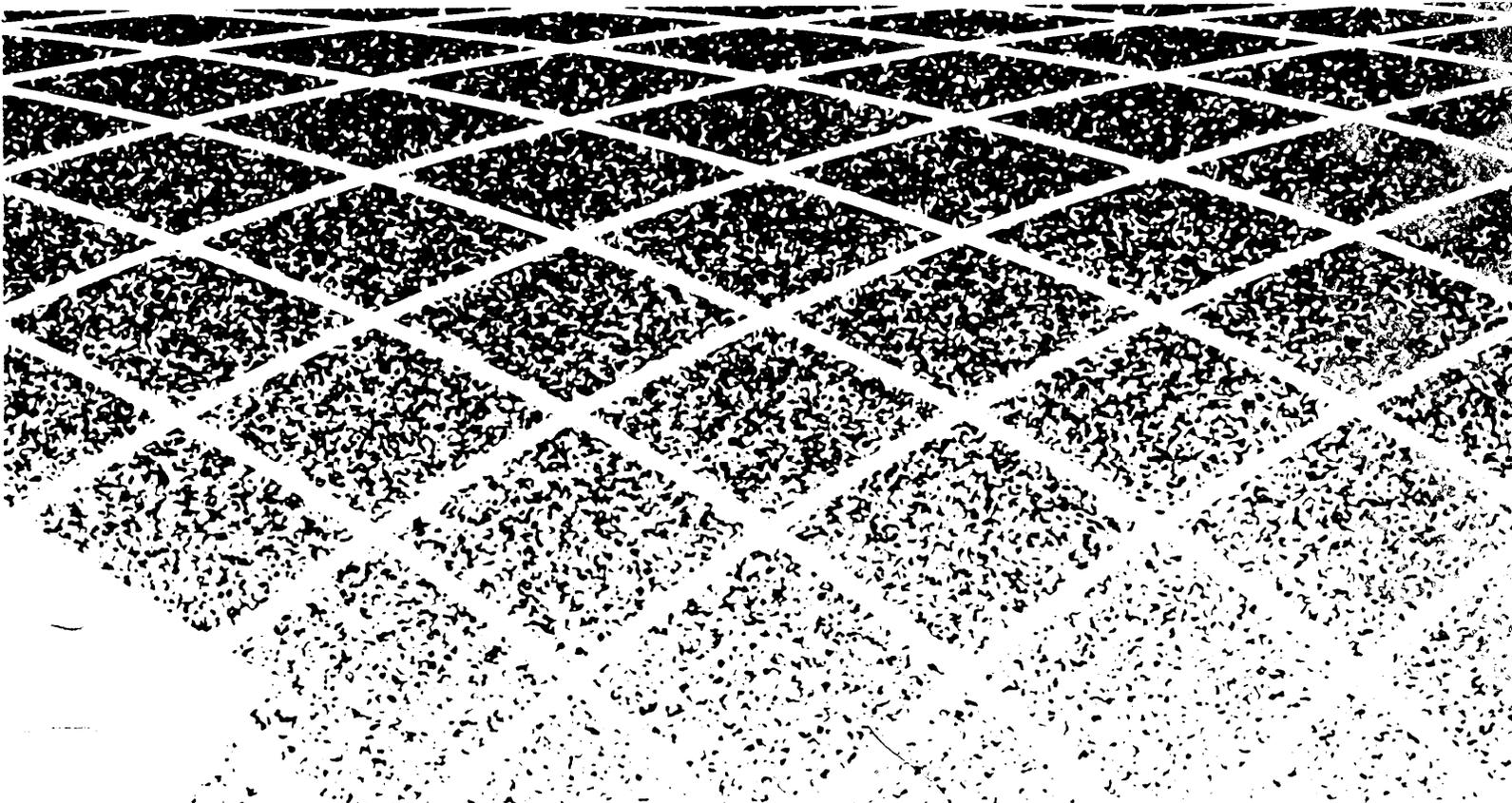




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# **Call Management System Release 3.0**

Installation and Maintenance For WGS Computers



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# **Chapter 1**

## **Introduction**

# General Information

This document was written for AT&T service personnel who install, set up, and maintain the AT&T WGS computers that will be running *Release 3.0* of the Call Management System software application.

The installation of the prerequisite hardware/software should have been completed by the factory before the computer was shipped to the customer.

**Note** The factory hardware/software installation procedures can be found in Appendix E, "Factory Hardware/Software Installation Requirements."

This document is used primarily as a guide by Tier 1 technicians to do the following on-site tasks for the Release 3.0 CMS software:

- Verify that all the prerequisite hardware/software has been installed on the AT&T 6386 WGS computer.
- Connect and set up the terminals and printers.
- Connect and set up the peripherals associated with the Remote Management Package. These peripherals include:
  - Remote Console
  - Uninterruptible Power Supply
  - Silent Knight Autodialer\* (optional).
- Install the hardware connection between the WGS computer and an AT&T switch.

This document is also used by a Release 3.0 CMS trained engineer located at the Technical Support Center (TSC) to do the following remote tasks:

- Set up the Release 3.0 CMS software on a WGS computer (this is done in conjunction with the on-site technician)
- Install the Release 3.0 CMS-related software packages (Vectoring, Forecasting, and Graphics) on a WGS computer
- Test the Release 3.0 CMS software for acceptance

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\* Registered trademark of Silent Knight Security Systems.

- Upgrade the Release 3.0 CMS software
- Maintain the Release 3.0 CMS software
- Troubleshoot the Release 3.0 CMS software.

You can help us improve the next issue of this document by filling out the feedback form located at the front of this document.

# How the Release 3.0 Call Management System Works

The Release 3.0 Call Management System (Release 3.0 CMS) is a software application that has been designed to run on the AT&T WGS (80386 based) computers.

The Release 3.0 CMS software is used by business customers who have an AT&T telecommunications switch and who receive a large volume of telephone calls that are processed through the Automatic Call Distribution (ACD) feature of the switch. The Release 3.0 CMS software and the AT&T switch communicate through a hardware link that allows the switch to transfer ACD information to the Release 3.0 CMS host computer system.

The Release 3.0 CMS software compiles, formats, and stores the information received from the ACD into a database that can be viewed on-line by the customer. The customer can monitor the real-time ACD activities via the CMS host computer and the Release 3.0 software to determine if the ACD should be reconfigured to provide the most efficient service possible for the calling public.

In a Release 3.0 CMS environment, the CMS host computer can be connected to the following AT&T telecommunications switches:

- AT&T DEFINITY\* Communications System Generic 3r
- AT&T DEFINITY Communications System Generic 3i
- AT&T DEFINITY Communications System Generic 2, Issue 2.1
- AT&T DEFINITY Communications System Generic 2, Issue 2.2
- AT&T System 85, R2V4, Issue 1.0 or later
- AT&T DEFINITY Communications System Generic 1, Issue 1.1.

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\* Registered trademark of AT&T.

# How the Release 3.0 CMS Software Application Is Installed

To simplify the installation process, the prerequisite hardware/software should have already been installed at the factory before the computer was shipped to the customer. The remaining tasks required to install the Release 3.0 CMS software application have been divided into on-site tasks and remote tasks.

The on-site tasks are performed by a Tier 1 technician at the customer's location while the remote tasks are performed by an engineer located at the Technical Support Center (TSC).

**Note** Although this document points out the different installation tasks performed by the on-site and remote site technicians, it can be used to do both the on-site and remote tasks at the customer's location.

## Performing the On-Site Tasks

After unpacking and setting up the AT&T 6386 WGS computer, the on-site technician is also responsible for doing the following additional tasks:

- Verifying that the prerequisite hardware boards have been properly installed
- Verifying that the prerequisite software packages (UNIX\* System V Operating System, X.25 Network Interface software, INFORMIX† SQL database software, and the Remote Management Utilities) have been installed
- Connecting the peripheral equipment (display terminals and printers)
- Installing the hardware connection (link connection) between the CMS host computer and the switch

**Note** A switch technician should be on-site to connect the link from the CMS host computer to the switch and to administer the switch, if necessary.

- Connecting the CMS host computer to the Technical Support Center
- Programming the Silent Knight Autodialer
- Turning the system over to the TSC

These on-site tasks must be completed *before* a engineer located at the TSC can set up the Release 3.0 CMS software.

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\* Registered trademark of AT&T.

† INFORMIX is a registered trademark of Informix Software, Inc.

## Performing the Remote Tasks

After the on-site technician has completed the on-site tasks, the technician at the TSC will be responsible for doing the following Release 3.0 CMS installation tasks:

- Setting up the Release 3.0 CMS software (See Chapter 3)
- Installing the Release 3.0 CMS-related software packages (See Chapter 3)
- Turning the Release 3.0 CMS over to the customer (See Chapter 5, "Turning CMS Over to the Customer").

**Note** An on-site technician will be required at the customer's location to install and remove (as needed) cartridge tapes and floppy disks during a remote setup of the Release 3.0 CMS software.

**Note** After the on-site technician has done the on-site tasks, the remote engineer can set up the Release 3.0 CMS software from the TSC by logging into the customer's console port via the Remote Management Package (Remote Maintenance Card) and doing the Release 3.0 CMS software setup procedures, which are documented in the "Setting Up the CMS Software" section of Chapter 3.

## Escalating a Problem

This section contains the escalation procedures that an AT&T service technician should use when a problem arises during or after the Release 3.0 CMS installation. Escalation procedures that should be followed by the customer are also included.

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### How a Technician Escalates a Problem During or After the Installation

If you encounter a hardware or software problem during or after the Release 3.0 CMS installation while you are at the customer's location, you should do the following:

1. Try to fix the problem immediately.
2. If you find that you cannot solve the problem, escalate the problem by calling the Technical Support Center (TSC) at 1-800-248-1234.
3. Provide the technical support personnel at the TSC with the customer's name, the password for the *root* login ID on the customer's CMS host computer, the phone number of the customer's dial-in port, and a description of the problem.

If the technicians at the TSC cannot solve the customer's problem, they will escalate the problem to a Tier 4 technician in the Field Support Organization of the AT&T Bell Laboratories.

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### How the Customer Escalates a Problem After Installation

After the installation, the customer can escalate an ACD switch feature, WGS hardware, or Release 3.0 CMS software problem **by calling the AT&T ACD/CMS Helpline at 1-800-344-9670**. The problem will be reported and a trouble ticket will be generated so the problem can be escalated through the services organization.

**Note** The customer will be prompted to identify the type of problem (ACD, 6386 WGS hardware, or Release 3.0 CMS) and will be connected to the appropriate service organization.

If a customer feels that the problem is not being resolved in a timely manner, the customer should contact the Systems Consultant (SC) who will then escalate the problem through the Marketing Branch Office (MBO) or the Services Organization.

# Understanding Terminal Dialog

While doing some of the procedures in this document, you will have to use a terminal to enter a command or a response to a computer message. The information that you enter on the terminal and receive from the computer is known as *terminal dialog*. When terminal dialog is used, it will usually be set apart from the surrounding text like this:

```
# vi <filename>
```

Angle brackets are used to show parts of the dialog that are customer dependent or session dependent. For example, to execute the **vi** editor command on a file called *junk*, you could replace `<filename>` with *junk* as follows:

```
# vi junk
```

Always terminate a response to a computer message by pressing the [ RETURN ] key.

## Other Documents You May Need

You may need to reference the following documents while installing the Release 3.0 CMS software application:

- *AT&T 6386/25 Work Group System SCSI User's Guide* (562-200-103, Issue 2)
- *AT&T 6386E/33 Work Group System Model S Technical Reference Manual Operational and Service Related Tasks Volume 2* (305-915, Issue 1)
- *UNIX System V/386 Release 3.2.3 Operations/System Administration Guide*
- *UNIX System V/386 FACE User's/Administrator's Guide*
- *AT&T 3B2 Computer and 6386 Work Group System SCSI Installation Manual* (305-011)
- *AT&T DEFINITY Communications System Generic 3r Implementation* (555-230-651, Issue 1)
- *AT&T DEFINITY Communications System Generic 3r Maintenance* (555-230-105, Issue 1)
- *AT&T DEFINITY Communications System Generic 3r Upgrades and Additions* (555-230-106, Issue 1)
- *AT&T DEFINITY Communications System Generic 3r Wiring* (555-204-XXX, Issue 1)
- *AT&T DEFINITY Communications System Generic 3i Implementation* (555-230-650, Issue 1)
- *AT&T DEFINITY Communications System Generic 2 Administration of Features and Hardware* (555-104-507, Issue 1)
- *AT&T System 85 Feature Translations Service Manual Release 2, Version 4* (555-103-107, Issue 1)
- *AT&T DEFINITY Communications System Generic 1 and Generic 3i Wiring* (555-204-111)
- *AT&T DEFINITY Communications System Generic 1 and Generic 3i Installation and Test* (555-204-104, Issue 2)
- *AT&T DEFINITY Communications System Generic 1 and Generic 3i Maintenance* (555-204-105, Issue 4)
- *AT&T DEFINITY Communications System Generic 1 Implementation Manual* (555-204-654, Issue 1)
- *AT&T DEFINITY Communications System Generic 1 Wiring Manual* (555-204-111)

- *AT&T DEFINITY Communications System Generic 1 Installation and Test (555-204-104)*
- *AT&T DEFINITY Communications System Generic 1 Maintenance (555-204-105)*

The *CMS Administration (585-215-511)* document contains detailed information on how to administer and use the Release 3.0 CMS software application. After the CMS software has been installed and the system has been turned over to the customer, the customer's CMS administrator should use the *CMS Administration* document to administer the Release 3.0 CMS software application.

## **Chapter 2**

### **Connecting the Hardware — 6386 WGS to Switch**

# General Information

After the 6386 WGS computer and the AT&T switch have been installed, follow the procedures in this chapter to:

- Connect the 705MT (console) terminal to the 6386 WGS
- Verify that the prerequisite software has been installed by the factory
- Connect additional terminals/printers to the 6386 WGS
- Connect the 6386 WGS computer to the AT&T switch
- Connect the 6386 WGS computer to the Remote Maintenance Center
- Program the Silent Knight Autodialer.

If you find that you do not have the parts required to complete any of the procedures in this chapter, refer to Tables 2-1 through 2-4 for a complete listing of the hardware and software Price Element Codes (PECs) associated with the Release 3.0 CMS for the WGS computer.

**Table 2-1: Price Element Codes for 6386 WGS CMS**

EQUIPMENT	PEC/ATTRIBUTE	COMMENTS
WGS 6386 25 SCSI Server	6950-DB4	
WGS 6386 33 SCSI Server	6950-DC2	
R3 CMS Software	1208-311/MSF13	1 to 100 agents
	1208-312/MSF13	1 to 200 agents
	1208-313/MSF13	1 to 300 agents
	1208-314/MSF13	1 to 400 agents
	1208-315/MSF13	1 to MAX agents
R3 CMS Vectoring	1208-3CV	
R3 CMS Forecasting	1208-3FC	
R3 CMS Graphics	1208-3GR	
UNIX System V	6950-BHS	Release 3.2.3
UNIX System V ISV/VAR Toolkit (Korn Shell)	1331-004	
INFORMIX SQL Software	1071-L10	Release 2.10.03J
X.25 Software	1274-XB0	Release 1.2.1
Upgrade 3B2 to 6386	1208-331	CMS Upgrade from R2 to R3

**Table 2-2: Price Element Codes for 6386 WGS CMS (Contd)**

EQUIPMENT	PEC/ATTRIBUTE	COMMENTS
GPSC-AT/E X.25 Kit	6950-CA4	
GPSC-AT/E RS-232 Cable	69627	Two port cable
Math Coprocessor	69575 69593	6386/25 MHz 6386/33 MHz
SCSI Host Adapter		
SCSI Connection Kit		
SCSI 1000 MB HDU	69626	Internal
SXM/1000 MB HDU	37982	External
2 MB SIMMS Memory Kit	69581	
4/16 MB Memory Expansion Board	69582	
IPC 1600 Ports Card	69617	
IPC 1600 Ports Cabinet	69618	
Remote Management Pkg	69601	
2400 FDX EC Modem	2224-CE0	
Uninterruptible Power Supply (UPS)	2403-036	360 VA
	2403-050	500 VA
	2403-201	1 KVA
	2403-204	2 KVA
	2403-203	3 KVA
	2403-203	5 KVA
Adapter (UPS)	69624	360 or 500 VA
	69604	1 KVA
	69612	3, 5, or 10 KVA
10 Pin In-line Connector	69628	

**Table 2-3: Price Element Codes for 6386 WGS CMS (Contd)**

EQUIPMENT	PEC/ATTRIBUTE	COMMENTS
D6AP-87 Cord	2725-06N	14 Feet
	2726-06S	25 Feet
M4AS Cable	2721-03G	7 Feet
	2721-03S	25 Feet
M4AU Cable	2721-04G	7 Feet
	2721-04S	25 Feet
Data Service Unit	2225-96B	Single modem
DATAPHONE* II Modem Stand-Alone Housing	2201-96C	9800 bps
	22631	For DATAPHONE II Modem
MPDM  RS-232 Interface Stand-Alone Housing	2161-PDM	Modular Processor Data Module (MPDM)
	21611	For MPDM
	21702	For MPDM
MTDM  RS-232 Interface Stand-Alone Housing	2162-TDM	Modular Trunk Data Module (MTDM)
	21621	For MTDM
	21702	For MTDM
ED-1E434-11, GR304	65254A/CCT01	Includes ED-1E434-11, GR13
ED-1E434-11, GR304	65254A/CCT02	Includes ED-1E434-11, GR13 and ED-1E434-11, GR342
ED-1E434-11, GR309	2726-03L	RS-232C 12 Feet
	2726-03S	RS-232C 25 Feet
	2726-03V	RS-232C 50 Feet
ED-1E367-11, GR971	64625-CBL03	RS-449 16 Feet Includes ED-1E367-11, GR970
ED-1E367-11, GR972	64625-CBL04	RS-449 29 Feet Includes ED-1E367-11, GR970
ED-1E367-11, GR973	64625-CBL05	RS-449 49 Feet Includes ED-1E367-11, GR970
ED-1E367-11, GR974	64626-CBL06	RS-449 7 Feet Includes ED-1E367-11, GR970 and ED-1E367-11, GR978
H600-362		RS-232 to RS-449 for IDI installation on Generic 1 & Generic 3i

\* Registered trademark of AT&T.

**Table 2-4: Price Element Codes for 6386 WGS CMS (Contd)**

EQUIPMENT	PEC/ATTRIBUTE	COMMENTS
ED-1E367-11, GR975	64626-CBL07	RS-449 20 Feet Includes ED-1E367-11, GR970 and ED-1E367-11, GR978
ED-1E367-11, GR976	64626-CBL08	RS-449 40 Feet Includes ED-1E367-11, GR970 and ED-1E367-11, GR978
IDI	65399A 65399A/CCT01 65399A/CCT01 65399A/CCN06	Single Common Control Dupl. Common Control Transition Cable
Switch to IDI Cable	65399A/LNG21 65399A/LNG10 65399A/LNG11 65399A/LNG12 65399A/LNG13 65399A/LNG15 65399A/LNG16 65399A/LNG17 70308/LNG50	25 Feet 35 Feet 50 Feet 75 Feet 100 Feet 150 Feet 175 Feet 200 Feet For EIA Connection to Generic 3i and Generic 1
B25A Cable	2720-01E 2720-01K 2720-01P 2720-01R 2720-01T 2720-01W 2720-01Z	5 Feet 10 Feet 15 Feet 20 Feet 30 Feet 60 Feet 100 Feet
M25B Cable	2721-02A 2721-02D 2721-02K 2721-02S 2721-02V	1 Feet 4 Feet 10 Feet 25 Feet 50 Feet

# Connecting the Console Terminal to the 6386 WGS

The 705 MT Terminal is the default console terminal. To properly set up the terminal, you may need to change some of the options on the Terminal Setup screen.

Refer to the *AT&T 705 Multitasking Terminal User's Guide* (999-300-733, Issue 2) for further instructions on how to change the options and operate the terminal.

Install the AT&T 705 MT as the console terminal. The 705 MT options should be set to the settings outlined in the following windows.

**Note** If additional information is needed, refer to the *AT&T 705 Multitasking Terminal User's Guide* (999-300-733, Issue 2).

---

## User Preferences Window

The recommended user preference options are as follows:

USER PREFERENCES	
Language	English
Lines	24
Columns	80
Reverse Video	no
Screen Saver	30 min.
Scrolling	jump
Scroll Speed	medium
Labels	on
Key Click	off
Warning Bell	on
Font Size	normal

## Communications Options Window

The recommended communications options are as follows:

COMMUNICATIONS OPTIONS		
MAIN		AUX
port 1	Port Mapping	port 2
host	Port Service	printer
9600	Speed	9600
1 bit	Stop Bits	1 bit
7 bits	Data Bits	7 bits
space	Send Parity	space
no	Check Parity	no
off	Local Echo	-
off	Encoding	-
XON/XOFF	Generate Flow	XON/XOFF
XON/XOFF	Receive Flow	XON/XOFF
240	XOFF at	240
no	Transmit Limit	-
no	Answerback on Connect	-
Main	Clear Communication Port	Aux

## General Options Window

The recommended general options are as follows:

GENERAL OPTIONS		
PRIMARY/WINDOW 1		WINDOW 2
705	Emulation	705
705	Terminal ID	705
no	Newline on LF	no
7 bits	Transmit Controls	7 bits
normal	Backspace Mode	normal
unlocked	User Features	locked
no	Conceal Answerback	no
(blank)	Answerback	(blank)

---

## Display Options Window

The recommended display options are as follows:

DISPLAY OPTIONS		
PRIMARY/WINDOW 1		WINDOW 2
off	Monitor Mode	off
block	Cursor Type	block
off	Cursor Blink	off
yes	Display Cursor	yes
bottom	Status Line Position	bottom
host	Status Line Type	host
multnatl	Character Mode	multnatl
ISO Latn	International Font	ISO Latn
on	Autowrap	on

## Connecting the Console Terminal

The 705 MultiTasking terminal is used as the console terminal for the 6386 WGS running the Release 3.0 Call Management System software application.

To connect the 705 MT (as a console terminal) to the 6386 WGS, do the following (refer to Figure 2-1):

1. Connect the AT&T Straight Thru Adapter to the 9-pin serial interface port (Connection B - COM2) on the 6386 WGS.
2. Connect one end of the modular cable to the back of the AT&T Straight Thru Adapter.
3. Connect the other end of the modular cable to Port 1 on the 705 MT.

**Note** If the 705 MT does not have a modular connection for port 1, the alternate console adapter must be used. See Figure 2-1.

To run diagnostic tests, the keyboard must be plugged into the system module keyboard connection.

Additional terminals and printers are connected to the Intelligent Ports Card (IPC) board and are administered using the UNIX FACE Administration tool. To connect (cable) additional terminals and printers, see the "Connecting Additional Terminals/Printers to the 6386 WGS" section in this chapter. To administer the associated ports on the IPC-1600 board, see the "Administering a New Terminal" or the "Administering a New Printer" section(s) of Chapter 6.

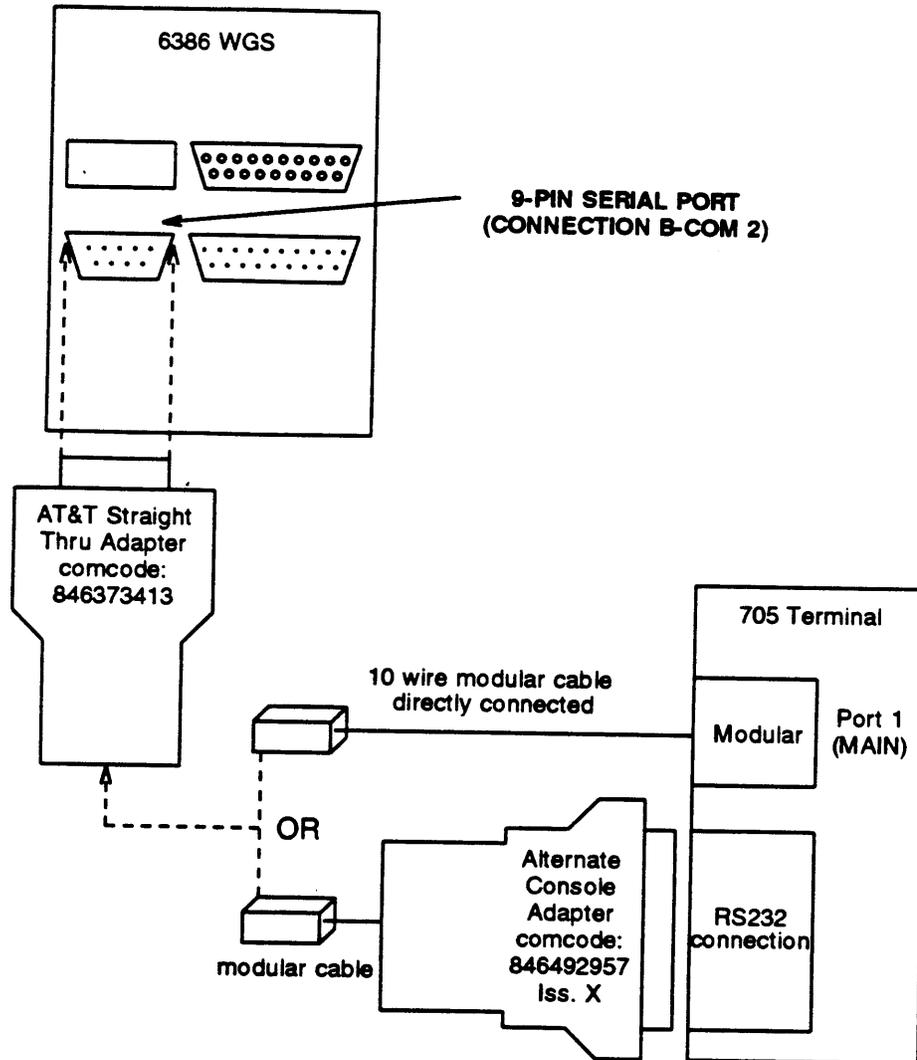


Figure 2-1: 705 MT Connection (as the CMS Console Terminal)

## Verifying Software Package Installation

Once the console terminal has been installed, you can verify which software packages are installed on the 6386 computer. First, log in as *root* at the console terminal. Then, enter the **displaypkg** command. You should see a list of packages similar to the following:

```

The following software packages have been installed:

Call Management System (3.X.Y)
Editing Package Version 2.1
FACE HELP Version 1.2
FACE Version 1.2.2
FMLI Version 1.2
INFORMIX-SQL
IPC-1600, Intelligent Ports Card - Version 1.0
KornShell Version 06/03/86a 386 Release 1.1
Network Support Utilities Package (1.2) Version 2.1
Remote Management Package (RMP) Version 1.0
SCSI Support Package - Version 2.0
Remote Terminal Package Version 2.1
UNIX System V/386 Release 3.2.3 2 to 16 User License Package
UNIX System V/386 Release 3.2.3 16 to Unlimited User Package
UNIX System V/386 Release 3.2 Version 2.3 Maintenance Disk #1
X25 Network Interface - Version 1.2.1 SL1.51.1.25
```

**If you do not see a package that should be installed, go to the appropriate section Appendix E, "Factory Hardware/Software Installation Requirements" and install it.**

# Connecting Additional Terminals/Printers to the 6386 WGS

To enhance the functionality of the Release 3.0 CMS software application, additional terminals and/or printers may be connected to the IPC-1600 fanout module.

**Note** In order for the terminal/printer to communicate properly, the IPC-1600 port (that the terminal/printer is connected to) must be properly administered using the UNIX FACE utility. See the *Administering a New Terminal* or *Administering a New Printer* section of Chapter 6.

The type of cabling used to connect the peripherals to the computer depend on the type of cabling that may already be in place.

In some cases, the customer is upgrading from an R2 CMS (3B2 computer) to an R3 CMS (6386 WGS computer). If this is the case, they may want to leave their existing terminal/printer configuration as it is. This would require that existing terminal/printer cabling (8-wire) be connected to the R3 CMS machine. See the *Connecting Terminals/Printers to the 6386 WGS - 8-Wire Cabling* section of this chapter.

**Note** If the system is being upgraded and connected to an existing printer/terminal configuration, the old terminal/printer adapters must be discarded and replaced with the PDS Terminal/Printer Adapter (comcode 846362739.)

## Connecting Terminals/Printers to the 6386 WGS - 10-Wire Cabling

In some cases, the customer configuration will connect terminals/printers to an R3 CMS (6386 WGS computer) using 10-wire modular cables. If this is the case, the customer will need the following for each terminal or printer being connected to the IPC-1600 fanout module:

- One 10-wire modular cable
- One PDS terminal/printer adapter.

To connect a terminal/printer to an R3 CMS (IPC-1600 fanout module), do the following (refer to Figure 2-2):

1. Connect one other end of the 10-wire modular cable to the appropriate port on the IPC-1600 fanout module.
2. Connect the other end of the 10-wire modular cord to the PDS terminal/printer adapter.
3. On the terminal/printer, connect the PDS terminal/printer adapter (comcode 846362739).

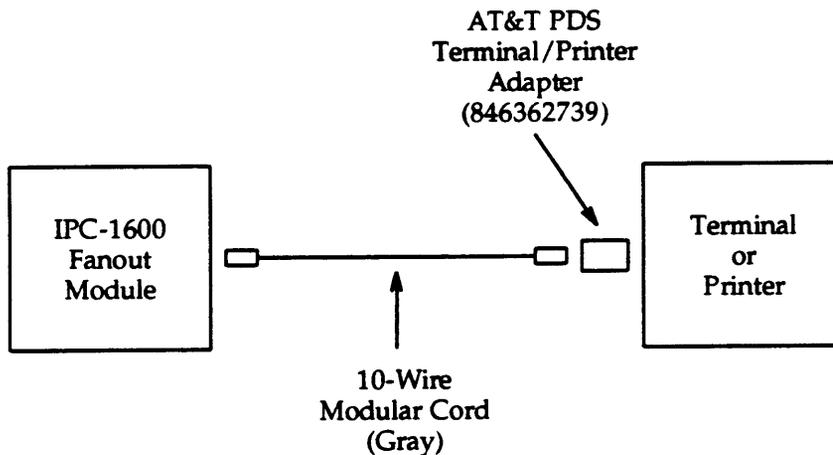


Figure 2-2: Terminal/Printer to the 6386 WGS Connection - 10-Wire Cabling

## Connecting Terminals/Printers to the 6386 WGS - 8-Wire Cabling

In some cases, the customer configuration will connect terminals/printers to an R3 CMS (6386 WGS computer) using 8-wire modular cables. If this is the case, the customer will need the following for each terminal or printer being connected to the IPC-1600 fanout module:

- Two 8-wire modular cables
- One 10-pin in-line extender
- One PDS terminal/printer adapter.

To connect a terminal/printer to an R3 CMS (IPC-1600 fanout module), do the following (refer to Figure 2-3):

1. Connect one end of an 8-wire modular cord to the appropriate port on the IPC-1600 fanout module
2. Connect the other end of an 8-wire modular cord to one end of the 10 pin in-line extender (comcode 846362804)
3. Connect the other end of the 10 pin in-line extender (comcode 846362804) to another 8-wire modular cord.
4. Connect the other end of the 8-wire modular cord to the PDS terminal/printer adapter (comcode 846362739)
5. Connect the PDS terminal/printer adapter to the back of the terminal/printer.

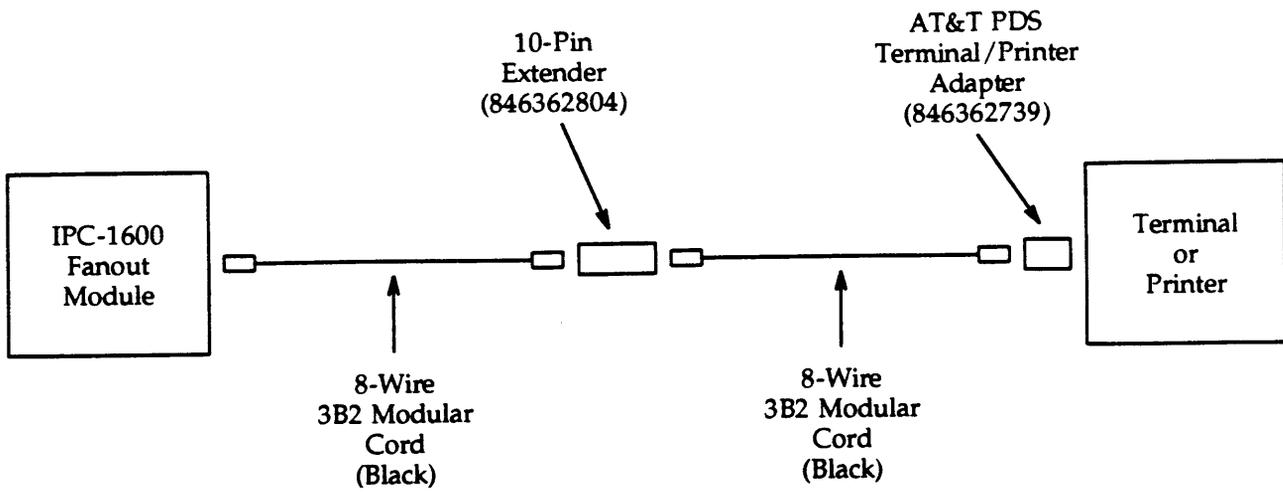


Figure 2-3: Terminal/Printer to the 6386 WGS Connection - 8-Wire Cabling

# Connecting the 6386 WGS Computer to an AT&T Switch

In order for the CMS software to work properly, the customer's 6386 WGS computer and AT&T switch must be connected together to allow them to communicate with each other. This chapter describes how to connect a 6386 WGS computer to the following AT&T telecommunications switches:

- DEFINITY Communications System Generic 3r
- DEFINITY Communications System Generic 3i
- DEFINITY Communications System Generic 2
- System 85, Release 2 Version 4 (R2V4)
- DEFINITY Communications System Generic 1.

The 6386 WGS computer connects to these AT&T switches by using a General Purpose Synchronous Controller (GPSC–AT/E).

The 6386 WGS computers are connected to the switches as follows:

- A GPSC–AT/E port connection from the 6386 WGS computer to a Packet Gateway (TN577 circuit pack) port on the Generic 3r switch.
- A GPSC–AT/E port connection from the 6386 WGS computer to a Data Communications Interface Unit (DCIU) port on the Generic 2 or System 85 switch
- A GPSC–AT/E port connection from the 6386 WGS computer to a Digital Port on the Generic 3i or Generic 1.

**Note** In addition to a Digital Port, the Generic 3i and Generic 1, require a Processor Interface.

- A GPSC–AT/E port connection from the 6386 WGS computer to the EIA connector of a Processor Interface on the Generic 3i or Generic 1.

**Note** If the EIA connector on the Processor Interface is not used, a Digital Port will be required on the Generic 3i or Generic 1.

Turn to the appropriate section in the following list for step-by-step instructions on how to connect the customer's 6386 WGS computer and switch:

- *Connecting the 6386 WGS Computer to the Generic 3r Switch*
- *Connecting the 6386 WGS Computer to the Generic 2 or System 85 Switch*
- *Connecting the 6386 WGS Computer to the Generic 3i or Generic 1 Switch.*

A switch technician should be on site to make the final connection from the 6386 WGS computer to the switch and, if necessary, to administer the switch for the ACD/CMS feature.

**Note** The 6386 WGS CMS software, which is installed later, will not be able to communicate with the switch if the ACD/CMS feature and the PGATE/DCIU/PI hardware on the switch have not been administered properly.

If the ACD/CMS feature and the PGATE/DCIU/PI hardware have not been administered properly, an experienced switch technician should use the appropriate document in the following list as a guide, if needed, to administer the switch:

- *AT&T DEFINITY Communications System Generic 3r Implementation (555-230-651)*
- *AT&T DEFINITY Communications System Generic 2 Administration of Features and Hardware (555-104-507, Issue 1)*
- *AT&T System 85 Feature Translations Service Manual Release 2, Version 3 Issue 2 (555-102-107)*
- *AT&T System 85 Feature Translations Service Manual Release 2, Version 4 Issue 1 (555-103-107)*
- *AT&T DEFINITY Communications System Generic 1 Implementation Manual (555-204-654, Issue 1).*

To administer the PGATE/DCIU/PI hardware on the switch that connects to the 6386 WGS computer, an experienced switch technician can also refer to one of the following appendices in this document:

- **Appendix A**— contains reference material about the link administration for the Generic 3i and Generic 1 switches.
- **Appendix B**— contains reference material about the DCIU link administration for the Generic 2 and System 85 switch.
- **Appendix C**— contains reference material about the link administration for the Generic 3r switch.

## Connecting the 6386 WGS Computer to the Generic 3r Switch

Use the procedures in this section to connect a port (RS-232C connection) from the GPSC-AT/E board in the 6386 WGS computer to a Packet Gateway board on the Generic 3r switch.

You can connect the 6386 WGS computer to the Generic 3r switch by using one of the following methods:

- *Using the Isolating Data Interface*

If this method is used, the maximum allowable distance between the 6386 WGS computer and the Generic 3r switch is 200 feet.

- *Using a Modular Processor Data Module*

If this method is used, the maximum allowable distance between the 6386 WGS computer and the Modular Processor Data Module (MPDM) is 50 feet. The maximum allowable distance between the MPDM and the Generic 3r is 5000 feet with 24 gauge wire and 4000 feet with 26 gauge wire.

- *Using a Private Line.*

This method uses two DATAPHONE II modems in addition to the MPDM and is required when the MPDM distance limitations have been exceeded.

## Using the Isolating Data Interface

This section describes the hardware and cables required to connect a GPSC-AT/E RS-232C port on the 6386 WGS computer to the Packet Gateway board on the Generic 3r via an Isolating Data Interface (IDI).

If this method is used, the maximum allowable distance between the 6386 WGS computer and the Generic 3r switch is 200 feet.

**Note** If the Generic 3r switch and the 6386 WGS computer are over 200 feet apart, refer to the section *Connecting the 6386 WGS Computer to the Generic 3r* for the proper cabling configuration.

Before you begin, obtain the following parts:

- GPSC-AT/E Fanout Cable
- H600-210, Group 1 (RS-232C to RS-449) cable
- Isolating Data Interface
- H600-210, Group 1, 2, 3, 4, or 5 (RS-232C to RS-449) cable

**Note** The Group number determines the length of the cable. The Group numbers associated with cable lengths are as follows:

- Group 1 - 10 feet,
  - Group 2 - 25 feet,
  - Group 3 - 50 feet,
  - Group 4 - 100 feet,
  - Group 5 - 200 feet.
- H600-347, Group 1 (RS-232C) cable

To connect the 6386 WGS computer to the Packet Gateway of a Generic 3r switch via an IDI, do the following (refer to Figure 2-4):

1. Connect the "**Port A**" or "**Port B**" plug end of the GPSC-AT/E fanout cable to the female end of an H600-210, Group 1 cable.

**Note** The female end of the GPSC-AT/E fanout cable should have been connected to the GPSC-AT/E board when it was installed on the 6386 WGS computer.

2. Connect the male end of the H600-210, Group 1 cable to the "**Out**" connector on the Isolating Data Interface unit.
3. Connect the male end of the H600-210, Group 1 cable to the "**In**" connector on the Isolating Data Interface unit.

4. Connect the female end of the H600-210, Group cable to the male end of the H600-347, Group 1 cable.

**Note** In the next step, the switch technician should make the final connection to the Packet Gateway board.

5. Connect the male end of the H600-347, Group 1 cable to the Packet Gateway board.
6. Tell the switch technician to verify that the ACD/CMS feature on the switch has been administered.

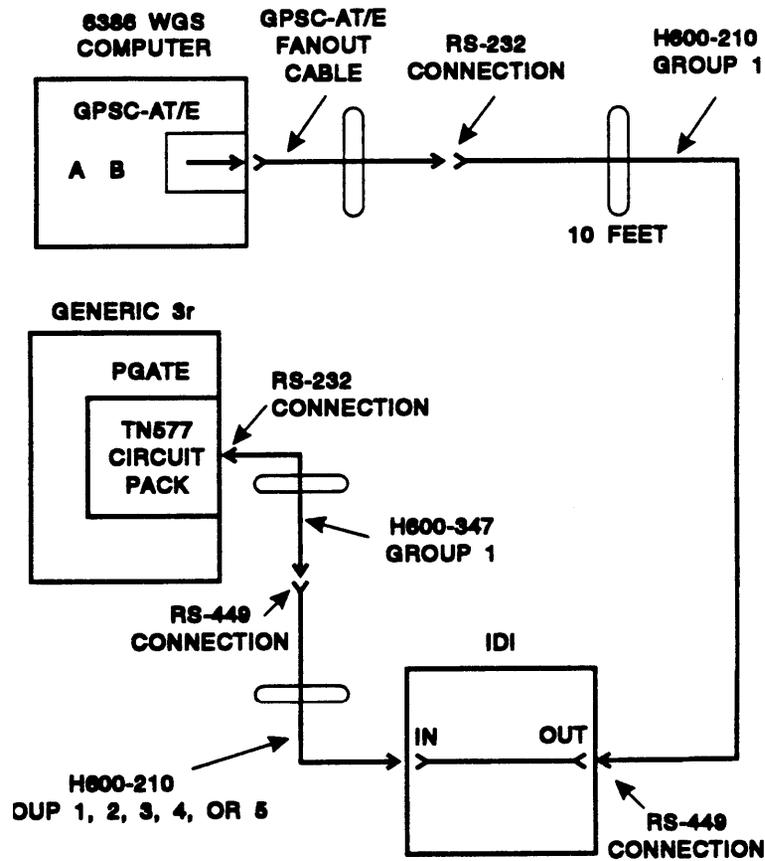


Figure 2-4: 6386 WGS Computer to Generic 3r Cabling Via the IDI

## Using a Modular Processor Data Module

If this method is used, the maximum allowable distance between the 6386 WGS computer and the Modular Processor Data Module (MPDM) is 50 feet. The maximum allowable distance between the MPDM and the Generic 3r is 5000 feet with 24 gauge wire and 4000 feet with 26 gauge wire.

Before you begin, obtain the following parts:

- GPSC-AT/E cable



If the GPSC-AT/E fanout cable is not long enough to reach the MPDM, obtain an ED-1E434-11, Group 309 (RS-232C) cable to make the connection between the GPSC-AT/E fanout cable and the MPDM.

- Two Modular Processor Data Modules (MPDMs) with a stand-alone housing
- Two D8W-87 modular plug telephone cord (7 feet) (included with the stand-alone housing).
- H600-347, Group 1 (RS-232C) cable
- M25A (RS-232C) cable
- Three B25A (RS-232C) cables.

To connect the 6386 WGS computer to a Packet Gateway board on the Generic 3r switch, do the following (refer to Figure 2-5):

1. Connect the male end of the H600-347, Group 1 cable to the Packet Gateway. (Record the connector number on the cable for later use.)
2. Connect the other male end of the H600-347, Group 1 cable to the female end of the M25A cable.
3. Connect the male end of the M25A cable to the RS-232 connector on the MPDM.
4. Set all switches on the MPDM to the OFF position except for the following:
  - SPEED to 9600 bps
  - SYNC
  - INT
  - SIGLS
  - AANS.
5. Connect one end of a D8W-87 modular plug telephone cord into the modular telephone cord jack of the MPDM.

6. Connect the other end of the D8W-87 cord to the Generic 3r cross-connect.

**Note** If the D8W-87 cord is not long enough, you will have to locally engineer the cable between the MPDM and the cross-connect. This cable must have a modular plug on each end.

7. Plug the MPDM into a 120 volt ac power source.

**Note** In the next step, the switch technician should make the final connection to the Digital Port.

8. Run a locally engineered cable from the cross-connect to a TN754 Circuit Pack on the Generic 3r. This cable also requires a modular plug on each end.
9. Run another locally engineered cable from the cross-connect to a TN754 Circuit Pack on the Generic 3r. This cable also requires a modular plug on each end.
10. Connect one end of the D8W-87 cord to the Generic 3r cross-connect.
11. Connect the other end of a D8W-87 modular plug telephone cord into the modular telephone cord jack of the MPDM.

**Note** If the D8W-87 cord is not long enough, you will have to locally engineer the cable between the MPDM and the cross-connect. This cable must have a modular plug on each end.

12. Set all switches on the MPDM to the OFF position except for the following:
  - SPEED to 9600 bps
  - SYNC
  - INT
  - SIGLS
  - AANS.
13. Plug the MPDM into a 120 volt ac power source.
14. Connect the male end of the B25A cable to the RS-232 connector on the MPDM.

15. Connect the female end of the B25A cable to **"Port A"** or **"Port B"** of the GPSC-AT/E fanout cable.

**Note** The female end of the GPSC-AT/E fanout cable should have been connected to the GPSC-AT/E board when it was installed on the 6386 WGS computer.

16. Tell the switch technician to verify that the ACD/CMS feature on the switch has been administered.

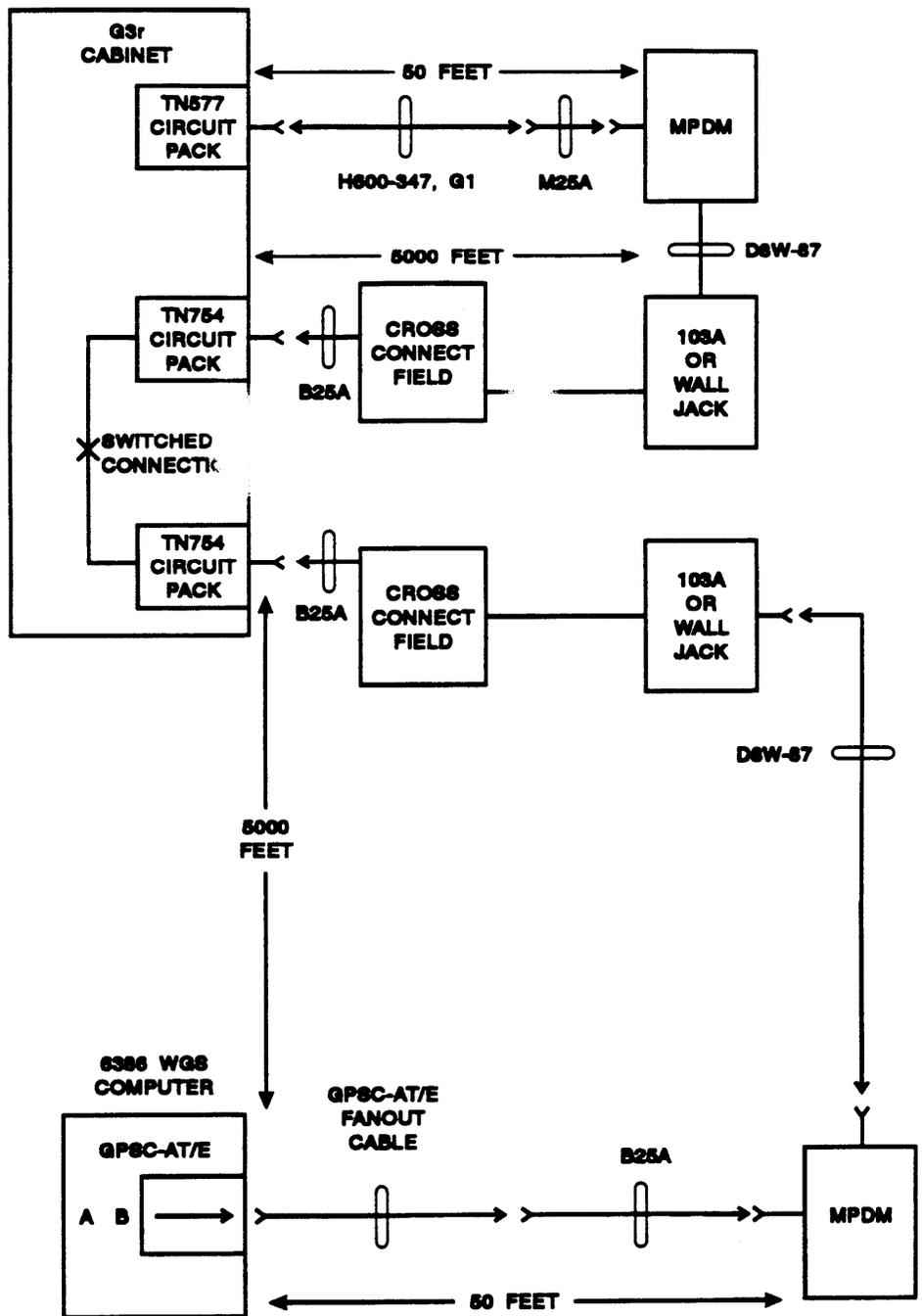


Figure 2-5: 6386 WGS Computer to Generic 3r Cabling With an MPDM

## Using a Private Line

This method uses two DATAPHONE II modems in addition to the MPDM and is required when the MPDM distance limitations have been exceeded.

This section describes how to connect the Generic 3r to a private line that connects to a 6386 WGS computer.

Before you begin, obtain the following parts to connect the 6386 WGS computer to a private line:

- 110-type cross-connect hardware
- 829 Channel Interface Unit

**Note** If the Channel Interface Unit is not available on the customer's premises, order PEC 9200-030, which is a stand-alone replacement unit. This unit must be ordered through the Custom Systems organization via the Custom Systems Automation Program (CSAP).

- M25A cable
- One 2096C DATAPHONE II Modem.

Also, obtain the following parts to connect the Generic 3r to a private line:

- 110-type cross-connect hardware
- 829 Channel Interface Unit

**Note** If the Channel Interface Unit is not available on the customer's premises, order PEC 9200-030, which is a stand-alone replacement unit. This unit must be ordered through the Custom Systems organization via the Custom Systems Automation Program (CSAP).

- M25A cable
- One 2096C DATAPHONE II Modem.

**How to Connect the 6386  
WGS Computer to a Private  
Line**

To connect the 6386 WGS computer to a private line, do the following (refer to Figure 2-6):

1. Connect the "**Port A**" or "**Port B**" plug end of the GPSC-AT/E fanout cable to the female end of the M25A cable.



The female plug end of the GPSC-AT/E fanout cable should have been connected to the GPSC-AT/E board when it was installed on the 6386 WGS computer.

2. Connect male end of the M25A cable to the *EIA Customer Connector* receptacle on the DATAPHONE II modem.
3. Connect male end of the B25A cable to the *CIU/DBU Connector* receptacle on the DATAPHONE II modem.
4. Connect the other end of the B25A cable to the *P1* receptacle on the 829 channel interface unit.
5. Plug the DATAPHONE II modem into a 120 volt ac power source.
6. Plug the 829 channel interface unit into a 120 volt ac power source.
7. Connect the tip and ring from the 829 channel interface to the cross-connect hardware.

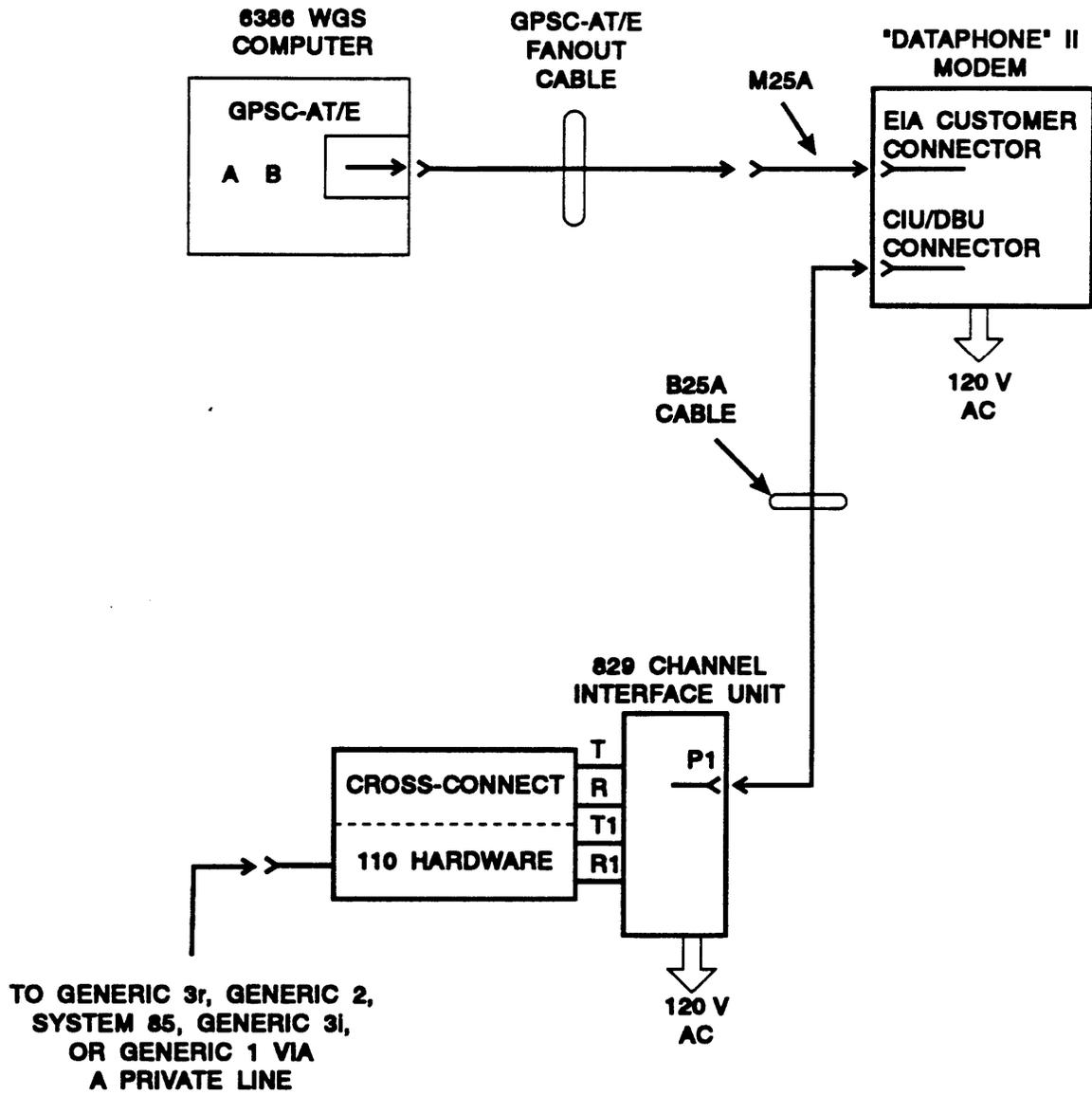


Figure 2-6: 6386 WGS Computer Cabling to a Private Line

**How to Connect the  
Generic 3r to a Private Line**

To connect the Generic 3r to a private line, do the following (refer to Figure 2-7):

1. Connect the tip and ring from the 829 channel interface to the cross-connect hardware.
2. Plug the 829 channel interface unit into a 120 volt ac power source.
3. Connect the other end of the B25A cable to the *P1* receptacle on the 829 channel interface unit.
4. Connect the other end of the M25A cable to the *CIU/DBU Connector* receptacle on the DATAPHONE II modem.
5. Plug the DATAPHONE II modem into a 120 volt ac power source.
6. Connect the male end of the M25A cable to the *EIA Customer Connector* receptacle on the DATAPHONE II modem.
7. Connect the female end of the M25A cable to the male end of the H600-347, Group 1 cable.
8. Connect the other male end of the H600-347, Group 1 cable to the Packet Gateway fanout cable.
9. Tell the switch technician to verify that the ACD/CMS feature on the switch has been administered.

FROM AN OFF-PREMISES  
6386 WGS COMPUTER  
VIA A PRIVATE LINE

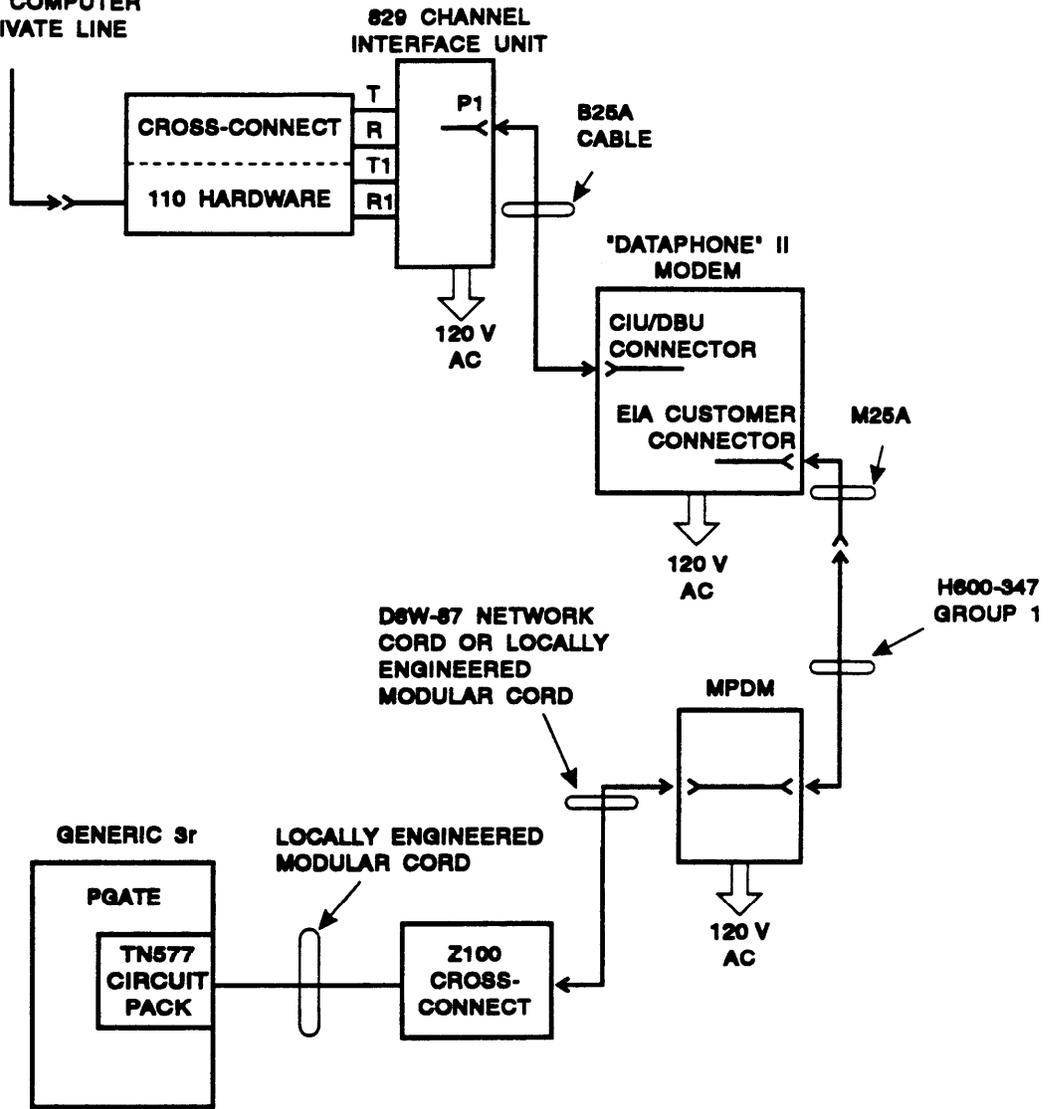


Figure 2-7: Generic 3r Cabling to a Private Line

## Connecting the 6386 WGS Computer to the Generic 2 or System 85 Switch

Use the procedures in this section to connect a GPSC-AT/E port (RS-232C connection) on the 6386 WGS computer to the Data Communications Interface Unit (DCIU) on the Generic 2 or System 85 switch.

You can connect the 6386 WGS computer to the Generic 2 or System 85 switch by using one of the following methods:

- *Using the Isolating Data Interface*

For this method, the maximum allowable distance between the 6386 WGS computer and Generic 2 or System 85 switch is 400 feet.

- *Using Local Data Service Units (DSUs)*

For this method, the maximum allowable distance between the 6386 WGS computer and the Generic 2 or System 85 switch is 100 feet.

- *Using Remote Data Service Units (DSUs)*

Use this method when the distance between the 6386 WGS computer and the Generic 2 or System 85 switch is over 100 feet.



For this method, 4-wire nonloaded metallic lines are required to interconnect the DSUs. When provided by the Telephone Company, these 4-wire nonloaded metallic lines are called Local Area Data Channels (LADC).

- *Using an Analog Private Line.*

This method is used when the distance of the DSUs has been exceeded.

To determine which method to use, check the equipment and parts that were delivered to the customer's site.

## Using the Isolating Data Interface

For this method, the maximum allowable distance between the 6386 WGS computer and Generic 2 or System 85 switch is 400 feet.

Before you begin, obtain the following parts:

- GPSC-AT/E Fanout Cable
- ED-1E434-11, Group 175 cable (RS-232C to RS-449 transition cable)
- Isolating Data Interface (IDI)
- ED-1E434-11, Group 304 (RS-449) cable (up to 400 feet long).

If the switch is equipped with duplicated common controls, obtain an ED-1E434-11, Group 342 Y-cable.

To connect the 6386 WGS computer to the DCIU on the Generic 2 or System 85 via an IDI, do the following (refer to Figure 2-8):

1. Connect the "**Port A**" or "**Port B**" plug end of the GPSC-AT/E fanout cable to the receptacle end of an ED-1E434-11, Group 175 cable. (Record the plug end of the GPSC-AT/E fanout cable that you use.) Next, connect the plug end of the ED-1E434-11, Group 175 cable to the **Port A (OUT)** connector on the IDI.

**Note** The single plug end of the GPSC-AT/E fanout cable should have been connected to the GPSC-AT/E board when it was installed on the 6386 WGS computer.

**Note** The IDI must be within 10 feet of the 6386 WGS computer.

2. Connect the plug end of the ED-1E434-11, Group 304 cable to the **IN** connector on the IDI.

**Note** In the next step, the switch technician should make the final connection to the DCIU port.

3. If the Generic 2 or System 85 is equipped with a single common control, connect the receptacle end of the ED-1E434-11, Group 304 cable to the switch at ports F0 through F7. Record the port number that you use because it will be needed during switch administration.

If the Generic 2 or System 85 is equipped with duplicated common controls, connect the receptacle end of the ED-1E434-11, Group 304 cable to the plug end of the ED-1E434-11, Group 342 cable. Next, connect the receptacle ends of the ED-1E434-11, Group 342 cable to the duplicated common controls at ports F0 through F7. You must select the same port on each of the common controls. Record the port number that you use because it will be needed during switch administration.

4. Tell the switch technician to verify that the ACD/CMS feature on the switch has been administered.

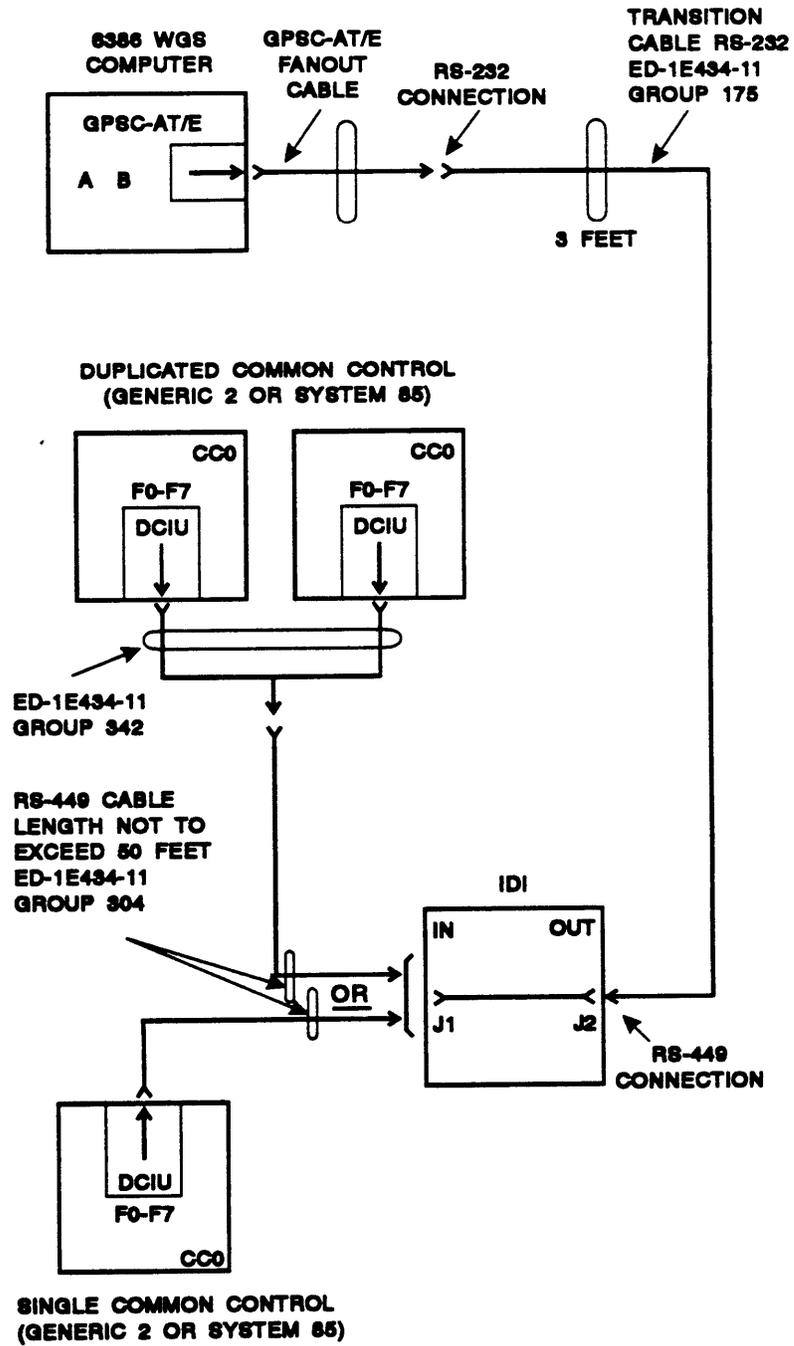


Figure 2-8: 6386 WGS Computer to Generic 2 or System 85 Cabling Via the IDI

## Using Local Data Service Units

For this method, the maximum allowable distance between the 6386 WGS computer and the Generic 2 or System 85 switch is 100 feet.

Before you begin, obtain the following parts:

- GPSC-AT/E Fanout Cable

**Note** If the GPSC-AT/E fanout cable is not long enough to reach the DSU, obtain an ED-1E434-11, Group 309 cable to make the connection between the GPSC-AT/E fanout cable and the DSU.

- Two Data Service Units (DSUs)
- One D8W-87 Network Cord (25 feet) — one cord is provided with each DSU
- ED-1E434-11, Group 13 transition (RS-449 to RS-232C) cable (3 inches)
- ED-1E434-11, Group 304 cable (RS-449) — for single or duplicated common controls
- ED-1E434-11, Group 342 Y-cable (9 feet) — for duplicated common controls only.

Refer to the *DATAPHONE II 2500-Series Data Service Units User's Manual* (999-100-188) to set the timing options and speed of operation (9.6 kbps) for the DSUs and to test and troubleshoot the DSUs, if necessary. One DSU must be set for "internal" timing, and the other DSU must be set for "slave" timing. You can also use this document as a reference when doing the installation steps in this section.

To connect the 6386 WGS computer to the DCIU on the Generic 2 or System 85, do the following (refer to Figure 2-9):

1. Connect the "**Port A**" or "**Port B**" plug end of the GPSC-AT/E fanout cable to the receptacle labeled **DTE** on the back of the DSU. (Record the plug end of the GPSC-AT/E fanout cable that you use.)

**Note** If the GPSC-AT/E fanout cable is not long enough to reach the DSU, obtain an ED-1E434-11, Group 309 cable to make the connection between the GPSC-AT/E fanout cable and the DSU.

**Note** The single plug end of the GPSC-AT/E fanout cable should have been connected to the GPSC-AT/E board when it was installed on the 6386 WGS computer.

2. Connect the two DSUs together by using a 25-foot D8W-87 Network Cord and connecting each end of the cord to the Network Jacks on the DSUs.
3. Connect each DSU to a 120 volt power source by using the DSU Power Packs.
4. Connect the plug end of the Group 13 transition cable to the receptacle labeled **DTE** on the back of the DSU that will be used to connect to the switch. Then connect the receptacle end of the Group 13 transition cable to the plug end of the ED-1E434-11, Group 304 cable.

**Note** In the next step, the switch technician should make the final connection to the DCIU port.

5. If the Generic 2 or System 85 is equipped with single common control, connect the receptacle end of the Group 304 cable to the single common control at ports F0 through F7. Record the port number that you use because it will be needed during switch administration.

If the Generic 2 or System 85 is equipped with duplicated common controls, connect the receptacle end of the Group 304 cable to the plug end of the ED-1E434-11, Group 342 Y-cable. Connect the receptacle ends of the Y-cable to the duplicated common controls at F0 through F7. You must select the same ports on both common controls. Record the port number that you use because it will be needed during switch administration.

6. Tell the switch technician to verify that the ACD/CMS feature on the switch has been administered.

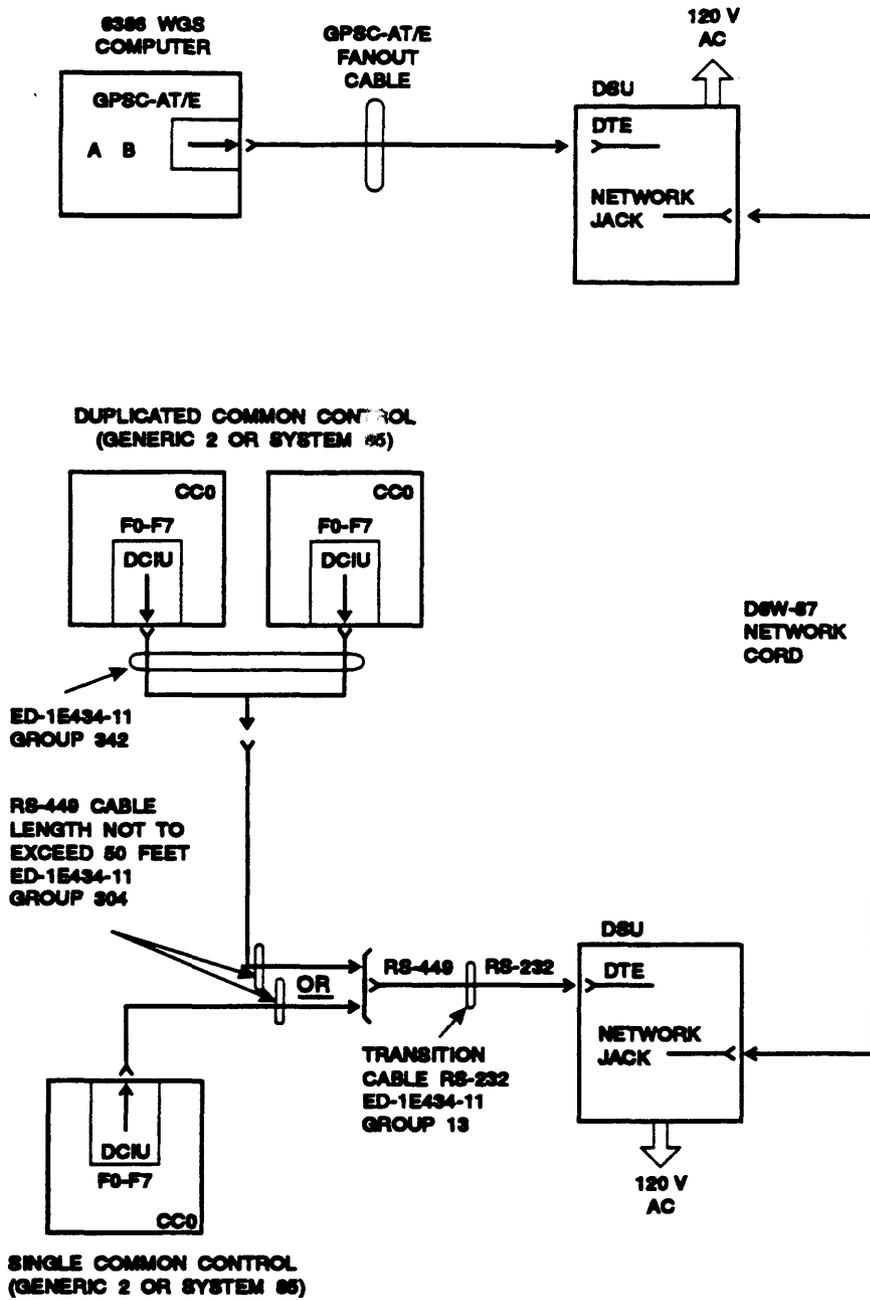


Figure 2-9: 6386 WGS Computer to Generic 2 or System 85 Cabling With Local DSUs

## Using Remote Data Service Units

Use this method when the distance between the 6386 WGS computer and the Generic 2 or System 85 switch is over 100 feet.

Before you begin, obtain the following parts:

- GPSC-AT/E Fanout Cable

**Note** If the GPSC-AT/E fanout cable is not long enough to reach the DSU, obtain an ED-1E434-11, Group 309 cable to make the connection between the GPSC-AT/E fanout cable and the DSU.

- Two Data Service Units (DSUs)
- Two D8W-87 Network Cords (25 feet) — one cord is provided with each DSU
- Two Network Interface Adapters — one adapter is provided with each DSU
- ED-1E434-11, Group 13 transition (RS-449 to RS-232C) cable (3 inches)
- ED-1E434-11, Group 304 cable (RS-449) — for single or duplicated common controls
- ED-1E434-11, Group 342 Y-cable (9 feet) — for duplicated common controls only
- 110- or 66-type cross-connect hardware
- 4-wire nonloaded metallic lines (LADC equivalent) (lengths as needed).

Table 2-5 shows the maximum allowable distances between the DSUs based on various wire sizes and a speed of 9.6 kbps.

**Table 2-5: LADC Ranges**

Wire Gauge (AWG)	DSU Speed (kbps)	Miles
19	9.6	15.2
22	9.6	9.7
24	9.6	7.3
26	9.6	5.6

Refer to the *DATAPHONE II 2500-Series Data Service Units User's Manual* (999-100-188) to set the timing options and speed of operation (9.6 kbps) for the DSUs and to test and troubleshoot the DSUs, if necessary. One DSU must be set for "internal" timing, and the other DSU must be set for "slave" timing. You can also use this document as a reference when doing the installation steps in this section.

To connect the 6386 WGS computer to the DCIU on the Generic 2 or System 85, do the following (refer to Figure 2-10):

1. Connect the "**Port A**" or "**Port B**" plug end of the GPSC-AT/E fanout cable to the receptacle labeled **DTE** on the back of the DSU. (Record the plug end of the GPSC-AT/E fanout cable that you use.)



If the GPSC-AT/E fanout cable is not long enough to reach the DSU, obtain an ED-1E434-11, Group 309 cable to make the connection between the GPSC-AT/E fanout cable and the DSU.



The single plug end of the GPSC-AT/E fanout cable should have been connected to the GPSC-AT/E board when it was installed on the 6386 WGS computer.

2. Connect one end of a D8W-87 Network Cord to the Network Jack on the DSU.
3. Connect the other end of the D8W-87 Network Cord to the receptacle end of a Network Interface Adapter.
4. Punch down the spade-tipped leads of the Network Interface Adapter to the 6386 WGS computer's cross-connect hardware.
5. Use 4-wire nonloaded metallic lines (LADC equivalent) to interconnect the cross-connect hardware.
6. Obtain another Network Interface Adapter.
7. Punch down the spade-tipped leads of the Network Interface Adapter to the switch's cross-connect hardware.
8. Connect the receptacle of the Network Interface Adapter to one end of another D8W-87 Network Cord.
9. Connect the other end of a D8W-87 Network Cord to the Network Jack on the DSU that will be connected to the switch.
10. Connect each DSU to a 120 volt power source by using the DSU Power Packs.

11. Connect the plug end of the Group 13 transition cable to the receptacle labeled **DTE** or **Port B** on the DSU that will be connected to the switch. Then connect the receptacle end of the Group 13 transition cable to the plug end of the ED-1E434-11, Group 304 cable.

**Note** In the next step, the switch technician should make the final connection to the DCIU port.

12. If the Generic 2 or System 85 is equipped with single common control, connect the receptacle end of the Group 304 cable to the single common control at ports F0 through F7. Record the port number that you use, because it will be needed during switch administration.

If the Generic 2 or System 85 is equipped with duplicated common controls, connect the receptacle end of the Group 304 cable to the plug end of the ED-1E434-11, Group 342 Y-cable. Connect the receptacle ends of the Y-cable to the duplicated common controls at F0 through F7. You must select the same ports on both common controls. Record the port number that you use because it will be needed during switch administration.

13. Tell the switch technician to verify that the ACD/CMS feature on the switch has been administered.

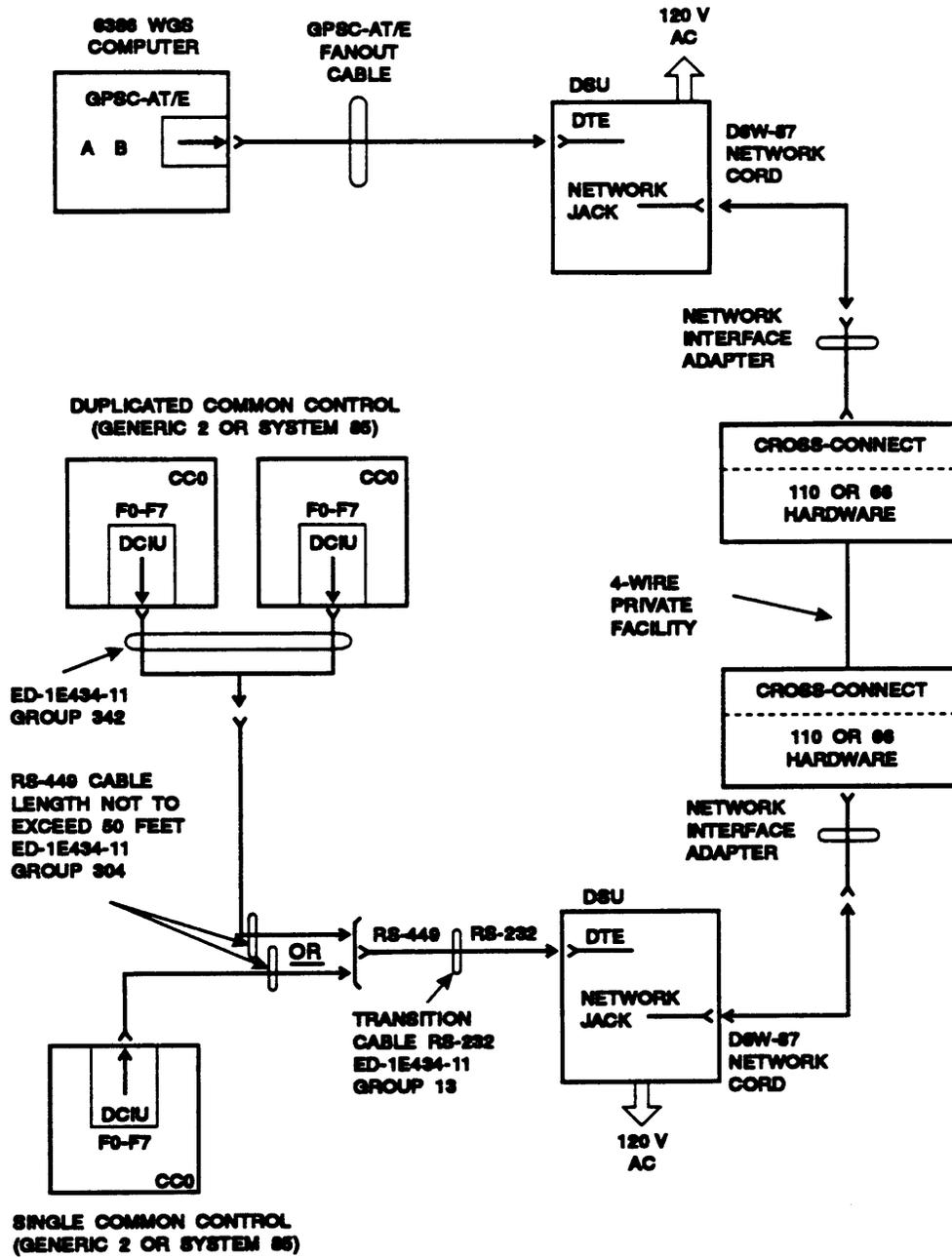


Figure 2-10: 6386 WGS Computer to Generic 2 or System 85 Cabling With Remote DSUs

## Using an Analog Private Line

This method is used when the distance of the DSUs has been exceeded.

**Note** To connect the 6386 WGS computer to an analog private line, refer to the previous section in this chapter entitled *How to Connect the 6386 WGS Computer to an Analog Private Line*.

Before you begin, obtain the following parts to connect the System 85 to an analog private line:

- ED-1E434-11, Group 304 (RS-232C) cable (50 feet) — for single and duplicated common controls
- ED-1E434-11, Group 342 Y-cable — for duplicated common controls only
- One 2096C DATAPHONE II Modem
- B25A cable
- 629 Channel Interface Unit.

**Note** If the Channel Interface Unit is not available on the customer's premises, order PEC 9200-030, which is a stand-alone replacement unit. This unit must be ordered through the Custom Systems organization via the Custom Systems Automation Program (CSAP).

To connect the Generic 2 or System 85 to an analog private line, do the following (refer to Figure 2-11):

1. Connect the tip and ring from the 829 channel interface to the cross-connect hardware.
2. Plug the 829 channel interface unit into a 120 volt ac power source.
3. Connect one end of the B25A cable to the *CIU/DBU Connector* receptacle on the DATAPHONE II modem. Connect the other end of the B25A cable to the *P1* receptacle on the 829 channel interface unit.
4. Plug the DATAPHONE II modem into a 120 volt ac power source.
5. Connect the plug end of the ED-1E434-11, Group 304 cable to the *EIA Customer Connector* receptacle on the DATAPHONE II modem.



In the next step, the switch technician should make the final connection to the DCIU port.

6. If the Generic 2 or System 85 is equipped with single common control, connect the receptacle end of the Group 304 cable to the single common control at ports F0 through F7. Record the port number that you use because it will be needed during switch administration.

If the Generic 2 or System 85 is equipped with duplicated common controls, connect the receptacle end of the Group 304 cable to the plug end of the ED-1E434-11, Group 342 Y-cable. Connect the receptacle ends of the Y-cable to the duplicated common controls at ports F0 through F7. You must select the same ports on both common controls. Record the port number that you use because it will be needed during switch administration.

7. Tell the switch technician to verify that the ACD/CMS feature on the switch has been administered.

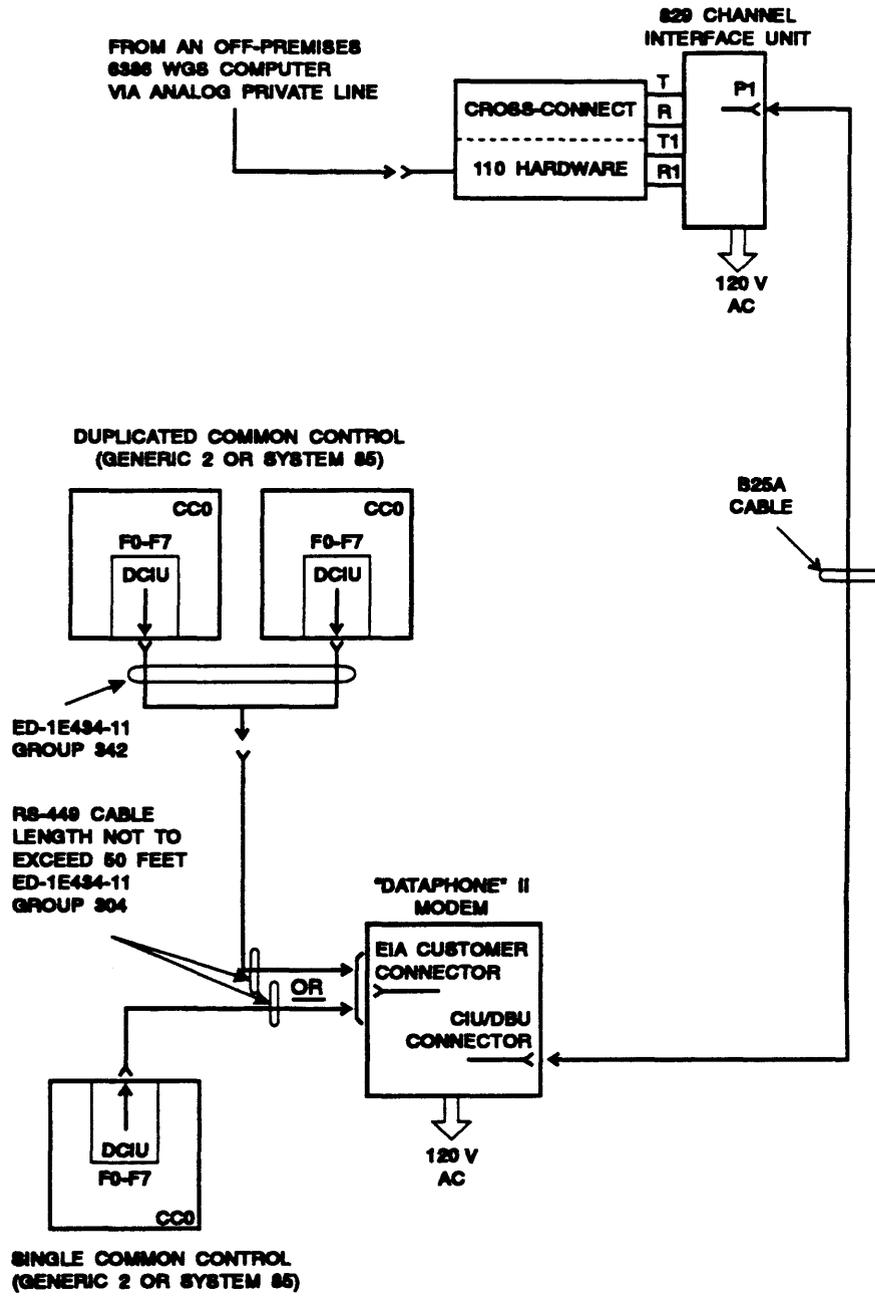


Figure 2-11: Generic 2 or System 85 Cabling to an Analog Private Line

## Connecting the 6386 WGS Computer to the Generic 3i or Generic 1 Switch

Use the procedures in this section to connect a port (RS-232C connection) from the GPSC-AT/E board in the 6386 WGS computer to a Digital Port on the Generic 3i or Generic 1 switch.

You can connect the 6386 WGS computer to the Generic 3i or Generic 1 switch by using one of the following methods:

- *Using the EIA Connector on the Processor Interface*

If this method is used, the maximum allowable distance between the 6386 WGS computer and the Generic 3i or Generic 1 switch is 50 feet.

- *Using a Modular Processor Data Module*

If this method is used, the maximum allowable distance between the 6386 WGS computer and the Modular Processor Data Module (MPDM) is 50 feet. The maximum allowable distance between the MPDM and the Generic 3i or Generic 1 is 5000 feet with 24 gauge wire and 4000 feet with 26 gauge wire.

- *Using an Analog Private Line.*

This method uses two DATAPHONE II modems in addition to the MPDM and is required when the MPDM distance limitations have been exceeded.

## Using the EIA Connector on the Processor Interface

This section describes the hardware and cables required to connect a GPSC-AT/E RS-232C port on the 6386 WGS computer to the EIA connector of a Processor Interface on the Generic 3i or Generic 1.

**Note** If the Generic 3i or Generic 1 has duplicated common controls, the EIA port on the Processor Interface cannot be used.

If this method is used, the maximum allowable distance between the 6386 WGS computer and the Generic 3i or Generic 1 switch is 50 feet.

**Note** If the Generic 3i or Generic 1 switch and the 6386 WGS computer are over 50 feet apart, refer to the section *Connecting the 6386 WGS Computer to the Generic 3i or Generic 1* for the proper cabling configuration.

Before you begin, obtain the following parts:

- GPSC-AT/E Fanout Cable
- ED-1E434-11, Group 175 (RS-232C to RS-449) cable
- ED-1E434-11, Group 304 (RS-449) cable
- ED-H600-362, Group 1 (RS-232C to RS-449) cable.

**Note** The Group number determines the length of the cable. The Group numbers associated with cable lengths are as follows:

- Group 1 - 10 feet,
- Group 2 - 25 feet,
- Group 3 - 50 feet,
- Group 4 - 100 feet,
- Group 5 - 200 feet.

To connect the 6386 WGS computer to the Processor Interface of a Generic 3i or Generic 1 switch, do the following (refer to Figure 2-12):

1. Connect the "**Port A**" or "**Port B**" plug end of the GPSC-AT/E fanout cable to the female end of an ED-1E434-11, Group 175 cable.

**Note** The female plug end of the GPSC-AT/E fanout cable should have been connected to the GPSC-AT/E board when it was installed on the 6386 WGS computer.

2. Connect the male end of the ED-1E434-11, Group 175 cable to the "**Out**" connector on the Isolating Data Interface unit.
3. Connect the male end of the ED-1E434-11, Group 304 cable to the "**In**" connector on the Isolating Data Interface unit.
4. Connect the female end of the ED-1E434-11, Group 304 cable to the male end of the ED-H600-362 cable.

**Note** In the next step, the switch technician should make the final connection to Link 1 (EIA connector) of the Processor Interface.

5. Connect the female end of the ED-H600-362 cable to Link 1 (EIA connector) of the Processor Interface.
6. Tell the switch technician to verify that the ACD/CMS feature on the switch has been administered.

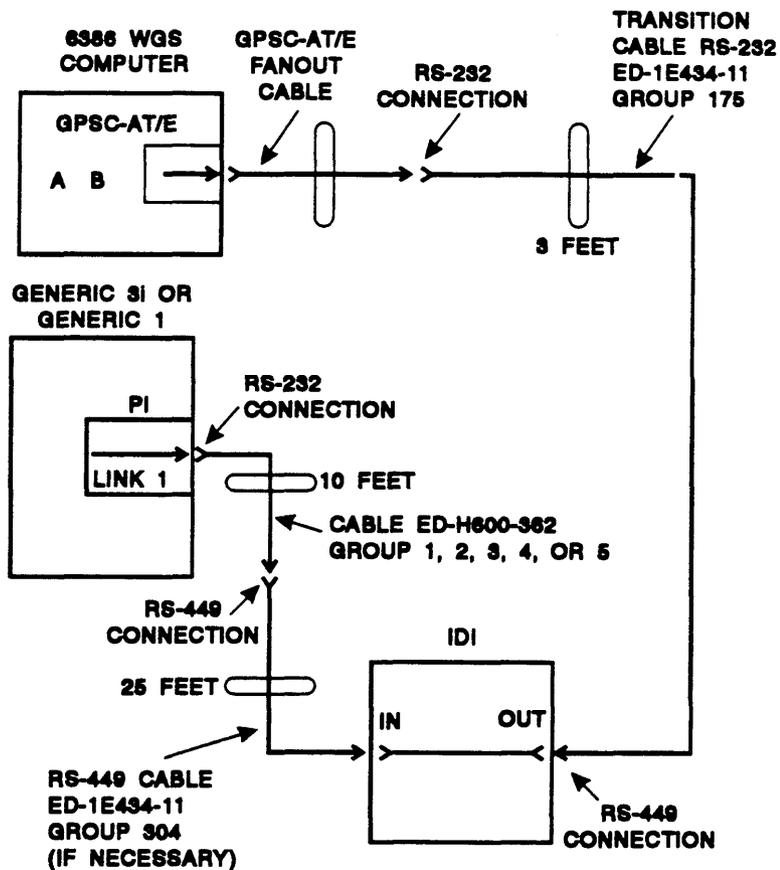


Figure 2-12: 6386 WGS Computer to Generic 3i or Generic 1 Cabling Via the IDI

## Using a Modular Processor Data Module

If this method is used, the maximum allowable distance between the 6386 WGS computer and the Modular Processor Data Module (MPDM) is 50 feet, and the maximum allowable distance between the MPDM and the Generic 3i or Generic 1 is 5000 feet with 24 gauge wire and 4000 feet with 26 gauge wire.

Before you begin, obtain the following parts:

- GPSC-AT/E Fanout Cable



If the GPSC-AT/E fanout cable is not long enough to reach the MPDM obtain an ED-1E434-11, Group 309 (RS-232C) cable to make the connection between the GPSC-AT/E fanout cable and the MPDM.

- Modular Processor Data Module (MPDM) with a stand-alone housing
- D8W-87 modular plug telephone cord (7 feet) (included with the stand-alone housing).

To connect the 6386 WGS computer to a Digital Port on the Generic 3i or Generic 1 switch, do the following (refer to Figure 2-13):

1. Connect the "**Port A**" or "**Port B**" plug end of the GPSC-AT/E fanout cable to the RS-232 connector on the MPDM. (Record the plug end of the GPSC-AT/E fanout cable that you use for later use.)

**Note** If the GPSC-AT/E fanout cable is not long enough to reach the MPDM, obtain an ED-1E434-11, Group 309 cable to make the connection between the GPSC-AT/E fanout cable and the MPDM.

**Note** The female plug end of the GPSC-AT/E fanout cable should have been connected to the GPSC-AT/E board when it was installed on the 6386 WGS computer.

2. Set all switches on the MPDM to the OFF position except for the following:
  - SPEED to 9600 bps
  - SYNC
  - INT
  - SIGLS
  - AANS.
3. Connect one end of a D8W-87 modular plug telephone cord to the modular telephone cord jack of the MPDM.

Connect the other end of the D8W-87 cord to the Generic 3i or Generic 1 cross-connect (Z100).

**Note** If the D8W-87 cord is not long enough, you will have to locally engineer the cable between the MPDM and the cross-connect (Z100). This cable must have a modular plug on each end.

4. Plug the MPDM into a 120 volt ac power source.

**Note** In the next step, the switch technician should make the final connection to the Digital Port.

5. Run a locally engineered cable from the Z100 cross-connect to the Digital Port on the Generic 3i or Generic 1. This cable also requires a modular plug on each end.
6. Tell the switch technician to verify that the ACD/CMS feature on the switch has been administered.

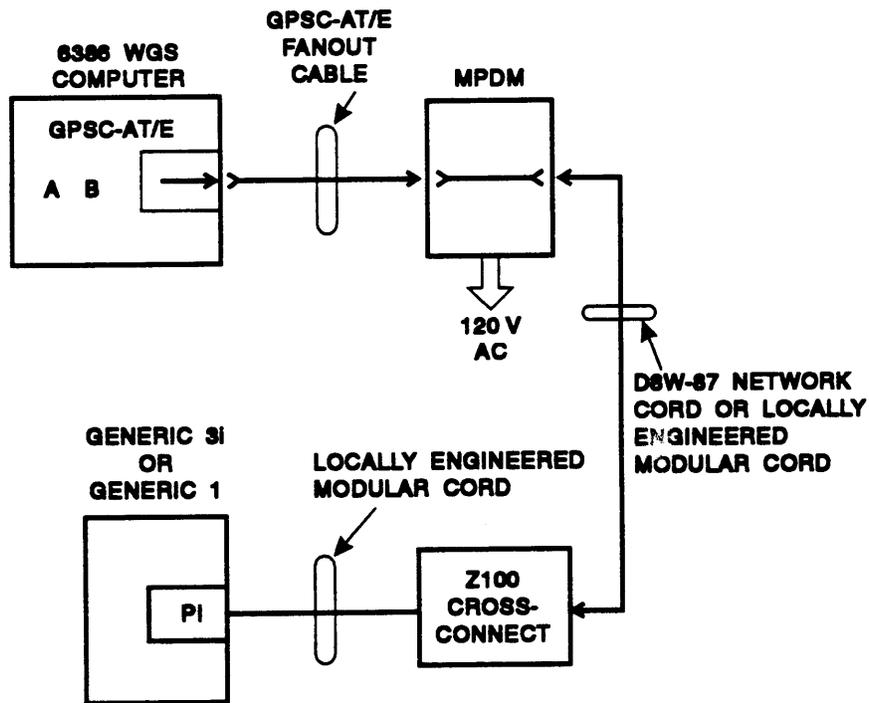


Figure 2-13: 6386 WGS Computer to Generic 3i or Generic 1 Cabling With an MPDM

## Using an Analog Private Line

This method uses two DATAPHONE II modems in addition to the MPDM and is required when the MPDM distance limitations have been exceeded.

This section describes how to connect the Generic 3i or Generic 1 to an analog private line that connects to a 6386 WGS computer.

Before you begin, obtain the following parts to connect the 6386 WGS computer to an analog private line:

- GPSC-AT/E Fanout Cable

**Note** If the GPSC-AT/E fanout cable is not long enough to reach the DATAPHONE II modem, obtain a ED-1E434-11, Group 309 (RS-232C) cable to make the connection.

- One 2096C DATAPHONE II Modem
- B25A cable
- 829 Channel Interface Unit.

**Note** If the Channel Interface Unit is not available on the customer's premises, order PEC 9200-030, which is a stand-alone replacement unit. This unit must be ordered through the Custom Systems organization via the Custom Systems Automation Program (CSAP).

Also, obtain the following parts to connect the Generic 3i or Generic 1 to an analog private line:

- 110-type cross-connect hardware
- 829 Channel Interface Unit

**Note** If the Channel Interface Unit is not available on the customer's premises, order PEC 9200-030, which is a stand-alone replacement unit. This unit must be ordered through the Custom Systems organization via the Custom Systems Automation Program (CSAP).

- B25A cable
- One 2096C DATAPHONE II Modem
- RS-232C cable
- One MPDM
- D8W-87 cord.

**How to Connect the 6386 WGS Computer to an Analog Private Line**

To connect the 6386 WGS computer to an analog private line, do the following (refer to Figure 2-14):

1. Connect the "**Port A**" or "**Port B**" plug end of the GPSC-AT/E fanout cable to the receptacle end of the M25A cable. Next, connect the plug end of the M25A cable to the *EIA Customer Connector* receptacle on the DATAPHONE II modem. (Record the plug end of the GPSC-AT/E fanout cable that you use.)

**Note** If the GPSC-AT/E fanout cable is not long enough to reach the DATAPHONE II modem, obtain an ED-1E434-11, Group 309 cable and make the connection.

**Note** The female plug end of the GPSC-AT/E fanout cable should have been connected to the GPSC-AT/E board when it was installed on the 6386 WGS computer.

2. Plug the DATAPHONE II modem into a 120 volt ac power source.
3. Connect one end of the B25A cable to the *CIU/DBU Connector* receptacle on the DATAPHONE II modem. Connect the other end of the B25A cable to the *P1* receptacle on the 829 channel interface unit.
4. Plug the 829 channel interface unit into a 120 volt ac power source.
5. Connect the tip and ring from the 829 channel interface to the cross-connect hardware.

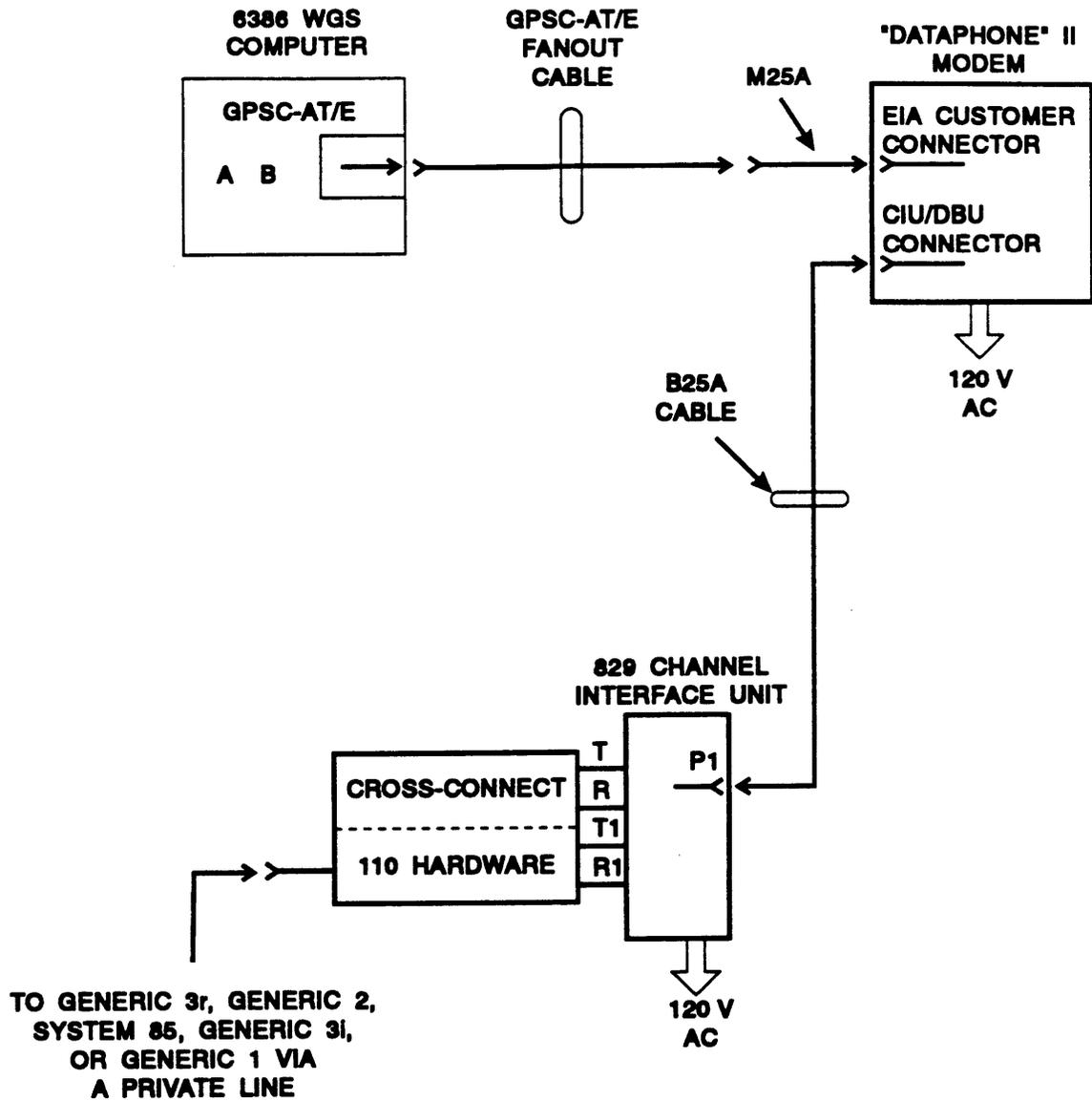


Figure 2-14: 6386 WGS Computer Cabling to an Analog Private Line

**How to Connect the Generic 3i or Generic 1 to an Analog Private Line**

To connect the Generic 3i or Generic 1 to an analog private line, do the following (refer to Figure 2-15):

1. Connect the tip and ring from the 829 channel interface to the cross-connect hardware.
2. Plug the 829 channel interface unit into a 120 volt ac power source.
3. Connect one end of the B25A cable to the *CIU/DBU Connector* receptacle on the DATAPHONE II modem. Connect the other end of the B25A cable to the *P1* receptacle on the 829 channel interface unit.
4. Plug the DATAPHONE II modem into a 120 volt ac power source.
5. Connect the plug end of the M25B cable to the *EIA Customer Connector* receptacle on the DATAPHONE II modem.
6. Connect the other plug end of the M25B (RS-232C) cable to the receptacle on the MTDM.
7. Set all switches on the MTDM to the OFF position except for the following:
  - SPEED to 9600 bps
  - SYNC
  - INT
  - SIGLS
  - AANS.
8. Connect one end of the D8W-87 modular plug telephone cord into the modular telephone cord jack on the MTDM.
9. Connect the other end of the D8W-87 cord to the Generic 3i or Generic 1 cross-connect (Z100).

**Note** If the D8W-87 cord is not long enough, you will have to locally engineer the cable between the MTDM and the cross-connect (Z100). This cable must have a modular plug on each end.

10. Plug the MTDM into a 120 volt ac power source.

**Note** In the next step, the switch technician should make the final connection to the Digital Port.

11. Run a locally engineered cable from the Z100 cross-connect to the Digital Port on the Generic 3i or Generic 1. This cable also requires a modular plug on each end.
12. Tell the switch technician to verify that the ACD/CMS feature on the switch has been administered.

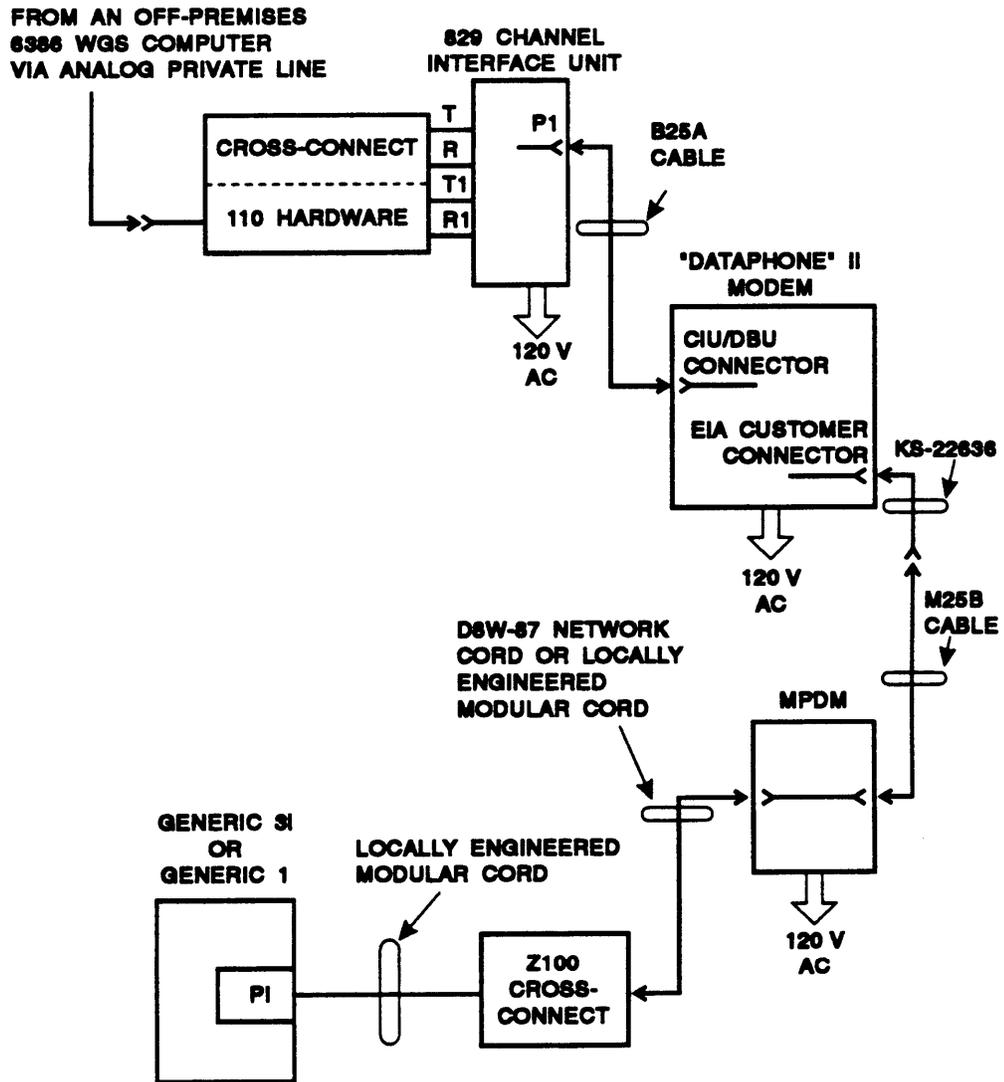


Figure 2-15: Generic 3i or Generic 1 Cabling to an Analog Private Line

## Connecting the 6386 WGS Computer to the Technical Support Center

The Remote Management feature provided by the Remote Management Circuit (RMC) provides 2-way communication between the 6386 WGS CMS at the customer site and the TSC. Communication takes place on a dedicated phone line provided by the customer.

**Note** This phone line is paid for by the customer.

From the TSC, skilled technicians can install, upgrade, maintain, and troubleshoot the 6386 WGS CMS software at the customer site. During remote installations and upgrades of the software, an on-site technician must be present to install the physical medium (floppy disk or tape) that contains the software.

The RMC also senses when a hardware or software alarm has been generated. If the optional Silent Knight Autodialer is installed, it is used to report the alarms to the TSC.

## Connecting the Remote Console to the 6386 WGS

The Remote Console connection needs to be set up before a technician at the TSC can do any remote maintenance on the R3 CMS software. Use the procedures in this section to connect the Remote Console to the 6386 WGS computer and administer the modem.

Before you do the procedures in this section, obtain the following parts to connect the 6386 WGS computer to the TSC:

- One ACU/Modem Adapter (PEC 69611)
- One Remote Console Adapter (PEC 69612)
- One 10-conductor cable
  - 10-conductor cable, 10 feet (PEC 37776)
  - 10-conductor cable, 25 feet (PEC 69606)
  - 10-conductor cable, 50 feet (PEC 69607)
- One Modem
  - 2224-CE0 Modem (PEC 2224-CE0)
  - 2212C Modem
  - 4024 Modem

To connect the 6386 WGS computer to the TSC (via the Remote Console), do the following (refer to Figure 2–16).

1. Power down the 6386 WGS computer. (For instructions, refer to the *Owner/Operator Manual* that came with the computer.)
2. Set the modem options by doing the following:

**Note** For additional information on administering the modem, refer to the documentation received with the modem.

- For the 2224-CE0 modem:
  - a. Connect a dumb terminal to the 25-pin connector located on the back of the 2224-CE0 modem. For information on connecting the terminal to the modem, refer to the user documentation that came with the modem.

**Note** If you are using an 8- or 10-wire modular cord to connect the terminal to the modem, you will need two ACU/Modem Adapters.

The terminal speed will need to be set to 1200 baud.

- b. Set all switches on the modem to the DOWN position except for Switch 6, and press the reset button.
- c. At the dumb terminal, enter the following:

```
o12=y  
o33=y  
o34=0  
o41=0  
o42=n  
o45=y
```

**Note** The colon (:) prompt must appear on the screen before entering any of the previous commands.

- d. Set all switches on the modem to the DOWN position except for Switches 1, 3, 6, and 7 which must be in the UP position. Press the reset button.
  - For the 2212C modem:
    - a. Set switches 1, 2, and 4 on the modem to the CLOSED position. Switch 3 must be in the OPEN (default) position. The CLOSED position is when the rocker switch is down on the numbered side of the switch.
  - For the 4024 modem:
    - a. Connect a dumb terminal to the 25-pin connector located on the back of the 4024 modem.

b. At the dumb terminal, enter the following:

```
o12=y  
o33=y
```

- c. Set all switches on the modem to the DOWN position except for Switches 1, 3, 6, and 7 which must be in the UP position.
3. Connect the ACU/Modem Adapter to the Serial Connector A port on the 6386 WGS.
  4. Connect one end of a 10-conductor cable to the ACU/Modem Adapter previously connected to the 6386 WGS. Connect the other end of the 10-conductor cable to the Remote Console Adapter.
  5. Connect the Remote Console Adapter to the 25-pin connector on the modem.
  6. Connect the modem to the RMATS telephone line.
  7. Turn the power to the 6386 WGS computer to ON.

Administer the modem used in the Remote Console configuration by doing the following:

1. Login as *root* at the system console.
2. Execute the following command to set the console flags:

```
/etc/conflgs -r1 -b1200
```

The system responds with:

```
UNIX system console: second serial port

static console message flag: 1
dynamic console message flag: 1

static remote console message flag: 0
dynamic remote console message flag: 0

static console message flag: 1
dynamic console baud rate: 1200

alternate console enable flag: 1
alternate console baud rate: 1200
```

3. Execute the following command to set the RCMF tunable parameter:

```
/etc/conf/bin/idtune RCMF 1
```

4. Execute the following command to access the FACE program:

```
# face
```

The system responds by displaying the FACE menu.

5. From the FACE menu, select the **System Administration** menu.
6. From the System Administration menu, select the **Peripherals Setup** menu.
7. From the Peripherals Setup menu, select the **Serial Ports Setup** menu.

The system will respond by requesting additional information about the port being administered. The appropriate port information will need to be entered for the following fields:

- **Serial Port Number:** Enter the port number that the modem will be connected to. The valid entries for this field can be seen by pressing the "Choices" function key. Select port **tty00**.
- **Device Type:** Enter the type of device you will be connecting to the port. Options include: **Modem**, Terminal, Computer, Other, or None.
- **Device Speed:** Enter the baud rate (speed) of the device being connected to the port. Options include: 300, **1200**, 2400, 4800, 9600, and 19200.
- **Flow Control:** Enter the appropriate flow control protocol. Options include: Software, Hardware, and **Generic**.

After setting the options on the **Serial Ports Setup**, the system will respond by requesting additional information about the modem being administered. The appropriate modem information will need to be entered for the following fields:

- **Modem Name:** Enter the name of the modem that is being used. The valid entries for this field can be seen by pressing the "Choices" function key.
  - **Device Connection:** Enter the type of connection the modem will be using. Options include: **Incoming calls only**, **Outgoing calls only**, and **Both outgoing and incoming calls**. The valid entries for this field can be seen and selected by pressing the "Choices" function key and selecting a valid option.
8. Edit the `/etc/conf/init.d/ua_tty00` file and change 1200 to 1200NP. Close and save the file.
  9. Execute the following command to initialize the port and implement the previous changes:

```
init q
```

The Remote Console configuration is now set up.

To verify that the Remote Console has been configured correctly, the TSC should get the remote dial-up port and be able to dial in to the customer's machine.

## Connecting the Uninterruptible Power Supply to the 6386 WGS

The Uninterruptible Power Supply (UPS) provides a temporary electrical supply to the 6386 WGS computer for about 15 minutes. Use the procedures in this section to connect the UPS to the 6386 WGS computer.

Before you do the procedures in this section, obtain the following parts to connect the 6386 WGS computer to the AT&T UPS:

**Note** These procedures apply to AT&T UPS. If another UPS is used, refer to the procedures outlined in the documentation received with the UPS.

- One 10-conductor cable
  - 10-conductor cable, 10 feet (PEC 37776)
  - 10-conductor cable, 25 feet (PEC 37778)
  - 10-conductor cable, 50 feet (PEC 37780)
- One UPS Adapter
  - For the 360VA or 500VA UPS - Male Adapter (PEC 69624).
  - For the 1KVA or 2KVA UPS - Male Adapter (PEC 69604).
  - For the 3KVA or 5KVA UPS - Spade Lug Adapter (PEC 69612).
- One UPS
  - 360 VA UPS (PEC 2403-036)
  - 500 VA UPS (PEC 2403-050)
  - 1KVA UPS (PEC 2403-201)
  - 2KVA UPS (PEC 2403-204)
  - 3KVA UPS (PEC 2403-203)
  - 5KVA UPS (PEC 2403-203).

To connect the 6386 WGS computer to the UPS, do the following (refer to Figure 2-16).

1. Power down the 6386 WGS computer. (For instructions, refer to the *Owner/Operator Manual* that came with the computer.)

2. Connect one end of a 10-conductor cable to the UPS port located on the Remote Maintenance Card (RMC) faceplate. Connect the other end of the cable to one of the following UPS adapters:
  - Male adapter (PEC 69624) for the 360VA or 500 VA UPS
  - Male adapter (PEC 69604) for the 1KVA or 2KVA UPS
  - Spade/lug adapter (PEC 69612) for the 3KVA or 5KVA UPS.
3. Connect the adapter to the UPS as outlined in the UPS documentation.
4. Plug the power cord of the 6386 WGS computer into the UPS. Plug the power cord of the UPS into a 120 V ac outlet. Turn the power to the UPS to ON.
5. Turn the power to the 6386 WGS computer to ON.
6. Enter the following command to set the RIDEOUT parameter to 900 seconds:

```
/etc/conf/bin/idtune RIDEOUT 900
```

7. Enter the following command to rebuild the UNIX kernel:

```
/etc/conf/bin/idbuild
```

8. Execute the following command to shut down the system:

```
shutdown -i6 -g0 -y
```

The UPS is connected to the CMS host computer and the appropriate UNIX system parameters have been set.

## Connecting the Silent Knight Autodialer to the 6386 WGS

If the Silent Knight Autodialer is part of the hardware configuration, you will have to program it with the following:

- An alarm reporting phone number
- A customer account number.

To get these numbers, call the Technical Support Center (TSC) at 1-800-248-1111 and request an alarm-reporting phone number and an account number for your installation. If you have any problems getting the phone number and account number, contact the System Consultant for your location.

Before you do the procedures in this section, obtain the following parts to connect the 6386 WGS computer to the Silent Knight Autodialer:

- Silent Knight Autodialer (PEC 94273) — Optional.

If the 6386 WGS computer has an optional Silent Knight Autodialer, obtain the following additional parts:

- One 10-conductor cable
  - 10-conductor cable, 10 feet (PEC 37776)
  - 10-conductor cable, 25 feet (PEC 37778)
  - 10-conductor cable, 50 feet (PEC 37780)
- One Spade/Lug Adapter (PEC 69612).

To connect the 6386 WGS computer to the Silent Knight Autodialer, do the following (refer to Figure 2–16).

**Note** The Silent Knight Autodialer is optional. If this unit is not included in the hardware configuration, skip the appropriate steps or instructions as necessary.

1. Power down the 6386 WGS computer. (For instructions, refer to the *Owner/Operator Manual* that came with the computer for instructions.)
2. Connect one end of a 10-conductor cable to the ALRM port located on the Remote Maintenance Card (RMC) faceplate. Connect the other end of the cable to the Spade/Lug Adapter.

3. Connect the other end of the Spade/Lug Adapter to the Silent Knight Autodialer by doing the following:
  - a. Unlock and open the lid to the Silent Knight Autodialer.
  - b. At the other end of the cable, connect the BL2W wire (pin 8) to Terminal 15 (ring) on the Silent Knight Autodialer circuit board, and connect the BL1W wire (pin 7) to Terminal 16 (tip).

**Note** If the Silent Knight Autodialer is not present, connect BL2W to ring and BL1W to tip.

- c. Connect Terminal 13 (ring) and Terminal 14 (tip) on the Silent Knight Autodialer circuit board to the incoming telephone line. When a phone number is assigned at the central office to the incoming telephone line, report the phone number to the TSC.
- d. Connect the red (positive) and black (negative) leads from the circuit board to the 6-volt battery.
- e. On the Silent Knight Autodialer circuit board:
  - Terminal 3 should be jumped to Terminal 4 with a Group 32 wire (shorting wire)
  - Terminal 6 should be connected to Terminal 11 with a 15K ohm resistor
  - Terminal 9 should be jumped to Terminal 10 with a Group 32 wire (shorting wire)
  - The transformer that comes with the Silent Knight Autodialer should be connected to Terminals 1 and 2
  - Cut jumper 4.
- f. While the Silent Knight Autodialer circuit board is exposed, go ahead and program it with the alarm-reporting phone number, assigned by the TSC, and with the customer's account number. If you need instructions, refer to the next section, *Programming the Silent Knight Autodialer*.
9. Plug the transformer into a 120 V ac outlet.

- h. To test the Silent Knight Autodialer, temporarily place a jumper wire across Terminals 5 and 11. The autodialer will then dial the TSC and report alarm code 9 (Alarm Test). If the battery is low, alarm code 8 (Low Battery) will also be reported.

**Note** If the battery is dead or not connected, the autodialer will not work.

- i. Close the lid to the Silent Knight Autodialer and lock it. Remove the autodialer key and have the CMS administrator store it in a safe place.
4. Turn on the power to the 6386 WGS computer.

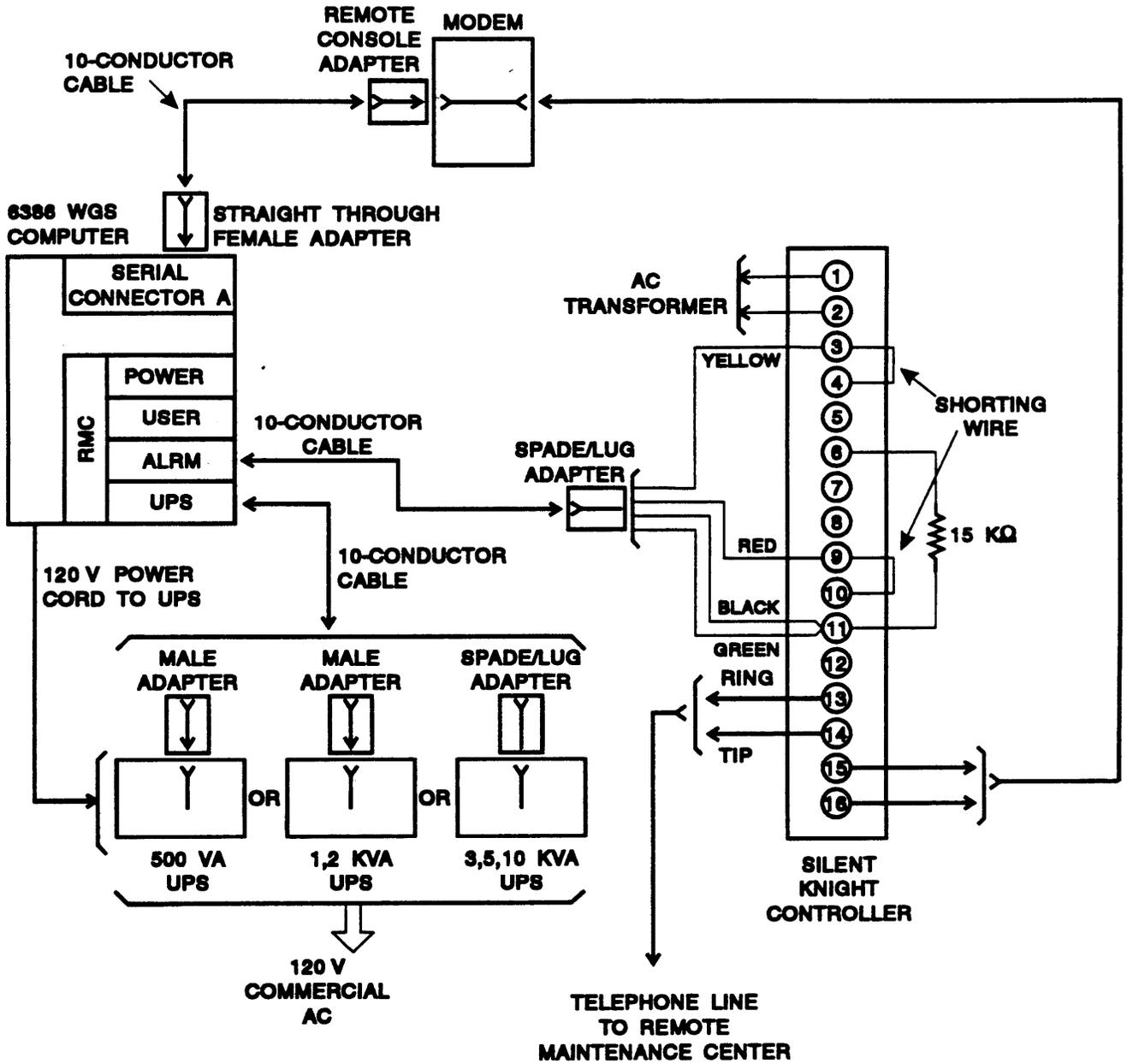


Figure 2-16: 6386 WGS Computer Connection to the TSC

# Programming the Silent Knight Autodialer

If the Silent Knight Autodialer is installed, program it with the telephone number assigned by the TSC and the customer's account number, by doing the following:

1. Remove dc power from the circuit board by unplugging the unit from its ac power source.
2. With the autodialer key in the lock, unlock and open the Silent Knight Autodialer. Notice the programming screws on the board. Figure 2–17 illustrates how these screws are positioned on the board.
3. Reposition the 16 programming screws so they properly encode the desired telephone number and customer account number. Figure 2–17 also illustrates how the screw positions are related to digits.

**Note** **Important:** The telephone number must contain no less than three and no more than 13 digits. When it contains more than seven digits, you must start with the first digit in column A. Use row S to denote unused digits. Each screw in row S provides a 0.8-second delay during dialing. Turn the screws until their heads rest securely against the surface of the board.

4. Close the lid to the Silent Knight Autodialer and lock it.
5. Restore power by plugging the unit back into its ac power source.
6. Remove the autodialer key and tell the CMS administrator to store it in a safe place.



# **Chapter 3**

## **Setting Up CMS and Installing Additional Feature Packages**

## General Information

Once you have completed the hardware connections in Chapter 2, you need to set up the CMS package to work with the customer's configuration. If the customer ordered additional feature packages, you need to install them as well.

Use the procedures in this chapter to do the following tasks:

- Set up the Data Storage parameters
- Set up the CMS feature package
- Install the Vectoring, Graphics, or Forecasting feature packages
- Turn the CMS software application on or off
- Turn the system over to the customer.

### Things to Do Before You Start

---

Before you start the procedures in this chapter, check that the following tasks are done:

- If the customer's CMS historical data is migrating from one host computer to another, the TSC has processed the data from the current host computer and has returned the tapes that contain the data.
- The console terminal has been connected to the 6386 computer.
- The additional terminals and printers have been connected to the 6386 computer.
- The hardware connection between the 6386 computer and the switch has been installed.



If the PGATE/DCIU/PI link and the ACD/CMS feature have not been properly administered, the CMS software will not be able to communicate with the switch. Refer to *Appendix A*, *B*, or *C* for the appropriate switch administration information.

- The 6386 computer has been connected to the TSC's Remote Maintenance Center.
- The Silent Knight Autodialer (optional) has been programmed with the phone number of the Remote Maintenance Center (TSC) and the customer's account number.

## **Important Information About Setting Up CMS and Installing Additional Packages**

- Throughout the setup, you will be prompted to enter values specific to the system being installed. For each question, an appropriate range is displayed in the format of (XX-XX.) The individual values represented by XX specify the limits of each range.
- The CMS feature package must be installed before you can install the Forecasting, Vectoring, or Graphics feature packages.

## Setting Up the Data Storage Parameters

Before the R3.0 CMS software can operate properly, specific data storage parameters must be modified on the computer. These data storage parameters are located in the *storage.def* and *vector.def* files.

The *storage.def* and *vector.def* files already contain default values. These values may not correspond to the system being installed. Use the values that were determined by the Account Executive, System Consultant, and Design Center based on the customer configuration.

To set up the appropriate data storage parameters for the */cms/install/cms\_install/storage.def* and the */cms/install/vec\_install/vector.def* files, do the following:

1. Execute the following command to move to the appropriate directory:

```
cd /cms/install/cms_install
```

**Note** If the *storage.def* or *vector.def* files are destroyed, copies of these files (*storage.sk1* and *vector.sk1*) can be found in the same directories.

2. Edit the *storage.def* file and enter the appropriate values for each question. The answer to each question is placed on the line immediately below the question itself. The *storage.def* file looks like the following screens:

```
# Intrahour interval (15, 30, 60 minutes)?
30
# Week start day (Sunday, Monday, Tuesday, Wednesday,
# Thursday, Friday, Saturday)?
Sunday
# Week end day (Sunday, Monday, Tuesday, Wednesday,
# Thursday, Friday, Saturday)?
Saturday
# Daily start time (regular time)?
12:00 AM
# Daily stop time (data will be collected for seconds
# of last minute)?
11:59 PM
# Number of total call records?
0
# Number of total agent trace records?
10000
# Number of total exceptions records (1-2000)?
500
# Number of times each agent logs out per day:
4
```

**Note** The data storage values listed are the default values and may not be correct for the customer's configuration. Use the values that were determined by the Account Executive, System Consultant, and Design Center based on the customer configuration.

```
# ACD 1
# Days of intrahour for splits (1-62)?
31
# Days of daily splits (1-1825)?
387
# Weeks of weekly splits (1-520)?
0
# Months of monthly splits (1-120)?
0
# Days of intrahour for agents (1-62)?
31
# Days of daily agents (1-1825)?
387
# Weeks of weekly agents (1-520)?
0
# Months of monthly agents (1-120)?
0
# Days of intrahour for trunk groups (1-62)?
31
# Days of daily trunk groups (1-1825)?
387
# Weeks of weekly trunk groups (1-520)?
0
# Months of monthly trunk groups (1-120)?
0
# Days of intrahour for trunks (1-62)?
31
# Days of daily trunks (1-1825)?
387
# Weeks of weekly trunks (1-520)?
0
# Months of monthly trunks (1-120)?
0
# Days of intrahour for call work codes (1-62)?
0
# Days of daily call work codes (1-1825)?
0
# Weeks of weekly call work codes (1-520)?
0
# Months of monthly call work codes (1-120)?
0
```

- Execute the following command to move to the appropriate directory:

```
cd /cms/install/vec_install
```

**Note** If the *storage.def* or *vector.def* files are destroyed, copies of these files (*storage.skl* and *vector.skl*) can be found in the same directories.

- Edit the *vector.def* file and enter the appropriate values for each question. The answer to each question is placed on the line immediately below the question itself. The file looks like the following screen:

```
# Repeat for each ACD
# ACD1
# Days of intrahour for vector facilities (1-62)?
31
# Days of daily vector facilities (1-1825)?
387
# Weeks of weekly vector facilities (1-520)?
0
# Months of monthly vector facilities (1-120)?
0
# Days of intrahour for VDNs (1-62)?
31
# Days of daily VDNs (1-1825)?
387
# Weeks of weekly VDNs (1-520)?
0
# Months of monthly VDNs (1-120)?
0
```

**Note** The data storage values listed are the default values and may not be correct for the customer's configuration. Use the values that were determined by the Account Executive, System Consultant, and Design Center based on the customer configuration.

After the CMS software is running, the system administrator can modify the data storage parameters using the "Data Storage Parameters" window in the "System Setup" subsystem. See the *Call Management System Administration* (585-215-511) document, Chapter 11, for this information.

# Setting Up the CMS Feature Package

**Prerequisites:** You must be logged in as *root*, the computer must be in run-level 2, and all file systems must be mounted.

The CMS feature package is set up by the engineer at the TSC with the help of the on-site technician. The on-site technician needs to call the engineer at the TSC to coordinate this process.

You can set up the CMS feature package using one of two methods:

- a. **Interactively from Terminal** — Using the interactive option, the program prompts you for the information necessary to properly set up the CMS feature package (e.g. system type, number of agents, trunks, vectors, VDNs, etc.).

To set up the CMS feature package using this option, see the "Setting Up CMS Interactively From Terminal" section in this chapter.

- b. **UNIX Flat File** — Using the flat file option, you need to edit a UNIX flat file which contains the information (e.g. system type, number of agents, trunks, vectors, VDNs, etc.) necessary to properly set up the CMS feature package. When the program is executed, it runs in the background and uses the UNIX flat file data to set up the CMS feature package.

To set up the CMS feature package using this option, see the "Setting Up CMS Using a UNIX Flat File" section in this chapter.

## Setting Up CMS Interactively From the Terminal

To set up CMS interactively from the terminal, complete the following steps:

1. Enter the following command to display the CMS Administration menu:

```
# cmsadm
```

The program prints the following menu:

```
                                CALL MANAGEMENT SYSTEM ADMINISTRATION

1 add_agent      Increase max. number of agents allowed by CMS
2 backup        Filesystem backup
3 pkg_display    Display installed feature packages
4 pkg_install    Install a feature package
5 pkg_remove     Remove a feature package
6 run_cms        Turn CMS On or Off
7 setup          Setup the initial CMS configuration
8 swinfo         Display switch information
9 swsetup        Change switch information
10 update_mgmt   Commands for managing software updates
```

```
Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, q to QUIT:
```

2. Enter 7 to select the `setup` option.

The program responds:

```
Enter a name for this UNIX system: (default: XXXXXX)
```

3. Enter a name that corresponds to the name of the customer's company.

The program responds:

```
Select the type of backup device you are using:  
  1) SCSI cartridge tape  
  2) Floppy disk  
Enter the choice (1-2):
```

4. Enter 1 to specify the cartridge tape as the backup device.

The program responds:

```
Enter the default backup device path:  
                                (default: /dev/scsi/qtape1)
```

5. Press the [ RETURN ] key to select the default.

The program responds:

```
Select the number of agents that you want to administer  
  1)  1-100  
  2) 101-200  
  3) 201-300  
  4) 301-400  
  5) over 400  
Enter the choice (1-5):
```

6. Enter the number corresponding to the number of agents that the customer has purchased for this system.

If the number you entered represents more than 100 agents, the program responds:

```
Password:
```

7. Enter the appropriate password.

The program responds:

```
Enter ACD1 switch name (Up to 20 characters):
```

8. Enter the name you have chosen for the switch connected to ACD1. Include "R3" in the name to indicate R3 CMS.

The program responds:

```
Select the model of switch for ACD1:
```

- 1) System85-R2V4
- 2) Definity-G1.1
- 3) Definity-G2.1
- 4) Definity-G2.2
- 5) Definity-G3i
- 6) Definity-G3r

```
Enter the choice (1-6):
```

9. Enter the number corresponding to the switch model the ACD is connected to.

The program responds:

```
Enter the local port assigned to the switch? (1-XX):
```

10. Enter the local port or channel number on the switch.

The program responds:

```
Enter the remote port assigned to switch (1-XX):
```

11. Enter the remote port or channel number on the switch.

The program responds:

```
Enter link number (0-9):
```

The link number represents the port on the GPSC-AT/E board which is connected to the switch.

**Note** The **Port A** cable on the GPSC-AT/E Connector Cable corresponds to link 0, and the **Port B** cable corresponds to link 1. If the WGS computer has two GPSC-AT/E cards installed, the GPSC-AT/E card with the lowest slot number has links 0 and 1. The GPSC-AT/E card with the highest slot number has links 2 and 3.

12. Enter the link number.

The program responds:

```
ACD1 time zone offset (-23 to +23):
```

13. Enter 0 if the WGS computer and the switch are in the same time zone. If the WGS computer and the switch are in different time zones, use the computer as the reference and determine the plus or minus hours difference that the switch is away from the computer. Enter the number of hours difference.

The program responds:

```
Number of splits (0-XX):
```

14. Enter the number of splits in this ACD.

The program responds:

```
Total split members, summed over all splits (0-XXX):
```

15. Enter the maximum number of agents that can be logged in simultaneously.

The program responds:

```
Number of shifts (1-4):
```

16. Enter the number of shifts.

The program responds:

```
Enter the start time for shift 1 (hh:mmXM):
```

17. Enter the start time of shift 1. For example, 08:00AM.

The program responds:

```
Enter the stop time for shift 1 (hh:mmXM):
```

18. Enter the stop time of shift 1. For example, 04:00PM.

The program responds:

```
Number of agents logged into all splits during shift 1 (0-X):
```

19. Enter the number of agents logged in during the shift.



The previous three questions will repeat for the number of shifts entered. For example, if three shifts were selected, the three previous questions would be repeated for each shift.

The program responds:

```
Number of trunk groups (0-XX):
```

20. Enter the number of trunk groups associated with this ACD.

The program responds:

```
Number of trunks (0-XX):
```

21. Enter the number of trunks associated with this ACD.

The program responds:

```
Number of unmeasured facilities (0-XX):
```

22. Enter the number of unmeasured facilities associated with this ACD.



If the switch supports call work codes, you will see a message to enter the number of codes.

The program responds:

```
Computing space requirements and file systems space
availability.
```

```
Approximate space requirements:
```

```
Splits: XXXX
Agents: XXXX
Trunk groups: XXXX
Trunks: XXXX
Call records: XX
Agent trace records: XXX
Exceptions records: XX
```

```
File systems/space available:
```

```
/cms      XXXXXX
/cms1     XXXXXX
```

After the program computes the space requirements and file system space availability, the program prompts you to input the file system for the items listed as follows:

```
File system for:
```

```
Splits:
Agents:
Trunk groups:
Trunks:
Call records:
Agent trace records:
Exceptions records:
```

23. Depending on the recommended configuration, enter `/cms` or `/cms1` for each item.

The program continues:

```
Creating CMS tables
.....
```

The dots (periods) continue to appear as long as the program is creating the CMS tables. After the CMS tables have been completed, the following messages appear:

```
Initializing CMS database tables
*** Database tables successfully initialized ***
Press the RETURN key to see the cmsadm menu [?, q]:
```

24. Enter `q` to return to the system prompt.

25. The `setup.log` file provides a record of what happened during the setup.

To verify the installation completed successfully, execute the following command:

```
# tail /cms/install/logdir/setup.log
```

The CMS software is successfully setup when you see this message:

```
*** Database tables successfully initialized ***  
Setup successfully completed <date and time>
```

**Note** If additional information is needed from this log file, move to the appropriate directory and edit the file.

If you need to install additional CMS related feature packages (Vectoring, Graphics, or Forecasting), go to the appropriate section in this chapter, and follow the outlined procedures.

You can now start the CMS software by following the procedures outlined in the "Turning CMS On or Off" section of this chapter.

## Setting Up CMS Using a UNIX Flat File

Setting up the CMS feature package using a UNIX flat file consists of editing the `cms.inst.sk1` file (flat file) and starting the install program.

1. Change to the following directory by entering this command:

```
# cd /cms/install/cms_install
```

2. Copy the `cms.inst.sk1` file by entering the following command:

```
# cp cms.inst.sk1 cms.install
```

3. Edit the `cms.install` (flat) file by entering one of the following commands:

```
# vi cms.install
```

**OR**

```
# ed cms.install
```

The flat file contains a series of questions and value ranges that pertain to the ACD/switch configuration.

- 4. Enter the appropriate values for your configuration. A sample flat file with values entered might look like the following:

```
# Enter a name for this UNIX system:
R3_COOPER_1
# Select the type of backup device you are using:
# 1) SCSI cartridge tape
# 2) Floppy disk
# Enter choice (1-2):
1
# Default backup device paths based on device type:
# Device                Default backup path
# SCSI cartridge tape  /dev/scsi/qtapel
# Floppy disk          /dev/rdisk/f0
# Enter the default backup device path:
/dev/scsi/qtapel
# Select the number of agents that you want to administer:
# 1) 1-100
# 2) 101-200
# 3) 201-300
# 4) 301-400
# 5) over 400
# Enter choice (1-5):
4
# The following information is required per ACD.
# Enter ACD1 switch name (Up to 20 characters):
G3r_Gateway
# Select the model of switch for this ACD
# 1) System85-R2V4
# 2) Definity-G1.1
# 3) Definity-G2.1
# 4) Definity-G2.2
# 5) Definity-G3i
# 6) Definity-G3r
# Enter choice (1-6):
6
# Enter the local port assigned to switch (1-64):
1
# Enter the remote port assigned to switch (1-64):
1
# Enter link number (0-9):
0
# ACD1 time zone offset (-23 to +23):
0
# Maximum number of splits based on switch type:
# Release(s)                                Value
# System85-R2V4/Definity-G2.1/Definity-G2.2 60
# Definity-G1.1/Definity-G3i/Definity-G3r   99
# Number of splits (0-Maximum):
72
```

```

# Total split members, summed over all splits (0-1023):
900
# Number of shifts (0-4):
3
# Enter the start time for shift 1 (hh:mmXM):
08:00am
# Enter the stop time for shift 1 (hh:mmXM):
04:00pm
# Number of agents logged into all splits during
#                               shift 1 (1-Maximum):
350
# Enter the start time for shift 2 (hh:mmXM):
04:00pm
# Enter the stop time for shift 2 (hh:mmXM):
12:00midnight
# Number of agents logged into all splits during
#                               shift 2 (1-Maximum):
125
# Enter the start time for shift 3 (hh:mmXM):
12:00midnight
# Enter the stop time for shift 3 (hh:mmXM):
08:00am
# Number of agents logged into all splits during
#                               shift 3 (1-Maximum):
50
# Enter the start time for shift 4 (hh:mmXM):

# Enter the stop time for shift 4 (hh:mmXM):

# Number of agents logged into all splits during
#                               shift 4 (1-Maximum):

# Maximum number of trunk groups based on switch type:
# Release(s)                               Value
# Definity-G1.1/Definity-G3i                99
# System85-R2V4/Definity-G2.1/G2.2/G3r     255
# Number of trunk groups (0-Maximum):
200
# Number of trunks (0-2000):
1500
# Number of unmeasured facilities
#                               (0 to (2000-Number of trunks)):
300
# Minimum number of call work codes based on switch type:
# Release(s)                               Value
# System85-R2V4/Definity-G1.1/Definity-G2.1  0
# Definity-G2.2/Definity-G3i/Definity-G3r    1
# Maximum number of call work codes based on switch type:
# Release(s)                               Value
# System85-R2V4/Definity-G1.1/Definity-G2.1  0
# Definity-G2.2/Definity-G3i/Definity-G3r    1999
# Number of call work codes (Minimum-Maximum):
1400

```

5. After you have entered all the appropriate values, write and quit the file.

6. Enter the following command to change to the *root* directory:

```
# cd /
```

7. Enter the following command to display the CMS Administration menu:

```
# cmsadm
```

The program responds:

```
                                CALL MANAGEMENT SYSTEM ADMINISTRATION

1 add_agent      Increase max. number of agents allowed by CMS
2 backup         Filesystem backup
3 pkg_display    Display installed feature packages
4 pkg_install    Install a feature package
5 pkg_remove     Remove a feature package
6 run_cms        Turn CMS On or Off
7 setup          Setup the initial CMS configuration
8 swinfo         Display switch information
9 swsetup        Change switch information
10 update_mgmt   Commands for managing software updates

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, q to QUIT:
```

8. Enter 7 to select the *setup* option.

The program responds:

```
The input will be read from
 1) the terminal
 2) a flat file
Enter choice (1-2):
```

9. Enter 2 to specify that the installation will use the flat file.

The program responds:

```
Password:
```

10. Enter the appropriate password.

The program responds:

```
Computing space requirements and file systems space
availability.
```

```
Approximate space requirements:
```

```
Splits: XXXX
Agents: XXXX
Trunk groups: XXXX
Trunks: XXXX
Call records: XX
Agent trace records: XXX
Exceptions records: XX
```

```
File systems/space available:
```

```
/cms      XXXXXX
/cms1     XXXXXX
```

After the program computes the space requirements and file system space availability, the program prompts you to input the file system for the items listed as follows.

```
File system for:
Splits:
Agents:
Trunk groups:
Trunks:
Call records:
Agent trace records:
Exceptions records:
Call work codes:
```

11. Depending on the recommended configuration, enter `/cms` or `/cms1` for each item.

After you enter `/cms` (or `/cms1`) for the last item, the program responds:

```
The rest of the installation is running in the background
Press the RETURN key to see the cmsadm menu [?, q]:
```

12. Enter `q` to return to the system prompt.

Running the installation in the background takes several minutes. You cannot install any other feature packages until these background processes are finished.

The `setup.log` file provides a record of what happened during the setup.

To verify the installation completed successfully, execute the following command:

```
# tail -f /cms/install/logdir/setup.log
```

The CMS software is successfully setup when you see this message:

```
*** Database tables successfully initialized ***  
Setup successfully completed <date and time>
```

**Note** If additional information is needed from this log file, move to the appropriate directory and edit the file.

If you need to install additional CMS related feature packages (Vectoring, Graphics, or Forecasting), go to the appropriate section in this chapter, and follow the outlined procedures.

You can now start the CMS software by following the procedures outlined in the "Turning CMS On or Off" section of this chapter.

# Installing the Vectoring Feature Package

**Prerequisites:** You must be logged in as *root*, the computer must be in run-level 2, and all file systems must be mounted.

To install the Vectoring feature package, complete the following:

1. Enter the following command to display the CMS Administration menu:

```
# cmsadm
```

The program responds:

```
                                CALL MANAGEMENT SYSTEM ADMINISTRATION
1 add_agent      Increase max. number of agents allowed by CMS
2 backup         Filesystem backup
3 pkg_display    Display installed feature packages
4 pkg_install    Install a feature package
5 pkg_remove     Remove a feature package
6 run_cms        Turn CMS On or Off
7 setup          Setup the initial CMS configuration
8 swinfo         Display switch information
9 swsetup        Change switch information
10 update_mgmt   Commands for managing software updates

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, q to QUIT:
```

2. Enter 4 to select the `pkg_install` option.

The program responds:

```
The CMS Features that can be installed are:
```

- 1) Vectoring
- 2) Graphics
- 3) Forecast

```
Enter the feature choice (1, 2 or 3) or q to quit:
```

**Note** The above list may change if any packages are already installed.

3. Enter the number corresponding to the Vectoring feature package.

The program responds:

```
Password:
```

4. Enter the appropriate password.

The program responds:

```
Enter the number of vectors (0-XX):
```

5. Enter the number of vectors on this system.

The program continues:

```
Enter the number of VDNs (0-XX):
```

6. Enter the number of VDNs on this system.

The program continues:

```
Approximate space requirements:  
  Vectors: XXXX  
  VDNs: XXXX  
  
File systems/space available:  
 /cms      XXXXXX  
 /cms1     XXXXXX  
  
Enter file system for vector data:
```

7. Enter /cms or /cms1 depending on the recommended configuration.

The program responds:

```
Enter file system for VDN data:
```

8. Enter /cms or /cms1 depending on the recommended configuration.

The program responds:

```
Creating call vectoring tables  
.....
```

The dots (periods) continue to appear as the program sets up the call vectoring tables.

After the vectoring tables are completed, the following messages appear:

```
*** Successfully installed 'Vectoring' package ***  
  
Press the RETURN key to see the cmsadm menu [?, q]:
```

9. Enter `q` to return to the system prompt.

10. The `pkg.log` file provides a record of what happened during the Vectoring package installation.

To verify the installation completed successfully, execute the following command:

```
# tail /cms/install/logdir/pkg.log
```

The Vectoring package is successfully installed when you see this message:

```
Successfully turning on call vectoring for each ACD(s).  
*** Successfully installed 'Vectoring' package ***
```

**Note** If additional information is needed from this log file, move to the appropriate directory and edit the file.

If additional CMS-related feature packages (Graphics or Forecasting) are to be installed at this time, go to the appropriate section of this chapter and follow the outlined procedures.

# Installing the Graphics Feature Package

**Prerequisites:** You must be logged in as *root*, the computer must be in run-level 2, and all file systems must be mounted.

To install the Graphics feature package, complete the following:

1. Enter the following command to display the CMS Administration menu:

```
# cmsadm
```

The program responds:

```
                                CALL MANAGEMENT SYSTEM ADMINISTRATION

1 add_agent      Increase max. number of agents allowed by CMS
2 backup         Filesystem backup
3 pkg_display    Display installed feature packages
4 pkg_install    Install a feature package
5 pkg_remove     Remove a feature package
6 run_cms        Turn CMS On or Off
7 setup          Setup the initial CMS configuration
8 swinfo         Display switch information
9 swsetup        Change switch information
10 update-mgmt   Commands for managing software updates

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, q to QUIT:
```

2. Enter 4 to select the `pkg_install` option.

The program responds:

```
The CMS Features that can be installed are:  
    1) Vectoring  
    2) Graphics  
    3) Forecast  
  
Enter the feature choice (1, 2 or 3) or q to quit:
```

**Note** The above list changes as the packages are installed.

3. Enter the number corresponding to the Graphics feature package.

The program responds:

```
Password:
```

4. Enter the appropriate password.

The program responds:

```
*** Successfully installed 'Graphics' package ***  
Press the RETURN key to see the cmsadm menu [?, q]:
```

5. Enter q to return to the system prompt.

6. The `pkg.log` file provides a record of what happened during the Graphics package installation.

To verify the installation completed successfully, execute the following command:

```
# tail /cms/install/logdir/pkg.log
```

The Graphics package is successfully installed when you see this message:

```
*** Successfully installed 'Graphics' package ***
```

**Note** If additional information is needed from this log file, move to the appropriate directory and edit the file.

If additional CMS-related feature packages (Vectoring or Forecasting) are to be installed at this time, go to the appropriate section of this chapter and follow the outlined procedures.

# Installing the Forecasting Feature Package

**Prerequisites:** You must be logged in as *root*, the computer must be in run-level 2, and all file systems must be mounted.

To install the Forecasting feature package, complete the following:

1. Enter the following command to display the CMS Administration menu:

```
# cmsadm
```

The program responds:

```
                                CALL MANAGEMENT SYSTEM ADMINISTRATION

1 add_agent      Increase max. number of agents allowed by CMS
2 backup         Filesystem backup
3 pkg_display    Display installed feature packages
4 pkg_install    Install a feature package
5 pkg_remove     Remove a feature package
6 run_cms       Turn CMS On or Off
7 setup         Setup the initial CMS configuration
8 swinfo        Display switch information
9 swsetup       Change switch information
10 update_mgmt  Commands for managing software updates

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, q to QUIT:
```

2. Enter 4 to select the `pkg_install` option.

The program responds:

```
The CMS Features that can be installed are:
```

- 1) Vectoring
- 2) Graphics
- 3) Forecast

```
Enter the feature choice (1, 2 or 3) or q to quit:
```

**Note**

The above list changes as the packages are installed.

3. Enter the number corresponding to the Forecast feature package.

The program responds:

```
Password:
```

4. Enter the appropriate password.

The program responds:

```
Approximate space requirements:
```

```
Forecasting: XXXXX
```

```
File systems/space available:
```

```
/cms          XXXXXX
```

```
/cms1         XXXXXX
```

```
Enter file system for forecasting:
```

5. Enter /cms or /cms1 depending on the recommended configuration.

The program responds:

```
Creating forecast tables  
.....
```

The dots (periods) continue to appear as the program sets up the forecasting tables. After the forecasting tables are completed, the following messages appear:

```
*** Successfully installed 'Forecasting' package ***  
Press the RETURN key to see the cmsadm menu [?, q]:
```

6. Enter `q` to return to the system prompt.

7. The `pkg.log` file provides a record of what happened during the Forecasting package installation.

To verify the installation completed successfully, execute the following command:

```
# tail /cms/install/logdir/pkg.log
```

The Forecasting package is successfully installed when you see this message:

```
.  
. .  
*** Successfully installed 'Forecast' package ***
```

**Note** If additional information is needed from this log file, move to the appropriate directory and edit the file.

If additional CMS-related feature packages (Graphics or Vectoring) are to be installed at this time, go to the appropriate section of this chapter and follow the outlined procedures.

# Turning CMS On or Off

**Prerequisites:** You must be logged in as *root*, the computer must be in run-level 2, and all file systems must be mounted.

After the CMS software is installed, you need to turn on CMS to allow it to begin collecting data. Turning on CMS initializes the communications link between the CMS software and the telecommunications switch.

You need to stop CMS to upgrade or update the CMS feature package.

Use these steps to start or stop CMS:

1. Enter the following command to display the CMS Administration menu:

```
# cmsadm
```

The program responds:

```
                                CALL MANAGEMENT SYSTEM ADMINISTRATION

1 add_agent      Increase max. number of agents allowed by CMS
2 backup         Filesystem backup
3 pkg_display    Display installed feature packages
4 pkg_install    Install a feature package
5 pkg_remove     Remove a feature package
6 run_cms        Turn CMS On or Off
7 setup          Setup the initial CMS configuration
8 swinfo         Display switch information
9 swsetup        Change switch information
10 update_mgmt   Commands for managing software updates

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, q to QUIT:
```

2. Enter 6 to select the `run_cms` option.

The program responds:

```
Select the following
  1) Turn on CMS
  2) Turn off CMS
Enter the choice (1-2):
```

3. Enter the appropriate number to turn CMS on or off.
  - a. If you turned CMS on, the program responds:

```
Checking the System Tunables for correct CMS values.
Please wait for initialization
. . .
```

The program takes a few minutes to initialize the system parameters and then responds:

```
*** CMS is now up ***

Press the RETURN key to see the cmsadm menu [?, q]:
```

b. If you turned CMS off, the program responds:

```
*** Turning off CMS, Please wait ***  
.....  
*** CMS is now off ***  
  
Press the RETURN key to see the cmsadm menu [?, q]:
```

4. Press [ RETURN ] to display the cmsadm menu or enter q to return to the system prompt.

## Turning the System Over to the Customer

Complete the test procedures located in Chapter 5, "Turning CMS Over to the Customer" and the backup procedures located in Chapter 6, "Maintenance" before you turn the system over to the customer.

The customer's CMS administrator will need to know the information outlined on the next page.

**Note** For system security, **passwords should not be written down.** If they are written down, they should be stored in a secured place.

---



---

The password for the <i>root</i> login ID. (Also passwords for the system login IDs if they were assigned.)	1.	_____
The CMS administrator login ID and password. (This login ID is <i>cms</i> .)	2.	_____
Additional CMS-administrator login IDs and passwords	3.	_____ _____ _____
The default CMS printer name	4.	_____
Additional system printer names	5.	_____ _____ _____
How many splits were assigned?	6.	_____
How many agents were assigned?	7.	_____
How many trunk groups were assigned?	8.	_____
How many trunks were assigned?	9.	_____
How many VDNs were assigned?	10.	_____

---



---

The customer's CMS administrator will also need the printed output from the **df -t** command which contains disk partitioning information.

# **Chapter 4**

## **CMS Software Maintenance Procedures**

## General Information

Use the procedures in this chapter to maintain the R3 CMS software on a 6386 computer.

The procedures for maintaining the R3 CMS software are divided into five categories:

- Upgrading the CMS Software
- Updating the CMS Software
- Displaying Installed Feature Packages
- Removing a CMS Related Feature Package.
- Changing Switch Parameters

**Note** You should confer with the customer's CMS administrator to determine whether or not the software maintenance is to take place after regular working hours.

## Before Upgrading to a New Base Load or Installing a Field Update

Before you upgrade a system to a new base load or install a Field Update, do the following:

- Back up the / and /usr file systems and the CMS file system(s) from the UNIX system environment. For instructions, refer to Chapter 6, "Maintenance."

**Note** If you are upgrading the system to include the Mirrored Disk capabilities, follow the procedures outlined in UNIX documentation.

- Make sure you have the cartridge tape that contains the new base load or the Field Update software.

**Note** A letter should accompany the software. Read the instructions in the letter before you start the procedures in this chapter.

# Upgrading the CMS Software

**Prerequisites:** You must be logged in as *root*, the computer must be in run-level 2, all file systems must be mounted, and CMS must be turned OFF.

The upgrade software package will automatically use the following procedures to upgrade your system:

- Remove the Current Base Load
- Download the New Base Load
- Reinstall the CMS Feature Package.

To install the CMS upgrade, do the following steps:

1. Insert the CMS upgrade cartridge tape into the tape drive.
2. Enter the following command to start the upgrade procedure:

```
# installpkg
```

3. The **installpkg** program responds with the following message:

```
Confirm

Please indicate the installation medium you intend to use.

Strike "C" to install from CARTRIDGE TAPE
or "F" to install from FLOPPY DISKETTE.

Strike ESC to stop.
```

4. Press **c** to select the cartridge tape.

The program responds:

```
Confirm

Please insert the cartridge tape into the tape drive.

Strike ENTER when ready
or ESC to stop.
```

5. Press [ RETURN ].

The program continues:

Confirm

It is recommended that you re-tension the tape before attempting the installation, to ensure that the tape is read without any errors.

If you strike ENTER the tape will be re-tensioned.

Strike ENTER when ready  
or ESC to stop.

6. Press [ RETURN ].

The program continues:

Retensioning the tape media.

This will take approximately 3 minutes.

After the tape has re-tensioned, the program responds:

You will now be prompted to select the packages that you wish to install from this tape.

You may select one or more packages from the menu by entering the number listed alongside the package name.

Enter each package number one at a time, pressing ENTER after each selection. The package numbers may be entered in any order.

To install all the packages, type the number indicated at the end of the package list.

When you have made all the selections required, Strike ESC.

To skip this step or cancel any selections made, type the number as indicated in the package list.

Strike ENTER when ready.

7. Press [ RETURN ].

The program responds:

Packages available for installation:

1. X.25 Network Interface - Version 1.2.1
2. UNIX System V/386 R3.2 V2.3 Maintenance Disk #1
3. KornShell Version 11/16/88d 386 Release 2.0
4. Call Management System (3.X)
5. Install ALL packages shown above
6. Exit, do not install any packages

Please enter the next package number(s) to install, followed by ENTER.

Press ESC when all selections have been made.

Enter Package Number:

8. Enter the number corresponding to the Call Management System package.

9. Press [ ESC ]. The program responds:

```
You have made the following selections:
```

```
3.    Call Management System (3.X)
```

```
Confirm
```

```
Strike ENTER to confirm and continue with the installation  
or ESC to re-display the menu and re-select.
```

```
Strike ENTER when ready  
or ESC to stop.
```

10. Press [ RETURN ].

The program continues:

```
REMINDER!
```

```
Depending on the packages you are installing, you may be  
required to provide some input to the installation utility  
to configure the software for your system.
```

```
Strike ENTER when ready.
```

11. Press [ RETURN ].

The program continues:

```
Installation in progress -- Do not remove the cartridge tape

Installing the Call Management System (3.X).
Copyright (c) 1991 AT&T
All Rights Reserved.

Editing Package Version 2.1 verified.
Remote Terminal Package Version 2.1 verified.
KornShell Version 11/16/88d 386 Release 2.0 verified.
X25 Network Interface - Version 1.2.1_DEMO verified.
SCSI Support Package - Version 2.0 verified.
UNIX System V/386 R3.2 V2.3 Maintenance Disk #1 verified.
INFORMIX-SQL Version 2.10.03J <date and time> verified.
Remote Management Package (RMP) Version 1.0 verified.

CMS is already installed on this machine...
Removing old CMS software... CMS data will be preserved

Removing Call Management System (3.X).

All file systems should be backed up before continuing.
See the Maintenance chapter in the i386 CMS Installation
and Maintenance Manual for instructions.

Have you backed up the file systems? (y/n):
```

If you have backed up your file systems, enter `y`. If you have not backed up your file systems, enter `n` and complete the procedures in the "Backing Up the File Systems From the UNIX System Environment" section of chapter 6.

If you answer *y*, the program responds with the following message:

```
Stopping UNIX log ... done
>> Retaining customer data.
/etc/conf/init.d/ilog
/etc/conf/node.d/osm
/etc/logit
/usr/bin/cms
/usr/bin/cmsadm
. . . . .
. . . . .
. . . . .
```

The program takes about ten minutes to remove the files associated with the previous version of CMS. When all the appropriate files have been removed, the program responds:

```
Removal of Call Management System (3.X) is complete

## Installing files from cartridge tape
. . . . .
. . . . .
. . . . .
. . . . .
```

The program takes about 10-20 minutes to download the R3 CMS software from the cartridge tape to the hard disk. As the software is downloaded, several rows of periods (.....) are displayed to let you know the program is still running. When the download of files finishes, the following message appears:

```
## Auditing package installation
```

Several minutes are required to audit the package installation.

If the audit is successful, the following messages are displayed:

```
>> No errors detected during audit.  
## Upgrading Customer CMS data ...
```

The program takes a few minutes to upgrade (reformat) the customer data. The program continues:

```
Customer CMS data successfully upgraded.  
  
Setting UNIX system tunable parameters for CMS.  
This will take approximately three minutes to complete.  
No changes to tunable parameters were required.  
  
The installation of the Call Management System (3.X)  
package is now complete.  
  
#
```

**Note** If the tunable parameters **were** changed, the program prompts you to reboot. In this case, press [ ESC ] and then execute the `shutdown -i6 -g0 -y` command.

12. After the tape has finished rewinding (tape drive light is not lit), remove the cartridge tape.

The CMS software has been successfully upgraded.

13. Do a system backup by completing the procedures in the "Backing Up the File Systems From the UNIX System Environment" section of chapter 6.

# Updating the CMS Software

Updating the CMS software is a two part process. The first part of the process is saving (downloading) the CMS update files from cartridge tape to hard disk. This allows the update to be stored on the hard disk until a convenient time to do the update. Downloading the CMS update files requires an on-site technician to insert the CMS update tape into the tape drive.

The second part of the process is installing the update from the hard disk files. This part of the process can be done remotely. Since CMS must be off to update from disk files, you should do the update at a time when customer service will not be interrupted (i.e., after regular working hours, weekends, etc.)

## Saving the CMS Update to Disk Files

---

**Prerequisites:** You must be logged in as *root*, the computer must be in run-level 2, and all file systems must be mounted.

To save the CMS software update to disk files, do the following steps:

1. Insert the CMS upgrade cartridge tape into the tape drive.
2. Execute the following command to start the update procedure:

```
# cmsadm
```

The CMS Administration menu displays:

```
CALL MANAGEMENT SYSTEM ADMINISTRATION

1 add_agent      Increase max. number of agents allowed by CMS
2 backup         Filesystem backup
3 pkg_display    Display installed feature packages
4 pkg_install    Install a feature package
5 pkg_remove     Remove a feature package
6 run_cms        Turn CMS On or Off
7 setup          Setup the initial CMS configuration
8 swinfo         Display switch information
9 swsetup        Change switch information
10 update_mgmt   Commands for managing software updates

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, q to QUIT:
```

3. Enter 10 to select the update\_mgmt option.

The program responds:

```
Select operation:
  1) Backout the currently installed update
  2) Install update from disk files
  3) Save update on disk for later installation
Enter choice (1-3):
```

4. Enter 3.

The program responds:

```
Insert cartridge tape, then press ENTER:
```

5. Insert the CMS update tape into the tape drive and press [ RETURN ].

The program begins downloading the CMS update files onto the hard disk as indicated by these messages:

```

looking for cms package ....
install.1
install.1/INSTALL
install.1/pkgname
install.1/i_data
install.1/UNINSTALL
install.1/SETtunes
install.1/adm_func
install.1/audit
install.1/auditmap
install.1/autoconfig
install.1/pkgauditmap
install.1/auditmap.1
install
install/INSTALL
install/pkgname
install/i_data
install/UNINSTALL
install/SETtunes
install/adm_func
install/audit
install/auditmap
install/autoconfig
install/pkgauditmap
install/auditmap.1
578 blocks
200+0 records in
200+0 records out
Software saved in /cms/cms_updates/3.X for
                                later installation.

Press the RETURN key to see the cmsadm menu [?, q]:

```

where X is the update release, for example: 3.1m4.1a.

**Note** The numbers of blocks, records, and filenames you see on your screen may differ depending on the size of the update release.

6. Enter `q`.

The system prompt (`#`) should return to your screen.

The update files are now downloaded from cartridge tape to hard disk.

## Installing the CMS Update From Disk Files

**Prerequisites:** You must be logged in as *root*, the computer must be in run-level 2, all file systems must be mounted, and CMS must be turned OFF.

The CMS software allows an update from disk files which have been previously created. You created these files in the "Saving the CMS Update to Disk Files" section of this chapter. Installing an update from disk files can be done from a remote location.

To install the CMS software update from disk files, do the following steps:

1. Enter the CMS Administration command:

```
# cmsadm
```

The CMS Administration menu displays:

```
CALL MANAGEMENT SYSTEM ADMINISTRATION

1 add_agent      Increase max. number of agents allowed by CMS
2 backup         Filesystem backup
3 pkg_display    Display installed feature packages
4 pkg_install    Install a feature package
5 pkg_remove     Remove a feature package
6 run_cms        Turn CMS On or Off
7 setup          Setup the initial CMS configuration
8 swinfo         Display switch information
9 swsetup        Change switch information
10 update_mgmt   Commands for managing software updates

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, q to QUIT:
```

Enter 6 to select the `run_cms` option.

The program responds:

```
Select one of the following
 1) Turn on CMS
 2) Turn off CMS
Enter choice (1-2):
```

2. Enter 2 to turn CMS off.

The program responds:

```
*** Turning off CMS, Please wait ***
*** CMS is now off ***

Press the RETURN key to see the cmsadm menu [?, q]:
```

3. Press [ RETURN ].

The CMS Administration menu displays:

```
CALL MANAGEMENT SYSTEM ADMINISTRATION

1 add_agent      Increase max. number of agents allowed by CMS
2 backup         Filesystem backup
3 pkg_display    Display installed feature packages
4 pkg_install    Install a feature package
5 pkg_remove     Remove a feature package
6 run_cms        Turn CMS On or Off
7 setup          Setup the initial CMS configuration
8 swinfo         Display switch information
9 swsetup        Change switch information
10 update_mgmt   Commands for managing software updates

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, q to QUIT:
```

4. Enter 10 to select the update\_mgmt option.

The program responds:

```
Select operation:
 1) Backout the currently installed update
 2) Install update from disk files
 3) Save update on disk for later installation
Enter choice (1-3):
```

5. Enter 2.

The program responds:

```
Select update to install:
 1) 3.X
Enter choice (1-1):
```

6. Enter 1.

The program responds:

```
578 blocks

Installing the Call Management System (3.X).
Copyright (c) 1991 AT&T
All Rights Reserved.

Call Management System (3.X) verified.
Editing Package Version 2.1 verified.
KornShell Version 11/16/88d 386 Release 2.0 verified.
x25 Network Interface: Release 1.2.1 1.51.1.7 verified.
SCSI Support Package - Version 2.0 verified.
UNIX System V/386 Release 3.2 Version 2.3 Maintenance
                               Disk #1 verified.
INFORMIX-SQL Version 2.10.03J  01/27/89 16:43 verified.
Remote Management Package (RMP) Version 1.0 verified.

Making backup copies of old files ...
/cms/install/update/file_bkup/cms/bin/gsearch
/cms/install/update/file_bkup/cms/db/scrdef/d_search
/cms/install/update/file_bkup/cms/install/auditmap
/cms/install/update/file_bkup/cms/install/autoconfig
342 blocks

## Installing files from /cms/cms_updates/3.1m4.1a
1820 blocks

## Installing AUDITMAP in
                               /usr/admin/menu/packagegmt/auditmaps

## Auditing package installation
```

Several minutes are required to audit the package installation.

If the audit is successful, the following message is displayed:

```
>> No errors detected during audit.

Setting UNIX system tunable parameters for CMS.
This will take approximately three minutes to complete.
No changes to tunable parameters were required.

The installation of the Call Management System (3.X)
                                     is complete.
Update installation completed successfully

Remove saved disk files in /cms/cms_updates/3.X? (y/n):
```

7. Enter *y*.

**Note** If the tunable parameters **were** changed, the program prompts you to reboot. In this case, execute the `shutdown -i6 -g0 -y` command.

The program responds:

```
Press the RETURN key to see the cmsadm menu [?, q]:
```

8. Press [ RETURN ].

The CMS administration screen displays:

```
CALL MANAGEMENT SYSTEM ADMINISTRATION

1 add_agent      Increase max. number of agents allowed by CMS
2 backup         Filesystem backup
3 pkg_display    Display installed feature packages
4 pkg_install    Install a feature package
5 pkg_remove     Remove a feature package
6 run_cms        Turn CMS On or Off
7 setup          Setup the initial CMS configuration
8 swinfo         Display switch information
9 swsetup        Change switch information
10 update_mgmt   Commands for managing software updates

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, q to QUIT:
```

9. Enter 56fP to select the run\_cms option.

The program responds:

```
Select one of the following
1) Turn on CMS
2) Turn off CMS
Enter choice (1-2):
```

10. Enter 1 to turn on CMS.

The program responds:

```
Please wait for initialization

*** CMS is now up ***

Press the RETURN key to see the cms_mgmt menu [?, q]:
```

11. Enter `q` to quit.

The system prompt (`#`) should return to your screen. The CMS update is now complete.

## Backing Out the Currently Installed Update

**Prerequisites:** You must be logged in as *root*, the computer must be in run-level 2, all file systems must be mounted, and CMS must be turned OFF.

The CMS software provides a function that can remove the currently installed CMS software update and restore the CMS software to the previous base load. This procedure is referred to as 'backing out the software.'

To back out the CMS update currently installed on the system, do the following steps:

1. Enter the following command to access the CMS management menu:

```
# cmsadm
```

The program responds:

```
CALL MANAGEMENT SYSTEM ADMINISTRATION

1 add_agent      Increase max. number of agents allowed by CMS
2 backup         Filesystem backup
3 pkg_display    Display installed feature packages
4 pkg_install    Install a feature package
5 pkg_remove     Remove a feature package
6 run_cms       Turn CMS On or Off
7 setup         Setup the initial CMS configuration
8 swinfo        Display switch information
9 swsetup       Change switch information
10 update_mgmt  Commands for managing software updates

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, q to QUIT:
```

2. Enter 10 to select the `update_mgmt` option.

The program responds:

```
Select operation:
  1) Backout the currently installed update
  2) Install update from disk files
  3) Save update on disk for later installation
Enter choice (1-3):
```

3. Enter 1.

The program responds with a list of files that will be changed due to the backout of the update.

```
. . . . .
. . . . .
. . . . .
/cms/install/auditmap
/cms/install/autoconfig

Press the RETURN key to see the cms_mgmt menu [?, q]:
```

4. Enter `q` to quit and return to the system prompt.

The update has been successfully backed out of the CMS software. You can now start the CMS software by following the procedures outlined in the "Turning CMS On of Off" section of Chapter 3.

## Increasing Agent Capacity in CMS

**Prerequisites:** You must be logged in as *root*, the computer must be in run-level 2, all CMS users must be logged off, and all file systems must be mounted.

This section describes the procedure to increase the number of agents that can be logged into CMS at a given time.

1. Enter the following command to access the CMS management menu:

```
# cmsadm
```

The program responds:

```
                                CALL MANAGEMENT SYSTEM ADMINISTRATION

1 add_agent      Increase max. number of agents allowed by CMS
2 backup        Filesystem backup
3 pkg_display    Display installed feature packages
4 pkg_install    Install a feature package
5 pkg_remove     Remove a feature package
6 run_cms       Turn CMS On or Off
7 setup         Setup the initial CMS configuration
8 swinfo        Display switch information
9 swsetup       Change switch information
10 update_mgmt  Commands for managing software updates

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, q to QUIT:
```

2. Enter 1 to select the `add_agent` option.

The program responds:

```
Password:
```

3. Enter the appropriate password.

The program responds:

```
Maximum number of agents currently allowed is: XXX  
Increase max. number of agents by:  
1) 100  
2) 200  
3) 300  
4) XXX  
Enter the choice (1-5):
```

4. Enter the number corresponding to the number of additional agents you want to add to your system.

The program responds:

```
*** The maximum number of agents was increased by XXX. ***  
  
Press the RETURN key to see the cmsadm menu [?, q]:
```

5. Enter `q` to quit and return to the system prompt.

## Displaying Installed Feature Packages (CMS-Related)

**Prerequisites:** You must be logged in as *root*, the computer must be in run-level 2, all CMS users must be logged off, and all file systems must be mounted.

This section describes the procedure used to display the CMS-related feature package(s) currently installed on the computer.

1. Enter the following command to access the CMS management menu:

```
# cmsadm
```

The program responds:

```
                                CALL MANAGEMENT SYSTEM ADMINISTRATION

1 add_agent      Increase max. number of agents allowed by CMS
2 backup         Filesystem backup
3 pkg_display    Display installed feature packages
4 pkg_install    Install a feature package
5 pkg_remove     Remove a feature package
6 run_cms        Turn CMS On or Off
7 setup          Setup the initial CMS configuration
8 swinfo         Display switch information
9 swsetup        Change switch information
10 update_mgmt   Commands for managing software updates

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, q to QUIT:
```

2. Enter 3 to select the `pkg_display` option.

The program responds:

```
The following feature packages have been installed:
```

```
    Vectoring  
    Graphics  
    Forecast
```

```
Press the RETURN key to see the cmsadm menu [?, q]:
```

**Note** Your screen may look different depending on what packages are installed.

3. Enter `q` to quit and return to the system prompt.

# Removing a CMS Related Feature Package

**Prerequisites:** You must be logged in as *root*, the computer must be in run-level 2, all CMS users must be logged off, CMS must be turned OFF, and all file systems must be mounted.

This section describes the procedure to remove a CMS-related feature package. This procedure also removes all files and database tables associated with the feature package.



Care should be taken when removing a package as all features and data associated with that package will be lost.

To remove a CMS-related feature package, do the following steps:

1. Enter the following command to access the CMS management menu:

```
# cmsadm
```

The program responds:

```
                                CALL MANAGEMENT SYSTEM ADMINISTRATION

1 add_agent      Increase max. number of agents allowed by CMS
2 backup        Filesystem backup
3 pkg_display    Display installed feature packages
4 pkg_install    Install a feature package
5 pkg_remove     Remove a feature package
6 run_cms       Turn CMS On or Off
7 setup         Setup the initial CMS configuration
8 swinfo        Display switch information
9 swsetup       Change switch information
10 update_mgmt   Commands for managing software updates

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, q to QUIT:
```

2. Enter 5 to select the `pkg_remove` option.

The program responds:

```
                                The CMS features that can be removed are:

                                1. Graphics
                                2. Forecast

Enter the Feature choice (1 or 2) or q to quit:
```

3. Enter the number corresponding to the feature package that is being removed.

*If the Graphics feature is selected, the following appears*

Graphics package successfully removed

*If the Forecast feature is selected, the following appears*

. . . . .  
Forecast package successfully removed

Press the RETURN key to see the cmsadm menu [?, q]:

4. Enter `q` to quit and return to the system prompt.

# Changing Switch Parameters

**Prerequisites:** You must be logged in as *root*, the computer must be in run-level 2, all CMS users must be logged off, and all file systems must be mounted.

This section describes the procedure to change the switch parameters.

To change switch parameters, do the following steps:

1. Enter the following command to access the CMS management menu:

```
# cmsadm
```

The program responds:

```
CALL MANAGEMENT SYSTEM ADMINISTRATION

1 add_agent      Increase max. number of agents allowed by CMS
2 backup         Filesystem backup
3 pkg_display    Display installed feature packages
4 pkg_install    Install a feature package
5 pkg_remove     Remove a feature package
6 run_cms        Turn CMS On or Off
7 setup          Setup the initial CMS configuration
8 swinfo         Display switch information
9 swsetup        Change switch information
10 update_mgmt   Commands for managing software updates

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, q to QUIT:
```

2. Enter 9 to select the `swsetup` option.

The program responds:

```
Enter ACD1 switch name (Up to 20 characters):
```

3. Enter the name you have chosen for the switch which will be connected to ACD1.

The program responds:

```
Select the model of switch for this ACD:  
1) System85-R2V4  
2) Definity-G1.1  
3) Definity-G2.1  
4) Definity-G2.2  
5) Definity-G3i  
6) Definity-G3r  
Enter the choice (1-6):
```

4. Enter the number corresponding to the switch model to which the ACD will be connected.

The program responds:

```
Enter the local port assigned to the switch? (1-XX):
```

5. Enter the port number (local port number on the switch).

The program responds:

```
Enter the remote port assigned to switch (1-XX):
```

6. Enter the port number (remote port number on the switch).

The program responds:

```
Enter link number (0-9):
```

7. Enter the link number. The link number represents the port on the GPSC-AT/E board which is connected to the switch.



The **Port A** cable on the Serial Port Connector Cable corresponds to link 0, and the **Port B** cable corresponds to link 1. If the WGS computer has two GPSC-AT/E cards installed, the GPSC-AT/E card with the lowest slot number has link 0 and 1. The GPSC-AT/E card with the highest slot number has link 2 and 3.

The program responds:

```
ACD1 time zone offset (-23 to +23):
```

8. Enter 0 if the WGS computer and the switch are in the same time zone. If the WGS computer and the switch are in different time zones, use the computer as the reference, and determine the plus or minus hours difference that the switch is away from the computer. Enter the number of hours difference.

```
Press the RETURN key to see the cmsadm menu [?, q]:
```

9. Enter `q` to quit and return to the system prompt.

## Displaying Switch Parameters

**Prerequisites:** You must be logged in as *root*, the computer must be in run-level 2, all CMS users must be logged off, and all file systems must be mounted.

This section describes the procedure to display the switch parameters.

To display switch parameters, do the following steps:

1. Enter the following command to access the CMS management menu:

```
# cmsadm
```

The program responds:

```
                                CALL MANAGEMENT SYSTEM ADMINISTRATION

1 add_agent      Increase max. number of agents allowed by CMS
2 backup         Filesystem backup
3 pkg_display    Display installed feature packages
4 pkg_install    Install a feature package
5 pkg_remove     Remove a feature package
6 run_cms       Turn CMS On or Off
7 setup         Setup the initial CMS configuration
8 swinfo        Display switch information
9 swsetup       Change switch information
10 update_mgmt  Commands for managing software updates

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, q to QUIT:
```

2. Enter 8 to select the `swinfo` option.

The program responds:

```
Current switch administration for acd 1:  
Switch name: XXXXXXXXX  
Switch model: XXXXXXXXX  
Local port: X  
Remote port: X  
Time zone offset: X  
Press the RETURN key to see the cmsadm menu [?, q]:
```

3. Enter `q` to quit and return to the system prompt.

# **Chapter 5**

## **Turning the System Over to the Customer**

## General Information

This chapter contains the test procedures that you must do before you turn the Release 3.0 CMS software application over to the customer. These test procedures should be done after:

- The R3 CMS software package has been installed, upgraded, or updated
- The CMS host computer has been connected to the switch
- The telecommunications switch has been translated correctly with the CMS feature enabled and the link active.

By doing the procedures in this chapter, you will be able to verify that the CMS software has been installed or upgraded correctly and is working properly.

Do the procedures in this chapter to test the following:

- The operating system parameters
- The connection between the customer's R3 CMS host computer and the Technical Support Center (TSC)

**Note** This test should be done after the R3 CMS software has been initially installed and does not have to be done after a new base load or Field Update has been installed.

- The sanity of the CMS feature package

**Note** This sanity test should be done after the R3 CMS software has been initially installed or upgraded.

- The sanity of any CMS-related feature packages (Vectoring, Graphics, and Forecasting)

**Note** This sanity test should be done after the R3 CMS software has been initially installed or upgraded.

- The link configuration between the R3 CMS host computer and the telecommunications switch.

If you encounter a problem that you cannot solve, escalate the problem through normal procedures.

## Verifying the UNIX System Date and Time

The information in this section is used to verify that the UNIX system time is the same as the current local time. If the UNIX system time is not correct, the procedures for setting the time are outlined in the *Setting the UNIX System Date and Time* section located in this chapter.

---

### Checking the UNIX System Date and Time

To verify that the system time is correct, execute the following command:

```
# date
```

If the system time is correct, go to the section *Testing the Security of the System* in this chapter.

If the UNIX system time is incorrect, go to the section *Setting the UNIX System Date and Time* in this chapter.

## Setting the UNIX System Date and Time

Set the UNIX system time by doing the following :

1. Execute the following command to access the FACE program:

```
# face
```

The system responds by displaying the FACE menu.

2. From the FACE menu, select the **System Administration** menu.
3. From the System Administration menu, select the **Date and Time** menu.

The system will respond by displaying the fields which require information to be added about the system date and time. The appropriate date and time information will need to be entered for the following fields:

- **Date:** Enter the appropriate system date. The system date consists of three components: Month, Day, and Year. The options for each component can be displayed by placing the cursor on the component and pressing the "Choices" key.
- **Time:** Enter the appropriate system time. The hour component is first selected and then the minute component is selected. The options for each component can be displayed by placing the cursor on the component and pressing the "Choices" key.
- **AM/PM:** Enter the appropriate response for the time entered in the previous field. Options include: AM or PM.
- **Time Zone:** Enter the appropriate time zone. Options include: Eastern, Central, Mountain, Pacific, and GMT.



Be sure to take the customer's time zone into consideration when changing the UNIX system time from a remote location.

- **Is Daylight Savings time ever used?** Enter the appropriate answer for whether daylight savings time is ever used. Options include: Yes and **No**.

**Note** When setting the time in the UNIX system, the Daylight Savings time option should be set to **No** for the R3 CMS software application to properly work.

4. Use the "Save" and "Cont" function keys to enable the changes.
5. Logout of UNIX and log in again as *root*.
6. Execute the following command to verify that the date and time is correct:

---

```
# date
```

If the date and/or time is incorrect, repeat the procedures outlined in this section.

# Testing the Connection to the Technical Support Center

The information in this section is used to verify that the TSC is properly connected to the CMS host computer. This connection allows the TSC to do remote maintenance and to be notified of UNIX system alarms.

---

## Testing the Remote Console

Use the information in this section to verify that the TSC can dial in remotely and perform routine maintenance procedures.

To test the connection between the TSC and the remote console, do the following:

1. From a remote console terminal, log into the customer's CMS host computer and superuse to *root*.
2. Execute the following command to start the remote diagnostics:

```
# rmcgmt -r
```

3. Execute the following command to change the active partition to DOS and reboot the machine:

```
# rmtdgn
```

4. At the DOS prompt (C>), execute the following command to run the diagnostics menu:

```
C> DGMON /A
```

5. Select option # 4,I/O Diagnostics, from the Diagnostics menu.
6. Select option # 9, RMC Board Diagnostics, from the I/O Diagnostics menu.
7. Execute test 11 and answer **n** to all the questions.
8. Execute test 4 and answer **y** to all the questions.

The system should automatically reboot after completing test 4.

9. After exiting the Diagnostics test, change the active partition to UNIX.

**Note** An "ESC" from an ASCII terminal is "ESC" pressed twice.

10. Reboot UNIX twice. The first time you should see an error message as to what caused the last system reset. The second time you should not see any error messages.

## Testing the System Alarms

Use the information in this section to verify that the system alarms and notification procedures are operating correctly.

**Note** The Silent Knight Autodialer is optional. If it is not part of the hardware configuration, skip this section.

The Silent Knight Autodialer is used to report UNIX System alarms to the TSC. You can dial into the R3 CMS host computer on the same line that is used to report the alarms.

**Note** The phone number for the TSC should have been programmed earlier by the on-site technician. If the Silent Knight Autodialer has not been programmed, the on-site technician must program it before you can continue.

To test the Silent Knight Autodialer, do the following:

1. Tell the on-site technician to jump terminals 5 and 11 on the autodialer with a piece of wire. This will dial the TSC and report a minor alarm.
2. Verify that the TSC (or destination phone number) received the alarm call.

To test the GPSC-AT/E board and the Silent Knight Autodialer, do the following:

1. From a remote console terminal, log into the customer's CMS host computer as *root*.
2. Enter the following command:

```
# /etc/rmcgmt
```

**Note** See Appendix D, "RMC Manual Pages" for more information on the **rmcmgmt** program.

When the prompt (>) appears, enter the following option:

```
> rmcgmt -js
```

- A major alarm is generated.
  - The Silent Knight Autodialer places a call to the programmed number.
3. After verifying that the test worked, enter the following option:

```
> rmcgmt -jc
```

- The major alarm is turned off.
4. To exit from the **rmcmgmt** program, enter **q**.

If the test was not successful, tell the on-site technician to do the following steps before you try again:

1. There are nine jumper wires on the autodialer unit. Verify that jumper number 4 is cut, and the remaining jumpers are intact.
2. Verify that the autodialer transformer is plugged into a 120 volts ac source. This transformer cuts the voltage down to 12 volts ac. Verify that this power source connects to terminals 1 and 2 on the Silent Knight Autodialer.
3. Check the battery connection.
4. Verify that the Silent Knight Autodialer is programmed correctly. See Chapter 2, "Connecting the Hardware - 6386 WGS to Switch" in this document.

If the test is still unsuccessful, the on-site technician should verify the cabling of the Autodialer before you retry the test again.

**Note** For more information on how to test the Remote Management Package, refer to the *Remote Management Package Manual* (305-455).

# Testing the Security of the System

This section outlines the procedures needed to verify that the system is secure. The system is secure when the system administrator can verify that all logins are valid and have passwords assigned to them.

To verify that all logins are valid and have a password assigned to them, do the following:

1. Print the `/etc/passwd` file by executing the following command:

```
lp /etc/passwd
```

2. Check the printout of the `/etc/passwd` file and make sure there is a password associated with each login. The password is listed in the second field of each line (login id). The fields are separated by a colon (:). The following lines show an example of a login that has a password assigned to it (first line) and an example of a login that does not have a password assigned to it (second line).

```
good:.KFtibTTE,M0dF:292:440:PerfectIM(XX4142)412  
....  
bad::2944:440:WatchIT(XX3825)412 .....
```

3. Print the `/etc/shadow` file by executing the following command:

```
lp /etc/shadow
```

4. Check the printout of the `/etc/shadow` file and make sure there is a password associated with each login. The password is listed in the second field of each line (login id). The fields are separated by a colon (:). The following lines show an example of a login that has a password assigned to it (first line) and an example of a login that does not have a password assigned to it (second line).

```
good:KftibTTE,M0dF:292:440:PerfectIM(XX4142)412
....
bad:NONE:2944:440:WatchIT(XX3825)412 .....
```

5. Compare the printout of the `/etc/passwd` file and the `/etc/shadow` and make sure there is an entry for each login in both files.
6. If a login does not have a password associated with it, use the `FACE` utility and assign the login a password. If a login does not have an entry in each file, use the `FACE` utility to verify that the login has been administered correctly.

# Testing the R3 CMS Software

The following procedure should be done by the on-site technician after the R3 CMS software has been installed or upgraded to verify the sanity of R3 CMS software:

1. At a console terminal, log into the system by using a CMS administrator's login ID (*cms*). Supply the correct password when prompted to do so.
2. Access the R3 CMS main menu by typing `cms` and entering the correct terminal type.
3. Test the Real-time Reports subsystem by doing the following from the MAIN MENU:
  - a. Select the **Reports** option.
  - b. Select the **Real-time** option.
  - c. Select the **Split** option.
  - d. Select the **Status** option.
  - e. Verify that the **Split Status Report Input** window appears.
  - f. Enter a valid split number in the **Split:** field.
  - g. Select the **Run** action list item and run the report.
  - h. Verify that the **Split Status Report** window appears.
  - i. Press the [ COMMANDS ] SLK.
  - j. Select the **Print window** option to send the report to the printer.
  - k. Look at the message line near the bottom of the window and verify that there is a confirmation message about sending your report to the printer.
  - l. Verify that the report was printed by checking the printed report.
  - m. Return to the MAIN MENU screen by pressing the [ EXIT ] SLK twice.
4. Test the Historical Reports subsystem by doing the following from the MAIN MENU:
  - a. Select the **Reports** option.
  - b. Select the **Historical** option.
  - c. Select the **Split** option.
  - d. Select the **Status** option.
  - e. Verify that the **Split Status Report Input** window appears.

- f. Enter a valid split number in the **Split:** field.
- g. Enter -1 in the **Date:** field.
- h. Select the **Run** action list item and run the report.
- i. Verify that the report window appears and information is displayed in the appropriate fields.

**Note** If no historical data exists, the fields in the screen should be blank.

- j. Return to the MAIN MENU by pressing the [ EXIT ] SLK twice.
5. Test the Dictionary subsystem by doing the following from the MAIN MENU:
    - a. Select the **Dictionary** option.
    - b. Select the **Login Identifications** option.
    - c. Enter an \* in the **Login ID:** field.
    - d. Select the **List All** action list item to list all the log IDs.
    - e. Verify that the logins are displayed.
    - f. Return to the MAIN MENU by pressing the [ EXIT ] SLK twice.
  6. Test the Exceptions subsystem by doing the following from the MAIN MENU:
    - a. Select the **Exceptions** option.
    - b. Select the **Real-time Exception Log** option.
    - c. Verify that the window is accessible.

**Note** For a new installation, this window may be blank.

- d. Return to the MAIN MENU screen by pressing the [ EXIT ] SLK once.
7. Test the ACD Administration subsystem by doing the following from the MAIN MENU:
    - a. Select the **ACD Administration** option.
    - b. Select the **Move Extensions Between Splits** option.
    - c. Press the [ RETURN ] key.
    - d. Select the **List All** action list item and list all the extensions currently assigned to the split.

- e. Verify that the displayed information is correct.
- f. Return to the MAIN MENU by pressing the [ EXIT ] SLK.
8. Test the Custom Reports subsystem by doing the following from the MAIN MENU:
  - a. Select the **Custom Reports** option.
  - b. Select the **Real-time** option.
  - c. Verify that the names of existing custom reports are listed.
  - d. Return to the MAIN MENU screen by pressing the [ EXIT ] SLK once.
9. Test the User Permissions subsystem by doing the following from the MAIN MENU:
  - a. Select the **User Permissions** option.
  - b. Select the **User Data** option.
  - c. Verify that the User Data input window appears.
  - d. Return to the MAIN MENU screen by pressing the [ EXIT ] SLK once.
10. Test the System Setup subsystem by doing the following from the MAIN MENU:
  - a. Select the **System Setup** option.
  - b. Select the **CMS State** option.
  - c. Verify that CMS is operating in the **Multi-user mode**.
  - d. Return to the MAIN MENU screen by pressing the [ EXIT ] SLK once.
11. Test the Maintenance subsystem by doing the following from the MAIN MENU:
  - a. Select the **Maintenance** option.
  - b. Select the **Printer Administration** option.
  - c. Enter a valid printer name in the **CMS Printer name:** field.
  - d. Select the **List All** action list item and list the printer parameters.
  - e. Verify that the printer has been administered correctly.
  - f. Return to the MAIN MENU screen by pressing the [ EXIT ] SLK twice.
12. Test the Graphics subsystem by doing the following from the MAIN MENU:
  - a. Select the **Graphics** option.

- b. Verify that a Real-time Graphics screen can be accessed.
  - c. Return to the MAIN MENU screen by pressing the [ EXIT ] SLK once.
13. At each CMS terminal, log in as *cms* and choose the correct terminal to verify that the terminals are working properly. After the MAIN MENU screen appears, press the [ LOGOUT ] SLK to log out of CMS. Return to the system login prompt by pressing [ CTRL ] [ D ] at the same time.

If you were able to complete each of the steps in the test successfully, edit the `/etc/ignore` and the `/etc/backup` files in preparation to back up the file systems. Edit the `/etc/backup` file by removing all the lines in the file and then adding the line `/*`. Edit the `/etc/ignore` file by removing all the lines in the file and then adding the line `/unix`. After editing the files, do a System Backup before you turn the R3 CMS application over to the customer.

**Note** If any of the steps in the test failed, refer to *Chapter 7, Troubleshooting*, and try to solve the problem associated with the step that failed. If you encounter a problem that you cannot solve, escalate the problem through normal procedures.

To complete the test, do the following:

1. If you have not already done so, back up the file systems by following the procedures outlined in the section, *Backing Up the File Systems From the UNIX System Environment*, in *Chapter 6*.
2. If you have not already done so, back up the customer's historical data by doing a **Backup-Data** by following the procedures outlined in the section, *Backing Up CMS Historical Data From the CMS Environment*, in *Chapter 6*.
3. Log in at the console terminal. When the MAIN MENU appears, look at the upper right side of the screen. The time displayed should be current, and the link should be **UP**. Press the [ LOGOUT ] SLK to log off.

This completes the test. You can now turn the R3 CMS application over to the customer.

# **Chapter 6**

## **Maintenance**

# General Information

Use the procedures in this chapter, as necessary, to maintain the R3 CMS software application running on a 6386 WGS computer. You should refer to the *Computer Owner/Operator Manual* that was shipped with the computer for information on how to maintain the WGS computer.

The procedures in this chapter were written for an on-site or Tier 1 technician. If you are at a remote location, you will need assistance from an on-site technician or the customer's CMS administrator to perform most of the procedures in this chapter.

The following R3 CMS maintenance procedures are covered in this chapter:

- Backing Up the File Systems From the UNIX System Environment
- Restoring the File Systems From the UNIX System Environment
- Backing Up CMS Historical Data From the CMS Environment
- Restoring CMS Historical Data From the CMS Environment
- Recovering From a Disk Crash
- Recovering From a Lack of CMS File System Space
- Administering a New Terminal
- Administering a New Printer
- Changing the Date or Time
- Performing a UNIX System Dump
- Upgrading the UNIX Operating System.

# Backing Up the File Systems From the UNIX System Environment

The file systems on the 6386 WGS computer should be backed up in the following situations:

- After the R3 CMS software has been initially installed and tested



The CMS historical data should also be backed up by using the "Back Up Data" window in the "Maintenance" subsystem before you turn a new system over to the CMS administrator. (Refer to the appropriate section in the *CMS Administration* (585-215-511) document for instructions.)

- Before and after the CMS software has been upgraded to a new base load
- Before and after the CMS software has been field updated.

The number of cartridge tapes required to back up the CMS software will vary depending how many file systems the CMS software resides on:

- */cms* is on disk drive 1.
- */cms1* is on disk drive 2, if equipped.
- */cms2* is on disk drive 3, if equipped.
- */cms3* is on disk drive 4, if equipped.
- */cms4* is on disk drive 5, if equipped.

Before starting the backup procedures in this section, log in as *root* and execute the following command:

```
# lp /etc/fstab
```

The output from the printer is necessary when doing a system restore later on.

**Note** The file system information found in the **/etc/fstab** file should be bundled with the system backup tape(s) for future reference.

To back up the file systems from the UNIX system environment, do the following:

1. At the system console, log in as *root* and verify that the computer is in the multi-user state.
2. In the multi-user state, execute the following command to access the CMS Management menu:

```
# cmsadm
```

The CMS Administration menu displays:

```
CALL MANAGEMENT SYSTEM ADMINISTRATION

1 add_agent   Increase max. number of agents allowed by CMS
2 backup      Filesystem backup
3 pkg_display Display installed feature packages
4 pkg_install Install a feature package
5 pkg_remove  Remove a feature package
6 run_cms     Turn CMS On or Off
7 setup       Setup the initial CMS configuration
8 swinfo      Display switch information
9 swsetup     Change switch information
10 update_mgmt Commands for managing software updates

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, q to QUIT:
```

Enter 2 to select the backup option.

The program responds:

```
Insert tape, press ENTER when ready:
```

3. Insert the tape into the appropriate drive and press the [ RETURN ] key.

The program responds:

```
Backing up files ...
```

After certain files have been backed up, the program responds:

```
CMS will be turned off automatically for the remainder of  
the backup.  
Press ENTER to proceed.
```

**Note** If CMS is currently running, the backup option will automatically turn CMS off. If CMS is not currently running, the screens related to turning CMS being turned off will not be seen.

4. Press the [ RETURN ] key to proceed with the remainder of the backup.

The program responds:

```
*** Turning off CMS, Please wait ***
. . . . .
*** CMS is now off ***

XXXXXX blocks

Please wait for initialization
. . .

*** CMS is now up ***

Restore must be performed as follows:
    cpio -icBmud -C 10240 -I /dev/scsi/qtape1
Please make a note of this on the tape label.

Press the RETURN key to see the cmsadm menu [?, q]:
```

5. Enter `q` to quit and return to the system prompt.
6. Write down the appropriate restore command as it was listed on the screen at the conclusion of the backup (see previous screen example).

## Restoring the File Systems From the UNIX System Environment

The file systems on the 6386 WGS computer can be restored when an accidental loss of data occurs.

To restore the file systems from the UNIX system environment, do the following:

1. Obtain the cartridge tape(s) that contain the system backups.
2. Obtain the printout of the **/etc/fstab** file that was stored with the backup tapes.
3. Contact the TSC for further instructions.

# Backing Up CMS Historical Data From the CMS Environment

The CMS historical data for each ACD should be backed up as follows:

- After the CMS software has been installed and tested
- After the CMS software has been upgraded to a new base load
- After the CMS software has been field updated.

After the R3 CMS has been turned over to the customer, the customer's CMS administrator should periodically back up the CMS historical data using the "Back Up Data" window in the "Maintenance" subsystem. See the *Call Management System Administration* (585-215-511) document, Chapter 12, for this information. The frequency of the backups will depend on how current the CMS administrator wants to keep the backup copy of the CMS historical data updated.

**Note** It is recommended that the CMS data is backed up on a daily basis.

## Restoring CMS Historical Data From the CMS Environment

The R3 CMS software application provides a facility that can restore the R3 CMS historical databases when an accidental loss of historical data occurs. The cartridge tapes that contain the latest backup copy of the CMS historical databases are used during a restore process so that the databases can be restored to their most recent sane state.

**Note** The CMS historical databases can be restored from any CMS terminal. However, the console terminal must be powered on. If it is not, the UNIX system routines that are used to do the restore cannot operate.

To restore the CMS historical data, use the "Restore Data" window in the Maintenance subsystem. See the *Call Management System Administration* (585-215-511) document, Chapter 12, for this information.

# Recovering From a Disk Crash

This section describes what you must do to restore a customer's R3 CMS after a disk crash has occurred.

Before you start any of the restore procedures in this section, make sure that the following is available and on-hand:

- The latest system backup tape(s)
- The printout of the **df -t** command
- The latest backup copy of the CMS historical data

This procedure will help you do the following tasks:

- Boot the UNIX operating system
- Repartition the disk
- Install the UNIX Operating System and associated utilities
- Restore the various file systems on disk 1
- Restore the CMS historical database files (if necessary).

**Note** If the backup copies of the file systems are not available, the only way you can restore the customer's R3 CMS environment is by doing a complete R3 CMS software installation which is documented in *Appendix E* and *Chapter 3*.

To restore the system, do the following:

1. Complete the procedures outlined in the *Installing the UNIX System V* section of *Appendix E* in this document.
2. Complete the procedures outlined in the *Restoring the File Systems From the UNIX System Environment* section in this chapter.

## Recovering CMS File System Space

When you log into the system as a CMS user, a program is executed that checks the free blocks available to /, /usr, and the various CMS-related file systems located on the hard disks. If one of these file systems has less than 5000 but more than 1000 free blocks, a message similar to the following will be displayed on your terminal screen:

```
WARNING: File system, "<file system>", has only "<XXXX>"
blocks free.
```

When this message occurs, file system maintenance must be done as soon as possible to keep the file system from running out of free blocks.

If one of these file systems has less than 1000 free blocks, a message similar to the following will be displayed:

```
*****
* CAUTION CAUTION CAUTION CAUTION CAUTION *
* File system, "<file system>", has only <XXXX>" *
* blocks free. *
*****
```

When these messages occur, the file system is just about out of free blocks and the CMS software application can fail at any time. To reallocate space, use the "Free Space Allocation" window located in the "System Setup" subsystem. See the *CMS Administration* (585-215-511) document. Make sure you read the "Things to Know Before You Start" and "Prerequisite System Administration" sections before changing any fields in the window.

# Administering a New Terminal

The following terminals have been approved for use with the R3 CMS software application:

- 715 Business Communications System (BCS) Terminal
- 705 Multi-Tasking (MT) Terminal
- 615 Color Multi-Tasking (CMT) Terminal
- 615 Multi-Tasking (MT) Terminal
- 605 Business Communications Terminal (BCT)
- 610 Business Communications Terminal (BCT)
- 620 Multi-Tasking Graphics (MTG) Terminal
- AT&T DATASPEED\* 4425
- AT&T 6500 Displays (6528, 6529, 6538, and 6539).

**Note** The 605 BCT, 610 BCT, 615 MT, 620 MTG, 4425, and 6500-series terminals are also CMS approved, but have been manufacture discontinued (MDed).

After a new terminal has been connected to the computer, the options on the terminal have to be set, and the UNIX system has to be administered so that the computer recognizes the new terminal.

Obtain the tty port number from the AT&T technician after the terminal has been installed. You will need the tty port number later when you administer the UNIX system so that the computer recognizes the new terminal.

---

\* Registered trademark of AT&T.

## How to Set the Terminal Options

The terminal options have to be set correctly so that the terminal and computer can communicate with each other. The following sections display the recommended settings of the terminal options for the CMS supported terminals:

- 715 Business Communications (BCS) Terminal Options
- 705 Multi-Tasking (MT) Terminal Options
- 615 Color Multi-Tasking (CMT) Terminal Options
- 615 Multi-Tasking (MT) Terminal Options
- 605 Business Communications Terminal (BCT) options
- 610 Business Communications Terminal (BCT) options
- 620 Multi-Tasking Graphics (MTG) Terminal Options
- DATASPEED 4425 Display Terminal Options.

For information about the options for and the operation of the 6500 displays, the following documents should be used:

- AT&T 6500 Station Cabling Guide (999-300-129IS)
- AT&T 6500 Implementation Manual (999-300-130IS)
- AT&T 6500 Station Manager's Guide (999-300-106IS)
- AT&T 6500 Station Service Manual (999-306-030IS)
- AT&T 6500 Technical Reference (999-300-131IS)
- AT&T 6538/6539 Displays User's Guide (999-300-122IS)
- AT&T 6528/6529 Displays User's Guide (999-300-179IS).

## 715 Business Communications (BCS) Terminal Options

The 715 BCS Terminal replaces or emulates the 705 MT terminal. To properly set up the terminal, you may need to change some of the options on the Terminal Setup screen. Also, port 2 is used as the main port. Therefore, connect the communications cable to port 2 and when logging into CMS, identify the terminal type as a 705.

The default options are correct with the exception of the "Emulation Mode" option. This should be set to "705" so that it will emulate the 705 MT terminal. Refer to the *715 Business Communications Terminal User's Guide* (999-300-733) for instructions on how to change the options.

After making the change, the 715 BCS options should be set to the settings outlined in the following windows.

### User Preferences Window

The recommended user preference options are as follows:

USER PREFERENCES	
Language	English
Lines	24
Columns	80
Reverse Video	no
Screen Saver	30 min.
Scrolling	jump
Scroll Speed	medium
Labels	on
Key Click	off
Warning Bell	on
Font Size	normal

**Communications Options Window**      The recommended communications options are as follows:

COMMUNICATIONS OPTIONS		
MAIN		AUX
port 1	Port Mapping	port 2
host	Port Service	printer
9600	Speed	9600
1 bit	Stop Bits	1 bit
7 bits	Data Bits	7 bits
space	Send Parity	space
no	Check Parity	no
off	Local Echo	-
off	Encoding	-
XON/XOFF	Generate Flow	XON/XOFF
XON/XOFF	Receive Flow	XON/XOFF
240	XOFF at	240
no	Transmit Limit	-
no	Answerback on Connect	-
Main	Clear Communication Port	Aux

**General Options Window**      The recommended general options are as follows:

GENERAL OPTIONS		
PRIMARY/WINDOW 1		WINDOW 2
705	Emulation	705
705	Terminal ID	705
no	Newline on LF	no
7 bits	Transmit Controls	7 bits
normal	Backspace Mode	normal
unlocked	User Features	locked
no	Conceal Answerback	no
(blank)	Answerback	(blank)

**Display Options Window**      The recommended display options are as follows:

DISPLAY OPTIONS		
PRIMARY/WINDOW 1		WINDOW 2
off	Monitor Mode	off
block	Cursor Type	block
off	Cursor Blink	off
yes	Display Cursor	yes
bottom	Status Line Position	bottom
host	Status Line Type	host
multnatl	Character Mode	multnatl
ISO Latn	International Font	ISO Latn
on	Autowrap	on

**Keyboard Options Window**      The recommended keyboard options are as follows:

KEYBOARD OPTIONS		
PRIMARY/WINDOW 1		WINDOW 2
Caps Lck	Caps/Shift Lock Key	Caps Lck
CR	<--	CR
<--	Enter Key	<--
yes	Autorepeat	yes
yes	Margin Bell	yes
enabled	Compose Key	enabled
enabled	Break Key	enabled
US	Keyboard Language	US
numeric	Numeric Pad	numeric
normal	Cursor Keys	normal
no	Swap Delete	no
none	Control Key Swapping	none
-	Legends	-
-	User Defined Keys	-
BS	Backspace Keys	BS

**Printer Options Window**

The recommended printer options are as follows:

PRINTER OPTIONS		
PRIMARY/WINDOW 1		WINDOW 2
page	Select Print Region	page
normal	Print Mode	nomal
none	Printer Terminator	none
National	Printer Font Restriction	National
no	Printer Alarm	no
yes	Printer to Host	yes

## 705 Multi-Tasking (MT) Terminal Options

The 705 MT Terminal replaces or emulates the 605 BCT terminal. To properly set up the terminal, you may need to change some of the options on the Terminal Setup screen.

The default options are correct with the exception of the "Port Mapping" option. This should be set so that it will read Port 2 for Main and Port 1 for AUX. Refer to the *705 Multitasking Terminal User's Guide* (999-300-733) for instructions on how to change the options.

After making the change, the 705 MT options should be set to the settings outlined in the following windows.

### User Preferences Window

The recommended user preference options are as follows:

USER PREFERENCES	
Language	English
Lines	24
Columns	80
Reverse Video	no
Screen Saver	30 min.
Scrolling	jump
Scroll Speed	medium
Labels	on
Key Click	off
Warning Bell	on
Font Size	normal

**Communications Options Window**      The recommended communications options are as follows:

COMMUNICATIONS OPTIONS		
MAIN		AUX
port 1	Port Mapping	port 2
host	Port Service	printer
9600	Speed	9600
1 bit	Stop Bits	1 bit
7 bits	Data Bits	7 bits
space	Send Parity	space
no	Check Parity	no
off	Local Echo	-
off	Encoding	-
XON/XOFF	Generate Flow	XON/XOFF
XON/XOFF	Receive Flow	XON/XOFF
240	XOFF at	240
no	Transmit Limit	-
no	Answerback on Connect	-
Main	Clear Communication Port	Aux

**General Options Window**      The recommended general options are as follows:

GENERAL OPTIONS		
PRIMARY/WINDOW 1		WINDOW 2
705	Emulation	705
705	Terminal ID	705
no	Newline on LF	no
7 bits	Transmit Controls	7 bits
normal	Backspace Mode	normal
unlocked	User Features	locked
no	Conceal Answerback	no
(blank)	Answerback	(blank)

**Display Options Window**      The recommended display options are as follows:

DISPLAY OPTIONS		
PRIMARY/WINDOW 1		WINDOW 2
off	Monitor Mode	off
block	Cursor Type	block
off	Cursor Blink	off
yes	Display Cursor	yes
bottom	Status Line Position	bottom
host	Status Line Type	host
multnatl	Character Mode	multnatl
ISO Latn	International Font	ISO Latn
on	Autowrap	on

**Keyboard Options Window**      The recommended keyboard options are as follows:

KEYBOARD OPTIONS		
PRIMARY/WINDOW 1		WINDOW 2
Caps Lck	Caps/Shift Lock Key	Caps Lck
CR	<--	CR
<--	Enter Key	<--
yes	Autorepeat	yes
yes	Margin Bell	yes
enabled	Compose Key	enabled
enabled	Break Key	enabled
US	Keyboard Language	US
numeric	Numeric Pad	numeric
normal	Cursor Keys	normal
no	Swap Delete	no
none	Control Key Swapping	none
-	Legends	-
-	User Defined Keys	-
BS	Backspace Keys	BS

**Printer Options Window**

The recommended printer options are as follows:

PRINTER OPTIONS		
PRIMARY/WINDOW 1		WINDOW 2
page	Select Print Region	page
normal	Print Mode	normal
none	Printer Terminator	none
National	Printer Font Restriction	National
no	Printer Alarm	no
yes	Printer to Host	yes

**615 Color Multi-Tasking (CMT) Terminal Options**

The recommended 615 CMT options are as follows:

OPTIONS SETUP			
COMMUNICATIONS		USER PREFERENCES	
Speed	_9600_	Columns	_80_
Send Parity	_none_	Reverse Video	_no_
Check Parity	_no_	Volume	_4_
Local Echo	_off_	Key Click	_off_
Encoding	_off_	Scrolling	_jump_
Flow Control	DC1/DC3	Scroll Speed	medium_
Generate Flow	_on_	Alternate Keypad	_off_
Receive Flow	_off_	Swap Delete/Del	_no_
Pass Flow	_yes_		
Monitor Mode	_off_	Cursor Type	_block_
Autowrap	_on_	Cursor Blink	_no_
Newline on LF	_no_	Labels	_on_
Return Key	_CR_	Foreground	.....
Enter Key	.....	Background	.....
615 CMT 1.0			
<input type="button" value=" "/>	<input type="button" value=" "/>	<input type="button" value="CHANGE&lt;br/&gt;OPTION"/>	<input type="button" value="DEFAULT&lt;br/&gt;VALUES"/>
		<input type="button" value="SAVED&lt;br/&gt;VALUES"/>	<input type="button" value="SAVE"/>
		<input type="button" value="NEXT&lt;br/&gt;SETUP"/>	<input type="button" value="CLEAR&lt;br/&gt;TO END"/>

**Figure 6-1: Terminal Options for a 615 CMT**

If any of the 615 CMT options are incorrect, refer to the *615 Color Multitasking Terminal User's Guide* (999-300-570) for instructions on how to change the options.

**Note** When you are prompted to enter the terminal type, you need to enter "615c" to get the colors to appear. The "c" part of the terminal type enables the colors to be seen.

**615 Multi-Tasking (MT) Terminal Options**

The recommended 615 MT options are as follows:

OPTIONS SETUP			
Communications		User Preferences	
I/O Card	idle	Cartridge	idle
Speed	9600	Columns	_80_
Send Parity	spac	Reverse Video	_no_
Check Parity	_no_	Volume	_1_
Local Echo	_off	Key Click	_off
Encoding	_off	Scrolling	jump
Generate Flow	_off	Scroll Speed	med_
Receive Flow	_off		
Pass Flow	_off	Cursor Type	blk
Monitor Mode	_off	Cursor Blink	_no_
Auto Wrap	_on_	Labels	_on_
Newline on LF	_no_		
Return Key	_CR_		
Enter Key	<-		

DONE 615MT 1.1

<input type="checkbox"/>	<input type="checkbox"/>	CHANGE OPTION	DEFAULT VALUES	SAVED VALUES	SAVE	NEXT SETUP	CLEAR TO END
--------------------------	--------------------------	------------------	-------------------	-----------------	------	---------------	-----------------

**Figure 6-2: Terminal Options for a 615 MT**

If any of the 615 MT options are incorrect, refer to the *User's Guide, 615 Multi-Tasking Terminal* (999-300-302 IS) for instructions on how to change the options.

## 605 Business Communications Terminal (BCT) Options

The recommended 605 BCT options are as follows:

OPTIONS SETUP			
Communications		User Preferences	
Speed	9600	Columns	_80_
Send Parity	spac	Reverse Video	_no_
Check Parity	_no_	Bell	_on_
Local Echo	_off_	Key Click	_off_
Monitor Mode	_off_	Scrolling	jump
Auto Wrap	_on_	Scroll Speed	med_
Newline on LF	_no_	Cursor Type	blk
Return Key	_CR_	Cursor Blink	_no_
Enter Key	<-	Labels	_on_
Terminal Mode	norm	Swap Delete/Del	_no_

DONE 605 BCT - 1.0

		CHANGE OPTION	DEFAULT VALUES	SAVED VALUES	SAVE	NEXT SETUP	CLEAR TO END
--	--	------------------	-------------------	-----------------	------	---------------	-----------------

Figure 6-3: Terminal Options for a 605 BCT

If any of the 605 BCT options are incorrect, refer to the *605 Business Communications Terminal, User's Guide* (999-300-299 IS) for instructions on how to change the options.

**610 Business Communications Terminal (BCT) Options**

The recommended 610 BCT options are as follows:

OPTIONS SETUP			
Communications		User Preferences	
Speed	9600	Columns	_80_
Send Parity	spac	Scrolling	jump
Check Parity	_no_	Reverse Video	_no_
Local Echo	_off	Volume	_1_
Monitor Mode	_off	Key Chck	_off
Auto Wrap	_on_	Cursor Type	blk
Newline on LF	_no_	Cursor Blink	_no_
Return Key	_CR_	Labels	_on_
Enter Key	<-		

DONE 610Basic - 1.3

<input type="button" value=""/>	<input type="button" value=""/>	<input type="button" value="CHANGE OPTION"/>	<input type="button" value="DEFAULT VALUES"/>	<input type="button" value="SAVED VALUES"/>	<input type="button" value="SAVE"/>	<input type="button" value="NEXT SETUP"/>	<input type="button" value="CLEAR TO END"/>
---------------------------------	---------------------------------	--	---	---	-------------------------------------	---	---

**Figure 6-4: Terminal Options for a 610 BCT**

**Note** The "Volume" option in Figure 8-3 refers to the alarm bell. The settings range from 1 to 7, with 1 being the lowest volume.

If any of the 610 BCT options are incorrect, refer to the *User's Guide, 610 Business Communications Terminal* (999-300-270 IS) for instructions on how to change the options.

**620 Multi-Tasking  
Graphics (MTG)  
Terminal Options**

The recommended 620 MTG options are as follows:

```

                                OPTIONS SETUP

    Communications                                User Preferences

Speed          9600
Send Parity    spac
Check Parity   _no_
Local Echo     _off_
Generate Flow  _off_
Receive Flow   _on_
Pass Flow      _off_

Monitor Mode   _yes_
Auto Wrap      _on_
Newline on LF  _no_
Return Key     _CR_
Enter Key      <-

DONE

                                620/Basic - 1.1

  CHANGE OPTION  DEFAULT VALUES  SAVED VALUES  SAVE  NEXT SETUP  CLEAR TO END
    
```

**Figure 6-5: Terminal Options for a 620 MTG**

If any of the 620 MT options are incorrect, refer to the *User's Guide, 620 Multi-Tasking Graphics Terminal* (999-300-211 IS) for instructions on how to change the options.

**DATASPEED 4425  
Display Terminal  
Options**

The recommended DATASPEED 4425 Display options are as follows:

CURRENT OPTIONS		Version			
Speed	9600	Return Key	CR	Transmission	char
Duplex	full	Newline on LF	no	Line Send	keyed
Send Parity	space	Autowrap	on	Block Send	unprot
Check Parity	no	Cursor	*	Send From	cursor
132 Columns	off	Keyclick	off	Edit Keys	send
Memory Access	scroll	Margin Bell	*	Send Attributes	no
Clock	asynch	Dialer	no	Autoanswer	no
Wait for DSR	no	Answer on Connect	no	VT 52	no
"Enter" Key	<input type="text"/>	Field Separator	<input type="text"/>	Block terminator	<input type="text"/>
Answerback	<input type="text"/>				
AUXILIARY PRINTER OPTIONS					
Printer Model	*	Flow Control	*		
Speed	*	Alarm	*		
PREVIOUS FIELD	NEXT FIELD	STEP	DEFAULT VALUES	SAVED VALUES	SAVE ALL
			row xxx	col xxx	PRINT SCREEN
			MONITOR MODE *		

\* User Preference

**Figure 6-6: Terminal Options for DATASPEED 4425 Display Terminal**

If any of the 4425 terminal options are incorrect, refer to the *User's Guide, DATASPEED 4425 Display Terminal* (999-310-181 IS) for instructions on how to change the terminal options.

---

## How to Administer a New Terminal

**Prerequisites:** You must be logged in as *root* at the console terminal.

Administer the terminals connected to the 6386 WGS computer by doing the following:

1. Execute the following command to access the FACE program:

```
# face
```

The system responds by displaying the FACE menu.

2. From the FACE menu, select the **System Administration** menu.
3. From the System Administration menu, select the **Peripherals Setup** menu.
4. From the Peripherals Setup menu, select the **Serial Ports Setup** menu.

The system will respond by displaying information which requires information to be added about the terminal to be administered. The appropriate terminal information will need to be entered for the following fields:

- **Serial Port Number:** Enter the port number that the terminal will be connected to. The valid entries for this field can be seen by pressing the "Choices" function key. The port numbers appear in the following pattern:

```
101 (/dev/ttyh101)
```

- 101 indicates the port number
- /dev/ttyh or /dev/ttys indicates the tty path and whether the port communicates using a hardware or software protocol
- 1 indicates the IPC card number (1, 2, or 3)
- 01 indicates the port number on the IPC card (01-16)

- **Device Type:** Enter the type of device you will be connecting to the port. Options include: Modem, **Terminal**, Computer, Other, or None.
- **Device Speed:** Enter the baud rate (speed) of the device being connected to the port. Options include: 300, 1200, 2400, 4800, **9600**, and 19200.
- **Flow Control:** Enter the appropriate flow control protocol. Options include: Software, Hardware, and **Generic**.

## Administering a New Printer

The following printers have been approved for use with the R3 CMS software application:

- 593 Laser Printer
- 583 24-Wire Dot Matrix Printer
- 580 Parallel Dot Matrix Printer
- 573 Serial Dot Matrix (Wide Platen) Printer
- 572 Serial Dot Matrix (Narrow Platen) Printer
- 570 Parallel Dot Matrix Printer
- 495 Laser Printer
- 477 Dot Matrix Printer
- 476 Dot Matrix Printer
- 475 Dot Matrix Printer
- 447 Band Printer
- 5320 Dot Matrix Printer
- 5310 Dot Matrix Printer
- 6417 NCR Parallel Dot Matrix Printer

**Note** The 593, 580, 570, 495, 477, 476, 475, 447, 5320, and 5310 printers are CMS approved but have been manufacture discontinued (MDed).

After the printer has been connected to the computer, the printer port must be administered so that the computer can recognize the new printer.

## How to Set Up the Printer Port

**Prerequisites:** You must be logged in as *root* at the console terminal.

Set up the printers by doing the following:

1. Execute the following command to access the FACE program:

```
# face
```

The system responds by displaying the FACE menu.

2. From the FACE menu, select the **System Administration** menu.
3. From the System Administration menu, select the **Peripherals Setup** menu.
4. From the Peripherals Setup menu, select the **Printer Setup** menu.
5. From the Printer Setup menu, select the **Serial Printer Port Setup** menu.

The system will respond by displaying information which requires information to be added about the printer to be administered. The appropriate printer information will need to be entered for the following fields:

- **Port Number:** Enter the port number that the printer will be connected to. For example, 101 (`/dev/ttyih101`).
- **Device Currently on Port:** Display only field which displays what is currently connected to the port you are trying to administer.
- **Device Speed:** Enter the baud rate (speed) of the printer being connected to the port. Options include: 300, 600, 1200, 2400, 4600, 7200, 9600, 19200, and 38400.

- **Printer Type:** Enter the type of printer being connected to the port. Use the "Choices" function key to display and select the valid printer types.



If your specific printer type is not listed in the "Choices" menu, refer to the documentation that came with your printer and identify which printer it emulates.

- **Printer Name:** Enter a name for the printer you are administering. For example, `printer1`.
- **Should filter be used:** Enter whether a filter should be associated with this printer. Options include: Yes and No.

## Changing the Date or Time

The UNIX system time is displayed at the top of most CMS screens, and the switch time is displayed in the "Connection Status" window of the "Maintenance" subsystem.

**Note** Changing the switch time may cause a small distortion in the CMS data when the change is made. A small amount of data may also be lost when the change occurs. For example, if the UNIX system time is advanced, the switch connection is reestablished causing a small amount of data to be lost.

To change the UNIX system time, do the following:

1. Execute the following command to access the FACE program:

```
# face
```

The system responds by displaying the FACE menu.

2. From the FACE menu, select the **System Administration** menu.
3. From the System Administration menu, select the **Date and Time** menu.

The system will respond by displaying the fields which require information to be added about the system date and time. The appropriate date and time information will need to be entered for the following fields:

- **Date:** Enter the appropriate system date. The system date consists of three components: Month, Day, and Year. The options for each component can be displayed by placing the cursor on the component and pressing the "Choices" key.
- **Time:** Enter the appropriate system time. The hour component is first selected and then the minute component is selected. The options for each component can be displayed by placing the cursor on the component and pressing the "Choices" key.
- **AM/PM:** Enter the appropriate response for the time entered in the previous field. Options include: AM or PM.
- **Time Zone:** Enter the appropriate time zone. Options include: Eastern, Central, Mountain, Pacific, and GMT.

**Note** Be sure to take the customer's time zone into consideration when changing the UNIX system time from a remote location.

- **Is Daylight Savings time ever used?** Enter the appropriate answer for whether daylight savings time is ever used. Options include: Yes and **No**.

**Note** When setting the time in the UNIX System, the Daylight Savings time option should be set to **No** for the R3 CMS software application to properly work.

## Performing a UNIX System Dump

If the customer's computer is "locked up," a *sysdump* will be useful to CMS developers when determining the cause of the failure.

For a computer running UNIX System V Release 3.2.3, refer to the appropriate *UNIX System V Release 3 System Administrator's Guide* for instructions.

## Upgrading the UNIX Operating System

To upgrade a customer's CMS host computer to the UNIX System V Release 3.2.3 operating system, follow the recommended procedures in the the *AT&T UNIX System V/ 386 Release 3.2.3, Release Notes* document.

# **Chapter 7**

## **Troubleshooting**

## General Information

This chapter contains troubleshooting information about the Release 3.0 CMS application. You should use the information contained in it to clear problems that may arise during and after the CMS software installation.

The following is a list of the troubleshooting sections covered in this chapter:

- Understanding Alarm Conditions
- Reading the Alarm Database
- Solving CMS-Related Problems
- Solving Hardware-Related Problems
- Solving Terminal-Related Problems
- Solving Printer-Related Problems
- Solving Power-Related Problems.

# Understanding Alarm Conditions

Under certain conditions, a remote alarm is sent to the Technical Support Center (TSC) via the Remote Management Package and the Silent Knight Autodialer.

When an alarm condition occurs, the Silent Knight Autodialer automatically dials a preprogrammed phone number and transmits an alarm signal to the TSC.

The following conditions will cause a remote alarm to be generated and sent to the TSC:

- UNIX System Panics
- RMC Sanity Time-out
- Hardware-Generated Alarms.

**Note** Maintenance Personnel: When an alarm has been sent to the Remote Maintenance Center, manually reset the RMC so that another alarm may be generated. See *RMCDGN* in *Appendix D* to clear the alarm condition on the RMC board.

---

## UNIX System Panics

Every UNIX system panic will cause an alarm to be generated. The first and second panic in 30 minutes will cause an auto reboot. If three panics occur in the same 30 minutes, the computer will put itself into the firmware mode and must be manually rebooted.

Panic counting starts over every 30 minutes if a panic count of 3 has not been obtained. (The panic counter was set to a value of 3 during the CMS software installation.)

---

## RMC Sanity Time-Out

An RMC sanity time-out, which almost always causes a UNIX system panic, generates an alarm. If the system does not panic when it is insane, a second RMC sanity time-out will occur causing an alarm to be sent.

## Hardware- Generated Alarms

---

An ac power failure condition will cause an alarm if an Uninterruptible Power Supply (UPS) with an ac sense lead is present and connected to the AIC and the Silent Knight Autodialer.

**Note** The steps in the next section explain how to get more information about CMS generated alarms, but they do not address the other sources of alarms.

# Solving Terminal-Related Problems

This section describes some of the day-to-day problems that may occur during the normal operation of the terminals supporting the CMS application.

If you are experiencing a problem with a terminal that has been working properly, go to the *Existing Terminal Problems* section.

If you are experiencing a problem with a terminal that has just been installed and has never been used, go the *New Terminal Problems* section.

In each section you will find several documented symptoms and corresponding solution steps. When you find a symptom that is similar to the problem you are experiencing with your terminal, follow the solution step or steps in order until the problem no longer exists.

In some of the solution steps, you may have to refer to your terminal manual.

**Note** After you have tried to solve your terminal problem by using this section and your terminal manual, and the terminal is still not functioning properly, escalate the problem through normal procedures.

---

## When an Existing Terminal Fails to Operate

For problems with existing terminals, find the symptom in this section and follow the corresponding solution step(s).

Symptom: Several unexpected or "garbage" characters are displayed on the window.

Solution: Try holding down the [ CTRL ] key and pressing the [ L ] key. This should cause the screen to be repainted without the "garbage" characters.

Symptom: The screen suddenly goes blank.

Solution:

1. If the terminal has not been used recently, press a key on the keyboard. The screen should be restored if the power is on. (The screen will automatically go blank after about 1 hour of nonuse to protect the screen.)

2. Check the power cord at the back of the terminal. Wiggle both ends of the cord. If the terminal screen flashes, the power cord is not connected properly, or the power cord is defective.
3. At the rear of the terminal, locate the power switch. Turn the terminal OFF. Wait a few seconds. Turn the terminal ON.
4. If all the other terminals have gone blank, a major power supply loss has probably occurred. Check the power source for the terminals.

Symptom: The terminal "bell" is too loud or cannot be heard.

Solution: Adjust the volume control on the backside of the keyboard. (Refer to your terminal manual for details.)

Symptom: Characters are not being displayed on the screen when the keys are pressed.

Solution:

1. If the small letters "ns" appear between the third and fourth SLKs, the [ NO SCROLL ] key has been pressed by mistake. Press the [ NO SCROLL ] key again to restore the normal functioning.

**Note** All keys that were previously pressed will have the corresponding characters displayed on the screen. If you need to, make the necessary corrections.

2. At the rear of the terminal, locate the power switch. Turn the terminal OFF. Wait a few seconds. Turn the terminal ON.

Symptom: You turn the terminal ON, but nothing is being displayed on the screen.

Solution:

1. The terminal intensity may need adjusting. The intensity control is located underneath the lower left side of the terminal screen. (Refer to your terminal manual for details.)

2. Make sure that the terminal has been turned ON. Check the power switch at the rear of the terminal.
3. Check the power cord at the back of the terminal. Wiggle both ends of the cord. If the terminal screen flashes, the power cord is not connected properly, or the power cord is defective.

Symptom: You turn the terminal ON, and it displays "garbage" characters.

Solution:

1. Press the [ RETURN ] key once. Pause for a few seconds. Press the [ RETURN ] key about four times.
2. At the rear of the terminal, locate the power switch. Turn the terminal off. Wait a few seconds. Turn the terminal on.

Symptom: The terminal is "locked up." In other words, the terminal screen does not respond to keyboard input.

Solution:

1. If your last request is taking an extremely long time to complete, press the [ F8 ] key to bring up the main menu. Wait a few seconds. If the terminal does not respond, press the [ F8 ] key again. Wait a few seconds.
2. If the terminal still does not respond, turn the terminal off. Wait a few seconds. Turn the terminal on and log in again.

Symptom: The message "login incorrect" is displayed when you try to log in.

Solution: Either the login or password you entered is not correct. Carefully, reenter your login and password. Make sure you are not trying to enter an old password. If you still can't log in, see the CMS administrator, or escalate the problem through normal procedures.

**Symptom:** You can't find a symptom that relates to your terminal problem, or the solution step(s) corresponding to your terminal did not work.

**Solution:** The solution is a list of things to try. If a particular step doesn't work or you have already tried it, go to the next step in the list.

**Note** In some cases, you will be logged off. If this happens, log in again.

1. Hold the [ CTRL ] key down and press the [ ⏏ ] key. In most cases, doing this will refresh the screen.
2. At the rear of the terminal, locate the power switch. Turn the terminal OFF, wait a few seconds, and turn the terminal ON. (Refer to your terminal manual if necessary.)
3. Check the terminal connections:
  - a. Check the power cord at the back of the terminal. Wiggle both ends of the cord. If the terminal screen flashes, the power cord is not connected properly, or the power cord is defective.
  - b. Check for a loose connection at the keyboard and the terminal.
  - c. At the rear of the terminal, locate the cable connected to the connector labeled "modem." Make sure that the cable is connected properly to the "modem" connector. If possible, follow this cable to the computer, and check the connection at the computer end.
  - d. If another terminal is available, try using it.
  - e. See the CMS administrator, or escalate the problem through normal procedures.

## When a New Terminal Fails to Operate

For problems with new terminals, find the symptom in this section and follow the corresponding solution step(s).

Symptom: Terminal does not display anything.

Solution:

1. Make sure that the terminal has been turned ON. Check the power switch at the rear of the terminal.
2. Check the power cord at the back of the terminal. Wiggle both ends of the cord. If the terminal screen flashes, the power cord is not connected properly, or the power cord is defective.
3. The terminal intensity may need adjusting. The intensity control is located underneath the lower left side of the terminal screen. (Refer to your terminal manual for details.)

Symptom: Terminal prints "garbage" on the screen.

Solution: The terminal baud rate and the computer baud rate may not match. Refer to the section, *Administering a New Terminal*, in *Chapter 6* to verify that the terminal options have been properly administered on the terminal and that the terminal baud rate has been properly administered on the computer.

Symptom: Terminal screen displays "login:" but does not respond to keyboard input.

Solution:

1. Check for a loose connection at the keyboard and at the terminal.
2. The computer does not recognize the new terminal. Refer to the section, *Administering a New Terminal*, in *Chapter 6* for instructions on how to administer a new terminal.
3. Turn the power to the terminal OFF, wait for a few seconds, and turn the terminal back ON. (Refer to your terminal manual if necessary.)

# Solving Printer-Related Problems

This section describes some of the day-to-day problems that may occur during the normal operation of the printers supporting the CMS application.

The following printer problems, along with the suggested actions, for resolving the problems are documented in the following sections:

- When the Printer Is Out of Paper
- When the Current Printer Output Is Bad
- How to Stop and Discard Current Print Job
- How to Stop and Reprint Current Print Job
- When Print Jobs Are Not Being Printed
- When Printer Is Out-of-Service — One Printer Configuration
- When Printer Is Out-of-Service — Two Printer Configuration.

**Note** If you are experiencing a printer problem that is not documented in this section or is not documented in your printer manual, refer to the *Line Printer Spooling* section of the *AT&T WGS Computer UNIX System V Utilities Volume 3* (305-506). If you cannot solve the printer problem, escalate the problem through normal procedures.

Some of the commands used in the following sections can be executed *only* while logged in as *lp* or *root*; the commands are as follows:

- */usr/lib/accept*
- */usr/lib/lpshut*
- */usr/lib/lpsched*
- */usr/lib/lpmove*
- */usr/lib/lpadmin*.

Also, some other commands used in the following sections that can be executed while logged in as *cms*, *lp*, or *root* are as follows:

- **disable**
- **enable**
- **lpstat**
- **cancel.**

For more information on these commands and how to use them, refer to the *Line Printer Spooling* section of the Operations/System Administration guide that came with UNIX.

If you don't know the name(s) of the printer(s) connected to the computer, execute the following command:

```
$ lpstat -v
```

If you are currently in the CMS environment and you want to test the printer, press the [ [COMMANDS](#) ] SLK and select the "Print Window" option. In a few seconds, the printer should start printing your test print job (if it is the first print job in the queue).

Whenever you execute the **disable**, **enable**, or **cancel** commands in the following sections, the printer will continue to print until the buffer is empty.

When the printer(s) do not function properly, additional information about the errors associated with the printer(s) can be seen by executing the following command:

```
$ tail /usr/elog/printer.errors
```

**Note** When looking at this file, note the date that the file was last written (modified). This information is found by executing the `ls -l /usr/elog/printer.errors` command.

## When the Printer Is Out of Paper

The printer will stop printing the current job when it detects an out-of-paper situation. To reload the printer with paper, do the following:

**Note** The following steps are a generalized overview of what to do when the printer runs out of paper. The steps may vary depending on the printer model. For more information, refer to your printer manual.

1. Mark the position on the last sheet of paper where the printer stopped printing.
2. Remove the last sheet of paper from the printer.
3. Thread the first sheet on the new stack of paper into the printer (see your printer manual if necessary).
4. Position the first sheet of paper to the location where the printer stopped printing on the last sheet of paper.
5. Press the "ready printer" button (press the correct button on your printer; see your printer manual if necessary).

The printer should continue with the print job at the point where it stopped printing.

## When the Current Printer Output Is Bad

If the output from the current print job is unreadable, the printer may be out of paper, the paper may be jammed, or the ribbon may need replacing. Do the following to correct the printer problem:

1. From the CMS windows environment, move to the UNIX environment by pressing the [ COMMANDS ] SLK and selecting the UNIX (r) system option.
2. Disable the printer by executing the following command:

```
$ disable <printer_name>
```

Replace the string *<printer\_name>* with the real name of the printer. The printer will continue to print until the buffer is empty.

**Note** The print job currently printing will be reprinted when the printer has been enabled. While the printer is disabled, new print jobs routed to this printer will be queued (saved) and will be printed when the printer becomes available.

3. Fix the problem as necessary. (Refer to your printer manual if necessary.)
4. After the printer has been fixed, properly align the paper in the printer.

5. Enable the printer by executing the following command:

```
$ enable <printer_name>
```

Replace the string *<printer\_name>* with the real name of the printer.

The printer should start printing the current job over again.

6. Exit the UNIX environment by executing the following command:

```
$ exit
```

## How to Stop and Discard Current Print Job

1. From the CMS windows environment, move to the UNIX environment by pressing the [ COMMANDS ] SLK and selecting the UNIX (r) system option.
2. Cancel the print job currently printing by executing the following command:

```
$ cancel <printer_name>
```

Replace the string *<printer\_name>* with the real name of the printer.

**Note** The printer will continue to print until the buffer is empty.

3. Reposition the paper in the printer.

## How to Stop and Reprint Current Print Job

1. From the CMS windows environment, move to the UNIX environment by pressing the [ COMMANDS ] SLK and selecting the UNIX (r) system option.
2. Stop the print job currently printing by executing the following command:

```
$ disable <printer_name>
```

Replace the string *<printer\_name>* with the real name of the printer.

**Note** The printer will continue to print until the buffer is empty.

3. Reposition the paper in the printer.
4. Enable the printer by executing the following command:

```
$ enable <printer_name>
```

The printer should start printing the print job over from the beginning.

## When Print Jobs Are Not Being Printed

If the printer is no longer printing the jobs in the queue, the UNIX system *scheduler* may not be running.

To find out if the *scheduler* is running, do the following:

1. From the CMS windows environment, move to the UNIX environment by pressing the [ COMMANDS ] SLK and selecting the UNIX (r) system option.
2. When the \$ prompt appears, execute the following command:

```
$ lpstat -t
```

From the output, determine if the *scheduler* is running.

3. If the *scheduler* is not running, execute one of the following commands to log in as *lp* or *root*:

```
$ su lp
-- or --
$ su root
```

4. Enter the correct password when prompted to do so.

5. Next, execute the following command to turn the *scheduler* on:

```
# /usr/lib/lpsched
```

6. Execute the next command to verify that the *scheduler* is running:

```
# lpstat -t
```

7. To return to the CMS environment, execute the following command:

```
$ exit
```

## When Printer Is Out-of-Service — One Printer Configuration

If the customer's system has only one printer and it breaks down, you can choose one of the following methods to maintain report production:

- Save all print jobs until the printer has been fixed.
- Reject all print jobs until the printer has been fixed.

However, you could replace the broken printer and immediately continue with report production.

## How to Save Print Jobs

To save the print jobs currently in the queue and future print jobs submitted to the queue until the printer has been fixed, do the following:

1. From the CMS windows environment, move to the UNIX environment by pressing the [ COMMANDS ] SLK and selecting the UNIX (r) system option.
2. Disable the printer by executing the following command:

```
$ disable <printer_name>
```

3. Fix the problem as necessary. (Refer to your printer manual if necessary.)
4. After the printer has been fixed, reposition the paper in the printer.

5. Enable the printer by executing the following command:

```
$ enable <printer_name>
```

Replace the string *<printer\_name>* with the real name of the printer.

The printer should start printing the first print job in the queue over again.

6. To return to the CMS environment, execute the following command:

```
$ exit
```

## How to Reject Print Jobs

To reject print jobs until the printer has been fixed, do the following:

1. From the CMS windows environment, move to the UNIX environment by pressing the [ COMMANDS ] SLK and selecting the UNIX (r) system option.
2. Disable the printer by executing the following command:

```
$ disable <printer_name>
```

3. Execute one of the following commands to log in as *lp* or *root*:

```
$ su lp  
  
-- or --  
  
$ su root
```

4. Enter the correct password when prompted to do so.

5. Reject all future print jobs by executing the following command:

```
# /usr/lib/reject <printer_name>
```

6. If you want to cancel the print jobs already in the queue, execute the following command to list the print jobs:

```
# lpstat -t
```

7. Next, use the *cancel* command as follows to cancel the print jobs in the queue:

```
# cancel <print_jobX> <print_jobY> <etc>
```

**Note** You can save any particular print job by not canceling it.

8. To return to the CMS environment, execute the following command:

```
$ exit
```

9. Fix the printer as necessary. (Refer to your printer manual if necessary.)
10. If you are in the CMS environment, return to the UNIX system environment by pressing the [ COMMANDS ] SLK and selecting the UNIX (r) system option.

11. After the printer has been fixed, reposition the paper in the printer.
12. Enable the printer by executing the following command:

```
$ enable <printer_name>
```

Replace the string *<printer\_name>* with the real name of the printer.

13. Execute one of the following commands to log in as *lp* or *root*:

```
# su lp  
-- or --  
# su root
```

14. Enter the correct password when prompted to do so.

15. Accept all future print jobs by executing the following command:

```
# /usr/lib/accept <printer_name>
```

**Note** A few seconds after you execute this command, the printer should start printing the first print job in the queue.

16. To return to the CMS environment, execute the following command:

```
$ exit
```

## When Printer Is Out-of-Service — Two Printer Configuration

If the customer's system has two or more printers and one of the printers breaks down, you can choose one of the following methods to maintain report production:

- Redirect all print jobs from the broken printer to a printer that works.
- Reject all print jobs until the broken printer has been fixed.

However, you could replace the broken printer and immediately continue with report production.

## How to Route Print Jobs to Another Printer

To redirect future print jobs from a broken printer to one that works, do the following:

1. Access the "Printer Administration" window from the "Maintenance" subsystem. See the *Call Management System Administration* (585-215-511) document, Chapter 12, for this information.
2. Enter the name of the broken printer in the `CMS printer name:` field and press the [ `RETURN` ] key.
3. Do a `Find one` to view the values (entries) associated with the printer.
4. When the values (entries) have been displayed, move to the `LP printer name:` field and change the printer name to the printer which is still operational.
5. Do a `Modify` to change the destination printer.

The CMS printer name is now associated with another printer that is functional. The print jobs sent to the CMS `printer_name` will be redirected to the functional LP printer.

**Note** After the printer is operational, don't forget to reassign the CMS `printer_name` to the LP `printer_name`.

## How to Move Print Jobs in Queue to Another Printer

To move current print jobs from the queue of a broken printer to a working printer, do the following:

1. From the CMS windows environment, move to the UNIX environment by pressing the [ COMMANDS ] SLK and selecting the UNIX (r) system option.
2. Execute the following command to **move all the print jobs** currently queued to the broken printer (<printer1>) to a printer (<printer2>) that works:

```
# /usr/lib/lpmove <printer1> <printer2>
```

3. Execute the following command to **move selected print jobs** currently queued to the broken printer (<printer1>) to a printer (<printer2>) that works:

```
$ lpmove <print-jobX> <printer2>
```

4. To return to the CMS environment, execute the following command:

```
$ exit
```

## How to Reject Print Jobs

To reject print jobs until the printer has been fixed, do the following:

1. From the CMS windows environment, move to the UNIX environment by pressing the [ COMMANDS ] SLK and selecting the UNIX (r) system option.
2. Disable the printer by executing the following command:

```
$ disable <printer_name>
```

3. Execute one of the following commands to log in as *lp* or *root*:

```
$ su lp  
-- or --  
$ su root
```

4. Enter the correct password when prompted to do so.

5. Reject all future print jobs by executing the following command:

```
# /usr/lib/reject <printer_name>
```

6. If you want to cancel the print jobs already in the queue, execute the following command to list the print jobs:

```
# lpstat -t
```

7. Next, use the *cancel* command as follows to cancel the print jobs in the queue:

```
# cancel <print_jobX> <print_jobY> <etc>
```

**Note** You can save any particular print job by not canceling it.

8. To return to the CMS environment, execute the following command:

```
$ exit
```

9. Fix the printer as necessary. (Refer to your printer manual if necessary.)
10. If you are in the CMS environment, return to the UNIX environment by pressing the [ COMMANDS ] SLK and selecting the UNIX (r) system option.
11. After the printer has been fixed, reposition the paper in the printer.
12. Enable the printer by executing the following command:

```
$ enable <printer_name>
```

Replace the string *<printer\_name>* with the real name of the printer.

13. Execute one of the following commands to log in as *lp* or *root*:

```
$ su lp  
-- or --  
$ su root
```

14. Enter the correct password when prompted to do so.

15. Accept all future print jobs by executing the following command:

```
# /usr/lib/accept <printer_name>
```

16. To return to the CMS environment, execute the following command:

```
$ exit
```

## Solving Power-Related Problems

If the WGS computer loses power and is supported by an Uninterruptible Power Supply (UPS), the computer will not be affected by a power loss or glitch unless the power outage lasts longer than the UPS can support.

If the WGS computer is supported by a UPS and the power outage lasts longer than the UPS can support or if the WGS is not supported by a UPS, do the following steps (after the power has been restored):

1. Turn the console terminal ON and wait for the cursor to appear.
2. Make sure the floppy disk drive is empty.
3. Wait 2 minutes before going to the next step.
4. Momentarily press the RESET button on the WGS computer. After doing so, the WGS computer will take about 10 minutes to bring itself up.

When the *Console Login:* prompt appears on the console terminal, the computer will be up and running.

**Note** For more information about restarting the WGS computer because of a power failure, refer to the user documentation that came with the computer.

**Appendix A**  
**Generic 3i and Generic 1 Administration**

## General Information

The Release 3.0 Call Management System (R3 CMS) application can collect and process Automatic Call Distribution (ACD) data from the DEFINITY Communications System Generic 3i and Generic 1 switches. However, before CMS can collect and process the ACD data, a special hardware interface on the switch must be properly administered. For the Generic 3i and Generic 1, the hardware interface is a Processor Interface. This hardware interface is sometimes called the CMS interface.

In addition to the CMS interface, the following CMS features on the switch must also be administered:

- Abandoned Call Search
- Agent Call Handling
- Hunt Groups
- Intraflow and Interflow
- Queue Status Indications
- Recorded Announcements
- Service Observing.

The following documents can be used by a qualified switch technician to implement the CMS interface and features:

- *AT&T DEFINITY Communications System Generic 1 Implementation Manual (555-204-654, Issue 1)*
- *AT&T DEFINITY Communications System Generic 1 Installation and Test (555-204-104)*
- *AT&T DEFINITY Communications System Generic 1 Wiring (555-204-111)*
- *AT&T DEFINITY Communications System Generic 1 Maintenance (555-204-105)*

For your convenience, the next section contains step-by-step procedures that can be used to implement the CMS interface. However, should you have any question about these procedures, you should refer to the appropriate switch documentation.

**Note** Only a qualified switch technician or switch administrator should administer the CMS interface and features on the switch.

## Administering CMS Interface On Generic 3i

This section contains the procedures required to establish a communications link between the CMS host computer and the Generic 3i switch.

The Processor Interface on the Generic 3i has eight interface links (01 to 08) available on a multi-carrier cabinet system and four interface links (01 to 04) available on a single-carrier cabinet system. One of these interface links can be assigned to the CMS host computer.

You assign the CMS interface by logging in on System Access Terminal (SAT) as *craft* and filling out the following forms:

- Processor Interface Data Module Form
- Data Module (MPDM/MTDM) Form
- Processor Channel Assignment Form
- Interface Links Form.

**Note** If the EIA port on the Processor Interface is used to make the connection to the CMS host computer, you do not have to fill out the Data Module form.

## How to Assign the Processor Interface Data Module

The following procedures can be used to add the Processor Interface on the Generic 3i:

1. Verify System Access Terminal displays:

**enter command:**

2. Enter "**add data-module 2005**" where 2005 is the extension number assigned to the interface. The extension number you use will automatically appear in the "Data Extension" field of a Data Module form. Press the RETURN key.
3. The screen displays a data module form. (Use Figure A-1 for reference.)
4. In the field labeled "Type," enter **procr-infc** for Generic 3i. After entering the appropriate "Type," press the RETURN key.
5. The cursor is positioned on the "Physical Channel" field.
6. Enter the physical channel number, for example **01**. The physical channel number becomes the interface link number that is used on the Interface Links and Processor Channel Assignment forms. For example, physical channel number 01 is interface link 1.



If the EIA port on the Processor Interface is used to make the connection to the CMS host computer, physical channel number 01 must be used.

7. Press the RETURN key.
8. The cursor is positioned on the "Name" field.
9. Enter **R3 CMS**, and press the RETURN key.

10. The cursor is positioned on the "COS" field.

**Note** The "COS" and "COR" fields are defaulted to 1.

11. Make no changes to the "COS" and "COR" fields, press the ENTER key.

12. Screen displays:

**command successfully completed,**

**enter command:**

```

                                DATA MODULE
Data Extension: 2005           Type: procr-infc   Physical Channel: 0i
                                Name: R3 CMS      COS: 1      COR: 1
                                Maintenance Extension:

ABBREVIATED DIALING
List1:

HOT LINE DESTINATION
Abbreviated Dialing Dial Code (From above list):

ASSIGNED MEMBERS ( Stations with a data extension button for this data module )
Ext      Name                    Ext      Name
1:                                     3:
2:                                     4:
    
```

**Figure A-1: Data Module Form for Generic 3i**

## How to Assign a Data Module to the CMS Host Computer

After the Processor Interface has been assigned, the Data Module can be administered and connected to the CMS host computer or to a modem for a CMS located at a remote location.

**Note** If the EIA port on the Processor Interface is used to make the connection to the CMS host computer, you do not have to fill out the Data Module form.

If the CMS is located at a remote location (with reference to the switch), a modem and MTDM will be used.

1. Verify System Access Terminal screen displays:

**enter command:**

2. Enter **add data-module 2009** where *2009* is the extension number assigned to the Data Module. The extension number will automatically appear in the "Data Extension" field on the screen form. The extension number entered here is also used as the destination number on the Interface Links form. Press the RETURN key.
3. The screen displays a Data module form. (Use Figure A-2 for reference.)
4. The cursor is positioned on the "Type" field. This field is defaulted to **pdm**. If the CMS is remotely connected, this field needs to be changed to **tdm**.
5. Press the RETURN key.
6. The cursor is positioned on the "Port" field.
7. Enter the port location to which the data module is connected.

For a Generic 3i, the first character identifies the network (1-2, default is "1" if no entry); the second character identifies the carrier (A-E); the third and fourth characters identify the slot number in the carrier (01-20 for multi-carrier cabinets or 01-18 for single-carrier cabinets); the last two characters identify the circuit number (01-24).

Press the RETURN key.

8. The cursor is positioned on the "Name" field.
9. Enter **cms link pdm**, or if CMS is remotely connected, enter **cms link tdm** and press the RETURN key.

10. The cursor is positioned on the "COS" field.

**Note** The "COS" and "COR" fields are defaulted to **1**, and the "Connected To" field is defaulted to **dte**.

- 11. Move the cursor to the "Remote Loop-Around Test" field.
- 12. Enter **y** if the module supports a loop-back at the EIA interface; otherwise, enter **n**.

**Note** If the CMS is remotely connected (using a modem and MTDM), enter **n**.

- 13. Press the ENTER key.
- 14. Screen displays:

**command successfully completed,**

**enter command:**

```

                                DATA MODULE
Data Extension: 2009   BCC:      Type: pdm      Port: 1A0101
      Name: cms link pdm   COS: 1      COR: 1
      Connected to: dte      Remote Loop-Around Test? y
ABBREVIATED DIALING
List1:
HOT LINE DESTINATION
Abbreviated Dialing Dial Code (From above list):
ASSIGNED MEMBERS ( Stations with a data extension button for this data module )
      Ext      Name      Ext      Name
      1:      3:
      2:      4:
    
```

**Figure A-2: Data Module Form for Generic 3i**

After the Processor Interface and the data module have been assigned, the processor channel and interface link can be established. The processor channel is assigned using the Processor Channel Assignment form, and the interface link is enabled using the Interface Links form.

## How to Assign the Processor Channel

The Processor Channel form is used to assign one of the 64 local processor channels from the processor link to one of the 64 interface channels assigned to one interface link (1 to 4). Only one interface link is assigned for the CMS host computer.

The following procedure can be used to assign processor channels on the Generic 3i:

1. Verify System Access Terminal displays:

**enter command:**

2. Enter **change communications-interfaces processor-channels** command and press the RETURN key.
3. The screen displays the Processor Channel Assignment form. (Use Figure A-3 for reference.)

**Note**

The sample screen shown in Figure A-3 illustrates a configuration which assigns the Processor Channel 1 to the "mis" Application with a Remote Processor Channel of 1.

4. Select an available Processor Channel by using the up/down arrow keys to place the cursor in the "Appl" field of an available channel.

**Note**

The Processor Channel number should be the same number that was selected for the "local port" number when the CMS software was installed. For more information on changing the port/link number, refer to *Changing the Switch Parameters* in Chapter 6.

5. Enter **mis** in the "Appl" field and press the RETURN key.
6. The cursor is positioned on the "Interface Link" field.
7. Enter **1** in the "Interface Link" field. (This is the interface link number assigned on the Processor Interface Data Module form.)
8. Press the RETURN key.
9. The Cursor is positioned on the "Interface Chan" field.
10. Enter **1** in the "Interface Chan" field and press the RETURN key.

11. The cursor is positioned on the "Priority" field.
12. Enter **h** in the "Priority" field and press the RETURN key.
13. The cursor is positioned on the "Remote Proc Chan" field.
14. Enter **1** in the "Remote Proc Chan" and press the RETURN key.
15. Cursor is positioned on the "MACHINE-ID" field.
16. Make no entry, press the ENTER key.
17. Screen displays:

**command successfully completed,**

**enter command:**

PROCESSOR CHANNEL ASSIGNMENT					
Proc	Interface	Remote	Machine-ID		
Chan	Appl.	Link Chan	Priority	Proc Chan	
1:	mis	1	1	h	1
2:					
3:					
4:					
5:					
6:					
7:					
8:					
9:					
10:					
11:					
12:					
13:					
14:					
15:					
16:					

**Figure A-3: Processor Channel Assignment Form for Generic 3i**

**Note** The R3 CMS software requires that the "Interface Chan" assignment be administered as "1." Priority on this channel must be set to **h** (high).

---

## How to Enable the Interface Link

The following steps are used to enable the CMS interface link on the Generic 3i:

1. Verify System Access Terminal displays:

**enter command:**

2. Enter **change communications-interfaces links** and press the RETURN key.
3. The screen displays an Interface Links form. (Use Figure A-4 for reference.)
4. The cursor is positioned on the "Enabled" field.
5. Enter "y" beside the interface link number assigned on the Processor Channel form to enable the interface link. Press the RETURN key.
6. The cursor is positioned on the "Est Conn" field.
7. Enter "y" to establish a connection to the MPDM that connects to the CMS host computer, and press the RETURN key.
8. The cursor skips the "PI Ext" field. The extension number assigned on the Processor Interface Data Module form is automatically displayed in this field.
9. The cursor is positioned on the "Prot" field.
10. Enter **BX.25** in the "Prot" field.
11. The cursor is positioned on the "Destination Digits" field.
12. Enter the extension number for the MPDM that connects to the CMS host computer, and press the RETURN key.
13. The cursor is positioned on the "DTE/DCE" field.
14. Enter "DTE" for the CMS host computer and press the RETURN key.
15. The cursor is positioned on the "Identification" field.
16. Enter a 15-character name for the link. This field may be left blank.
17. Press the ENTER key.

18. Screen displays:

**command successfully completed,**

**enter command:**

INTERFACE LINKS								
Link	Enable	Est Conn	PI Ext	Prot	Destination Digits	Brd	DTE/ DCE	Identification
1:	y	y	2005	BX.25	2009		DTE	
2:	y							
3:	y							
4:	y							

**Figure A-4: Interface Links Form for Generic 3i**

## How to Enable the EIA Port on the Processor Interface

If the EIA Port on the Processor Interface of a Generic 3i is used to make the connection to the CMS host computer, refer to Figure A-5:

INTERFACE LINKS						
Link	Enabled	Establish Connection	Interface Extension	Destination Number	DTE/DCE	Identification
1:	y	y	2005	eia	DTE	
2:	n	n	2006		DTE	
3:	n	n	2007		DTE	
4:	n	n	2008		DTE	

Link 1 [eia] - Connected to: DTE	Clocking: internal
----------------------------------	--------------------

Figure A-5: Interface Links Form for EIA Port on Processor Interface for Generic 3i



For R3 CMS, the DTE/DCE field must be set to "DTE."

# Administering CMS Interface On The Generic 1 Switch

This section contains the procedures required to establish a communications link between the CMS host computer and the Generic 1 switch.

The Processor Interface on the Generic 1 has eight interface links (01 to 08) available on a multi-carrier cabinet system and four interface links (01 to 04) available on a single-carrier cabinet system. One of these interface links can be assigned to the CMS host computer.

You assign the CMS interface by logging in on System Access Terminal (SAT) as *craft* and filling out the following forms:

- Processor Interface Data Module Form
- Data Module (MPDM/MTDM) Form
- Processor Channel Assignment Form
- Interface Links Form.



If the EIA port on the Processor Interface is used to make the connection to the CMS host computer, you do not have to fill out the Data Module form.

## How to Assign the Processor Interface Data Module

The following procedures can be used to add the Processor Interface on the Generic 1.

1. Verify System Access Terminal displays:

**enter command:**

2. Enter **add data-module 2005** where *2005* is the extension number assigned to the interface. The extension number you use will automatically appear in the "Data Extension" field of a Data Module form. Press the RETURN key.
3. The screen displays a data module form. (Use Figure A-6 for reference.)
4. In the field labeled "Type," enter **procr-infc** for Generic 1. After entering the appropriate "Type," press the RETURN key.
5. The cursor is positioned on the "Physical Channel" field.
6. Enter the physical channel number, for example **01**. The physical channel number becomes the interface link number that is used on the Interface Links and Processor Channel Assignment forms. For example, physical channel number 01 is interface link 1.

**Note** If the EIA port on the Processor Interface is used to make the connection to the CMS host computer, physical channel number 01 must be used.

7. Press the RETURN key.
8. The cursor is positioned on the "Name" field.
9. Enter **R3 CMS**, and press the RETURN key.

10. The cursor is positioned on the "COS" field.

**Note** The "COS" and "COR" fields are defaulted to 1.

11. Make no changes to the "COS" and "COR" fields, and press the ENTER key.

12. Screen displays:

**command successfully completed,**

**enter command:**

```
DATA MODULE
Data Extension: 2005      Type: procr-infc      Physical Channel: 01
Name: R3 CMS             COS: 1             COR: 1
Maintenance Extension:

ABBREVIATED DIALING
List1:
HOT LINE DESTINATION
Abbreviated Dialing Dial Code (From above list):
ASSIGNED MEMBERS ( Stations with a data extension button for this data module )
Ext      Name                Ext      Name
1:                                     3:
2:                                     4:
```

**Figure A-6: Data Module Form for Generic 1**

## How to Assign a Data Module to the CMS Host Computer

After the Processor Interface module has been assigned, the Data Module can be administered and connected to the CMS host computer or to a modem for a CMS located at a remote location.

**Note** If the EIA port on the Processor Interface is used to make the connection to the CMS host computer, you do not have to fill out the Data Module form.

If the CMS is located at a remote location (with reference to the switch), a modem and MTDM will be used.

1. Verify System Access Terminal screen displays:

**enter command:**

2. Enter **add data-module 2009** where *2009* is the extension number assigned to the Data Module. The extension number will automatically appear in the "Data Extension" field on the screen form. The extension number entered here is also used as the destination number on the Interface Links form. Press the RETURN key.
3. The screen displays a Data module form. (Use Figure A-7 for reference.)
4. The cursor is positioned on the "Type" field. This field is defaulted to **pdm**. If the CMS is remotely connected, this field needs to be changed to **tdm**.
5. Press the RETURN key.
6. The cursor is positioned on the "Port" field.
7. Enter the port location to which the data module is connected.

For a Generic 1, the first character identifies the network (1-2, default is "1" if no entry); the second character identifies the carrier (A-E); the third and fourth characters identify the slot number in the carrier (01-20 for multi-carrier cabinets or 01-18 for single-carrier cabinets); the last two characters identify the circuit number (01-24). Press the RETURN key.

8. The cursor is positioned on the "Name" field.
9. Enter **cms link pdm**, or if CMS is remotely connected, enter **cms link tdm** and press the RETURN key.
10. The cursor is positioned on the "COS" field.

**Note** The "COS" and "COR" fields are defaulted to 1, and the "Connected To" field is defaulted to **dte**.

11. Move the cursor to the "Remote Loop-Around Test" field.
12. Enter **y** if the module supports a loop-back at the EIA interface; otherwise, enter **n**.

**Note** If the CMS is remotely connected (using a modem and MTDM), enter **n**.

13. Press the ENTER key.
14. Screen displays:

**command successfully completed,**

**enter command:**

```
DATA MODULE
Data Extension: 2009   BCC:   Type: pdm   Port: 1A0101
Name: cms link pdm   COS: 1   COR: 1
Connected to: dte   Remote Loop-Around Test? y
ABBREVIATED DIALING
List1:
HOT LINE DESTINATION
Abbreviated Dialing Dial Code (From above list):
ASSIGNED MEMBERS ( Stations with a data extension button for this data module )
Ext   Name           Ext   Name
1:    3:
2:    4:
```

**Figure A-7: Data Module Form for Generic 1**

After the Processor Interface and the data module have been assigned, the processor channel and interface link can then be established. The processor channel is assigned using the Processor Channel Assignment form, and the interface link is enabled using the Interface Links form.

## How to Assign the Processor Channel

The Processor Channel form is used to assign one of the 64 local processor channels from the processor link to one of the 64 interface channels assigned to one interface link (1 to 4). Only one interface link is assigned for the CMS host computer.

The following procedure can be used to assign processor channels on the Generic 1:

1. Verify System Access Terminal displays:

**enter command:**

2. Enter **change communications-interfaces processor-channels** command and press the RETURN key.
3. The screen displays the Processor Channel Assignment form. Use Figure A-8 for reference.)



The sample screen shown in Figure A-8 illustrates a configuration which assigns the Processor Channel 1 to the "mis" Application with a Remote Processor Channel of 1.

4. Select an available Processor Channel by using the up/down arrow keys to place the cursor in the "Appl" field of an available channel.



The Processor Channel number should be the same number that was selected for the "port" number when the CMS software was installed. For more information on changing the port/link number, refer to *Changing the Switch Parameters* in Chapter 4.

5. Enter **mis** in the "Appl" field and press the RETURN key.
6. The cursor is positioned on the "Interface Link" field.
7. Enter **1** in the "Interface Link" field. (This is the interface link number assigned on the Processor Interface Data Module form.)
8. Press the RETURN key.
9. The Cursor is positioned on the "Interface Chan" field.
10. Enter **1** in the "Interface Chan" field and press the RETURN key.

11. The cursor is positioned on the "Priority" field.
12. Enter **h** in the "Priority" field and press the RETURN key.
13. The cursor is positioned on the "Remote Proc Chan" field.
14. Enter **1** in the "Remote Proc Chan" and press the RETURN key.
15. Cursor is positioned on the "MACHINE-ID" field.

- 16. Make no entry, and press the ENTER key.
- 17. Screen displays:

**command successfully completed,**

**enter command:**

```
PROCESSOR CHANNEL ASSIGNMENT
```

Proc Chan	Appl.	Interface Link Chan	Priority	Remote Proc Chan	Machine-ID
1:	mis	1 1	h	1	
2:					
3:					
4:					
5:					
6:					
7:					
8:					
9:					
10:					
11:					
12:					
13:					
14:					
15:					
16:					

**Figure A-8: Processor Channel Assignment Form for Generic 1**

**Note** The R3 CMS software requires that the "Interface Chan" assignment be administered as "1." Priority on this channel must be set to **h** (high).

## How to Enable the Interface Link

The following steps are used to enable the CMS interface link on the Generic 1:

1. Verify System Access Terminal displays:

**enter command:**

2. Enter **change communications-interfaces links** and press the RETURN key.
3. The screen displays an Interface Links form. (Use Figure A-9 for reference.)
4. The cursor is positioned on the "Enabled" field.
5. Enter "y" beside the interface link number assigned on the Processor Channel form to enable the interface link. Press the RETURN key.
6. The cursor is positioned on the "Est Conn" field.
7. Enter "y" to establish a connection to the MPDM that connects to the CMS host computer, and press the RETURN key.
8. The cursor skips the "PI Ext" field. The extension number assigned on the Processor Interface Data Module form is automatically displayed in this field.
9. The cursor is positioned on the "Prot" field.
10. Enter **BX.25** in the "Prot" field.
11. The cursor is positioned on the "Destination Digits" field.
12. Enter the extension number for the MPDM that connects to the CMS host computer, and press the RETURN key.
13. The cursor is positioned on the "DTE/DCE" field.
14. Enter "DTE" for the CMS host computer and press the RETURN key.
15. The cursor is positioned on the "Identification" field.
16. Enter a 15-character name for the link. This field may be left blank.
17. Press the ENTER key.

18. Screen displays:

**command successfully completed,**

**enter command:**

```
INTERFACE LINKS
```

Link	Enable	Est Conn	PI Ext	Prot	Destination Digits	Brd	DTE/ DCE	Identification
1:	y	y	2005	BX.25	2009		DTE	
2:	y							
3:	y							
4:	y							

**Figure A-9: Interface Links Form for Generic 1**

## How to Enable the EIA Port on the Processor Interface

If the EIA port on the Processor Interface on a Generic 1 is used to make the connection to the CMS host computer, refer to Figure A-10:

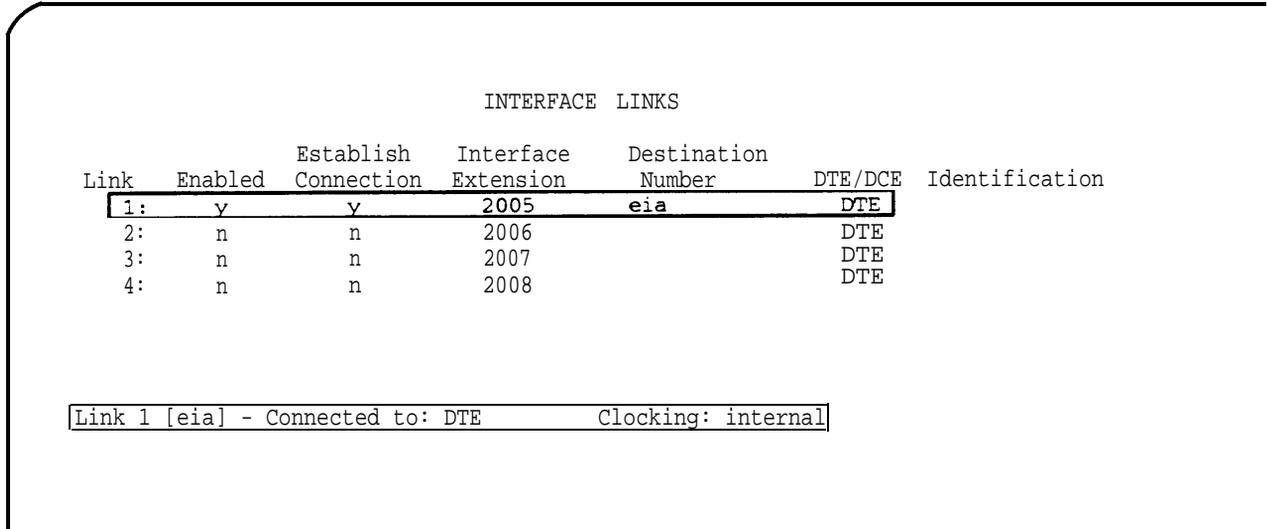


Figure A-10: Interface Links Form for EIA Port on Processor Interface for Generic 1



For R3 CMS, the DTE/DCE field must be set to "DTE."

# **Appendix B**

## **Generic 2 and System 85 Administration**

## General Information

The Release 3.0 Call Management System (R3 CMS) application can collect and process Automatic Call Distribution (ACD) data from the DEFINITY Communications System Generic 2 and System 85 R2V4 switches. However, before the R3 CMS can collect and process the ACD data, the CMS feature and the Data Communications Interface Unit (DCIU) on the switch must be properly administered.

In addition, the ACD feature on the switch must be administered.

Also, the R3 CMS application requires that the following software and hardware be present on the System 85 switch:

- For R2V4, Issue 1.0 or later software
- TN406 V11 or later vintage hardware
- TN405 V1 or later vintage hardware
- UN156 V3 or later vintage hardware.

The following documents can be used by a qualified switch technician to administer the CMS and ACD features:

- *AT&T DEFINITY Communications System Generic 2 Administration of Features and Hardware* (555-104-507, Issue 1)
- *AT&T System 85 Feature Translation Service Manual Release 2, Version 4*, Issue 1 (555-103-107).

Use this appendix to do the following:

- Administer the CMS Feature on the DEFINITY Generic 2.1 and System 85 R2V4
- Administer the CMS Feature on the DEFINITY Generic 2.2
- Administer the Dedicated Switch Connection (DSC) Feature on the System 85 R2V4
- Administer the Dedicated Switch Connection (DSC) Feature on the DEFINITY Generic 2

**Note** Any changes to the switch translations should only be made by a skilled switch technician.

# Administering the CMS Feature on the DEFINITY Generic 2.1 and System 85 R2V4

On a Generic 2.1, use the Manager II to administer the CMS feature. On a System 85 R2V4, use the VMAAP or MAAP panel.

**275 Word 1** Activates the DCIU.

Field 17 Enter the DCIU assignment:  
1 Enable

**275 Word 4** Enables or disables CMS for the system.

Field 13 Enter the CMS assignment:  
1 Enable

**258 Word 2** Copies the DCIU machine-read memory values to the scratch-pad table. Use this procedure *before* making any DCIU changes.

Field 1 Enter a "1" to make a copy of DCIU tables.



This procedure overwrites the contents of the scratch-pad table.

- 256 Word 1** Administers the major characteristics of the data link. Included are the link number, status, baud rate, DTE/DCE, type of link, protocol, destination machine type, and the destination machine number.
- Field 1 Enter the DCIU physical link number (1-8). This is the link number of the physical port on the DCIU that is connected to the host computer for CMS.
  - Field 2 Enter the assigned status:
    - 1 Assigned
  - Field 3 Enter the baud rate:
    - 6 9600 Baud
  - Field 4 Enter the local DTE/DCE assignments:
    - 0 Local end of DCIU link is functioning as a DTE
  - Field 5 Enter the dial up capabilities:
    - 0 Link is not a dial up link
  - Field 6 Enter a "1" to specify the BX.25 protocol.
  - Field 7 Enter the type of machine interface:
    - 8 3B2
  - Field 8 Enter the destination machine number:
    - 1-7 For APs, the AP number
    - If this is the first "AP," enter 1.

- 256 Word 2** Administers the BX.25 level 2 characteristics. Included are the link number, the retransmission timer, the idle timer, the maximum number of retransmissions, and the maximum number of unacknowledged frames allowed on the link.
- Field 1 Enter the DCIU physical link number (1-8).
  - Field 2 Enter the time in seconds before retransmitting unacknowledged frames (1-255). For CMS, the value is 1.
  - Field 3 Enter the time in seconds before frames are exchanged on a link (1-255). For CMS, the value is 10.
  - Field 4 Enter the maximum number of retransmissions of an acknowledged frame (1-15). For CMS, the value is 2.
  - Field 5 Enter the maximum number of frames transmitted on a link without acknowledgement (1-7). For CMS, the value is 7.

**256 Word 3** Administers the BX.25 level 3 characteristics. Included are the link number, the activity timer, the acknowledgement timer, interrupt timer, the restart timer, and the maximum number of unacknowledged packets.

- Field 1 Enter the DCIU physical link number (1-8).
- Field 2 Enter the time, in seconds, before sending a window advancement packet to indicate the present condition of a logical channel (1-255). For CMS, the value is 180.
- Field 3 Enter the time, in seconds, waited for acknowledgement of data packet before resetting a logical channel (1-255). For CMS, the value is 20.
- Field 4 Enter the time, in seconds, waited for confirmation of an interrupt packet before resetting a logical channel (1-255). For CMS, the value is 180.
- Field 5 Enter the time, in seconds, waited before retransmitting an unconfirmed reset request package (1-255). For CMS, the value is 8.
- Field 6 Enter the time, in seconds, waited before retransmitting an unconfirmed restart request package (1-255). For CMS, the value is 8.
- Field 10 Enter the maximum number of times an unacknowledged data packet can be transmitted (1-7). For CMS, the value is 4.

*Local/ Remote Setup for CMS*

**257 Word 5** Reserves ports for CMS usage including the port number, the application type, and the application instance number.

Field 1 Enter "64" for the number of the local port.

Field 2 Enter "11" to specify the application type as CMS.

Field 3 Enter "1" for the application instance number.

**257 Word 2** Administers the port characteristics including the local port, the remote port/destination, the alternate routing destination routing code, and the alternate routing postage.

Field 1 Enter "64" for the local port number.

Field 2 Enter "1" for the remote port/destination.

*CMS Channel*

**257 Word 1** Administers the network channel for CMS applications. Included are the switch link, the logical channel on the local port, the hardware link, the logical channel, the priority, and the alternate routing flag.

Field 1 Enter "0" for the local link number (Component A).

Field 2 Enter "64" for the logical channel number on the local link/switch.

Field 3 Enter the link number (Component B):

1-8 Hardware links (this link is connected to the link specified in Field 1)

Field 4 Enter "1" for the logical channel number on the link.

Field 5 Enter "1" for the priority level (high).

Field 6 Enter "0" for the alternate routing flag status.

*Local/ Remote Setup for Maintenance Channel*

- 257 Word 5** Reserves ports for CMS usage including the port number, the application type, and the application instance number.
- Field 1 Enter "6" for the number of the local port.
  - Field 2 Enter "10" to specify the DCIU test (TEST).
  - Field 3 Enter "1" for the application instance number.
- 257 Word 5** Reserves ports for CMS usage including the port number, the application type, and the application instance number.
- Field 1 Enter "20" for the number of the local port.
  - Field 2 Enter "10" to specify the DCIU test (TEST).
  - Field 3 Enter "2" for the application instance number.
- 257 Word 2** Administers the port characteristics including the local port, the remote port/destination, the alternate routing destination routing code, and the alternate routing postage.
- Field 1 Enter "6" for the local port number.
  - Field 2 Enter "20" for the remote port/destination.
- 257 Word 2** Administers the port characteristics including the local port, the remote port/destination, the alternate routing destination routing code, and the alternate routing postage.
- Field 1 Enter "20" for the local port number.
  - Field 2 Enter "6" for the remote port/destination.

*Maintenance Channel*

**257 Word 1** Administers the network channel for CMS applications. Included are the switch link, the logical channel on the local port, the hardware link, the logical channel, the priority, and the alternate routing flag.

- Field 1 Enter "0" for the local link number (Component A).
- Field 2 Enter "6" for the logical channel number on the local link/switch.
- Field 3 Enter "0" for the link number (Component B).
- Field 4 Enter "20" for the logical channel number on the link.
- Field 5 Enter "0" for the priority level (low).
- Field 6 Enter "0" for the alternate routing flag status.

*Initialize the Changes*

**258 Word 1** Swaps the changes made to the DCIU scratch-pad table with the machine-read memory. Use this procedure *after* making any DCIU changes.

- Field 1 Enter a "1" to swap the tables and reboot DCIU.

**028 Word 2** This procedure is used to busy out CMS while translation changes are made. After making the translation changes, the CMS busy out must be released.

- Field 1 Enter the CMS busy out specifications:
  - 1 Busied out

**115 Word 1** Administers the termination point of CMS trunk groups to ACD splits, ACD priority, and CMS measurement types.

Field 1 Enter the trunk group number (18-999).

Field 2 Enter the termination point:

- Trunk group does not terminate at a CAS or SS attendant.

Field 3 Enter the split number (1-60) to which the trunk group terminates. Enter a "dash" if the trunk group terminates to a VDN.

Field 5 Enter CMS measurement type (—, or 1 to 3). The applicable encodes are:

- Trunk group not measured by CMS
- 1 Trunk group measured for outgoing calls
- 2 Trunk group measured for incoming calls
- 3 Trunk group measured for outgoing and incoming calls.

**Note** Only the trunk groups numbered from 18 to 255 can be measured.

**028 Word 1** Administers the Call Management System (CMS) to an extension or group of extensions.

Field 2 Enter the CMS extension low (000-99999).

Field 3 Enter the CMS extension high (000-99999).



Before using Procedure 028 Word 1, Procedure 350 Word 2 should be used to administer the login/logout codes. After the extension is assigned in Procedure 028 Word 1, the agent cannot use the "staffed" button.

**031 Word 1** Administers a vector directory number, a vector number, measuring, the ICI message, and the return call assignment. The machine number of the adjunct is displayed in Field 9.

- Field 1 Enter the vector directory number (000-99999).
- Field 2 Enter the vector number (—, 1-128).
- Field 3 Enter the CMS measurement capabilities:
  - 0 VDN is not measured
  - 1 VDN is measured
- Field 4 Enter the first console message character (—, 0-37).

0 = 0	A = 11	K = 21	U = 31
1 = 1	B = 12	L = 22	V = 32
2 = 2	C = 13	M = 23	W = 33
3 = 3	D = 14	N = 24	X = 34
4 = 4	E = 15	O = 25	Y = 35
5 = 5	F = 16	P = 26	Z = 36
6 = 6	G = 17	Q = 27	- = 37
7 = 7	H = 18	R = 28	blank = 10
8 = 8	I = 19	S = 29	
9 = 9	J = 20	T = 30	

- Field 5 Enter the second console message character (—, 0-37).
- Field 6 Enter the third console message character (—, 0-37).
- Field 7 Enter the fourth console message character (—, 0-37).
- Field 8 Enter the return call indicator:
  - , 0 Not a return call VDN
  - 1 MCS return call VDN
  - 2 AUDIX return call VDN

**028 Word 2** This procedure is used to busy out CMS while translation changes are made. After making the translation changes, the CMS busy out must be released.

- Field 1 Enter the CMS busy out specifications:
  - 0 Not busied out

# Administering the CMS Feature on the DEFINITY Generic 2.2

On a Generic 2.2, use the Manager II to administer the CMS feature.

**275 Word 1** Activates the DCIU.

Field 17 Enter the DCIU assignment:  
1 Enable

**275 Word 4** Enables or disables CMS for the system.

Field 13 Enter the CMS assignment:  
1 Enable

**258 Word 2** Copies the DCIU machine-read memory values to the scratch-pad table. Use this procedure *before* making any DCIU changes.

Field 1 Enter a "1" to make a copy of DCIU tables.



This procedure overwrites the contents of the scratch-pad table.

- 256 Word 1** Administers the major characteristics of the data link. Included are the link number, status, baud rate, DTE/DCE, type of link, protocol, destination machine type, and the destination machine number.
- Field 1 Enter the DCIU physical link number (1-8). This is the link number of the physical port on the DCIU that is connected to the host computer for CMS.
- Field 2 Enter the assigned status:  
1 Assigned
- Field 3 Enter the baud rate:  
6 9600 Baud
- Field 4 Enter the local DTE/DCE assignments:  
0 Local end of DCIU link is functioning as a DTE
- Field 5 Enter the dial up capabilities:  
0 Link is not a dial up link
- Field 6 Enter a "1" to specify the BX.25 protocol.
- Field 7 Enter the type of machine interface:  
8 3B2
- Field 8 Enter the destination machine number:  
1-7 For APs, the AP number  
If this is the first "AP," enter 1.

- 256 Word 2** Administers the BX.25 level 2 characteristics. Included are the link number, the retransmission timer, the idle timer, the maximum number of retransmissions, and the maximum number of unacknowledged frames allowed on the link.
- Field 1 Enter the DCIU physical link number (1-8).
- Field 2 Enter the time in seconds before retransmitting unacknowledged frames (1-255). For CMS, the value is 1.
- Field 3 Enter the time in seconds before frames are exchanged on a link (1-255). For CMS, the value is 10.
- Field 4 Enter the maximum number of retransmissions of an acknowledged frame (1-15). For CMS, the value is 2.
- Field 5 Enter the maximum number of frames transmitted on a link without acknowledgement (1-7). For CMS, the value is 7.

**256 Word 3** Administers the BX.25 level 3 characteristics. Included are the link number, the activity timer, the acknowledgement timer, interrupt timer, the restart timer, and the maximum number of unacknowledged packets.

- Field 1 Enter the DCIU physical link number (1-8).
- Field 2 Enter the time, in seconds, before sending a window advancement packet to indicate the present condition of a logical channel (1-255). For CMS, the value is 180.
- Field 3 Enter the time, in seconds, waited for acknowledgement of data packet before resetting a logical channel (1-255). For CMS, the value is 20.
- Field 4 Enter the time, in seconds, waited for confirmation of an interrupt packet before resetting a logical channel (1-255). For CMS, the value is 180.
- Field 5 Enter the time, in seconds, waited before retransmitting an unconfirmed reset request package (1-255). For CMS, the value is 8.
- Field 6 Enter the time, in seconds, waited before retransmitting an unconfirmed restart request package (1-255). For CMS, the value is 8.
- Field 10 Enter the maximum number of times an unacknowledged data packet can be transmitted (1-7). For CMS, the value is 4.

*Local/ Remote Setup for CMS*

**257 Word 5** Reserves ports for CMS usage including the port number, the application type, and the application instance number.

Field 1 Enter "64" for the number of the local port.

Field 2 Enter "11" to specify the application type as CMS.

Field 3 Enter "1" for the application instance number.

**257 Word 2** Administers the port characteristics including the local port, the remote port/destination, the alternate routing destination routing code, and the alternate routing postage.

Field 1 Enter "64" for the local port number.

Field 2 Enter "1" for the remote port/destination.

*CMS Channel*

**257 Word 1** Administers the network channel for CMS applications. Included are the switch link, the logical channel on the local port, the hardware link, the logical channel, the priority, and the alternate routing flag.

Field 1 Enter "0" for the local link number (Component A).

Field 2 Enter "64" for the logical channel number on the local link/switch.

Field 3 Enter the link number (Component B):

1-8 Hardware links (this link is connected to the link specified in Field 1)

Field 4 Enter "1" for the logical channel number on the link.

Field 5 Enter "1" for the priority level (high).

Field 6 Enter "0" for the alternate routing flag status.

*Local/ Remote Setup for Maintenance Channel*

- 257 Word 5** Reserves ports for CMS usage including the port number, the application type, and the application instance number.
- Field 1 Enter "6" for the number of the local port.
  - Field 2 Enter "10" to specify the DCIU test (TEST).
  - Field 3 Enter "1" for the application instance number.
- 257 Word 5** Reserves ports for CMS usage including the port number, the application type, and the application instance number.
- Field 1 Enter "20" for the number of the local port.
  - Field 2 Enter "10" to specify the DCIU test (TEST).
  - Field 3 Enter "2" for the application instance number.
- 257 Word 2** Administers the port characteristics including the local port, the remote port/destination, the alternate routing destination routing code, and the alternate routing postage.
- Field 1 Enter "6" for the local port number.
  - Field 2 Enter "20" for the remote port/destination.
- 257 Word 2** Administers the port characteristics including the local port, the remote port/destination, the alternate routing destination routing code, and the alternate routing postage.
- Field 1 Enter "20" for the local port number.
  - Field 2 Enter "6" for the remote port/destination.

*Maintenance Channel*

**257 Word 1** Administers the network channel for CMS applications. Included are the switch link, the logical channel on the local port, the hardware link, the logical channel, the priority, and the alternate routing flag.

- Field 1 Enter "0" for the local link number (Component A).
- Field 2 Enter "6" for the logical channel number on the local link/switch.
- Field 3 Enter "0" for the link number (Component B).
- Field 4 Enter "20" for the logical channel number on the link.
- Field 5 Enter "0" for the priority level (low).
- Field 6 Enter "0" for the alternate routing flag status.

*Initialize the Changes*

**258 Word 1** Swaps the changes made to the DCIU scratch-pad table with the machine-read memory. Use this procedure *after* making any DCIU changes.

- Field 1 Enter a "1" to swap the tables and reboot DCIU.

**028 Word 1** This procedure is used to busy out CMS while translation changes are made. After making the translation changes, the CMS busy out must be released.

- Field 1 Enter the CMS busy out specifications:
  - 1 Busied out

**115 Word 1** Administers the termination point of CMS trunk groups to ACD splits, ACD priority, and CMS measurement types.

- Field 1 Enter the trunk group number (18-999).
- Field 2 Enter the termination point:
  - Trunk group does not terminate at a CAS or SS attendant.
- Field 3 Enter the split number (1-60) to which the trunk group terminates. Enter a "dash" if the trunk group terminates to a VDN.
- Field 5 Enter CMS measurement type (—, or 1 to 3). The applicable encodes are:
  - Trunk group not measured by CMS
  - 1 Trunk group measured for outgoing calls
  - 2 Trunk group measured for incoming calls
  - 3 Trunk group measured for outgoing and incoming calls.

**Note** Only the trunk groups numbered from 18 to 255 can be measured.

**026 Word 2** Administers an ACD split and whether a split is measured.

- Field 8 Enter the CMS split measurement status. The applicable encodes are:
  - 0 Split is not measured by CMS
  - 1 Split is measured by CMS

**Caution** Before using Procedure 026 Word 2, Procedure 350 Word 2 should be used to administer the login/logout codes. After the extension is assigned in Procedure 028 Word 1, the agent cannot use the "staffed" button.

**031 Word 1** Administers a vector directory number, a vector number, measuring, the ICI message, and the return call assignment. The machine number of the adjunct is displayed in Field 9.

Field 1 Enter the vector directory number (000-99999).

Field 2 Enter the vector number (—, 1-128).

Field 3 Enter the CMS measurement capabilities:

- 0 VDN is not measured
- 1 VDN is measured

Field 4 Enter the first console message character (—, 0-37).

0 = 0	A = 11	K = 21	U = 31
1 = 1	B = 12	L = 22	V = 32
2 = 2	C = 13	M = 23	W = 33
3 = 3	D = 14	N = 24	X = 34
4 = 4	E = 15	O = 25	Y = 35
5 = 5	F = 16	P = 26	Z = 36
6 = 6	G = 17	Q = 27	- = 37
7 = 7	H = 18	R = 28	blank = 10
8 = 8	I = 19	S = 29	
9 = 9	J = 20	T = 30	

Field 5 Enter the second console message character (—, 0-37).

Field 6 Enter the third console message character (—, 0-37).

Field 7 Enter the fourth console message character (—, 0-37).

Field 8 Enter the return call indicator:

- , 0 Not a return call VDN
- 1 MCS return call VDN
- 2 AUDIX return call VDN

**028 Word 1** This procedure is used to busy out CMS while translation changes are made. After making the translation changes, the CMS busy out must be released.

Field 1 Enter the CMS busy out specifications:

- 0 Not busied out

# Administering a Dedicated Switch Connection on the System 85 R2V4

On a System 85 R2V4, use the VMAAP or MAAP panel to administer the Dedicated Switch Connection (DSC) feature.

**Note** The System 85 R2V4 must have tape issue 1.1 (with patches 946, 947, and 954) to establish a connection between the switch and R3 CMS.

The translations should be done at both the local and distant end switches. If one of the switches is a DEFINITY Generic 2, follow the administration procedures in the "Administering a Dedicated Switch Connection on a Definity Generic 2" section in this appendix.

- 000 Word 1** Administers the extension number and class of service.
- Field 1 Enter the extension number of the distant end.
  - Field 7 Enter the class of service associated with the extension.
- 051 Word 1** Administers the characteristics of the data module.
- Fields 1-5 Enter the terminal equipment location of the MPDM.
  - Field 6 Enter a "4" to specify "PDM" as the type of data module.
  - Field 10 Enter a "2" to set the extension origination preference as the "Prime Appearance."
  - Field 11 Enter a "0" to set the extension termination preference to "None."
  - Field 13 Enter a "0" to disable keyboard dialing feature.

- 052 Word 1** Administers the characteristics of the data module.
- Fields 1-5 Enter the terminal equipment location of the MPDM.
  - Field 6 Enter a "0" to specify the device type as a basic set.
  - Field 7 Enter a "0" to specify the button number.
  - Field 8 Enter the extension number of the MPDM.
  - Field 9 Enter a "1" to specify the line appearance number.
  - Field 10 Enter a "1" to specify the line type.
  - Field 11 Enter a "1" to set ringing type.
  - Field 12 Enter a "1" to specify that it is the home terminal.
  - Field 13 Enter a "0" to specify that the terminal is not an originating only terminal.
  - Field 14 Enter a "0" to specify that this terminal is not in a SAC group.

*Activate the Dedicated Switch Connection Feature*

- 360 Word 1** Administers the Dedicated Switch Connection (DSC) between the MPDM and the DS1 circuit.
- Field 1 Enter a "1" to activate the DSC feature.
  - Field 2 Enter an unused DSC number (0-1023).
  - Fields 3-7 Enter the equipment location for the MPDM.
  - Field 8 Enter a "1" to set the "I" channel to voice.
  - Fields 10-14 Enter the equipment location for the DS1 channel.
  - Field 15 Enter a "—" to specify the port is not a GPP.

**Note** When using the DSC feature, Procedure 260 Word 1 Field 8 should be set to "0" to specify 24th Channel Signaling. Also, Procedure 116 Word 1 Field 8 should be set to "1" to disable signaling.

## Administering a Dedicated Switch Connection on the DEFINITY Generic 2

On a DEFINITY Generic 2.1, administer the Dedicated Switch Connection (DSC) feature.

The translations should be done at both the local and distant end switches. If one of the switches is a System 85 R2V4, follow the administration procedures in the "Administering a Dedicated Switch Connection on the System 85 R2V4" section in this appendix.

**000 Word 1** Administers the extension number and class of service.

Field 1 Enter the extension number of the distant end.

Field 7 Enter the class of service associated with the extension

**051 Word 1** Administers the characteristics of the data module.

Fields 1-5 Enter the terminal equipment location of the MPDM.

Field 6 Enter a "1" to specify "PDM" as the type of data module.

Field 7 Enter a "0" to specify terminal options as "Data Only."

Field 8 Enter a "1" to specify that it is a DTDM, data stand or ADM-T.

Field 9 Enter a "-" to specify that the display is not assigned.

Field 10 Enter a "2" to set the extension origination preference as the "Prime Appearance."

Field 11 Enter a "0" to set the extension termination preference to "None."

Field 13 Enter a "0" to disable keyboard dialing feature.

Field 15 Enter a "-" to specify that Terminal Alarming does not apply.

- 052 Word 1** Administers the characteristics of the data module.
- Fields 1-5 Enter the terminal equipment location of the MPDM.
  - Field 6 Enter a "0" to specify the device type as a basic set.
  - Field 7 Enter a "0" to specify the button number.
  - Field 8 Enter the extension number of the MPDM.
  - Field 9 Enter a "1" to specify the line appearance number.
  - Field 10 Enter a "1" to specify the line type.
  - Field 11 Enter a "1" to set ringing type.
  - Field 12 Enter a "1" to specify that it is the home terminal.
  - Field 13 Enter a "0" to specify that is the terminal is not an originating only terminal.
  - Field 14 Enter a "0" to specify that this terminal is not in a SAC group.

*Activate the Dedicated Switch Connection Feature*

- 360 Word 1** Administers the Dedicated Switch Connection (DSC) between the MPDM and the DS1 circuit.
- Field 1 Enter a "1" to activate the DSC feature.
  - Field 2 Enter an unused DSC number (0-1023).
  - Fields 3-7 Enter the equipment location for the MPDM.
  - Field 8 Enter a "1" to set the "I" channel to voice.
  - Fields 10-14 Enter the equipment location for the DS1 channel.
  - Field 15 Enter a "-" to specify the port is not a GPP.

**Note** When using the DSC feature, Procedure 260 Word 1 Field 8 should be set to "0" to specify 24th Channel Signaling. Also, Procedure 116 Word 1 Field 8 should be set to "1" to disable signaling.

**Appendix C**  
**Generic 3r Administration**

## General Information

The Release 3.0 Call Management System (R3 CMS) application can collect and process Automatic Call Distribution (ACD) data from the DEFINITY Communications System Generic 3r switch. However, before CMS can collect and process the ACD data, a special hardware interface on the switch must be properly administered. For the Generic 3r switch, the hardware interface is a Packet Gateway (TN577) board. This hardware interface is sometimes called the CMS interface.

In addition to the CMS interface, the following CMS features on the switch must also be administered:

- Abandoned Call Search
- Agent Call Handling
- Hunt Groups
- Intraflow and Interflow
- Queue Status Indications
- Recorded Announcements
- Service Observing.

The following documents can be used by a qualified switch technician to implement the CMS interface and features:

- *AT&T DEFINITY Communications System Generic 1 Implementation Manual (555-204-654, Issue 1)*
- *AT&T DEFINITY Communications System Generic 1 Installation and Test (555-204-104)*
- *AT&T DEFINITY Communications System Generic 1 Wiring (555-204-111)*
- *AT&T DEFINITY Communications System Generic 1 Maintenance (555-204-105)*

For your convenience, the next section contains step-by-step procedures that can be used to implement the CMS interface. However, should you have any question about these procedures, you should refer to the appropriate switch documentation.

**Note** Only a qualified switch technician or switch administrator should administer the CMS interface and features on the switch.

## Administering CMS Interface On Generic 3r

This section contains the procedures required to establish a communications link between the CMS host computer and the Generic 3r switch.

The Packet Gateway (TN577) board on the Generic 3r has four interface links (01 to 04). One of these interface links can be assigned to the CMS host computer.

You assign the CMS interface by logging in on System Access Terminal (SAT) as *craft* and filling out the following forms:

- Feature-Related System Parameters Form
- Pgate (Packet Gateway) Board Form
- Data Module (MPDM/MTDM) Form
- Processor Channel Assignment Form
- Interface Links Form
- Administered Connection Form.



If the Isolating Data Interface is used to make the connection to the CMS host computer, you do not have to fill out the Data Module form and the Administered Connection form.

## How to Change Feature Related System Parameters

The following procedures can be used to change the CMS parameters on the Generic 3r:

1. Verify System Access Terminal displays:

**enter command:**

2. Enter **change system-parameters features**. Press the RETURN key.
3. The screen displays a data module form. (Use Figure C-1 for reference.)
4. In the field labeled "Adjunct CMS Release," enter **R3** for Generic 3r. Press the RETURN key.
5. In the field labeled "Automatic Call Distribution (ACD) Log-in Identification Length," enter the length of the agent login IDs. The length of the agent login IDs for the Generic 3r is 0-9. Press the RETURN key.

6. Screen displays:

**command successfully completed,**

**enter command:**

```
FEATURE-RELATED SYSTEM PARAMETERS

SYSTEM PRINTER PARAMETERS

    System Printer Type: _____
    Printer Speed: _____

SYSTEM-WIDE PARAMETERS

    Switch Name: _____

CALL MANAGEMENT SYSTEM PARAMETERS

    BCMS Measurement Interval: _____
    Adjunct CMS Release: R3
    Automatic Call Distribution (ACD) Log-in Identification Length: X

MALICIOUS CALL TRACE PARAMETERS

    Apply MCT Warning Tone? __
    MCT Voice Recorder Trunk Group: _____
```

**Figure C-1: Feature-Related System Parameters Form**

## How to Assign the Packet Gateway Board

The following procedures can be used to assign the Packet Gateway Board on the Generic 3r:

1. Verify System Access Terminal displays:

**enter command:**

2. Enter **add pgate 1c03** where *1c03* is the physical Packet Gateway (TN577) board location. The first character identifies the network (1-2, default is "1" if no entry); the second character identifies the character (A-E); the third and fourth characters identify the slot number in the carrier (01-20 for multi-carrier cabinets or 01-18 for single-carrier cabinets). The physical board location you use will automatically appear in the "Board Location" field of a Pgate Board form. Press the RETURN key.
3. The screen displays a Pgate Board form. (Use Figure C-2 for reference.)
4. In the field labeled "External Cable Type," enter **rs232** for Generic 3r. Press the RETURN key.
5. Screen displays:

**command successfully completed,**

**enter command:**

```

                                PGATE BOARD
Board Location: 01C03                Name: PGATE board
Application: x.25
External Cable Type: rs232
Port Configuration: 1) RS232  2) RS232  3) RS232  4) RS232

```

**Figure C-2: Pgate Board Form**

## How to Assign the Packet Gateway Port

The following procedures can be used to assign the Packet Gateway port on the Generic 3r:

1. Verify System Access Terminal displays:

**enter command:**

2. Enter **add data-module 2005** where *2005* is the extension number assigned to the interface. The extension number you use will automatically appear in the "Data Extension" field of a Data Module form. Press the RETURN key.
3. The screen displays a data module form. (Use Figures C-3 and C-4 for reference.)
4. In the field labeled "Type," enter **x.25**. Press the RETURN key.
5. The cursor is positioned on the "Port" field.
6. Enter the port number, for example **01C0302**. The port number identifies the physical equipment location of the circuit pack (packet gateway) being used. Press the RETURN key.
7. The cursor is positioned on the "Name" field.
8. Enter **Pgate 1C0302** where *1C0302* is the physical equipment location of the Pgate board. Press the RETURN key.
9. The cursor is positioned on the "Baud Rate" field. Enter **9600**.
10. The cursor is positioned on the "Error Logging" field. Enter **y**.



To maximize call capacity, the "Number of Outstanding Packets" field on page 2 of the Data Module form should be increased from the default values of 2 to 3.

It is also recommended that the "Baud Rate" field be set to "19200" whenever the physical connection can support it. For example, if the switch is connected to the CMS host computer via the Isolating Data Interface, the physical connection can support a baud rate of 19200.

## 11. Screen displays:

command successfully completed,

enter command:

```

DATA MODULE

Data Extension: 2005      Type: x.25      Port: 01C0302
      Name: pgate 1C0302      COR: 1
Endpoint Type: adjunct  DTE/DCE: dte      Baud Rate: 9600
Error Logging? n      Remote Loop-Around Test ? n

Permanent Virtual Circuit? y      Highest PVC Logical Channel: 64
Switched Virtual Circuit? y

```

Figure C-3: Data Module Form (Page 1)

```

DATA MODULE

LAYER 2 PARAMETERS

      Number of Outstanding Frames (w) : 2
      Retry Attempt Counter (N2) : 2
      Frame Size (N1) : 185
Retransmission (T1) Timer (1/10 seconds) : 10
      Idle (T4) Timer (1/10 seconds) : 30

LAYER 3 PARAMETERS

Number of Outstanding Packets : 2
Restart (T20) Timer (seconds) : 8
Reset (T22) Timer (seconds) : 180

```

Figure C-4: Data Module Form (Page 2)

## How to Assign a Data Module to the Switch

After the interface on the Packet Gateway board has been assigned, the Data Module can be administered and connected to the switch.

**Note** If the CMS is located at a remote location (with reference to the switch), a modem and MTDM will be used.

1. Verify System Access Terminal screen displays:

**enter command:**

2. Enter **add data-module 2007** where *2007* is the extension number assigned to the Data Module. The extension number will automatically appear in the "Data Extension" field on the screen form. The extension number entered here is also used as the destination number on the Interface Links form. Press the RETURN key.
3. The screen displays a Data module form. (Use Figure C-5 for reference.)
4. The cursor is positioned on the "Type" field. This field is defaulted to **pdm**. If the CMS is remotely connected, this field needs to be changed to **tdm**.
5. Press the RETURN key.
6. The cursor is positioned on the "Port" field.
7. Enter the port location to which the data module is connected. For a Generic 3r, the first character identifies the network (1-2, default is "1" if no entry); the second character identifies the carrier (A-E); the third and fourth characters identify the slot number in the carrier (01-20 for multi-carrier cabinets or 01-18 for single-carrier cabinets); the last two characters identify the circuit number (01-24). Press the RETURN key.
8. The cursor is positioned on the "Name" field.
9. Enter **switch pdm**, or if CMS is remotely connected, enter **switch tdm** and press the RETURN key.

10. The cursor is positioned on the "COS" field.

**Note** The "COS" and "COR" fields are defaulted to 1, and the "Connected To" field is defaulted to **dte**.

11. Press the ENTER key.

12. Screen displays:

**command successfully completed,**

**enter command:**

```

DATA MODULE
Data Extension: 2009   BCC:   Type: pdm   Port: 1C0402
Name: cms link pdm   COS: 1   COR: 1   ITC: restricted
Connected to: dte   Remote Loop-Around Test? y
ABBREVIATED DIALING
List1: _____
SPECIAL DIALING OPTION: _____
ASSIGNED MEMBER (Station with a data extension button for this data module)
      Ext      Name
1:

```

**Figure C-5: Data Module Form**

After the Pgate board and the data module have been assigned, the processor channel and interface link can then be established. The processor channel is assigned using the Processor Channel Assignment form, and the interface link is enabled using the Interface Links form.

## How to Assign a Data Module to the CMS Host Computer

After the interface on Packet Gateway board has been assigned, the Data Module can be administered and connected to the CMS host computer or to a modem for a CMS located at a remote location.

**Note** If the CMS is located at a remote location (with reference to the switch), a modem and MTDM will be used.

1. Verify System Access Terminal screen displays:

**enter command:**

2. Enter **add data-module 2009** where *2009* is the extension number assigned to the Data Module. The extension number will automatically appear in the "Data Extension" field on the screen form. The extension number entered here is also used as the destination number on the Interface Links form. Press the RETURN key.
3. The screen displays a Data module form. (Use Figure C-6 for reference.)
4. The cursor is positioned on the "Type" field. This field is defaulted to **pdm**. If the CMS is remotely connected, this field needs to be changed to **tdm**.
5. Press the RETURN key.
6. The cursor is positioned on the "Port" field
7. Enter the port location to which the data module is connected. For a Generic 3r, the first character identifies the network (1-2, default is "1" if no entry); the second character identifies the carrier (A-E); the third and fourth characters identify the slot number in the carrier (01-20 for multi-carrier cabinets or 01-18 for single-carrier cabinets); the last two characters identify the circuit number (01-24). Press the RETURN key.
8. The cursor is positioned on the "Name" field.
9. Enter **cms link pdm**, or if CMS is remotely connected, enter **cms link tdm** and press the RETURN key.

10. The cursor is positioned on the "COS" field.

**Note** The "COS" and "COR" fields are defaulted to 1, and the "Connected To" field is defaulted to **dte**.

11. Press the ENTER key.

12. Screen displays:

**command successfully completed,**

**enter command:**

```
DATA MODULE
Data Extension: 2009   BCC:   Type: pcm   Port: 1C0401
Name: cms link pcm   COS: 1   COR: 1
Connected to: dte   ITC: restricted
Remote Loop-Around Test? y
ABBREVIATED DIALING
List1: _____
SPECIAL DIALING OPTION: _____
ASSIGNED MEMBER (Station with a data extension button for this data module)
Ext      Name
1:
```

**Figure C-6: Data Module Form**

After the Pgate board and the data module have been assigned, the processor channel and interface link can then be established. The processor channel is assigned using the Processor Channel Assignment form, and the interface link is enabled using the Interface Links form.

## How to Enable the Interface Link on the Generic 3r

The following steps are used to enable the CMS interface link on the Generic 3r:

1. Verify System Access Terminal displays:

**enter command:**

2. Enter **change communications-interfaces links** and press the RETURN key.
3. The screen displays an Interface Links form. (Use Figure C-7 for reference.)
4. The cursor is positioned on the "Enabled" field.
5. Enter **y** beside the interface link number assigned on the Processor Channel form to enable the interface link. Press the RETURN key.
6. The cursor is positioned on the "X.25 Extension" field.
7. Enter the extension number assigned to establish a connection to the MPDM that connects to the CMS host computer, and press the RETURN key.
8. The cursor skips the "Destination Number" field. The extension number assigned on the Processor Interface Data Module form is automatically displayed in this field.
9. The cursor is positioned on the "Identification" field.
10. Enter a 15-character name for the link. This field may be left blank.
11. Press the ENTER key.

12. Screen displays:

**command successfully completed,**

**enter command:**

```

                                INTERFACE LINKS
Link  Enabled  X.25  Destination  Establish  Identification
      Extension Number  Connection
1:    y        2005  external     cms link
2:    n        n      2006
3:    n        n      2007
4:    n        n      2008
```

**Figure C-7: Interface Links Form for EIA Port on Processor Interface**

## How to Assign the Processor Channel

The Processor Channel form is used to assign one of the 64 local processor channels from the processor link to one of the 64 interface channels assigned to one interface link (1 to 4). Only one interface link is assigned for the CMS host computer.

The interface link number used on this form is the same number assigned to the Physical Channel field on the Interface-3 Data Module form.

The following procedure can be used to assign processor channels on the Generic 3r:

1. Verify System Access Terminal displays:

**enter command:**

2. Enter **change communication-interface processor-channels** command and press the RETURN key.
3. The screen displays the Processor Channel Assignment form. (Use Figure C-8 for reference.)

**Note** The sample screen shown in Figure C-8 illustrates a configuration which assigns the Processor Channel 1 to the "mis" Application with a Local and Remote Port of 1.

4. Select an available Processor Channel by using the up/down arrow keys to place the cursor in the "Appl" field of an available channel.

**Note** The Processor Channel number should be the same number that was selected for the "local port" number when the CMS software was installed. For more information on changing the port/link number, refer to *Changing the Switch Parameters* in Chapter 6.

5. Enter **mis** in the "Appl" field and press the RETURN key.
6. The cursor is positioned on the "interface Link" field.
7. Enter **1** in the "Interface Link" field. (This is the interface link number assigned on the Processor Interface Data Module form.)
8. Press the RETURN key.

9. The Cursor is positioned on the "Interface Chan" field.
10. Enter **1** in the "Interface Chan" field and press the RETURN key.
11. The cursor is positioned on the "Local Port" field.
12. Enter **1** in the "Local Port" field and press the RETURN key.
13. The cursor is positioned on the "Remote Port" field.
14. Enter **1** in the "Remote Port" and press the RETURN key.
15. Cursor is positioned on the "MACHINE-ID" field.
16. Make no entry, press the ENTER key.
17. Screen displays:

**command successfully completed,**

**enter command:**

PROCESSOR CHANNEL ASSIGNMENT							
Proc Chan	Appl.	Interface Link	Chan	Local Port	Remote Port	Adjunct Name	Machine-ID
1:	mis	1	1	1	1		
2:							
3:							
4:							
5:							
6:							
7:							
8:							
9:							
10:							
11:							
12:							
13:							
14:							
15:							
16:							

**Figure C-8: Processor Channel Assignment Form**

**Note** The R3 CMS software requires that the "Interface Chan" assignment be administered as "1."

## How to Set Up an Administered Connection

The following procedures can be used to set up an administered connection on the Generic 3r:

1. Verify System Access Terminal displays:

**enter command:**

2. Enter **add administered-connection 1**. Press the RETURN key.
3. The screen displays an Administered Connection form. (Use Figure C-9 for reference.)
4. In the field labeled "Originator," enter the extension number assigned to the modem being connected to the pgate connection. Press the RETURN key.
5. In the field labeled "Destination," enter the extension number assigned to the modem being connected to the CMS host computer. Press the RETURN key.
6. Screen displays:

**command successfully completed,**

**enter command:**

```
Connection Number: 1      ADMINISTERED CONNECTION      Enable? y
  Originator: 2007
  Destination: 2009
    Name: _____

AUTHORIZED TIME OF DAY

    Continuous? y

MISCELLANEOUS PARAMETERS

    Alarm Type: warning      Alarm Threshold: 5
    Retry Interval: 2        Auto Restoration? y
    Priority: 5
```

**Figure C-9: Administered Connection Form**

**Appendix D**  
**RMC Manual Pages**

# General Information

This appendix contains the manual pages for the **dgn**, **rmcmgmt**, and **rmt dgn** commands. For more information on the **dgn**, **rmcmgmt**, and **rmt dgn** commands, and other commands concerning the Remote Maintenance Circuit (RMC), refer to the *Remote Management Package Manual* (305-455).

## NAME

**dgn** - provides support for the superuser to boot the DOS partition for Remote Diagnostics.

## SYNOPSIS

**dgn**

## DESCRIPTION

**/dgn** is a UNIX System boot level command. The command provides the superuser the ability to change the bootable disk partition to DOS and reboot the system.

The following message will be displayed, if no bootable DOS partition can be found on the hard disk:

No DOS partition was found.  
Strike ENTER to continue.

The following message will be displayed, if an error is detected when obtaining the bootable disk partitioning information:

Cannot read boot sector.  
Strike Enter to continue.

## FILES

**/dgn**

## SEE ALSO

**/etc/rmtdgn**

**NAME**

**rmcmgmt** - provides superuser control over the RMC (Remote Maintenance Circuit)

**SYNOPSIS**

**rmcmgmt** [ **a** {yIn} | **b** | **c** [bit0-bit6] | **d** | **e** | **j** {slc} | **k** [yIn] | **n** {slc} | **p** [yIn] | **r** | **s** [bit3|bit4] | **u** [yIn] | **?** ]

**DESCRIPTION**

**rmcmgmt** provides the superuser with control over the RMC. This command sets bits, clears bits, and allows and disallows functional operation of the RMC. Unless specified differently below, **rmcmgmt** exits with a return value of "0" to indicate processing success, or a "100" to indicate processing failure. If **rmcmgmt** is called with a bad option, an invalid option message is printed along with a help message (same as *rmcmgmt -?*).

The following are the command options for **rmcmgmt**:

- a {yIn}** Enable or inhibit the RMC hardware to set the major alarm out bit in the Output Control Register (OCR). This in turn enables or disables the major alarm generated by the RMC hardware on system reset.
- b** Check for the UPS battery condition. One of the following return codes is issued by the **rmcmgmt** command:
  - 0: UPS status is normal, system is operating on AC.
  - 1: AC power has failed, system operating on UPS battery.
  - 2: UPS battery supply is low.
  - 3: UPS battery malfunction or overload, system is operating on AC only.
- c [0-6]** Clear the bits in Input Status Register 1 and Mask Register 1 to 0.
  - c** Clear all the bits allowed.
  - c 0** When set to **0**, indicates system is running on commercial power.
  - c 1** When set to **0**, indicates UPS battery power condition is normal.
  - c 2** When set to **0**, indicates UPS battery is functioning normally.
  - c 3** When set to **0**, indicates user-defined minor alarm from external input is off.
  - c 4** When set to **0**, indicates user-defined major alarm from external input is off.

- c 5** When set to **0**, indicates no temperature warning for the cabinet.
- c 6** When set to **0**, indicates temperature condition in the cabinet is not dangerous.
- d** Disable the RMC input interrupts for:
- user defined major and minor alarms
  - UPS power supply
  - thermal sensors
- e** Enable the RMC input interrupts for:
- major and minor alarms
  - UPS power supply
  - thermal overload sensors
- j {slc}** Set or clear the major alarm output bit in the OCR. This sends a major alarm signal to the alarm unit, or clears the major alarm signal, if it exists.
- k [yln]** Check, enable, or disable the kernel sanity timer. If the kernel sanity timer is enabled, a major alarm signal is triggered once a hardware malfunction is detected.
- k** The following return code will be issued by the **rmcmgmt** command:
- 1:** Kernel sanity timer is enabled.
  - 2:** Kernel sanity timer is disabled.
- n {slc}** Set or clear the minor alarm output bit in the OCR. This sends a minor alarm signal to the alarm unit, or clears the minor alarm signal, if it exists.
- p [yln]** Check, enable, or disable the RMC Emergency Power Off (EPO) flag. The EPO flag determines whether the RMC will send the EPO signal to the UPD supporting this computer. Upon receiving the EPO signal from the RMC, the UPS will power off the computer and then shutoff itself.
- p** Check the status of the EPO flag. The following return code will be issued by the **rmcmgmt** command:
- 1:** EPO flag is enabled.
  - 2:** EPO flag is disabled.

- r Display the current RMC status. This includes the status of the following:
  - user defined major and minor alarms
  - UPS power supply
  - thermal sensors
  - kernel sanity timer
  - user sanity counter
  - EPO flag.
  
- s [3,4] Set the user defined minor alarm (bit 3) or major alarm (bit 4) in the ISR1 to 1.
 

This command sets the Input Status Register bits 3 or 4 to **1**. If the corresponding mask bit in Mask Register 1 is **0**, then the setting triggers the RMC to issue and input interrupt. The **MjrOut** or **MnrOut** bit in the OCR is then set to **1**. Subsequently, a minor or major alarm signal is sent to the alarm unit.

  - s Check the status of the EPO flag. The following return code will be issued by the **rmcmgmt** command:
  - s 3 When the bit is set to **1**, the user-defined minor alarm from the external input is on.
  - s 4 When the bit is set to **1**, the user-defined major alarm from the external input is on.
  
- u [yln] Check, enable, or disable the user sanity counter. The user sanity counter, **SANECNT**, and its associated flag, **USANEON**, are the two tunable system parameters that reside in the */etc/conf/ cf.d/ mtune* file. If the value of **USANEON** is equal to **1**, the user sanity counter is enabled. The **USANEON** value can be overridden by issuing the **rmcmgmt -u -y** or **rmcmgmt -u -n** to enable or disable the user sanity counter feature. This task needs to be repeated when the system is rebooted.
  - u Check the status of the user sanity timer. The following return code will be issued by the **rmcmgmt** command:
    - 1: user sanity counter flag is enabled.
    - 2: user sanity counter flag is disabled.
  
- ? **rmcmgmt(1m)** help function. The command displays all the available options and corresponding tasks for **rmcmgmt(1m)**.

**FILES**

*/dev/rmc, /etc/rmcmgmt*

**SEE ALSO**

None.

**NAME**

**rmtdgn** - provides support for the superuser to boot the DOS partition for Remote Diagnostics.

**SYNOPSIS**

**rmtdgn**

**DESCRIPTION**

**rmtdgn** is a UNIX level command. The command provides the superuser the ability to change the active disk partition to the DOS partition and reset the system. The system will then reboot the DOS partition.

Since this command is used for the Remote Diagnostics feature, once the command execution begins, the following message will be displayed:

```
The DOS partition for Remote Diagnostics will be booted.  
Please make sure that this DOS partition is bootable, and that  
Remote Diagnostics has been installed.
```

```
Do you want to continue? (y or n)
```

If there is a DOS partition but it is not bootable and the user answered **y**, then rebooting the machine will hang once the command completed and the system is rebooted. The user then needs to reboot the system from a bootable DOS floppy (or from the first floppy of the UNIX System foundation set), use the *fdisk* command to change the system's active partition to UNIX, and reset the system.

**FILES**

**/etc/rmtdgn**

**SEE ALSO**

**/dgn**

# **Appendix E**

## **Factory Hardware/Software Installation Requirements**

# General Information

This appendix outlines the hardware and software installation procedures performed by the factory. You can use these procedures to bring 6386 computers in the field up to factory standard.

The factory performs the following installation procedures:

## A. Hardware Procedures

1. Installs the Single In-Line Memory Modules (SIMMs) on the system board
2. Installs the 4/16MB memory expansion board
3. Installs the numeric coprocessor
4. Installs the Intelligent Ports Card (IPC-1600)
5. Installs the General Purpose Synchronous Controller (GPSC-AT/E)
6. Installs the Remote Maintenance Circuit (RMC) board
7. Installs additional SCSI hard disks
8. Runs the Setup Utility
9. Runs System Diagnostic tests.

## B. Software Procedures

1. Installs the UNIX System V/386 Release 3.2 Version 2.3 operating system
2. Installs the Remote Terminal Package
3. Installs the Intelligent Ports Card (IPC-1600) software
4. Installs 2 to 16 User License Package
5. Installs 16 to Unlimited User License Package
6. Installs the Remote Maintenance Package
7. Administers the second hard disk (if installed)
8. Administers additional hard disks (if installed)
9. Installs the INFORMIX SQL 2.10.03J software
10. Sets up the CMS file system
11. Installs UNIX Maintenance software
12. Installs the Korn Shell
13. Installs the X.25 Network Interface software
14. Installs the CMS feature package.

# Factory Hardware Installation Procedures

The following tables outline the factory hardware installation procedures. These tables provide:

- an installation sequence
- documentation references and appropriate sections
- hardware option settings for CMS
- notes where applicable.

<b>Step 1:</b>	Install the SIMMs on the system board.
<b>Reference for 6386/25:</b>	AT&T 6386/25 Work Group System SCSI User's Guide 562-200-103, Issue 2
<b>Section:</b>	Appendix C
<b>Reference for 6386E/33:</b>	AT&T 6386E/33 WGS Model S Technical Reference Manual Operational and Service Related Tasks Volume 2 305-912, Issue 1
<b>Section:</b>	Chapter 14
<b>Option Settings:</b>	Verify that the jumpers on the system board are correctly set for the amount of memory installed.

<b>Step 2:</b>	Install the 4/16 MB memory expansion board.																																									
<b>Reference for 6386/25:</b>	AT&T 6386/25 Work Group System SCSI User's Guide 562-200-103, Issue 2																																									
<b>Section:</b>	Chapter 14																																									
<b>Reference for 6386E/33:</b>	AT&T 6386E/33 Work Group System Model S Technical Reference Manual Operational and Service Related Tasks Volume 2 305-912, Issue 1																																									
<b>Section:</b>	Chapter 14																																									
<b>Option Settings:</b>	<p>Three memory expansion boards can be used with 6386 computers: Type A, Type B, and Type X. The options are set based on the amount of memory installed on the board and are as follows:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2"></th> <th colspan="3" style="text-align: center;"><b>Installed Memory</b></th> </tr> <tr> <th colspan="2"></th> <th style="text-align: center;"><b>4 MB</b></th> <th style="text-align: center;"><b>8 MB</b></th> <th style="text-align: center;"><b>16 MB</b></th> </tr> </thead> <tbody> <tr> <td rowspan="2" style="vertical-align: middle;"><b>Type A:</b></td> <td style="border: none;">E15-E16</td> <td style="border: none;">E17-E18</td> <td style="border: none;">E15-E16</td> <td style="border: none;">E17-E18</td> </tr> <tr> <td style="border: none;">E21-E22</td> <td style="border: none;">E19-E20</td> <td style="border: none;">E17-E18</td> <td style="border: none;"></td> </tr> <tr> <td rowspan="3" style="vertical-align: middle;"><b>Type B:</b></td> <td style="border: none;">E4-E5</td> <td style="border: none;">E6-E7</td> <td style="border: none;">E8-E9</td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;">E13-E14</td> <td style="border: none;">E13-E14</td> <td style="border: none;">E15-E16</td> <td style="border: none;">E17-E18</td> </tr> <tr> <td style="border: none;">E15-E16</td> <td style="border: none;">E17-E18</td> <td style="border: none;">E17-E18</td> <td style="border: none;"></td> </tr> <tr> <td rowspan="2" style="vertical-align: middle;"><b>Type X:</b></td> <td style="border: none;">E15-E16</td> <td style="border: none;">E17-E18</td> <td style="border: none;">E15-E16</td> <td style="border: none;">E17-E18</td> </tr> <tr> <td style="border: none;">E21-E22</td> <td style="border: none;">E19-E20</td> <td style="border: none;">E17-E18</td> <td style="border: none;"></td> </tr> </tbody> </table> <p>See Figures E-1 through E-3 for jumper locations.</p>			<b>Installed Memory</b>					<b>4 MB</b>	<b>8 MB</b>	<b>16 MB</b>	<b>Type A:</b>	E15-E16	E17-E18	E15-E16	E17-E18	E21-E22	E19-E20	E17-E18		<b>Type B:</b>	E4-E5	E6-E7	E8-E9		E13-E14	E13-E14	E15-E16	E17-E18	E15-E16	E17-E18	E17-E18		<b>Type X:</b>	E15-E16	E17-E18	E15-E16	E17-E18	E21-E22	E19-E20	E17-E18	
		<b>Installed Memory</b>																																								
		<b>4 MB</b>	<b>8 MB</b>	<b>16 MB</b>																																						
<b>Type A:</b>	E15-E16	E17-E18	E15-E16	E17-E18																																						
	E21-E22	E19-E20	E17-E18																																							
<b>Type B:</b>	E4-E5	E6-E7	E8-E9																																							
	E13-E14	E13-E14	E15-E16	E17-E18																																						
	E15-E16	E17-E18	E17-E18																																							
<b>Type X:</b>	E15-E16	E17-E18	E15-E16	E17-E18																																						
	E21-E22	E19-E20	E17-E18																																							
<b>Note:</b>	Make sure to install the memory expansion board into a 32-bit slot.																																									

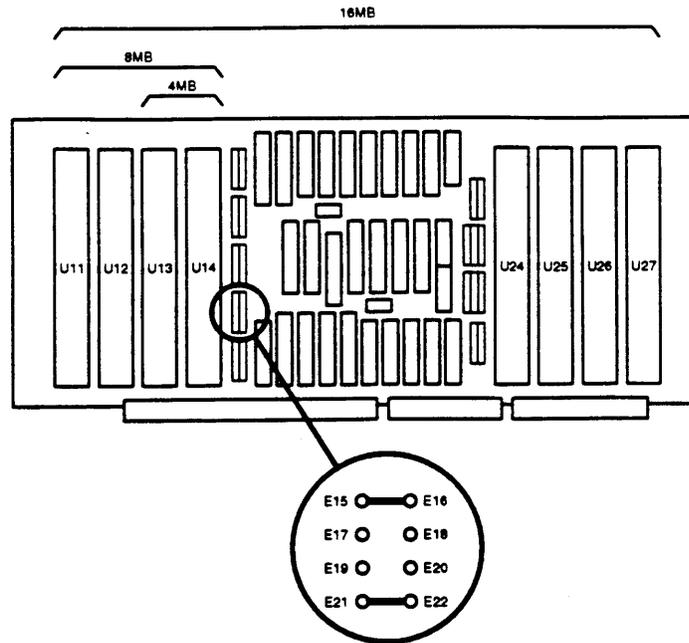


Figure E-1: Type A Memory Expansion Board Jumper Locations

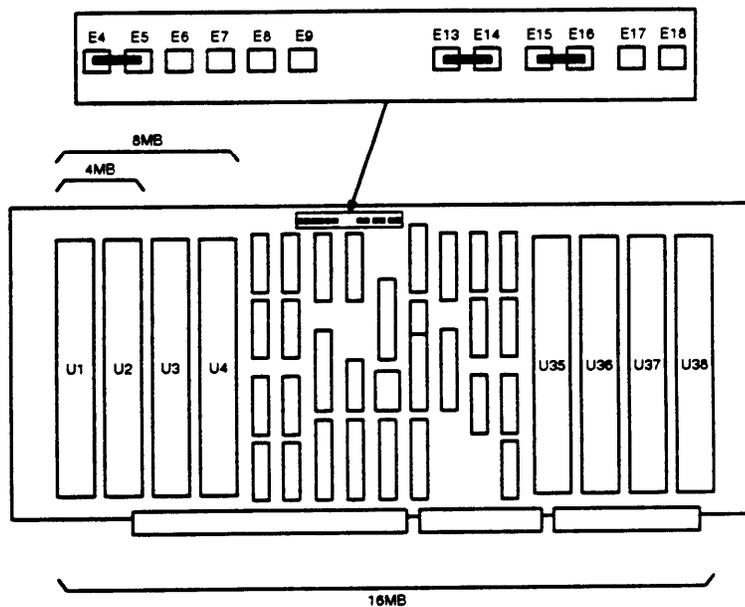


Figure E-2: Type B Memory Expansion Board Jumper Locations

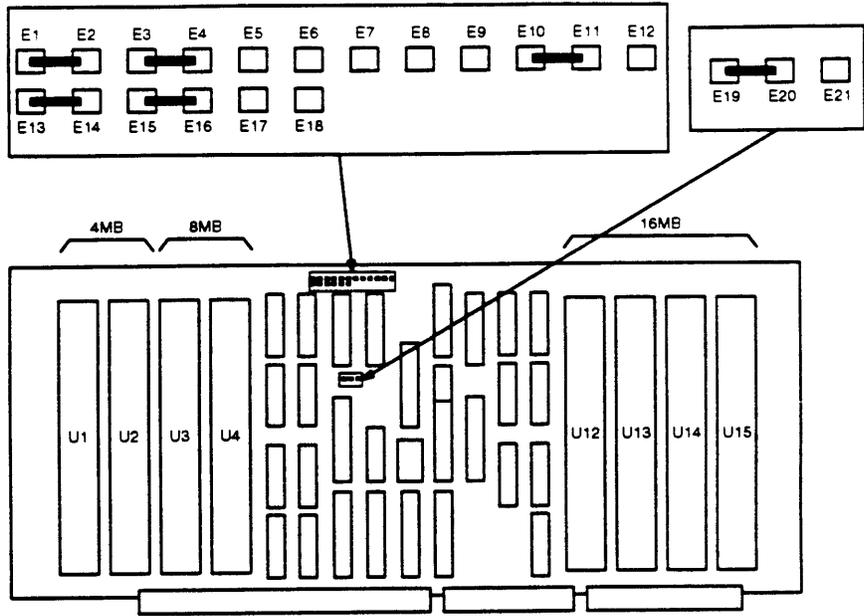


Figure E-3: Type X Memory Expansion Board Jumper Locations

<b>Step 3:</b>	Install the numeric coprocessor.
<b>Reference for 6386/25:</b>	AT&T 6386/25 Work Group System SCSI User's Guide 562-200-103, Issue 2
<b>Section:</b>	Appendix C
<b>Reference for 6386E/33:</b>	AT&T 6386E/33 WGS Model S Technical Reference Manual Operational and Service Related Tasks Volume 2 305-912, Issue 1
<b>Section:</b>	Chapter 14
<b>Notes:</b>	<p>Properly identify the location of pin 1 on the low insertion socket. Use the documentation that came with your system to verify the location of pin 1.</p> <p>Center the coprocessor on the inner two rows of the insertion socket.</p> <p>Failure to install the numeric coprocessor in the correct manner will destroy the coprocessor and may damage the system.</p>

<b>Step 4</b>	Install the Intelligent Ports Card (IPC-1600).
<b>References:</b>	AT&T Intelligent Ports Card Model 1600 (IPC-1600) User's Guide 305-920, Issue 1
<b>Sections:</b>	Chapter 4, Appendix A
<b>Option Settings:</b>	controller memory starting address = 80000* I/O address = 100* IRQ = 10*

<b>Step 5:</b>	Install the General Purpose Synchronous Controller (GPSC-AT).
<b>Reference:</b>	AT&T General Purpose Synchronous Controller (GPSC-AT/E) Installation Guide 999-120-737, Issue 1
<b>Sections:</b>	all
<b>Option Settings:</b>	shared memory range = 90000-9FFFF (this range is a software only parameter) I/O address = 240* IRQ = 11*  Add port B shunt (DTE setting) and strap J5 (activate both ports).

---

\* default settings

<b>Step 6:</b>	Install the Remote Maintenance Circuit (RMC) board.
<b>Reference:</b>	AT&T Work Group System Remote Maintenance Package User's Guide 305-900, Issue 1
<b>Section:</b>	Chapter 3
<b>Option Settings:</b>	starting controller memory address = CA000* I/O address = 200* IRQ = 5*

<b>Step 7:</b>	Install additional SCSI hard disks.
<b>Reference for 6386/25:</b>	AT&T 6386/25 WGS SCSI User's Guide/Service Addendum 562-200-133, Issue 1
<b>Sections:</b>	all
<b>Reference for 6386E/33:</b>	AT&T 6386E/33 WGS Model S Technical Reference Manual Operational and Service Related Tasks Volume 2 305-912, Issue 1
<b>Section:</b>	Chapter 14

---

\* default settings

<b>Step 8:</b>	Run the Setup Utility.
<b>Reference for 6386/25:</b>	AT&T 6386/25 WGS SCSI Service Manual 562-200-132, Issue 1
<b>Section:</b>	Chapter 2
<b>Reference for 6386E/33:</b>	AT&T 6386E/33 WGS Model S System Setup and User's Guide 305-916, Issue 1
<b>Section:</b>	Chapter 3
<b>Note:</b>	Set the Shadow BIOS ROM option (SETUP screen 2) to <b>none</b> .

<b>Step 9:</b>	Run the System Diagnostic tests.
<b>Reference for 6386/25:</b>	AT&T 6386/25 WGS SCSI Service Manual 562-200-132, Issue 1
<b>Sections:</b>	Chapter 5, Chapter 6
<b>Note for 6386/25:</b>	The Customer Diagnostics floppy disk supplied with the User's Guide will fail memory diagnostics. Instead, use the System Diagnostics floppy supplied with the Service Manual.
<b>Reference for 6386E/33:</b>	AT&T 6386E/33 Work Group System Model S Technical Reference Manual Operational and Service Related Tasks Volume 2 305-912, Issue 1
<b>Section:</b>	Chapter 17

# Factory Software Installation Procedures

This section contains the factory software installation procedures.

The following list summarizes the software procedures in the order they should be performed:

1. Install the UNIX System V/386 Release 3.2 Version 2.3 operating system
2. Install the Remote Terminal Package
3. Install the Intelligent Ports Card (IPC-1600) software
4. Install 2 to 16 User License Package
5. Install 16 to Unlimited User License Package
6. Install the Remote Management Package
7. Administer the second hard disk (if installed)
8. Administer additional hard disks (if installed)
9. Install the INFORMIX SQL 2.10.03J software
10. Set up the CMS file system
11. Install UNIX Maintenance software
12. Install the Korn Shell
13. Install the X.25 Network Interface software
14. Install the CMS feature package.

## Verifying Software Package Installation

You can verify which software packages are installed on the 6386 computer. First, log in as *root* at the console terminal. Then, enter the **displaypkg** command. You should see a list of packages similar to the following:

The following software packages have been installed:

```
Call Management System (3.X.Y)
Editing Package Version 2.1
FACE HELP Version 1.2
FACE Version 1.2.2
FMLI Version 1.2
INFORMIX-SQL
IPC-1600, Intelligent Ports Card - Version 1.0
KornShell Version 06/03/86a 386 Release 1.1
Network Support Utilities Package (1.2) Version 2.1
Remote Management Package (RMP) Version 1.0
SCSI Support Package - Version 2.0
Remote Terminal Package Version 2.1
UNIX System V/386 Release 3.2.3 2 to 16 User License Package
UNIX System V/386 Release 3.2.3 16 to Unlimited User Package
UNIX System V/386 Release 3.2 Version 2.3 Maintenance Disk #1
X25 Network Interface - Version 1.2.1 SL1.51.1.25
```

If you do not see a package that should be installed, go to the appropriate section in this appendix and install it.

## Installing the UNIX System V

**Prerequisites:** Make sure your UNIX System V/386 package is Release 3.2 Version 2.3.

Installing the UNIX System V on a 6386 WGS computer consists of the following tasks:

- Boot the system.
- Partition the hard disk.
- Install the UNIX root file system.
- Install the remaining UNIX System files and the Foundation Set.
- Install the SCSI Support Package.

**Note** If you need additional information about installing UNIX System V, refer to the "Software Installation" chapter (Chapter 2) of the *UNIX System V/ 386 Release 3.2 Version 2.3 Operation/ System Administration Guide* which came with your UNIX package.

## Boot the System

Start the UNIX System installation by booting the system from the boot diskette:

**Note** The boot diskette **must** be write-enabled (hole closed).

1. Insert the "WGS SCSI Boot Floppy V2.0" diskette into the diskette drive.
2. Press the reset button on the 6386 WGS or turn the system on to boot from the diskette.

The resident diagnostics messages, the primary boot strap messages, and the "Booting the UNIX System" message appear. Then, memory and copyright messages appear similar to the following:

```
total real mem = XXXXXXXX
total avail mem = XXXXXXXX

UNIX System V/386 Release 3.2 Version 2.3

Copyright (c) 1984, 1986, 1987, 1988, 1989 AT&T
Copyright (c) 1987, 1988 Microsoft Corp.
All Rights Reserved

Please wait while existing file systems are checked for
consistency.....

Strike ENTER to install the UNIX System on your hard disk.
```

**Note** The amount of memory displayed will vary according to how much memory is installed in your system.

3. Press [ RETURN ].

If you already have the UNIX System on your hard disk, the program responds:

```
Is this a new installation or a release upgrade to
your existing system? (Strike "n" (new) or
"u" (upgrade) followed by ENTER)
```

4. Enter n.

The program responds:

```
WARNING: A new installation of the UNIX System will destroy  
all files currently on the system. Do you wish to continue  
(y or n)?
```

5. Enter *y*.

The program responds:

```
Do you want to format the Hard Disk (y or n)?
```

6. Enter *y*.

The program responds:

```
Formatting the Hard Disk . . .
```

**Partition the Hard Disk** You must set up disk partitions for DOS and the UNIX System.

After the disk has formatted, the program continues:

```

Do you want to partition your hard disk as follows?

    90% "UNIX System" -- lets you run UNIX System programs
    10% "DOS (v. 3.2 or later) only"

To do this, please type "y". To partition your hard disk
differently, type "n" and the "fdisk" program will let you
select other partitions.
    
```

1. Enter n.

The program responds:

```

Total hard disk size is XXX cylinders

Partition  Status  Type           Cylinders
-----  -
Start  End  Length  %
-----  -

```

THERE ARE NO PARTITIONS CURRENTLY DEFINED

SELECT ONE OF THE FOLLOWING

1. Create a partition
2. Change Active (Boot from) partition
3. Delete a partition
4. Exit (Update disk configuration and exit)
5. Cancel (Exit without updating disk configuration)

Enter selection:

2. Enter 1 to create a partition.

The program responds:

```
Indicate the type of partition you want to create  
(1=UNIX System, 2=DOS only, 3=Other, x=Exit).
```

3. Enter 2 to select DOS.

The program responds:

```
Indicate the percentage (1-100) of the hard disk you want  
this partition to use (or enter "c" to specify in cylinders):
```

4. Enter 2. The DOS partition must contain at least 2 percent of disk space (about 6 MByte) so you can install the Remote Management Package.

The program responds:

```
Do you want this to become the Active partition?  
If so, it will be activated each time you reset  
your computer or when you turn it on again.  
Please type "y" or "n".
```

5. Enter n.

The program continues:

Total hard disk size is XXX cylinders

Partition	Status	Type	Cylinders		Length	%
			Start	End		
1		DOS	0	X	X	2

SELECT ONE OF THE FOLLOWING

1. Create a partition
2. Change Active (Boot from) partition
3. Delete a partition
4. Exit (Update disk configuration and exit)
5. Cancel (Exit without updating disk configuration)

Enter selection:

6. Enter 1 to create a UNIX System partition.

The program responds:

Indicate the type of partition you want to create  
(1=UNIX System, 2=DOS only, 3=Other, x=Exit).

7. Enter 1 to select the UNIX System.

The program responds:

The UNIX System partition must use at least 7% of the hard disk. Indicate the percentage (7-100) of the hard disk you want this partition to use (or enter "c" to specify in cylinders).

8. Enter 98.

The program responds:

```
Do you want this to become the Active partition?  
If so, it will be activated each time you reset  
your computer or when you turn it on again.  
Please type "y" or "n".
```

9. Enter *y*.

The program responds:

```
Partition 2 is now the Active partition
```

The program updates the following screen:

```
Total hard disk size is XXX cylinders
```

Partition	Status	Type	Cylinders		Length	%
			Start	End		
1		DOS	0	X	X	2
2	Active	UNIX Sys	X	XXX	XXX	98

```
SELECT ONE OF THE FOLLOWING
```

1. Create a partition
2. Change Active (Boot from) partition
3. Delete a partition
4. Exit (Update disk configuration and exit)
5. Cancel (Exit without updating disk configuration)

```
Enter selection:
```

10. Enter *4*.

The program responds:

```
If you have created a UNIX System, or DOS partition, you must
format the partition to reflect the new disk configuration.
Changing only the active partition does not require a format.
```

```
Hard disk partitioning complete.
```

```
A surface analysis will now be done.
This will destroy all data on the hard disk.
Strike ENTER to continue or DEL to abort.
```

11. Press [ RETURN ].

The program responds:

```
Surface analysis will be performed on the Hard Disk.
Checking for bad sectors in the UNIX System partition...
```

The system is performing a surface analysis of the hard disk and building a table of defective blocks.

When the surface analysis is complete, the system calculates the optimal amount of space on your hard disk for the root and user file systems.

## Install the UNIX Root File System

You must allocate disk space for the root and user file systems, and then install the root file system.

The program continues:

```
The UNIX System partition has 306 cylinders assigned to it.
One cylinder will be reserved to contain the Volume Table of
Contents.
```

```
The following seems like a reasonable partitioning of
your UNIX System disk space:
```

```
A root filesystem of 67 cylinders (70254592 bytes),
a user (/usr) filesystem of 83 cylinders (87031808 bytes),
an extra user filesystem (/usr2) of 83 cylinders (87031808
bytes),
```

```
along with a crash/dump area of 36 cylinders (37748736 bytes)
and a swap/paging area of 36 cylinders (37748736 bytes).
```

```
Is this allocation acceptable to you (y/n)?
```

1. Enter `n`.

The program responds:

```
Do you wish to have separate root and user filesystems (y/n)?
```

2. Enter `y`.

The program responds:

```
Do you want an additional /usr2 filesystem (y/n)?
```

3. Enter `y`.

The program responds:

```
Do you want to allocate a crash/dump area on your disk?  
If you do not, the swap/paging area will be used to save  
the memory image in the event of a system panic (y/n)?
```

4. Enter `y`.

The program responds:

```
You will now be given the opportunity to specify the  
size, in cylinders, of each filesystem. (One megabyte  
of disk space is approximately 1 cylinders).
```

```
How many cylinders would you like for swap/paging (1-303)?
```

5. Enter `40`.

The program responds:

```
How many cylinders would you like for a crash/dump  
area (0-263)?
```

6. Enter `40`.

The program responds:

```
How many cylinders would you like for root (1-225)?
```

7. Enter `12`.

The program responds:

```
How many cylinders would you like for /usr (1-213)?
```

8. Enter 60.

The program responds:

```
The remaining 153 cylinders will be assigned to /usr2.  
  
You have specified the following disk allocation:  
A root filesystem of 12 cylinders (XXXXXX bytes),  
a user (/usr) filesystem of 60 cylinders (XXXXXX bytes),  
an extra user filesystem (/usr2) of 153 cylinders (XXXXXXX  
bytes),  
  
along with a crash/dump area of 40 cylinders (XXXXXX bytes)  
and a swap/paging area of 40 cylinders (XXXXXX bytes).  
  
Is this allocation acceptable to you (y/n)?
```

9. Enter y.

The program responds:

```
UNIX System file system(s) will now be created on your hard  
disk ...
```

After the UNIX System file systems are created, the program responds:

```
UNIX System file system(s) have been created in your active
UNIX System partition. A UNIX System will now be installed
on your hard disk .....
```

The dots (periods) will continue to appear as the UNIX root file system is being installed on the hard disk.

The program responds:

```
Please standby.
```

```
When you are prompted to reboot your system,
remove the floppy diskette from the diskette drive,
and strike CTRL-ALT-DEL.
Please wait for the prompt.
```

```
Reboot the system now.
```

10. Remove the "Boot Floppy" diskette from the diskette drive.
11. Press the reset button on the 6386 WGS computer.

## Install Remaining UNIX System and Foundation Set

You install the remaining UNIX System files and the Foundation Set from cartridge tape.

After the system reboots, the program continues:

```
Confirm

Please indicate the installation medium you intend to use.

Strike "C" to install from CARTRIDGE TAPE
or "F" to install from FLOPPY DISKETTE.

Strike ESC to stop.
```

1. Press `c` to specify the cartridge tape.

The program responds:

```
Please insert the UNIX System V/386 Release 3.2 Version 2.3
Foundation Set cartridge tape into the integral tape drive.

Strike ENTER when ready
or DEL to cancel.
```

2. Insert the cartridge tape into the tape drive and wait for the tape to retension (about 25 seconds).
3. Press [ `RETURN` ].

The program responds:

```
Installation in progress -- do not remove the cartridge tape
```

The remaining UNIX System files contained on the cartridge tape are copied onto the hard disk.

When the UNIX System installation is complete, the program displays:

```
UNIX System files have been copied to the hard disk.  
Additional system files will now be set up.  
Please stand by ...  
  
System time is: <date and time>
```

After the system time is displayed, the program responds:

```
Enter a password for the 'root' or super-user.  
  
(Note: This password must be kept EXTREMELY secure)  
New password:
```

4. Enter the "root" password.

The program responds:

```
Re-enter new password:
```

5. Re-enter the "root" password.

The program responds:

```
Enter a password for the "install" user.
```

```
(Note: This password must be kept EXTREMELY secure  
and should be different from the root password)
```

```
New password:
```

6. Enter the "install" password.

The program responds:

```
Re-enter new password:
```

7. Re-enter the "install" password.

The program responds:

You will now be prompted to select the Foundation Set Add-on packages that you wish to install.

You may select one or more packages from the menu by entering the number listed alongside the package name.

Enter each package number one at a time, pressing ENTER after each selection. The package numbers may be entered in any order.

To install all the packages, type the number indicated at the end of the package list.

When you have made all the selections required, Strike ESC.

To skip this step or cancel any selections made, type the number as indicated in the package list.

Strike ENTER when ready.

The UNIX System is now installed. Next, you will enter the appropriate Foundation Set add-on packages.

8. Press [ RETURN ].

The program continues:

```
Tape Name: UNIX System V/386 Release 3.2 Version 2.3
Foundation Set
  Packages available for installation

1.   Network Support Utilities Package (1.2) Version 2.1
2.   Remote File Sharing Package (1.2) Version 2.1
3.   Editing Package Version 2.1
4.   FMLI Version 1.2
5.   FACE Version 1.2.2
6.   FACE HELP Version 1.2
7.   RFS System Administration Package Version 1.0
8.   2 Kilobyte File System Utility Package Version 2.0
9.   XENIX File System Package Version 1.0

10.  Install ALL packages shown above
11.  Exit, do not install any packages

Please enter the next package number(s) to install,
followed by ENTER.

Press ESC when all selections have been made.

Enter package number:
```

9. Enter, one at a time, these package numbers: 1, 3, 4, 5, and 6.
10. Press [ ESC ].

The program responds:

You have made the following selections:

1. Network Support Utilities Package (1.2) Version 2.1
3. Editing Package Version 2.1
4. FMLI Version 1.2
5. FACE Version 1.2.2
6. FACE HELP Version 1.2

Confirm

Strike ENTER to confirm and continue with the installation  
or ESC to re-display the menu and re-select.

Strike ENTER when ready  
or ESC to stop.

11. Press [ RETURN ].

The program responds:

REMINDER

Depending on the packages you are installing, you may be  
required to provide some input to the installation utility  
to configure the software for your system.

Strike ENTER when ready.

12. Press [ RETURN ].

The program responds:

```
Installation in progress -- Do not remove the cartridge tape
```

The system searches for the packages you entered and installs them as indicated by the screen messages.

Before the system installs the FACE HELP package, it prompts you with this screen:

```
Copyright (C) 1988 AT&T  
All Rights Reserved
```

- 1 Install Office HELP Files ONLY.
- 2 Install System Administration HELP Files ONLY.
- 3 Install Printer Operations HELP Files ONLY.
- 4 Install ALL HELP Files.
- 5 Terminate Installation.

```
Type the number that corresponds to the option desired and  
strike the ENTER key:
```

13. Enter 4 to install ALL HELP files.

The program responds:

```
Installing FACE HELP Version 1.2 (All)
```

After the FACE HELP files are installed, the program redisplay the HELP installation menu:

```
Installing FACE HELP Version 1.2 (All)
```

- 1 Install Office HELP Files ONLY.
- 2 Install System Administration HELP Files ONLY.
- 3 Install Printer Operations HELP Files ONLY.
- 4 Install ALL HELP Files.
- 5 Terminate Installation.

Type the number that corresponds to the option desired and strike the ENTER key:

14. Enter 5 to terminate the FACE HELP installation.

The program responds:

```
The installation of the FACE HELP Version 1.2 package is  
now complete.
```

## Install the SCSI Support Package

To complete the UNIX System V installation, you need to install the SCSI Support Package.

After you terminate the FACE HELP installation, the cartridge tape rewinds and the following messages display:

```
System Message

Installation of the Foundation Set is now complete.

You will now be prompted to install the SCSI Support
Package from diskette.

WARNING!

This step is ESSENTIAL to enable you to continue to use
your UNIX System after it has been re-booted.

If you do not successfully complete this step you may not
be able to use your system and will be required to
re-install the Foundation Set from the beginning.

Strike ENTER when ready.
```

1. Insert the "SCSI Support Package Version 2.0" diskette into the diskette drive.
2. Press [ RETURN ].

The program responds:

```
Verifying the SCSI Support Package floppy
```

The program continues with the following screens:

Searching for the Size file

Install in progress

Copyright (C) 1989, 1990 AT&T  
All Rights Reserved

Installing SCSI Support Package - Version 2.0 ...

The UNIX Operating System will now be rebuilt.  
This will take approximately 2 minutes. Please wait.

After the UNIX Kernel is rebuilt, the following messages display:

```
The UNIX Kernel has been rebuilt.

It is safe to remove the cartridge tape.

Note: Your system is equipped with two built-in serial ports.

Support for both of these ports has automatically been
provided in the UNIX System being installed.

The second serial port is using interrupt 3 and address range
2F8 -> 2FF.

If you do not wish to use the second port, and would like to
reclaim the interrupt line and address range that this port
uses, it can be disabled with the "Enable/Disable Second
Serial Port" option of the "Peripheral Setup" menu in FACE.

The UNIX System installation process is now complete.

To install the Foundation Set Add-On packages,
use the "installpkg" command from the UNIX System prompt.

Be sure the floppy drive is empty and strike CTRL-ALT-DEL to
reboot your newly configured UNIX System.
Reboot the System now.
```

3. Remove the "SCSI Support Package" diskette from the diskette drive and the cartridge tape from the tape drive.
4. If you are using an AT&T 705 terminal as an alternate console, press the reset button on the 6386 WGS; otherwise, press [ CTRL ], [ ALT ], [ DEL ] simultaneously to reboot the system.

After the system has rebooted, you can log in as *root* and enter the **displaypkg** command to view the installed software packages.

## Installing the Remote Terminal Package

**Prerequisites:** You must have installed the UNIX System V/386 Release 3.2 Version 2.3 operating system, and you should be logged in as *root* at the console terminal.

To install the Remote Terminal Package, do the following steps:

1. Insert the "Remote Terminal Package" diskette into the diskette drive.
2. Enter the following command to start the installation process:

```
# installpkg
```

The program responds:

```
Confirm
```

```
Please indicate the installation medium you intend to use.
```

```
Strike "C" to install from CARTRIDGE TAPE  
or "F" to install from FLOPPY DISKETTE.
```

```
Strike ESC to stop.
```

3. Press `f` to specify that you are installing the software from a floppy diskette.

The program responds:

Confirm

Please insert the floppy disk.

If the program installation requires more than one floppy disk, be sure to insert the disks in the proper order, starting with disk number 1. After the first floppy disk, instructions will be provided for inserting the remaining floppy disks.

Strike ENTER when ready  
or ESC to stop.

4. Press [ RETURN ].

The program responds with the following screens:

```
Installation is in process -- do not remove the floppy disk.
```

```
    Copyright (C) 1984, 1987, 1988 AT&T
    All Rights Reserved
```

```
Installing the Remote Terminal Package Version 2.1
```

```
The following files are being installed:
```

```
/usr/lib/tabset/3101
/usr/lib/tabset/bee hive
/usr/lib/tabset/std
/usr/lib/tabset/teleray
/usr/lib/tabset/vt100
/usr/lib/tabset/xerox1720
/usr/options/terminf.name
7 blocks
```

```
Please install terminal files you wish from the diskette.
```

```
Selective installation of the Remote Terminal Package
Version 2.1 database.
```

```
    0      Terminate installation
    1      Install terminfo file(s)
    2      Locate a specific terminal within terminfo
           file(s)
    3      Compile a SINGLE terminal entry
```

```
Enter option:
```

5. Enter 1 to install the terminfo files.

The program responds:

```
The following terminfo files may be selected for installation:
```

```
adds.ti      annarbor.ti  ansi.ti      att.ti
beehive.ti   cdc.ti       colorscan.ti contel.ti
datamedia.ti dec.ti        diablo.ti    fortune.ti
general.ti   hardcopy.ti  hazeltine.ti hds.ti
heath.ti     homebrew.ti  hp.ti        lsi.ti
microterm.ti misc.ti       pc.ti        perkinelmer.ti
print.ti     special.ti   sperry.ti    tektronix.ti
```

```
Enter a file name, 'all', 'done', or 'files':
```

6. Enter all.

The program begins downloading the terminfo files as indicated by the "Created" and "Linked" messages on your screen.

When the download is complete, the program responds:

```
Enter a file name, 'all', 'done', or 'files':
```

7. Enter done.

The program responds:

```
0      Terminate installation
1      Install terminfo file(s)
2      Locate a specific terminal within terminfo
       file(s)
3      Compile a SINGLE terminal entry
Enter option:
```

8. Enter 0 to terminate installation.

The program responds:

```
The installation of Remote Terminal Package Version 2.1 is
now complete.
```

## Installing the Intelligent Ports Card (IPC-1600) Software

**Prerequisites:** You should have installed the IPC-1600 hardware. The UNIX System V software must be installed, and you should be logged in as *root* at the console terminal.

**Note** If you need additional information about the IPC-1600 hardware or software, refer to the *AT&T Intelligent Ports Card IPC-1600 User's Guide* document that came with your kit.

To install the IPC-1600 software, do the following steps:

1. Insert the "Intelligent Ports Card (IPC-1600) UNIX System V/386 Device Drivers, Version 1.0" diskette into the diskette drive.
2. Enter the following command to start the installation process:

```
# installpkg
```

The program responds:

```
Confirm

Please indicate the installation medium you intend to use.

Strike "C" to to install from CARTRIDGE TAPE
or "F" to install from FLOPPY DISKETTE.

Strike ESC to stop.
```

3. Press `f` to specify that you are installing the software from a floppy diskette.

The program responds:

Confirm

Please insert the floppy disk.

If the program installation requires more than one floppy disk, be sure to insert the disks in the proper order, starting with disk number 1. After the first floppy disk, instructions will be provided for inserting the remaining floppy disks.

Strike ENTER when ready  
or ESC to stop.

4. Press [ RETURN ].

The program responds with the following screens:

Installation is in process -- do not remove the floppy disk.

Searching for the Size file

Install in Progress

```
Installing:
IPC-1600, Intelligent Ports Card - Version 1.X ...
```

```
Please select the type of installation from the list below:
```

1. Install device driver only.
2. Install device driver and FACE administration menus.
3. Quit

```
Type:
```

5. Enter 2.

The program responds:

```
If installation is continued, BOTH the device driver and
the FACE administration menus and forms will be installed.
Is this correct? (y or n)
```

6. Enter y.

The program briefly displays these messages:

```
Searching for available interrupts...
Searching for available starting I/O addresses...
Searching for available starting controller memory
addresses...
```

Then, the program continues:

```
The IPC-1600, Intelligent Ports Card - Version 1.X
package allows the ports boards to be configured to all
use the same interrupt (shared) or for each board to be
configured to a different interrupt. If interrupts are
shared, a maximum of 7 ports boards may be installed.
If each board is configured to a different interrupt,
then at most 3 can be installed.
```

```
Do you want to share interrupts among all boards? (y or n)
```

7. Enter *y*.

The program responds:

```
The device driver used for IPC-1600, Intelligent Ports Card
- Version 1.1 allows all the boards installed be strapped
to the same interrupt. Please select the interrupt that
will be used from the list below. The available
interrupt(s) for the ports boards are:
```

```
IRQ 5
IRQ 10 (default)
IRQ 11
```

```
Type the interrupt number and strike the ENTER key or type
Q to cancel installation. Striking the ENTER alone will
select the default.
```

```
Enter Interrupt:
```

8. Press [ RETURN ] to select the default (10).

The program responds:

```
The IPC-1600, Intelligent Ports Card - Version 1.1
package allows the ports boards to be configured to all use
the same controller memory address (shared) or for each board
to be configured to a different controller memory address.
```

```
Do you want to share controller memory address among
all boards? (y or n)
```

9. Enter *y*.

The program responds:

```
The device driver used for IPC-1600, Intelligent Ports Card
- Version 1.1 allows all the boards installed be strapped
to the same controller memory address. Please select the
controller memory address that will be used from the list
below. The available controller memory address(es) for the
ports boards are:
```

```
Starting memory address(s):
```

80000 (default)	90000	100000
180000	200000	280000
300000	380000	400000
480000	500000	580000
600000	680000	700000
780000	800000	880000
900000	980000	A00000
A80000	B00000	B80000
C00000	C80000	D00000
D80000	E00000	E80000
F00000	F80000	

```
Type the starting controller memory address and strike the
ENTER key or type Q to cancel installation. Striking the
ENTER alone will select the default:
```

10. Press [ RETURN ] to select the default (80000).

The program responds:

```
The current system configuration will allow for up to 7
IPC-1600 controller boards to be installed.  How many
IPC-1600 controller boards will you be installing?
(1-7, Q to quit)
```

11. Enter the number of installed IPC-1600 boards (usually 1).

The program responds:

```
Please enter the following system configuration information
for IPC-1600 Board 1. The available starting I/O addresses
for the IPC-1600 Board 1 are:
```

```
Starting I/O address: 100 (default)
Starting I/O address: 110
Starting I/O address: 120
Starting I/O address: 200
Starting I/O address: 220
Starting I/O address: 300
Starting I/O address: 320
```

```
Type the starting I/O address and strike the ENTER key or
type Q to cancel installation. Striking the ENTER alone
will select the default:
```

12. Press [ RETURN ] to select the default (100).

A confirmation screen displays your choices and asks you to verify the selections you made.

```
*****  
Board 1 configuration:  
Ports Card Type = IPC-1600  
Interrupt number = 10  
I/O ports Starting address = 100  
Controller Memory Starting address = 80000  
*****  
  
Is this configuration acceptable? (y or n)
```

13. Enter *y* .

The program then displays an overall IPC-1600 configuration for all of the installed IPC boards.

```
Board #      TYPE      IRQ      I/O Addr.      Mem. Addr  
-----  
1.          IPC-1600      10       100             80000  
  
Is this configuration acceptable? (y or n)
```

14. Enter *y* to specify that the configuration is correct.

The program responds:

```
The UNIX Operating System will now be rebuilt.  
This will take approximately 2 minutes. Please wait.
```

```
The UNIX Kernel has been rebuilt.
```

Once the UNIX Kernel has been rebuilt, the program continues:

```
Confirm
```

```
To complete the install/remove process a shutdown is now  
being initiated automatically.
```

```
Make sure your floppy drive is empty. If you are  
installing or removing controller boards, you may power  
down the system are the shutdown has completed.
```

```
Strike ENTER when ready  
or ESC to stop.
```

15. Remove the "IPC-1600" diskette from the diskette drive.
16. Press [ RETURN ].

The program starts the shutdown process:

```
Shutdown started. <date and time>  
<Broadcast Message>
```

17. When you see the "Reboot the system now" message, press the reset button on the 6386 WGS.

Once the system is back up, you can verify that the package is installed by logging in as *root* and entering the **displaypkg** command.

## Installing the 2 to 16 User License Package

**Prerequisites:** You must have installed the UNIX System V/386 Release 3.2 Version 2.3 operating system, and you should be logged in as *root* at the console terminal.

To install the 2 User to 16 User License Package, do the following steps:

1. Insert the "2 to 16 User License Package" diskette into the diskette drive.
2. Enter the following command to start the installation process:

```
# installpkg
```

The program responds:

```
Confirm
```

```
Please indicate the installation medium you intend to use.
```

```
Strike "C" to install from CARTRIDGE TAPE  
or "F" to install from FLOPPY DISKETTE.
```

```
Strike ESC to stop.
```

3. Press `f` to specify that you are installing the software from a floppy diskette.

The program responds:

Confirm

Please insert the floppy disk.

If the program installation requires more than one floppy disk, be sure to insert the disks in the proper order, starting with disk number 1. After the first floppy disk, instructions will be provided for inserting the remaining floppy disks.

Strike ENTER when ready  
or ESC to stop.

4. Press [ RETURN ].

The program responds with the following screens:

Installation is in process -- do not remove the floppy disk.

Searching for the Size file

Install in Progress

Confirm

You are about to install the UNIX System V/386 Release 3.2  
16 User License Package.

Your system can currently support 2 users.

This update will enable your system to support 16 concurrent  
users.

Strike ENTER when ready  
or ESC to stop.

5. Press [ RETURN ].

The program responds:

Installing the UNIX System V/386 Release 3.2.3 2 to 16 User  
License Package

The UNIX Operating System will now be rebuilt.  
This will take approximately 2 minutes. Please wait.

Strike ENTER when ready  
or ESC to stop.

6. Press [ RETURN ].

The program responds with the following screen:

```
The UNIX Kernel has been rebuilt.  
  
System Message  
The UNIX System V/386 Release 3.2.3 2 to 16 User License  
Package has now been successfully installed.  
  
The new user configuration will take effect the next time  
you reboot the UNIX System.  
  
Strike ENTER when ready.
```

7. Press [ RETURN ].

The program responds:

```
Confirm  
  
To complete the install/remove process a shutdown is now  
being initiated automatically.  
  
Make sure your floppy drive is empty. If you are  
installing or removing controller boards, you may power  
down the system after the shutdown has completed.  
  
Strike ENTER when ready  
or ESC to stop.
```

8. Remove the "2 to 16 User License Package" diskette from the diskette drive and press [ RETURN ].

The program starts the shutdown process:

```
Shutdown started. <date and time>
```

```
<Broadcast Message>
```

9. When you see the "Reboot the system now" message, press the reset button on the 6386 WGS.

Once the system is back up, you can verify that the package is installed by logging in as *root* and entering the **displaypkg** command.

## Installing the 16 to Unlimited User License Package

**Prerequisites:** You must have installed the UNIX System V/386 Release 3.2 Version 2.3 operating system and the 2 User to 16 User Upgrade Package. You should be logged in as *root* at the console terminal.

To install the 16 to Unlimited User License Package, do the following steps:

1. Insert the "16 to Unlimited User License Package" diskette into the diskette drive.
2. Enter the following command to start the installation process:

```
# installpkg
```

The program responds:

```
Confirm  
Please indicate the installation medium you intend to use.  
Strike "C" to install from CARTRIDGE TAPE  
or "F" to install from FLOPPY DISKETTE.  
Strike ESC to stop.
```

3. Press `f` to specify that you are installing the software from floppy diskette.

The program responds:

Confirm

Please insert the floppy disk.

If the program installation requires more than one floppy disk, be sure to insert the disks in the proper order, starting with disk number 1.

After the first floppy disk, instructions will be provided for inserting the remaining floppy disks.

Strike ENTER when ready  
or ESC to stop.

4. Press [ RETURN ].

The program responds with the following screens:

Installation is in process -- do not remove the floppy disk.

Searching for the Size file

Install in Progress

Confirm

You are about to install the UNIX System V/386 Release 3.2 Unlimited User License Package.

Your system can currently support 16 users.

This update will enable your system to support Unlimited concurrent users.

Strike ENTER when ready  
or ESC to stop.

5. Press [ RETURN ].

The program responds with the following screens:

Installing the UNIX System V/386 Release 3.2.3 16 to  
Unlimited User License Package

The UNIX Operating System will now be rebuilt.  
This will take approximately 2 minutes. Please wait.

The UNIX Kernel has been rebuilt.

System Message

The UNIX System V/386 Release 3.2.3 16 to Unlimited User License Package has now been successfully installed.

The new user configuration will take effect the next time you reboot the UNIX System.

Strike ENTER when ready.

6. Press [ RETURN ].

The program responds:

Confirm

To complete the install/remove process a shutdown is now being initiated automatically.

Make sure your floppy drive is empty. If you are installing or removing controller boards, you may power down the system after the shutdown has completed.

Strike ENTER when ready  
or ESC to stop.

7. Remove the "16 to Unlimited User License Package" diskette from the diskette drive and press [ RETURN ].

The program starts the shutdown process:

Shutdown started. <date and time>

<Broadcast Message>

8. When you see the "Reboot the system now" message, press the reset button on the 6386 WGS.

Once the system is back up, you can verify that the package is installed by logging in as *root* and entering the **displaypkg** command.

## Installing the Remote Management Package

**Prerequisites:** You must have installed the UNIX System V/386 Release 3.2 Version 2.3 operating system. During the UNIX installation, you should have created a DOS partition with 2 percent of disk space. You should be logged in as *root* at the console terminal.

Throughout the installation of this package, there are references to a Remote Management Package, Remote Maintenance Package, and Remote Maintenance Circuit. The Remote Management Package, Remote Maintenance Package, and Remote Maintenance Circuit are the same.

To install the Remote Management Package, do the following steps:

1. Insert the "Remote Management Package" diskette into the diskette drive.
2. Enter the following command to start the installation process:

```
# installpkg
```

The program responds:

```
Confirm

Please indicate the installation medium you intend to use.

Strike "C" to install from CARTRIDGE TAPE
or "F" to install from FLOPPY DISKETTE.

Strike ESC to stop.
```

3. Press `f` to specify that you are installing the software from a floppy diskette.

The program responds:

```
Confirm

Please insert the floppy disk.

If the program installation requires more than one floppy
disk, be sure to insert the disks in the proper order,
starting with disk number 1.
After the first floppy disk, instructions will be provided
for inserting the remaining floppy disks.

Strike ENTER when ready
or ESC to stop.
```

4. Press [ RETURN ].

The program responds with the following screens:

```
Installation is in process -- do not remove the floppy disk.
```

```
Searching for the Size file
```

```
Install in Progress
```

```
Copyright (C) 1989 AT&T
All Rights Reserved
```

```
Installing Remote Management Package ...
This installation script contains two parts:
```

1. The Remote Maintenance Circuit (RMC)
2. The UNIX System portion of the Remote Diagnostics

```
Do you want to install Remote Maintenance Circuit (RMC)?
(y or n)
```

5. Enter *y*.

The program responds:

```
Do you want to install Remote Diagnostics? (y or n)
```

6. Enter *y*.

The program responds:

```
Your system currently does not use the system logging
facility. Do you want to use the system logging facility?
(y or n) (default y)
```

7. Press [ RETURN ] to enter the default (yes).

The program briefly displays these messages:

```
Searching for available interrupt vector...
Searching for available starting I/O addresses...
Searching for available starting controller memory
                                addresses...
```

Then, the program continues:

```
Please enter the following system configuration information
for the Remote Maintenance Circuit (RMC). The available
interrupt(s) for the RMC are:
```

```
IRQ:      5 (default)
IRQ:      7
IRQ:      9
IRQ:     10
IRQ:     11
IRQ:     14
IRQ:     15
```

```
Type the interrupt number and strike the ENTER key or type
Q to cancel installation. Striking the ENTER alone will
select the default.
```

8. Press [ RETURN ] to select the default (5).

The program responds:

Please enter the following system configuration information for the Remote Maintenance Circuit (RMC):

The available starting I/O addresses for the RMC are:

Starting I/O address:	200 (default)
Starting I/O address:	220
Starting I/O address:	240
Starting I/O address:	260
Starting I/O address:	280
Starting I/O address:	2A0
Starting I/O address:	2C0
Starting I/O address:	300
Starting I/O address:	320
Starting I/O address:	380
Starting I/O address:	3A0
Starting I/O address:	3C0

Type the starting I/O address and strike the ENTER key or type Q to cancel installation. Striking the ENTER alone will select the default.

9. Press [ RETURN ] to select the default (200).

The program responds:

```
Please enter the following system configuration information
for the Remote Maintenance Circuit (RMC):
The available starting controller memory addresses for the
RMC are:
```

```
Starting Memory address: CA000 (default)
Starting Memory address: C8000
Starting Memory address: CC000
Starting Memory address: CE000
Starting Memory address: D0000
Starting Memory address: D2000
Starting Memory address: D4000
Starting Memory address: D6000
Starting Memory address: D8000
Starting Memory address: DA000
Starting Memory address: DC000
Starting Memory address: DE000
```

```
Type the starting controller memory address and strike the
ENTER key or type Q to cancel installation. Striking the
ENTER alone will select the default.
```

10. Press [ RETURN ] to select the default (CA000).

A confirmation screen displays your choices and asks you to verify the selections you made.

```
*****  
Remote Maintenance Circuit (RMC) configuration:  
Interrupt number = 5  
I/O Starting address = 200  
Controller Memory Starting address = CA000  
*****  
  
Is this configuration acceptable? (y or n)
```

11. Enter *y*.

The program responds:

```
You are installing the Remote Maintenance Circuit (RMC)  
using hardware interrupt number 5, I/O addresses 200  
through 21F, controller memory addresses CA000 through  
CAFFF. These values should be recorded for use in setting  
the RMC hardware and should not be used by another add-on  
board.  
  
Is this configuration acceptable? (y or n) (default y)
```

12. Press [ RETURN ] to enter the default (yes).

The program responds:

```
The UNIX Operating System will now be rebuilt.  
This will take approximately 2 minutes. Please wait.
```

```
The UNIX Kernel has been rebuilt.
```

```
The Remote Maintenance menu has been incorporated under the  
System Administration - Application Setup menu of your  
FACE utility
```

```
Installation of the Remote Maintenance Circuit (RMC) is  
complete.
```

```
Installation of the UNIX System portion of Remote  
Diagnostics is complete
```

```
Confirm
```

```
To complete the install/remove process a shutdown is now  
being initiated automatically.
```

```
Make sure your floppy drive is empty. If you are  
installing or removing controller boards, you may power  
down the system after the shutdown has completed.
```

```
Strike ENTER when ready  
or ESC to stop.
```

13. Remove the "Remote Maintenance Package" diskette from the diskette drive and insert the "Remote Maintenance Package (DOS)" diskette.
14. Press [ ESC ].

The program responds:

```
The UNIX System has now been reconfigured, but you have not
initiated a system reboot. You should manually reboot as
soon as possible.
```

The system prompt (# ) should return to your screen.

15. Enter one of the following commands to edit the `osm` file:

```
# vi /etc/conf/node.d/osm

OR

# ed /etc/conf/node.d/osm
```

16. Add the following lines to the end of the file:

```
osm osm0 c 0
osm osm1 c 1
osm osm2 c 2
```

17. Write and quit the file.

18. Change to the root directory by entering this command:

```
# cd /
```

19. Enter the following executable file:

```
# /etc/conf/bin/idbuild
```

The program responds:

```
The UNIX Operating System will now be rebuilt.  
This will take approximately 2 minutes. Please wait.
```

```
The UNIX Kernel has been rebuilt.
```

20. Enter the following command to execute a shutdown:

```
# shutdown -i6 -g0 -y
```

The program starts the shutdown process:

```
Shutdown started. <date and time>

Broadcast Message from root (console) on unix <date and time>
THE SYSTEM IS BEING SHUT DOWN NOW ! ! !
Log off now or risk your files being damaged.

INIT: New run level: 0
The system is coming down. Please wait.
cron aborted: SIGTERM
  SIGTERM <date and time>
  ***** CRON ABORTED ***** <date and time>
Print services stopped

WARNING: The DOS portion of Remote Diagnostics must still
be installed! Please make sure the following actions are
executed: a) Remove the Remote Maintenance Package UNIX
System floppy disk from the drive. b) Insert the Remote
Management Package DOS Floppy disk in the drive. c) Reboot
the system. Once the Remote Maintenance Package DOS floppy
disk has booted, type INSTALL at the DOS prompt to continue
with the installation of Remote Diagnostics.

Relinked new unix kernel

The system is down.
Automatic reboot performed.
```

The resident diagnostic messages and primary boot strap messages appear. Then, copyright messages and the DOS prompt appear similar to the following:

```
AT&T MS-DOS Version 4.01 Revision 1.0
Copyright (c) 1981-1988 by Microsoft (R) Corporation.
Copyright (c) 1986, 1987, 1988, 1989 by AT&T, all rights
reserved
Copyright (c) 1989 by Phoenix Technologies, Ltd., all rights
reserved
Console handler installed
Getmode installed
A>
```

21. Enter the following command:

```
A> install
```

The program responds:

```
Remote Management Package (RMP) Version 1.0  
Copyright (c) 1989 AT&T  
All Rights Reserved.  
  
Created using Turbo C, Copyright (c) Borland 1987,1988.  
Created using Turbo Assembler, copyright (c) Borland 1988.  
  
System will boot the active partition after installation has  
completed.  
Do you wish to mark the DOS partition active? (y/n)
```

22. Enter *y*.

The program responds:

```
The DOS partition is now active.  
  
The DOS partition will be formatted.  
  
WARNING! The data on drive C: will be destroyed.  
Do you want to continue the format (Y/N)?
```

23. Enter *y*.

The program responds:

```
Press ENTER to begin formatting C:
```

24. Press [ RETURN ] to begin formatting.

After the disk has formatted, the program continues:

```
Format complete
System transferred

Volume label (11 characters, ENTER for none)?
```

25. Enter CMS\_RMP.

The program responds:

```
6250496 bytes total disk space
 118784 bytes used by system
6131712 bytes available on disk

   4096 bytes in each allocation unit
  1497 allocation units available on disk

Volume Serial Number is XXXX-XXXX

Please enter the directory where Remote Diagnostics files
will be installed. [C:\DGN]
```

26. Press [ RETURN ] to enter the default (C:\DGN).

The program responds:

```
Transfer is in progress. -- Do not remove the floppy disk.  
  
Do you wish to run Remote Diagnostics each time the DOS  
partition is booted? (y/n)
```

27. Enter n.

The program responds:

```
Will you be using (a)NSI or (s)ancode terminals on COM1  
and/or COM2?
```

28. Enter a.

The program responds:

```
New password:
```

29. Press [RETURN] or enter an appropriate password.

The program responds:

```
Re-enter new password:
```

30. Press [ RETURN ] again or re-enter the password.

The program responds:

```
Remote Diagnostics installation is now complete.
```

```
Be sure the floppy drive is empty and strike ENTER to  
reboot from the hard disk.
```

31. Remove the "Remote Maintenance Package DOS" diskette from the diskette drive and press [ RETURN ].

The system performs a reboot. The resident diagnostics messages and primary boot-strap messages appear. Then, copyright messages and other messages appear similar to the following:

```
AT&T MS-DOS Version 4.01 Revision 1.0  
Copyright (c) 1981-1988 by Microsoft (R) Corporation.  
Copyright (c) 1986, 1987, 1988, 1989 by AT&T, all rights  
reserved  
Copyright (c) 1989 by Phoenix Technologies, Ltd., all rights  
reserved
```

```
C> PATH=C:\;C:\DGN
```

```
C> CONRED.COM  
Console handler installed
```

```
C> GETMODE.COM  
Getmode installed
```

```
C>
```

32. Enter the following command:

```
C> dgmon/a
```

The `/a` option will cause the program to ask you which active partition to reboot the system from once the RMP installation is complete.

**Note** The system may respond with the next screen, press the [ ESC ] key. If you press [ ESC ] once and nothing happens, press it again.

The program responds:

```

                                     AT&T WGS Remote Diagnostics
-----
<< 1   Install Diagnostics Package >>
      5   Change Password
<ESC> Reboot Operating System
-----
```

33. Enter 1.

The program responds:

```
-----
                        Install Diagnostics Package
-----
<< 1  Systems Diagnostics          >>
    2  Cartridge Tape
    3  Fiber Optic Station
    4  GPSC-AT (X.25/SNA)
    5  Interlan NP600 (Ethernet)
    6  IPC-802/900 (8 ports)
    7  IPC-1600 (16 ports)
    8  NAU and NAU10 (Starlan)
    9  Remote Maintenance Circuit
   10  SCSI H.A. 1
<ESC> Return to Remote Diagnostics Menu
-----
```

**Note** Three asterisks appear to the right of a package once it has been installed.

- 34. Enter 9 to install Remote Maintenance Circuit software.

The program responds:

```
This system has two floppy drives.
Strike 0 to install from drive 0
or 1 to install from drive 1.

Insert the Remote Maintenance Circuit
floppy disk into drive 0.

Strike ENTER to continue
or ESC to stop.
```

- 35. Enter 0.
- 36. Insert the "Remote Maintenance Package (DOS)" diskette into the diskette drive and press [ RETURN ].

The program responds:

```
Installation is in progress -- do not remove the floppy disk.
```

```
rmcdgn.exe
```

```
You may remove the Remote Maintenance Circuit floppy disk.
```

```
The installation of the Remote Maintenance Circuit
package is now complete.
```

```
Strike ENTER to continue.
```

37. Remove the "Remote Maintenance Circuit" diskette from the diskette drive and press [ RETURN ].

The program returns to the Install Diagnostics menu:

```

                                Install Diagnostics Package
-----
<< 1  Systems Diagnostics          >>
    2  Cartridge Tape
    3  Fiber Optic Station
    4  GPSC-AT (X.25/SNA)
    5  Interlan NP600 (Ethernet)
    6  IPC-802/900 (8 ports)
    7  IPC-1600 (16 ports)
    8  NAU and NAU10 (Starlan)
    9  Remote Maintenance Circuit
   10  SCSI H.A. 1
<ESC> Return to Remote Diagnostics Menu
-----

```

38. Enter 1 to install the system diagnostics.

The program responds:

```
This system has two floppy drives.  
Strike 0 to install from drive 0  
or 1 to install from drive 1.  
  
Insert the System Diagnostics  
floppy disk into drive 0.  
  
Strike ENTER to continue  
or ESC to stop.
```

39. Enter 0.

**Note** The "6386/XX Remote System Diagnostics" diskette must be write enabled (hole closed).

40. Insert the "6386/XX Remote System Diagnostics" diskette into the diskette drive and press [ RETURN ].

The program responds:

```
Installation is in progress -- do not remove the floppy disk.  
  
mouse.com  
scas4.hlp  
scas4.ndx  
system.exe  
redir.com  
inst\rsysdgn.exe  
  
You may remove the System Diagnostics floppy disk.  
  
The installation of the System Diagnostics  
package is now complete.  
  
Strike ENTER to continue.
```

41. Remove the "6386/XX Remote System Diagnostics" diskette from the diskette drive and press [ RETURN ].

The program returns to the Install Diagnostics menu:

```

                                Install Diagnostics Package
-----
<< 1  Systems Diagnostics      >>
    2  Cartridge Tape
    3  Fiber Optic Station
    4  GPSC-AT (X.25/SNA)
    5  Interlan NP600 (Ethernet)
    6  IPC-802/900 (8 ports)
    7  IPC-1600 (16 ports)
    8  NAU and NAU10 (Starlan)
    9  Remote Maintenance Circuit
   10  SCSI H.A. 1
<ESC> Return to Remote Diagnostics Menu
-----

```

42. Enter 7 to install IPC-1600 diagnostics.

The program responds:

```

This system has two floppy drives.
Strike 0 to install from drive 0
or 1 to install from drive 1.

Insert the IPC-1600 (16 ports)
floppy disk into drive 0.

Strike ENTER to continue
or ESC to stop.

```

43. Enter 0.
44. Insert the "Intelligent Port Card (IPC-1600) MS-DOS Device Drivers and Diagnostics" diskette into the diskette drive and press [ RETURN ].

The program responds:

```
Installation is in progress -- do not remove the floppy disk.  
  
ipc16dia.com  
  
You may remove the IPC-1600 (16 ports) floppy disk.  
  
The installation of the IPC-1600 (16 ports)  
package is now complete.  
  
Strike ENTER to continue.
```

- 45. Remove the "IPC-1600 Device Drivers and Diagnostics" diskette from the diskette drive and press [ RETURN ].

The program returns to the Install Diagnostics menu:

```
                                Install Diagnostics Package  
-----  
<<  1  Systems Diagnostics          >>  
     2  Cartridge Tape  
     3  Fiber Optic Station  
     4  GPSC-AT (X.25/SNA)  
     5  Interlan NP600 (Ethernet)  
     6  IPC-802/900 (8 ports)  
     7  IPC-1600 (16 ports)  
     8  NAU and NAU10 (Starlan)  
     9  Remote Maintenance Circuit  
    10  SCSI H.A. 1  
<ESC> Return to Remote Diagnostics Menu  
-----
```

- 46. Enter 10 to install SCSI Diagnostics software.

The program responds:

```
This system has two floppy drives.  
Strike 0 to install from drive 0  
or 1 to install from drive 1.  
  
Insert the SCSI H.A. 1  
floppy disk into drive 0.  
  
Strike ENTER to continue  
or ESC to stop.
```

47. Enter 0.
48. Insert the "SCSI Diagnostics" diskette into the diskette drive and press [ RETURN ].

The program responds:

```
Installation is in progress -- do not remove the floppy disk.  
  
scsidgn.exe  
  
You may remove the SCSI H.A. 1 floppy disk.  
  
The installation of the SCSI H.A. 1  
package is now complete.  
  
Strike ENTER to continue.
```

49. Remove the "SCSI Diagnostics" diskette from the diskette drive and press [ RETURN ].

The program returns to the Install Diagnostics menu:

```

                                Install Diagnostics Package
-----
<< 1  Systems Diagnostics          >>
    2  Cartridge Tape
    3  Fiber Optic Station
    4  GPSC-AT (X.25/SNA)
    5  Interlan NP600 (Ethernet)
    6  IPC-802/900 (8 ports)
    7  IPC-1600 (16 ports)
    8  NAU and NAU10 (Starlan)
    9  Remote Maintenance Circuit
   10  SCSI H.A. 1
<ESC> Return to Remote Diagnostics Menu
-----
```

50. Press [ ESC ].



The [ ESC ] key may have to be pressed twice to get the system to respond.

The program responds:

```
AT&T WGS Remote Diagnostics
-----
<< 1  Install Diagnostics Package >>
    2  Remove Diagnostics Package
    3  System Diagnostics
    4  I/O Card Diagnostics
    5  Change Password
<ESC> Reboot Operating System
-----
```

51. Press [ ESC ].

**Note** The [ ESC ] key may have to be pressed twice to get the system to respond.

The program responds:

```
Partition      Status      Type
C: 1.         Active     DOS
   2.                UNIX
<ESC>        Reboot the system

The System will reboot the active disk partition.
Select the number of the partition to be marked
```

52. Enter 2 to select the UNIX partition as the active partition.

The program responds:

```
Partition      Status      Type
C: 1.                DOS
   2.         Active     UNIX
<ESC>        Reboot the system

The System will reboot the active disk partition.
Select the number of the partition to be marked
```

53. Press [ ESC ] to exit the program.

**Note** The [ ESC ] key may have to be pressed twice to get the system to respond.

## Administering the Second Hard Disk

Use these steps only if you installed a second hard disk.

**Prerequisites:** The UNIX System V and the FACE software utilities must be installed, and you should be logged in as *root* at the console terminal.

Administering the second hard disk consists of the following tasks:

- Add the hard disk to the SCSI bus.
- Partition the hard disk.
- Install the user file systems.
- Update the disk administration files.

## Adding the Hard Disk to the SCSI Bus

Start the administration by adding the second hard disk to the SCSI bus:

1. Enter the following command at the system prompt:

```
# face
```

The program displays the AT&T FACE menu:

```

1      AT&T FACE
> Office of root
Printer Operations
Programs
System Administration
UNIX System
Exit
```

2. Using the arrow keys, move the prompt (> ) to the System Administration menu and press [ RETURN ] to select.

The program responds:

```
                2                System Administration
> Backup to Removable Media      Restore from Removable Media
  Bus Administration             Schedule Automatic Task
  Change Password                SCSI Tape Operations
  Date and Time                  Shutdown
  Disk Operations                Software Setup
  File System Operations         System Information
  Mail Setup                     User Logins
  Peripherals Setup
```

3. Select the Bus Administration menu.

The program responds:

```
3 Bus Administration
> SCSI
```

4. Select the SCSI menu.

The program responds:

```
4 SCSI
> Add Peripheral
  Add SCSI Bus
  Remove SCSI Bus
  Show Bus Configuration
  Remove Peripheral
```

5. Select the Add Peripheral menu.

The program responds:

```
5 Add Peripheral
> Disk
  Cartridge Tape
  9 Track Tape
```

6. Select the Disk menu.

The program responds:

```
6 Adding Disk
Enter Device Name
in the form c?t?d?.._____
```

7. Enter c0t1d0.

The program responds with the following screens:

```
7 Warning
This is a destructive operation that will destroy the
contents of the disk.
```

```
Do you want to format the Hard Disk (y or n)?
```

8. Enter y to format the hard disk.

The program responds:

```
Formatting the Hard Disk . . .
```

After the disk has formatted, the program responds:

```
Do you want to setup this disk to allow for mirroring of  
the boot device? (y or n)
```

9. Enter n .

## Partitioning the Hard Disk

You must set up an active partition for the UNIX System.

The program continues:

```

Do you want to partition your hard disk as follows?

  90% "UNIX System" -- lets you run UNIX System programs
  10% "DOS (v. 3.2 or later) only"

To do this, please type "y". To partition your hard disk
differently, type "n" and the "fdisk" program will let you
select other partitions.
WARNING: The DOS partition cannot be larger than 5%.
You must partition the disk manually.
Type <RETURN> to continue.
    
```

1. Enter n.

The program responds:

```

Total hard disk size is XXX cylinders

Partition  Status  Type                Cylinders
-----  -
Start      End      Length  %
-----  -

1. Create a partition
2. Change Active (Boot from) partition
3. Delete a partition
4. Exit (Update disk configuration and exit)
5. Cancel (Exit without updating disk configuration)
Enter selection:
    
```

2. Enter 1 to create a partition.

The program responds:

```
Indicate the type of partition you want to create  
(1=UNIX System, 2=DOS only, 3=Other, x=Exit).
```

3. Enter 1 to select the UNIX System.

The program responds:

```
Indicate the percentage (1-100) of the hard disk you want  
this partition to use (or enter "c" to specify in cylinders):
```

4. Enter 100 to assign all the disk space to this partition.

The program responds:

```
Do you want this to become the Active partition?  
TO CREATE/USE FILESYSTEMS ON YOU SCSI DISK THE PARTITION MUST  
BE ACTIVE!  
Please type "y" or "n".
```

5. Enter y to specify the partition is active.

The program responds:

```
Partition 1 is now the Active partition
```

The following screen is updated:

```

Total hard disk size is XXX cylinders

Partition  Status  Type              Cylinders
-----  -
           Start  End  Length  %
           ----  -  -  -  -
           1    Active  UNIX System      0   XXX   XXX  100

SELECT ONE OF THE FOLLOWING

1. Create a partition
2. Change Active (Boot from) partition
3. Delete a partition
4. Exit (Update disk configuration and exit)
5. Cancel (Exit without updating disk configuration)
Enter selection:
    
```

6. Enter 4.

The program responds:

```

If you have created a UNIX System, or DOS partition, you must
format the partition to reflect the new disk configuration.
Changing only the active partition does not require a format.

Hard disk partitioning complete.

A surface analysis will now be done.
This will destroy all data on the hard disk.
Strike ENTER to continue or DEL to abort.
    
```

7. Press [ RETURN ] to perform a surface analysis.

The program responds:

```
Surface analysis will be performed on the Hard Disk.  
Checking for bad sectors in the UNIX System partition...
```

The system is performing a surface analysis of the hard disk and building a table of defective blocks.

When the surface analysis is complete, the system calculates the optimal amount of space on the hard disk for the user file systems.

## Installing the User File Systems

You must install the *lp* and */cms1* user file systems and allocate disk space for them.

The program continues:

```
The UNIX System partition has XXX cylinders assigned to it.
One cylinder will be reserved to contain the Volume Table of
Contents.
```

```
The following seems like a reasonable partitioning of
your UNIX System disk space:
```

Partition #	name	cylinders	bytes
3	[user]	XXX	XXXXXXXXXX
4	[user]	XXX	XXXXXXXXXX

```
Is this allocation acceptable to you (y/n)?
```

1. Enter *n*.

```
Do you wish additional swap space on this disk (y/n):
```

2. Enter *y*.

The program responds:

```
How many user filesystems would you like on
this disk (1-12)?
```

3. Enter *3*.

The program responds:

Enter name for user slice 1 (1-6 chars/digits beginning with  
a char):

4. Enter dbtemp.

The program responds:

```
Enter name for user slice 2 (1-6 chars/digits beginning with  
a char):
```

5. Enter `lp`.

The program responds:

```
Enter name for user slice 3 (1-6 chars/digits beginning with  
a char):
```

6. Enter `cms1`.

The program responds:

```
One megabyte of disk is approximately 1 cylinders.  
How many of the remaining XXX cylinders do you wish to  
allocate to swap?
```

7. Enter `80`.

The program responds:

```
How many of the remaining XXX cylinders do you wish to  
allocate to dbtemp?
```

8. Enter `80`.

The program responds:

```
How many of the remaining XXX cylinders do you wish to
allocate to lp?
```

9. Enter 10.

The program responds:

```
How many of the remaining XXX cylinders do you wish to
allocate to cms1?
```

10. Enter the number of remaining cylinders.

```
You have specified the following disk allocation:
```

Partition #	name	cylinders	bytes
2	swap	80	XXXXXXXX
3	dbtemp	80	XXXXXXXX
4	lp	10	XXXXXXXX
5	cms1	XXX	XXXXXXXX

```
Is this allocation acceptable to you (y/n)?
```

11. Enter y.

The program responds:

```
Do you want to have the filesystems on the new disk mounted
automatically (y/n)?
```

12. Enter `y`.

The program responds with the following screens:

```
A dbtemp010 filesystem will be created on your hard disk ...
A lp010 filesystem will be created on your hard disk ...
A cms1010 filesystem will be created on your hard disk ...
```

```
New /etc/partitions entry for disk010 added
Diskadd for disk010 DONE at <date and time>
Press RETURN to continue
```

13. Press [ `RETURN` ].

## Updating the Disk Administration Files

You must update the disk administration files since you added the dbtemp, lp, and cms1 file systems.

The program returns to the Add Peripheral menu:

```
5 Add Peripheral
> Disk
  Cartridge Tape
  9 Track Tape
```

1. Use the arrow keys to return to the AT&T FACE menu (menu 1) and select Exit. The system prompt (# ) should return to your screen.
2. Enter the following command:

```
# umount /cms1010
```

3. Edit the `/etc/partitions` file by entering one of the following commands:

```
# vi /etc/partitions
OR
# ed /etc/partitions
```

4. Change `cms1010` to `cms1`.

**Note** There is only one occurrence of `cms1010` in this file.

5. Write and exit the file.

6. Edit the `/etc/fstab` file and change `cms1010` to `cms1`.

**Note** There is only one occurrence of `cms1010` in this file.

7. While the file is open, write down the device filename for `cms1`. For example, write down `/dev/dsk/c0t1d0s3`.
8. Write and exit the file.
9. Enter the following commands:

```
# mv cms1010 cms1
# labelit <device filename> cms1 cms1
# mountall
```

**Note** When you enter the `labelit` command, use the device filename you wrote down in step 7 as the first argument, for example: `labelit /dev/dsk/c0t1d0s3 cms1 cms1`.

10. Enter the following commands:

```
# cd /usr/dbtemp
# find . -print |cpio -pdvc /dbtemp010
# rm -rf *
# cd /
# umount dbtemp010
```

11. Edit the `/etc/partitions` file and change `dbtemp010` to `dbtemp`. There is only one occurrence of `dbtemp010` in this file.
12. Write and exit the file.
13. Edit the `/etc/fstab` file and change `dbtemp010` to `/usr/dbtemp`. There is only one occurrence of `dbtemp010` in this file.
14. Write down the device filename for `/usr/dbtemp`. For example, write down `/dev/dsk/c0t1d0s4`.

15. Write and exit the file.
16. Enter the following commands:

```
# rm -rf dbtemp010
# labelit <device filename> dbtemp dbtemp
# mountall
```

**Note** When you enter the `labelit` command, use the device filename you wrote down in step 14 as the first argument, for example: `labelit /dev/dsk/c0t1d0s4 lp lp`.

17. Enter the following commands:

```
# cd /usr/spool/lp
# find . -print |cpio -pdvc /lp010
# rm -rf *
# cd /
# umount lp010
```

18. Edit the `/etc/partitions` file and change `lp010` to `lp`. There is only one occurrence of `lp010` in this file.
19. Write and exit the file.
20. Edit the `/etc/fstab` file and change `lp010` to `/usr/spool/lp`. There is only one occurrence of `lp010` in this file.

21. Write down the device filename for `/usr/spool/lp`. For example, write down `/dev/dsk/c0t1d0s5`.
22. Write and exit the file.
23. Enter the following commands:

```
# rm -rf lp010
# labelit <device filename> lp lp
# mountall
```

**Note** When you enter the `labelit` command, use the device filename you wrote down in step 14 as the first argument, for example: `labelit /dev/dsk/c0t1d0s5 lp lp`.

24. Execute the following command

```
cd /etc/rc2.d
```

25. Create a file called `Ssetswap` and add the following line:

```
/etc/swap -a /dev/dsk/c0t1d0s2 0 81920
```

26. Save and exit the file.
27. Execute the following command to make the file executable:

```
chmod 777 Ssetswap
```

28. Execute the following commands to move to the root directory and shutdown the system:

```
cd /  
shutdown -i6 -y -g0
```

29. When the system comes back up, login as `root` at the system console.
30. Execute the following command to verify that the second disk's swap space has been reserved:

```
swap -l
```

The system responds:

```
path                dev swaplo blocks  free  
/dev/dsk/c0t0d0s2  0,2      0 81920 81920  
/dev/dsk/c0t1d0s2  0,2      0 81920 81920
```

There should be an entry for the first and second disks. The first line represents the first disk and the second line represents the second disk.

The second hard disk is now administered.

## Administering Additional Hard Disks

Use these steps only if you have installed three or more hard disks.

**Prerequisites:** The UNIX System V and the FACE software utilities must be installed, and you should be logged in as *root* at the console terminal.

Administering the third, fourth, etc. hard disk consists of the following tasks:

- Add the hard disk to the SCSI bus.
- Partition the hard disk.
- Install the user file systems.
- Update the disk administration files.

## Adding the Hard Disk to the SCSI Bus

Start the administration by adding the additional hard disk to the SCSI bus:

1. Enter the following command at the system prompt:

```
# face
```

The program displays the AT&T FACE menu:

```

1    AT&T FACE
> Office of root
Printer Operations
Programs
System Administration
UNIX System
Exit

```

2. Using the arrow keys, move the prompt (> ) to the System Administration menu and press [ RETURN ] to select.

The program responds:

```
2          System Administration
> Backup to Removable Media  Restore from Removable Media
  Bus Administration         Schedule Automatic Task
  Change Password           SCSI Tape Operations
  Date and Time             Shutdown
  Disk Operations           Software Setup
  File System Operations    System Information
  Mail Setup                User Logins
  Peripherals Setup
```

- 3. Select the Bus Administration menu.

The program responds:

```
3  Bus Administration
> SCSI
```

- 4. Select the SCSI menu.

The program responds:

```
4  SCSI
> Add Peripheral
  Add SCSI Bus
  Remove SCSI Bus
  Show Bus Configuration
  Remove Peripheral
```

- 5. Select the Add Peripheral menu.

The program responds:

```

5 Add Peripheral
  > Disk
    Cartridge Tape
    9 Track Tape
  
```

6. Select the Disk menu.

The program responds:

```

6 Adding Disk
Enter Device Name
in the form c?t?d?. _____
  
```

7. Enter the device name. See Table E-1 for the appropriate device name.

**Table E-1: Device Names for Additional Hard Disks**

Disk	Device Name
3	c0t2d0
4	c0t4d0
5	c0t5d0
6	c0t6d0

The program responds with the following screens:

```
7          Warning
This is a destructive operation that will destroy the
contents of the disk.
```

```
Do you want to format the Hard Disk (y or n)?
```

8. Enter `y` to format the hard disk.

The program responds:

```
Formatting the Hard Disk . . .
```

After the disk has formatted, the program responds:

```
Do you want to setup this disk to allow for mirroring of
the boot device? (y or n)
```

9. Enter `n`.

## Partitioning the Hard Disk

You must set up an active partition for the UNIX System.

The program continues:

```
Do you want to partition your hard disk as follows?
```

```
90% "UNIX System" -- lets you run UNIX System programs
10% "DOS (v. 3.2 or later) only"
```

```
To do this, please type "y". To partition your hard disk
differently, type "n" and the "fdisk" program will let you
select other partitions.
```

```
WARNING: The DOS partition cannot be larger than 5%.
You must partition the disk manually.
Type <RETURN> to continue.
```

1. Enter n.

The program responds:

```
Total hard disk size is XXX cylinders
```

Partition	Status	Type	Cylinders			%
			Start	End	Length	
-----	-----	-----	-----	-----	-----	---

```
1. Create a partition
2. Change Active (Boot from) partition
3. Delete a partition
4. Exit (Update disk configuration and exit)
5. Cancel (Exit without updating disk configuration)
Enter selection:
```

**Note** The actual numbers you see on the screen may differ depending on the storage capacity of the hard disk.

2. Enter 1 to create a partition.

The program responds:

```
Indicate the type of partition you want to create  
(1=UNIX System, 2=DOS only, 3=Other, x=Exit).
```

3. Enter 1 to select the UNIX System.

The program responds:

```
Indicate the percentage (1-100) of the hard disk you want  
this partition to use (or enter "c" to specify in cylinders):
```

4. Enter 100 to assign all the disk space to this partition.

The program responds:

```
Do you want this to become the Active partition?  
TO CREATE/USE FILESYSTEMS ON YOU SCSI DISK THE PARTITION MUST  
BE ACTIVE!  
Please type "y" or "n".
```

5. Enter y to specify the partition is active.

The program responds:

```
Partition 1 is now the Active partition
```

The following screen is updated:

```
Total hard disk size is XXX cylinders

Partition  Status  Type                Cylinders
-----  -
          1      Active  UNIX System         0     XXX     XXX     100
```

SELECT ONE OF THE FOLLOWING

1. Create a partition
2. Change Active (Boot from) partition
3. Delete a partition
4. Exit (Update disk configuration and exit)
5. Cancel (Exit without updating disk configuration)

Enter selection:

6. Enter 4.

The program responds:

```
If you have created a UNIX System, or DOS partition, you must
format the partition to reflect the new disk configuration.
Changing only the active partition does not require a format.
```

```
Hard disk partitioning complete.
```

```
A surface analysis will now be done.
This will destroy all data on the hard disk.
Strike ENTER to continue or DEL to abort.
```

7. Press [ RETURN ] to perform a surface analysis.

The program responds:

```
Surface analysis will be performed on the Hard Disk.  
Checking for bad sectors in the UNIX System partition...
```

The system is performing a surface analysis of the hard disk and building a table of defective blocks.

When the surface analysis is complete, the system calculates the optimal amount of space on the hard disk for the user file systems.

## Installing the User File Systems

You must install the cms user file system and allocate disk space for it.

The program continues:

```

The UNIX System partition has 580 cylinders assigned to it.
One cylinder will be reserved to contain the Volume Table of
Contents.

The following seems like a reasonable partitioning of
your UNIX System disk space:

Partition #      name      cylinders      bytes
   3             [user]         XXX           XXXXXXXXXX
   4             [user]         XXX           XXXXXXXXXX

Is this allocation acceptable to you (y/n)?
    
```

1. Enter n.

The program responds:

```

How many user filesystems would you like on
this disk (1-12)?
    
```

2. Enter 1.

The program responds:

```

Enter name for user slice 1 (1-6 chars/digits beginning with
a char):
    
```

3. Enter the cms file system name. See Table E-2 for the appropriate file system name.

**Table E-2: CMS File System Names for Additional Hard Disks**

Disk	File System Name
3	cms2
4	cms3
5	cms4
6	cms5

The program responds:

```
One megabyte of disk is approximately 1 cylinders.  
How many of the remaining XXX cylinders do you wish to  
allocate to swap?
```

4. Enter 0 .

The program responds:

```
How many of the remaining XXX cylinders do you wish to  
allocate to cmsX?
```

where cmsX is the file system name from Table E-2.

5. Enter the number of remaining cylinders.

The program responds:

```
You have specified the following disk allocation:
```

Partition #	name	cylinders	bytes
2	cmsX	XXX	XXXXXXXXXX

```
Is this allocation acceptable to you (y/n)?
```

6. Enter *y*.

The program responds:

```
Do you want to have the filesystems on the new disk mounted  
automatically (y/n)?
```

7. Enter *y*.

The program responds with the following screens:

```
A cmsX0X0 filesystem will be created on your hard disk ...
```

```
New /etc/partitions entry for disk0X0 added
```

```
Diskadd for disk0X0 DONE at <date and time>
```

```
Press RETURN to continue
```

8. Press [ RETURN ].

## Updating the Disk Administration Files

You must update the disk administration files since you added the cms file system.

The program returns to the Add Peripheral menu:

```
5 Add Peripheral
> Disk
  Cartridge Tape
  9 Track Tape
```

1. Use the arrow keys to return to the AT&T FACE menu (menu 1) and select Exit. The system prompt (# ) should return to your screen.
2. Enter the following command:

```
# umount /cmsX0X0
```

where X is the number in the file system name.

3. Edit the `/etc/partitions` file by entering one of the following commands:

```
# vi /etc/partitions
OR
# ed /etc/partitions
```

4. Change `cmsX0X0` to `cmsX` where X is the number in the cms file system name. For example, change `cms2020` to `cms2` or `cms3030` to `cms3`, etc.
5. Write and exit the file.
6. Edit the `/etc/fstab` file and change `cmsX0X0` to `cmsX`.

7. While the file is open, write down the device filename for `cmsX`. For example, write down `/dev/dsk/c0t1d0s3`.
8. Write and exit the file.
9. Enter the following commands:

```
# mv cmsX0X0 cmsX
# labelit <device filename> cmsX cmsX
# mountall
```

where `X` is the number in the file system name.



When you enter the `labelit` command, use the device filename you wrote down in step 7 as the first argument, for example: `labelit /dev/dsk/c0t1d0s3 cms2 cms2`.

The additional hard disk is now administered.

## Installing the INFORMIX SQL Software

**Prerequisites:** The UNIX System V software must be installed, and you should be logged in as *root* at the console terminal.

**Note** If additional information is needed to install the INFORMIX SQL software, refer to the documentation provided with the INFORMIX SQL package.

Before you install the INFORMIX SQL software, do these steps:

- a. Enter the following commands:

```
# TERM=XXX  
# export TERM
```

where XXX is the terminal in use. For example, enter `TERM=705` if you are using an AT&T 705 Multitasking Terminal as the console terminal.

- b. Edit the `/etc/ttytype` file by entering one of the following commands:

```
# vi /etc/ttytype  
  
OR  
  
# ed /etc/ttytype
```

- c. Go to the line with “console” and change the terminal type to whatever terminal you are using as the console terminal.
- d. Write and quit the file.

To install the INFORMIX-SQL software, do the following steps:

1. Enter the following command to create a new group called **informix** in the group file:

```
# vi /etc/group
```

2. Add the following line to the end of the file to create a new group called *informix*:

```
informix::102:informix
```

3. Write and quit the group file.
4. Enter the following command to add a new user (**informix**) to the password filesystem:

```
# passmgmt -a -u102 -g102 -c informix informix
```

5. Enter the following command to create a directory for the INFORMIX-SQL software:

```
mkdir /usr/informix
```

6. Enter the following commands to set the environment variables:

```
# INFORMIXDIR=/usr/informix
# export INFORMIXDIR
# PATH=$PATH:$INFORMIXDIR/bin
# export PATH
```

7. Enter the following command to move to the INFORMIX directory:

```
# cd $INFORMIXDIR
```

8. Enter the following command to begin the installation of the INFORMIX-SQL software:

```
# installpkg
```

The program responds:

```
Confirm

Please indicate the installation medium you intend to use.

Strike "C" to install from CARTRIDGE TAPE
or "F" to install from FLOPPY DISKETTE.

Strike ESC to stop.
```

9. Press `f` to specify that you are installing the software from a floppy disk.

The program responds:

Confirm

Please insert the floppy disk.

If the program installation requires more than one floppy disk, be sure to insert the disks in the proper order, starting with disk number 1. After the first floppy disk, instructions will be provided for inserting the remaining floppy disks.

Strike ENTER when ready  
or ESC to stop.

10. Insert disk 1 of the "INFORMIX-SQL" package into the diskette drive.
11. Press [ RETURN ].

The program responds with the following screens:

Installation is in progress -- do not remove the floppy disk.

Searching for the Size file

Install in Progress

After approximately two minutes, your terminal will beep and display this message:

```
Reached end of medium on input.  
You may remove this floppy disk.  
To QUIT - strike <q> followed by <ENTER>  
To continue - insert floppy disk number 2 and strike the  
<ENTER> key.
```

12. Remove disk 1 from the diskette drive and insert disk 2 of the "INFORMIX-SQL" package.
13. Press [ RETURN ].

The program continues:

```
Installing INFORMIX-SQL into /usr/informix  
Installation Procedure for INFORMIX-SQL  
  
Copyright (C) 1981-1988  
INFORMIX SOFTWARE, INC.  
  
Verifying files in INFORMIX-SQL ...  
  
Enter your 11-character serial number (for example,  
RDS#R999999) exactly as it appears on your media:
```

14. Enter the 11-character serial number located on either INFORMIX-SQL diskette.

The program responds:

```
Enter your 6-character serial number KEY exactly as it  
appears on the customer registration form enclosed with  
this shipment:
```

Enter the 6-character serial number key located on your  
customer registration form.

The program responds:

```
Installing INFORMIX-SQL ...
```

```
The installation of the INFORMIX-SQL is now complete.
```

The INFORMIX SQL software should now be installed.  
Remove disk 2 of the "INFORMIX-SQL" package from the  
diskette drive.

You can verify that the package is installed by entering the  
**displaypkg** command.

## Setting Up the CMS File System

You need to rename the `usr2` filesystem that was set up during the UNIX installation to `cms`.

1. Make sure you are in the root directory by entering the following command:

```
# cd /
```

2. Unmount the `usr2` file system by entering this command:

```
# umount /usr2
```

3. Edit the `/etc/partitions` file by entering one of the following commands:

```
# vi /etc/partitions
```

OR

```
# ed /etc/partitions
```

4. Change `usr2` to `cms`. There is only one occurrence of `usr2` in this file.
5. Write and exit the file.
6. Edit the `/etc/fstab` file and change `usr2` to `cms`. There is only one occurrence of `usr2` in this file.
7. While the file is open, write down the device filename for `cms`. For example, write down `/dev/dsk/c0t0d0s4`.
8. Write and exit the file.

9. Enter the following commands:

```
# mv usr2 cms
# labelit <device filename> cms cms
```

**Note** When you enter the `labelit` command, use the device filename you wrote down in step 7, for example:

```
labelit /dev/dsk/c0t0d0s4 cms cms.
```

The file system information is displayed:

```
Current fsname: cms, Current volname: cms, Blocks: 333824,
Inodes: 41728
FS Units: 1Kb, Date last modified: <date and time>
NEW fsname = cms, NEW volname = cms -- DEL if wrong!!
```

10. Mount the cms file system by entering this command:

```
# mountall
```

The program responds:

```
mount -f S51K /dev/dsk/c0t0d0s4 /cms
```

## Installing UNIX Maintenance Disk # 1 Software

**Prerequisites:** You must have installed the UNIX System V operating system, and you should be logged in as *root* at the console terminal.

To install the UNIX Maintenance Disk #1 software, do the following steps:

1. Insert the CMS cartridge tape into the tape drive.
2. Enter the following command to start the installation process:

```
# installpkg
```

The program responds:

```
Confirm
```

```
Please indicate the installation medium you intend to use.
```

```
Strike "C" to install from CARTRIDGE TAPE  
or "F" to install from FLOPPY DISKETTE.
```

```
Strike ESC to stop.
```

3. Press `c` to specify cartridge tape.

11. To verify the cms file system is mounted, enter the following:

```
# df -t
```

If the screen displays `/cms`, the file system is mounted.

The program responds:

```
Confirm

Please insert the cartridge tape into the tape drive.

Strike ENTER when ready
or ESC to stop.
```

4. Press [ RETURN ].

The program continues:

```
Confirm

It is recommended that you re-tension the tape before
attempting the installation, to ensure that the tape is
read without any errors.

If you strike ENTER the tape will be re-tensioned.

Strike ENTER when ready
or ESC to stop.
```

5. Press [ RETURN ] to continue.

The program responds:

```
This will take approximately three minutes.
```

After the tape has re-tensioned, the program responds:

You will now be prompted to select the packages that you wish to install from this tape.

You may select one or more packages from the menu by entering the number listed alongside the package name.

Enter each package number one at a time, pressing ENTER after each selection. The package numbers may be entered in any order.

To install all the packages, type the number indicated at the end of the package list.

When you have made all the selections required, Strike ESC.

To skip this step or cancel any selections made, type the number as indicated in the package list.

Strike ENTER when ready.

6. Press [ RETURN ] to continue.

The program responds:

Packages available for installation:

1. X.25 Network Interface - Version 1.2.1 SL1.51.1.25
2. UNIX System V/386 Release 3.2 Version 2.3 Maintenance Disk #1
3. KornShell Version 11/16/88d 386 Release 2.0
4. Call Management System (3.X)
5. Install ALL packages shown above
6. Exit, do not install any packages

Please enter the next package number(s) to install, followed by ENTER.

Press ESC when all selections have been made.

Enter Package Number:

7. Enter the number corresponding to the UNIX System V Maintenance Disk #1, then press [ ESC ].

The program responds:

You have made the following selections

2. UNIX System, V/386 Release 3.2 Version 2.3 Maintenance  
Disk #1

Confirm

Strike ENTER to confirm and continue with the installation  
or ESC to re-display the menu and re-select.

Strike ENTER when ready  
or ESC to stop.

8. Press [ RETURN ].

The program continues:

REMINDER!

Depending on the packages you are installing, you may be  
required to provide some input to the installation utility  
to configure the software for your system.

Strike ENTER when ready.

9. Press [ RETURN ].

The program continues with the following screens:

```
Installation in progress -- Do not remove the cartridge tape
```

```
Installing:
```

```
UNIX System V/386 Release 3.2 Version 2.3 Maintenance  
Disk #1 .....
```

```
The UNIX Operating System will now be rebuilt.  
This will take approximately 2 minutes. Please wait.
```

```
The UNIX Kernel has been rebuilt.
```

```
The Base Operating System has been modified.
```

```
The following add-on package(s) have also been modified:
```

```
FACE Version 1.2.2
```

```
System Message
```

```
If any of the following packages are ever installed or  
reinstalled, you must reinstall the UNIX System V/386  
Release 3.2 Version 2.3 Maintenance Disk #1:
```

```
Editing Package Version 2.0
```

```
FACE Version 1.2.2
```

```
Network Support Utilities Package (1.2) Version 2.0
```

```
Strike ENTER when ready.
```

10. Press [ RETURN ].

The program responds:

```
The installation of the UNIX System V/386 Release 3.2
Version 2.3 Maintenance Disk #1 package is now complete.
```

```
Confirm
```

```
To complete the install/remove process a shutdown is now
being initiated automatically.
```

```
Make sure your floppy drive is empty. If you are
installing or removing controller boards, you may power
down the system after the shutdown has completed.
```

```
Strike ENTER when ready
or ESC to stop.
```

11. Press [ RETURN ].

The program starts the shutdown process:

```
<Shutdown started. <date and time>
```

```
<Broadcast Message>
```

12. When you see the "Reboot the system now" message, press the reset button on the 6386 WGS.

Once the system is back up, you can verify that the package is installed by logging in as *root* and entering the **displaypkg** command.

## Installing the Korn Shell

**Prerequisites:** You must have installed the UNIX System V operating system, and you should be logged in as *root* at the console terminal.

To install the Korn Shell software, do the following steps:

1. Insert the CMS cartridge tape into the tape drive.
2. Enter the following command to start the installation process:

```
# installpkg
```

The program responds:

```
Confirm
Please indicate the installation medium you intend to use.
Strike "C" to install from CARTRIDGE TAPE
or "F" to install from FLOPPY DISKETTE.
Strike ESC to stop.
```

3. Press *c* to specify cartridge tape.

The program responds:

Confirm

Please insert the cartridge tape into the tape drive.

Strike ENTER when ready  
or ESC to stop.

4. Press [ RETURN ].

The program continues:

Confirm

It is recommended that you re-tension the tape before attempting the installation, to ensure that the tape is read without any errors.

If you strike ENTER the tape will be re-tensioned.

Strike ENTER when ready  
or ESC to stop.

5. If you have not yet re-tensioned the tape press [ RETURN ], otherwise, press [ ESC ].

If you are re-tensioning the tape, the program continues:

This will take approximately 3 minutes.

After the tape has re-tensioned, or if you pressed [ ESC ] in the previous step, the program responds:

You will now be prompted to select the packages that you wish to install from this tape.

You may select one or more packages from the menu by entering the number listed alongside the package name.

Enter each package number one at a time, pressing ENTER after each selection. The package numbers may be entered in any order.

To install all the packages, type the number indicated at the end of the package list.

When you have made all the selections required, Strike ESC.

To skip this step or cancel any selections made, type the number as indicated in the package list.

Strike ENTER when ready.

6. Press [ RETURN ] to continue.

The program responds:

```
Packages available for installation:
```

1. X.25 Network Interface - Version 1.2.1 SL1.51.1.25
2. UNIX System V/386 Release 3.2 Version 2.3 Maintenance  
Disk #1
3. KornShell Version 11/16/88d 386 Release 2.0
4. Call Management System (3.X)
5. Install ALL packages shown above
6. Exit, do not install any packages

```
Please enter the next package number(s) to install,  
followed by ENTER.
```

```
Press ESC when all selections have been made.
```

```
Enter Package Number:
```

7. Enter the number corresponding to the Korn Shell, then press [ ESC ].

The program responds:

```
You have made the following selections
```

3. KornShell Version 11/16/88d 386 Release 2.0

```
Confirm
```

```
Strike ENTER to confirm and continue with the installation  
or ESC to re-display the menu and re-select.
```

```
Strike ENTER when ready  
or ESC to stop.
```

8. Press [ RETURN ].

The program continues:

REMINDER!

Depending on the packages you are installing, you may be required to provide some input to the installation utility to configure the software for your system.

Strike ENTER when ready.

9 . Press [ RETURN ].

The program continues with the following screens:

Installation in progress -- Do not remove the cartridge tape

Installing:

Kornshell Version 11/16/88d 386 Release 2.0 .....

The UNIX Operating System, will now be rebuilt.  
This will take approximately 2 minutes. Please wait.

The UNIX Kernel has been rebuilt.

The Base Operating System has been modified.

The following add-on package(s) have also been modified:

FACE Version 1.2.2

System Message

If any of the following packages are ever installed or  
reinstalled, you must reinstall the UNIX System V/386  
Release 3.2 Version 2.3 Maintenance Disk #1:

Editing Package Version 2.0

FACE Version 1.2.2

Network Support Utilities Package (1.2) Version 2.0

Strike ENTER when ready.

10. Press [ RETURN ].

The program responds:

```
The installation of the KornShell Version 11/16/88d 386  
Release 2.0 is now complete.
```

```
Confirm
```

```
To complete the install/remove process a shutdown is now  
being initiated automatically.
```

```
Make sure your floppy drive is empty. If you are  
installing or removing controller boards, you may power  
down the system after the shutdown has completed.
```

```
Strike ENTER when ready  
or ESC to stop.
```

11. Press [ RETURN ].

The program starts the shutdown process:

```
Shutdown started. <date and time>
```

```
<Broadcast Message>
```

12. When you see the "Reboot the system now" message, press the reset button on the 6386 WGS.

Once the system is back up, you can verify that the package is installed by logging in as *root* and entering the **displaypkg** command.

## Installing the X.25 Network Interface Software

**Prerequisites:** The GPSC-AT/E hardware should be installed. The UNIX System V software must be installed, and you should be logged in as *root* at the console terminal.

To install the X.25 Network Interface Software, do the following steps:

1. Enter the following command to start the installation of the software:

```
# installpkg
```

The program responds:

```
Confirm

Please indicate the installation medium you intend to use.

Strike "C" to install from CARTRIDGE TAPE
or "F" to install from FLOPPY DISKETTE.

Strike ESC to stop.
```

2. Press *c* to specify that you are installing the software from the cartridge tape.

The program responds:

Confirm

Please insert the cartridge tape into the tape drive.

Strike ENTER when ready  
or ESC to stop.

3. Insert the cartridge tape into the tape drive and press [ RETURN ].

The program continues:

Confirm

It is recommended that you re-tension the tape before attempting the installation, to ensure that the tape is read without any errors.

If you strike ENTER the tape will be re-tensioned.

Strike ENTER when ready  
or ESC to stop.

4. If you have already re-tensioned the tape, press the [ ESC ] key; otherwise, press the [ RETURN ] key. Re-tensioning the tape takes approximately 3 minutes.

The program continues:

You will now be prompted to select the packages that you wish to install from this tape.

You may select one or more packages from the menu by entering the number listed alongside the package name.

Enter each package number one at a time, pressing ENTER after each selection. The package numbers may be entered in any order.

To install all the packages, type the number indicated at the end of the package list.

When you have made all the selections required, Strike ESC.

To skip this step or cancel any selections made, type the number as indicated in the package list.

Strike ENTER when ready.

5. Press [ RETURN ] to continue.

The program responds:

Packages available for installation:

1. X.25 Network Interface - Version 1.2.1 SL1.51.1.25
2. UNIX System V/386 Release 3.2 Version 2.3 Maintenance  
Disk #1
3. KornShell Version 11/16/88d 386 Release 2.0
4. Call Management System (3.X)
5. Install ALL packages shown above
6. Exit, do not install any packages

Please enter the next package number(s) to install, followed by ENTER.

Press ESC when all selections have been made.

Enter Package Number:

6. Enter the number corresponding to the X.25 Network Interface package, then press [ ESC ].

The program responds:

You have made the following selections

1. X.25 Network Interface - Version 1.2.1 SL1.51.1.25

Confirm

Strike ENTER to confirm and continue with the installation  
or ESC to re-display the menu and re-select.

Strike ENTER when ready  
or ESC to stop.

7. Press [ RETURN ].

The program continues:

REMINDER!

Depending on the packages you are installing, you may be  
required to provide some input to the installation utility  
to configure the software for your system.

Strike ENTER when ready.

8. Press [ RETURN ].

The program continues with the following screens:

```
Installation in progress -- Do not remove the cartridge tape
```

```
ENTER THE NUMBER OF BOARDS TO BE INSTALLED (q, 1 - 4):
```

9. Enter 1.

The program responds:

```
Current board: #0  
Is the shared memory range (C0000 - CFFFF) acceptable [y/n]?
```

10. Enter n.

The program responds:

```
Is the shared memory range (D0000 - DFFFF) acceptable [y/n]?
```

11. Enter n.

The program responds:

```
Is the shared memory range (80000 - 8FFFF) acceptable [y/n]?
```

12. Enter n.

The program responds:

```
Is the shared memory range (90000 - 9FFFF) acceptable [y/n]?
```

13. Enter y.

The program responds:

```
Is the IO address range (240 - 24F) acceptable [y/n]?
```

14. Enter y.

The program responds:

```
Is the interrupt vector (11) acceptable [y/n]?
```

15. Enter y.

The program responds:

```
ENTER NUMBER OF SIMULTANEOUS X.25 PROCESSES [1-251]
It is advisable not to choose too many because some
memory is allocated for each one. Choose the number
of X.25 processes that you expect to be running
at the same time.
```

16. Enter 20.

The program responds:

```
ENTER MAXIMUM PACKET SIZE (128, 256, 512),
or 'h' for more information:
```

17. Enter 128.

The program responds:

```
Process is complete! PLEASE NOTE: on each X.25 link the
following parameters should be changed in its Init Table to
reflect the actual packet size used on that link:
```

- Max Receive Packet Size
- Input/Output Data Packet Size

```
The UNIX Operating System will now be rebuilt.
This will take approximately 2 minutes. Please wait.
```

After the UNIX System is rebuilt, the program responds:

```

***** IMPORTANT *****
Record the following information on a piece of paper.
(The information can also be obtained by executing x25view.)

After you are instructed to shutdown the system,
configure the GPSC boards with the REQUIRED settings and
label each board with a Board_# and IO addresses.

Current X25 Configuration - 1 GPSC board:

Board_#   LINE_#   IO_ADDRESS   VECTOR   64K SHARED MEMORY
=====   =====   ============   =====   ================
          0       0, 1        240-24F    11        90000-9FFFF

Hit <return> when you are done copying
    
```

18. Press [ RETURN ].

The program responds:

```

Confirm

To complete the install/remove process a shutdown is now
being initiated automatically.

Make sure your floppy drive is empty. If you are
installing or removing controller boards, you may power
down the system after the shutdown has completed.

Strike ENTER when ready
or ESC to stop.
    
```

19. Press [ ESC ].

The program responds:

```
The UNIX System has now been reconfigured, but you have not
initiated a system reboot. You should manually reboot as
soon as possible.
```

The system prompt (# ) should return to your screen.

### Special Instructions for X.25 Network Software Version 1.2.1

If you installed X.25 Network Interface Software Version 1.2.1, do the following:

1. At the console terminal, log in as *root*.
2. Change to the `x25` directory by entering the following command:

```
# cd /etc/conf/pack.d/x25
```

3. Edit the `space.s` file by entering one of the following commands:

```
# vi space.c
```

OR

```
# ed space.c
```

4. Go to line 16 which contains `(int)1`.
5. Change the `1` to a `0`.
6. Go to lines 41, 67, and 93 and repeat step 5.
7. Write and exit the file.

8. Change to the root directory by entering this command:

```
# cd /
```

9. Enter the following executable file:

```
# /etc/conf/bin/idbuild
```

The program responds:

```
The UNIX Operating System will now be rebuilt.  
This will take approximately 2 minutes. Please wait.  
  
The UNIX Kernel has been rebuilt.
```

10. Execute a shutdown by entering the following command:

```
# shutdown - i6 -g0 -y
```

The program starts the shutdown process:

```
Shutdown started. <date and time>  
<Broadcast Message>
```

11. When you see the "Reboot the system now" message, press the reset button on the 6386 WGS.

Once the system is back up, you can verify that the package is installed by logging in as *root* and entering the **displaypkg** command.

---

## Downloading the CMS Software

This section describes how to download the R3 CMS software.

To install the R3 CMS software, you download the CMS software from the cartridge tape to the hard disk.

Note that all the preceding factory hardware and software installation requirements in this appendix must be completed before you begin the CMS download.

To download the CMS software, do the following steps:

1. Obtain the phone number associated with the customer's remote console port and the password for the *root* login ID from the on-site technician.
2. Insert the R3 CMS cartridge tape in the tape drive.
3. From a remote terminal with a baud rate of 1200, establish a connection with the remote console port on customer's WGS computer and login as *root*.
4. Enter the following command to determine which state the computer is in.

**Note** The pound sign (#) in the following screens is the default prompt for the *root* login on the system console. Do not enter the pound sign when entering the commands.

---

```
# who -r
```

You should see a message similar to the following:

```
run-level 2 <date and time> 2 0 S
```

5. If the computer is **not** in run-level 2, enter the following command:

```
# shutdown -g0 -y -i6
```

6. Enter the following command to start the installation of the R3 CMS software:

```
# installpkg
```

7. The **installpkg** program responds with the following message:

```
Confirm  
  
Please indicate the installation medium you intend to use.  
  
Strike "C" to install from CARTRIDGE TAPE  
or "F" to install from FLOPPY DISKETTE.  
  
Strike ESC to stop.
```

8. Press **c** to select the cartridge tape.

The program responds:

Confirm

Please insert the cartridge tape into the tape drive.

Strike ENTER when ready  
or ESC to stop.

9. Press [ RETURN ] to continue.

The program responds:

Confirm

It is recommended that you re-tension the tape before attempting the installation, to ensure that the tape is read without any errors.

If you strike ENTER the tape will be re-tensioned.

Strike ENTER when ready  
or ESC to stop.

10. Press [ RETURN ] to continue.

The program responds:

This will take approximately 3 minutes.

After the tape has re-tensioned, the program responds:

You will now be prompted to select the packages that you wish to install from this tape.

You may select one or more packages from the menu by entering the number listed alongside the package name.

Enter each package number one at a time, pressing ENTER after each selection. The package numbers may be entered in any order.

To install all the packages, type the number indicated at the end of the package list.

When you have made all the selections required, Strike ESC.

To skip this step or cancel any selections made, type the number as indicated in the package list.

Strike ENTER when ready.

11. Press [ RETURN ] to continue.

The program responds:

Packages available for installation:

1. X.25 Network Interface - Version 1.2.1
2. Call Management System (3.X)
3. Install ALL packages shown above
4. Exit, do not install any packages

Please enter the next package number(s) to install, followed by ENTER.

Press ESC when all selections have been made.

Enter Package Number:

12. Enter the number corresponding to the Call Management System package and press [ ESC ].

The program responds:

You have made the following selections

2. Call Management System (3.X)

Confirm

Strike ENTER to confirm and continue with the installation  
or ESC to re-display the menu and re-select.

Strike ENTER when ready  
or ESC to stop.

13. Press [ RETURN ] to continue.

The program responds:

REMINDER!

Depending on the packages you are installing, you may be  
required to provide some input to the installation utility  
to configure the software for your system.

Strike ENTER when ready.

14. Press [ RETURN ] to continue.

The program continues:

```
Installation in progress -- Do not remove the cartridge tape
```

```
Installing the Call Management System (3.X).  
Copyright (c) 1991 AT&T  
All Rights Reserved.
```

```
Directory and File Management Utilities verified.  
Editing Utilities verified.  
Inter-Process Communication Utilities verified.  
LP Spooling Utilities verified.  
Shell Programming Utilities verified.  
System Administration Utilities verified.  
Terminal Information Utilities verified.  
User Environment Utilities verified.  
Basic Networking Utilities verified.  
X25 Network Interface - Version 1.2.1 SL1.51.1.25 verified.  
SCSI Support Package - Version 2.0 verified.  
UNIX System V/386 Release 3.2 Version 2.3 Maintenance  
Disk #1 verified.  
INFORMIX-SQL Version 2.10.03J <date> verified.  
Remote Maintenance Package (RMP) Version 1.0 verified.
```

```
Installation of this package requires that a UNIX  
directory be available for installation of appropriate  
software. This directory may be part of any filesystem,  
or may be a mount point for a filesystem.
```

```
The selected installation directory must already exist  
and be accessible (i.e., if it is a mount point for a  
filesystem, the filesystem must currently be mounted).
```

```
In general, it is unwise to select a base directory that  
already contains other files or directories.
```

```
Creating cms group id  
Creating cms user id  
Assigning a new password for cms  
New password:
```

15. Enter an appropriate password.

The program responds:



Re-enter new password:

16. Re-enter the password.

The program responds:

- 
17. Enter an appropriate password for services.

The program responds:



Re-enter new password:

18. Re-enter the services password.

The program starts the download:

```
## Installing files from cartridge tape
.....
.....
.....
.....
```

The program takes about 10-20 minutes to download the R3 CMS software from cartridge tape to hard disk. As the software is downloaded, several rows of periods (.....) are displayed to let you know the program is still running. When the download of files finishes, the following message appears:

```
## Auditing package installation
```

Several minutes are required to audit the package installation.

If the audit is successful, the following messages are displayed:

```
>> No errors detected during audit.

Setting UNIX system tunable parameters for CMS.
This will take approximately three minutes to complete.

The installation of the Call Management System (3.X)
package is now complete.

Confirm

To complete the install/remove process a shutdown is now
being initiated automatically.

Make sure your floppy drive is empty. If you are
installing or removing controller boards, you may power
down the system after the shutdown has completed.

Strike ENTER when ready
or ESC to stop.
```

19. Press [ RETURN ].

The program starts the shutdown process:

```
Shutdown started. <date and time>

<Broadcast Message>
```

20. When you see the "Reboot the system now" message, press the reset button on the 6386 WGS.

Once the system has rebooted, you can verify that the package is installed by logging in as *root* and entering the **displaypkg** command.

21. Remove the cartridge tape from the tape drive. Make sure the cartridge tape has finished rewinding before you remove it (tape drive light is not lit).

# Glossary

<b>Access Permissions</b>	Permissions assigned to a CMS user so that user can access different subsystems in CMS or administer specific elements (splits, trunks, vectors, etc.) of the ACD. Access permissions are specified as <b>read</b> or <b>write</b> permission. Read permission means the CMS user can access and view data (for example, run reports or view the Dictionary subsystem). Write permission means the CMS user can add, modify, or delete data and execute processes.
<b>ACD</b>	A switch feature. Automatic Call Distribution (ACD) is software that channels high-volume incoming call traffic to agent groups (splits). Also an agent state where the extension is engaged in an ACD call (with the agent either talking to the caller or the call waiting on hold).
<b>Acknowledgment</b>	A window that requires you to confirm an action or to acknowledge a system message (e.g., system going down, warning, or fatal error for the user window). This window cannot be moved, sized, or scrolled and disappears only when you confirm the message.
<b>Action List</b>	A menu in the upper right corner of most user windows. The menu lists the actions available for that particular user window (e.g., add modify, delete, etc.). You select an action after entering necessary data in the user window.
<b>Agent</b>	A person who answers calls to an extension in an ACD split. Known to CMS by a login identification keyed into a voice terminal.
<b>Agent Login ID</b>	A 1-to-4 digit number (Generic 2/System 85) or a 1-to-9-digit number (Generic 1/Generic 3) entered by the agent at the ACD extension to activate (STAFF) the position. Agent logins are required for all CMS-measured ACD agents.
<b>Agent State</b>	A feature of agent call handling that allows agents to change their availability to the system (for example, ACW, AVAIL, ACD).

<b>Announcement</b>	A recorded message that normally tells the caller what destination the call has reached. The announcement also often tries to persuade the caller to stay on the line. With Call Vectoring, announcements can be part of a vector's call processing. An announcement is assigned to a vector by entering an announcement number.
<b>Backup</b>	The process of protecting data by writing the contents of the disk to a tape that can be removed from the computer environment and stored safely.
<b>Call-Based Items</b>	The category of database items in CMS that are committed to the database after the call completes. If a call starts and ends in different intrahour intervals, all of the data is recorded in the interval in which the call completed. Most database items are call-based.
<b>Calculation</b>	A menu selection in the CMS Dictionary subsystem which gives the abbreviated name (calculation name) for the calculation that generates the data for a field in a report.
<b>Call Vectoring</b>	A highly-flexible method for processing ACD calls using VDNs and vectors as processing points between trunk groups and splits. Call vectoring permits treatment of calls that is independent of splits.
<b>Custom Reports</b>	Real-time or historical reports that have been customized from standard reports or created from scratch. See the <i>Call Management System Custom Reports (585-215-513)</i> document for more information.
<b>Data collection off</b>	CMS is not collecting ACD data. If you turn off data collection, you will lose data on current call activity.
<b>Database</b>	A group of files that store ACD data according to a specific time frame: current and previous intrahour real-time data and intrahour, daily, weekly, and monthly historical data.

---

<b>Database Item</b>	A name for a specific type of data stored in one of the CMS databases. A database item may store ACD identifiers (split numbers or names, login IDs, VDNs, etc.) or statistical data on ACD performance (number of ACD calls, wait time for calls in queue, current states of individual agents, etc.).
<b>Database Tables</b>	CMS uses these tables to collect, store, and retrieve ACD data. Standard CMS items (database items) are names of columns in the CMS database tables.
<b>DCIU</b>	Data Communications Interface Unit. A hardware device on the Generic 2 and System 85 switches that prepares and sends architected messages to other switches or application adjuncts.
<b>Exception</b>	A type of activity on the ACD which falls outside of the limits you have defined. An exceptional rate is defined in the CMS Exceptions subsystem, and usually indicates abnormal or unacceptable performance on the ACD (by agents, splits, VDNs, vectors, trunks, or trunk groups).
<b>Forecast Reports</b>	Display expected call traffic and agent/trunk group requirements for your call center for a particular day or period in the future.
<b>Historical Database</b>	Contains intrahour records for up to 62 days in the past, daily records for up to 5 years in the past, and weekly/monthly records for up to 10 years for each CMS-measured agent, split, trunk, trunk group, vector, and VDN.
<b>Historical Reports</b>	Display of past ACD data for various agent, split, trunk, trunk group, vector, or VDN activities.
<b>Historical Reports</b>	CMS reports that display past data for various agent, split, trunk, trunk group, VDN, or vector activities.

<b>Informix SQL</b>	A relational database management system used to organize most of CMS's data.
<b>Interval-Based Items</b>	A category of database items. These items represent the amount of time during a collection interval spent doing a particular activity. Interval-based items are updated throughout the collection interval and timing is restarted at the end of the interval. Interval-based items should only be used to calculate percentages.
<b>Intrahour Interval</b>	A 15, 30, or 60 minute segment of time starting on the hour. An intrahour interval is the basic unit of CMS report time.
<b>Measured</b>	A term that means an ACD element (agent, split, trunk, trunk group, vector, VDN) has been identified to CMS for collection of data.
<b>Menu</b>	A list of items from which you can select. A menu cannot be moved or sized and does not count in the user window count.
<b>Messages</b>	Temporary windows used only for displaying information like "field help" and syntactical field errors. Message windows cannot be moved, sized, or scrolled and does not count in the user window count. Messages windows are automatically removed when you correct the error or move to the next field.
<b>Multuser Mode</b>	Any administered CMS user can log into CMS. Data continues to be collected if data collection is "on."
<b>Open Window</b>	A user window that remains open because you have not yet closed it with the [ <u>Exit</u> ] SLK. An open window becomes the current window when it initially appears on the screen or when you make it the current window using the [ <u>Current</u> ] SLK.
<b>PI</b>	Processor Interface. A hardware device on the Generic 1 and Generic 3i switches that prepares and sends architected messages to other switches or application adjuncts.

<b>Previous Interval</b>	Represents one intrahour interval and is part of the real-time database. At the end of each intrahour interval, the contents of the current intrahour interval are copied to the previous intrahour interval portion of the real-time database.
<b>Primary Window</b>	The first window opened in response to a menu selection. A primary window may also generate another user window (secondary window). A primary window can be moved, sized, or scrolled, and counts in the window count.
<b>Queue</b>	A holding area for calls waiting to be answered in the order in which they were received. Calls in a queue may have different priority levels, in which case, calls with a higher priority are answered first.
<b>Read Permission</b>	The CMS user can access and view data (for example, run reports or view the Dictionary subsystem). Read permission is granted from the User Permissions subsystem.
<b>Real-Time Database</b>	Consists of the current and previous intrahour data on each CMS-measured agent, split, trunk, trunk group, vector, and Vector Directory Number (VDN).
<b>Real-Time Reports</b>	Display current ACD call activity on agents, splits, trunks, trunk groups, vectors, and VDNs for the current or previous intrahour interval. Current intrahour interval real-time reports are constantly updated as data changes during the interval. Previous intrahour interval real-time reports show data totals for activity that occurred in the previous intrahour interval.
<b>Refresh Rate</b>	The number of seconds CMS should wait for each update of the real-time report data. A user's fastest allowable refresh rate is defined in the User Permissions — User Data window as a minimum refresh rate. The default refresh rate when a user brings up the report input window is the administered minimum refresh rate plus 15 seconds.

<b>Screen-Labeled Key (SLK)</b>	The first eight function keys at the top of your keyboard that correspond to the screen labels at the bottom of your terminal screen. The screen labels indicate the function each key performs.
<b>Secondary Window</b>	A user window that is generated from a primary window. Secondary windows can be moved, sized, or scrolled and do not count in the user window count.
<b>Shortcut</b>	A series of tasks which are run immediately on your screen. Shortcut is a fast, easy way to select windows that you might look at every day.
<b>Single-User Mode</b>	Only one person can log into CMS. Data continues to be collected if data collection is "on."
<b>Split</b>	A group of extensions that receives special-purpose calls in an efficient, cost-effective manner. Normally, calls to a split arrive primarily over one or a few trunk groups.
<b>Submenu</b>	A menu that appears as a result of a menu selection. All menu selections followed by an ">" have submenus.
<b>Subsystem</b>	Each CMS main menu selection (for example, Reports, Dictionary, System Setup, Exceptions, etc.) along with Timetable and Shortcut is referred to as a subsystem of the Call Management System throughout this document.
<b>Switch/PBX</b>	A private switch system providing voice-only or voice and data communications services (including access to public and private networks) for a group of terminals within a customer's premises.
<b>Task</b>	Used with Timetables and Shortcuts. A task is a combination of inputs on a user window (like a report input window) and the completed action list selection (Add, Modify, etc.) which, when executed, performs an operation (e.g., running a report).

---

<b>Timetable</b>	An activity or group of activities (like reports) scheduled for completion at a time that is convenient and nondisruptive for your call center's operation.
<b>Trunk</b>	A telephone line that carries calls between two switches, between a Central Office (CO) and a switch, or between a CO and a phone.
<b>Trunk Group</b>	A group of trunks that are assigned the same dialing digits — either a phone number or a Direct Inward Dialed (DID) prefix.
<b>UNIX System</b>	The operating system on the computer which CMS runs. A user can access the UNIX system from the [ <a href="#">Commands</a> ] SLK.
<b>User ID</b>	The login ID for a normal CMS user or CMS administrator.
<b>User Window</b>	A window you can move, size, or scroll. It may contain input fields, reports, or help information.
<b>Vector</b>	A list of up to 15 steps that process calls in a user-defined manner. The steps in a vector can send calls to splits, play announcements and music, disconnect calls, give calls a busy signal, or route calls to other destinations. Calls enter vector processing via VDNs, which may have received calls from assigned trunk groups, from other vectors, or from extensions connected to the switch.
<b>Vector Command</b>	The keyword in a vector step that describes the action to be executed on an incoming call.
<b>Vector Directory Number (VDN)</b>	An extension number that is used in ACD software to permit calls to connect to a vector for processing. A VDN is not assigned an equipment location. It is assigned to a vector. A VDN can connect calls to a vector when the calls arrive over an assigned automatic-in trunk group or when calls arrive over a dial-repeating (DID) trunk group and the final digits match the VDN. The VDN by itself may be dialed to access the vector from any extension connected to the switch.

<b>Vector Step</b>	One processing step listed in a vector. A vector step consists of a command and one or more conditions.
<b>Voice Terminal</b>	A telephone set, usually with buttons, that gives an agent some control over the way calls are handled.
<b>Weekly/Monthly Data</b>	Daily data that has been converted to a weekly or monthly summary.
<b>Window</b>	Any rectangle on your screen that encloses a menu, data entry fields, reports, or messages.
<b>Window Count</b>	The number of primary windows that can be open at any one time.
<b>Write Permission</b>	The CMS user can add, modify, or delete data and execute processes. Write permission is granted from the User Permissions subsystem.







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