrade from an earlier system to a DEFINITY Generic 3i system and to make additions to an existing G3i system after the initial switch installation.
- DEFINITY® Communications System Generic 3r—Upgrades and Additions 555-230-105
Provides procedures and information required to upgrade from earlier DEFINITY Communications systems to a DEFINITY Generic 3r system and to make additions to an existing system after the initial switch installation.
- DEFINITY® Communications System Generic 1 and Generic 3—System Description 555-230-200
Provides a technical description of the system and its hardware, environmental and space requirements, and parameters.
- DEFINITY® Communications System Generic 3i—Implementation 555-230-650
Provides the procedures and associated forms for collecting system and terminal software information for G3i systems. This information is used to initialize the system using the system administration terminal.
- DEFINITY® Communications System Generic 3r—Implementation 555-230-651
Provides the procedures and associated forms for collecting system and terminal software information for G3r systems. Also describes various administration commands and error messages. This information is used to initialize the system using the administration terminal.
- DEFINITY® Communications System Generic 1 and Generic 3—Basic Call Management Operations 555-230-703
Describes all the features and provides the “how-to-operate” instructions for the Basic Call Management System (BCMS) feature.

- DEFINITY® Communication System Generic 3 Call Vectoring Guide 535-230-520
Discusses how to write, use, and troubleshoot vectors, which are command sequences that process telephone calls in an Automatic Call Distribution (ACD) environment. The guide is organized into two parts: a step-by-step tutorial that illustrates how to write and implement a basic vector; and a reference with detailed descriptions of the Call Vectoring features, vector management, vector administration, adjunct muting, troubleshooting, and interactions with management information systems (including the Call Management System).
- DEFINITY® Communications System CallVisor™ ASAI 555-230-220
Technical Reference
For applications designers to use in building and programming custom applications and features using the Adjunct/Switch Application Interface.
- DEFINITY® Communications System Callvisor™ ASAI 555-230-221
Protocol Reference
Describes the layer 3 protocol by providing an understanding of the ISDN messages, Facility Information Elements, and Information Elements. It is designed for the library or driver programmer of an adjunct computer to use in creating the library of commands used by the applications programmer.
- DEFINITY® Communications System Generic 3 Management 555-229-201
Applications—Station Provisioning
Includes procedures for setting up the PC, loading Generic 3 Management Applications software, and step-by-step bulk station administration procedures. It provides details on creating models and station detail record; auditing the data residing on the PC; and generating merged data from the PC to a System 75 R1V3, Generic 1, or Generic 3 System.
- DEFINITY® Communications System Generic 3 Management 555-229-202
Applications—Operations
Includes initial PC setup procedures as well as detailed steps for the management of switch data for ongoing administration. Data management procedures include gathering switch data for custom reports or for exporting to other systems, making global changes, and preprocessing switch transactions.
- DEFINITY® Communications System and System 75 and System 85— 555-104-503
Traffic Tables
A compilation of the traffic tables and procedures used by traffic engineers and administrators to size trunk groups, ACD groups, and systems.

CHAPTER 10. ABBREVIATIONS AND ACRONYMS

AAR	Automatic Alternate Routing
AC	Alternating Current
ACA	Automatic Circuit Assurance
ACD	Automatic Call Distribution
ACU	Automatic Call Unit
ACW	After Call Work
AD	Abbreviated Dialing
ADU	Asynchronous Data Unit
AIM	Asynchronous Interface Module
ALM-ACK	Alarm Acknowledge
AMW	Automatic Message Waiting
ANI	Automatic Number Identification
AP	Applications Processor
APLT	Advanced Private Line Termination
ARS	Automatic Route Selection
ASCII	American Standard Code for Information Interchange
ASAI	Adjunct Switch Applications Interface
ATB	All Trunks Busy
AUDIX	Audio Information Exchange
AVD	Alternate Voice Data
AWT	Average Work Time
BCC	Bearer Capability Class
BCMS	Basic Call Management System
BCT	Business Communications Terminal
BHCC	Busy Hour Calls Completions
BLF	Busy Lamp Field
BOS	Bit Oriented Signaling
BRI	Basic Rate Interface
BTU	British Thermal Unit
CAMA	Centralized Automatic Message Accounting
CACR	Cancellation of Authorization Code Request
CAG	Coverage Answer Group
CAS	Centralized Attendant Service
CBC	Call-by-Call
CC	Country Code
CCITT	Consultative Committee for International Telephone and Telegraph
CCMS	Common Channel Message Set
CCS	Hundred Call Seconds
CCSA	Common Control Switching Arrangement
CDM	Channel Division Multiplexing
CDOS	Customer-Dialed and Operator Serviced
CDRR	Call Detail Recording and Reporting
CDRU	Call Detail Recording Utility
CEM	Channel Expansion Multiplex

CMDR	Centralized Message Detail Recorder
CMS	Call Management System
CO	Central Office
COR	Class of Restriction
COS	Class of Service
CP	Circuit Pack
CPE	Customer-Provided Equipment
CPTR	Call Progress Tone Receiver
CRC	Cyclical Redundancy Checking
CSA	Canadian Safety Association
CSM	Centralized System Management
DC	Direct Current
DCE	Data Communications Equipment
DCP	Digital Communications Protocol
DCS	Distributed Communications System
DDC	Direct Department Calling
DDD	Direct Distance Dialed
DID	Direct Inward Dialed
DLC	Data Line Circuit
DLDM	Data Line Data Module
DMI	Digital Multiplexed Interface
DND	Do Not Disturb
DNIS	Dialed Number Identification Service
DOD	Direct Outward Dialed
DOSS	Delivery Operations Support System
DS1	Data Services Level 1
DSU	Data Service Unit
DTDM	Digital Terminal Data Module
DTE	Data Terminal Equipment
DTGS	Direct Trunk Group Select
DTMF	Dual Tone Multifrequency
DXS	Direct Extension Selection
E&M	Ear and Mouth (Receive and Transmit)
EBCDIC	Extended Binary Coded Decimal Interexchange Code
EI	Expansion Interface
EIA	Electronic Industries Association
EMI	Electro-Magnetic Interference
EPN	Expansion Port Network
EPROM	Erasable Programmable Read Only Memory
EPSCS	Enhanced Private Switched Communications Services
ESF	Extended Superframe Format
ETN	Electronic Tandem Network
FAC	Feature Access Code
FAS	Facility Associated Signaling
FCC	Federal Communications Commission
FIC	Facility Interface Codes
FNPA	Foreign Numbering Plan Area

FRL	Facility Restriction Level
FX	Foreign Exchange
GPTR	General Purpose Tone Receiver
GRS	Generalized Route Selection
HNPA	Home Numbering Plan Area Code
IAS	Inter-PBX Attendant Service
ICC	Inter-Carrier Cable
ICDOS	International Customer-Dialed Operator-Serviced
ICI	Incoming Call Identifier
ICM	Inbound Call Management
IDDD	International Direct Distance Dialing
IE	Information Element
INADS	Initialization and Administration System
INS	ISDN Network Service
INWATS	Inward Wide Area Telephone Service
ISDN	Integrated Services Digital Network
ISN	Information Systems Network
IXC	Inter-Exchange Carrier Code
KBPS	Kilo-Bits Per Second
LAN	Local Area Network
LAPD	Link Access Procedure D
LATA	Local Access and Transport Area
LDN	Listed Directory Number
LED	Light-Emitting Diode
LSU	Local Storage Unite
LWC	Leave Word Calling
MA-UUI	Message Associated User-to-User Signaling
M-Bus	Memory Bus
MBPS	Mega-Bits Per Second
MCC	Multi-Carrier Cabinet
MCS	Message Center Service
MDM	Modular Data Module
MDR	Message Detail Record
MET	Multibutton Electronic Telephone
MIS	Management Information System
MISCID	Miscellaneous Identification
MOS	Message Oriented Signaling
MS	Message Server
MSA	Message Servicing Adjunct
MPDM	Modular Processor Data Module
MTDM	Modular Trunk Data Module
MTP	Maintenance Tape Processor
MWL	Message Waiting Lamp

NANP	North American Numbering Plan
NAU	Network Access Unit
NCOSS	Network Control Operations Support Center
NEC	National Engineering Center
NFAS	Non-Facility Associated Signaling
NID	Network Inward Dialing
NN	National Number
NPA	Numbering Plan Area
NPE	Network Processing Element
NQC	Number of Queued Calls
NSE	Night Service Extension
NSU	Network Sharing Unit
NXX	Public Network Office Code
OA	Operator Assisted
OCM	Outbound Call Management
OPS	Off-Premises Station
OQT	Oldest Queued Time
OSHA	Occupational Safety and Health Act
OTQ	Outgoing Trunk Queuing
PBX	Private Branch Exchange
PC	Personal Computer
PCOL	Personal Central Office Line
PCOLG	Personal Central Office Line Group
PCM	Pulse Code Modulated
PCS	Permanent Switched Calls
PDM	Processor Data Module
PDS	Premises Distribution System
PGN	Partitioned Group Number
PI	Processor Interface
PIB	Processor Interface Board
PL	Private Line
PMS	Property Management System
PN	Port Network
PPN	Processor Port Network
PRI	Primary Rate Interface
PSC	Premises Service Consultant
PSDN	Packet Switch Public Data Network
PT	Personal Terminal
RAM	Random Access Memory
RCL	Restricted Call List
RHNPA	Remote Home Numbering Plan Area
RLT	Release Link Trunk
RNX	Private Network Office Code
ROM	Read Only Memory
RPN	Routing Plan Number
RSC	Regional Support Center

SAKI	Sanity and Control Interface
SAT	System Access Terminal
SCC	Single Carrier Cabinet
SCI	Switch Communications Interface
SCO	System Control Office
SDN	Software Defined Network
SDDN	Software Defined Data Network
SID	Station Identification Number
SIT	Special Information Tones
SMDR	Station Message Detail Recording
SPE	Switch Processing Element
SSI	Standard Serial Interface
STARLAN	Star-based Local Area Network
SXS	Step-by-Step
TAAS	Trunk Answer From Any Station
TAC	Trunk Access Code
TCM	Traveling Class Mark
TDM	Trunk Data Module
TEG	Terminating Extension Group
TOD	Time of Day
TOP	Task Oriented Protocol
TSC	Technical Service Center
TTR	Touch-Tone Receiver
TTTN	Tandem Tie Trunk Network
TTY	Teletypewriter
UAP	Usage Allocation Plan
UCD	Uniform Call Distribution
UCL	Unrestricted Call List
UDP	Uniform Dial Plan
UNP	Uniform Numbering Plan
UPS	Uninterruptible Power Supply
VDN	Vector Directory Number
WATS	Wide Area Telecommunications Service

GLOSSARY

A

Access Code

A 1-, 2-, or 3-digit dial code used to activate or cancel a feature or access an outgoing trunk. The star (*) and pound (#) can be used as the first digit of an access code.

Access Endpoint

Either a non-signaling channel on a DS1 interface or a non-signaling port on an Analog Tie Trunk circuit pack that is assigned a unique extension.

Access Tie Trunks

Tie trunks used to handle normal ETN calls between main and tandem switches.

ACD split

An ACD split is a UCD/DDC hunt group in a system where ACD has been optioned by the customer and the hunt group has been administered as used for ACD. ACD Splits are capable of being measured (data concerning the split and its members' status will be sent to the CMS).

Adjunct

Any processor connected to the switch and capable of controlling certain functionalities.

Adjunct-Controlled Split

An ACD split that is administered to be under adjunct control. Login to such a split is under adjunct control. When an ACD agent is logged into an adjunct-controlled split, the ACD agent's voice set is locked.

Administer

To access and change the parameters associated with the services or features of the system.

Administered Connection

An end-to-end connection between two access endpoints or two data modules that is automatically established whenever the system is restarted or the administered connection is administered and the administered connection is due to be active.

Agent

An agent is a member of a hunt group. The term "ACD agent" is used to specify that the hunt group in question is an ACD split.

Announcements

Announcements are prerecorded messages that give the caller information. If the first announcement given to a caller is played before the call is queued to any split, it is a Forced First Announcement.

Answer-Back Code

A code dialed to retrieve a parked call.

Answer Supervision

Answer supervision is a signal, sent from the switch to the serving CO, that tells the CO to begin recording toll charges for a call. However, while a call waits in queue, AT&T ACD software often delays sending answer supervision so that the ACD owner/operator or caller can avoid excessive toll charges. Call vectoring commands work in a similar manner; several steps behave differently depending on whether answer supervision has been supplied. The call vectoring commands that most notably affect or depend upon answer supervision are the announcement, busy, disconnect, and wait commands.

Appearance

See Call Appearance.

Applications Processor

A minicomputer used to support several user-controlled applications such as traffic analysis and electronic documentation.

ARS/AAR Digit Conversion

ARS Digit Conversion replaces the initial digit of a number dialed after the ARS access code (or of a call crossed over from AAR) with another digit string. The call is then muted as if the modified digits were dialed after the AAR access code. AAR Digit Conversion replaces the initial digits of a number dialed after the AAR access code with another digit string. The call is then routed as if the modified digits were dialed after the AAR access code.

ASAI Adjunct

Any adjunct that makes use of the ASAI (Adjunct/Switch Application Interface) protocol, including adjuncts that perform Inbound Call Management (ICM) functions.

Asynchronous Data Transmission

A scheme for transmitting data where each character is preceded by a start bit and followed by a stop bit, permitting data elements to occur at irregular intervals. This type transmission is advantageous when transmission is not regular (characters typed at a keyboard).

Asynchronous Data Unit (ADU)

A data communications equipment (DCE)-type device that allows direct connection between EIA-232-C equipment and the system digital switch.

Attendant

The operator of the attendant console. Individual who handles the processing of various types of internal, incoming, and outgoing calls. May also manage and monitor some of the system's operations.

Attendant Console

An electronic call-handling position with pushbutton control. Used by attendants to answer and place calls and to manage and monitor some of the system operations.

Audio Information Exchange (AUDIX)

A unit that provides voice mail service to users.

Authorization Codes

Authorization Codes have three purposes. First, certain trunk groups that receive incoming calls can be administered to require authorization codes for incoming calls. Secondly, Remote Access to PBX Services users can be required to enter an authorization code instead of, or in addition to, a barrier code when accessing local PBX facilities. Lastly, they can be used for rerouting ARS/AAR calls that were blocked because the default FRL was not high enough to continue routing.

Auto-In

Auto-in is an ACD agent work mode that makes the agent available to receive calls and allows the agent to receive a new ACD call immediately after disconnecting from the previous call.

Automatic Alternate Routing (AAR)

Used to route calls over alternate private and public network facilities in the order of preference specified by the customer. The preference order is specified by translating a group of trunks into a routing pattern that is used for calls to a particular network location. AAR also provides privilege checking that allows the customer to restrict access to particular trunk groups to a limited set of users. This is done by comparing the FRL of the calling party with the FRL of the particular routing pattern entry.

Automatic Call Distribution

Termination of incoming calls to agents that have been administered into hunt groups called splits. Calls are distributed according to the algorithm selected by the customer, either UCD or Direct Department Calling (DDC).

Automatic Route Selection

Automatic Route Selection provides automatic routing of outgoing calls over customer trunk facilities with transparent access to an Inter-Exchange Carrier (IXC) based on the Direct Distance Dialing (DDD) number. Alternate trunk groups are selected during peak demand periods when the primary trunk groups are busy. The alternate trunk groups are selected in decreasing order of preference for making the calls.

Automatic Route Selection Partitioning

ARS Partitioning provides for up to eight different user groups having access to their own or shared trunk groups in ARS patterns.

Automatic Trunk

A trunk that does not require the sending or receiving of digits. The destination is predetermined. A request for service on the trunk (called a seizure) is sufficient to route the call. The normal destination of an automatic trunk is the system attendant group.

Automatic Restoration

A service that restores disrupted connections between access endpoints (non-signaling trunks) and data endpoints (devices that connect the switch to data terminal communications equipment). This restoration is achieved within seconds of a service disruption so that critical data applications can remain operational.

Auxiliary Work

Auxiliary Work is an ACD agent work mode that makes the agent unavailable to receive any ACD calls for the specified split. It is used when an agent is performing non-ACD related activities, such as going on a break

Available Agent

An ACD agent is considered available to receive a call through an ACD split if logged in and not on a tail, and in the Auto-In or Manual-In mode.

B

Barrier Code

A security code used with the Remote Access feature to prevent unauthorized access to the system.

Basic Call Management System

The BCMS provides traffic reports for ACD. The reports area subset of the adjunct CMS applications.

Bearer Capability Class (BCC)

The Bearer Capability Class (BCC) identifies the type of a call, for example, voice and different types of data. Determination of BCC is based on the call originator's characteristics for non-ISDN endpoints and on signaling in the D-channel for ISDN endpoints. There are five Bearer Capability Classes (0-4), based on voice and data Modes 0, 1, 2, 3 capabilities.

Bit (Binary Digit)

One unit of information in binary notation (having two possible states or values, 0 or 1).

Bridge (Bridging)

The appearance of a voice terminal's extension at one or more other voice terminals.

Bridged Appearance

A call appearance on a voice terminal that matches a call appearance on another voice terminal for the duration of a call.

Buffer

A circuit or component that isolates one electrical circuit from another. Typically, a buffer holds data from one circuit or process until another circuit or process is ready to accept the data.

Bus

A multiconductor electrical path used to transfer information over a common connection from any of several sources to any of several destinations.

Bus, Time Division Multiplex

See Time Division Multiplex Bus.

Business Communications Terminals

An advanced series of semi-intelligent terminals.

Bypass Tie Trunks

One-way, outgoing tie trunks from a tandem switch to a main switch in an ETN. These trunks, provided in limited quantities, are used as a "last-choice" route when all trunks to another tandem switch are busy. Bypass tie trunks are used only if all applicable inter-tandem trunks are busy.

Byte

A sequence of bits, 8 bits long, that is usually shorter than a word. A word is 16 bits long.

C

Call Appearance, Attendant Console

Six buttons, labeled a through f, used to originate, receive, and hold calls. Each button has two associated lamps to show the status of the call appearance.

Call Appearance, Voice Terminal

A button labeled with an extension number used to place outgoing calls, receive incoming calls, or hold calls. Two lamps next to the button show the status of the call appearance or status of the call.

Call Classification

The function of receiving and/or detecting call progress tones and call outcomes (ringing, busy, answered) and notifying the adjunct responsible for recording the call status. Call classification may be done by the switch automatically or done by the user listening to call progress tones.

Call Management System (CMS)

An adjunct processor that collects data from an ACD and generates reports to be stored or displayed concerning status of agents, splits, and trunks.

Callback Call

A call that is automatically returned to a voice terminal user who activated the Automatic Callback or Ringback Queuing feature.

Call Vector

A set of up to 15 vector commands to be performed for an incoming or internal call.

Call Vectoring

A flexible call handling method of managing incoming calls that gives unique treatment to a particular call type based on dialed number or trunk terminating to a vector. Vector commands dictate the treatment given to callers.

Call Vector Step

Vectors are made up of 15 steps that are processed sequentially unless a "GoTo" vector command is encountered or vector processing stops.

Call Waiting Ringback Tone

A low-pitched tone identical to the ringback tone except the tone decreases the last 0.2 second. This tone notifies the attendant that the Attendant Call Waiting feature has been activated and that the called user is aware of the waiting call.

Call Work Code

A number, up to 16 digits, entered by ACD agents to record the occurrence of customer-defined events (such as account codes, social security numbers, or phone numbers) on ACD calls.

Central Office

The location housing telephone switching equipment that provides local telephone service and access to toll facilities for long-distance calling.

Central Office Codes

The first three digits of a 7-digit public network telephone number. These codes are typically numbered from 200 through 999.

Central Office Trunk

A telecommunications channel that provides access from the system to the public network through the local central office.

Channel

A communications path for transmitting voice and data.

Circuit Pack Vintage

The vintage of a circuit pack is a numeric tag to identify the Read Only Memory that resides on that pack. It is used to facilitate recordkeeping and maintainability.

Class of Restriction (COR)

A number (0 through 63) that specifies the restrictions assigned to voice terminals, voice terminal groups, data modules, and trunk groups.

Class of Service (COS)

A number (0 through 15) that specifies if voice terminal users can activate the Automatic Callback, Call Forwarding-All Calls, Data Privacy, or Priority Calling features.

Common Control Switching Arrangement (CCSA)

A private telecommunications network using dedicated trunks and a shared switching center for interconnecting company locations.

Confirmation Tone

Three short bursts of tone followed by silence; indicates that the feature activated, deactivated, or canceled has been accepted.

Console

See Attendant Console.

Controlled Outward Restriction

A calling party with this feature activated is restricted from dialing outgoing exchange network calls. Restricted calls are routed to the attendant, coverage, or intercept.

Controlled Restrictions

The controlled restrictions are distinct from the calling and called restrictions administered through the COR. Controlled Restrictions are activated by an attendant or by a station with the "Console Permission" COS. The controlled restrictions are activated for an individual terminal or for a predefined group of terminals. The COR is used to predefine a group of terminals.

Controlled Station-to-Station Restriction

A calling party or called party with this feature activated is restricted from placing or receiving station-to-station calls. Restricted calls are muted to the attendant, coverage, or intercept.

Controlled Termination Restriction

A called party with this feature activated is restricted from receiving any calls. Restricted calls are routed to the attendant, coverage, or intercept. This form of controlled restriction is used in the Do Not Disturb feature to prevent termination to a user. It may be overridden only by a priority call.

Controlled Total Restriction

A calling party or called party with this feature activated is restricted from placing or receiving any calls. DID or APLT calls to a station with Controlled Total Restriction active are routed to the attendant or to a recorded announcement. All other calls are routed to intercept.

Coverage Answer Group

A group of up to eight voice terminals that ring simultaneously when a call is redirected to it by Call Coverage. Anyone of the group can answer the call.

Coverage Call

A call that is automatically redirected from the called party's extension number to an alternate answering position when certain coverage criteria are met.

Coverage Path

The order in which calls are redirected to alternate answering positions.

Coverage Point

The attendant positions (as a group), Direct Department Calling group, Uniform Call Distribution group, Coverage Answer Group, a voice terminal extension, or Message Center Hunt Group designated as an alternate answering position in a coverage path.

Covering User

The person at an alternate answering position who answers a coverage call.

D

Data Channel

A communications path between two points used to transmit digital signals.

Data Communications Equipment (DCE)

The equipment on the network side of a communications link that provides all the functions required to make the binary serial data from the source or transmitter compatible with the communications channel.

Data Endpoint

Data endpoints refer to the various Data Terminal Equipment (DTE) and Data Communications Equipment (DCE) that are connected to the system. They are associated with an extension. In the switching environment, they can be analog or digital endpoints serving as the interface between a host computer port and the switch, or between a data network and the switch.

Data Terminal Equipment (DTE)

Equipment comprising the source or link of data, or both, that also provides communication control functions (protocol). DTE is any piece of equipment at which a communications path begins or ends.

D-Channel Pair

Refers to a pair of D-Channels, where one is designated as the primary D-Channel, and the other is the secondary D-Channel.

Delay-Dial Trunk

After a request for service (called a seizure) is detected on an incoming trunk, the system sends a momentary signal followed by a steady tone over the trunk. This informs the calling party that dialing can start. This type of trunk allows dialing directly into the system. That is, the digits are received as they are dialed.

Designated Voice Terminal

The specific voice terminal to which calls, originally directed to a certain extension number, are redirected. Commonly used to mean the "forwarded-to" terminal when Call Forwarding All Calls is active.

Dialed Number Identification Service

Provides an indication (display) to the answering agent of the service (or project) or number called by the caller so that agents grouped in one split may answer calls appropriately for many different services.

Dial Repeating Tie Trunk

A telecommunications channel between two private switching systems. The number dialed is repeated or dialed-in at the distant end.

Digital Communications Protocol (DCP)

Defines the capability for providing simultaneous voice and data transmission over the same channel.

Digital Data Endpoints

Digital data endpoints include the following:

- 510D Personal Terminal or 513 Business Communications Terminal
- 7404D Terminals
- 7406D or 7407D Equipped With Optional Data Module Base
- Asynchronous Data Units
- Digital Terminal Data Modules
- (Modular) Processor Data Modules
- (Modular) Trunk Data Modules
- 3270 Data Modules
- Internal Data Channels

Digital Multiplexed Interface (DMI)

Specifies the remote interface requirements for multiplexed data communications between a host computer and a private switching system.

Digital Terminal Data Module (DTDM)

An adjunct to 7403D or 7405D voice terminals. Provides the required interface between the system and a data terminal such as a 513 BCT.

Digital Trunk

A circuit in a telecommunications channel designed to handle digital voice and data.

Digit Conversion

A process used to convert specific dialed numbers into other dialed numbers. ARS uses Digit Conversion to convert public network numbers (ARS) to private network numbers (AAR) in order to save toll charges. AAR uses Digit Conversion to convert private network numbers (ARS) to other private or public network numbers (AAR).

Direct-Agent Calls

A special type of ACD call directed to a particular agent, rather than any available agent in the split.

Direct Agent Calling (DAC)

An entry is provided in the COR to allow originating and receiving of direct-agent calls. A direct-agent call is a special type of ACD call directed to a particular agent, rather than any available agent in the split. A calling party that is DAC restricted is denied the ability to originate direct-agent calls. A called party that is DAC restricted is denied the ability to receive direct-agent calls. Restricted calls are muted to intercept.

Direct Extension Solution (DXS)

An option at the attendant console that allows an attendant direct access to voice terminals by pressing a Group Select button and a DXS button.

Distributed Communications System (DCS)

The Distributed Communications System is a private network of distributed switches linked together with trunks to form a DCS complex. The switches in the complex are connected with data links that allow call processing information to be passed from one switch to another. This provides feature transparency so that certain features are perceived by users to be the same whether they are talking to a station served by the same switch or to a station on a different switch in the complex.

DS1

A DS1 trunk multiplexes up to 24 64-kbps digital channels over a 4-wire interface for data or voice. The 64-kbps capacity is achieved by having 8000 frames of 8-bit data per second. This trunk can be used as a timing reference for the switch or by an external Stratum 3 clock.

E

Electronic Tandem Network (ETN)

A special tandem tie trunk network that has automatic call routing capabilities based on the number dialed and most preferred route available at the time the call is placed. Each switch in the network is assigned a unique RNX and each voice terminal is assigned a unique extension number.

End-to-End Signaling

The transmission of touch-tone signals generated by dialing from a voice terminal user to remote computer equipment. A connection must first be established over an outgoing trunk from the calling party to the computer equipment. Then additional digits can be dialed to transmit information to be processed by the computer equipment.

Enhanced Private Switched Communications Service (EPSCS)

A private telecommunications network that provides advanced voice and data telecommunications services to companies with many locations.

Expansion Interface

Used to connect an EPN to the Processor Port Network TDM Bus and provide connectivity between the TDM buses on the PPN and EPNs. This circuit pack carries synchronization information between the two cabinets that it connects and also provides connectivity between the packet buses on the PPN and EPNs.

Expansion Port Network

A cabinet that contains port circuit packs but no processor. Up to two EPNs may be connected to a PPN.

Extension Number

A 1- to 5-digit number assigned to each voice terminal, certain system groups, data modules, and various other facilities on the switch. The number is used in call processing to access the facility.

External Call

A connection between a system user and a party on the public telephone network or on a tie trunk.

F

Facility

A general term used for the telecommunications transmission pathway and associated equipment.

Facility Restriction Level (FRL)

The FRL is used to determine the accessibility of user trunk groups in a routing pattern. When searching for a routing pattern, the originator's FRL must be greater than or equal to the FRL for the accessed trunk group.

FAS/NFAS

Facility Associated Signaling (FAS) describes the type of signaling in which an ISDN DS1 interface D-Channel carries signaling information for only those B-Channels located on the same DS1 facility as the D-Channel. Non-Facility Associated Signaling describes the type of signaling in which an ISDN DS1 interface D-Channel carries signaling information on one DS1 facility for B-Channels located on another DS1 facility.

Feature

A specificity defined function or service provided by the system.

Feature Button

A labeled button on a voice terminal or attendant console designating a specific feature.

Foreign Exchange (FX)

A central office other than the one providing local access to the public telephone network.

Foreign Exchange Trunk

A telecommunications channel that directly connects the system to a central office other than its local central office.

Foreign Numbering Plan Area Code

An area code other than the local area code. The foreign area code must be dialed to call outside the local geographical area.

G

Ground-Start Trunk

On outgoing calls, the system transmits a request for services to the distant switching system by grounding the trunk ring lead. When the distant system is ready to receive the digits of the called number, that system grounds the trunk tip lead. When the system detects this ground, the digits are sent. (Tip and ring are common nomenclature to differentiate between ground-start trunk leads.) On incoming calls, detection of ground on the ring lead is sufficient to cause the call to route to a predetermined destination, normally the system attendant group. No digits are received.

H

Handshaking Logic

A format used to initiate a data connectbn between two data module devices.

Home Numbering Plan Area Code

The local area code. The area code does not have to be dialed to call numbers within the local geographical area.

Hospitality

Hospitality features, such as Automatic Wakeup and Do Not Disturb, are those required for the administration of stations considered to be “guests” or “clients” of the customer. Additionally, these features allow the customer to mnnect the system to a PMS, which is used to collect and manage guest room information.

Hospitality Parameter Reduction

Provides the user with a reduced set of system parameters. Namely, the number of trunks, number of hunt-groups, number of pick-up groups, and the number of coverage paths.

Host

A customer processor that, when connected to the switch using ASAI, for example, is considered an adjunct.

Hunt Group

A group of stations which answer calls that are distributed using a routing algorithm. An ACD split is a special type of hunt group.

Immediate-Start Tie Trunk

After establishing a connection with the distant switching system for an outgoing call, the system waits a nominal 65 milliseconds before sending the digits of the called number. This allows time for the distant system to prepare to receive the digits. Similarly, on an incoming call, the system has less than 65 milliseconds to prepare to receive the digits.

Information Exchange

The exchange of data between users of two different systems (DEFINITY Generic 1 and host computer) over a local area network

Initialization and Administration System (INADS)

An AT&T Network Operations Division (NOD) services alarm reception and trouble tracking system.

Integrated Services Digital Network—Primary Rate Interface (ISDN-PRI)

ISDN-PRI is an internationally accepted standard interface that provides end-to-end digital connectivity. It uses a high-speed interface which provides service-independent access to switches services. It uses a T1 interface and supports 23 64-kbps voice or data B-Channels and one 64-kbps signaling D-channel (on the 24th channel when using FAS) or 24 B-Channels on one DS1 facility and a D-Channel on a separate DS1 facility (when using Non-facility Associated Signaling) for a total bandwidth of 144 MB.

Intercept Tone

An alternating high and low tone; indicates a dialing error or denial of the service requested.

Interface

A common boundary between two systems or pieces of equipment.

Interflow

Interflow allows calls directed or redirected to one split to be redirected to an external destination.

Internal Call

A connection between two users within the system.

Interworking

The linking of dissimilar networks to provide an end-to-end call. In public networks, interworking might include a Common Channel Interoffice Signaling (CCIS) path which does not support ISDN. In private networks, a tandeming PBX might interface an existing analog facility to an ISDN facility to provide calls end-to-end.

Intraflow

Intraflow allows calls that are unanswered within a predefined time, at a split to be redirected to other splits on the same switch.

In-Use Lamp

A red lamp on a multi-appearance voice terminal that lights to show which call appearance will be selected when the handset is lifted or which call appearance is active when a user is off-hook

Inward Restriction

A called party that is inward restricted is denied the ability to receive incoming exchange network calls, attendant originated calls, and attendant completed calls. A call that is denied because of termination or inward restriction is routed to intercept, the attendant, or a recorded announcement depending on the calling party. If the calling party is a DID, Advanced Private Line Termination (APLT), or tie trunk the call is routed to the attendant or recorded announcement, at the customer's option. In all other cases the call is routed to intercept.

ISDN-Basic Rate Interface (ISDN-BRI)

ISDN-BRI is one of the two standard ISDN frame formats. The ISDN-BRI is typically used to connect telephones or work stations to an ISDN-capable switching system. It provides one 16-kbps signaling and data channel (D-channel) and two 64-kbps information channels (B-channels). The primary purpose of the signaling channel is to convey Q.931 message-oriented signaling for the setup and tear down of calls carried by the B-Channels on the BRI interface.

For G1V5.0 system, ISDN-BRI is only used to provide an ASAI link to the switch in support of the Inbound Call Management feature.

ISDN Gateway

An adjunct network that forwards information from the switch to a host for data screen delivery to agents in an ACD split.

L

Link

A transmitter-receiver channel or system that connects two locations.

Listed Directory Number

A LDN is a publicly listed telephone number for an organization. These numbers are administered as special extensions, each associated with a 15-character name. DID for any of these extensions causes routing of the call to the attendant group with the terminating attendant display indicating an LDN call and the name associated with the dialed extension.

Local Clock

The tone/clock circuit pack that has a local oscillator that can be used to maintain timing for the switch if DS1s are not used or if both DS1 primary and secondary clock references fail.

Lookahead Interflow

Lookahead Interflow is an enhancement to Call Vectoring that checks the status of remote ACD locations that calls may be interflowed to. For example, calls under vector control will not interflow to a remote ACD location that is not accepting calls. This capability will be provided via the use of a private or public network ISDN-PRI connection with the receiving switch having the capability to reject or accept the call.

Loop-Start Trunk

After establishing a connection with the distant switching system for an outgoing call, the system waits for a signal on the loop formed by the trunk leads before sending the digits of the called number. On incoming calls, the received request for service is sufficient to cause the call to route to a predetermined destination, normally the system attendant group. No digits are received.

M

Main/Satellite/Tributary

A Main switch provides: interconnection, via tie trunks, with one or more subtending switches, called Satellites; all attendant positions for the Main/Satellite configuration; and, access to and from the public network. To a user outside the complex, a Main/Satellite configuration appears as a single switch, with a single LDN. A Tributary is a switch, connected to the Main via tie trunks, but which has its own attendant position(s) and its own LDN.

Manual-In

Manual-In is an ACD agent work mode that makes the agent available to receive calls and automatically puts the agent into After Call Work mode after disconnecting from an ACD call.

Manual Terminating Line Service

A called party that has manual terminating line service is only allowed to receive calls originated or extended by an attendant. Termination of all other calls is denied.

Message Center

An answering service for calls that might otherwise go unanswered; an agent accepts and stores messages for later retrieval.

Message Center Agent

A member of the Message Center Hunt Group who takes and retrieves messages for voice terminal users.

Miscellaneous Station Restriction

A calling party can be disallowed access to preselected groups of terminals. The term miscellaneous refers to this grouping of terminals. Any or all terminals can be in a given miscellaneous station restriction group. This restriction is controlled by the CORs assigned to the calling party and to the terminal being accessed. All terminals in a given miscellaneous station restriction group must be assigned the same COR. A calling party is restricted by its COR which denies permission to call the terminal's COR. Restricted calls are routed to intercept.

Miscellaneous Trunk Restriction

A calling party can be disallowed access to preselected groups of trunk groups. The term miscellaneous refers to this preselected grouping of trunk groups. Any or all trunk groups can be in a given miscellaneous trunk restriction group. This restriction is controlled by the CORs assigned to the calling party and to the trunk group being accessed. All trunk groups in a given miscellaneous trunk restriction group must be assigned the same COR. A calling party is restricted by its COR which denies permission to call the trunk group's COR. Restricted calls are routed to intercept.

Modular Processor Data Module (MPDM)

See Processor Data Module.

Modular Trunk Data Module (MTDM)

See Trunk Data Module.

Modem Pooling

Provides shared-use conversion resources that eliminate the need for a dedicated modem when a data module accesses, or is accessed by, an analog line or trunk.

Multi-Appearance Voice Terminal

A terminal equipped with several call appearance buttons for the same extension number. Allows the user to handle more than one call, on that same extension number, at the same time.

Multiplexer

A device for simultaneous transmission of two or more signals over a common transmission medium.

N

Network

An arrangement of inter- and/or intra-location circuits designed to perform specific functions.

Non-Facility Associated Signaling

See FAS/NFAS.

O

Offhook

Term used for the switchhook up, or the Speakerphone turned on, or the Headset plugged in. For multi-appearance stations, the term offhook also includes choosing a call appearance on which to originate the call.

Off-Net

Off-Net facilities (for example, WATS, FX, or CO trunk groups) are not part of a customer's private network but may be utilized to carry private network calls. Whenever the call uses Off-Net facilities, it is called an Off-Net call.

Onhook

Term used for a depressed switchhook, the Speakerphone turned off, or the Headset unplugged. Also, depression of the Disconnect button sends an onhook message, followed by an offhook message.

On-Net

On-Net facilities (for example, TTI trunks, private ISDN-PRI trunks) are dedicated to a customer's private network. Whenever the call is routed over the customer's private trunking facilities, it is called an On-Net call.

Outward Restriction

A calling party that is outward restricted is denied the ability of directly accessing the exchange network .

P

Paging Trunk

A telecommunication channel used to access an amplifier for loudspeaker paging:

Partitioned Group Number (PGN)

A Partitioned Group Number (PGN) is a number (1-8) assigned to different groups of users. The PGN is used to determine the AAR/ARS services to be provided on a call. A PGN is not used directly to restrict the user, it is only used as a method to indicate the choice of call routing tables (AAR/ARS Analysis forms) to be used to process a call.

Pickup Group

A group of individuals authorized to answer any call directed to an extension number within the group.

Port

A designation of the location of a circuit that provides an interface between the system and lines and/or trunks.

Port Network

May be either an EPN or a PPN.

Primary Reference

A DS1 circuit pack facility used as a reference for clock timing synchronization; the primary reference should be chosen to be a more reliable DS1 link.

Primary/Secondary D-Channel

The D-Channel Backup feature requires that one D-Channel be administered as the *primary* D-Channel, and that a second D-Channel be administered as the *secondary* D-Channel. The reason for this distinction is that at certain times during the D-Channel Backup procedures, both D-Channels are in the same state, and it is imperative in order to avoid a deadlock situation that both switches at opposite ends of the PRI select the same D-Channel to be put into service. In these cases, the primary D-Channel is given precedence over the secondary D-Channel.

Principal (User)

In terms of Call Coverage, a person for whom a call was originally intended.

Priority Queuing

An entry is provided in the COR to allow priority queuing. The queuing priority of a call can be raised such that when a call with increased priority is queued, it is queued ahead of calls of normal priority. This priority queuing is for non-vector controlled calls and non-direct-agent calls.

Private Networking

A Private Network is a network of customer switches linked with private lines that carry voice and data communication throughout the network. A Private Network is characterized by a uniform numbering plan that includes the assignment of a unique number to each station in the network. The Automatic Alternate Routing (AAR) Analysis table is used to route private network calls.

Private Network Office Code (RNx)

The first three digits of a 7-digit private network number. These codes are numbered 220 through 999, excluding any codes that have a 0 or 1 as the second digit.

Privileged Station

A station that has been administered with console privileges allowing it to perform functions normally associated with an attendant.

Processor Data Module (PDM)

Provides the required interface between the system and an Electronics Industries Association (EIA) computer or data terminal.

Processor Port Network (PPN)

The cabinet in which the switch processor resides. Only one of these per switch is allowed.

Property Management System (PMS)

A stand-alone computer that lodging and health services organizations use for services such as reservations, housekeeping, billing, etc.

Protocol

A set of conventions or rules governing the format and timing of message exchanges to control data movement and correction of errors.

Public Network

The network that can be openly accessed by all customers for local or longdistance calling.

Q

Queue

An ordered sequence of calls waiting to be processed.

Queuing

The process of holding calls in order of their arrival to await connection to an attendant, to an answering group, or to an idle trunk.

R

Random Access Memory (RAM)

A storage arrangement whereby information can be retrieved at a speed independent of the location of the stored information.

Read Only Memory (ROM)

A storage arrangement primarily for information retrieval applications.

Recall Dial Tone

Three short bursts of tone followed by steady dial tone; it indicates that the system has completed some action (such as holding a call) and is ready to accept dialing.

Redirection Criteria

The information administered for each voice terminal's coverage path that determines when an incoming call is redirected to coverage.

Remote Access Barrier Code

Used with remote access trunks to limit access to the System. When a call comes in on a remote access trunk, the user may be required to dial a barrier code to gain access. If the user dials an invalid barrier code, the call is muted to intercept. A barrier code has an associated COR that defines call restriction features and a COS that defines feature restrictions. The use of barrier codes is a customer option. If barrier codes are used, they apply to all remote access trunk groups in a given system. If they are not required, the default barrier code's COR is used. There may be more than one barrier code in the system.

Remote Home Numbering Plan Area Code (RHNP)

A foreign numbering plan area code that is treated as a home area code by the ARS feature. Calls can be allowed or denied based on the area code and the dialed central office code rather than just the area code. If the call is allowed, the ARS pattern used for the call is determined by these six digits.

Removable Mass Storage Subsystem (RMSS)

A tape storage device that stores the software information for the system.

Reorder Tone

A fast-busy tone repeated 120 times a minute; indicates that at least one of the facilities, such as a trunk or a digit transmitter, required for the call was not available at the time the call was placed.

Restricted Call List

A list of digit strings that can be assigned to any COR.

Routing Pattern

A routing pattern is a list of up to six trunk groups that ARS and AAR use to try to select a trunk when muting outgoing calls. There are a maximum of 254 routing patterns that can be assigned. The patterns can be shared between the AAR and ARS features. Trunk groups are arranged in the routing pattern in descending order of desirability (most desirable first). If the first choice route (usually the least expensive facility) is unavailable, a call is attempted over the second choice route. This procedure continues until an available route is found, or all muting preferences are exhausted.

S

Secondary Reference

The secondary reference is a backup DS1 facility used as a clock timing reference for synchronization in case the primary reference fails or has too many slips.

Service Observing

Service observing allows users to monitor calls. Once the feature is activated and a station call is being monitored, the activating user has the capability to toggle back and forth between a listen-only connection and a listen/talk connection on the call. Subsequent calls at the station can be monitored without having to reactivate the feature.

Signaling Groups

Refers to a group of B-Channels for which a given D-Channel (or D-Channel Pair) will carry the signaling information.

Single-Line Voice Terminals

Voice terminals served by a single-line tip and ring circuit (for example, Models 500, 2500, 7101A, and 7103A).

Software

A set of computer programs that accomplish one or more tasks.

Special Information Tones (SIT)

Tones that precede certain recorded announcements provided by the network. Such announcements are used when the caller encounters a condition that requires an explanation (for example, "no such number").

Split

A condition whereby a caller is temporarily separated from a connection with the attendant. This split condition automatically occurs when the attendant, active on a call, presses the Start button.

Status Lamp

A green lamp that shows the status of a call appearance or a feature button by the state of the lamp (lighted, flashing, fluttering, broken flutter, or dark).

Stratum 3 Clock

This is the most accurate clock supported by the system; it is duplicated and has a hold-over of 24 hours. The implementation requires external hardware to provide timing to the TN780 Tone/Clock circuit pack.

Stroke Counts

Method used by ACD agents to record up to nine customer-defined events on a per call basis when the CMS is active.

Suffix

A suffix is an alphabetic character (for example, A, B, or C) that is sometimes appended to a circuit pack code (TN number). It indicates additional feature functionality of a particular circuit pack.

Switchhook

The button(s) on a voice terminal located under the receiver.

Switch Processing Element (SPE)

The complex of circuit packs that provide high level processing functions within the switch.

Synchronous Data Transmission

A scheme for sending and receiving data, where data elements may occur only at regular specified times. Sending and receiving devices must operate in step with each other.

System Manager

A person responsible for specifying and administering features and services for the system.

System Reload

A process that allows stored data to be written from a tape into the system memory (normally after a power outage).

T

Tandem Switch

A switch within an ETN that provides the logic to determine the best route for a network call, possibly modifies the digits outputted, and allows or denies certain calls to certain users.

Tandem Through

The switched connection of an incoming trunk to an outgoing trunk without human intervention.

Tandem Tie Trunk Network (TTTN)

A private network that interconnects several customer switching systems by dial-repeating tie trunks. Access to the various systems is dictated by codes that must be individually dialed for each system.

Terminal Alarm Notification

A method of customer alarm notification using lamps associated with feature buttons on multi-appearance digital or hybrid voice terminals or attendant console terminals or both.

Termination Restriction

A called party that is termination restricted is denied the ability to receive any calls at any time.

Third Party Call Control

ASAI capabilities that allow a host/adjunct to take control of a call, to transfer the call, etc.

Tie Trunk

A telecommunications channel that directly connects two private switching systems.

Time Division Multiplex Bus

A special bus that is time shared by preallocating short time slots to each transmitter on a regular basis. In a PBX, all port circuits are connected to the time division multiplex bus permitting any port to send a signal to any other port.

Time Division Multiplexed (TDM)

A switching technique of splitting a large bandwidth into many small channels (called time slots) in the time domain.

Time of Day Routing (TOD)

Time of Day Routing allows the routing of calls economically, based on time of day and day of week. The customer has the option of changing the routing plan up to six times each day for each day of the week. The choice of routing plan is made from a pool of routing plans. These routing plans are used in conjunction with the routing of ARS and AAR calls.

Toll Restriction

A calling party that is toll restricted cannot make calls to certain numbers defined on the Toll List unless the number is contained on a UCL defined on the Toll Analysis form and associated with the calling party's COR.

Tone/Clock

The Tone/Clock circuit pack provides tone generation and timing for the TDM bus. The active Tone/Clock circuit pack is currently providing service for the cabinet in a duplicated system whereas the standby tone/clock is a backup circuit pack in the event the active tone/clock fails.

Tone Ringer

A device with a speaker, used in electronic voice terminals to alert the user.

Trunk

A telecommunications channel between two switching systems.

Trunk Data Module

Provides the required interface between the system and a data set (modern) or data service unit connected to a private or switched data line.

Trunk Group

Telecommunications channels assigned as a group for certain trunking functions.

U

Uniform Dial Plan (UDP)

A feature that allows a unique 4- or 5-digit number assignment for each terminal in a multi-switch configuration, such as a DCS or Main/Satellite/Tributary configuration.

Unrestricted Call List

A list of digit strings that can be accessed by a user.

V

Vector Controlled Split

A hunt group or ACD split is vector controlled when the field "Vector" is enabled on the Hunt Group form. Only vector-controlled hunt groups or vector-controlled ACD splits are accessible via the vector commands "queue to main" and "check backup".

Vector Directory Number (VDN)

A number that can be dialed to access a vector. Several VDNs may map into the same vector.

Vectoring (Basic)

Allows the customer to specify the treatment of calls coming into the switch based upon the dialed number. Vectoring (Basic) allows incoming calls to be placed in a queue for a hunt group or split and may specify the delay treatment given to the caller.

Vectoring (Prompting)

Allows a call vector to collect digits from a user and use that information in routing the call.

Voice Terminal

A single-line or multi-appearance voice terminal (telephone).

W

Wide Area Telecommunications Service (WATS)

A service that allows calls to a certain area or areas for a flat-rate charge based on expected usage.

Wink-Start Tie Trunk

After establishing a connection with a distant switching system for an outgoing call, the system waits for a momentary signal (wink) before setting the digits of the called number. Similarly, on an incoming call, the system sends the wink signal when ready to receive digits.

Write Operation

The process of putting information onto a storage medium such as magnetic tape.

Z

Zip Tone

Single burst tone is provided with auto-answering operation when an agent answers an ACD call.

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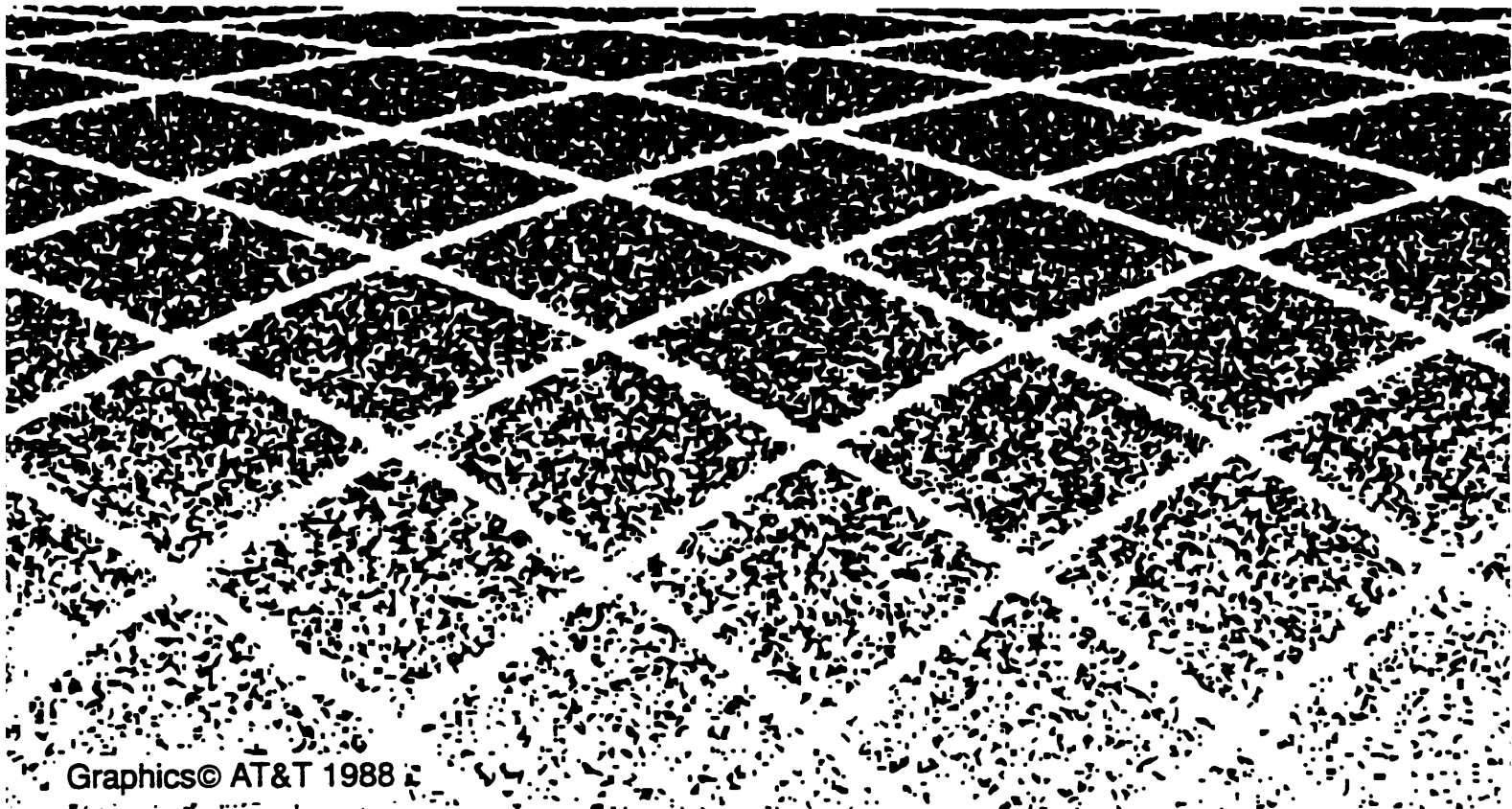
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AT&T 555-230-500ADD
Issue 1, January 1992
Dated September 1992

DEFINITY[®] Communications System Generic 1 and Generic 3 System Management Addendum



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Issue 1, September 1992

Published by
BCSystems Product Documentation Development Group
AT&T Bell Laboratories
Middletown, NJ

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INTRODUCTION

Overview

This addendum provides specific information for performing a System Backup for a DEFINITY® Communications System Generic 3s (G3s) switch release. Its function is as a supplement to, and is intended to be used in conjunction with, the information already provided in *DEFINITY Communications System Generic 1 and Genetic 3 System Management*, 555-230-500, Issue 1.

For additional information on DEFINITY Generic 3s, refer to *DEFINITY Generic 3s Feature Description*, 555-230-201ADD2, and *DEFINITY Communications System Generic 3s System Description*, 555-230-200ADD.

Organization

Note: **In the interest of brevity, only G3s specific information is provided in this addendum. Refer to the appropriate section in *DEFINITY Communications System Generic 1 and Generic 3 System Management*, 555-230-500, Issue 1, when performing other administration tasks.**

This document consists of the following chapters:

Introduction — **Describes this document.**

System Backup for DEFINITY G3s — **Describes the tasks involved in backing up the DEFINITY G3s system, including translations, saving and restoring recorded announcements, memory card backup, and memory card errors.**

SYSTEM BACKUP FOR DEFINITY G3s

The backup system for the DEFINITY G3s system employs a Memory Card. It does not have a duplication option. In case of a power failure, the system translations and announcements can be restored using the Memory Card.

Save Translation

Translation data can be routinely saved every 24 hours. However, if your translation data changes frequently, you should also save translations frequently to assure that you have the most up-to-date information. You should also alternate the Memory Cards.

Warnings: “save translation” should not be performed if any Memory Card alarm conditions occur or if the system is having problems.

It is recommended that “save translation” be performed after business hours so dial tone delays will not be encountered.

Save and Restore Recorded Announcements

Enter the `save announcements` command to save the recorded announcements in the system on the system Memory Cards.

Note: A 4 Mb Memory Card is required to save and restore announcements.

The system takes about 30 minutes to complete this task. Because the administration terminal is unavailable during this time, it is recommended that this command be used after business hours. During this time period, the administration terminal cannot be used to administer the system until the transfer is complete; however, all other administration terminals, if provided, are allowed to perform administration procedures.

Enter the `restore announcements` command to restore the recorded announcements from the Memory Card back into system memory. The system takes about 22 minutes to complete this task. The system performs an audit to make sure that the number of announcements on the announcement board match the announcements administered in the switch.

The working copy of the announcements are stored on the announcement board. You should also make a backup copy on a 4 Mb Memory Card.

Backup for a G3s System

One Memory Card is provided with the system. It is recommended that you purchase additional cards. It is recommended that backup copies of the translation data be made weekly, or after many changes have been made to the translation data. This will minimize the loss of recent translation data changes if the Memory Card in the system becomes damaged.

The following procedure can be used to make a backup Memory Card:

1. Remove the Memory Card from the Netcon circuit pack.
2. Insert the backup Memory Card into the Netcon circuit pack.
3. Login to the administration terminal.
4. Verify that the screen displays:

enter command:

5. Enter `save translation` and press **[RETURN]**. This command instructs the system to take all translation information in memory and transfer it into the Memory Card.

6. The screen displays:

```
save translation                               SPE A
                                         SAVE TRANSLATION
Processor           Command Completion Status   Error Code
SPE_A              Success                     0
Command successfully completely
enter command:
```

FIGURE 1-1. Save Translation—SPEA

7. Verify that the `Success` message appears in the `Command Completion Status` field. If it does not, an error message will appear instead.
8. If the system is equipped with a TN750 Announcement circuit pack, the recorded announcements can be saved using the `save announcements` commands. Enter `save announcements` and press **[RETURN]**.

9. The screen displays:

```
save announcements
                                SAVE ANNOUNCEMENTS

Processor                        Command Completion Status      Error Code

SPE_A                            Success                          0

Command successfully completely
enter command:
```

FIGURE 1-2. Save Announcements Screen—SPEA

- 10. Verify that the *Success* message appears in the *Command Completion Status* field. If it does not, an error message will appear instead.**
- 11. Remove the backup Memory Card from the slot in which it is installed and insert the original Memory Card into that slot.**
- 12. Label the backup Memory Card with the date and time it was updated. A special notation may be put on the card to clearly distinguish it from other Memory Cards.**
- 13. Store the backup Memory Card in a secure place.**

Errors

Memory Card-related failures may occur for two reasons: the card is at fault or the Netcon circuit pack is at fault. When these failures occur, the system responds with “error messages.” The following is a list of the error messages and recommended responses to each. Check for proper operation after each response is done.

1. Saved copy of announcements is unusable

The file on the Memory Card is unusable.

Response: Use another backup card if you have one. Instances such as this illustrate the importance of having backup cards.

2. Cannot access file storage area

The wrong Memory Card may be installed.

Response: Check to see which Memory Card is installed. If the correct one is installed, test it. If it passes, and the problem still persists, escalate the problem to the next level of support.

3. Cannot turn on 12 volt power supply

Indicates something maybe wrong with the Netcon circuit pack (where the power supply is).

Response: Test the 12-volt power supply by running the `test card-mem` command from the system administration terminal. Executing the command causes the system to run Test 701 (12 Volt Power Supply Test). If the power supply test fails, replace the Netcon circuit pack. To do this, follow the instructions in the Maintenance manual for MO 12v-PWR. Then, repeat whichever command failed.

4. Invalid directory on memory card

Indicates the Memory Card needs refreshing.

Response: Run `test card-mem` and be sure all tests pass.

5. Memory Card is unusable

Indicates something is wrong with the Memory Card.

Response: Replace the Memory Card.

6. Could not write to Memory Card.

Indicates something maybe wrong with the Memory Card.

Response: Test the Memory Card (run `test card-mem`.)

7. Cannot access mass storage system now; try again later

Indicates the storage system is in use.

Response: Try again later.

8. Request is incompatible with currently running operations

Indicates the storage system is in use.

Response: Try again later.

9. Memory Card is not inserted in the system

Response: Insert the Memory Card.

10. Cannot access file; wrong type of Memory Card is inserted

You have not inserted the correct Memory Card for the operation you wish to perform. Load the appropriate Memory Card.

11. File size exceeded

You have run out of file space.

Response: Call your AT&T representative.

12. Upgrade Memory Card inserted

You may have inserted the System Upgrade Memory Card instead of the 4 Mb Memory card.

Response: Insert the 4 Mb Memory Card.

13. Memory Card is write-protected

Indicates the switch on the top side of the Memory Card is incorrectly set.

Response: Move the switch to the correct position with the point of a pencil or similar object. Refer to the figure below:

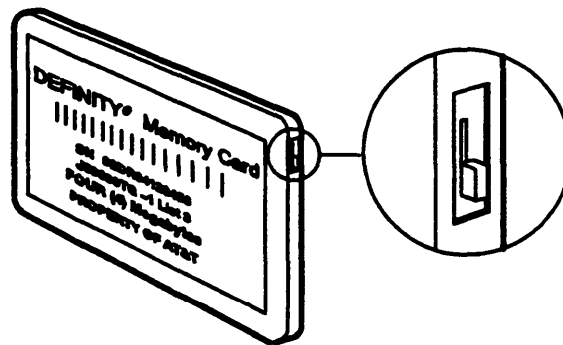


FIGURE 1-3. Memory Card Write-Protect Switch

14. Transmission problem; please try later

There is a problem communicating with the announcement board.

Response: Check to see that the announcement board has been correctly administered. Use the change data `<extension_number>` command. Verify that the announcement board is in the correct slot in the processor. If the location of the announcement board is correct, use the display data `<extension_number of netcon data modules>` to verify that the data modules are allowed to originate calls to the announcement board. Use display data `<extension_number of the announcement data module>` to verify that the data module on the announcement board is allowed to terminate calls from the netcon data modules. Note that the netcon data modules must also be allowed to call each other. If all is correct, wait and retry.

15. Command has been aborted; please try later

The command has been pre-empted.

Response: Try again later.

16. Saved copy of translation is unusable

The copy of the translations on your Memory Card is faulty.

Response: Run the save translations command again.

17. Unknown type of Memory Card

The software does not know what type of Memory Card is inserted in the slot. This can occur if the card is unformatted or if the current vintage of the software does not recognize that type of Memory Card.

Response: Replace the Memory Card with a formatted Memory Card that the software can recognize.

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AT&T 555-230-500ADD2
Issue 1, January 1992
Dated March 1993

DEFINITY[®] Communications System Generic 1 and Generic 3

System Management Addendum (G3vs Customers Only)

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Issue 1, January 1992
Dated March 1993

Published by
GBCSystems Product Documentation Development Group
AT&T Bell Laboratories
Middletown, NJ 07748-0076

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About this Document

Overview

This addendum provides specific information for performing a System Backup for a DEFINITY® Communications System Generic 3vs (G3vs) switch release. Its function is as a supplement to, and is intended to be used in conjunction with, the information already provided in *DEFINITY Communications System Generic 1 and Generic 3 System Management*, 555-230-500, Issue 1.

For additional information on DEFINITY Generic 3vs, refer to *DEFINITY Generic 3vs Feature Description*, 555-230-201ADD4, and *DEFINITY Communications System Generic 3vs System Description*, 555-230-200ADD2.

Organization



NOTE:

In the interest of brevity, only G3vs specific information is provided in this addendum. Refer to the appropriate section in *DEFINITY Communications System Generic 1 and Generic 3 System Management*, 555-230-500, Issue 1, when performing other administration tasks.

This document consists of the following chapters:

Introduction — Describes this document.

System Backup for DEFINITY G3vs — Describes the tasks involved in backing up the DEFINITY G3vs system, including translations, saving and restoring recorded announcements, memory card backup, and memory card errors.

SYSTEM BACKUP FOR DEFINITY G3vs

1

The backup system for the DEFINITY G3vs system employs a Memory Card. The standard Memory Card is a 1 Mb card for systems without a TN750 announcement circuit pack. It does not have high or critical reliability. In case of a power failure, the system translations and announcements can be restored using the Memory Card.

Save Translation

Translation data can be automatically saved every 24 hours. However, if your translation data changes frequently, you should also save translations frequently to assure that you have the most up-to-date information.

⇒ Warnings:

“Save transition” should not be performed if any Memory Card alarm conditions occur or if the system is having problems (such as processor, memory, or netcon alarms).

It is recommended that you save translation after business hours to prevent dial tone delays. Or, if your business operates 24 hours, you should save translation during slow business hours.

The following procedure is used to save transitions to the Memory Card:

1. Verify that the Memory Card is in the TN777B Netcon circuit pack.
2. Log into the administration terminal.
3. Verify that the screen displays:

enter command:

4. Enter `save translation` and press `[RETURN]`. This command instructs the system to take all translation information in memory and transfer it into the Memory Card.
5. The screen displays:

```
save translation                                SPE A
                                                SAVE TRANSLATION

Processor          Command Completion Status      Error Code
SPE_A              Success                       0

Command successfully completely
enter command:
```

Screen 1-1. Save Translation Screen—SPEA

6. Verify that the `success` message appears in the `Command Completion status` field. If it does not, an error message will appear instead.
7. If the system is equipped with a TN750 Announcement circuit pack, the recorded announcements can be saved using the `save announcements` commands. Enter `save announcements` and press `[RETURN]`.
8. The screen displays:

```
save announcements
                                                SAVE ANNOUNCEMENTS

Processor          Command Completion Status      Error Code
SPE_A              Success                       0

Command successfully completely
enter command:
```

Screen 1-2. Save Announcements Screen—SPEA

9. Verify that the `success` message appears in the `Command Completion status` field. If it does not, an error message will appear instead.

One Memory Card is provided with the system. If a backup Memory Card has been purchased, the following procedure can be used to make a backup copy of the system translations and/or announcements.

1. Remove the Memory Card from the TN777B Netcon circuit pack.
2. Insert the backup Memory Card into the TN777B Netcon circuit pack.
3. Log in to the administration terminal.
4. Verify that the screen displays:

enter command:

5. Enter `save translation` and press **[RETURN]**. This command instructs the system to take all translation information in memory and transfer it into the Memory Card.
6. The screen displays:

```
save translation                                SPE_A
                                                SAVE TRANSLATION
Processor                                       Command Completion Status   Error Code
SPE_A                                         Success                       0

Command successfully completely
enter command:
```

Screen 1-3. Save Translation Screen-SPEA

7. Verify that the **success** message appears in the **Command Completion status** field. If it does not, an error message will appear instead.
8. If the system is equipped with a TN750 Announcement circuit pack, the recorded announcements can be saved using the `save announcements` commands. Enter `save announcements` and press **[RETURN]**.

9. The screen displays:

```
save announcements

                                SAVE ANNOUNCEMENTS

Processor                        Command Completion Status      Error Code
SPE_A                            Success                          0

Command successfully completely
enter command:
```

Screen 1-4. Save Announcements Screen-SPEA

10. Verify that the **Success** message appears in the **Command Completion status** field. If it does not, an error message will appear instead.
11. Remove the backup Memory Card from the slot in which it is installed and insert the original Memory Card into that slot.
12. Label the backup Memory Card with the date and time it was updated. A special notation may be put on the card to clearly distinguish it from other Memory Cards.
13. Store the backup Memory Card in a secure place.

Save and Restore Recorded Announcements

Enter the save announcements command to save the recorded announcements in the system on the system Memory Cards.

 **NOTE:**

A 4 Mb Memory Card is required to save and restore announcements.

The system takes about 30 minutes to complete this task. Because the administration terminal is unavailable during this time, it is recommended that this command be used after business hours (or during slow business hours for a 24 hour business operation). During this time period, the administration terminal cannot be used to administer the system until the transfer is complete; however, all other administration terminals, if provided, are allowed to perform administration procedures.

Enter the **restore announcements** command to restore the recorded announcements from the Memory Card back into system memory. The system takes about 22 minutes to complete this task. **The system performs an audit to make sure that the number of announcements on the announcement board match the announcements administered in the switch.**

The working copy of the announcements are stored on the announcement board. You should also save announcements on 4 Mb Memory Cards.

Errors

Memory Card-related failures may occur for two reasons: the card is at fault or the (TN777B) Netcon circuit pack is at fault. When these failures occur, the system responds with “error messages.” The following is a list of the error messages in alphabetical order and recommended responses to each. Check for proper operation after each response is done. You should also check the hardware error log for errors, and then use the maintenance manual or complete repair procedures.

1. **Cannot access file storage area**

The wrong Memory Card may be installed.

Response: Check to see which Memory Card is installed. If the correct one is installed, test it. If it passes, and the problem still persists, escalate the problem to the next level of support.

2. **Cannot access file; wrong type of Memory Card is inserted**

You have not inserted the correct Memory Card for the operation you wish to perform. *Response:* Load the appropriate Memory Card.

3. **Cannot access mass storage system now; try again later**

Indicates the storage system is in use.

Response: Try again later.

4. **Cannot turn on 12 volt power supply**

Indicates something may be wrong with the (TN777B) Netcon circuit pack (where the power supply is).

Response: Test the 12-volt power supply by running the **test card-mem** command from the system administration terminal. Executing the command causes the system to run Test 701 (12 Volt Power Supply Test). If the power supply test fails, replace the (TN777B) Netcon circuit pack. To do this, follow the instructions in the Maintenance manual for MO 12v-PWR. Then, repeat whichever command failed.

5. **Command has been aborted; please try later**

The command has been preempted.

Response: Try again later.

6. **Could not write to Memory Card.**

Indicates something may be wrong with the Memory Card.

Response: Test the Memory Card (run **test card-mem**).

7. File size exceeded

You have run out of file space.

Response: Call your AT&T representative.

8. Invalid directory on memory card

Indicates the Memory Card needs refreshing, or that something is wrong with the Memory Card.

Response: Run **test card-mem** and be sure all tests pass. Replace the Memory Card.

9. Memory Card is not inserted in the system

You have not inserted the memory card.

Response: Insert the Memory Card.

10. Memory Card is write-protected

Indicates the switch on the top side of the Memory Card is incorrectly set.

Response: Move the switch to the correct position with the point of a pencil or similar object. Refer to the figure below:

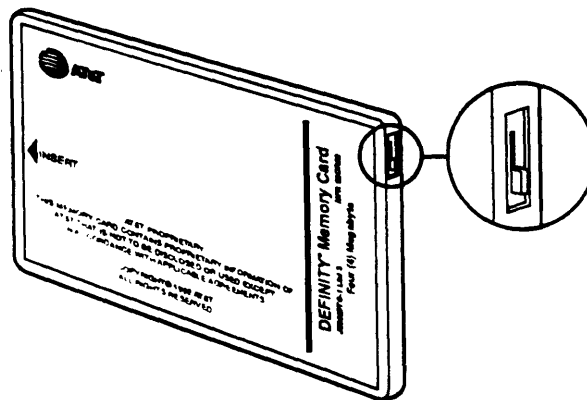


Figure 1-1. Memory Card Write-Protect Switch

11. Memory Card is unusable

Indicates something is wrong with the Memory Card.

Response: Replace the Memory Card.

12. **Request is incompatible with currently running operations**

Indicates the storage system is in use.

Response: Try again later.

13. **saved copy of announcements is unusable**

The file on the Memory Card is unusable.

Response: Use another backup card if you have one. Instances such as this illustrate the importance of having backup cards.

14. **saved copy of translations is unusable**

The copy of the translations on your Memory Card is faulty.

Response: Run the **save translations** command again.

15. **Transmission problem; please try later**

There is a problem communicating with the announcement board.

Response: Check to see that a data module, "Type: announcement" has been administered correctly. Use the list data-module command to determine if the data-module "Type: announcement" is administered. The data module "Type: announcement" is administered using the **add data-module** <extension_number of data module type announcement>. If adding or checking the data module type announcement, verify that the "Board:" field is translated with network, carrier and slot where the announcement circuit pack is installed. Check that the Class of Restriction (COR) of the data module "Type announcement" is allowed to terminate calls from the data-modules "Type: netcon." The data modules "Type Netcon:" with their COR can be identified by using the "list data-module" command. Note the netcon data modules must also have their COR's translated that they can call each other.

16. **Unknown type of Memory Card**

The software does not know what type of Memory Card is inserted in the slot. This can occur if the card is unformatted or if the current vintage of the software does not recognize that type of Memory Card.

Response: Replace the Memory Card with a formatted Memory Card the software can recognize.

17. **Upgrade Memory Card inserted**

You may have inserted the System Upgrade Memory Card instead of the 4 Mb Memory Card.

Response: Insert the 4 Mb Memory Card.

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