

**Lucent Technologies**  
Bell Labs Innovations



# **Call Management System**

## **Release 3 Version 2**

Installation and Maintenance

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# Call Management System

## Release 3 Version 2

### Installation and Maintenance

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## Overview

The Release 3 Version 2 Call Management System (R3V2 CMS) is a software application offered in association with the Automatic Call Distribution (ACD) feature of AT&T switches. The CMS application provides monitoring and recording of ACD calls, agents handling these calls, and the use of Vector Directory Numbers (VDNs) for these calls to measure system and agent performance.

The application supports the following features, which AT&T enables at installation:

- Expert Agent Selection (EAS)
- Vectoring
- Forecasting
- Graphics
- External Call History
- Multiple ACDs
- Support for additional agents:
  - 200 agents
  - 300 agents
  - 400 agents
  - 1023 agents
  - over 1023 agents.

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## Supported Hardware Platforms

The R3V2 CMS is certified to run on the following processors:

- AT&T 6386 WGS 25/S
- AT&T 6386 WGS 33/S
- AT&T StarServer S
- NCR System 3000 Model 3332

## Required Software

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The R3V2 CMS requires the following software packages to operate properly:

- UNIX System V Release 3.2.3 and associated utilities, including SCSI Support Package Release 2.3 and UNIX SVR3.2 Version 2.3 Maintenance Disk #1.
- Korn Shell Version 11/16/88d 386 Release 2.0
- INFORMIX SQL 4.10.UC2 (Development Version)
- INFORMIX SE 4.10.UD2 (Development Version)
- X.25 Network Interface Software Version 1.2.1 SL1.51.1.25

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## Supported Switch Releases

The R3V2 CMS is certified to run with the following AT&T switches:

- DEFINITY® Generic 2.2 Release 1.0 and later
- DEFINITY Generic 3i Release 11.2.1 and later
- DEFINITY Generic 3r Release 6.3 and later
- DEFINITY Generic 3s Release 14.2 and later
- DEFINITY Generic 3 Version 2 Load 71 and later
- DEFINITY Generic 1.1 Release 7.1 (QPPCN 559DR) and later
- System 85 R2V4 Release 2.3 (QPPCN 560DR) and later
- DEFINITY Generic 2.1 Release 3.2 (QPPCN 555DR) and later.

## Organization

This document is organized as follows:

- **Chapter 1, "Introduction"**
- **Chapter 2, "CMSADM and CMSSVC Menus"**

Provides an overview of the CMSSVC and CMSADM menu options.
- **Chapter 3, "Installing the Host Computer"**

Describes how to install the three CMS-supported processors.
- **Chapter 4, "Installing Terminals and Printers"**

Describes how to install additional terminals and printers for the CMS application.
- **Chapter 5, "Connecting the Host Computer to the Switch"**

Describes how to connect the host computer to AT&T switches. In addition, discusses multi-ACD connectivity.
- **Chapter 6, "Setting Up CMS and Installing Feature Packages"**

Explains how to initially set up the CMS application, install additional CMS feature packages.
- **Chapter 7, "Turning the System Over to the Customer"**

Provides the procedures that a technician performs before system cutover and a worksheet that the technician fills out for the customer.
- **Chapter 8, "Maintenance"**

Discusses the CMSADM filesystem backup, recovering from a disk crash, regaining file system space, and other maintenance procedures.
- **Chapter 9, "Troubleshooting"**

Discusses alarms and how to fix various terminal, printer, and power problems.
- **Chapter 10, "Upgrading the Host Computer"**

Describes how to upgrade to a new CMS host computer while retaining the same release of CMS software.
- **Chapter 11, "Upgrading or Updating the CMS Software"**

Provides instructions for upgrading or updating the CMS software.

- **Appendix A, "Generic 3i and Generic 1 Administration"**  
Describes how to administer the CMS application for G3i and G1 switches.
- **Appendix B, "Generic 2 and System 85 Administration"**  
Describes how to administer the CMS application for G2 and System 85 switches.
- **Appendix C, "Generic 3r Administration"**  
Describes how to administer the CMS application for G3r switches.
- **Appendix D, "Model 3332 Factory Installation Procedures"**  
Outlines the Model 3332 factory hardware and software installation procedures.
- **Appendix E — StarServer S Factory Installation Procedures**  
Outlines the StarServer S factory hardware and software installation procedures.
- **Appendix F — 6386 WGS Factory Installation Procedures**  
Outlines the 6386 WGS factory hardware and software installation procedures.

## **CMS Helplines**

If an installation problem arises that requires assistance, AT&T technicians or the customer may call the following numbers:

### **Technician Number 1-800-248-1234**

The technician should provide the TSC personnel with the customer's name, the password for the *root* login ID on the CMS host computer, the phone number of the dial-in port, and a description of the problem.

If the TSC technicians cannot solve the problem, they will escalate it to a Tier 4 technician in the Customer Support Organization of AT&T Bell Laboratories.

### **Customer Number 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.

The customer will be prompted to identify the type of problem (ACD, hardware, or R3V2 CMS) and will be connected to the appropriate service organization.

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

## Roles and Responsibilities

The table below lists the major tasks, who is responsible for performing each task, and the chapter the task is located in, as discussed in this book.

Chapter	Task	Tech	TSC	Customer
3	Installing the host computer	X		
4	Installing terminals and printers	X		
5	Connecting the host computer to the switch	X		
5	Multiple ACD connectivity (adding an ACD)	X	X	X
6	Setting authorizations		X	
6	Setting up data storage parameters		X	
6	Setting up the CMS application		X	
6	Installing the Forecasting feature package			X
6	Installing the External Call History package			X
7	Verifying the UNIX system date and time	X		
7	Testing the CMS connection to the TSC		X	
7	Testing the security of the CMS system	X		
7	Testing the R3V2 CMS software	X		
7	Turning the system over to the customer	X		
8	Performing a CMSADM backup			X
9	Troubleshooting	X	X	X
10	Upgrading the host computer	X	X	X
11	Upgrading or updating the CMS software		X	X

## **CMS Related Documents**

The following documents are available for the R3V2 CMS product:

- *Call Management System Release 3 Version 2 Administration*
- *Call Management System Release 3 Version 2 Custom Reports*
- *Call Management System Release 3 Version 2 Migration*
- *Call Management System Release 3 Version 2 Change Description*
- *Call Management System Release 3 MEGAPLEX®-96 Installation*

To order, call the AT&T Customer Information Center at:  
**1-800-432-6600.**



---

## CMS Administration Menu (CMSADM)

The CMS Administration menu is intended for use primarily by the customer's CMS Administrator.

This menu allows the CMS Administrator to do the following:

- Define a new ACD
- Remove an ACD
- Do filesystem backups
- Estimate CMS disk requirements, memory requirements, and real-time refresh rate.
- Install or remove a feature package
- Turn CMS on or off.

Note

You must log in as *root* to access this menu.

The following sections explain the options on the CMS Administration menu.

## acd\_create

The `acd_create` option on the CMS Administration menu allows you to define a new ACD.

**Note**

The ACD must be authorized, and therefore purchased, before it can be added to the CMS. See "Setting Authorizations" in Chapter 6.

1. Access the CMS Administration menu by entering:

```
$cmsadm
```

The CMS Administration menu appears:

```
Call Management System Administration Menu
Select a command from the list below.
 1) acd_create  Define a new ACD
 2) acd_remove  Remove all administration and data for an ACD
 3) backup      Filesystem backup
 4) diskmap     Estimate disk requirements
 5) memory      Estimate memory requirements
 6) realtime    Estimate real-time report refresh rate
 7) pkg_install Install a feature package
 8) pkg_remove  Remove a feature package
 9) run_cms     Turn CMS on or off
Enter choice (1-9) or q to quit:
```

2. Before you define a new ACD you must turn off the CMS. You can do this in the following manner:
  - a. Enter 9 to select `run_cms` on the CMS Administration menu.
  - b. Enter 1 to turn off the CMS. You will be returned to the # prompt.
  - c. Enter `cmsadm`. The CMS Administration menu appears.
3. Enter 1 to choose `acd_create`.

4. At the prompts, you need to enter the following information:

- Switch name for the new ACD
- Switch model (release)
- Local port assigned to the switch
- Remote port assigned to the switch
- Link number
- Number of splits/skills
- Total split/skill members, summed over all splits/skills
- Number of shifts
- Start and stop times of all shifts
- Number of agents logged into all splits/skills during all shifts
- Number of trunk groups
- Number of trunks
- Number of unmeasured (trunk) facilities.

After you have entered all the required information, the message `Updating` appears, followed by `ACD created successfully`.

5. Turn the CMS back on by doing the following:

- a. Enter `cmsadm`. The CMS Administration menu appears.
- b. Enter `9` to select `run_cms` on the CMS Administration menu.
- c. Enter `2` to turn on the CMS.

A message tells you that CMS is running.

## acd\_remove

The `acd_remove` option on the CMS Administration menu allows you to remove an ACD.

1. Access the CMS Administration menu by entering `cmsadm`. The CMS Administration menu appears.
2. Before you can remove an ACD you must turn off the CMS as explained in the previous procedure “`acd_create`.”
3. Enter `2` to select the `acd_remove` option.
4. Answer the prompts that follow.

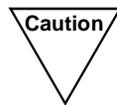
The ACD will be removed in the background. A message appears telling you where you can find the complete message confirming the removal.

5. To turn the CMS back on see the previous procedure “`acd_create`.”

---

## backup

The `backup` option on the CMS Administration menu allows you to back up your filesystem.



This backup automatically turns off the CMS.

For more information about this option, see "Performing a CMSADM Backup" in Chapter 8.

## diskmap

The `diskmap` option on the CMS Administration menu allows you to estimate CMS disk requirements.

1. Access the CMS Administration menu by entering `cmsadm` at the `#` prompt. The CMS Administration Menu appears.
2. Enter `4` to select the `diskmap` option.
3. Answer the prompts that appear on the screen to estimate CMS disk requirements.

<b>Note</b>
-------------

You may back up one prompt at a time by pressing the `-` (dash) key.

You need the following information:

- Customer name
- CMS host computer type
- Switch type
- Number of agent positions you have purchased
- Number of splits
- Number of trunks
- Number of trunk groups
- Number of vectors
- Number of VDNs
- Number of call work codes
- Number of exception records
- Number of agent trace records
- Amount of forecast data
- Amount of agent login/logout data
- Amount of non-CMS customer data
- Number of terminals that will be running real-time reports simultaneously
- Number of real-time reports that will be running per terminal
- Number of windows per terminal that will be running something other than real-time reports
- Total amount of RAM installed

- Archiving interval (15, 30, or 60 minutes)
- Will pseudo-ACDs be added?
- Daily start- and stop-time for data collection
- Number of agent shifts
- Start- and stop-times for each shift
- Number of agents logged into all splits/skills during each shift
- Number of splits/skills
- Number of intrahour days, weekly weeks, daily days and monthly months for:
  - Splits
  - Agents
  - Trunk groups
  - Trunks
  - Vectors
  - VDNs
  - Call work codes
- Number of times an agent logs out per day
- Will forecasting be enabled? If yes, you need the following information:
  - Number of forecast intrahour days for splits and trunk groups
  - Number of forecast daily days for splits
  - Number of forecast special days, averaged per shift
- Average number of current day reports to be saved per shift
- Amount of pseudo-ACD data for:
  - Agents
  - Splits
  - Trunk groups
  - Trunks
  - Vectors
  - VDNs
  - Call work codes
  - Exceptions

- Agent trace
- Agent login/logout
- Forecast.

---

## memory

The `memory` option on the CMS Administration menu allows you to estimate your memory requirements.

1. Access the CMS Administration menu by entering `cmsadm` at the `#` prompt. The CMS Administration menu appears.
2. Enter `5` to select the `memory` option.
3. At the prompts, enter the requested information:.

<b>Note</b>
-------------

You may back up one prompt at a time by pressing the `-` (dash) key.

You need the following information.

- Customer name
- CMS host computer type
- Switch model
- Maximum number of agents simultaneously logged in
- Number of splits/skills
- Number of trunk groups
- Number of trunks
- Number of terminals simultaneously running real-time reports
- Number of real-time reports per terminal
- Number of agent group reports
- Number of agents per group
- Number of agent, event-count-summary or split-status reports
- Number of trunk group reports
- Number of split reports
- Number of splits per split report
- Number of real-time call profile reports

- Number of historical and forecasting reports running simultaneously during the busy hour
- Number of real-time exception reports running simultaneously during the busy hour
- Will custom reports be created or edited during the busy hour? (If so, you need to know the number of windows creating or editing custom reports during the busy hour)
- Will backups be done during busy hour?
- Number of windows running administration screens simultaneously during the busy hour.

---

## realtime

The `realtime` option on the CMS Administration menu allows you to estimate the real-time report refresh rate your system needs.

1. Access the CMS Administration menu by entering `cmsadm` at the `#` prompt. The CMS Administration menu appears.
2. Enter `6` to select the `realtime` option.
3. Answer the prompts that appear on the screen.

**Note** You may back up one prompt at a time by pressing the `-` (dash) key.

You need the following information:

- Customer name
- CMS host computer type
- Switch model
- Archiving interval
- Number of agents per split
- Number of trunks per trunk group
- Number of agents per group report
- Number of splits per split report
- Exceptions enabled?
- Busy hour call rate (calls per hour)
- Agent trace enabled?

- Approximate average agent service time
- Number of agents traced simultaneously
- Number of historical plus forecasting reports that will be run per hour while real-time reports are running
- Number of terminals simultaneously running real-time reports
- Number of real-time reports per terminal
- Number of split-status reports
- Number of split reports
- Number of split call profile reports
- Number of agent reports
- Number of group reports
- Number of queue/agent summary reports
- Number of trunk group reports
- Number of event count summary reports
- Number of graph split reports
- number of graph queue reports
- Number of graph split call profile reports
- Number of graph VDN call profile reports
- Number of vector reports
- Number of VDN reports
- Number of VDN call profile reports.

---

## pkg\_install

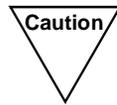
The `pkg_install` option on the CMS Administration menu allows you to install a feature package.

For more information on this option, see Chapter 6.

---

## pkg\_remove

The `pkg_remove` option on the CMS Administration menu allows you to remove a feature package. This procedure removes all files and database items 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.

1. Access the CMS Administration menu by entering `cmsadm` at the `#` prompt. The CMS Administration Menu appears.
  2. Enter `8` to select the `pkg_remove` option.  
A list of CMS features that can be removed is displayed.
  3. Enter the number corresponding to the feature package that you want to remove.  
A message is displayed telling you when the feature is removed.
- 

## run\_cms

The `run_cms` option on the CMS Administration menu allows you to turn CMS on or off.

1. Access the CMS Administration menu by entering `cmsadm` at the system prompt. The CMS Administration Menu appears.
2. Enter `9` to select the `run_cms` option.
3. Enter `1` to turn *on* CMS or `2` to turn *off* CMS.

---

## CMS Services Menu (CMSSVC)

The CMS Services menu is intended for use primarily by AT&T Services personnel. This menu allows services personnel to do the following:

- Display CMS authorizations
- Authorize CMS capabilities and capacities
- Back up the filesystem to one tape in the background
- Turn CMS on and off
- Set up the initial CMS configuration
- Display switch information
- Change switch information
- Install an update from disk files
- Back out of an installed update
- Save an update on disk for later installation.

Note

You must log in as *root* to access this menu.

The following sections explain the options on the CMS Services menu.

## auth\_display

The `auth_display` option on the CMS Services menu allows you to display CMS authorizations.

1. Access the CMS Services menu by entering:

```
# cmssvc
```

The CMS Services menu appears:

```
Commands for CMS Services Personnel

Select a command from the list below.
 1) auth_display Display feature authorizations
 2) auth_set     Authorize CMS capabilities/capacities
 3) backup      Single-tape filesystem backup (in background)
 4) run_cms     Turn CMS on or off
 5) setup       Set up the initial CMS configuration
 6) swinfo     Display switch information
 7) swsetup    Change switch information
 8) upd_install Install update from disk files
 9) upd_remove Back out the currently installed update
10) upd_save   Save update on disk for later installation
Enter choice (1-10) or q to quit:
```

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

The current authorization status for CMS features and capacities are displayed.

The possibilities for authorization status are as follows:

- Authorized – The feature has been paid for and authorization has been turned on.
- Not authorized – The feature has not been paid for or authorization has not been turned on.
- Installed – The feature is authorized and the software to support the feature has been installed.

For more information on this option, see "Installing the Forecasting Feature Package" in Chapter 6.

## auth\_set

The `auth_set` option on the CMS Services menu allows you to authorize CMS features and capacities.

For more information about this option, see "Setting Authorizations" in Chapter 6.

---

## backup

The `backup` option on the CMS Services menu allows you to back up your filesystem to a single tape in the background.

**Note**

You must turn off CMS to *start* the backup. Once the backup is running, you can turn CMS back on; the backup then runs in the background.

1. Access the CMS Services menu by entering `cmssvc` at the `#` prompt. The CMS Services menu appears.
2. If CMS is running, you must turn it off. You can do so in the following manner:
  - a. Enter 4 to select the `run_cms` option.
  - b. Enter 2 to turn CMS off. You will be returned to the `#` prompt.
  - c. Enter `cmssvc`. The CMS Services menu appears.
3. Enter 3 to select the `backup` option.
4. Insert the tape.
5. When you are ready to proceed, press **Return**.

The backup proceeds in the background, and you are returned to the `#` prompt.

6. You can now turn the CMS back on. Do this in the following manner:
  - a. Enter `cmssvc`. The CMS Services menu appears.
  - b. Enter 4 to select the `run_cms` option.
  - c. Enter 1 to turn the CMS back on.

A message tells you that CMS is running.

## run\_cms

The `run_cms` option on the CMS Services menu allows you to turn CMS on and off.

1. Access the CMS Services menu by entering `cmssvc` at the `#` prompt. The CMS Services menu appears.
2. Enter `4` to select the `run_cms` option.
3. Enter `1` to turn *on* CMS or `2` to turn *off* CMS.

---

## setup

The `setup` option on the CMS Services menu allows you to initially set up CMS.



Do not confuse this option with the `swsetup` which is for changing the *switch* information.

For more information about this option, see "Setting Up the CMS Application" in Chapter 6.

---

## swinfo

The `swinfo` option on the CMS Services menu allows you to display the switch parameters.

1. Access the CMS Services menu by entering `cmssvc` at the `#` prompt. The CMS Services menu appears
2. Enter `6` to select the `swinfo` option.

The following switch information is displayed:

- Switch name
- Switch model (release)
- Local port number
- Remote port number
- Link number.

## swsetup

The `swsetup` option on the CMS Services menu allows you to change the switch parameters.

**Note**

Do not confuse this option with the `setup` option, which is for setting up CMS.

**Note**

When you change switch parameters you should also check the parameters in the CMS Data Storage Allocation window. In particular, if you enable vectoring, you will need to allocate space for VDNs and vectors in order to store data for them. Changing the switch release may change the number of measured entities allowed, and would also have an impact on the storage allocation for each entity.

1. Access the CMS Services menu by entering `cmssvc` at the `#` prompt. The CMS Services menu appears.
2. Enter 7 to select the `swsetup` option.
3. Answer the prompts that appear on the screen.

You need the following information:

- Switch name
- Switch model (release)
- Local port assigned to the switch
- Remote port assigned to the switch
- Link number (0-3). This number represents the port on the GPSC-AT/E board to which the switch is connected.

---

## **upd\_install**

The `upd_install` option on the CMS Services menu allows you to install an update from disk files.

For more information on this option, see "Installing the CMS Update From Disk Files" in Chapter 11.

---

## **upd\_remove**

The `upd_remove` option on the CMS Services menu allows you to back out of the currently installed update.

For more information about this option, see "Removing the Currently Installed Update" in Chapter 11.

---

## **upd\_save**

The `upd_save` option on the CMS Services menu allows you to save an update to disk for later installation.

For more information about this option, see "Saving the CMS Update to Disk Files" in Chapter 11.

---

## Overview

This chapter describes how to install the three CMS-supported host computers and the following peripheral devices:

- Uninterruptible power supply (UPS) (if equipped)
- Cluster multiplexer (if MEGAPLEX®-96 installed)
- External drives (if equipped)
- Remote console modem.

Turn to one of these sections (in this chapter) to install the CMS host computer:

- *Installing the Model 3332 Computer*
- *Installing the StarServer S Computer*
- *Installing the 6386 WGS Computer.*

---

# Installing the Model 3332 Computer

---

## Unpack and Inventory the Material

Unpack the Model 3332 and associated material. Verify the material delivered against the shippers.

**Note** You should wear an electrostatic discharge (ESD) strap when handling components.

Table D-1 through Table D-4 in Appendix D provide the manufacturing information associated with the R3V2 CMS and the Model 3332 computer. You can use this information when ordering a part that is missing or defective on arrival (DOA).

---

## Assemble the Computer

Reference: NCR Model 3332 User's Guide  
Chapter 1: "Assembling the Hardware"  
"What are the Controls?"

Position the computer in the location selected by the customer.

Make sure the power switch is set to off. Connect the keyboard and monitor to the Model 3332. This keyboard and monitor represent the CMS console terminal.

Connect the power cable to the Model 3332 and to a wall outlet or to an Uninterruptible Power Supply (UPS), if equipped.

## Connect Uninterruptible Power Supply (If equipped)

The Uninterruptible Power Supply (UPS) provides a temporary electrical supply to the Model 3332 computer for about 7 minutes. Use the procedures in this section to connect the UPS to the Model 3332 computer.

**Note** These procedures apply to an AT&T UPS. If another UPS is used, refer to the documentation provided with that UPS.

## Material

Obtain a UPS (see table below):

UPS Model	PEC	Comcode
1KVA	2403-200	406606921
2KVA	2403-204	406312983
3KVA	2403-123	406672345
4.5KVA	2403-245	406929620
6KVA	2403-206	406974071
8KVA	2403-208	406929638
10KVA	2403-220	406974089
12KVA	2403-222	406974097
14KVA	2403-314	406687616
18KVA	2403-318	406672352

## Procedure

To connect the Model 3332 computer to the UPS, do the following:

1. Plug the power cord of the UPS into a 120 V ac outlet.
2. Turn on the power to the UPS.

**Note** As yet, there is no connection between the UPS and the Model 3332's Remote Maintenance Board (KickStart 2.5).

## Connect the Cluster Multiplexer

The distance between the Equinox®3 MEGAPLEX™-96 board and the cluster multiplexer determines which cabling you use:

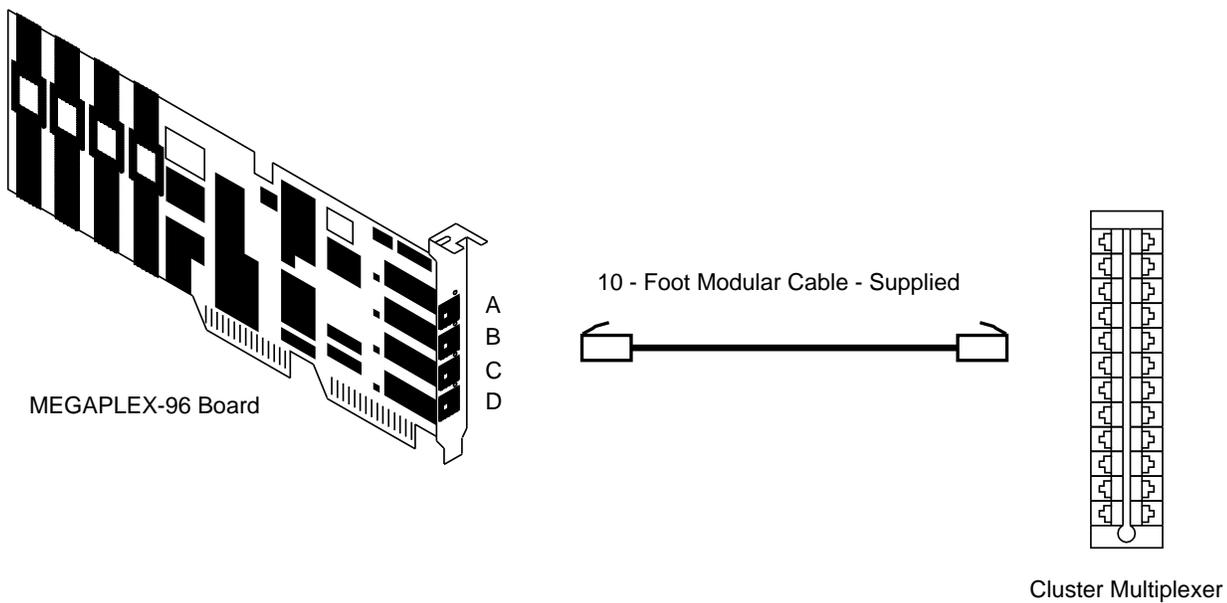
- Modular cable if the distance is 10 feet or less.
- Two-twisted-pair cabling if the distance is between 10 and 2500 feet.

You connect the cable to one of the MEGAPLEX-96 ports — A, B, C, or D — and then to the jack located at the base of the multiplexer.

In addition, you connect the power transformer to the cluster multiplexer and plug the transformer into a wall outlet.

## Modular Cable

Use the 10-foot modular cable (packed in the cluster multiplexer box) if the cabling requirement between the MEGAPLEX-96 board and cluster multiplexer is 10 feet or less (see Figure 3-1).



**Figure 3-1: 10-Foot Modular Cable Between the MEGAPLEX-96 Board and Cluster Multiplexer**

## Two-Twisted-Pair Cabling

With two-twisted-pair cabling, you can use the house wiring to extend the distance between the MEGAPLEX-96 board and the cluster multiplexer up to 2500 feet.

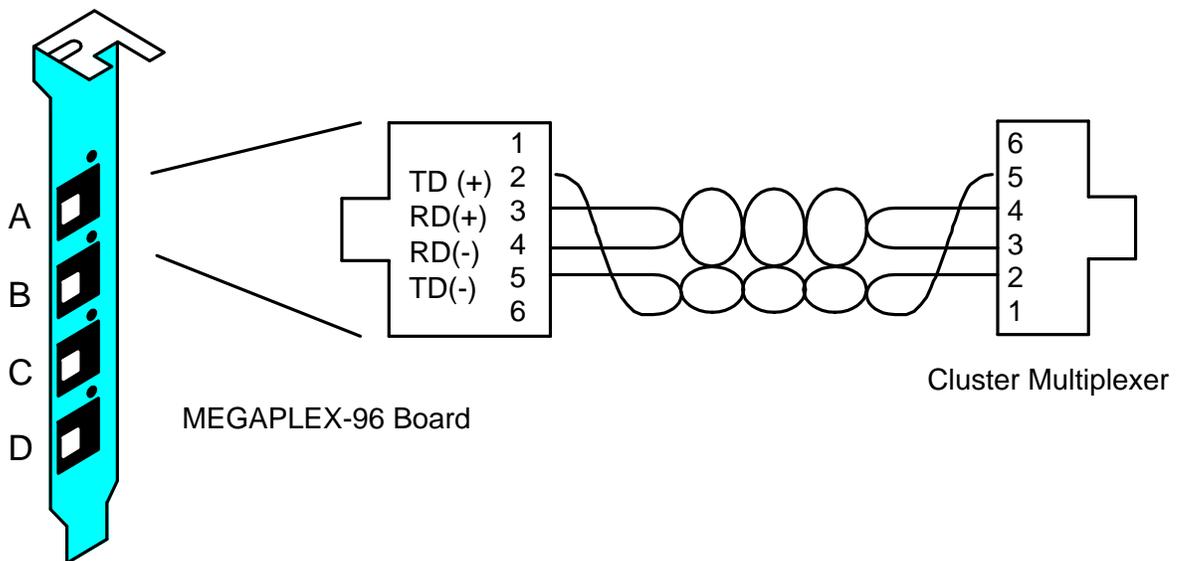
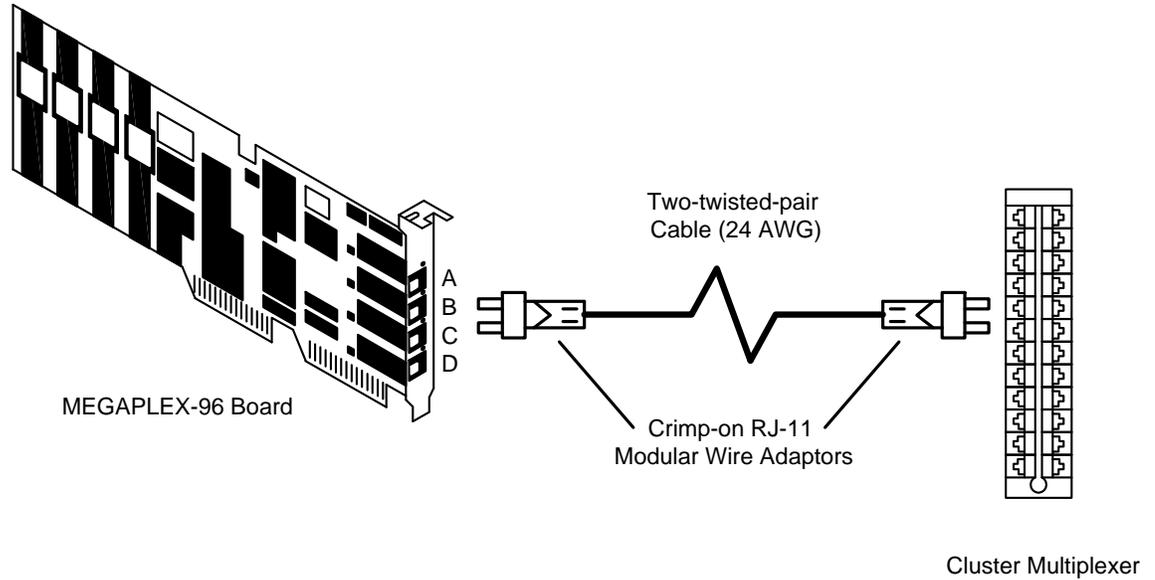


Figure 3-2: Two-Twisted-Pair Cabling Between the MEGAPLEX-96 Board and Cluster Multiplexer

## Connect the External Drives (If Equipped)

Connect any external drives (hard disks or x-Tape<sup>®</sup>, if equipped). Figure 3-3 shows how to daisy chain a single SCSI bus through these drives. In addition, you need to make the power connections for the drives.

The figure shows the maximum number of external drives configured for the Model 3332. If the customer's external configuration is less than maximum, the terminator must be placed on the last drive in the chain.

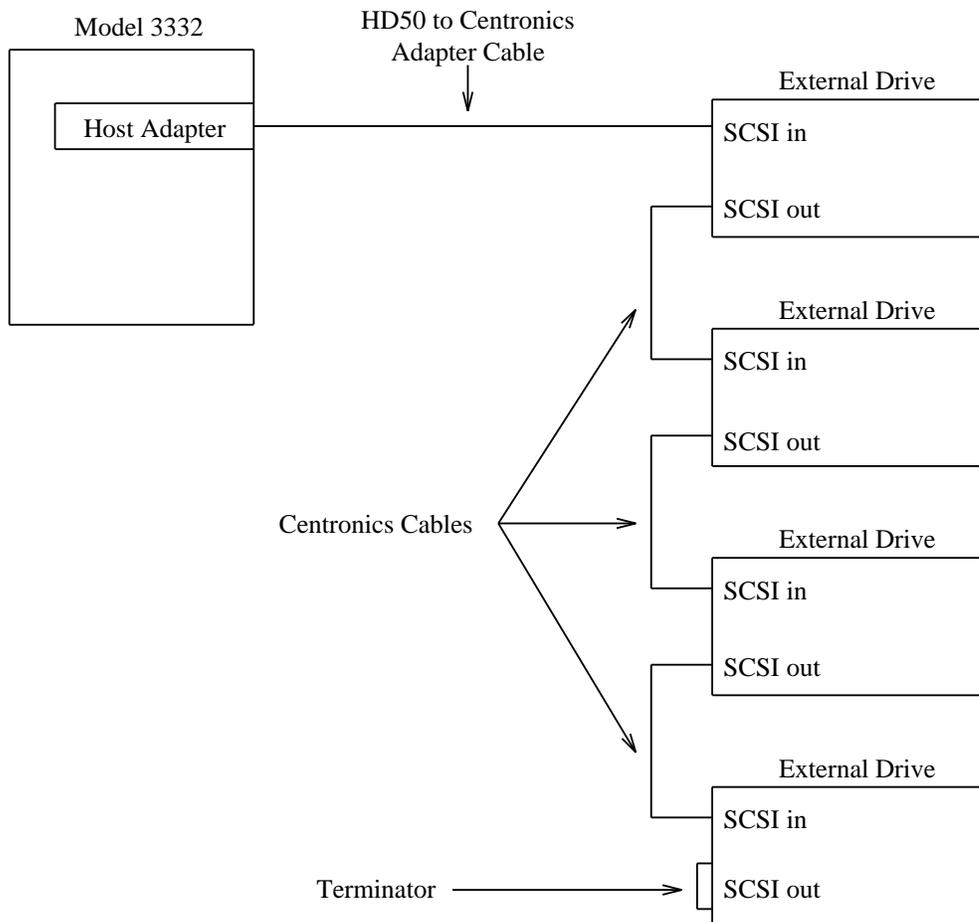


Figure 3-3: External Drive SCSI Cabling

## Set Remote Console Modem Options

Before you connect the remote console modem to the computer, you need to set the modem options. The Model 3332 supports these modems:

- 2224-CEO
- 4024
- AT&T 2400
- Comisphere 3820.

To set the modem options, see the appropriate section that follows.

## 2224-CEO and 4024 Modems

Do these steps to set the options for the 2224-CEO and 4024 modems:

1. Connect a dumb terminal to the 25-pin connector located at the back of the 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.

You need to set the terminal speed to 2400 baud.

2. Set all the switches on the modem to the DOWN position except for Switch 6.
3. Make the necessary power connections to the modem (see Figure 3-4) and the terminal.
4. Turn on the modem and terminal.
5. Press the reset button.

**Note**

The colon (:) prompt must appear on the screen before you can do the Steps 6 through 8.

6. Set all the options to the default by entering:

```
$ od
```

Response:

```
$ Set options to default: confirm [y,n]:
```

7. Enter `y`. Response:

```
Options 1-63 set to default:  
:
```

8. At the dumb terminal, enter the following:

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

9. Set all switches on the modem to the DOWN position except for Switches 3, 5, and 7 which must be in the UP position.

10. Press the reset button.

## AT&T 2400 Modem

Do these steps to set the options for the AT&T 2400 modem:

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

**Note**

The terminal speed must be set to 2400 baud.

2. Make the necessary power connections to the modem (see Figure 3-4) and the terminal.
3. Turn on the modem and terminal.
4. At the terminal, enter the following soft options (use only zeros and numerical ones in the commands):

```
AT&F      (factory default settings)
ATN0      (handshake only at speed in S37)
ATS37=6   2400 baud handshake)
ATS0=1    (answer after first ring)
AT&K0     (disable local flow control)
AT&C1     (track remote modem's carrier)
AT&D3     (hang up and reset on DTR transition)
AT&Q0     (asynchronous, no error correction, no buffering)
AT&T5     (double remote loopback test)
ATE0Q1&W0&Y0 (no local echo, no result codes, save to
              profile 0, use profile 0 on power-up)
AT&V     (check your work)
```

If needed, reset the modem using the power switch on the back.

Also, it may be difficult to connect to the modem from a Remote Console if the computer is running POST.

## Comisphere 3820

Do these steps to set the options for the Comisphere 3820 modem:

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

**Note**

The terminal speed must be set to 2400 baud.

2. Make the necessary power connections to the modem (see Figure 3-4) and the terminal.
3. Turn on the modem and terminal.
4. At the terminal, enter the following soft options (use only zeros and numerical ones in the commands):

```
AT&F      (factory default settings)
ATS41=6   (2400 baud handshake)
AT&T5     (double remote loopback test)
ATE0Q1&W0 (no local echo, no result codes, save to active
           profile)
```

If needed, reset the modem using the power switch on the back.

Also, it may be difficult to connect to the modem from a Remote Console if the computer is running POST.

## Connect Remote Console Modem

The KickStart 2.5 board will not allow the computer to boot without a modem and associated hardware connected to the computer's 25-pin serial (COM1) port.

Do these steps to connect the modem (see Figure 3-4):

1. Connect the ACU/Modem Adapter to the 25-pin serial port on the computer.

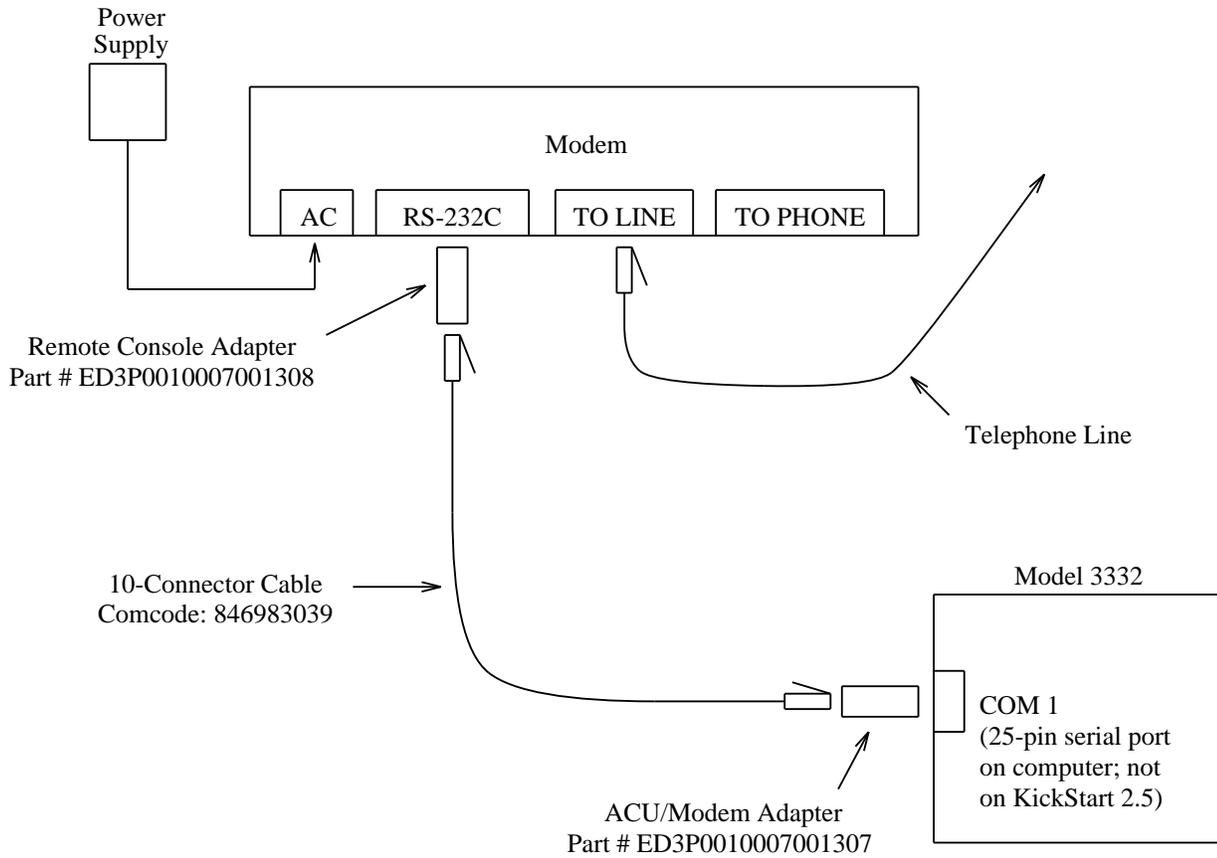
Note

**Do not connect the ACU/Modem Adapter to the 25-pin serial port on the KickStart 2.5 board.**

2. Connect one end of a 10-conductor cable to the ACU/Modem Adapter installed in the previous step.
3. Connect the other end of the 10-conductor cable to the Remote Console Adapter.
4. Connect the Remote Console Adapter to the RS-232C port on the modem.
5. Connect the telephone line to the jack labeled "LINE" on the modem.

Note

It is not necessary for the telephone line to be connected to the modem for the computer to boot.



**Figure 3-4: Remote Console Connections**

## Power Up the Computer and Verify POST

Once you have assembled the computer, including any external drives and the cluster multiplexer, power up the system and verify POST (Power On Self Test).

The **power-on diagnostics** operate each time you turn on the computer or press Reset. Power-on diagnostics test the basic system components.

At the completion of the tests, messages display similar to the ones below. These messages may vary according to the features installed on the computer.

```
ROM BIOS Version 0E.B0.00 (3330, 3332)

MAIN BOARD DIAGNOSTICS COMPLETE,
TEST AND INITIALIZE:
_DMA CONTROLLERS
_TIMER ZERO
_INTERRUPT CONTROLLERS
CONVENTIONAL MEMORY TEST
00512 KB
EXTENDED MEMORY SIZE XXXXX KB
_REMAPPED FOR SHADOW MEMORY 00256 KB
TOTAL MEMORY XXXXX KB
_PROCESSOR SPEED: 66 MHz
_486 INTERNAL CACHE ENABLED
_SECOND LEVEL CACHE NOT ENABLED
_KEYBOARD
PRESS <F1> IF SETUP IS DESIRED
_FLEX DISK
_EXTERNAL ROMS E000

Adaptec AHA-1540C/1542C BIOS v1.00
(c) 1992 Adaptec, Inc. All Rights Reserved.

<<< Press <Ctrl> <A> for SCSI Utility >>>
SCSI ID #0 - DEC      DSP3105S
SCSI ID #1 - WANGTEK 5525ES SCSI

BIOS Installed Successfully
.
.
```

---

# Installing the StarServer S Computer

---

## Inventory the Material

Table E-1 in Appendix E provides the manufacturing information associated with the R3V2 CMS and the StarServer S computer. Use this information when ordering a part that is defective.

---

## Assemble the Computer

Reference: StarServer S User's Guide  
Chapter 2: "Installing Your System"

Position the computer in the location selected by the customer.

Make sure the power switch is set to off. Connect the keyboard and monitor to the StarServer S. This keyboard and monitor represent the CMS console terminal.

Connect the power cable to the StarServer S and to a wall outlet or to an Uninterruptible Power Supply (UPS), if equipped.

---

## Connect the Uninterruptible Power Supply (If Equipped)

The Uninterruptible Power Supply (UPS) provides a temporary electrical supply to the StarServer S computer for about 7 minutes. Use the procedures in this section to connect the UPS to the StarServer S computer.

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

**Material**

Obtain the following parts:

- One 10-conductor cable (see table below):

<b>Length</b>	<b>PEC</b>	<b>Comcode</b>
10 feet	69605	846362705
25 feet	69606	846362713
50 feet	69607	846362721

- One UPS Adapter (see table below):

<b>UPS Model/Adapter</b>	<b>Adapter</b>	
	<b>PEC</b>	<b>Comcode</b>
1KVA through 18KVA (RS-232C)	69625	846649432
1KVA/E100T110 1000/E101T440	69625	846649432
Model 010c111 UPS 102a	69604	846461515

- One UPS (see table below):

UPS Model	PEC	Comcode
1KVA	2403-200	406606921
2KVA	2403-204	406312983
3KVA	2403-123	406672345
4.5KVA	2403-245	406929620
6KVA	2403-206	406974071
8KVA	2403-208	406929638
10KVA	2403-220	406974089
12KVA	2403-222	406974097
14KVA	2403-314	406687616
18KVA	2403-318	406672352

## Procedure

To connect the StarServer S computer to the UPS, do the following:

1. Connect one end of a 10-conductor cable to the UPS port located on the Remote Maintenance Card (RMC) faceplate.
2. Connect the other end of the cable to the appropriate UPS adapter.
3. Connect the adapter to the UPS as outlined in the UPS documentation.
4. Plug the power cord of the UPS into a 120 V ac outlet.
5. Turn on the power to the UPS.

## Connect the External Drives (If Equipped)

Connect any external hard disks, if equipped. Figure 3-5 shows how to daisy chain a single SCSI bus through the external disks. In addition, you need to make the appropriate power connections.

The figure shows the maximum number of external drives configured for StarServer S. If the customer's external configuration is less than maximum, the terminator must be placed on the last drive in the chain.

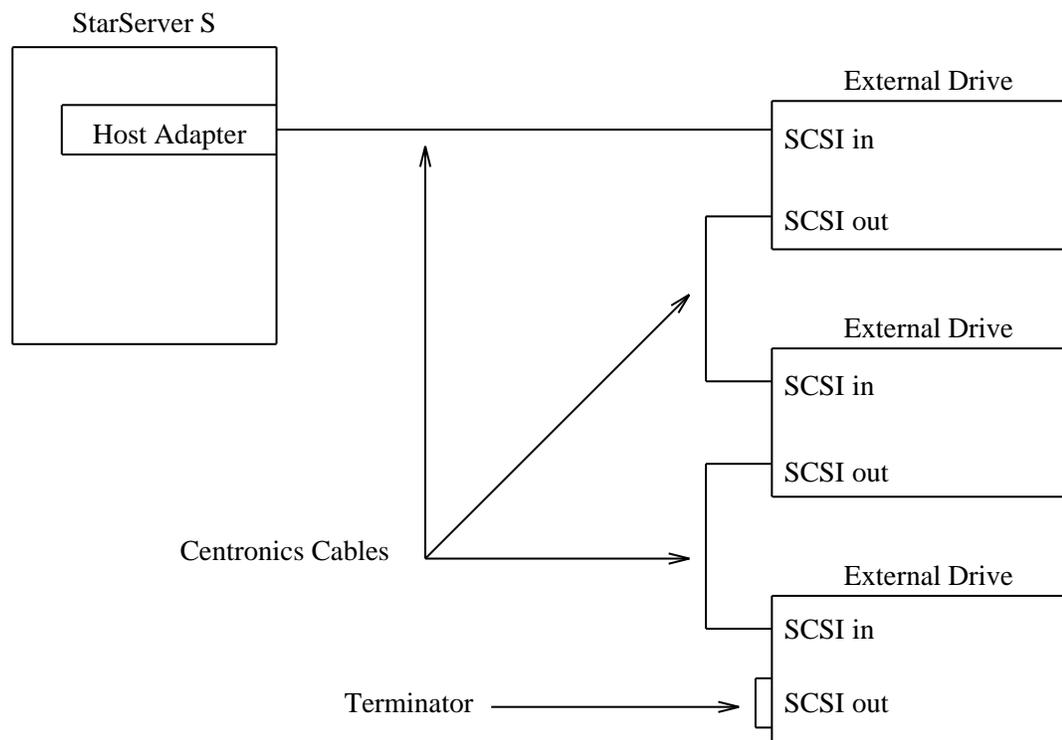


Figure 3-5: External Drive SCSI Cabling

## Set Remote Console Modem Options

Before you connect the remote console modem to the computer, you need to set the modem options. The StarServer S supports these modems:

- 2224-CEO
- 4024
- AT&T 2400
- AT&T 212A.

To set the modem options, see the appropriate section that follows.

## 2224-CEO and 4024 Modems

Do these steps to set the options for the 2224-CEO and 4024 modems:

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



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.

You need to set the terminal speed to 1200 baud.

2. Set all the switches on the modem to the DOWN position except for Switch 6.
3. Make the necessary power connections to the modem (see Figure 3-6) and the terminal.
4. Turn on the modem and terminal.
5. Press the reset button.



The colon (:) prompt must appear on the screen before you can do the Steps 6 through 8.

6. Set all the options to the default by entering:

```
od
```

Response:

```
Set options to default: confirm [y,n]:
```

7. Enter *y*. Response:

```
Options 1-63 set to default:  
:
```

8. At the dumb terminal, enter the following:

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

9. 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.

10. Press the reset button.

## AT&T 2400 Modem

Do these steps to set the options for the AT&T 2400 modem:

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

**Note**

The terminal speed must be set to 1200 baud.

2. Make the necessary power connections to the modem (see Figure 3-6) and the terminal.
3. Turn on the modem and terminal.
4. At the terminal, enter the following soft options (use only zeros and numerical ones in the commands):

```
AT&F      (factory default settings)
ATN0     (handshake only at speed in S37)
ATS37=6  2400 baud handshake)
ATS0=1   (answer after first ring)
AT&K0    (disable local flow control)
AT&C1    (track remote modem's carrier)
AT&D3    (hang up and reset on DTR transition)
AT&Q0    (asynchronous, no error correction, no buffering)
AT&T5    (double remote loopback test)
ATE0Q1&W0&Y0 (no local echo, no result codes, save to
              profile 0, use profile 0 on power-up)
AT&V     (check your work)
```

If needed, reset the modem using the power switch on the back.

Also, it may be difficult to connect to the modem from a Remote Console if the computer is running POST.

## AT&T 212A Modem

On the front panel, press in the button labeled "HS."

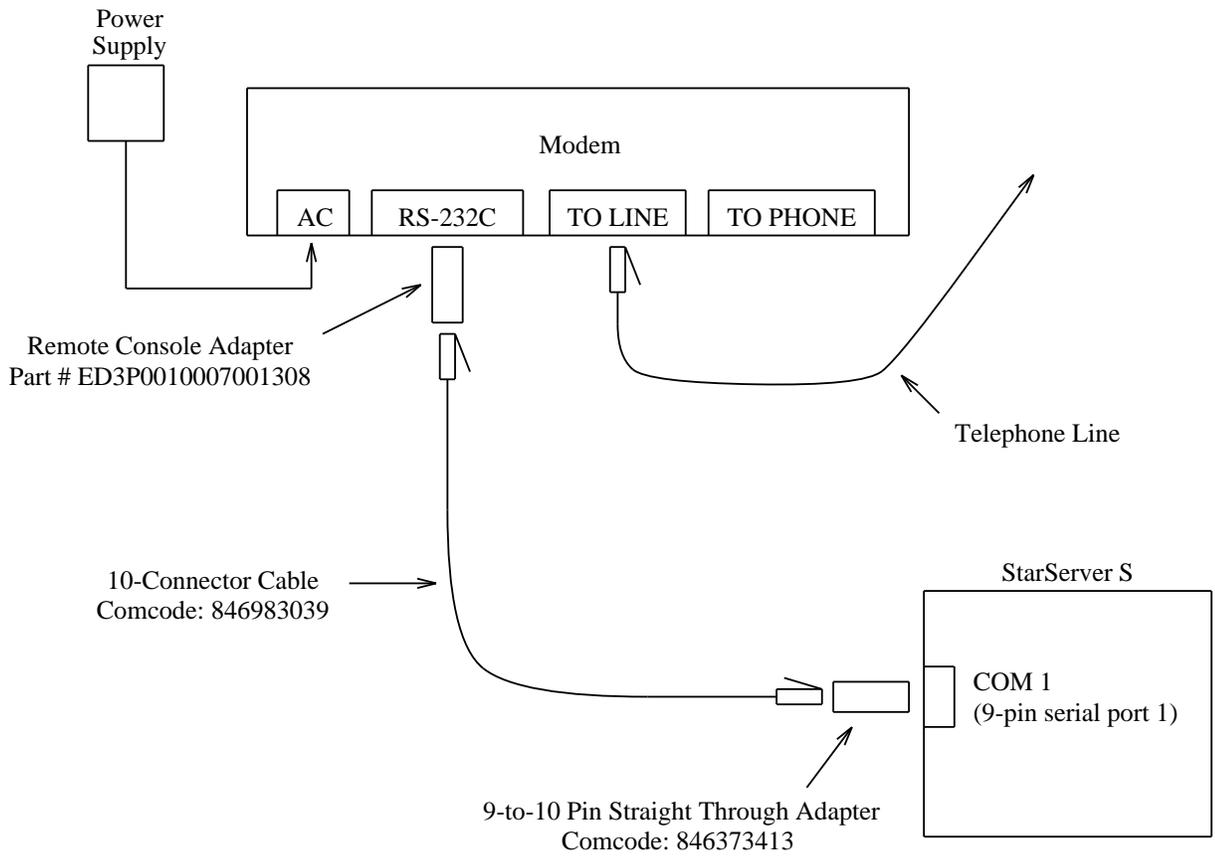
## Connect the Remote Console Modem

Do these steps to connect the modem (see Figure 3-6):

1. Connect the 9-to-10 Pin Straight Through Adapter to the 9-pin serial port 1 (COM1) on the computer.
2. Connect one end of a 10-conductor cable to the 9-to-10 Pin Straight Through Adapter installed in the previous step.
3. Connect the other end of the 10-conductor cable to the Remote Console Adapter.
4. Connect the Remote Console Adapter to the RS-232C port on the modem.
5. Connect the telephone line to the jack labeled "LINE" on the modem.

<b>Note</b>
-------------

It is not necessary for the telephone line to be connected to the modem for the computer to boot.



**Figure 3-6: Modem Connections for the StarServer S**

## Power Up the Computer and Verify POST

After you have assembled the computer, power up the system (including any peripheral devices) and verify power-on self test (POST). POST operates each time you turn on the computer or press Reset and tests the basic system components.

At the completion of the tests, messages display similar to the ones below. These messages may vary according to the features installed on the computer.

```
Phoenix 80486 EISA ROM BIOS Version x.xx.yy  
Copyright (c) 1985-1990 Phoenix Technologies Ltd.
```

```
Copyright (c) 1985-1990 Phoenix Technologies Ltd.
```

```
Resident Diagnostics  
CPU (i80486, 33 MHz)    PASS  
CMOS RAM                PASS  
ROM Checksum           PASS  
Memory Refresh         PASS  
DMA Controllers        PASS  
Interrupt Controller   PASS  
Keyboard                PASS  
Dedicated Memory       XXXX KB  
Base Memory             0512 KB  
Extended Memory        XXXX KB  
Total Memory           XXXX KB  
Clock/Calendar         PASS  
Coprocessor            PASS  
Floppy Disks           1 Present  
Fixed Disks            1 Present  
Primary Boot-Strap
```

```
.
```

```
.
```

```
.
```

## Set UNIX System Parameters for UPS (If equipped)

You need to set the UNIX system parameters for the UPS (if equipped).

1. Log in as *root*.
2. Set the RIDEOUT parameter to 360 seconds (6 minutes) by entering:

```
# /etc/conf/bin/iddtune RIDEOUT 360
```

3. Rebuild the UNIX kernel by entering:

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

4. Shut down the system by entering:

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

The appropriate UNIX system parameters for the UPS are now set.

---

# Installing the 6386 WGS Computer

## Inventory the Material

---

Table F-1 in Appendix F provides the manufacturing information associated with the R3V2 CMS and the 6386 WGS computer. Use this information when ordering a part that is defective.

---

## Assemble the Computer

Reference: 6386E/33 WGS ModelsS System Setup and User's Guide  
Chapter 2: "System Setup"

Position the computer in the location selected by the customer.

Make sure the power switch is set to off. Connect the power cable to the 6386 WGS and to a wall outlet or to an Uninterruptible Power Supply (UPS), if equipped.

---

## Connect the Uninterruptible Power Supply (If equipped)

The Uninterruptible Power Supply (UPS) provides a temporary electrical supply to the 6386 WGS computer for about 7 minutes. Use the procedures in this section to connect the UPS to the 6386 WGS computer.

Note

These procedures apply to an AT&T UPS. If another UPS is used, refer to the documentation provided with the UPS.

## Material

Obtain the following parts:

- One 10-conductor cable (see table below)

Length	PEC	Comcode
10 feet	69605	846362705
25 feet	69606	846362713
50 feet	69607	846362721

- One UPS Adapter (see table below):

UPS Model/Adapter	Adapter	
	PEC	Comcode
1KVA through 18KVA (RS-232C)	69625	846649432
1KVA/E100T110 1000/E101T440	69625	846649432
Model 010c111 UPS 102a	69604	846461515

- One UPS (see table below):

UPS Model	PEC	Comcode
1KVA	2403-200	406606921
2KVA	2403-204	406312983
3KVA	2403-123	406672345
4.5KVA	2403-245	406929620
6KVA	2403-206	406974071
8KVA	2403-208	406929638
10KVA	2403-220	406974089
12KVA	2403-222	406974097
14KVA	2403-314	406687616
18KVA	2403-318	406672352

## Procedure

To connect the 6386 WGS computer to the UPS, do the following:

1. Connect one end of a 10-conductor cable to the UPS port located on the Remote Maintenance Card (RMC) faceplate.
2. Connect the other end of the cable to the appropriate UPS adapter.
3. Connect the adapter to the UPS as outlined in the UPS documentation.
4. Plug the power cord of the UPS into a 120 V ac outlet.
5. Turn on the power to the UPS.

## Connect the Console Terminal

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. See "Terminal Options" — "705 Multi-Tasking (MT) Terminal" in Chapter 4 for the options settings.

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.

## Procedure

To connect the 705 MT (as a console terminal) to the 6386 WGS, do the following (refer to Figure 3-7):

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 3-7.

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

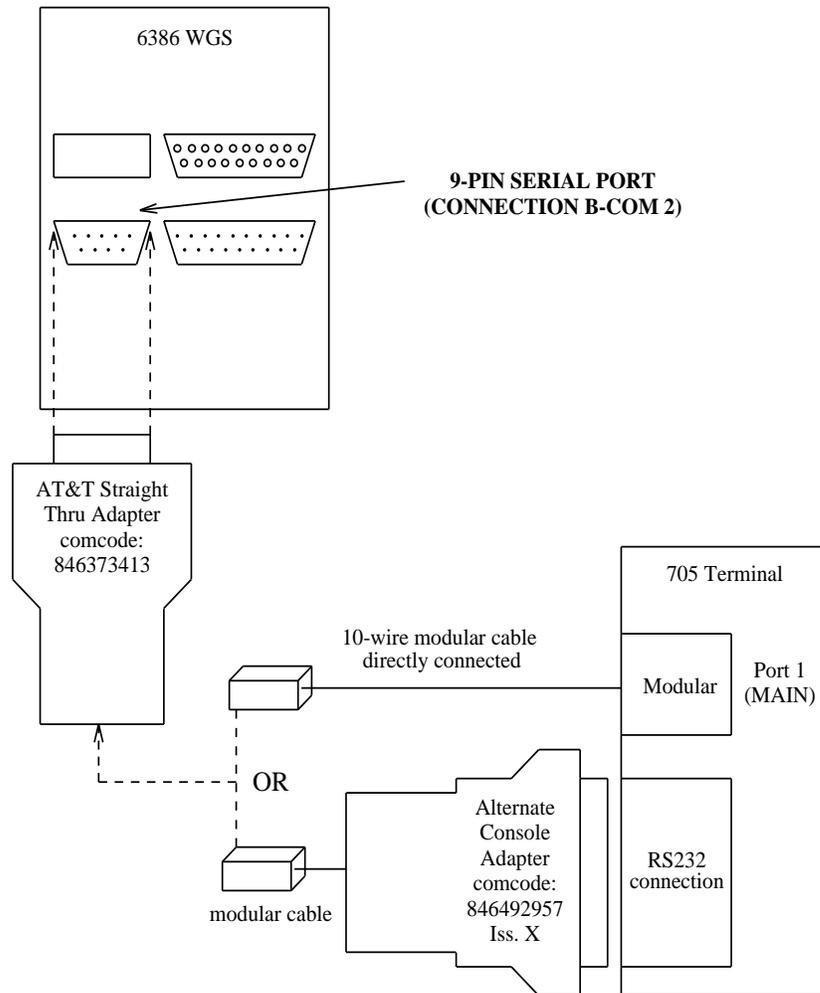


Figure 3-7: 705 MT Connections (as the CMS Console Terminal)

## Connect the External Drives (If Equipped)

Connect any external hard disks, if equipped. Figure 3-8 shows how to daisy chain a single SCSI bus through the external disks. In addition, you need to make the appropriate power connections.

The figure shows the maximum number of external drives configured for the 6386 WGS. If the customer's external configuration is less than maximum, the terminator must be placed on the last drive in the chain.

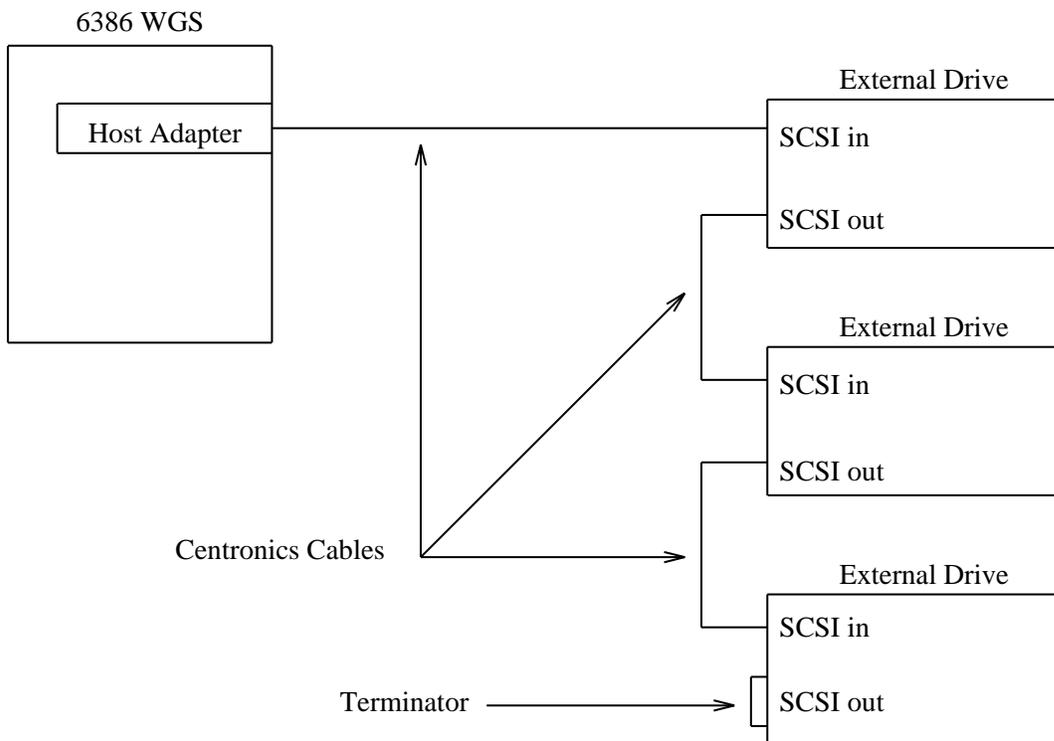


Figure 3-8: External Drive SCSI Cabling

---

## Set Remote Console Modem Options

Before you connect the remote console modem to the computer, you need to set the modem options. The StarServer S supports these modems:

- 2224-CEO
- 4024
- AT&T 2400
- AT&T 212A
- AT&T 3710
- AT&T 3715.

To set the modem options, see the appropriate section that follows.

## 2224-CEO and 4024 Modems

Do these steps to set the options for the 2224-CEO and 4024 modems:

1. Connect a dumb terminal to the 25-pin connector located at the back of the 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.

You need to set the terminal speed to 1200 baud.

2. Set all the switches on the modem to the DOWN position except for Switch 6.
3. Make the necessary power connections to the modem (see Figure 3-9) and the terminal.
4. Turn on the modem and terminal.
5. Press the reset button.

**Note**

The colon (:) prompt must appear on the screen before you can do the Steps 6 through 8.

6. Set all the options to the default by entering:

```
od
```

Response:

```
Set options to default: confirm [y,n]:
```

7. Enter `y`. Response:

```
Options 1-63 set to default  
:
```

8. At the dumb terminal, enter the following:

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

9. 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.

10. Press the reset button.

**AT&T 2400 Modem**

Do these steps to set the options for the AT&T 2400 modem:

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

**Note**

The terminal speed must be set to 1200 baud.

2. Make the necessary power connections to the modem (see Figure 3-9) and the terminal.
3. Turn on the modem and terminal.
4. At the terminal, enter the following soft options (use only zeros and numerical ones in the commands):

```

AT&F      (factory default settings)
ATN0     (handshake only at speed in S37)
ATS37=6  2400 baud handshake)
ATS0=1   (answer after first ring)
AT&K0    (disable local flow control)
AT&C1    (track remote modem's carrier)
AT&D3    (hang up and reset on DTR transition)
AT&Q0    (asynchronous, no error correction, no buffering)
AT&T5    (double remote loopback test)
ATE0Q1&W0&Y0 (no local echo, no result codes, save to
              profile 0, use profile 0 on power-up)
AT&V     (check your work)

```

If needed, reset the modem using the power switch on the back.

Also, it may be difficult to connect to the modem from a Remote Console if the computer is running POST.

**AT&T 212A Modem**

On the front panel, press in the button labeled "HS."

## AT&T 3710 Modem

Do these steps to set the options for the AT&T 3710 modem:

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

**Note**

The terminal speed must be set to 2400 baud before connecting the modem to the terminal.

2. Make the necessary power connections to the modem and the terminal.
3. Turn the modem and terminal *On*.
4. At the terminal, enter the following soft options (use only zeros and numerical ones in the commands):

```
AT&F      (factory default settings)
ATS41=6   (2400 baud dial-line rate)
AT&T5     (denies request for Remote Digital Loopback test)
AT&C1     (Carrier Detect control follows standard RS232
operation)
AT&D3     (hang up and reset on DTR transition)
ATE0Q1&W0 (disable echo, disable result codes, save to
profile 0)
```

If needed, reset the modem using the power switch on the back.

## AT&T 3715 Modem

Do these steps to set the options for the AT&T 3715 modem:

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

**Note**

The terminal speed must be set to 2400 baud before connecting the modem to the terminal.

2. Make the necessary power connections to the modem and the terminal.
3. Turn the modem and terminal *On*.
4. At the terminal, enter the following soft options (use only zeros and numerical ones in the commands):

```

AT&F      (factory default settings)
AT%B2400  (Modulation/Data Rate is set to V.22bis-max.rate
2400bps)
AT&T5     (denies request for Remote Digital Loopback test)
AT&D2     (follows standard RS-232 operation)
ATE0Q1&W0 (disable echo, disable result codes, save to
profile 0)

```

If needed, reset the modem using the power switch on the back.

**Note**

It is not necessary to enter the `AT&D2` option since it is the default. However, the `AT&D3` option which is used for AT&T Modem 3710 should **not** be used for this modem.

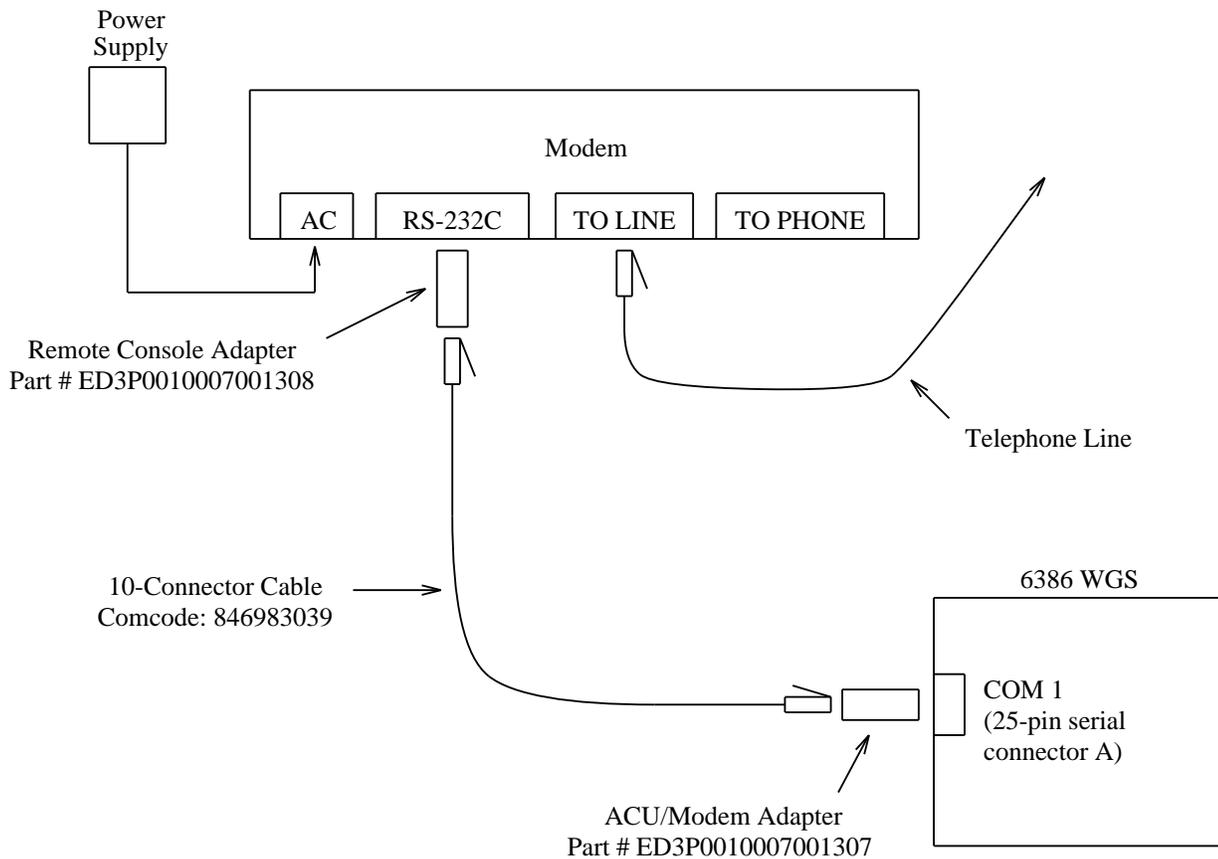
## Connect the Remote Console Modem

Do these steps to connect the modem (see Figure 3-9):

1. Connect the ACU/Modem Adapter to the 25-pin serial port on the computer.
2. Connect one end of a 10-conductor cable to the ACU/Modem Adapter installed in the previous step.
3. Connect the other end of the 10-conductor cable to the Remote Console Adapter.

4. Connect the Remote Console Adapter to the RS-232C port on the modem.
5. Connect the telephone line to the jack labeled "LINE" on the modem.

**Note** It is not necessary for the telephone line to be connected to the modem for the computer to boot.



**Figure 3-9: Modem Connections for 6386 WGS Computer**

## Power Up the Computer and Verify POST

After you have assembled the computer, power up the system (including any peripheral devices) and verify power-on self test (POST). POST operates each time you turn on the computer or press Reset and tests the basic system components.

At the completion of the tests, messages display similar to the ones below. These messages may vary according to the features installed on the computer.

```
Phoenix 80386 ROM BIOS PLUS Version x.xx yy
GOB Copyright (c) 1985-1989 Phoenix Technologies Ltd.
All Rights Reserved
```

```
Resident Diagnostics
CPU (i80386, 33 MHz)      PASS
CMOS RAM                 PASS
ROM Checksum            PASS
Memory Refresh          PASS
DMA Controllers         PASS
Interrupt Controller     PASS
Keyboard                 DISABLED
Dedicated Memory        XXXX KB
Base Memory             0512 KB
Extended Memory         XXXX KB
Total Memory            XXXX KB
Clock/Calendar          PASS
Floppy Disks            1 Present
Fixed Disks             Not Present
Primary Boot-Strap
```

```
.
.
.
```

## Set UNIX System Parameters for UPS (If equipped)

You need to set the UNIX system parameters for the UPS (if equipped).

1. Log in as *root*.
2. Set the RIDEOUT parameter to 360 seconds (6 minutes) by entering:

```
# /etc/conf/bin/iddtune RIDEOUT 360
```

3. Rebuild the UNIX kernel by entering:

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

4. Shut down the system by entering:

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

The appropriate UNIX system parameters for the UPS are now set.

---

## Overview

This chapter describes how to connect additional terminals and printers to the R3V2 CMS host computer.

The Equinox<sup>®</sup> MEGAPLEX<sup>™</sup>-96 board or the AT&T Intelligent Ports Controller, Model 1600 (IPC-1600) provide the connectivity from the host computer to the terminals and printers. The host computer contains either one MEGAPLEX-96 or one or more IPC-1600s, but not both.

Turn to one of these sections to connect the terminals and printers:

- *Connecting Terminals/Printers to the MEGAPLEX-96*
- *Connecting Terminals/Printers to the IPC-1600*

In addition, the "*Terminal Options*" section provides option settings for these terminals:

- 715 Business Communications (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
- DATASPEED 4425 Display Terminal

---

## Connecting Terminals/Printers to the MEGAPLEX-96

The MEGAPLEX-96 is a serial Input/Output (I/O) host controller capable of supporting up to 96 ports from a single computer slot. The MEGAPLEX-96 has four ports (A through D) to which four cluster multiplexers (bricks) may be connected. Each cluster multiplexer contains 24 jacks for connection to the terminals and printers.

**Note** The R3V2 CMS software application supports up to 60 *terminals*.

---

### Connect Terminals and Printers to the Cluster Multiplexer

In some cases, the customer configuration will connect terminals and printers to the CMS host computer using **new or existing** 8-wire modular cables.

You can connect terminals and printers directly to the cluster multiplexer up to a distance of 75 feet. Or you can use house wiring to extend the distance between the cluster multiplexer and the terminals and printers up to 300 feet.

### New Installations

To connect a terminal or printer to a cluster multiplexer, do the following (refer to Figure 4-1 and Figure 4-2):

1. Connect one end of the 8-wire modular cable to the appropriate jack on the cluster multiplexer (labeled 1 through 24).
2. Connect the other end of the 8-wire modular cord to the terminal/printer or modem adapter.
3. Connect the terminal/printer or modem adapter to the terminal, printer, or modem.

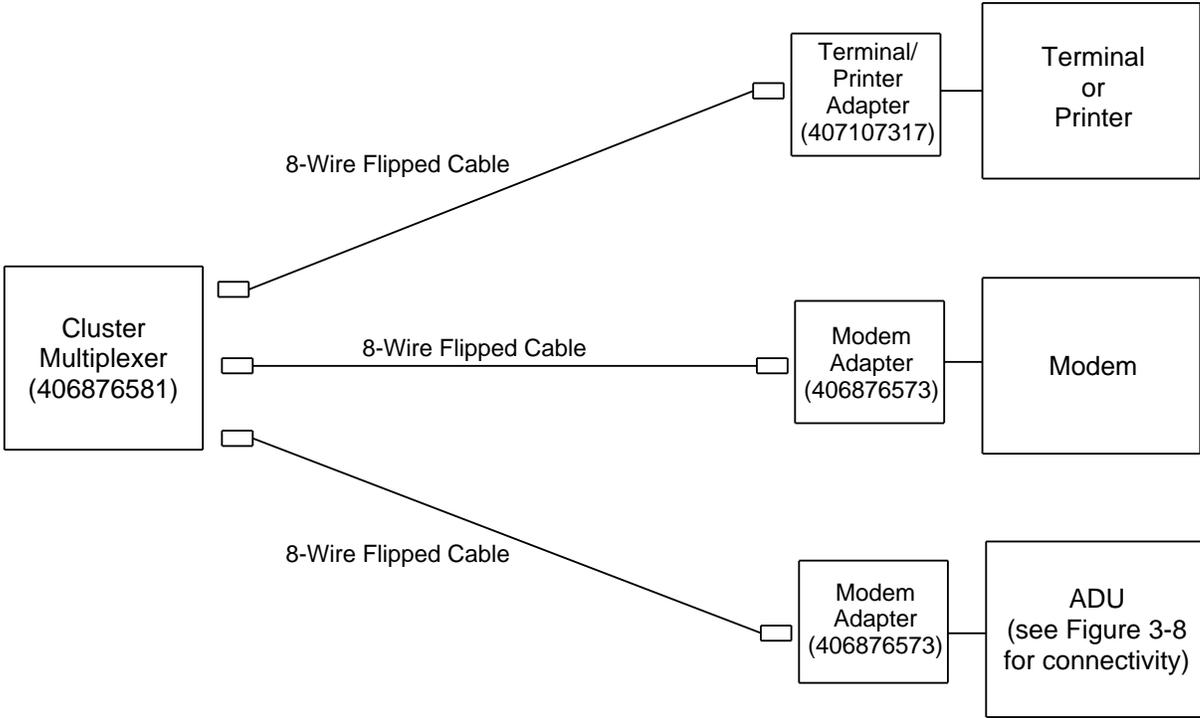
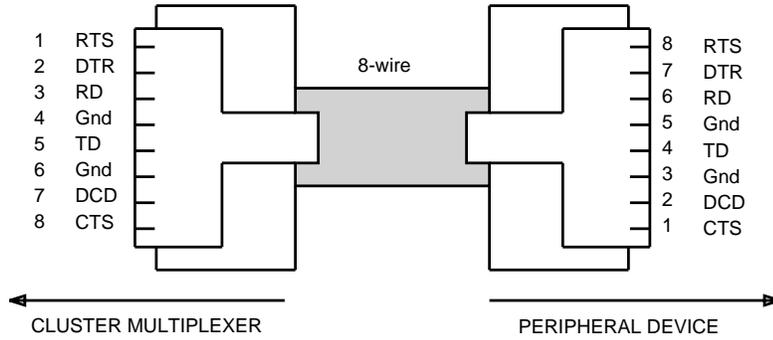
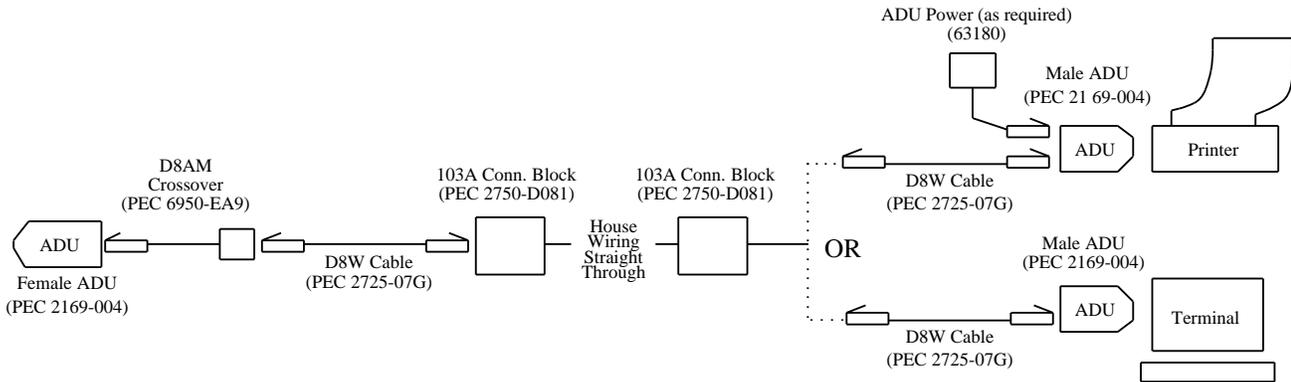


Figure 4-1: Terminal, Printer, and Modem Connections



**Note** You can wire a terminal or printer up to maximum distance of 300 feet from the cluster multiplexer; otherwise, the configuration requires ADUs (see sample connection below).

**Figure 4-2: 8-Wire Flipped Cable Connections Example**



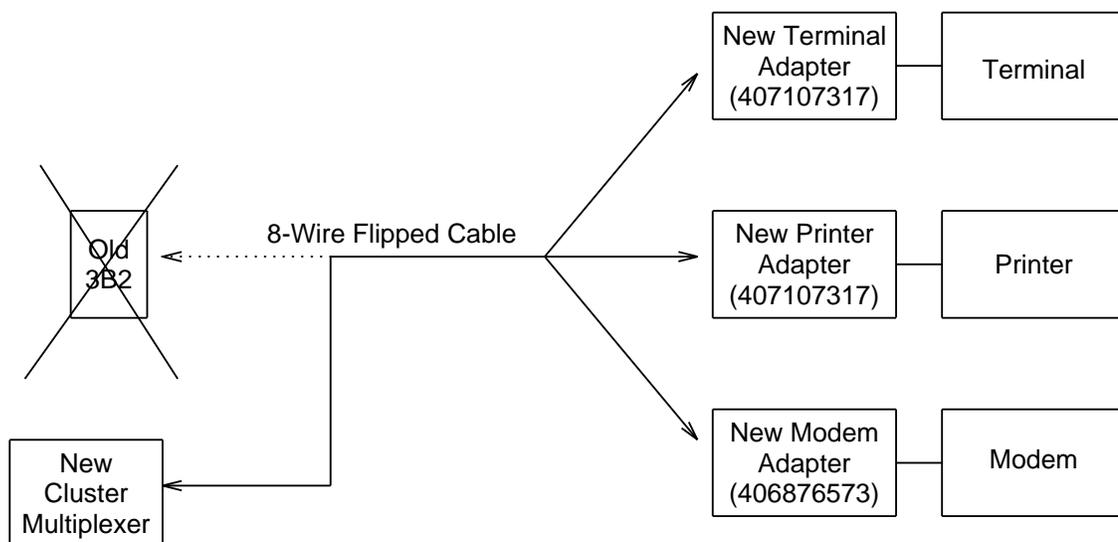
**Figure 4-3: Sample Connection Between ADU and Terminal or Printer**

## Existing Cabling

If you are upgrading to a new CMS host computer, you may have one of the following cable schemes:

- Replace existing 3B2 cabling with an R3V2 CMS
- Modified 3B2 cabling with a WGS or StarServer S computer with an IPC-1600
- Existing 10-wire cabling with a WGS or StarServer S computer with an IPC-1600.

Refer to Figure 4-4, Figure 4-5, and Figure 4-6 when recabling.



**Figure 4-4: Replace Existing 3B2 Cabling Example**

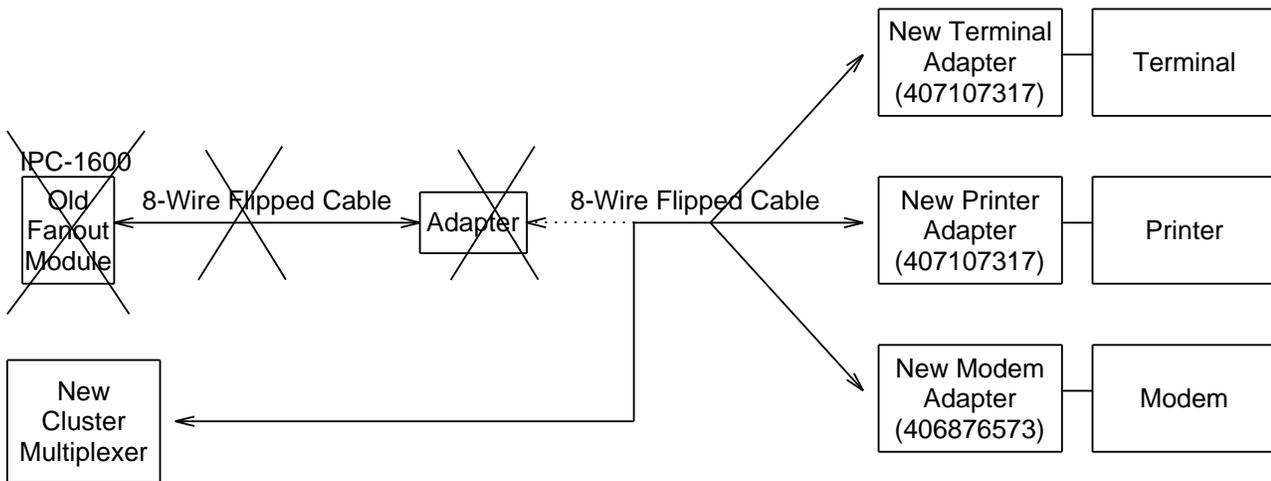


Figure 4-5: Modified 3B2 Cabling With IPC-1600 Example

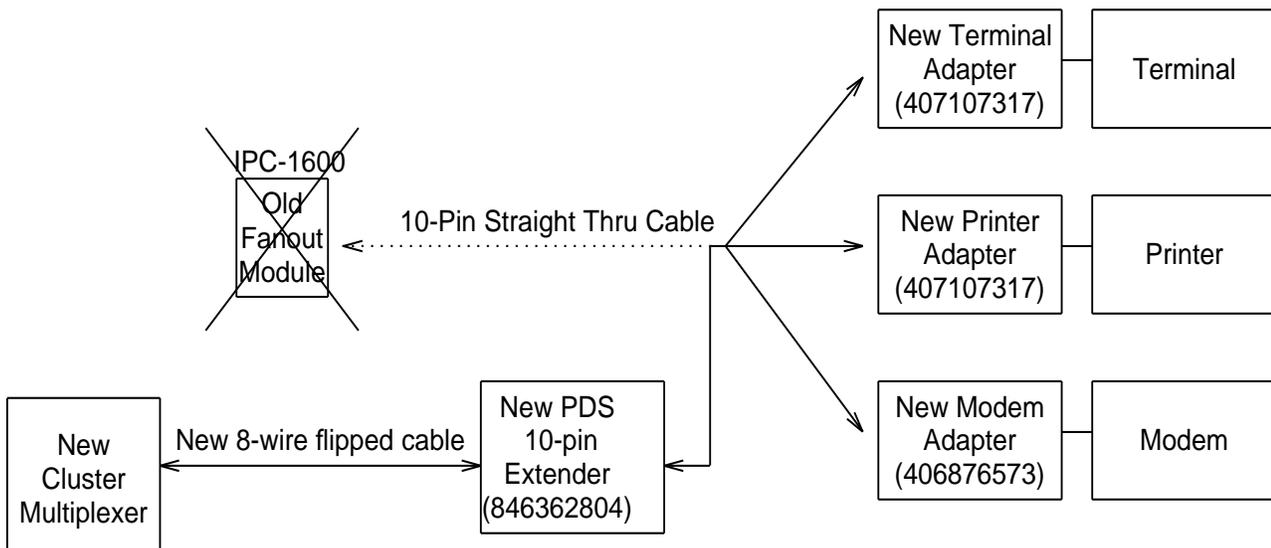


Figure 4-6: IPC-1600 With Existing Straight-Through Cables Example

## Port Assignments

After you connect the terminals and printers to the cluster multiplexer, you need to identify these devices. For example, if you connect a device to jack 7 on the cluster multiplexer, and you connect the multiplexer to port A on the MEGAPLEX-96, then the port assignment for this device is ttyaG. See Table 4-1 through Table 4-4 for the various port assignments.

**Table 4-1: Port A Assignment for the Cluster Multiplexer, Terminals and Printers**

Port	Cluster Multiplexer Jack Number	Terminals and Printers Port Assignment
A	1	/dev/ttyaA
	2	/dev/ttyaB
	3	/dev/ttyaC
	4	/dev/ttyaD
	5	/dev/ttyaE
	6	/dev/ttyaF
	7	/dev/ttyaG
	8	/dev/ttyaH
	9	/dev/ttyaI
	10	/dev/ttyaJ
	11	/dev/ttyaK
	12	/dev/ttyaL
	13	/dev/ttyaM
	14	/dev/ttyaN
	15	/dev/ttyaO
	16	/dev/ttyaP
	17	/dev/ttyaQ
	18	/dev/ttyaR
	19	/dev/ttyaS
	20	/dev/ttyaT
	21	/dev/ttyaU
	22	/dev/ttyaV
	23	/dev/ttyaW
	24	/dev/ttyaX

**Table 4-2: Port B Assignment for the Cluster Multiplexer, Terminals and Printers**

<b>Port</b>	<b>Cluster Multiplexer Jack Number</b>	<b>Terminals and Printers Port Assignment</b>
<b>B</b>	1	/dev/ttybA
	2	/dev/ttybB
	3	/dev/ttybC
	4	/dev/ttybD
	5	/dev/ttybE
	6	/dev/ttybF
	7	/dev/ttybG
	8	/dev/ttybH
	9	/dev/ttybI
	10	/dev/ttybJ
	11	/dev/ttybK
	12	/dev/ttybL
	13	/dev/ttybM
	14	/dev/ttybN
	15	/dev/ttybO
	16	/dev/ttybP
	17	/dev/ttybQ
	18	/dev/ttybR
	19	/dev/ttybS
	20	/dev/ttybT
	21	/dev/ttybU
	22	/dev/ttybV
	23	/dev/ttybW
	24	/dev/ttybX

**Table 4-3: Port C Assignment for the Cluster Multiplexer, Terminals and Printers**

<b>Port</b>	<b>Cluster Multiplexer Jack Number</b>	<b>Terminals and Printers Port Assignment</b>
<b>C</b>	1	/dev/ttycA
	2	/dev/ttycB
	3	/dev/ttycC
	4	/dev/ttycD
	5	/dev/ttycE
	6	/dev/ttycF
	7	/dev/ttycG
	8	/dev/ttycH
	9	/dev/ttycI
	10	/dev/ttycJ
	11	/dev/ttycK
	12	/dev/ttycL
	13	/dev/ttycM
	14	/dev/ttycN
	15	/dev/ttycO
	16	/dev/ttycP
	17	/dev/ttycQ
	18	/dev/ttycR
	19	/dev/ttycS
	20	/dev/ttycT
	21	/dev/ttycU
	22	/dev/ttycV
	23	/dev/ttycW
	24	/dev/ttycX

**Table 4-4: Port D Assignment for the Cluster Multiplexer, Terminals and Printers**

<b>Port</b>	<b>Cluster Multiplexer Jack Number</b>	<b>Terminals and Printers Port Assignment</b>
<b>D</b>	1	/dev/ttydA
	2	/dev/ttydB
	3	/dev/ttydC
	4	/dev/ttydD
	5	/dev/ttydE
	6	/dev/ttydF
	7	/dev/ttydG
	8	/dev/ttydH
	9	/dev/ttydI
	10	/dev/ttydJ
	11	/dev/ttydK
	12	/dev/ttydL
	13	/dev/ttydM
	14	/dev/ttydN
	15	/dev/ttydO
	16	/dev/ttydP
	17	/dev/ttydQ
	18	/dev/ttydR
	19	/dev/ttydS
	20	/dev/ttydT
	21	/dev/ttydU
	22	/dev/ttydV
	23	/dev/ttydW
	24	/dev/ttydX

## Administering a New Terminal, Printer, or Modem

**Prerequisites:** You must be logged in as *root* at the console terminal.

Administer the terminals, printers, and modems connected to the CMS host computer by doing the following:

1. At the # prompt, enter the following command:.

```
# /etc/megadiag
```

The following screen displays:

```
┌───┬───┬───┐
│ Port Setup │ Status │ Diagnostics │
└───┴───┴───┘
```

```
┌──────────────────────────────────────────┐
│ MAGAPORT/MEGAPLEX CONFIGURATION          │
│ AND DIAGNOSTICS UTILITY 1.01             │
└──────────────────────────────────────────┘
```

Use Arrow Keys: F1 for help

2. Select Port Setup, and press **Return** .

The following screen displays:

```

Enter the number of Megaport boards and/or Megaplex
clusters attached to your system.
24 ports will be assigned for each board or cluster.

Number of Boards/Clusters:2
    
```

3. Enter the number of cluster multiplexers (bricks), and press **Return** .

The screen similar to the following displays:

DEVICE	T/P/M/U	TTYTYPE	GETTY/SPEED	OPTIONS	ENABLED
ttyaa	terminal	unknown	9600	9600	N
ttyab	terminal	unknown	9600	9600	N
ttyac	terminal	unknown	9600	9600	N
ttyad	terminal	unknown	9600	9600	N
ttyae	terminal	unknown	9600	9600	N
ttyaf	terminal	unknown	9600	9600	N
ttyag	terminal	unknown	9600	9600	N
ttyah	terminal	unknown	9600	9600	N
ttyai	terminal	unknown	9600	9600	N
ttyaj	terminal	unknown	9600	9600	N
ttyak	terminal	unknown	9600	9600	N
ttyal	terminal	unknown	9600	9600	N

```

-----
Press [T]erminal, [P]rinter, [M]odem, [U]nused
Press [=] to Duplicate Settings for Previous Port
    
```

```

CTRL-A:Help  CTRL-B:Hardcopy  CTRL-C:Select From List  ESC:Save/Quit
    
```

4. Enter the type of device you are adding in the T/P/M/U column as follows:

- For terminals and modems, enter **M** for hardware flow control.
- For printers, enter **P**.
- For any unused port, enter **U**.

Press **Return** .

**Note**

The **T** option stands for software flow control and is not recommended.

If you enter a printer, the remaining fields become dashed and no further data entry is required. Later, you will perform additional steps to administer the printer.

5. Enter `unknown` (the default) in the `TTYTYPE` column, and press **Return**.
6. Enter the speed at which the device will run in the `GETTY/SPEED` column, and press **Return**.

Usually, this speed is 9600 for a terminal but varies for a modem or printer. You will have to know or be able to look up the speed that is appropriate for the particular modem or printer you are administering.

7. With the cursor in the `OPTIONS` column, press **Return** to leave this column blank.

The following options appear at the bottom of the screen:

DEVICE	T/P/M/U	TTYTYPE	GETTY/SPEED	OPTIONS	ENABLED
ttyaa	modem	unknown	4800	4800	N
ttyab	terminal	unknown	9600	9600	N
ttyac	terminal	unknown	9600	9600	N
ttyad	terminal	unknown	9600	9600	N
ttyae	terminal	unknown	9600	9600	N
ttyaf	terminal	unknown	9600	9600	N
ttyag	terminal	unknown	9600	9600	N
ttyah	terminal	unknown	9600	9600	N
ttyai	terminal	unknown	9600	9600	N
ttyaj	terminal	unknown	9600	9600	N
ttyak	terminal	unknown	9600	9600	N
ttyal	terminal	unknown	9600	9600	N

-----  
 [I] = Enable the port for incoming logins.  
 [O] = Configure for out bound connections.  
 [B] = Configure for logins and out bound connections.  
 [N] = No connections required for this port.

CTRL-A:Help CTRL-B:Hardcopy CTRL-C:Select From List ESC:Save/Quit

8. In the `ENABLED` column:
  - For terminals, enter `I` to enable the port for incoming logins.
  - For modems, enter `B` to configure the port for both logins and outbound connections.
  - For unused ports, enter `N` for no connections.
9. Press **Esc** when all devices have been administered.

The following screen represents a sample administration:

```

DEVICE      T/P/M/U      TTYTYPE      GETTY/SPEED      OPTIONS      ENABLED
ttyaa       modem        unknown      4800      4800
ttyab       modem        unknown      9600      9600
ttyac       modem        unknown      9600      9600
ttyad       modem        unknown      9600      9600
ttyae       modem        unknown      9600      9600
ttyaf       printer
ttyag       unused      unknown      9600      9600
ttyah       unused      unknown      9600      9600
ttyai       unused      unknown      9600      9600
ttyaj       unused      unknown      9600      9600
ttyak       unused      unknown      9600      9600
ttyal       printer
-----
Save Changes (Y/N/ESC):Y

CTRL-A:Help  CTRL-B:Hardcopy  CTRL-C:Select From List  ESC:Save/Quit

```

10. Enter `Y` (yes) to save your changes.
11. Press `[Esc]` to return to the `#` prompt.
12. This completes the procedure for administering a new terminal or modem. **If you are administering a new printer, continue to the next step.**
13. Change to the `/etc/.devices` directory by entering:

```
# cd /etc/.devices
```

14. List all files (including hidden files) by entering:

```
# ls -la
```

15. Copy file `.tty02` to a new file by entering:

```
# cp .tty02 .ttyXX
```

**Note**

The “XX” in the above command represents any two integers you choose. These integers should not represent a file that already exists.

16. Edit the `.ttyXX` file by entering:

```
# vi .ttyXX
```

The `.ttyXX` file should contain lines similar to the following:

```
TTY='tty01'  
TYPE='None'  
NAME='None'  
SPEED=  
INCOME=  
DEV_ENTRY=  
FLOW_CTL=
```

17. On line 1, change “01” to the port assignment as identified in Table 4-1 through Table 4-4. For example, if the printer you are administering is connected to Jack 5 on the cluster multiplexer, and the cluster multiplexer is connected to Port A on the MEGAPLEX-96 board, then you would change “01” to “aE” (see Table 4-1). In this example, the resultant file would look like this:

```
TTY='ttyaE'  
TYPE='None'  
NAME='None'  
SPEED=  
INCOME=  
DEV_ENTRY=  
FLOW_CTL=
```

18. After making the appropriate change to line 1, write and quit the file.
19. Enter the following command to access the FACE program:

```
# face
```

The system displays the FACE menu.

20. From the FACE menu, select the `System Administration` menu.
21. From the System Administration menu, select the `Peripherals Setup` menu.
22. From the Peripherals Setup menu, select the `Printer Setup` menu.
23. From the Printer Setup menu, select the `Serial Printer Port Setup` menu.

The system responds by displaying information about Port Number 01 (`/dev/tty00`).

24. Press the “Choices” function key.

A list of existing port numbers appears, including the port number that corresponds to the port assignment you made on line 1 of the `.ttyXX` file.

25. From the Choices menu, select the desired port number.

The `Port Number:` field displays your selection.

The `Device Currently on Port:` field displays the device currently connected to the port.

26. In the `Device Speed:` field, enter the baud rate (speed) that is appropriate for the printer connected to the port.
27. In the `Printer Type:` field, enter the type of printer connected to the port. Use the “Choices” function key to display and select the valid printer types.

Note

**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.**

28. In the `Printer Name:` field, enter a name for the printer you are administering. For example, `printer1`.

29. In the `Should filter be used:` field, enter Yes or No.

Note
------

**No** is recommended.

30. Press `Save`.

31. Press `Cont`.

32. Press the `F7` function key, select exit, and press `Return`.  
The system prompt (#) returns to your screen.

---

## Connecting Terminals/Printers to the IPC-1600

The IPC-1600 is a 16 port, serial Input/Output (I/O) host controller. The 16 RS-232 asynchronous ports are wired to RJ-45 (10-pin) fanout modules via two 80-conductor ribbon cables.

---

### Connect Terminals and Printers to the Fanout Module

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

If the customer is upgrading from an R2 CMS (3B2 computer) or an R3 CMS to an R3V2 CMS, they may retain their existing terminal/printer configuration. This requires that you connect existing terminal/printer cabling (8-wire) to the R3V2 CMS machine. See the *8-Wire Cabling* section.

**Note**

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

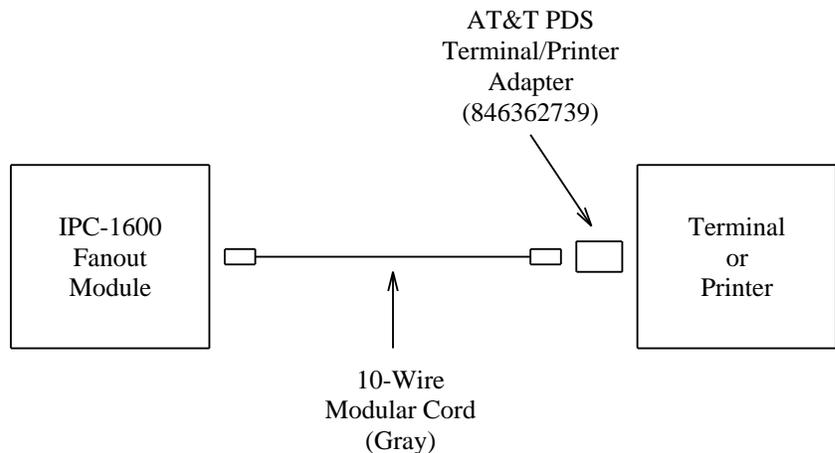
## 10-Wire Cabling

The customer configuration may connect terminals/printers to an R3V2 CMS using 10-wire modular cables. In this case, the customer needs the following material for each terminal or printer being connected to the IPC-1600 fanout module:

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

Do these steps to connect a terminal/printer to an IPC-1600 fanout module (refer to Figure 4-7):

1. Connect one 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 4-7: Terminal/Printer to the CMS Host Connection - 10-Wire Cabling**

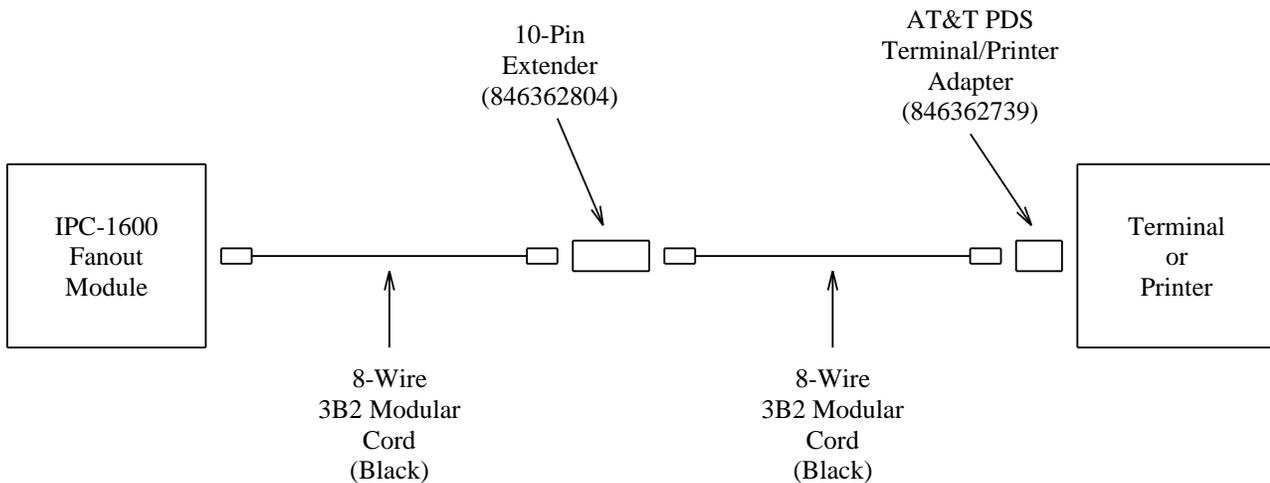
## 8-Wire Cabling

The customer configuration may connect terminals/printers to an R3V2 CMS using 8-wire modular cables. In this case, the customer needs the following material 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.

Do these steps to connect a terminal/printer to an IPC-1600 fanout module (refer to Figure 4-8):

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 4-8: Terminal/Printer to the IPC Fanout - 8-Wire Cabling**

## Administer a Terminal

**Prerequisites:** You must be logged in as *root* at the console terminal.

Administer the terminals connected to the IPC-1600 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.

---

## Administer a Printer

The following printers have been approved for use with the R3V2 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.

## Procedure

**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, 4800, 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.

---

## Supported Printers

The following printers are supported with the R3V2 CMS software application:

- 593 Laser Printer
- 583 24-Wire Dot Matrix Printer
- 580 Parallel Dot Matrix Printer (not supported with the MEGAPLEX-96 board)
- 573 Serial Dot Matrix (Wide Platen) Printer
- 572 Serial Dot Matrix (Narrow Platen) Printer
- 570 Parallel Dot Matrix Printer (not supported with the MEGAPLEX-96 board)
- 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 (not supported with the MEGAPLEX-96 board)

**Note**

The 593, 580, 570, 495, 477, 476, 475, 447, 5320, and 5310 printers are CMS approved but are no longer being manufactured.

---

## Terminal Options

After you connect the terminal to the computer, you need to set the options for the terminal. This section contains the option settings for these CMS supported terminals:

- 715 Business Communications (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 Display Terminal.

Information about the AT&T 6500 Displays (6528, 6529, 6538, and 6539) can be found in these documents:

- AT&T 6538/6539 Displays User's Guide (999-300-122IS)
- AT&T 6528/6529 Displays User's Guide (999-300-179IS).

**Note** Although the 605 BCT, 610 BCT, 615 MT, 620 MTG, 4425, and 6500-series terminals are CMS approved, they have been manufacture discontinued (MDed).

## 715 Business Communications (BCS) Terminal

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, you should set the 715 BCS options to the values shown below.

## 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

## 705 Multi-Tasking (MT) Terminal

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, you should set the 705 MT options to the values shown below.

## 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 Blank	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/Shft 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

The recommended 615 CMT options are as follows:

OPTIONS SETUP

COMMUNICATIONS	USER PREFERENCES
Speed	Columns
Send Parity	Reverse Video
Check Parity	Volume
Local Echo	Key Click
Encoding	Scrolling
Flow Control	Scroll Speed
Generate Flow	Alternate Keypad
Receive Flow	Swap Delete/Del
Pass Flow	
Monitor Mode	Cursor Type
Autowrap	Cursor Blink
Newline on LF	Labels
Return Key	Foreground
Enter Key	Background

615 CMT 1.0

[ ]
[ ]
CHANGE OPTION
DEFAULT VALUES
SAVED VALUES
SAVE
NEXT SETUP
CLEAR TO END

**Figure 4-9: 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

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_		
Monitor Mode	_off_	Cursor Type	_blk_
Autowrap	_on_	Cursor Blink	_no_
Newline on LF	_no_	Labels	_on_
Return Key	_CR_		
Enter Key	<--		

DONE
615MT 1.1

**Figure 4-10: 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)

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	blck
Return Key	__CR__	Cursor Blink	__no__
Enter Key	<--	Labels	__on__
Terminal Mode	norm	Swap Delete/Del	__no__

DONE 605 BMT - 1.0

		CHANGE OPTION	DEFAULT VALUES	SAVED VALUES	SAVE	NEXT SETUP	CLEAR TO END
--	--	------------------	-------------------	-----------------	------	---------------	-----------------

**Figure 4-11: 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)

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 Clck	__off__
Auto Wrap	__on__	Cursor Type	blck
Newline on LF	__no__	Cursor Blink	__no__
Return Key	__CR__	Labels	__on__
Enter Key	<--		

DONE 610Basic - 1.3

CHANGE  
OPTION

DEFAULT  
VALUES

SAVED  
VALUES

SAVE

NEXT  
SETUP

CLEAR  
TO END

**Figure 4-12: Terminal Options for a 610 BCT**

**Note** The “Volume” option in Figure 4-12 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

The recommended 620 MTG options are as follows:

OPTIONS SETUP			
Communications		User Preferences	
Speed	9600	Reverse Video	<u>no</u>
Send Parity	spac	Volume	<u>jump</u>
Check Parity	<u>no</u>	Key Click	<u>no</u>
Local Echo	<u>off</u>		
Generate Flow	<u>off</u>	Mouse Movement	<u>1:1</u>
Receive Flow	<u>on</u>	Mouse Button 3	<u>right</u>
Pass Flow	<u>off</u>		
		Printer Type	5320
		Printer Alarm	<u>no</u>
		Printer Speed	1200
		Printer Parity	none
Monitor Mode	<u>yes</u>	Cursor Type	blk
Auto Wrap	<u>on</u>	Cursor Blink	<u>no</u>
Newline on LF	<u>no</u>	Labels	<u>on</u>
Return Key	<u>CR</u>		
Enter Key	<u>&lt;--</u>		
DONE		620/Basic - 1.1	
<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=""/>	<input type="button" value=""/>	<input type="button" value="SAVED&lt;br/&gt;VALUES"/>	<input type="button" value="SAVE"/>
<input type="button" value=""/>	<input type="button" value=""/>	<input type="button" value="NEXT&lt;br/&gt;SETUP"/>	<input type="button" value="CLEAR&lt;br/&gt;TO END"/>

**Figure 4-13: 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

The recommended DATASPEED 4425 Display options are as follows:

:

Version

CURRENT OPTIONS					
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
123 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
Key	"Enter" ←	Field Separator	⏏	Block Terminator	⏏
Answerback					
AUXILLARY PRINTER OPTIONS					
Printer Model	*	Flow Control	*		
Speed	*	Alarm	*		
row xxx, col xxx					
PREVIOUS FIELD	NEXT FIELD	STEP	DEFAULT VALUES	SAVED VALUES	SAVE ALL
					PRINT SCREEN
					MONITOR MODE

nce

**Figure 4-14: 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.

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## Overview

AT&T technicians connect the CMS host computer to the AT&T switch. This connection allows the CMS software on the host computer to receive, store, and format the ACD information it receives from the switch.

This chapter explains how to connect the host computer to the following AT&T switches:

- DEFINITY Communications System Generic 3r

Note

This includes the Generic 3r Version 2 (G3V2) release

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

Turn to the one of these sections to connect the host computer to the switch:

- *Connect the Host Computer to the Generic 3r*
- *Connect the Host Computer to the Generic 2 or System 85*
- *Connecting the Host Computer to the Generic 3i or Generic 1.*

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

The CMS software will not communicate with the switch if the ACD/CMS feature or the PGATE/DCIU/PI hardware on the switch are not properly administered.

An experienced switch technician can refer to these appendixes to administer the switch:

- **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.

---

## Connect the Host Computer to the Generic 3r

You connect the General Purpose Synchronous Controller (GPSC-AT/E) port on the CMS host computer to the Packet Gateway board (TN577) on the Generic 3r. This connection is an RS-232C protocol.

You can connect the host computer to the Generic 3r using one of these methods:

- *Isolating Data Interface*

With this method, the maximum distance between the host computer and the Generic 3r is 200 feet.

- *Modular Processor Data Module (MPDM)*

With this method, the maximum distance between the host computer and the MPDM is 50 feet. The maximum distance between the MPDM and the Generic 3r is 5000 feet with 24-gauge wire; 4000 feet with 26-gauge wire.

- *Private Line*

This method uses two DATAPHONE II modems in addition to the MPDM and is required when the customer's configuration exceeds the MPDM distance limitations.

## Isolating Data Interface

This section describes how to connect a GPSC-AT/E port on the host computer to the Packet Gateway board on the Generic 3r via an Isolating Data Interface (IDI).

With this method, the maximum allowable distance between the host computer and the Generic 3r switch is 200 feet.

## Required Parts

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, which are:

- 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

## Procedure

Do these steps to connect the host computer to the Packet Gateway of a Generic 3r switch via an IDI (refer to Figure 5-1):

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 CMS host 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. Verify with the switch technician that the ACD/CMS feature is administered on the switch.

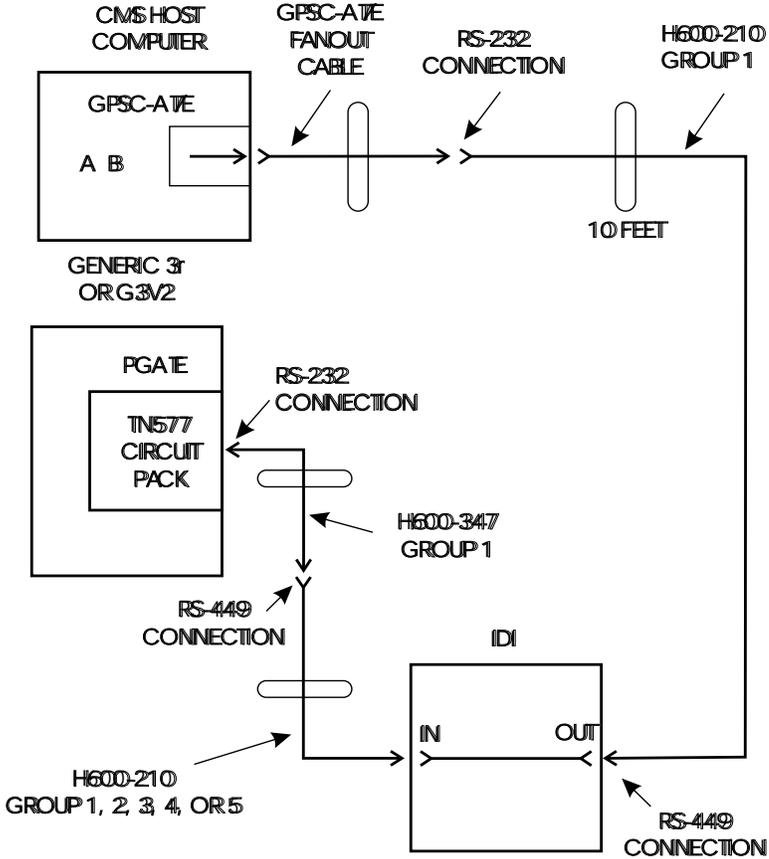


Figure 5-1: CMS Host Computer to Generic 3r Via the IDI

## Modular Processor Data Module (MPDM)

With this method, the maximum allowable distance between the CMS host computer and the 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.

## Required Parts

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 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.

## Procedure

Do these steps to connect the host computer to a Packet Gateway board on the Generic 3r switch (refer to Figure 5-2):

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 CMS host computer.
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16. Verify with the switch technician that the ACD/CMS feature on the switch is administered

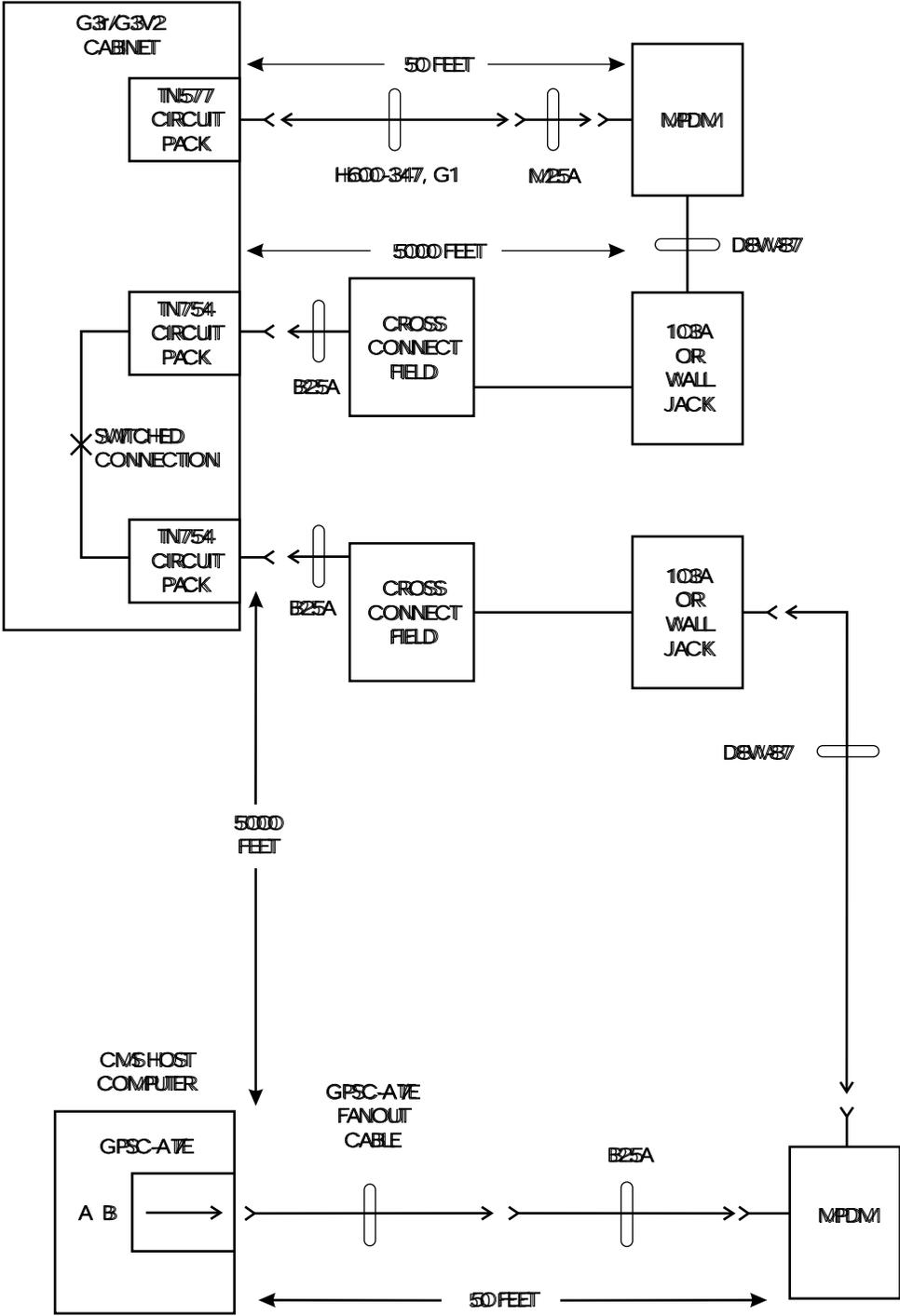


Figure 5-2: CMS Host Computer to Generic 3r Cabling With an MPDM

## Private Line

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

This method uses two DATAPHONE II modems in addition to the MPDM and is required when the customer's configuration exceeds the MPDM distance limitations.

## Required Parts

Obtain these parts to connect the CMS host computer to a private line:

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



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

- M25A cable
- One 2096C DATAPHONE II Modem.

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

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



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

- M25A cable
- One 2096C DATAPHONE II Modem.

## Procedure for CMS Host Computer to a Private Line

Do these steps to connect the host computer to a private line (refer to Figure 5-3):

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.

**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 CMS host 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

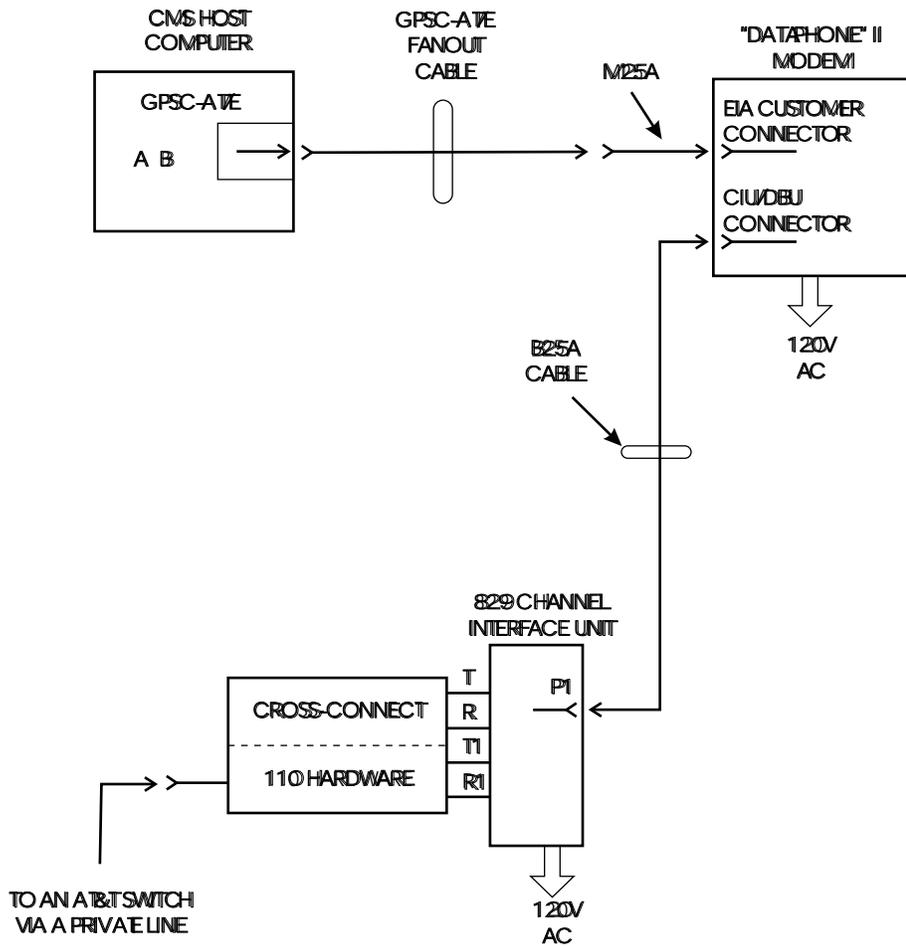


Figure 5-3: CMS Host Computer Cabling to a Private Line

## Procedure for a Generic 3r to a Private Line

Do these steps to connect the Generic 3r to a private line (refer to Figure 5-4):

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. Verify with the switch technician that the ACD/CMS feature on the switch is administered

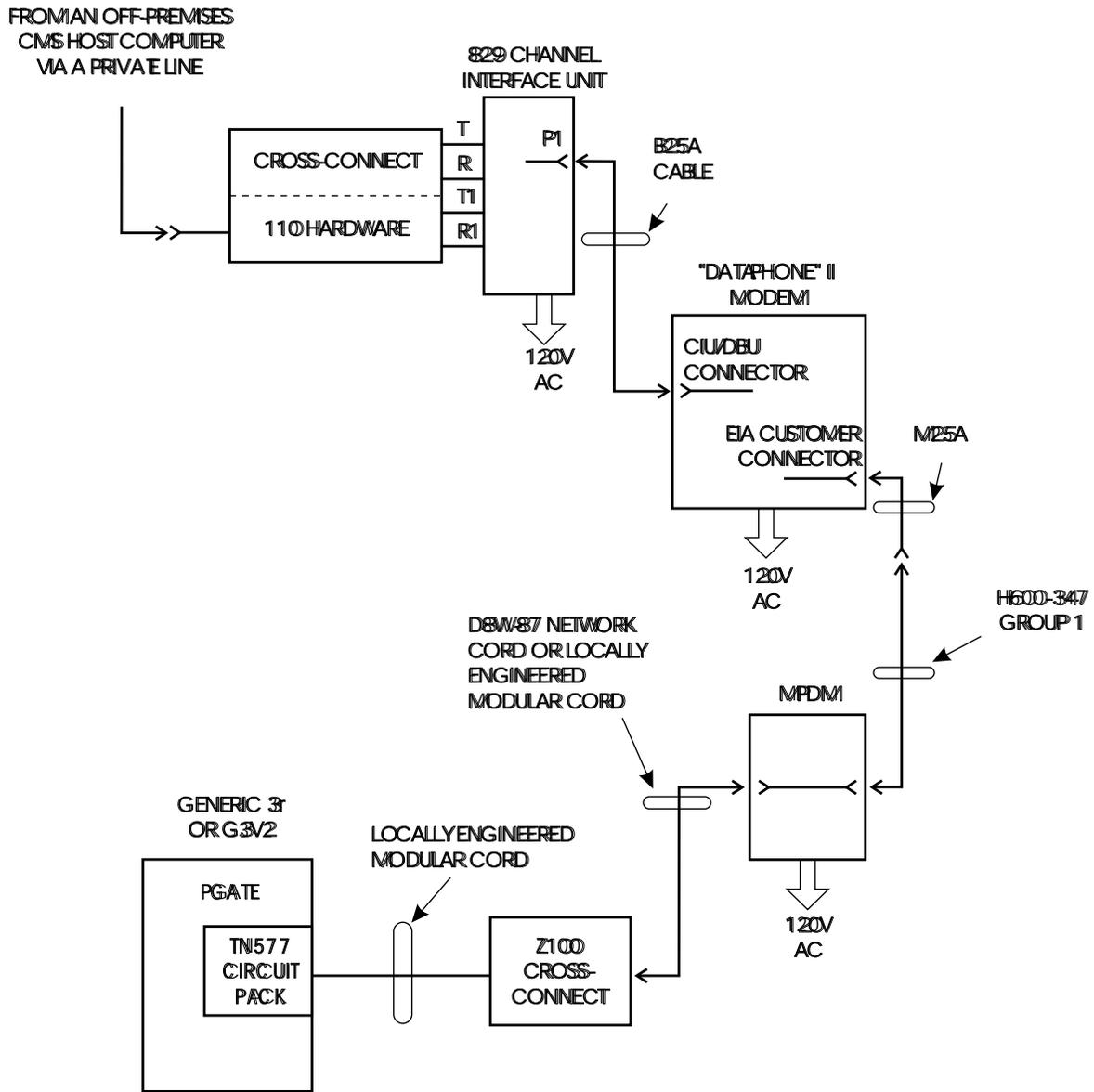


Figure 5-4: Generic 3r Cabling to a Private Line

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# Connect the Host Computer to the Generic 2 or System 85

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

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

- *Isolating Data Interface*

With this method, the maximum allowable distance between the CMS host computer and the Generic 2 or System 85 is 400 feet.

- *Local Data Service Units (DSUs)*

With this method, the maximum allowable distance between the CMS host computer and the Generic 2 or System 85 is 100 feet.

- *Remote Data Service Units (DSUs)*

Use this method when the distance between the CMS host computer and the Generic 2 or System 85 is over 100 feet.

**Note**

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).

- *Analog Private Line.*

Use this method when the distance of the DSUs has been exceeded.

Check the equipment and parts delivered to the customer's site to determine which method to use.

## Isolating Data Interface

With this method, the maximum allowable distance between the CMS host computer and Generic 2 or System 85 switch is 400 feet.

## Required Parts

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.

## Procedure

Do these steps to connect the host computer to the DCIU on the Generic 2 or System 85 via an IDI (refer to Figure 5-5):

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 CMS host computer.

The IDI must be within 10 feet of the CMS host 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. Verify with the switch technician that the ACD/CMS feature on the switch is administered.

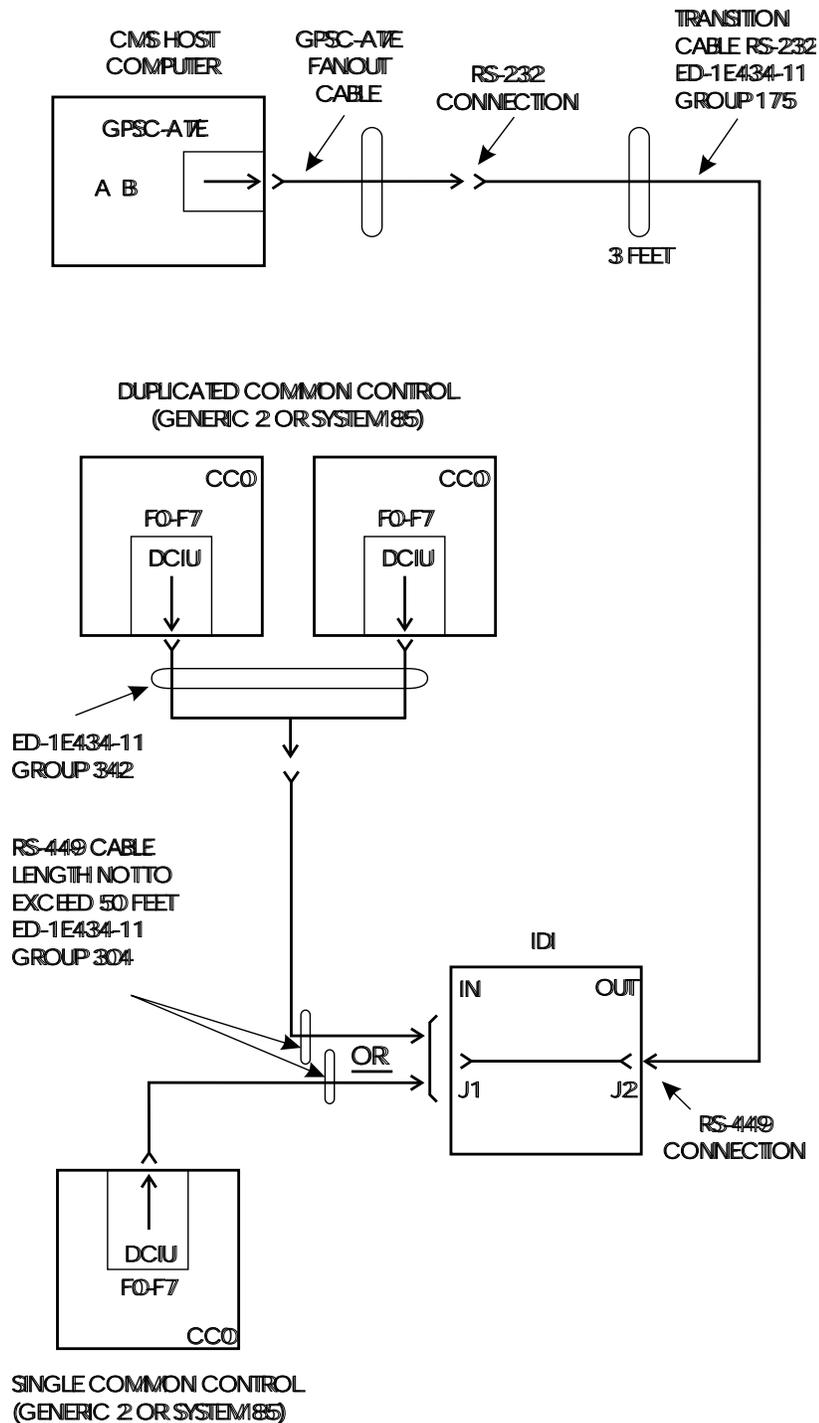


Figure 5-5: CMS Host Computer to Generic 2 or System 85 Cabling Via the IDI

## Local Data Service Units

With this method, the maximum allowable distance between the CMS host computer and the Generic 2 or System 85 switch is 100 feet.

## Required Parts

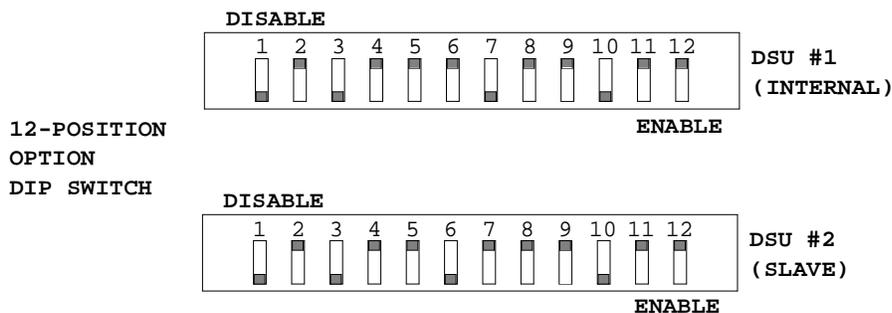
Obtain the following parts:

- 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. One DSU must be set for "internal" timing, and the other DSU must be set for "slave" timing. You do this by setting the 12-position option dip switch located on the circuit pack inside the DSU (see example below). You can also use this document as a reference when doing the installation steps in this section.



## Procedure

Do these steps to connect the CMS host computer to the DCIU on the Generic 2 or System 85 (refer to Figure 5-6):

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.

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 CMS host 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. Verify with the switch technician that the ACD/CMS feature on the switch is administered.

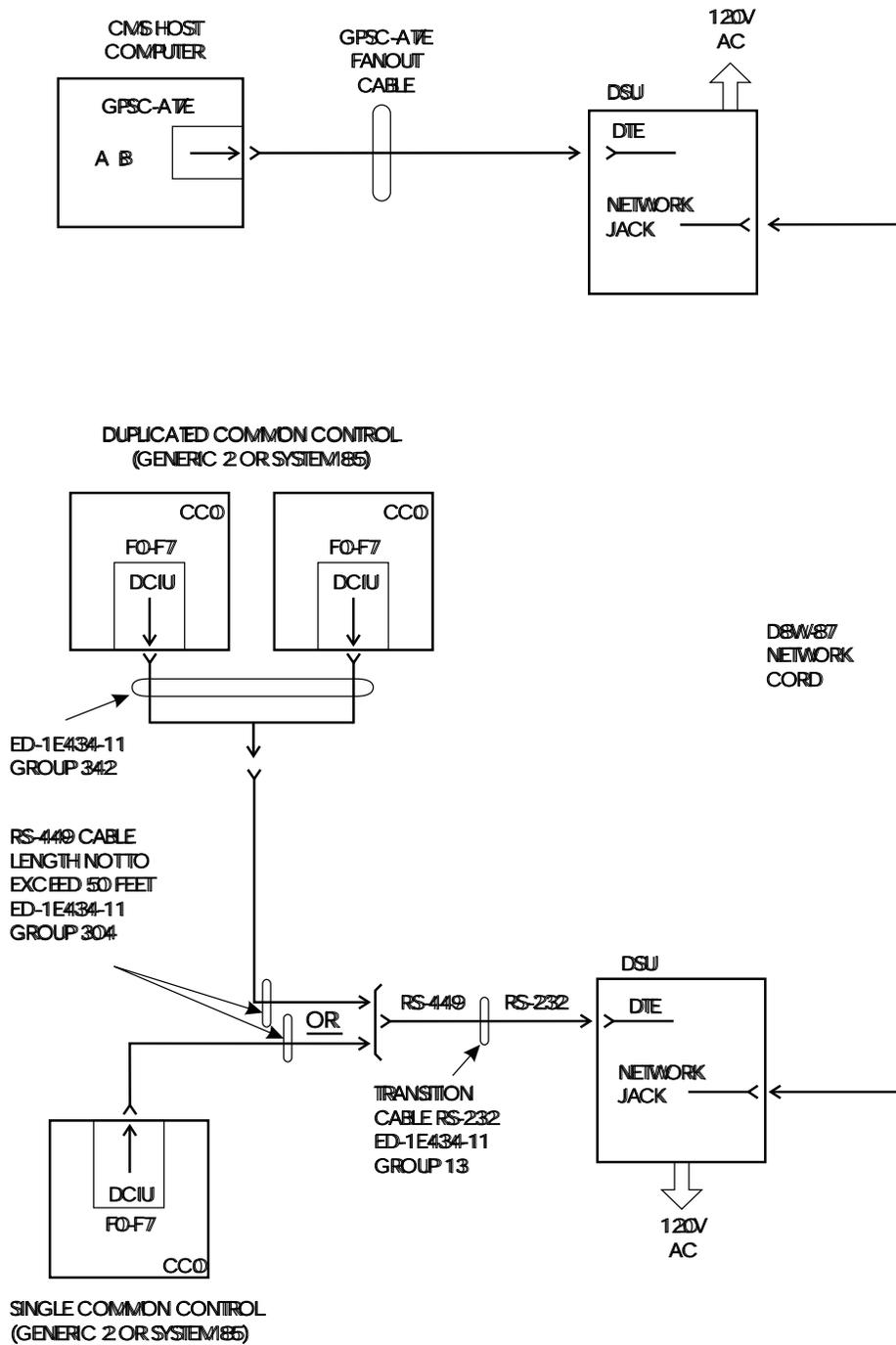


Figure 5-6: CMS Host Computer to Generic 2 or System 85 Cabling With Local DSUs

## Remote Data Service Units

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

## Required Parts

Obtain the following parts:

- GPSC-AT/E Fanout Cable



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.

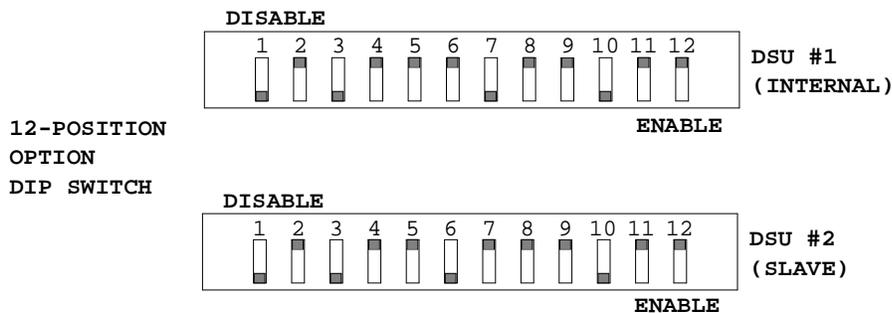
- Two Data Service Units (DSUs)
- Two D8W-87 Network Cords (25 feet) — one cord is provided with each DSU
- Two Network Interface Adapters — one adapter is provided with each DSU
- ED-1E434-11, Group 13 transition (RS-449 to RS-232C) cable (3 inches)
- ED-1E434-11, Group 304 cable (RS-449) — for single 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 5-1 shows the maximum allowable distances between the DSUs based on various wire sizes and a speed of 9.6 kbps.

**Table 5-1: 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. One DSU must be set for "internal" timing, and the other DSU must be set for "slave" timing. You do this by setting the 12-position option dip switch located on the circuit pack inside the DSU (see example below). You can also use this document as a reference when doing the installation steps in this section.



## Procedure

Do these steps to connect the CMS host computer to the DCIU on the Generic 2 or System 85 (refer to Figure 5-7):

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.

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 CMS host 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 host 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. Verify with the switch technician that the ACD/CMS feature on the switch is administered.

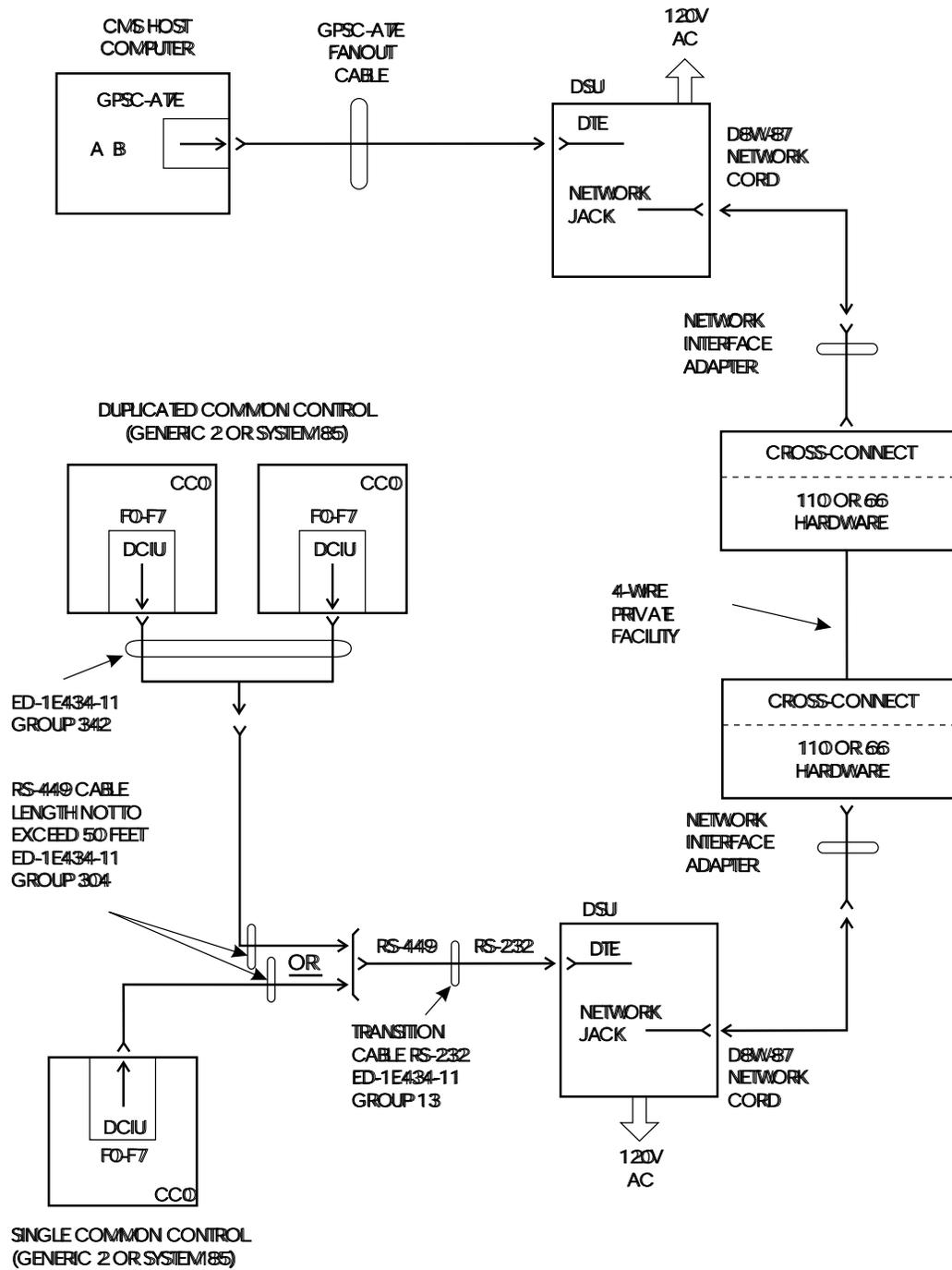


Figure 5-7: CMS Host Computer to Generic 2 or System 85 Cabling With Remote DSUs

## Analog Private Line

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

**Note** To connect the CMS host computer to an analog private line, refer to the previous section in this chapter entitled Procedure for CMS Host Computer to a Private Line.

## Required Parts

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
- 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. You order this unit through the Custom Systems organization via the Custom Systems Automation Program (CSAP).

## Procedure

Do these steps to connect the Generic 2 or System 85 to an analog private line (refer to Figure 5-8):

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.

**Note**

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. Verify with the switch technician that the ACD/CMS feature on the switch is administered.

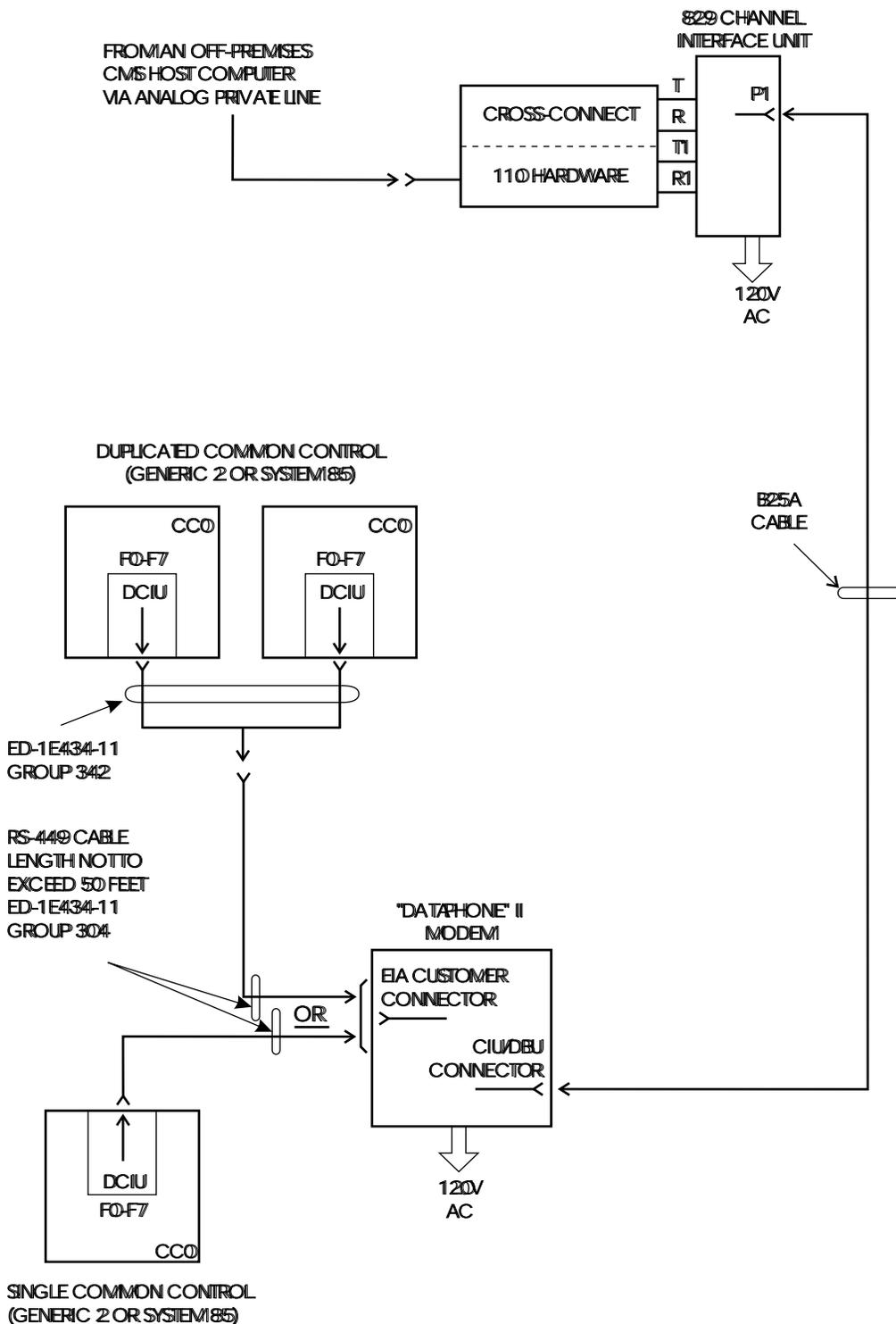


Figure 5-8: Generic 2 or System 85 Cabling to an Analog Private Line

---

## Connecting the Host Computer to the Generic 3i or Generic 1

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

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

- *EIA Connector on the Processor Interface*

With this method, the maximum allowable distance between the host computer and the Generic 3i or Generic 1 is 50 feet.

- *Modular Processor Data Module (MPDM)*

With this method, the maximum allowable distance between the host computer and the 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.

- *Analog Private Line.*

This method uses two DATAPHONE II modems in addition to the MPDM and is required when the customer's configuration exceeds the MPDM distance limitations.

## EIA Connector on the Processor Interface

This section describes how to connect a GPSC-AT/E on the CMS host 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.

With this method, the maximum allowable distance between the CMS host computer and the Generic 3i or Generic 1 switch is 50 feet.

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

## Required Parts

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, and are as follows:

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

## Procedure

Do these steps to connect the CMS host computer to the Processor Interface of a Generic 3i or Generic 1 switch (refer to Figure 5-9):

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 CMS host 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. Ask the switch technician to verify that the ACD/CMS feature on the switch has been administered.

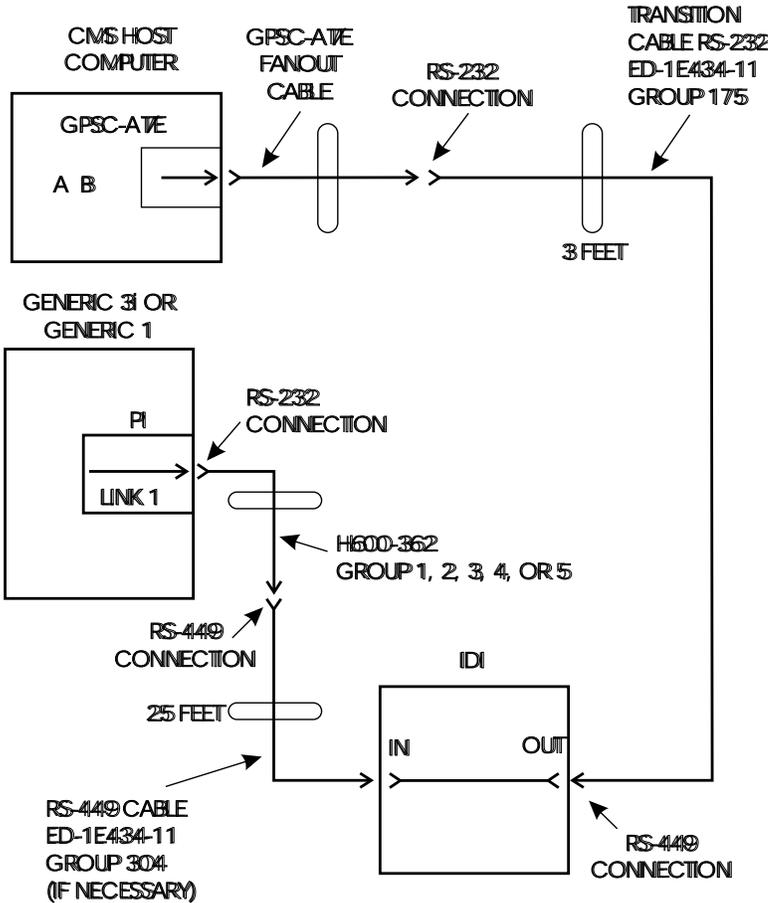


Figure 5-9: CMS Host Computer to Generic 3i or Generic 1 Cabling Via the IDI

## Modular Processor Data Module (MPDM)

With this method, the maximum allowable distance between the CMS host computer and the 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.

## Required Parts

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).

## Procedure

Do these steps to connect the CMS host computer to a Digital Port on the Generic 3i or Generic 1 switch (refer to Figure 5-10):

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.

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 CMS host 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.



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

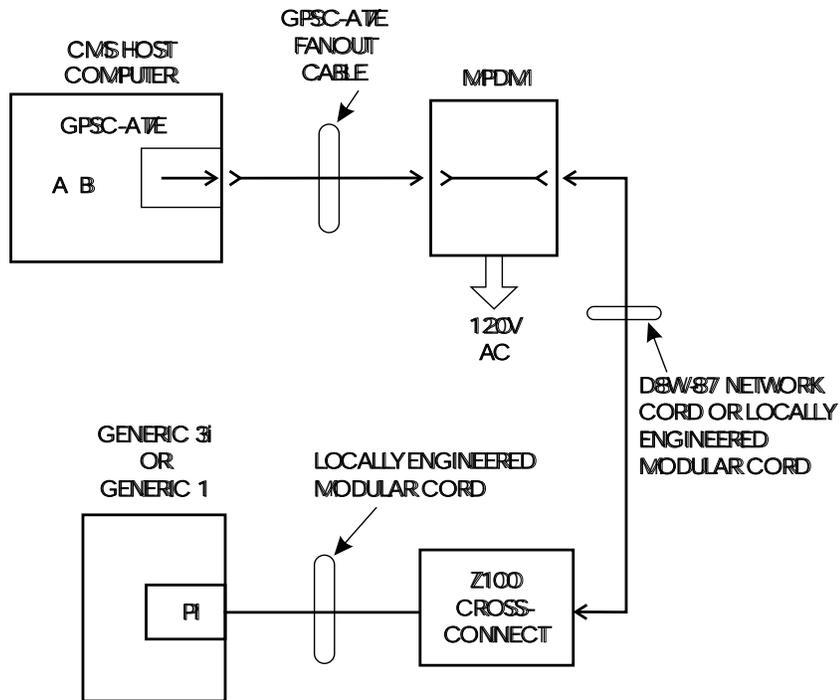


Figure 5-10: CMS Host Computer to Generic 3i or Generic 1 Cabling With an MPDM

## Analog Private Line

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

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

## Required Parts

Obtain the following parts to connect the CMS host 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. You order this unit 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. You order this unit 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.

## Procedure for CMS Host Computer to an Analog Private Line

Do these steps to connect the CMS host computer to an analog private line (refer to Figure 5-11):

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.)



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.

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 CMS host 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.

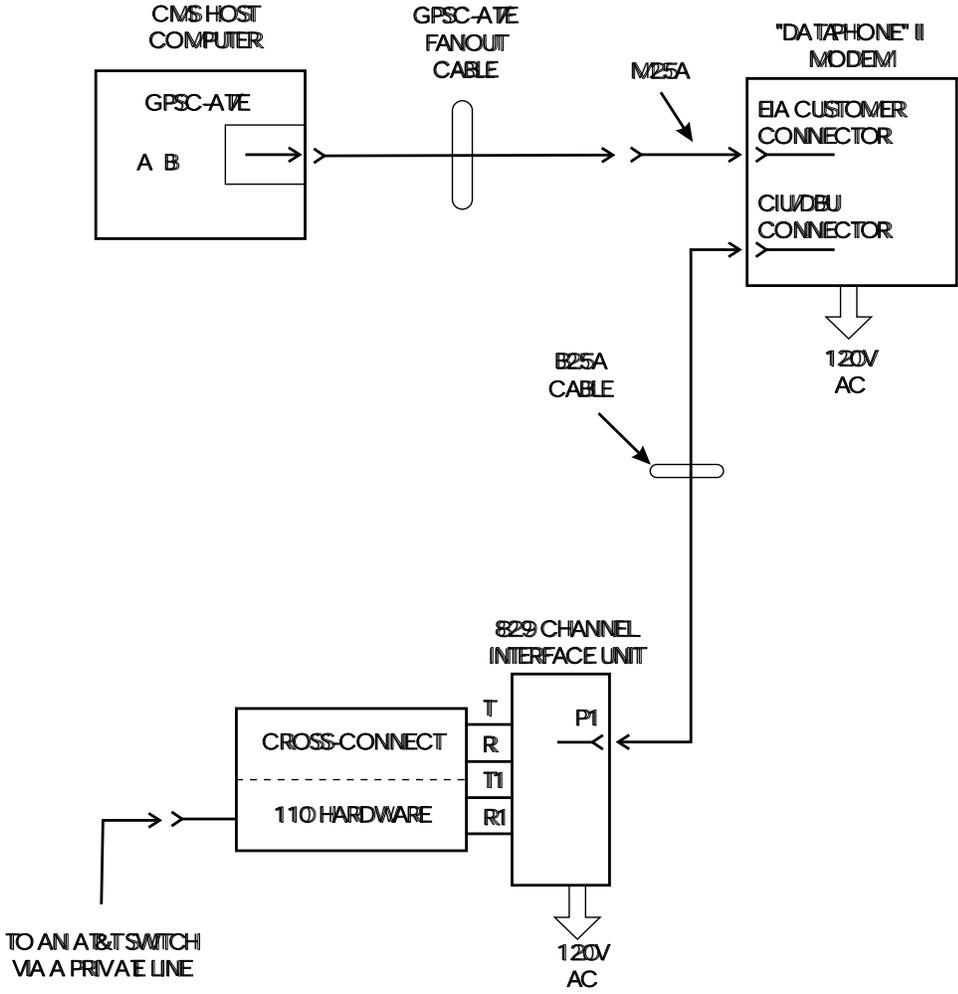


Figure 5-11: CMS Host Computer Cabling to an Analog Private Line

## Procedure for the Generic 3i or Generic 1 to an Analog Private Line

Do these steps to connect the Generic 3i or Generic 1 to an analog private line (refer to Figure 5-12):

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

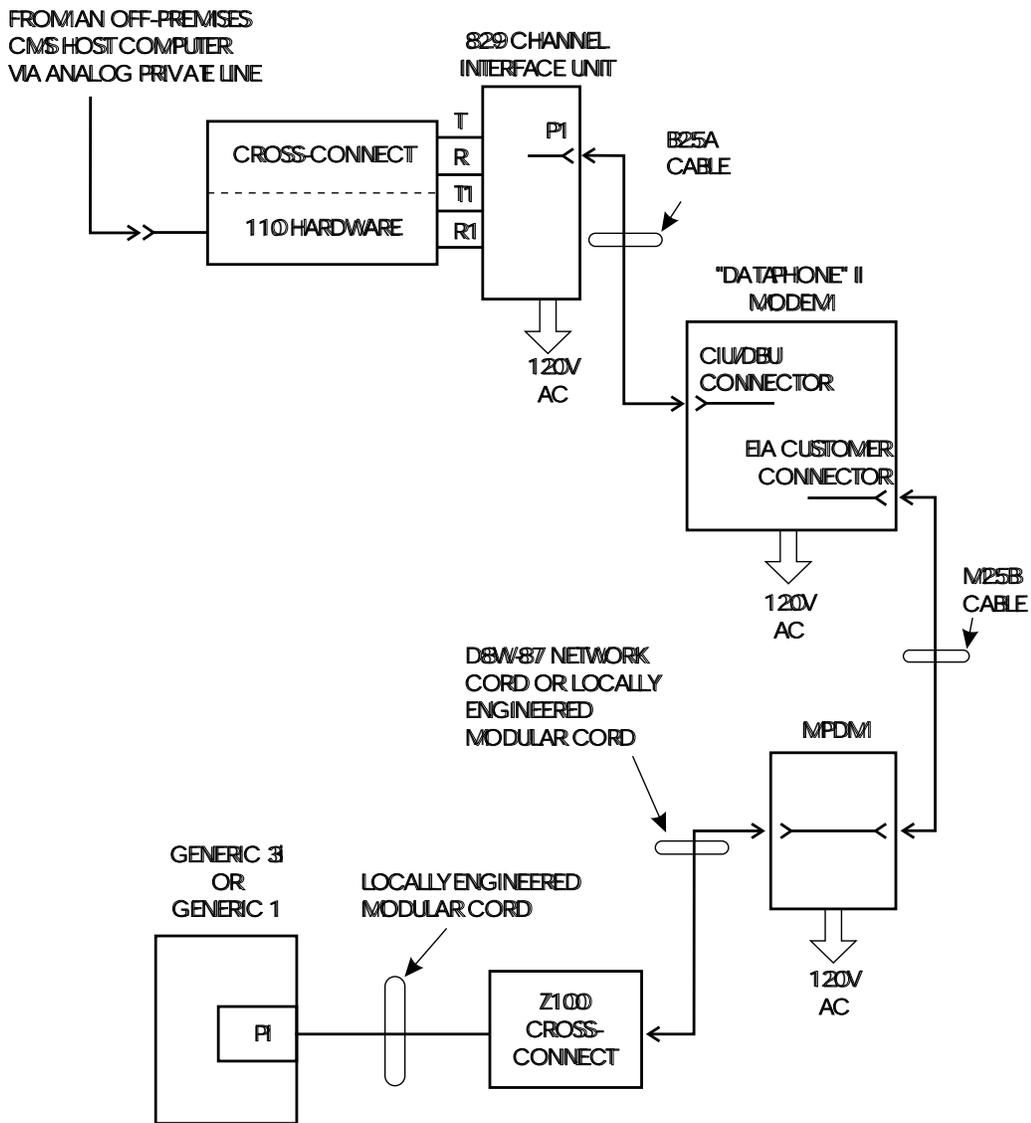


Figure 5-12: Generic 3i or Generic 1 Cabling to an Analog Private Line

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## Multiple ACD Connectivity

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### Adding an ACD to the CMS Host Computer

This section describes how to add an additional ACD to the R3V2 CMS. The R3V2 CMS can support up to four ACDs.

**Note**

An ACD can be added only if it has been purchased.

Before you begin the procedures in this section, do a CMSADM file system backup. See Chapter 8, “Performing a CMSADM Backup.”

In addition, confer with the customer’s CMS administrator. The CMS administrator may want the new ACD added to the system after regular working hours.

Adding an ACD to the R3V2 CMS consists of these tasks:

- Prepare for adding the ACD
- Turn off CMS
- Execute the `acd_create` option
- Perform tasks for adding a third ACD (if necessary)
- Connect link
- Turn on CMS

### Prepare for Adding the ACD

You need to furnish certain information about the switch and the CMS.

1. Make a copy of Table 5-2

**Table 5-2:** Form for Adding a New ACD to a CMS Host Computer

ACD Entities	ACD1	ACD2	ACD3	ACD4	Sum of ACD Entities	CMS Supported Maximum
Switch name					n/a	n/a
Switch release					n/a	n/a
Local port number					n/a	n/a
Remote port number					n/a	n/a
Link number					n/a	n/a
Number of splits/skills						600
Total split/skill members, summed over all splits/skills						5200
Number of shifts					n/a	n/a
1st shift start/stop times	n/a	n/a	n/a	n/a	n/a	n/a
2nd shift start/stop times	n/a	n/a	n/a	n/a	n/a	n/a
3rd shift start/stop times	n/a	n/a	n/a	n/a	n/a	n/a
4th shift start/stop times	n/a	n/a	n/a	n/a	n/a	n/a
Number of agents logged into all splits/skills during any shift						5200
Number of trunk groups						665
Number of trunks						4000 (see note)
Number of unmeasured trunk facilities						4000 (4 X 100)
Number of vectors						2048
Number of VDNs						2000

Note

For Table 5-2, the sum of the ACD1, ACD2, ACD3, and ACD4 entities (splits, agents, trunk groups, trunks, vectors, and VDNs) cannot exceed the CMS supported maximum values.

A minimum of 100 unmeasured trunks is required by each ACD. If more than 100 unmeasured trunks are required, and the ACD is currently using the maximum number of trunks, then the measured trunks must be reduced accordingly.

You use the `swinfo` option on the CMS Services menu to obtain information about existing ACDs.

2. Log in as `root`.
3. Access the CMS Services menu by entering `cmssvc` at the `#` prompt. The CMS Services menu appears:

```
Commands for CMS Services Personnel
```

```
Select a command from the list below.
```

- ```
1) auth_display  Display feature authorizations
2) auth_set      Authorize CMS capabilities/capacities
3) backup        Single-tape filesystem backup (in background)
4) run_cms       Turn CMS on or off
5) setup         Set up the initial CMS configuration
6) swinfo        Display switch information
7) swsetup       Change switch information
8) upd_install   Install update from disk files
9) upd_remove    Back out the currently installed update
10) upd_save     Save update on disk for later installation
Enter choice (1-10) or q to quit:
```

4. Enter 6 to select the `swinfo` option.

The following switch information is displayed:

- Switch name
- Switch release
- Local port number
- Remote port number
- Link number.

5. Enter the above entities into Table 5-2.
6. Log onto CMS and access the Data Storage Allocation window. See Chapter 11, "Data Storage Allocation" in the *CMS Administration* (585-215-521) document.
7. Use the "Commands" SLK to print the Data Storage Allocation window.
8. From the Data Storage Allocation printout, enter the values for the following entities into Table 5-2:
  - Number of splits/skills
  - Total split/skill members summed over all splits/skills
  - Number of shifts
  - Shift start and stop times
  - Number of agents logged into all splits/skills during all shifts
  - Number of trunk groups
  - Number of trunks
  - Number of unmeasured trunk facilities
  - Number of vectors
  - Number of VDNs.
9. Repeat Steps 4 through 7 for each existing ACD.
10. Enter the values for the entities associated with the new ACD into Table 5-2.
11. Sum the values for each appropriate entity (for example, ACD1 + ACD2 + ACD3 etc.) and enter that value into the Sum of ACD Entities column of Table 5-2.
12. Make sure that the summed value does not exceed the CMS-supported maximum value. If a summed value does exceed a maximum value, you will have to change the value of that entity for either the existing ACDs or the new ACD.

Preparation for adding the new ACD is complete.

## Turn Off CMS

Access the CMSADM menu and turn off the CMS. See Chapter 2, “run\_cms.”

## Execute the “acd\_create” Option

You execute the `acd_create` option on the CMSADM menu to add the new ACD to the R3V2 CMS.

**Note** The ACD must be authorized before it can be added to the CMS. See Chapter 6, “Setting Authorizations.”

1. Log in as *root*.
2. Access the CMS Administration menu by entering `cmsadm` at the `#` prompt. The CMSADM menu appears:

```
Call Management System Administration Menu
Select a command from the list below.
 1) acd_create  Define a new ACD
 2) acd_remove  Remove all administration and data for an ACD
 3) backup      Filesystem backup
 4) diskmap     Estimate disk requirements
 5) memory      Estimate memory requirements
 6) realtime    Estimate real-time report refresh rate
 7) pkg_install Install a feature package
 8) pkg_remove  Remove a feature package
 9) run_cms     Turn CMS on or off
Enter choice (1-9) or q to quit:
```

3. Enter `1` to choose the `acd_create` option.
4. At the prompts, enter the information for the new ACD from Table 5-2.

After you have entered all the required information, the message `Updating` appears, followed by `ACD created successfully`.

## Perform Tasks for Adding a Third ACD (If Necessary)

If the customer is adding a *third* ACD, additional hardware- and software-related tasks need to be performed. These tasks set up the R3V2 CMS to accept the third and fourth ACD.

**Note** The R3V2 CMS software must be load 31ap\_ EDI Issue 1.2 or later for you to perform the procedure to add a third ACD.

1. Log in as *root*.
2. Execute the `migsave` program. This program must be installed in the `/cms/toolsbin` directory for you to execute it.

The program maps IPC-1600 administration data to MEGAPLEX™ administration data.

**Note** After running the `migsave` program, you should not make any changes to files in the `/usr` directory as these changes will be overwritten when you execute the `migest` program later.

3. Remove the IPC software package. Enter the `removepkg` command and select the IPC software package.
4. Install the MEGAPORT™ device driver. See Chapter 2 in the *CMS MEGAPLEX-96 Board Installation (585-215-114)* document.

**Note** Do **not** execute the `shutdown` command now. When the software installation prompts you to execute a shutdown, press `Esc`.

5. Remove the X.25 software package. Enter the `removepkg` command and select the X.25 software package.

6. Install the X.25 software. When the software installation program prompts you to furnish the parameters for X.25 boards #0 and #1, use the values in the following table:

|                     |                                                                | <b>If Model<br/>3332</b>     | <b>If StarServer S<br/>or 6386 WGS</b> |
|---------------------|----------------------------------------------------------------|------------------------------|----------------------------------------|
| <b>GPSC-AT/E #0</b> | Interrupt vector:<br>IO address range:<br>shared memory range: | 10<br>240-24F<br>80000-8FFFF | 11<br>240-24F<br>90000-9FFFF           |
| <b>GPSC-AT/E #1</b> | Interrupt vector:<br>IO address range:<br>shared memory range: | 11<br>250-25F<br>90000-9FFFF | 10<br>250-25F<br>80000-8FFFF           |

7. Execute a shutdown by entering:

```
# shutdown -i0 -g0 -y
```

8. Power down the system when you see the “Reboot the system now” message.
9. Open the computer cabinet and remove the IPC-1600 board(s) and associated cables.
10. Install the second GPSC-AT/E board. See the appropriate appendix in this document for option settings.
11. Install the MEGAPLEX board. See Chapter 3 in the *CMS MEGAPLEX-96 Board Installation* (585-215-114) document.

**Note** Make sure that you set the PA0 through PA2 jumpers according to whether the host computer is an ISA or EISA bus system.

12. Install the Equinox® cluster multiplexer. See Chapter 3 in the *CMS MEGAPLEX-96 Board Installation* (585-215-114) document.
13. Close the computer cabinet and power up the system.
14. Once the system is back up, log in as *root*.

15. Execute the `migrest` program to map IPC-1600 administration data to MEGAPLEX administration data. See Chapter 3 in the *CMS MEGAPLEX-96 Board Installation* (585-215-114) document.
16. Transfer the terminal and printer cables from the IPC fanout module to the Equinox cluster multiplexer.

**Note**

This task may be done at the customer's convenience. For example, the customer may want to connect the link and start CMS data collection before doing this task.

17. Install the current CMS load. Enter the `installpkg` command to install the current R3V2 CMS software. The R3V2 CMS software must be load 31ap\_ EDI Issue 1.2 or later.

## Connect the Link

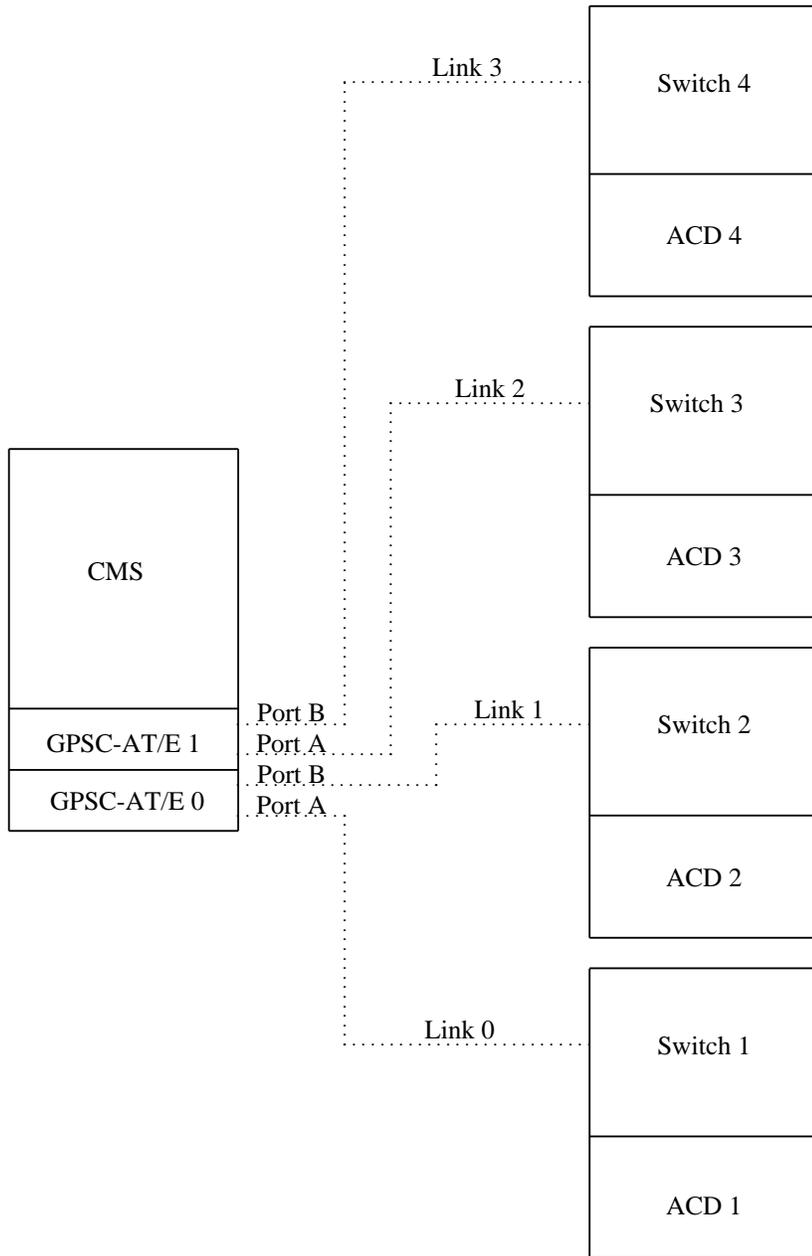
AT&T Field Technicians connect the link from the switch where the new ACD resides to the CMS host computer.

As shown in Figure 5-13, each GPSC-AT/E circuit card has two RS-232C ports. If the CMS host computer is supporting a third or fourth ACD, a second GPSC-AT/E circuit card must have been installed.

To connect the link, see the appropriate section presented earlier in this chapter.

## Turn On CMS

Access the CMSADM menu and turn on the CMS. See Chapter 2, "run\_cms."



**Figure 5-13: Sample Multi-ACD Connections**

---

## Overview

Once the on-site technicians have finished the hardware installation, TSC engineers set up the CMS application to work with the customer's configuration. If the customer ordered additional CMS feature packages, these need to be installed as well.

This chapter describes:

- Setting Authorizations
- Setting Up Data Storage Parameters
- Setting Up the CMS Application
- Installing the Forecasting Feature Package
- Installing the External Call History Package.

Typically, AT&T Production Associates set authorizations at the factory. TSC engineers verify authorizations, set up data storage parameters, and set up the CMS application remotely. On-site technicians should call the TSC to coordinate this process. Customers can install additional CMS feature packages if these packages have been authorized.

---

## Things to Do Before You Start

The TSC should check that the on-site technicians have completed these tasks:

- Connected the console terminal to the CMS host computer
- Connected the host computer to the TSC's Remote Maintenance Center
- Connected additional terminals and printers to the host computer
- Connected the link between the host computer and the switch

**Note**

If the hardware link or the ACD/CMS feature is not properly administered, the CMS software can not communicate with the switch. Refer to the appropriate appendix for switch administration procedures.

## **Information About Setup and Feature Package Installation**

- 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 application must be installed before you can install the Forecasting or External Call History feature packages.

---

# Setting Authorizations

Before TSC engineers can set up CMS, they need to set authorizations for CMS features purchased by the customer. Authorizations apply to all administered ACDs.

You can use the *auth\_set* option in the CMS Services menu to:

- add authorizations to features
- increase the number of agents or ACDs
- remove authorizations from:
  - Vectoring (if no administered ACDs use Vectoring)
  - Graphics
  - External Call History (if the package is not installed)
  - Expert Agent Selection (if no administered ACDs use Expert Agent Selection).
- reduce the maximum number of agents provided the total number of agents across all administered ACDs does not exceed the reduced number
- reduce the maximum number of ACDs provided the total number of all administered ACDs does not exceed the reduced number.

Do the following steps to run the *auth\_set* option:

1. Access the CMS Services menu by entering

---

```
# cmssvc
```

The program responds:

Commands for CMS Services Personnel

Select a command from the list below.

```
1) auth_display  Display feature authorizations
2) auth_set      Authorize CMS capabilities/capacities
3) backup        Single-tape filesystem backup (in background)
4) run_cms       Turn CMS on or off
5) setup         Set up the initial CMS configuration
6) swinfo        Display switch information
7) swsetup       Change switch information
8) upd_install   Install update from disk files
9) upd_remove    Back out the currently installed update
10) upd_save     Save update on disk for later installation
Enter choice (1-10) or q to quit:
```

2. Enter `2` to select the `auth_set` option.
3. To use the `auth_set` option, you must be authorized. The system prompts you for the password. Enter it at the `Password:` prompt.

**Note** You may not be prompted to answer some of the following questions if the current authorization cannot be changed.

After you have entered the appropriate password, the system prompts:

```
Is this an upgrade from R3V1? (y/n):
```

The above question is only displayed the first time authorization is run.

4. Enter `n` if this is not an upgrade from R3V1; otherwise, enter `y`.

**Note**

if you answer yes, a second question appears:

Did the customer purchase the R3V2 upgrade (1208-32U)? (y/n):

If you answer yes to this question, the authorization proceeds as documented below. If you answer no, the questions about authorizing EAS, external call history, and more than one ACD do not display, and the maximum number of agents that can be administered is set to 1023. The above question is always displayed during authorizations as long as the answer to it is no.

Response:

```
Authorize installation of forecasting package? (y/n):  
  (default: n)
```

5. Enter *y* if the customer purchased Forecasting; otherwise press **Return**.

Response:

```
Authorize installation of vectoring package? (y/n): (default: n)
```

6. Enter *y* if the customer purchased Vectoring; otherwise press **Return**. Response:

```
Authorize use of graphic feature? (y/n): (default: n)
```

7. Enter *y* if the customer purchased Graphics; otherwise press **Return**. Response:

```
Authorize use of external call history feature? (y/n):  
   (default: n)
```

8. Enter `y` if the customer purchased the External Call History feature; otherwise press `Return`. Response:

```
Authorize use of expert agent selection feature? (y/n):  
   (default: n)
```

9. Enter `y` if the customer purchased the Expert Agent Selection feature; otherwise press `Return`.

Response:

```
Enter maximum number of agent members that can be administered  
(1-5200):
```

**Note** There is no default for the above statement unless the CMS has been previously administered, in which case the default is the current value.

10. Enter the maximum number of agents the customer purchased for this system. Response:

```
Enter the maximum number of ACDs that can be installed (1-4):  
(default: 1)
```

11. Enter the number of ACDs the customer purchased.
12. Verify that authorizations were set by entering:

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

The *admin.log* file contains information relating to CMS administration procedures. The file should display the following message:

```
Capabilities/capacities authorized <date/time>
```

---

## Setting Up Data Storage Parameters

TSC engineers modify specific data storage parameters on the host computer so the R3V2 CMS application can operate properly. The *storage.def* file contains these data storage parameters, which are default values.

The default values may not correspond to the system you are installing. Use the values determined by the Account Executive, System Consultant, and Design Center based on the customer configuration.

Do the following steps to set up the data storage parameters in the *storage.def* file:

1. Change to the */cms/install/cms\_install* directory by entering:

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

**Note**

If you delete or damage the *storage.def* file, you can find a copy of this file (*storage.skf*) in the same directory.

2. Edit the *storage.def* file and enter the appropriate values for each question. You place the answer to each question on the line below the question.

The *storage.def* file looks like the following screens:

```
# Information for ACD 1 and any ACDs created using acd_create
command
# 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 agent login/logout records (0-999999):
10000
# Number of agent trace records:
10000
# Number of call records (0-5000 internal or 0-99999 external):
0
# Number of exceptions records (1-2000):
500
# 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
# Days of intrahour for vectors (1-62):
31
# Days of daily vectors (1-1825):
387
# Weeks of weekly vectors (1-520):
0
# Months of monthly vectors (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
# Information for ACD 2
.
.
.
```

The file repeats the previous statements for ACDs 2 through 4.

3. After entering then appropriate values, write and quit the file.

After the CMS application is running, the System Administrator can change the data storage parameters using the “Data Storage Parameters” window in the System Setup subsystem. See Chapter 11 in the *CMS Administration* (585-215-521) document.

---

## Setting Up the CMS Application

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

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

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

To set up the CMS application using this option, see the “Setting Up CMS Interactively From a Terminal” section.

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

To set up the CMS application using this option, see the “Setting Up CMS Using a UNIX Flat File” section.

## Setting Up CMS Interactively From a Terminal

Do these steps to set up CMS interactively from a terminal:

1. Access the CMS Services menu by entering:

```
# cmssvc
```

The program responds:

```
Commands for CMS Services Personnel
```

```
Select a command from the list below.
```

- 1) auth\_display Display feature authorizations
- 2) auth\_set Authorize CMS capabilities/capacities
- 3) backup Single-tape filesystem backup (in background)
- 4) run\_cms Turn CMS on or off
- 5) setup Set up the initial CMS configuration
- 6) swinfo Display switch information
- 7) swsetup Change switch information
- 8) upd\_install Install update from disk files
- 9) upd\_remove Back out the currently installed update
- 10) upd\_save Save update on disk for later installation

```
Enter choice (1-10) or q to quit:
```

2. Enter 5 to select the setup option. Response:

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

3. Enter 1 to indicate the terminal.

Response:

```
Enter a name for this UNIX system (up to 8 characters):  
(default: XXXXXX)
```

4. Enter a name that corresponds to the name of the customer's company. Response:

```
Select the type of backup device you are using  
1) SCSI cartridge tape - 120MB tape  
2) SCSI cartridge tape - 320MB tape  
3) SCSI cartridge tape - 525MB tape  
Enter choice (1-3):
```

5. Enter the appropriate number to specify the type of cartridge tape you are using as the backup device. Response:

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

6. Press **Return** to select the default. Response:

```
Enter number of ACDs being administered (1-4):
```

7. Enter the number of ACDs to be administered. (This number may be less than the number of ACDsauthorized.)

Response:

```
Information for ACD 1
```

```
Enter switch name (up to 20 characters):
```

8. Enter the name for the switch connected to ACD1. Include "R3" in the name to indicate R3 CMS. Response:

```
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
- 7) Definity-G3V2

```
Enter choice (1-7):
```

9. Enter the number that represents the switch model to which the ACD is connected.

If the switch supports vectoring and vectoring is authorized, this message appears; otherwise go to step 11.

```
Is Vectoring enabled on the switch? (y/n):
```

10. Enter *y* if Vectoring is enabled on this switch; otherwise enter *n*.

If (1) vectoring is enabled, (2) the switch supports EAS, and (3) EAS is authorized, then this message appears; otherwise go to Step 11.

```
Is Expert Agent Selection enabled on the switch? (y/n):
```

11. Enter **y** if Expert Agent Selection is enabled on this switch; otherwise enter **n**. Response:

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

12. Enter the local port or channel number on the switch. Response:

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

13. Enter the remote port or channel number on the switch. Response:

```
Enter link number (0-3):
```

The link number represents the port on the GPSC-AT/E board 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 host computer has two GPSC-AT/E boards installed, the GPSC-AT/E #0 has links 0 and 1. The GPSC-AT/E #1 has links 2 and 3.

14. Enter the link number. Response:

Number of splits/skills (0-XXX):

15. Enter the number of splits/skills in this ACD. Response:

Total split/skill members, summed over all splits/skills  
(0-XXXX):

16. Enter the maximum number of agents that can be logged into this ACD simultaneously. Response:

Number of shifts (1-4):

17. Enter the number of shifts. Response:

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

18. Enter the start time for shift 1. For example, 08:00AM. Response:

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

19. Enter the stop time for shift 1. For example, 05:00PM.

Response:

Number of agents logged into all splits/skills during shift 1  
(0-XXX):

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

**Note** Steps 17 through 19 will repeat for the number of shifts entered in Step 16.

The program continues:

Number of trunk groups (0-XXX):

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

Response:

Number of trunks (0-XXXX):

22. Enter the number of trunks associated with this ACD. Response:

Number of unmeasured facilities (0-3960):

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

```
Updating database
```

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

```
Setup completed successfully.
```

**Note**

- If the switch supports call work codes, you will see a message to enter the number of codes.
- If vectoring is enabled on the switch (you entered `y` for Step 9), you will see this message:  

```
Creating database tables.
```

Then, you will be prompted to enter the number of vectors and VDNs.
- The program repeats Steps 7 through 22 for each ACD entered in Step 6. After you define the last ACD, the program continues:

24. Verify the installation completed successfully by entering:

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

The CMS software is successfully set up when you see a message similar to the following:

```
File systems/space available:
  /cms XXXXXXXX

File systems/current blocks free:
  /cms XXXXXXXX
/cms: AGENT,SPLIT,VDN,TRUNK,TKGRP,VECTOR,AGENT_LOG_REC,
      AGENT_TRACE_REC, EXCEPTIONS_REC,WORKCODE,CALL_REC,
Setup completed successfully <date/time>
```

You may edit this file for additional information.

If you need to install additional CMS related feature packages (Forecasting or External Call History), go to the appropriate section and follow the procedures.

Now, you can turn on the CMS software. See Chapter 2, “run\_cms.”

## 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.skl* file (the flat file) and starting the install program.

1. Change to the following directory by entering:

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

2. Copy the *cms.inst.skl* file by entering:

```
# cp cms.inst.skl cms.install
```

3. Edit the *cms.install* (flat) file by entering:

```
# vi 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 this:

```
# Enter a name for this UNIX system (up to 8 characters):

# Select the type of backup device you are using
# 1) SCSI cartridge tape - 120MB tape
# 2) SCSI cartridge tape - 320MB tape
# 3) SCSI cartridge tape - 525MB tape
# Enter choice (1-3):

# Default backup device paths based on device type:
# Device                               Default backup path
# SCSI cartridge tape - 120MB tape /dev/scsi/qtape1
# SCSI cartridge tape - 320MB tape /dev/scsi/qtape1
# SCSI cartridge tape - 525MB tape /dev/scsi/qtape1
# Enter the default backup device path:

# Enter number of ACDs being administered (1-4):

# The following information is required per ACD:
# Information for ACD 1:
# Enter switch name (up to 20 characters):

# 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
# 7) Definity-G3V2
# Enter choice (1-7):

# Is Vectoring enabled on the switch? (y/n):

# Is Expert Agent Selection enabled on the switch? (y/n):

# Enter the local port assigned to switch (1-64):

# Enter the remote port assigned to switch (1-64):

# Enter link number (0-3):

# Maximum number of splits/skills based on switch type:
# Release(s)                               Value
# System85-R2V4/Definity-G2.1/Definity-G2.2      60
# Definity-G1.1/Definity-G3i/Definity-G3r        99
# Definity-G3V2                                  255
# Definity-G2.2(EAS)                             600
# Number of splits/skills (0-Maximum):
```

```
# Maximum number of split/skill members based on switch type:
# Release(s)                                Value
# Definity-G1.1/Definity-G3i                400
# System85-R2V4/Definity-G2.1/Definity-G2.2/Definity-G3r 1023
# Definity-G2.2(EAS)                        5115
# Definity-G3V2                              5200
# Total split/skill members, summed over all splits/skills
  (0-Maximum):

# Number of shifts (0-4):

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

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

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

# Enter the start time for shift 2 (hh:mmXM):

# Enter the stop time for shift 2 (hh:mmXM):

# Number of agents logged into all splits/skills during
  shift 2 (1-Maximum):

# Enter the start time for shift 3 (hh:mmXM):

# Enter the stop time for shift 3 (hh:mmXM):

# Number of agents logged into all splits/skills during
  shift 3 (1-Maximum):

# 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/skills 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/Definity-G2.2/Definity-G3r 255
# Definity-G3V2                              666
# Number of trunk groups (0-Maximum):
```

```
# Maximum number of trunks based on switch type:
# Release(s)                                     Value
# Definity-G1.1/Definity-G3i                     400
# System85-R2V4/Definity-G2.1/Definity-G2.2/
  Definity-G3r/ DefinityG3V2                     4000
# Number of trunks (0-Maximum):

# Number of unmeasured facilities (0 to (Maximum trunks - Number
  of trunks)):

# 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/
  Definity-G3V2                                  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/
  Definity-G3V2                                  1999
# Number of call work codes (Minimum-Maximum):

# Information for ACD 2:
.
.
.
```

The flat file repeats the previous statements for ACDs 2 through 4.

5. After you have entered all the appropriate values, write and quit the file.
6. Change to the root directory by entering:

```
# cd /
```

7. Access the CMS Services menu by entering:

```
# cmssvc
```

Response:

```
Commands for CMS Services Personnel

Select a command from the list below.
 1) auth_display Display feature authorizations
 2) auth_set     Authorize CMS capabilities/capacities
 3) backup       Single-tape filesystem backup (in background)
 4) run_cms      Turn CMS on or off
 5) setup        Set up the initial CMS configuration
 6) swinfo       Display switch information
 7) swsetup      Change switch information
 8) upd_install  Install update from disk files
 9) upd_remove   Back out the currently installed update
10) upd_save     Save update on disk for later installation
Enter choice (1-10) or q to quit:
```

8. Enter 5 to select the setup option. Response:

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

9. Enter 2 to specify that the setup will use the flat file. Response:

```
***The rest of this command is running in the background ***
```

10. Verify that the installation completed successfully by entering:

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

The CMS software is successfully set up when you see a message similar to the following:

```
File systems/space available:
/cms      XXXXXXXXXXX

File systems/current block free:
/cms      XXXXXXXXXXX
/cms: AGENT,SPLIT,VDN,TRUNK,TKGRP,VECTOR,AGENT_LOG_REC,
      AGENT_TRACE_REC, EXCEPTIONS_REC,WORKCODE,CALL_REC,
Setup completed successfully <date/time>
```

---

# 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.

Do these steps to install the Forecasting feature package:

1. Access the CMS Services menu by entering:

```
# cmssvc
```

The program responds

```
Commands for CMS Services Personnel

Select a command from the list below.
 1) auth_display Display feature authorizations
 2) auth_set     Authorize CMS capabilities/capacities
 3) backup      Single-tape filesystem backup (in background)
 4) run_cms     Turn CMS on or off
 5) setup       Set up the initial CMS configuration
 6) swinfo     Display switch information
 7) swsetup    Change switch information
 8) upd_install Install update from disk files
 9) upd_remove Back out the currently installed update
10) upd_save   Save update on disk for later installation
Enter choice (1-10) or q to quit:
```

2. Enter **1** to select `auth_display` and verify that the system is authorized to install the Forecasting package.

Sample response:

```
Capability/Capacity      Authorization
-----
          vectoring      authorized
          forecasting     authorized
          graphic         not authorized
external call history    authorized
expert agent selection   authorized
Maximum number of agents  xxxx
Maximum number of ACDs   x
```

**Note**

If Forecasting is not authorized but should be, go to the “Setting Authorizations” section and follow the procedures.

3. Access the CMS Administration menu by entering:

```
# cmsadm
```

Response

```
Call Management System Administration Menu
Select a command from the list below.
 1) acd_create  Define a new ACD
 2) acd_remove  Remove all administration and data for an ACD
 3) backup      Filesystem backup
 4) diskmap     Estimate disk requirements
 5) memory      Estimate memory requirements
 6) realtime    Estimate real-time report refresh rate
 7) pkg_install Install a feature package
 8) pkg_remove  Remove a feature package
 9) run_cms     Turn CMS on or off
Enter choice (1-9) or q to quit:
```

4. Enter 7 to select the pkg\_install option.

Response:

The CMS Features that can be installed are  
1) forecasting  
2) external call history  
Enter choice (1-2) or q to quit:

**Note**

The program displays only feature packages that are authorized and not yet installed.

5. Enter the number that corresponds to `Forecasting`. Response:

Creating database tables . . . . .

The dots continue to appear as the program sets up the Forecasting tables. After the Forecasting tables are completed, these messages appear:

Computing space requirements and file system space availability.

Forecasting package installed

6. Verify that the installation completed successfully by entering:

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

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

```
.  
. .  
. .  
Forecasting package installed <date/time>
```

You may edit this file for additional information.

If you need to install the External Call History package, go to the next section and follow the procedures.

---

## Installing the External Call History Package

**Prerequisites:** The customer must have a separate computer for the storage and reporting of call records. Both the storage machine and the CMS machine must be administered in *uucp*. If the storage machine is not running UNIX, a DOSS version of *uucp* must be used.

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

**Note**

Once the External Call History package is installed, you will no longer be able to access any call record data from CMS.

Do these steps to install the External Call History feature package:

1. Access the CMS Services menu by entering:

```
# cmssvc
```

The program responds:

```
Commands for CMS Services Personnel
```

```
Select a command from the list below.
```

```
1) auth_display  Display feature authorizations
2) auth_set      Authorize CMS capabilities/capacities
3) backup        Single-tape filesystem backup (in background)
4) run_cms       Turn CMS on or off
5) setup         Set up the initial CMS configuration
6) swinfo        Display switch information
7) swsetup       Change switch information
8) upd_install   Install update from disk files
9) upd_remove    Back out the currently installed update
10) upd_save     Save update on disk for later installation
Enter choice (1-10) or q to quit:
```

2. Enter **1** to select `auth_display` and verify that the system is authorized to install the External Call History package.

Sample response:

| Capability/Capacity      | Authorization  |
|--------------------------|----------------|
| -----                    | -----          |
| vectoring                | authorized     |
| forecasting              | authorized     |
| graphic                  | not authorized |
| external call history    | authorized     |
| expert agent selection   | authorized     |
| Maximum number of agents | xxxx           |
| Maximum number of ACDs   | x              |

**Note**

If External Call History is not authorized but should be, go to the "Setting Authorizations" section and follow the procedures.

3. Access the CMS Administration menu by entering:

```
# cmsadm
```

Response:

```
Call Management System Administration Menu
Select a command from the list below.
 1) acd_create  Define a new ACD
 2) acd_remove Remove all administration and data for an ACD
 3) backup      Filesystem backup
 4) diskmap     Estimate disk requirements
 5) memory      Estimate memory requirements
 6) realtime    Estimate real-time report refresh rate
 7) pkg_install Install a feature package
 8) pkg_remove  Remove a feature package
 9) run_cms     Turn CMS on or off
Enter choice (1-9) or q to quit:
```

4. Enter 7 to select the `pkg_install` option.

Response:

The CMS Features that can be installed are

- 1) forecasting
- 2) external call history

Enter choice (1-2) or q to quit:

**Note**

The system displays only feature packages that are authorized and not yet installed.

5. Enter the number that corresponds to External Call History.  
Response:

Enter the name of the Call History Reporting machine (up to 8 characters):

6. Enter the name of the Call History Reporting machine that was administered in *uucp*. Response:

Enter password for nuucp login on xxxxxxxx (up to 8 characters)

7. Enter the password for *nuucp* of the Call History Reporting machine that was administered in *uucp*. Response:

Enter CMS port for connection to xxxxxxxx (ttyihxxx):

8. Enter the CMS port administered in FACE for the Call History Reporting machine.

Response:

```
Select a speed for this connection
1) 19200
2) 38400
```

9. Enter the speed that the connection between the CMS and Call History Reporting machine will be using. Response:

```
Number of call segments to buffer for ACD xxxxxxxx (0-99999):
```

10. Enter the number of call records to be held in the buffer if the Call History machine cannot accept the data. (This step reserves disk space; therefore, sufficient disk space must be available.)



Step 10 is repeated for each administered ACD.

Response:

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

```
External Call History package installed
```

11. Verify that the installation completed successfully by entering:

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

The External Call History package installed successfully when you see this message:

```
.  
.   
.   
External Call History package installed <date/time>
```

You may edit this file for additional information.



---

## Overview

This chapter describes how to test the R3V2 CMS software to ensure that the application is working properly. In addition, a worksheet is provided at the end of this chapter for turning the system over to the customer. You should do these tests after:

- the initial host computer installation and CMS setup
- a CMS software package upgrade
- a CMS software package update.

Before you begin these procedures, the switch technicians must have connected the CMS host computer to the switch and translated the switch with the CMS feature enabled and the link active.

The procedures in this chapter test:

- The operating system parameters
- The connection between the R3V2 CMS host computer and the Technical Support Center (TSC)

**Note**

You do this test only after initially installing the R3V2 CMS software, not after installing a new base load or Field Update.

- The sanity of the CMS feature package

**Note**

You do this sanity test after initially installing or upgrading the R3V2 CMS software.

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

**Note**

You do this sanity test after initially installing or upgrading the R3V2 CMS software.

- The link configuration between the R3V2 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

You need to verify that the UNIX system time and the current local time are the same.

### Checking the UNIX System Date and Time

Verify that the system time is correct by entering:

```
# date
```

If the system time is correct, go to the “*Testing the Security of the System*” section.

If the UNIX system time is incorrect, go to the next section “*Setting the UNIX System Date and Time.*”

### Setting the UNIX System Date and Time

Do these steps to set the UNIX system time:

1. Access the FACE program by entering:

```
# 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 displays the fields into which you enter the appropriate date and time information.

- **Date:** Enter the appropriate system date. The system date consists of three components: Month, Day, and Year. You can display the options for each component 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. You can display the options for each component 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 R3V2 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.

## 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 CMS host computer and superuse to *root*.
2. Start the remote diagnostics by entering:

```
# rmcgmt -r
```

3. Change the active partition to DOS and reboot the machine by entering:

```
# rmtdgn
```

4. At the DOS prompt (C>), run the diagnostics menu by entering:

```
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.



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 see no error messages.

---

## Testing the Security of the System

The CMS administrator can test system security by verifying that all logins are valid and have passwords assigned to them.

Do these steps to verify that all logins are valid and have passwords assigned to them:

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 R3V2 CMS Software

The following procedure should be done by the on-site technician after the R3V2 CMS software has been installed or upgraded to verify the sanity of R3V2 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 R3V2 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  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  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 **Multuser 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 **Control** **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 R3V2 CMS application over to the customer.

**Note** If any of the steps in the test failed, refer to Chapter 9, "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, "Performing a CMSADM Backup" in Chapter 8.
2. If you have not already done so, back up the customer's historical data by doing a full maintenance backup. See Chapter 12, "Back Up Data" in the *CMS Administration* (585-215-521) document.
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  SLK to log off.

This completes the test. You can now turn the R3V2 CMS application over to the customer.

---

## Turning the System Over to the Customer

After you complete the test procedures in this chapter, go to Chapter 8, "Maintenance" and perform the backup procedures. Then, complete the worksheet below and give it to the customer's CMS administrator..

**Note** For system security, the CMS administrator must store written passwords in a secure place.

- 
- 
- |                                                                                                                |                            |
|----------------------------------------------------------------------------------------------------------------|----------------------------|
| The password for the <i>root</i> login ID.<br>(Also passwords for the system login IDs if they were assigned.) | 1. _____                   |
| The CMS administrator login ID and password.<br>(This login ID is <i>cms</i> .)                                | 2. _____                   |
| Additional CMS-administrator login IDs and passwords.                                                          | 3. _____<br>_____<br>_____ |
| The default CMS printer name.                                                                                  | 4. _____                   |
| Additional system printer names.                                                                               | 5. _____<br>_____<br>_____ |
| 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. _____                  |
- 
- 

over

The CMS administrator will also need the printed output from the **df -t** command which contains disk partitioning information,



---

## Overview

This chapter explains how to maintain the R3V2 CMS software application residing on the host computer. You should refer to the host computer User's Manual for information on how to maintain it.

This chapter discusses the following maintenance procedures:

- Performing a CMSADM Backup
- Restoring From a CMSADM Backup
- Performing a CMS Maintenance Backup
- Performing a CMS Maintenance Restore
- Recovering from a Disk Crash
- Regaining System Space
- Moving Back to a Previous Load
- Recovering CMS File System Space
- Changing the Date or Time
- Performing a UNIX System Dump
- Upgrading the UNIX Operating System.

Personnel at the TSC will need assistance from an on-site technician or the customer's CMS administrator to do most of the procedures in this chapter.

---

## Performing a CMSADM Backup

The CMSADM file system backup backs up all the file systems on the machine. This includes:

- UNIX system files and programs
- CMS programs and data
- Non-CMS data placed on the computer by the customer.

The CMSADM file system backup should be done:

- At the factory.

This backup is shipped with a new system and can be used during installation, if necessary.

- After the CMS is provisioned.

This backup contains the UNIX system files and programs and CMS configuration data placed on the computer by TSC provisioning personnel.



In addition, field technicians should perform a CMS full maintenance backup before they turn a new system over to the customer. See Chapter 12, “Back Up Data” in the *CMS Administration* (585-215-521) document.

- Before the CMS software is upgraded or updated
- Monthly.

See Chapter 12, “Backup Strategy” in the *CMS Administration* (585-215-521) document.

The number of cartridge tapes required to complete a CMSADM file system backup depends on the amount of data of the system. The program calculates the number of tapes required and informs the user.

Before starting the backup procedures in this section, log in as *root* and execute this command:

```
# lp /etc/fstab
```

The output from the printer is necessary when doing a system restore.

**Note**

You should bundle the printout of the */etc/fstab* file with the system backup tape(s) for future reference.

Do these steps to perform a CMSADM file system backup:

1. At the system console, log in as *root* and verify that the computer is in multiuser state.
2. In multiuser state, execute the following command to access the CMS Administration menu:

```
# cmsadm
```

The CMS Administration menu displays:

```
Call Managemnet System Administration Menu
```

```
Select a command from the list below.
```

```
1) acd_create Define a new ACD
2) acd_remove Remove all administration and data for an ACD
3) backup Filesystem backup
4) diskmap Estimate disk requirements
5) memory Estimate memory requirements
6) realtime Estimate real-time report refresh rate
7) pkg_install Install a feature package
8) pkg_remove Remove a feature package
9) run_cms Turn CMS on or off
Enter choice (1-9) or q to quit:
```

3. Enter 3 to select the backup option. Response:

```
Insert tape, press ENTER when ready:
```

4. Insert the tape into the tape drive and press **Return**. Response:

```
Calculating approximate number of tapes required. Please
wait.
```

Time passes as the program determines the number of tapes required.

The program responds:

System Message

```
The backup will need approximately:  
XX cartridge tapes(s) for a 60 MB drive or  
XX cartridge tape(s) for a 120 MB drive or  
XX cartridge tapes(s) for a 525 MB drive
```

```
Please insert the first cartridge tape. Be sure to number the  
cartridge tape(s) consecutively in the order they will be  
inserted.
```

```
Strike ENTER when ready.
```

5. Press **Return** . Response:

```
Backing up files ...
```

**Note**

The program will inform you when the end of tape is reached and will prompt you to insert the next tape. If you insert another tape, you must allow the tape to rewind/reposition before you press **Return**.

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 or BREAK to quit!
```

**Note**

If CMS is running, the backup option automatically turns off CMS. If CMS is not running, the screens related to turning off CMS will not be seen.

6. Press **Return** to proceed with the remainder of the backup.

Response:

```
*** Turning off CMS, Please wait ***
. . . . .
*** CMS is now off ***
XXXXXX blocks
Please wait for initialization
. . .
*** CMS is now up ***
Please label the backup tape(s) with the date and current CMS
version 31XXX
```

You are returned to the system prompt.

7. Label the CMSADM backup tape(s) with the date and CMS version.

---

## Restoring From a CMSADM Backup

The file systems on the CMS host computer can be restored when an accidental loss of data occurs.

To restore the file systems from a CMSADM backup, 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.

---

## Performing a CMS Maintenance Backup

CMS maintenance backups save only CMS data (administration and historical).

The CMS data for each ACD should be backed up as follows:

- After the CMS is provisioned
- After the CMS software is upgraded or updated
- Weekly.

You run these backups from the `Maintenance: Back Up Data` window. See Chapter 12, “Back Up Data” and “Backup Strategy” in the *CMS Administration (585-215-521)* document.

---

## Performing a CMS Maintenance Restore

The R3V2 CMS software application allows you to restore CMS data lost due to system failure, disk crashes, etc. You can restore all CMS data files that you have previously backed up via a CMS maintenance backup.

**Note**

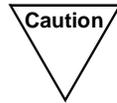
You can execute a CMS maintenance restore from any CMS terminal; however, the console terminal must be powered on. If it is not, the UNIX system routines used to do the restore cannot operate.

You run a restore from the `Maintenance: Restore Data` window. See Chapter 12, “Restore Data” in the *CMS Administration (585-215-521)* document.

---

## Recovering from a Disk Crash

This section explains how to recover CMS databases after a disk has crashed.



Only **QUALIFIED TSC PERSONNEL** should perform the procedures in this section.

---

### Recovering from a Main Disk Crash

When the data on the main disk is lost, data for all the file systems on that disk must be restored. This data includes:

- Dump
- Swap
- / (root)
- /usr
- /cms.

The procedures for recovering from a main disk crash depend on the number of disks installed with the host computer and whether a CMSADM file system backup is available.

### CMSADM Backup Available

If a CMSADM file system backup is available, follow the appropriate procedure according to the number of disks present:

### Host Computer With Two Disks

A CMS with two disks has the following data on the second disk:

- swap
- /usr/dbtemp
- /usr/spool/lp
- /cms1.

The swap space is allocated automatically when the disk is reformatted.

Do these steps to recover the *main* disk for a host computer with two disks.

1. Use the following `cpio` command to restore the data from the CMSADM file system backup:

```
cpio -icBmudf -C 10240 -I /dev/scsi/qtape1 "/usr/spool/lp/*" "/usr/dbtemp/*" "/cms1/*"
```

**Note**

The above `cpio` command restores everything *except* the data in `/usr/spool/lp`, `/cms1`, and `/usr/dbtemp`. These file systems are then restored:

- `/` (root)
- `/cms`
- `/usr`.

2. Restore the CMS from the latest CMS maintenance backups. See “CMS Maintenance Restore for a Disk Crash” later in this section.

### Host Computer With More Than Two Disks

1. To restore a CMS with more than two disks, add the additional disks to the `cpio` command line by adding `/cms2/*`, `/cms3/*` and so on.
2. Restore the CMS from the latest CMS maintenance backups. See “CMS Maintenance Restore for a Disk Crash” later in this section.

### Host Computer With One Disk

1. If the host computer has only *one disk*, restore the data using the CMSADM backup and the following `cpio` command:

```
cpio -icBmud -C 10240 -I /dev/scsi/qtape1
```

2. Restore the CMS from the latest CMS maintenance backups. See “CMS Maintenance Restore for a Disk Crash” later in this section.

## **No CMSADM Backup Available**

---

If the CMSADM file system backup is *not* available, you must use these procedures:

1. Reinstall the CMS software. See the appropriate appendix depending on which host computer is installed:
  - Model 3332 — Appendix D
  - StarServer S — Appendix E
  - 6386 WGS — Appendix F.
2. Rerun the CMS setup (see Chapter 6).
3. Restore the CMS from the latest CMS maintenance backups. See “CMS Maintenance Restore for a Disk Crash” later in this section.
4. Administer the printers and terminals (see Chapter 4).

## Recovering from a Disk Crash Other Than the Main Disk

Use the procedures in this section to restore data onto the second, third, fourth, etc., disks.

### CMSADM Backup Available

To recover a disk other than the main disk when the CMSADM file system backup is available, do the following:

1. Recover the printer administration and CMS historical data using the CMSADM file system backup and the following `cpio` command:

```
cpio -icBmud -C 10240 -I /dev/scsi/qtape1 "/usr/spool/lp/*" "/cms1/*"
```

2. Verify that the CMS data is accessible (via INFORMIX-ISQL) and resolve any problems before proceeding.

**Note** In a future release of the R3V2 CMS software, the Informix SQL software package will become optional. The customer must purchase this package if they use it.

3. Restore the CMS from the latest CMS maintenance backups. See "CMS Maintenance Restore for a Disk Crash" later in this section.
4. Recover the third, fourth, and subsequent disks using the following `cpio` command: (In this command `/cms2/*` represents the third disk. Use `/cms3/*` for the fourth disk and so on.)

```
cpio -icBmud -C 10240 -I /dev/scsi/qtape1 "/cms2/*"
```

### No CMSADM Backup Available

If a CMSADM file system is *not* available, do the following:

1. Reinitialize the CMS database by using the `setup` option on the CMSSVC menu (see Chapter 6).
2. Restore the CMS from the latest CMS maintenance backups. See "CMS Maintenance Restore for a Disk Crash" later in this section.

**Note** The only way to recover the printer administration is by installing UNIX.

## CMS Maintenance Restore for a Disk Crash

After the CMSADM restore is completed or after you have the system to an operable state, restore the CMS administration and historical data from the latest CMS maintenance backups. This restore loads the CMS data up to the time of the last CMS maintenance backup. See Chapter 12, “Restore Data” in the *CMS Administration (585-215-521)* document.

## Only Full Maintenance Backups Available

If only full CMS maintenance backups are available, then do a *manual* restore of the following:

- System administration data
- ACD-specific administration data
- Non-CMS data.

## Combination Full and Incremental Maintenance Backups Available

If a combination of full and incremental CMS maintenance backups are available, the following steps are the fastest way to get the system running:

1. Load the *most recent* full backup tape.
2. Do a manual restore of the ACD-specific data, system data, and non-CMS data by entering `n` in the `Restore from last backup (y/n):` field. Once the historical data is being restored, you can change CMS to the multiuser state.
3. Restore the historical data from the remaining backups. This restore can be done by selecting all of the historical data files (agent, split, vdn, vector, trunk, tkgrp, forecast data f\_\*) via “Select Tables” to restore only historical data.

**Note**

When the CMS restore is complete, turn the CMS off and then back on so the CMS runs with the newly restored administration data. (See Chapter 2, “run\_cms” to turn CMS off and on.)

## No CMSADM Backup Available

When a CMSADM file system backup is *not* available to recover specific database tables, then you must do these steps to reinitialize the CMS database:

1. Rerun the `setup` option on the CMSSVC menu. This reinitializes (removes and creates) all the CMS INFORMIX database tables. (See Chapter 6 for information about setting up CMS.)
2. Restore the CMS from the latest CMS maintenance backups. This restore loads the CMS data up to the time of the last CMS backup.

---

## Other CMS Information

See the appropriate appendix for information on these items:

- IPC board
- Remote maintenance package
- X.25 administration.

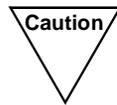
These appendixes are as follows:

- Model 3332 — See Appendix D
- StarServer S — See Appendix E
- 6386 WGS — See Appendix F.

---

## Regaining System Space

When the amount of CMS data to save is reduced, data stored in INFORMIX tables will still use the original amount of space. The INFORMIX tables must be removed and recreated to regain the system space. There are two ways to remove the INFORMIX tables and regain the system space, as explained in the following two sections.



Only **QUALIFIED TSC PERSONNEL** should perform the procedures in these section.

---

## Reinitializing CMS

One option is to reinitialize the CMS database tables, which you can do in the following manner:

1. Reduce the amount of data saved.
  - a. Reduce the amount of historical data saved by making changes in the Data Storage Allocation window.
  - b. Reduce the amount of agent trace data saved by using the Agent Trace Record Contents screen.
2. Run the daily, weekly and/or monthly archiver for the following historical data:
  - Agent
  - Split
  - Trunk
  - Trunk group
  - VDN
  - Vector
  - Call work codes.

The tables now contain the correct amount of data. When the archiver runs, it cleans up the data older than the new values you entered in Steps a and b. You may let the archiver(s) run automatically for the day, week, or month, or you may manually run the archiver(s) as follows:

- If the amount of *intra-hour* data was reduced:

Manually run the daily archiver for the previous day.

*OR*

Let the daily archiver run automatically at the end of the current day.

- If the amount of *daily* data was reduced:

Manually run the daily archiver for the previous day.

*OR*

Let the daily archiver run automatically at the end of the current day.

- If the amount of *weekly* data was reduced:

Manually run the weekly archiver for the previous week.

*OR*

Let the weekly archiver run automatically at the end of the current week.

- If the amount of *monthly* data was reduced:

Manually run the monthly archiver for the previous week.

*OR*

Let the monthly archiver run automatically at the end of the current month.

3. Perform a full CMS Maintenance backup.
4. Note the current CMS configuration and run the CMSADM *setup* option to reinitialize the CMS database.
5. Restore the CMS from the *latest* CMS maintenance backups. This restore loads the CMS data up to the time of the last CMS backup. See "Performing a CMS Maintenance Restore" section in this chapter.
6. Stop and start CMS when the CMS maintenance restore is finished. See Chapter 2, "run\_cms" to start and stop the CMS.

## Recreating Specific Tables

Another option is to manually remove and rebuild specific database tables, which you can do in this manner:

1. Perform Steps 1 and 2 of the previous section “Reinitializing CMS.”
2. Perform a full CMS maintenance backup.
3. Save the schemas of the historical database tables for which the amount of data to save was reduced. Do this in the following manner:

- a. Log in as *root*.
- b. Enter the following:

```
DBPATH=/cms/db/inf;export DBPATH
```

- c. Change directory, for example, enter the following:

```
cd /usr/cmssvc/stuff
```

- d. Use the following command to save the database table schema(s):

```
usr/informix/bin/dbschema -t<tablename> -d cms -p all<table.sql>
```

This command produces an SQL command file (such as `table.sql`) that contains the necessary statements required to create the database table.

**Note**

You must supply the two arguments enclosed in brackets above. The two arguments are defined as follows:

- `-t <tablename>` is the INFORMIX database table name of the table that has had its size reduced.
- `<table.sql>` is the filename where the SQL commands are written. The suffix “.sql” should be used for the output filename to simplify creating the database tables. This file is placed in the directory where the `dbschema` command is executed.

**Caution**

If the `-t<tablename>` option is omitted, *all* the schemas for *all* the database tables in the database are saved.

**Note**

In a future release of the R3V2 CMS software, the Informix SQL software package will become optional. The customer must purchase this package if they use it.

4. Note the file system of CMS data. Output from the `dbschema` command does not contain the filesystem/directory of the database table. The file produced by the `dbschema` command must be edited and the correct path added to the create table statement(s). Even if the historical data is in the `/cms` file system, the historical database tables are located in the `/cms/cmstables` directory. Historical data includes any of the following:

- Trunk group
- Agent trace
- Exceptions
- Call work codes
- Forecasting
- Trunks
- Agents
- Splits
- Vectors
- VDNs.

If historical data is stored in the `cms1` file system, then the database tables are located in the `/cms1/cmstables` directory.

Following is an example of the dtrunk schema edited for the *cms1* file system:

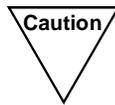
```
{root is owner of table dtrunk}
create table dtrunk,
row_date date,
acd smallint,
eqloc char(9),
incalls integer,
intime integer,
abncalls integer,
O_abncalls integer,
outcalls integer,
outtime integer,
failures integer,
audio integer,
mbusytime integer,
acdcalls integer,
othercalls integer,
shortcalls integer,
O_acdcalls integer,
O_othercalls integer,
incomplete smallint
)in"/cms1/cmstables/dtrunk";
{root is owner of index dtk_ndx1}
create index dtk_ndx1 on dtrunk (row_date,eqloc,tkgrp);
revoke all on dtrunk from public;
grant dba to root;
grant resource to public;
grant insert on dtrunk to public;
grant delete on dtrunk to public;
grant index on dtrunk to public;
grant select on dtrunk to public;
grant update on dtrunk to public;
```

5. Turn CMS off by using the `run_cms` option on either the CMSADM or CMSSVC menu (see Chapter 2).
6. Remove (drop) the database tables for which the administration changes were made by doing the following:
  - a. Enter the command: **`/usr/informix/bin/isql`**  
*OR*  
If the console is being used and/or the terminal type is not recognized — enter these commands:  
**`TERM=vt100`**  
**`/usr/informix/bin/isql`**  
The INFORMIX-SQL main menu appears.
  - b. Select `Table` from the main menu.
  - c. Select `Drop` from the Table menu.  
You are prompted for a table name to drop.
  - d. Enter the table name you want dropped.
  - e. Select `Exit` to exit the table commands in INFORMIX-SQL.
7. Create the database tables in the correct directory as follows:
  - a. Select `Query-Language` from the INFORMIX-SQL main menu.  
You will be prompted for the database name.
  - b. Enter `CMS`.
  - c. Select `Choose` from the menu.  
A list of the `.sql` files on the file system (such as your work directory) is displayed.
  - d. Select a file.
  - e. Select `Run` to execute the commands in the file to create the database tables(s).
  - f. Select `Exit` (to exit INFORMIX-SQL) when all the database tables have been created.
8. Turn CMS on by using the `run_cms` option on either the CMSADM or CMSSVC menu (see Chapter 2).

9. Perform a CMS restore for ACD-specific data to restore the historical data into the CMS database tables. If the CMS full maintenance backup uses more than one tape, an automatic CMS restore is most efficient. The automatic restore prompts for the necessary tapes to restore the historical data. You have the following options:
  - Use the *specific tables* option to restore data for specific database tables. This will save time if just one type of data is being changed.
  - Restore historical data using the *Start date* and *Start time* input fields in the Restore Data window to restore data from a specific period of time.

---

## Moving Back to a Previous Load



Only **QUALIFIED TSC PERSONNEL** should perform the procedures in this section.

If a CMS install or update fails, the CMS must be removed and the only way to restore is to move back to the previous load. To recover from this situation, do the following:

1. Remove the update. See Chapter 11, “Removing the Currently Installed Update.”
2. Install the previous CMS load. See “Downloading the CMS Software” in the appropriate appendix.
3. Restore the CMS from the *latest* CMS maintenance backups. This restore loads the CMS data up to the time of the last CMS backup. See the “Performing a CMS Maintenance Restore” section in this chapter.



---

# 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. You need to enter the appropriate information in these fields:

- **Date:** Enter the appropriate system date. The system date consists of three components: Month, Day, and Year. You can display the options for each component 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. You can display the options for each component 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 R3V2 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.

---

## Overview

This chapter contains troubleshooting information about the R3V2 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 list outlines the troubleshooting sections 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

---

## 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.

**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 "*When an Existing Terminal Fails to Operate*" section.

If you are experiencing a problem with a terminal that has just been installed and has never been used, go to the "*When a New Terminal Fails to Operate*" 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.



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                                                                 | Solution(s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Several unexpected or “garbage” characters are displayed on the window. | Try holding down the <b>Control</b> key and pressing the <b>L</b> key. This should cause the screen to be repainted without the “garbage” characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| The screen suddenly goes blank.                                         | <ol style="list-style-type: none"> <li>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.)</li> <li>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.</li> <li>3. At the rear of the terminal, locate the power switch. Turn the terminal OFF. Wait a few seconds. Turn the terminal ON.</li> <li>4. If all the other terminals have gone blank, a major power supply loss has probably occurred. Check the power source for the terminals.</li> </ol> |
| The terminal “bell” is too loud or cannot be heard.                     | Adjust the volume control on the backside of the keyboard. (Refer to your terminal manual for details.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| Symptom                                                                                                | Solution(s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Characters are not displayed on the screen when keys are pressed.                                      | <ol style="list-style-type: none"><li>1. If the small letters “ns” appear between the third and fourth SLKs, the <b>No Scroll</b> key has been pressed by mistake. Press the <b>No Scroll</b> key again to restore the normal functioning.<br/><br/><b>Note:</b> All keys that were previously pressed will have the corresponding characters displayed on the screen. If you need to, make the necessary corrections.</li><li>2. At the rear of the terminal, locate the power switch. Turn the terminal OFF. Wait a few seconds. Turn the terminal ON.</li></ol>                       |
| You turn the terminal ON, but the screen displays nothing.                                             | <ol style="list-style-type: none"><li>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.)</li><li>2. Make sure that the terminal has been turned ON. Check the power switch at the rear of the terminal.</li><li>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.</li></ol> |
| You turn the terminal ON, but the screen displays “garbage” characters (for example, a string of x’s). | <ol style="list-style-type: none"><li>1. Press the <b>Break</b> key, then the <b>Return</b> key, then the <b>Break</b> key again. Continue to alternately press these two keys until the login prompt appears.</li><li>2. At the rear of the terminal, locate the power switch. Turn the terminal OFF. Wait a few seconds. Turn the terminal ON.</li></ol>                                                                                                                                                                                                                           |

| Symptom                                                                                     | Solution(s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The terminal is “locked up.” In other words, the screen does not respond to keyboard input. | <ol style="list-style-type: none"><li>1. If your last request is taking an extremely long time to complete, press the <b>F8</b> key to bring up the main menu. Wait a few seconds. If the terminal does not respond, press the <b>F8</b> key again. Wait a few seconds.</li><li>2. If the terminal still does not respond, turn the terminal off. Wait a few seconds. Turn the terminal on and log in again.</li></ol> |
| The message “login incorrect” is displayed when you try to log in.                          | 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                                                                                                                                     | Solution(s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>You can't find a symptom that relates to your terminal problem, or the solution step(s) corresponding to your terminal did not work.</p> | <p>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.</p> <p><b>Note:</b> In some cases, you will be logged off. If this happens, log in again.</p> <ol style="list-style-type: none"> <li>1. Hold the <b>Control</b> key down and press the <b>L</b> key. In most cases, doing this will refresh the screen.</li> <li>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.)</li> <li>3. Check the terminal connections:             <ol style="list-style-type: none"> <li>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.</li> <li>b. Check for a loose connection at the keyboard and the terminal.</li> <li>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.</li> <li>d. If another terminal is available, try using it.</li> <li>e. See the CMS administrator, or escalate the problem through normal procedures.</li> </ol> </li> </ol> |

## 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                                                                                                | Solution(s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Terminal screen displays nothing.                                                                      | <ol style="list-style-type: none"> <li>1. Make sure that the terminal has been turned ON. Check the power switch at the rear of the terminal.</li> <li>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.</li> <li>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.)</li> </ol> |
| You turn the terminal ON, but the screen displays "garbage" characters (for example, a string of x's). | <ol style="list-style-type: none"> <li>1. Press the <b>Break</b> key, then the <b>Return</b> key, then the <b>Break</b> key again. Continue to alternately press these two keys until the login prompt appears.</li> <li>2. The terminal baud rate and the computer baud rate may not match. Refer to "Terminal Options" and "Administer a Terminal" in Chapter 4 to verify that the terminal options have been set properly and that the terminal baud rate has been administered properly on the computer.</li> </ol>                                    |

| <b>Symptom</b>                                                            | <b>Solution(s)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Terminal screen displays "login:" but does not respond to keyboard input. | <ol style="list-style-type: none"><li>1. Check for a loose connection at the keyboard and at the terminal.</li><li>2. The computer does not recognize the new terminal. Refer to Chapter 4, "Administer a Terminal", for instructions on how to administer a terminal.</li><li>3. Turn the power to the terminal OFF, wait for a few seconds, an turn the terminal back ON. (Refer to your terminal manual if necessary.)</li></ol> |

---

## 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/lpschedule
```

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 Chapter 12 in the *Call Management System Administration* (585-215-521) document.
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 CMS host 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 host computer is supported by a UPS and the power outage lasts longer than the UPS can support or if the host computer 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 host computer. After doing so, the host 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 host computer because of a power failure, refer to the user documentation that came with the computer.

---

## Overview

This chapter describes how to upgrade from the CMS current host computer to a new host computer while keeping the *same* release of CMS software.

The upgrade scenarios include:

- Upgrading from an *AT&T 6386 WGS* to an *NCR Model 3332*
- Upgrading from an *AT&T StarServer S* to an *NCR Model 3332*
- Upgrading from an *AT&T 6386 WGS* to an *AT&T StarServer S*

---

## Terminology

Some terminology used throughout this chapter is defined below.

- **CMSADM Filesystem Backup** - This is a backup of all the files and programs on a file system and/or machine. The backup contains UNIX files and programs, CMS data, and customer data.
- **CMS Backup** - This is a backup of all CMS data. It is run from within the CMS Maintenance subsystem. The maintenance backup includes data stored in customer-defined INFORMIX database tables which begin with "c\_." This type of backup does not include the schemas for any INFORMIX tables or the customer-defined programs used for main menu additions.
- **Non-CMS Data** - Data which is stored in customer-defined INFORMIX database tables which begin with "c\_."
- **Other Customer Data** - Data on the machine (e.g., UNIX files/programs) that was not created by CMS.
- **CMS Restore** - This restores the data that was created using the "CMS Backup" function. It takes the data from the tape and restores it to the current machine.
- **Source Machine** - When upgrading to a new hardware platform, this term is used to identify the original hardware platform which contains the information and data being migrated to a different (new) hardware platform.
- **Target Machine** - When migrating to a new Release 3.0 hardware platform, this term is used to identify the new hardware platform being upgraded to.
- **migsave** - A tool used to help upgrade to a new platform. This tool saves the printer, terminal, cron administration, cms logs, and cms user data from the source machine to a tape.

- **migrest** - A tool used in conjunction with the `migsave` to help upgrade to a new platform. This tool restores the printer, terminal, cron administration, cms logs, and cms user data from the tape (generated by `migsave`) to the target machine.
- **cmssvc/cmsadm/FACE** - The `cmssvc` and `cmsadm` menus provide commands used to complete various CMS and system functions. These menus are available in the CMS 3.1F load and later. Earlier CMS loads require the user to complete these functions using the FACE utility.
- The `FACE` utility is used to complete any system functions not accessible through the `cmssvc` and `cmsadm` menus.

---

# Upgrade Procedure Steps

The following table outlines the steps required to upgrade a system to a new processor.

| Step | Action                                              | Source Machine | Target Machine |
|------|-----------------------------------------------------|----------------|----------------|
| 1    | Hardware/Software Upgrade prerequisites             | X              | X              |
| 2    | Freeze Administration                               | X              |                |
| 3    | Record Current CMS Configuration                    | X              |                |
| 4    | Record Physical configuration                       | X              |                |
| 5    | Save Customer-Defined Database Table Schemas        | X              |                |
| 6    | Complete a Full System Backup                       | X              |                |
| 7    | Install I/O Interface Device Driver                 |                | X              |
| 8    | Complete Network Administration                     | X              |                |
| 9    | Complete an Incremental CMS Backup                  |                | X              |
| 10   | Restore CMS Peripherals and CMS Other Customer Data |                | X              |
| 11   | Run CMS Setup                                       |                | X              |
| 12   | Install CMS Feature Packages                        |                | X              |
| 13   | Create Customer-Defined Database Tables             |                | X              |
| 14   | Turn CMS On                                         |                | X              |
| 15   | Complete a Full CMS Restore                         |                | X              |
| 16   | Complete a Full CMS Restore                         |                | X              |
| 17   | Verify Data                                         |                | X              |
| 18   | Restore Other Customer data                         |                | X              |
| 19   | Transfer Internal Hardware                          | X              | X              |
| 20   | Attach Peripherals                                  |                | X              |
| 21   | Connect Switch Link                                 |                | X              |
| 22   | Complete an Incremental CMS Restore                 |                | X              |
| 23   | Cleanup                                             | X              |                |

---

# Processor Upgrade Procedures

---

## Hardware/ Software Upgrade Prerequisites

Before starting the upgrade procedures, you need to do the following:

- Check Hardware Compatibility
- Verify CMS Software Compatibility
- Check for Upgrade Tools

This needs to be done to ensure that the target system can be restored to emulate the source system.

## Check Hardware Compatibility

|                          |                    |
|--------------------------|--------------------|
| <b>Machine</b>           | Source and Target  |
| <b>Task Performed By</b> | Customer           |
| <b>Involved Parties</b>  | On-site Technician |

The hardware on both machines must be compatible. In addition to being compatible, the target machine must have equal or greater capacity in the following areas:

- Memory (RAM)
- Disk storage
- Tape drive (qtape)



The target machine qtape drive must have the same capacity as or larger capacity than the qtape drive on the source machine.

## Verify CMS Software Load

|                          |                                        |
|--------------------------|----------------------------------------|
| <b>Machine</b>           | Source and Target                      |
| <b>Task Performed By</b> | Customer                               |
| <b>Prerequisites</b>     | You must be logged in as <i>root</i> . |

The CMS software load must be the same on both the source and target machine.

To verify the current CMS software load, complete the following steps:

1. Execute the following command (on both the source and target machines):

```
# cat /usr/options/callma.name
```

The system displays the current CMS software load on that machine. For example, `Call Management System 3lapd`.

2. If the CMS software loads are **not** the same, upgrade the CMS software on the source machine to the same load as on the target machine.



If different CMS software loads exist on the source and target machine, some of the upgrade procedures outlined in this chapter will fail.

## Check for Upgrade Tools

|                          |                                        |
|--------------------------|----------------------------------------|
| <b>Machine</b>           | Source and Target                      |
| <b>Task Performed By</b> | Customer                               |
| <b>Prerequisites</b>     | You must be logged in as <i>root</i> . |

The processor upgrade uses two tools, `migsave` and `migrest`, to move specific data and administration from the source system to the target system.

The `migsave` tool must be on the source machine and the `migrest` must be on the target machine.

**Note**

The `migsave` and `migrest` programs are only available on CMS loads 31ap\_ EDI Issue 1.2 and later. If you do not have the `migsave` and `migrest` programs, contact the TSC at 1-800-344-9670 so the programs can be downloaded to your machine.

Use the steps below to verify that the tools are on the proper machine.

1. Execute the following command on the source machine to move to the proper directory:

```
# cd $CMSBASE/toolsbin
# ls -l mig*
```

2. Verify that the `migrest` file is there.
3. Execute the following command on the target machine to move to the proper directory:

```
# cd $CMSBASE/toolsbin
# ls -l mig*
```

4. Verify that the `migrest` file is there.

## Freeze Administration

No administration or file system changes should be done during the platform upgrade process.

Freeze any administration or changes on the machines in the following areas:

- CMS Administration
- Terminal, Printer, and Cron Administration
- Filesystem Changes (`usr` only).

## CMS Administration

|                          |                   |
|--------------------------|-------------------|
| <b>Machine</b>           | Source and Target |
| <b>Task Performed By</b> | Customer          |
| <b>Prerequisites</b>     | None              |

Do not perform any CMS administration tasks during the platform upgrade process.

Any CMS administration changes/additions must be done:

- On the source machine *before* beginning the upgrade process, or
- On the target machine *after* completing the upgrade process.



Any CMS administration done on the source machine *after* the beginning of the upgrade, or any CMS administration done on the target machine *before* completing the upgrade, *will be lost*.

## Terminal, Printer, and Cron Administration

|                          |                   |
|--------------------------|-------------------|
| <b>Machine</b>           | Source and Target |
| <b>Task Performed By</b> | Customer          |
| <b>Prerequisites</b>     | None              |

Do not perform any terminal, printer, or cron administration tasks during the platform upgrade process.

Any terminal, printer, and/or cron administration changes/additions must be done:

- On the source machine *before* beginning the upgrade process, or
- On the target machine *after* completing the upgrade process.



Any terminal, printer, and/or cron changes done on the source machine *after* the beginning of the upgrade or any terminal, printer, and/or cron changes done on the target machine *before* completing the upgrade *will be lost*.

## Filesystem Changes

|                          |                   |
|--------------------------|-------------------|
| <b>Machine</b>           | Source and Target |
| <b>Task Performed By</b> | Customer          |
| <b>Prerequisites</b>     | None              |

Do not change any files or directories (in the `usr` filesystem) during the platform upgrade process.

Any file and/or directory changes/additions must be done:

- On the source machine *before* beginning the upgrade process, or
- On the target machine *after* completing the upgrade process.



Any file system changes done on the source machine *after* the beginning of the upgrade, or any filesystem changes done on the target machine *before* completing the upgrade, *will be lost*.

## Record Current CMS Configuration

You will use the source machine CMS configuration to configure the target machine's CMS software. To record the source CMS configuration information you need, complete the following sections:

- Display Authorizations
- Switch Parameters
- Data Storage Allocation Parameters
- Data Storage Intervals
- Free Space Allocation Parameters
- Agent Trace Record Contents
- Backup/Restore Devices
- UNIX System Name.

## Display Authorizations

|                          |                                        |
|--------------------------|----------------------------------------|
| <b>Machine</b>           | Source                                 |
| <b>Task Performed By</b> | Customer                               |
| <b>Prerequisites</b>     | You must be logged in as <i>root</i> . |

Follow the steps below to retrieve the CMS authorization information and record it in Figure 10-1 (located at the end of this chapter). Refer to Chapter 6, "Setting Up CMS and Installing Feature Packages", of this book for information on displaying authorization information.

1. Enter `cms svc` to access the CMS services menu. The CMS Service Personnel menu displays.
2. Enter 1 to select the `auth_display` option.
3. The CMS features authorizations are displayed.

## Switch Parameters

|                          |                                        |
|--------------------------|----------------------------------------|
| <b>Machine</b>           | Source                                 |
| <b>Task Performed By</b> | Customer                               |
| <b>Prerequisites</b>     | You must be logged in as <i>root</i> . |

Do the following steps to display switch parameters. Use Table 10-2 to record the switch information.

1. Enter `cms svc` to access the CMS services menu. The CMS Service Personnel menu displays.
2. Enter 8 to select the `swinfo` option.  
The current switch administration for ACD1 is displayed.

## Data Storage Allocation Parameters

|                          |          |
|--------------------------|----------|
| <b>Machine</b>           | Source   |
| <b>Task Performed By</b> | Customer |
| <b>Prerequisites</b>     | None     |

Follow the steps below to get the data storage allocation parameters information you need to set up the target machine. For more detailed information on accessing this information, refer to the appropriate section in the *CMS Administration (585-215-521)* document.

1. From the Main Menu in CMS, select `System Setup`.
2. From System Setup menu, select `Data Storage Allocation`.
3. Use the `Print` option under **Commands** SLK to print a copy of this screen.

If you do not have a printer available, record the information in Table 10-3, Table 10-4, and Table 10-5 located at the end of this chapter.

## Data Storage Intervals

|                          |          |
|--------------------------|----------|
| <b>Machine</b>           | Source   |
| <b>Task Performed By</b> | Customer |
| <b>Prerequisites</b>     | None     |

Follow the steps below to get the data storage interval information you need to set up the target machine. For more detailed data storage interval information, refer to the appropriate section in the *CMS Administration (585-215-521)* document.

1. From the Main Menu in CMS, select `System Setup`.

2. From System Setup menu, select `Storage Intervals`.
3. Use the `Print` option under `Commands` SLK to print a copy of this screen.

If you do not have a printer available, record the information in Table 10-6 located at the end of this chapter.

## Free Space Allocation Parameters

|                          |          |
|--------------------------|----------|
| <b>Machine</b>           | Source   |
| <b>Task Performed By</b> | Customer |
| <b>Prerequisites</b>     | None     |

Follow the steps below to get the free space allocation parameters information you need to set up the target machine. Use Table 10-7 to record the information. For more detailed information on accessing this information, refer to the appropriate section in the *CMS Administration* (585-215-521) document.

1. From the Main Menu in CMS, select `System Setup`.
2. From System Setup menu, select `Free Space Allocation`.
3. Use the `Print` option under `Commands` SLK to print a copy of this screen.

If you do not have a printer available, record the status information in Table 10-7 located at the end of this chapter.

## Agent Trace Record Contents

|                          |          |
|--------------------------|----------|
| <b>Machine</b>           | Source   |
| <b>Task Performed By</b> | Customer |
| <b>Prerequisites</b>     | None     |

Use the steps below to access the agent trace record contents screen. For more detailed information on accessing this information, refer to the appropriate section in the *CMS Administration* (585-215-521) document.

1. From the Main Menu in CMS, select `System Setup`.

2. From System Setup menu, select Agent Trace Record Contents.
3. Use the Print option under **Commands** SLK to print a copy of this screen.

If you do not have a printer available, record the information in Table 10-8 and Table 10-9 located at the end of this chapter.

## Backup/Restore Devices

|                          |          |
|--------------------------|----------|
| <b>Machine</b>           | Source   |
| <b>Task Performed By</b> | Customer |
| <b>Prerequisites</b>     | None     |

Use the steps below to record the backup/restore devices information that you need to set up the target machine. For more detailed information on accessing this information, refer to the appropriate section in the *CMS Administration (585-215-521)* document.

1. From the Main Menu in CMS, select `Maintenance`.
2. From System Setup menu, select `Backup/Restore Devices`.
3. Use the `Print` option under `Commands` SLK to print a copy of this screen.

If you do not have a printer available, record the information in Table 10-10 located at the end of this chapter.

## UNIX System Name

|                          |                                                                                                                |
|--------------------------|----------------------------------------------------------------------------------------------------------------|
| <b>Machine</b>           | Source                                                                                                         |
| <b>Task Performed By</b> | Customer                                                                                                       |
| <b>Prerequisites</b>     | You must be logged in as <i>root</i> , all CMS users must be logged off, and all file systems must be mounted. |

To display the name of your UNIX system:

1. Execute the `uname -n` command.
2. Record the name in Table 10-11 *exactly* as it is displayed.

## Record Physical Configuration

|                          |                    |
|--------------------------|--------------------|
| <b>Machine</b>           | Source             |
| <b>Task Performed By</b> | Customer           |
| <b>Involved Parties</b>  | On-site Technician |
| <b>Prerequisites</b>     | None               |

The cables on the source machine must be disconnected and reconnected to the target machine. To ensure that these cables get moved to the proper location, record which cables are connected to which board and on which port. The connections you need to record are:

- GPSC-AT/E Board Connections
- Serial I/O Board Connections (IPC-1600 or MEGAPLEX-96)

**Note**

Only label and record the cable connections. Do not disconnect the cables at this time.

## GPSC-AT/E Board Connections

Identify and label the port on the GPSC-AT/E board and the associated connector on the GPSC-AT/E fanout cable.

**Note**

There should only be one connection to the GPSC-AT/E board.

## Serial I/O Board Connections

Identify and label the cable connections by following the instructions associated with the scenario, from below, that applies to your upgrade.

|    | <b>Source Machine</b> |   | <b>Target Machine</b> |
|----|-----------------------|---|-----------------------|
| 1. | IPC-1600 Board(s)     | → | IPC-1600 Board(s)     |
| 2. | IPC-1600 Board(s)     | → | MEGAPLEX-96 Board     |
| 3. | MEGAPLEX-96 Board     | → | MEGAPLEX-96 Board     |

**Scenario 1**

**IPC-1600 Board(s) → IPC-1600 Board(s)**

Identify ports P3 and P4 on the IPC-1600 board(s) and label the ribbon cables attached to those ports. Each IPC-1600 board has two ribbon cables which connect to the fanout module.

**Scenario 2”**

**IPC-1600 Board(s) → MEGAPLEX-96 Board(s)**

Identify and label each terminal and printer cable connected to the IPC-1600 fanout module. Label the cables using the following notation:

ttyXYZZ

Where

X = h (for hardware) or s (for software)

Y = IPC-1600 board number

ZZ = IPC-1600 fanout module port number

For example:

|                 |                  |
|-----------------|------------------|
| Board 1 Port 1  | label as ttyh101 |
| Board 1 Port 16 | label as ttyh116 |
| Board 2 Port 1  | label as ttyh201 |
| Board 2 Port 14 | label as ttyh214 |
| Board 3 Port 4  | label as ttyh304 |
| Board 3 Port 9  | label as ttyh309 |

Each of these cables will be moved to a corresponding port on the Cluster Multiplexer attached to the Equinox MEGAPLEX-96 board.

**Scenario 3**

**MEGAPLEX-96 Board MEGAPLEX-96 Board**

Identify ports A, B, C, and D on the MEGAPLEX-96 board and label the cables (modular or two-twisted-pair) attached to the ports. Each MEGAPLEX-96 board can have up to four cables which connect to the cluster multiplexer(s).

## Save Customer-Defined Database Table Schemas

|                          |                                                                            |
|--------------------------|----------------------------------------------------------------------------|
| <b>Machine</b>           | Source                                                                     |
| <b>Task Performed By</b> | Customer                                                                   |
| <b>Prerequisites</b>     | You must be logged in as <i>root</i> and all file systems must be mounted. |

**Note** This section needs to be done only if you have tables that begin with the characters "c\_".

In a future release of the R3V2 CMS software, the INFORMIX SQL software package will become optional. The customer must purchase this package if they use it.

When you do the CMS system backup, the data for custom tables are saved, but the table formats are not saved. You need to save the formats to diskette so they can be transferred to the target machine.

**Note** This procedure only saves the customer-defined database tables in the `cms` database.

To save your custom database table formats, do the following steps:

1. Execute the following commands to set the proper INFORMIX environment variables:

```
# DBPATH=/cms/db/inf
# export DBPATH
```

2. Execute one of the following commands:

```
# /usr/informix/bin/isql
OR
# TERM=vt100 /usr/informix/bin/isql
  (This command is used if the console is being used
   and/or the terminal type is not recognized.)
```

The **isql** program starts.

3. From the INFORMIX-SQL menu, choose the Database option.
4. From the DATABASE menu, choose the Select option.
5. From the SELECT DATABASE menu, choose the cms database.
6. From the SELECT DATABASE menu, choose the Exit option.
7. From the WINFORMIX-SQL menu, choose the Table option.
8. From the TABLE menu, choose the Info option.
9. Record the names of all database tables that begin with the characters "c\_".



This section needs to be done only if you have tables that begin with the characters "c\_".

10. After listing the table names, exit the **isql** program by selecting Exit until you are back at the UNIX shell.
11. Execute the following command to access the FACE program:

```
# face
```

The FACE menu displays.

12. From the FACE menu, select the System Administration menu.
13. From the System Administration menu, select the Disk Operations menu.

14. From the Disk Operations menu, select the proper Format option.

The system displays information about the diskette being formatted.

15. After formatting the diskette, return to the System Administration menu in FACE.
16. From the System Administration menu, select the File System Operations menu.
17. From the File System Operations menu, select the Create File System menu.  
The system responds by requesting additional information about the file system name (for example *tabls*) and file system label.
18. Return to the File System Operations menu.
19. From the File System Operations menu, select the Mount File System option and mount the newly created file system.
20. Exit FACE.
21. Change directories to the newly mounted directory by executing the following command:

```
# cd /tabls (/tabls from the previous example)
```

22. Execute the following command for each database table to be moved:

```
# /usr/informix/bin/dbschema -t c_tblname -d cms -p all  
c_save.sql
```

You must supply the two arguments (in italics above) each time the command is executed. The two arguments are:

- *c\_tblname* is the customer-defined INFORMIX database table to be moved
- *c\_save.sql* is the filename where the sql commands are written.



If the *-t c\_tblname* is left out, ALL the schemas for ALL the database tables are saved.

23. After copying all of the custom database table formats to diskette, execute the `cd` command to change to the root directory.
24. Execute the `face` command to access the FACE program.  
The FACE menu displays.
25. From the FACE menu, select the System Administration menu.
26. From the System Administration menu, select the File System Operations menu.
27. From the File System Operations menu, select the Unmount File Systems option and unmount the file system.
28. Remove the diskette from the drive and label the diskette.

## Complete a Full System Backup

You must back up the following data from the source machine:

- CMS Data
- CMS Peripherals and CMS Other Customer Data
- Other Customer Data.

The next three sections step you through completing these backups.

## CMS Data Backup

|                          |          |
|--------------------------|----------|
| <b>Machine</b>           | Source   |
| <b>Task Performed By</b> | Customer |
| <b>Prerequisites</b>     | None     |

Follow the steps below to back up CMS data from CMS. For more detailed information on accessing this information, refer to Chapter 12 in the *CMS Administration* (585-215-521) document.

1. At the source machine `CMS Main Menu`, select `Maintenance`.
2. From `Maintenance` menu, select `Back Up Data`.
3. In the `Back-Up Data` window, select the following data to back up:
  - System administration data
  - ACD specific administration data
  - Historical data, Full
  - Non-CMS data

**Note** Any CMS administration done on the source machine from this point on will *not* be moved to the target machine.

4. Select `Run` to start the backup process.

**Note** Just before you take down the source machine, you should do an incremental backup. This ensures that additional historical data collected after the full CMS backup can be loaded onto the target machine.

## CMS Peripherals and CMS User Data Backup

|                          |                                                                                                                            |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------|
| <b>Machine</b>           | Source                                                                                                                     |
| <b>Task Performed By</b> | Customer                                                                                                                   |
| <b>Prerequisites</b>     | You must be logged in as <i>root</i> , the <i>migsave</i> program must be installed, and all file systems must be mounted. |

**Note** The *migsave* program is only available on CMS loads 31ap\_ EDI Issue 1.2 or later. If you do not have the *migsave* program, contact the TSC at 1-800-344-9670 so the program can be downloaded to your machine.

The *migsave* program saves the CMS-related printer, terminal, cron administration, logs, and user data from the source machine to a tape for future retrieval.

**Note** The CMS-related user data referred to above is only the data in the `/usr` file system and only for CMS users (members of the `cms` group). Data for other users is not saved through the *migsave* program.

Follow the steps below to back up CMS peripherals and user data from the source machine using the *migsave* program.

1. Insert a tape into the tape drive.
2. Execute the *migsave* command.

The following messages display as the backup proceeds:

```
Identifying files to be saved.
```

```
Saving CMS user files, CMS logs, and terminal,  
printer and cron administration to tape. This  
could take awhile.
```

3. If more than one tape is required, the system prompts you to insert additional tapes. Input the path name of the backup/restore device you are using. Generally, this path name is `/dev/scsi/qtape1` ).

4. When the backup is complete, the following message displays:

```
Saved files are reported in /csm/tmp/saved.files
NO errors were encountered.
#
```

**Note**

If the backup was not successful, check the error log to determine what caused the failure.

5. To view the `/csm/tmp/saved.files` file, execute the `cat /csm/tmp/saved.files | pg` command.

## Other Customer Data Backup

|                          |                                                                                                                                  |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <b>Machine</b>           | Source                                                                                                                           |
| <b>Task Performed By</b> | Customer                                                                                                                         |
| <b>Prerequisites</b>     | You must be logged in as <code>root</code> , all file systems must be mounted, and all other customer data should be identified. |

Any customer data that is not located in the `/usr` directory or is in a user group other than `user` may not have been saved in the CMS Backup. Identify any data that was not backed up and follow the steps below to save the files to diskette.

1. Execute the `face` command to access the FACE program.  
The FACE menu displays.
2. From the FACE menu, select the System Administration menu.
3. From the System Administration menu, select the Disk Operations menu.
4. From the Disk Operations menu, select the proper Format option.

The system displays information about the diskette being formatted.

5. After formatting the diskette, return to the `System Administration` menu in `FACE`.
6. From the `System Administration` menu, select the `File System Operations` menu.
7. From the `File System Operations` menu, select the `Create File System` menu.

The system requests additional information about the file system name (for example `custdata`) and file system label.

8. Return to the `File System Operations` menu.
9. From the `File System Operations` menu, select the `Mount File System` option and mount the newly created file system.
10. Exit `FACE`.
11. Copy the file system(s) data to the newly mounted diskette file system by entering the following command:

```
# cp <other_data> /custdata
```

Where `<other_data>` is the path and/or file name to be backed up, and `/custdata` is the mounted file system on the diskette.

12. Repeat the previous command until all the other customer data has been backed up to diskette.
13. Execute the `cd` command to change to the root directory.
14. Execute the `face` command to access the `FACE` program.

The `FACE` menu displays.

15. From the FACE menu, select the System Administration menu.
16. From the System Administration menu, select the File System Operations menu.
17. From the File System Operations menu, select the Unmount File System option and unmount the file system on the diskette.
18. Exit FACE.
19. Remove the diskette from the drive.

**Note** Additional diskettes can be used by simply mounting and unmounting as many as necessary to complete the data transfer.

## Install Serial I/O Interface Device Driver

|                          |          |
|--------------------------|----------|
| <b>Machine</b>           | Target   |
| <b>Task Performed By</b> | Customer |
| <b>Prerequisites</b>     | None     |

Follow the steps that apply to your upgrade scenario, as listed below.

|    | <b>Source Machine</b> |   | <b>Target Machine</b> |
|----|-----------------------|---|-----------------------|
| 1. | IPC-1600 Board(s)     | → | IPC-1600 Board(s)     |
| 2. | IPC-1600 Board(s)     | → | MEGAPLEX-96 Board     |
| 3. | MEGAPLEX-96 Board     | → | MEGAPLEX-96 Board     |

### Scenario 1

#### **IPC-1600 Board(s) → IPC-1600 Board(s)**

Install the IPC-1600 Device Driver on the target machine.

Refer to the *Installing the Intelligent Ports Card (IPC-1600 Software)* section in Appendix E or Appendix F of this document.



Only install the device driver at this time. The boards will be transferred from the source to the target machine later in the upgrade procedure.

### Scenario 2

#### **IPC-1600 Board(s) → MEGAPLEX-96 Board(s)**

Refer to the *Call Management System Release 3.0 MEGAPLEX-96 Board Installation* document that was shipped in the upgrade package with the MEGAPLEX board for serial I/O interface device driver installation instructions.



Install the board and the driver at this point in time if you are using Scenario 2 for the upgrade.

### Scenario 3

#### MEGAPLEX-96 Board → MEGAPLEX-96 Board

Install the MEGAPORT Device Driver on the target machine. Refer to the *Installing the MEGAPORT Device Driver* section in Appendix D of this document for installation instructions.

**Note**

Only install the device driver at this time. The boards will be transferred from the source to the target machine later in the upgrade procedure.

### Complete Network Administration

|                          |                            |
|--------------------------|----------------------------|
| <b>Machine</b>           | Target                     |
| <b>Task Performed By</b> | On-site Technician and TSC |
| <b>Prerequisites</b>     | None                       |

The standard setup for a new system includes setting up any `uucp` administration. The `uucp` administration allows the TSC to download files and update software after the target machine is in service.

## Restore CMS Peripherals and CMS User Data

|                          |                                                                                              |
|--------------------------|----------------------------------------------------------------------------------------------|
| <b>Machine</b>           | Target                                                                                       |
| <b>Task Performed By</b> | Customer                                                                                     |
| <b>Prerequisites</b>     | You must be logged in as <i>root</i> and the <code>migrest</code> program must be installed. |

**Note** The `migrest` program is only available with CMS loads 31ad\_EDI Issue 1.2 or later. If you do not have the `migrest` program, contact the TSC at 1-800-344-9670 so the program can be downloaded to your machine.

The `migrest` program restores the CMS-related printer, terminal, cron administration, logs, and user data from the tape to the target machine.

**Note** The CMS-related user data referred to above is only the data in the `/usr` file system and only for CMS users (members of the `cms` group). Data for other users is not restored through the `migrest` program.

Follow the steps below to migrate CMS peripherals and user data from the tape to the target machine.

1. Insert the tape generated by the `migsave` tool into the tape drive.
2. Execute the `migrest` command.

The following message displays.

```
This is a complete RESTORE of terminal and printer
administration, user files, and CMS logs from the source
machine. All existing terminal, printer, and cron
administration will be overwritten. All user files (in /usr)
within group cms that have a like file name on the source
machine will be overwritten (these files can be re-named).
Continue (y/n)?
```

3. Make sure the tape has finished retensioning and then enter `y`.  
Response:

```
Restoring CMS user files, CMS logs, and terminal, printer and  
cron administration from tape. This could take awhile.
```

4. Various messages display while the information is restored.
5. If more than one tape was generated by the `migsave` command, the system prompts you to insert additional tapes. Follow the directions listed on the screen. Input the path name of the backup/restore device you are using. Generally, this path name is `/dev/scsi/qtape1`).
6. When the migration is complete, the following message displays:

```
Restore complete.  
  
Mapping tty information.  
  
Restored files and terminal mappings are reported  
                                in /cms/tmp/migrest.log  
NO errors were encountered during restore or  
                                terminal mapping.  
  
#
```

**Note**

If errors occurred during the migration, review the error log to determine the cause.

7. A list of the software packages that were loaded on the source machine displays. Record these software packages.

8. Execute the `displaypkg` command to display the software packages currently installed on the target machine.
9. Compare the list of software packages from the source machine with the list of software packages on the target machine. Determine which packages still need to be installed. Install these software packages (if you want them installed on the target machine) after completing the upgrade procedures.
10. The `/cms/tmp/migrest.log` file contains information about the procedures performed by the `migrest` program. To view the `/cms/tmp/migrest.log` file, execute the following command:

---

```
# cat /cms/tmp/migrest.log | pg
```

---

## Run CMS Setup

|                          |                                        |
|--------------------------|----------------------------------------|
| <b>Machine</b>           | Target                                 |
| <b>Task Performed By</b> | TSC                                    |
| <b>Involved Parties</b>  | On-site Technician and Customer        |
| <b>Prerequisites</b>     | You must be logged in as <i>root</i> . |

The CMS application 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.

Refer to Chapter 6, "Setting Up CMS and Installing Feature Packages", of this document for information on running CMS setup.

Use the information you recorded in Table 10-1, Table 10-2, Table 10-3, Table 10-4, Table 10-5, Table 10-7, Table 10-10, and Table 10-11 to complete the process of setting up CMS on the target machine.

## Create Customer Defined Database Tables

|                          |                                                                            |
|--------------------------|----------------------------------------------------------------------------|
| <b>Machine</b>           | Target                                                                     |
| <b>Task Performed By</b> | Customer                                                                   |
| <b>Prerequisites</b>     | You must be logged in as <i>root</i> and all file systems must be mounted. |

Use the steps below to create the customer-defined database tables on the target machine so you can restore the CMS data in those tables. For more information, refer to the *INFORMIX SQL Reference Manual*.

**Note** In a future release of the R3V2 CMS software, the INFORMIX SQL software package will become optional. The customer must purchase this package if they use it.

1. Execute the `face` command to access the FACE program.  
The FACE menu displays.
2. From the `FACE` menu, select the `System Administration` menu.
3. From the `System Administration` menu, select the `File System Operations` menu.
4. From the `File System Operations` menu, select the `Mount File System` option and mount the file system on the diskette.
5. Exit FACE.
6. Change directories to the newly mounted directory by executing the following command:

```
# cd /tabls (/tabls from the previous example)
```

- Execute the following commands to set the proper INFORMIX environment variables:

```
# DBPATH=/cms/db/inf
# export DBPATH
```

- Execute one of the following commands:

```
# /usr/informix/bin/isql
OR
# TERM=vt100 /usr/informix/bin/isql (This command is used if
the console is being used and/or the terminal type is not
recognized.)
```

The **dbschema** program starts.

- From the INFORMIX-SQL menu, choose the Query-Language option.
- From the SELECT DATABASE menu, choose the cms database.
- From the RDSQL menu, choose the Choose option.  
This lists the files (".sql" files) on the diskette.
- From the CHOOSE menu, choose one of the files listed.
- From the RDSQL menu, choose the Run option.  
Complete the Choose and Run commands for each database table (".sql" file) on the diskette.
- After creating all the database tables, exit the INFORMIX program by selecting Exit until you are back at the UNIX shell.
- Execute the cd / command to change to the root directory.
- Execute the face command to access the FACE program.  
The FACE menu displays.
- From the FACE menu, select the System Administration menu.

18. From the System Administration menu, select the File System Operations menu.
19. From the File System Operations menu, select the Unmount File Systems option, and unmount the file system.
20. Remove the diskette from the drive.

## Turn CMS On

|                          |                                                                                                                   |
|--------------------------|-------------------------------------------------------------------------------------------------------------------|
| <b>Machine</b>           | Target                                                                                                            |
| <b>Task Performed By</b> | Customer                                                                                                          |
| <b>Prerequisites</b>     | You must be logged in as <i>root</i> , the computer must be in fun-level 2, and all file systems must be mounted. |

After the CMS software is installed, you need to turn on CMS to begin collecting data.

1. Enter the `cmssvc` command to access the CMS services menu. The CMS Service Personnel menu displays.
2. Enter 6 to select the `run_cms` option.
3. Enter 1 to turn CMS On.

The program takes a few minutes to initialize the system parameters and then responds `*** CMS is now up ***`.

To bring up the Main Menu in CMS, log in as *cms* and type `cms` at the system prompt.

## Complete a Full CMS Restore

Complete a full CMS restore on the target machine to restore the data backed up from the source machine.

The next four sections walk you through the process of doing a full CMS restore.

## CMS Single-User State

|                          |          |
|--------------------------|----------|
| <b>Machine</b>           | Target   |
| <b>Task Performed By</b> | Customer |
| <b>Prerequisites</b>     | None     |

Follow the steps below to put CMS in single-user mode. For more detailed information on changing the state of CMS, refer to Chapter 11 in the *CMS Administration (585-215-521)* document.

To access the CMS state window, do the following:

1. From the `CMS Main Menu`, select `System Setup`.
2. From `System Setup` menu, select `CMS State`.
3. Enter an `x` in the `Single-user mode` field to bring CMS down to the single-user state.
4. Select `Modify` to save the information and put CMS in the single-user mode.
5. Return to the `CMS Main Menu`.
6. Log out of CMS.

## Agent Trace Data Parameters

|                          |          |
|--------------------------|----------|
| <b>Machine</b>           | Target   |
| <b>Task Performed By</b> | Customer |
| <b>Prerequisites</b>     | None     |

Follow the steps below to set the agent trace data parameters on the target machine. For more detailed information on accessing this

information, refer to Chapter 11 in the *CMS Administration (585-215-521)* document.

1. From the CMS Main Menu, select System Setup.
2. From System Setup menu, select Agent Trace Record Contents.
3. Fill out the window with the values recorded in Table 10-8 and Table 10-9.
4. Select Modify to save the information and build the appropriate tables.
5. Return to the CMS Main Menu.
6. Log out of CMS.

## CMS Data Restore

|                          |          |
|--------------------------|----------|
| <b>Machine</b>           | Target   |
| <b>Task Performed By</b> | Customer |
| <b>Prerequisites</b>     | None     |

Follow the steps below to restore CMS data from backup tapes. For more detailed information on accessing this information, refer to Chapter 12 in the *CMS Administration (585-215-521)* document.

To minimize the amount of time that CMS is out of service, perform the CMS Restore before any equipment is moved from the source machine to the target machine.

1. Insert the tape generated from the Full CMS Backup into the target machine's tape drive.
2. From the CMS Main Menu, select Maintenance.
3. From Maintenance menu, select Restore Data.
4. In the Restore Data window, select the following data to restore:
  - System administration data
  - ACD specific administration data
  - Historical data, Full
  - Non-CMS data
5. Select Run to start the restore process.

## CMS Multi-User State

|                          |          |
|--------------------------|----------|
| <b>Machine</b>           | Target   |
| <b>Task Performed By</b> | Customer |
| <b>Prerequisites</b>     | None     |

After restoring the CMS data, follow the steps below to put CMS in multi-user mode. For more detailed information on changing the state of CMS, refer to Chapter 11 in the *CMS Administration (585-215-521)* document.

1. From the CMS Main Menu, select System Setup.
2. From System Setup menu, select CMS State.
3. Enter an x in the Multiuser mode field to bring CMS up in the multi-user state.
4. Select Modify to save the information and put CMS in the multi-user mode.
5. Return to the CMS Main Menu.
6. Log out of CMS.

## Turn CMS Off and On

|                          |                                                                                                                   |
|--------------------------|-------------------------------------------------------------------------------------------------------------------|
| <b>Machine</b>           | Target                                                                                                            |
| <b>Task Performed By</b> | Customer                                                                                                          |
| <b>Prerequisites</b>     | You must be logged in as <i>root</i> , the computer must be in run-level 2, and all file systems must be mounted. |

After migrating data from the source machine to the target machine, you need to turn CMS “off” and “on” to initialize the the system variables and establish the communications link between the CMS software and the telecommunications switch.

Use the following steps to reinitialize CMS. Refer to Chapter 2 of this book for additional information on reinitializing CMS.

1. Enter the `cmssvc` command to access the CMS services menu. The CMS Service Personnel menu displays.
2. Enter 6 to select the `run_cms` option.
3. Enter 2 to turn CMS Off.  
CMS has been turned off.
4. Enter the `cmssvc` command to access the CMS services menu.
5. Enter 6 to select the `run_cms` option.
6. Enter 1 to turn CMS On.

The program takes a few minutes to initialize the system parameters and then responds `*** CMS is now up ***`.

CMS is now running and the CMS system variables have been reinitialized.

## Verify Data

|                          |                            |
|--------------------------|----------------------------|
| <b>Machine</b>           | Target                     |
| <b>Task Performed By</b> | Customer                   |
| <b>Involved Parties</b>  | On-site Technician and TSC |
| <b>Prerequisites</b>     | None                       |

After installing, setting up, and restoring CMS data on the target machine, you need to test the system to verify that the upgrade was successful. The information (data) on and configuration of the target machine should be the same as the source machine.

Complete the procedures outlined in the “Testing the R3V2 CMS Software” section in Chapter 7 of this document.

Look at the following areas to verify that the upgrade was successful:

- Real-time Data
- Historical Data
- Exceptions
- ACD Administration
- Dictionary Synonyms
- User Permissions
- User Defaults, Colors, etc.
- Forecasting (if applicable)
- Graphical Reports (if applicable)
- Vectoring (if applicable)
- Main Menu Additions
- Custom Reports
- Timetables
- System Setup
- Maintenance

**Expected Differences**

The next four sections outline the expected differences between the source machine data the the target machine data.

**Backup/Restore Devices**

The Backup/Restore Devices information is not restored via the CMS Restore. The devices administered on the source machine may need to be readministered on the target machine. Refer to Table 10-10 to determine the devices administered on the source machine.

After determining which devices have been administered, do the following to access the Backup/Restore Devices window on the target machine:

1. From the CMS `Main Menu`, select `Maintenance`.
2. From `System Setup` menu, select `Backup/Restore Devices`.
3. Compare the source and target information to make sure the backup/restore device(s) have been administered correctly.

If the administration does not correspond, administer the additional backup/restore devices on the target machine.

**Pseudo-ACD(s)**

The Pseudo-ACD data from the source machine is not restored to the target machine.

**“List All” Commands**

When executing a “List All” command, the data may be displayed in the reverse order as it is displayed on the source machine.

**Serial Port Settings**

If Scenario 2 (IPC-1600 → MEGAPLEX-96) exists for this upgrade and you use FACE to display the port assignments (on the target machine), the port assignments appear to be incorrect. Use the `megadiag` tool (a MEGAPLEX utility) to view the tty port assignments. The `megadiag` tool can change the administration. Therefore, when verifying the serial port administration, be careful not to change any of the settings.

## Restore Other Customer Data

|                          |                                                                            |
|--------------------------|----------------------------------------------------------------------------|
| <b>Machine</b>           | Target                                                                     |
| <b>Task Performed By</b> | Customer                                                                   |
| <b>Prerequisites</b>     | You must be logged in as <i>root</i> and all file systems must be mounted. |

This section describes how to transfer the previously saved customer data from the diskette(s) to the target machine.

1. Insert the diskette containing the “other customer data” into the drive.
2. Execute the `face` command to access the FACE program.  
The FACE menu displays.
3. From the FACE menu, select the `System Administration` menu.
4. From the `System Administration` menu, select the `File System Operations` menu.
5. From the `File System Operations` menu, select the `Mount File System` option and mount the file system on the diskette.
6. Enter the name of the diskette file system to be mounted.
7. Exit FACE.
8. Copy the file system(s) data from the newly mounted diskette to the appropriate file system on the hard disk by entering the following command:

```
# cp /otherdata <cust_data>
```

The `/otherdata` is the mounted file system on the diskette and `<cust_data>` is data to be transferred to the target machine.

9. Repeat the previous command until all the other customer data has been transferred to the target machine.
10. Execute the `cd /` command to change to the root directory.
11. Execute the `face` command to access the FACE program:  
The FACE menu displays.

12. From the FACE menu, select the System Administration menu.
13. From the System Administration menu, select the File System Operations menu.
14. From the File System Operations menu, select the Unmount File System option and unmount the file system on the diskette.
15. Exit FACE.
16. Remove the diskette from the drive.

**Note**

Additional diskettes can be used by simply mounting and unmounting as many as necessary to complete the data transfer.

## Transfer Internal Hardware

|                          |                    |
|--------------------------|--------------------|
| <b>Machine</b>           | Source and Target  |
| <b>Task Performed By</b> | On-site Technician |
| <b>Involved Parties</b>  | TSC                |
| <b>Prerequisites</b>     | None               |

The GPSC-AT/E board and the Serial I/O board(s) can be reused in the target machine. Depending on the upgrade scenario, these board(s) need to be transferred to the target machine.

### GPSC-AT/E Board

To move the GPSC-AT/E board to the target machine, do the following:

1. Shut the computer down gracefully  
(i.e., `shutdown -g0 -y -i0`)
2. Make sure the power to the computer is “Off”
3. Make sure the connections have been labeled
4. Disconnect the fanout cables from the GPSC-AT/E board
5. Open the computer cabinet on the source machine
6. Remove the GPSC-AT/E board from the source machine
7. Install the GPSC-AT/E board in the target machine
8. Connect the fanout cable to the GPSC-AT/E board
9. Replace the computer cabinet on the target machine

|             |
|-------------|
| <b>Note</b> |
|-------------|

Make sure all the board(s) have been moved to the target machine before replacing the cabinet.

**Serial I/O Board(s)**

Use the hardware transfer steps for the scenario, as shown below, that applies to your upgrade.

|    | <b>Source Machine</b> |   | <b>Target Machine</b> |
|----|-----------------------|---|-----------------------|
| 1. | IPC-1600 Board(s)     | → | IPC-1600 Board(s)     |
| 2. | IPC-1600 Board(s)     | → | MEGAPLEX-96 Board     |
| 3. | MEGAPLEX-96 Board     | → | MEGAPLEX-96 Board     |

**Scenario 1****IPC-1600 Board(s) → IPC-1600 Board(s)**

To move the IPC-1600 board(s) to the target machine, do the following:

1. Shut the computer down gracefully (i.e., `shutdown -g0 -y -i0` )
2. Make sure the power to the computer is “Off”
3. Make sure the connections have been labeled
4. Disconnect the ribbon cables from the IPC-1600 board(s)
5. Open the computer cabinet on the source and target machines
6. Remove the IPC-1600 board(s) from the source machine
7. Install the IPC-1600 board(s) in the target machine
8. Connect the ribbon cables to the IPC-1600 board

**Note** Make sure that the metal clip on the connectors snap into place.

9. Replace the computer cabinet on the target machine

**Note** Make sure all the board(s) have been moved to the target machine before replacing the cabinet.

**Scenario 2****IPC-1600 Board(s) → MEGAPLEX-96 Board(s)**

The MEGAPLEX-96 board was installed earlier in this procedure at the same time as the MEGAPORT Device Drivers.

**Note** Make sure that the cluster multiplexer cables have been reconnected properly.

### Scenario 3

#### MEGAPLEX-96 Board → MEGAPLEX-96 Board

To move the MEGAPLEX-96 board to the target machine, do the following:

1. Shut the computer down gracefully  
(i.e., `shutdown -g0 -y -i0`)
2. Make sure the power to the computer is “Off”
3. Make sure the connections have been labeled
4. Disconnect the cluster multiplexer cables from the MEGAPLEX-96 board
5. Open the computer cabinet on the source and target machines
6. Remove the MEGAPLEX-96 board from the source machine
7. Install the MEGAPLEX-96 board in the target machine
8. Connect the cluster multiplexer cables to the MEGAPLEX-96 board
9. Replace the computer cabinet on the target machine

**Note** Make sure all the board(s) have been moved to the target machine before replacing the cabinet.

## Attach Peripherals

|                          |                    |
|--------------------------|--------------------|
| <b>Machine</b>           | Target             |
| <b>Task Performed By</b> | Customer           |
| <b>Involved Parties</b>  | On-site Technician |
| <b>Prerequisites</b>     | None               |

After the system software has been tested, verify that the peripherals have been connected correctly to the system. If the cables need to be moved, move them at this time. The connections should have been recorded earlier when the cables were disconnected and the internal boards were moved from the source machine to the target machine.

The terminal and printer administration was restored using the `migsave` and `migest` tools.

Verify that the peripherals are connected properly by doing the following:

1. Verify that the GPSC-AT/E cable is connected to the proper port on the GPSC-AT/E board.
2. Verify that the serial I/O cables are connected to the proper ports according to your upgrade scenario, as outlined below.

### Scenario 1

#### IPC-1600 Board(s) → IPC-1600 Board(s)

Verify that the ribbon cables to each IPC-1600 board have been properly connected (i.e., the metal clips on the ribbon cables are securely snapped in place).

### Scenario 2

#### IPC-1600 Board(s) → MEGAPLEX-96 Board(s)

When moving from an IPC-1600 to a MEGAPLEX-96 board, the individual terminal and printer cables need to be moved. Do the following to attach the appropriate cables to the MEGAPLEX-96 and cluster multiplexer devices:

- Verify that the modular cables connecting the MEGAPLEX-96 board and the cluster multiplexer are securely attached.

- Move the individual terminal and printer cables to the cluster multiplexer ports. Use Table 10-12 through Table 10-15 to map the IPC-1600 ports to the cluster multiplexer ports.
- Replace the ACU modem adapters with the Equinox (MEGAPLEX) DTE adapters.
- Replace the terminal/printer adapters with the Equinox (MEGAPLEX) DCE adapters.



If other network configurations exist (e.g., SDU, datakit, etc.), other adapters may be required. Refer to the specific documentation associated with the network package being used.

### Scenario 3

#### **MEGAPLEX-96 Board → MEGAPLEX-96 Board**

Verify that the modular cables connecting the MEGAPLEX-96 board and the cluster multiplexer are securely attached.

- Log into each terminal and check that all custom settings (color options, user defaults for each user, etc.) function properly.
- Print a test job from each printer.

## Connect Switch Link

|                          |                    |
|--------------------------|--------------------|
| <b>Machine</b>           | Target             |
| <b>Task Performed By</b> | On-site Technician |
| <b>Involved Parties</b>  | To be provided     |
| <b>Prerequisites</b>     | To be provided     |

To connect the switch link to the GPSC-AT/E board on the target machine, do the following:

1. Verify that the GPSC-AT/E board has been installed in the target machine.
2. Connect the female end of the GPSC-AT/E Fanout cable to the appropriate port on the GPSC-AT/E board.

**Note**

The rest of the link should still be properly connected to the switch. If additional information is needed, see Chapter 5.

3. Verify that the link comes up.

If the link does not come up, check all the cable connections to verify that the link is still physically connected.

4. From the CMS Main Menu, select System Setup.
5. From System Setup menu, select Data Collection.
6. Turn "Data Collection" Off.
7. Turn "Data Collection" On to verify that the link comes up again.
8. Return to the CMS Main Menu.
9. Log out of CMS.

## Complete an Incremental Restore

|                          |          |
|--------------------------|----------|
| <b>Machine</b>           | Target   |
| <b>Task Performed By</b> | Customer |
| <b>Prerequisites</b>     | None     |

Additional data could have been collected on the source machine since the source machine was backed up for the upgrade. This additional data needs to be restored on the target machine.

This section briefly describes how to restore the CMS incremental data that has been collected since the full CMS backup was done. For more detailed information on doing this restore, refer to the appropriate section in the *CMS Administration (585-215-521)* document.

To restore the CMS data incrementally, do the following:

1. Insert the tape generated from the CMS incremental Backup into the target machine's tape drive.
2. From the CMS Main Menu, select Maintenance.
3. From Maintenance menu, select Restore Data.
4. In the Restore Data window, select the following data to restore:
  - System administration data
  - ACD specific administration data
  - Historical data, Full
  - Non-CMS data
5. Select Run to start the backup process.

## Cleanup

|                          |          |
|--------------------------|----------|
| <b>Machine</b>           | Source   |
| <b>Task Performed By</b> | Customer |
| <b>Prerequisites</b>     | None     |

## Use Computer for New Applications

If you want to use the source machine for new applications, you need to:

1. Reformat the disk, and
2. Install the new application using the associated installation instructions.

## Reuse Computer as a CMS Platform

To reuse the source machine as another CMS host computer, you need to:

1. Use the FACE utility to remove all of the CMS users
2. Use the `pkg_remove` item from the `cmssvc` menu to remove the CMS application
3. Do the following to remove any queued print jobs:
  - Perform a “shutdown” on the machine
  - Cancel any existing print jobs using the `cancel` command.
4. Use the FACE utility to remove any printer administration
5. Use the FACE utility to remove any terminal administration
6. Install a new software load of CMS

**Table 10-1: Source Machine CMS Authorizations**

| <b>Authorization</b>            | <b>Level</b> |
|---------------------------------|--------------|
| <b>vectoring</b>                |              |
| <b>forecasting</b>              |              |
| <b>graphic</b>                  |              |
| <b>external call history</b>    |              |
| <b>expert agent selection</b>   |              |
| <b>Maximum number of agents</b> |              |
| <b>Minimum number of ACSs</b>   |              |

**Table 10-2: Source Machine Switch Information**

|                         |  |
|-------------------------|--|
| <b>ACD Name</b>         |  |
| <b>Switch Name</b>      |  |
| <b>Switch Model</b>     |  |
| <b>Local Port</b>       |  |
| <b>Remote Port</b>      |  |
| <b>Link</b>             |  |
| <b>Time Zone Offset</b> |  |

**Table 10-3: Source Machine Data Storage Allocation Parameters**

| <b>Data Item:</b>      | <b># of Items</b> | <b>Days of Intrahour</b> | <b>Days of Daily</b> | <b>Weeks of Weekly</b> | <b>Months of Monthly</b> |
|------------------------|-------------------|--------------------------|----------------------|------------------------|--------------------------|
| <b>Splits</b>          |                   |                          |                      |                        |                          |
| <b>Agents</b>          |                   |                          |                      |                        |                          |
| <b>Trunk Groups</b>    |                   |                          |                      |                        |                          |
| <b>Trunks</b>          |                   |                          |                      |                        |                          |
| <b>Call Work Codes</b> |                   |                          |                      |                        |                          |
| <b>Vectors</b>         |                   |                          |                      |                        |                          |
| <b>VDNs</b>            |                   |                          |                      |                        |                          |

**Table 10-4: Source Machine Data Storage Allocation Parameters**

|                      |   |                         |  |
|----------------------|---|-------------------------|--|
| <b>Shift 1 Times</b> | - | <b>Agents logged in</b> |  |
| <b>Shift 2 Times</b> | - | <b>Agents logged in</b> |  |
| <b>Shift 3 Times</b> | - | <b>Agents logged in</b> |  |
| <b>Shift 4 Times</b> | - | <b>Agents logged in</b> |  |

**Table 10-5: Source Machine Data storage Allocation Parameters**

|                                                    |  |
|----------------------------------------------------|--|
| <b>Total Split members, summed over all splits</b> |  |
| <b>Number of unmeasured trunk facilities</b>       |  |
| <b>Total exception records for all ACDs</b>        |  |

**Table 10-6: Source Machine Data storage Intervals**

|                              |  |
|------------------------------|--|
| <b>Intrahour Interval</b>    |  |
| <b>Data Summarizing Time</b> |  |
| <b>Week Start Day</b>        |  |
| <b>Week Stop Day</b>         |  |
| <b>Daily Start Time</b>      |  |
| <b>Daily Stop Time</b>       |  |

**Table 10-7: Source Free Space Allocation Parameters**

| <b>Data Allocation</b> | <b>File System</b> |
|------------------------|--------------------|
| <b>Trunk Groups</b>    |                    |
| <b>Agent Trace</b>     |                    |
| <b>Exceptions</b>      |                    |
| <b>Call Work Codes</b> |                    |
| <b>Forecasting</b>     |                    |
| <b>Trunks</b>          |                    |
| <b>Agents</b>          |                    |
| <b>Splits</b>          |                    |
| <b>Vectors</b>         |                    |
| <b>VDNs</b>            |                    |

**Table 10-8: Agent trace record contents Information**

|                                   |  |
|-----------------------------------|--|
| <b>Total Agent Records Stored</b> |  |
|-----------------------------------|--|

**Table 10-9: Agent Trace Record Contents Information**

| <b>Optional Record Contents</b> |  |
|---------------------------------|--|
| <b>Assist Activated</b>         |  |
| <b>Calling Party</b>            |  |
| <b>Call Work Codes</b>          |  |
| <b>Caller On Hold</b>           |  |
| <b>Digits Dialed</b>            |  |
| <b>External Call Originated</b> |  |
| <b>Keyboard Dialed</b>          |  |
| <b>Malicious Call Trace</b>     |  |
| <b>On Conference</b>            |  |
| <b>Transfer Completed</b>       |  |

**Table 10-10: Backup/Restore Devices Information**

|                    |  |
|--------------------|--|
| <b>Device Name</b> |  |
| <b>Path</b>        |  |
| <b>Description</b> |  |
| <b>Device Type</b> |  |

**Table 10-11: Source Machine UNIX System Name**

|                         |  |
|-------------------------|--|
| <b>UNIX System Name</b> |  |
|-------------------------|--|

Table 10-12: Port A Assignments for the Cluster Multiplexer, Terminals, Printers, and Modems

| IPC-1600     |             |         | Equinox MEGAPLEX-96 |                                 |                 |
|--------------|-------------|---------|---------------------|---------------------------------|-----------------|
| Board Number | Port Number | Label   | Port                | Cluster Multiplexer Jack Number | Port Assignment |
| 1            | 1           | ttyh101 | A                   | 1                               | /dev/ttyaA      |
|              | 2           | ttyh102 |                     | 2                               | /dev/ttyaB      |
|              | 3           | ttyh103 |                     | 3                               | /dev/ttyaC      |
|              | 4           | ttyh104 |                     | 4                               | /dev/ttyaD      |
|              | 5           | ttyh105 |                     | 5                               | /dev/ttyaE      |
|              | 6           | ttyh106 |                     | 6                               | /dev/ttyaF      |
|              | 7           | ttyh107 |                     | 7                               | /dev/ttyaG      |
|              | 8           | ttyh108 |                     | 8                               | /dev/ttyaH      |
|              | 9           | ttyh109 |                     | 9                               | /dev/ttyaI      |
|              | 10          | ttyh110 |                     | 10                              | /dev/ttyaJ      |
|              | 11          | ttyh111 |                     | 11                              | /dev/ttyaK      |
|              | 12          | ttyh112 |                     | 12                              | /dev/ttyaL      |
|              | 13          | ttyh113 |                     | 13                              | /dev/ttyaM      |
|              | 14          | ttyh114 |                     | 14                              | /dev/ttyaN      |
|              | 15          | ttyh115 |                     | 15                              | /dev/ttyaO      |
|              | 16          | ttyh116 |                     | 16                              | /dev/ttyaP      |
| 2            | 1           | ttyh201 |                     | 17                              | /dev/ttyaQ      |
|              | 2           | ttyh202 |                     | 18                              | /dev/ttyaR      |
|              | 3           | ttyh203 |                     | 19                              | /dev/ttyaS      |
|              | 4           | ttyh204 |                     | 20                              | /dev/ttyaT      |
|              | 5           | ttyh205 |                     | 21                              | /dev/ttyaU      |
|              | 6           | ttyh206 |                     | 22                              | /dev/ttyaV      |
|              | 7           | ttyh207 |                     | 23                              | /dev/ttyaW      |
|              | 8           | ttyh208 |                     | 24                              | /dev/ttyaX      |

Table 10-13: Port B Assignments for the Cluster Multiplexer, Terminals, Printers, and Modems

| IPC-1600     |             |         | Equinox MEGAPLEX-96 |                                 |                 |
|--------------|-------------|---------|---------------------|---------------------------------|-----------------|
| Board Number | Port Number | Label   | Port                | Cluster Multiplexer Jack Number | Port Assignment |
| <b>2</b>     | 9           | ttyh209 | <b>B</b>            | 1                               | /dev/ttybA      |
|              | 10          | ttyh210 |                     | 2                               | /dev/ttybB      |
|              | 11          | ttyh211 |                     | 3                               | /dev/ttybC      |
|              | 12          | ttyh212 |                     | 4                               | /dev/ttybD      |
|              | 13          | ttyh213 |                     | 5                               | /dev/ttybE      |
|              | 14          | ttyh214 |                     | 6                               | /dev/ttybF      |
|              | 15          | ttyh215 |                     | 7                               | /dev/ttybG      |
|              | 16          | ttyh216 |                     | 8                               | /dev/ttybH      |
| <b>3</b>     | 1           | ttyh301 |                     | 9                               | /dev/ttybI      |
|              | 2           | ttyh302 |                     | 10                              | /dev/ttybJ      |
|              | 3           | ttyh303 |                     | 11                              | /dev/ttybK      |
|              | 4           | ttyh304 |                     | 12                              | /dev/ttybL      |
|              | 5           | ttyh305 |                     | 13                              | /dev/ttybM      |
|              | 6           | ttyh306 |                     | 14                              | /dev/ttybN      |
|              | 7           | ttyh307 |                     | 15                              | /dev/ttybO      |
|              | 8           | ttyh308 |                     | 16                              | /dev/ttybP      |
|              | 9           | ttyh309 |                     | 17                              | /dev/ttybQ      |
|              | 10          | ttyh310 |                     | 18                              | /dev/ttybR      |
|              | 11          | ttyh311 |                     | 19                              | /dev/ttybS      |
|              | 12          | ttyh312 |                     | 20                              | /dev/ttybT      |
|              | 13          | ttyh313 |                     | 21                              | /dev/ttybU      |
|              | 14          | ttyh314 |                     | 22                              | /dev/ttybV      |
|              | 15          | ttyh315 |                     | 23                              | /dev/ttybW      |
|              | 16          | ttyh316 |                     | 24                              | /dev/ttybX      |

Table 10-14: Port C Assignments for the Cluster Multiplexer, Terminals, Printers, and Modems

| IPC-1600     |             |         | Equinox MEGAPLEX-96 |                                 |                 |
|--------------|-------------|---------|---------------------|---------------------------------|-----------------|
| Board Number | Port Number | Label   | Port                | Cluster Multiplexer Jack Number | Port Assignment |
| 4            | 1           | ttyh401 | C                   | 1                               | /dev/ttycA      |
|              | 2           | ttyh402 |                     | 2                               | /dev/ttycB      |
|              | 3           | ttyh403 |                     | 3                               | /dev/ttycC      |
|              | 4           | ttyh404 |                     | 4                               | /dev/ttycD      |
|              | 5           | ttyh405 |                     | 5                               | /dev/ttycE      |
|              | 6           | ttyh406 |                     | 6                               | /dev/ttycF      |
|              | 7           | ttyh407 |                     | 7                               | /dev/ttycG      |
|              | 8           | ttyh408 |                     | 8                               | /dev/ttycH      |
|              | 9           | ttyh409 |                     | 9                               | /dev/ttycI      |
|              | 10          | ttyh410 |                     | 10                              | /dev/ttycJ      |
|              | 11          | ttyh411 |                     | 11                              | /dev/ttycK      |
|              | 12          | ttyh412 |                     | 12                              | /dev/ttycL      |
|              | 13          | ttyh413 |                     | 13                              | /dev/ttycM      |
|              | 14          | ttyh414 |                     | 14                              | /dev/ttycN      |
|              | 15          | ttyh415 |                     | 15                              | /dev/ttycO      |
|              | 16          | ttyh416 |                     | 16                              | /dev/ttycP      |
| N/A          | N/A         | N/A     | N/A                 | 17                              | /dev/ttycQ      |
|              | N/A         | N/A     | N/A                 | 18                              | /dev/ttycR      |
|              | N/A         | N/A     | N/A                 | 19                              | /dev/ttycS      |
|              | N/A         | N/A     | N/A                 | 20                              | /dev/ttycT      |
|              | N/A         | N/A     | N/A                 | 21                              | /dev/ttycU      |
|              | N/A         | N/A     | N/A                 | 22                              | /dev/ttycV      |
|              | N/A         | N/A     | N/A                 | 23                              | /dev/ttycW      |
|              | N/A         | N/A     | N/A                 | 24                              | /dev/ttycX      |

Table 10-15: Port D Assignments for the Cluster Multiplexer, Terminals, Printers, and Modems

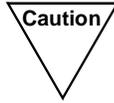
| IPC-1600     |             |       | Equinox MEGAPLEX-96 |                                 |                 |
|--------------|-------------|-------|---------------------|---------------------------------|-----------------|
| Board Number | Port Number | Label | Port                | Cluster Multiplexer Jack Number | Port Assignment |
| N/A          | N/A         | N/A   | D                   | 1                               | /dev/ttydA      |
|              | N/A         | N/A   |                     | 2                               | /dev/ttydB      |
|              | N/A         | N/A   |                     | 3                               | /dev/ttydC      |
|              | N/A         | N/A   |                     | 4                               | /dev/ttydD      |
|              | N/A         | N/A   |                     | 5                               | /dev/ttydE      |
|              | N/A         | N/A   |                     | 6                               | /dev/ttydF      |
|              | N/A         | N/A   |                     | 7                               | /dev/ttydG      |
|              | N/A         | N/A   |                     | 8                               | /dev/ttydH      |
|              | N/A         | N/A   |                     | 9                               | /dev/ttydI      |
|              | N/A         | N/A   |                     | 10                              | /dev/ttydJ      |
|              | N/A         | N/A   |                     | 11                              | /dev/ttydK      |
|              | N/A         | N/A   |                     | 12                              | /dev/ttydL      |
|              | N/A         | N/A   |                     | 13                              | /dev/ttydM      |
|              | N/A         | N/A   |                     | 14                              | /dev/ttydN      |
|              | N/A         | N/A   |                     | 15                              | /dev/ttydO      |
|              | N/A         | N/A   |                     | 16                              | /dev/ttydP      |
|              | N/A         | N/A   | N/A                 | 17                              | /dev/ttydQ      |
|              | N/A         | N/A   | N/A                 | 18                              | /dev/ttydR      |
|              | N/A         | N/A   | N/A                 | 19                              | /dev/ttydS      |
|              | N/A         | N/A   | N/A                 | 20                              | /dev/ttydT      |
|              | N/A         | N/A   | N/A                 | 21                              | /dev/ttydU      |
|              | N/A         | N/A   | N/A                 | 22                              | /dev/ttydV      |
|              | N/A         | N/A   | N/A                 | 23                              | /dev/ttydW      |
|              | N/A         | N/A   | N/A                 | 24                              | /dev/ttydX      |



---

## Overview

This chapter describes how to upgrade or update the R3V2 CMS software application.



The customer will not be able to upgrade unless they have sufficient free space on their disk to accommodate all the data they want to collect. The customer's current disk space allocation may specify more items to be measured for longer lengths of time than they actually have space for on their disks. This means the customer must purchase additional disks, or change the length of time data is stored, or the number of entities measured before they can upgrade.

---

## Before the Upgrade or Update

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

- Do a full file system backup from the UNIX system environment. See Chapter 8, "Performing a CMSADM Backup."



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 field update software.



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 automatically uses the following procedures to upgrade your system:

- Removes the current base load
- Downloads the new base load
- Reinstalls the CMS feature application.

Do these steps to install the CMS upgrade:

1. Insert the CMS upgrade tape into the tape drive.
2. Start the upgrade procedure by entering:

```
# 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 select the cartridge tape.

Response:

Confirm

Please insert the cartridge tape into the tape drive.

Strike ENTER when ready or ESC to stop.

4. Press **Return** . Response:

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** . Response:

Retensioning the tape media.

This will take approximately 3 minutes.

After the tape has re-tensioned, 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.

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** . Response:

Packages available for installation:

1. X25 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 (3lxxx)
  
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 Call Management System package.

8. Press **Esc** . Response:

You have made the following selections:

4. Call Management System (31xxx)

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.

9. Press **Return** . Response:

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.

10. Press **Return** .

Response:

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

```
Installing the Call Management System (3lxxx).  
Copyright (c) 1991, 1992 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 4.10.U <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 (3lxxx).
```

```
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):
```

11. Enter *y* if you backed up your file systems, otherwise enter *n*. If you have not backed up your file systems, see Chapter 8, "Performing a CMSADM Backup."

If you answer `y`, the program responds:

```
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 10 minutes to remove the files associated with the previous version of CMS. When all the appropriate files have been removed, the program continues:

```
Removal of Call Management System (31xxx) is complete
## Installing files from cartridge tape
. . . . .
. . . . .
. . . . .
. . . . .
```

The program takes about 10-20 minutes to download the R3V2 CMS software from the cartridge tape to the hard disk. As the software is downloaded, several rows of periods display indicating that the program is running. Next, a list of downloaded files displays. When the download finishes, this message appears:

```
## Auditing package installation
```

The audit requires several minutes to complete.

If the audit is successful, these messages display:

```
>> 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 with  
networking. This will take approximately three minutes to  
complete. No changes to tunable parameters were required.  
  
The installation of the Call Management System (31xxx) package  
is now complete.
```

**Note**

If the tunable parameters were changed, the program executes an automatic shutdown.

12. Remove the cartridge tape after it finishes rewinding (drive light not lit).

The CMS software is upgraded.

13. Turn on CMS.

14. Do a full CMS maintenance backup as soon as possible.

In the Back Up Data window, select `y` (yes) for the `Verify volume can be read after backup` field. In addition, the following fields should contain an “x”:

- All ACDs
- ACD specific data
- System administration data
- Historical data

— Full

See Chapter 12, “Back Up Data” in the *CMS Administration* (585-215-521) document,

**Note**

CMS incremental maintenance backups will fail if this step is not done.

---

## Updating the CMS Software

Updating the CMS software is a two part process. First, the CMS update files are downloaded from cartridge tape to hard disk. This allows the update files 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 turned off to update from disk files, you should do the update when customer service is not interrupted.

---

## 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 update cartridge tape into the tape drive.
2. Access the CMS Services menu by entering:

---

```
# cmsvc
```

The program responds:

```
Commands for CMS Services Personnel
```

```
Select a command from the list below.
```

- 1) `auth_display` Display feature authorizations
- 2) `auth_set` Authorize CMS capabilities/capacities
- 3) `backup` Single-tape filesystem backup (in background)
- 4) `run_cms` Turn CMS on or off
- 5) `setup` Set up the initial CMS configuration
- 6) `swinfo` Display switch information
- 7) `swsetup` Change switch information
- 8) `upd_install` Install update from disk files
- 9) `upd_remove` Back out the currently installed update
- 10) `upd_save` Save update on disk for later installation

```
Enter choice (1-10) or q to quit:
```

3. Enter 10 to select the `upd_save` option. Response:

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

4. 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/3lxxx
                                for later installation.
```

**Note**

The number of blocks, records, and filenames on your screen may differ from above depending on the size of the update release.

The system prompt returns to your screen.

The update files are 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.

You install the CMS update from files stored on the hard disk. These files were created in the previous section. Installing an update from disk files can be done remotely.

Do these steps to install the CMS software update from disk files:

1. Access the CMS Services menu by entering:

```
# cmssvc
```

The program responds:

```
Commands for CMS Services Personnel
```

```
Select a command from the list below.
```

```
1) auth_display Display feature authorizations
2) auth_set     Authorize CMS capabilities/capacities
3) backup      Single-tape filesystem backup (in background)
4) run_cms     Turn CMS on or off
5) setup       Set up the initial CMS configuration
6) swinfo     Display switch information
7) swsetup    Change switch information
8) upd_install Install update from disk files
9) upd_remove Back out the currently installed update
10) upd_save  Save update on disk for later installation
Enter choice (1-10) or q to quit:
```

2. Enter 4 to select the *run\_cms* option.

Response:

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

3. Enter 2 to turn CMS off. Response:

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

The system prompt returns to your screen.

4. Access the CMS Services menu by entering:

```
# cmssvc
```

Response:

```
Commands for CMS Services Personnel
```

```
Select a command from the list below.
```

```
1) auth_display Display feature authorizations
2) auth_set     Authorize CMS capabilities/capacities
3) backup      Single-tape filesystem backup (in background)
4) run_cms     Turn CMS on or off
5) setup       Set up the initial CMS configuration
6) swinfo     Display switch information
7) swsetup    Change switch information
8) upd_install Install update from disk files
9) upd_remove Back out the currently installed update
10) upd_save   Save update on disk for later installation
Enter choice (1-10) or q to quit:
```

5. Enter 8 to select the *upd\_install* option. Response:

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

6. Enter 1.

Response:

```
578 blocks

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

Call Management System (3lxxx) 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/3lxxx
1820 blocks

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

## Auditing package installation
```

The audit requires several minutes to complete.

If the audit is successful, this message displays:

```
>> No errors detected during audit.

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

The installation of the Call Management System (3lxxx)
  is complete.

Update installation completed successfully

Remove saved disk files in /cms/cms_updates/3lxxx? (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 system prompt returns to your screen.

8. Access the CMS Services menu by entering:

```
# cmssvc
```

Response:

```
Commands for CMS Services Personnel
```

```
Select a command from the list below.
```

- 1) `auth_display` Display feature authorizations
- 2) `auth_set` Authorize CMS capabilities/capacities
- 3) `backup` Single-tape filesystem backup (in background)
- 4) `run_cms` Turn CMS on or off
- 5) `setup` Set up the initial CMS configuration
- 6) `swinfo` Display switch information
- 7) `swsetup` Change switch information
- 8) `upd_install` Install update from disk files
- 9) `upd_remove` Back out the currently installed update
- 10) `upd_save` Save update on disk for later installation

```
Enter choice (1-10) or q to quit:
```

9. Enter 4 to select the `run_cms` option. Response:

```
Select one of the following
```

- 1) Turn on CMS
- 2) Turn off CMS

```
Enter choice (1-2):
```

10. Enter 1 to turn on CMS. Response:

```
Please wait for initialization \&.
```

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

The system prompt returns to your screen.

The CMS update is complete.

## Removing 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 an option that removes the currently installed update and restores the CMS software to the previous base load.

Do these steps to remove the CMS update:

1. Access the CMS Services menu by entering:

```
# cmssvc
```

The program responds:

```
Commands for CMS Services Personnel
```

```
Select a command from the list below.
```

```
1) auth_display Display feature authorizations
2) auth_set     Authorize CMS capabilities/capacities
3) backup      Single-tape filesystem backup (in background)
4) run_cms     Turn CMS on or off
5) setup       Set up the initial CMS configuration
6) swinfo      Display switch information
7) swsetup     Change switch information
8) upd_install Install update from disk files
9) upd_remove  Back out the currently installed update
10) upd_save   Save update on disk for later installation
Enter choice (1-10) or q to quit:
```

2. Enter 9 to select the *upd\_remove* option.

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

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

The system prompt returns to your screen.

The update is removed from the CMS software. You can now turn on the CMS software.

---

## Overview

CMS Installation and MaintenanceThe Release 3 Version 2 Call Management System (R3V2 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.

**Note** For the screens to administer the Expert Agent Selection (EAS) feature, see Appendix E in the *R3V2 CMS Administration* (585-215-521) document.

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.

|             |
|-------------|
| <b>Note</b> |
|-------------|

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.



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: 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-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, see Chapter 2, "swsetup."

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<br>Chan                 | Appl. | Interface<br>Link Chan |   | Priority | Remote<br>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-3: Processor Channel Assignment Form for Generic 3i.**

**Note** The R3V2 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<br>Conn | PI<br>Ext | Prot  | Destination<br>Digits | Brd | DTE/<br>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.**

**Note** For R3V2 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, see Chapter 2, “swsetup.”

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                         |       | Interface |      |          | Remote |      |            |
| Chan                         | Appl. | Link      | Chan | Priority | 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 R3V2 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  PI      Destination  DTE /
      Conn  Ext  Prot   Digits  Brd      DCE
-----
1:    y      y   2005  BX.25   2009      DTE
2:    y
3:    y
4:    y

```

Identification

**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:

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-10: Interface Links Form for EIA Port on Processor Interface for Generic 1**

**Note** For R3V2 CMS, the DTE/DCE field must be set to "DTE."

---

## Overview

The Release 3 Version 2 Call Management System (R3V2 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 R3V2 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 R3V2 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 22

**Note**

Any changes to the switch translations should only be made by a skilled switch technician.

**Note**

For the procedures to administer the Expert Agent Selection (EAS) feature, see Appendix E in the *R3V2 CMS Administration* (585-215-521) document.

---

# 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 acknowledgment (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 acknowledgment 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 acknowledgment 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.

Field1 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:

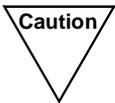
- Trunk group not measured by CMS
- 1 Trunk group measured for outgoing calls
- 2 Trunk group measured for incoming calls
- 3 Trunk group measured for outgoing and incoming calls.

**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 acknowledgment (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 acknowledgment 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 acknowledgment 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



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 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 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 R3V2 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 the 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 “1” 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 “1” 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.



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.



---

## Overview

The Release 3 Version 2 Call Management System (R3V2 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.

**Note**

For the screens to administer the Expert Agent Selection (EAS) feature, see Appendix E in the *R3V2 CMS Administration* (585-215-521) document.

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.

Note

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 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 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 Figure C-3 and Figure 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**.

**Note**

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 Level: 64
Switched Virtual Circuit? n
```

**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) : 135
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.



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
Connected to: dte   ITC: restricted
Remote Loop-Around Test? y

ABBREVIATED DIALING
List1:

SPECIAL DIALING OPTION: _____

ASSIGNED MEMBERS (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.



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: 1c0401
Name: cms link pdm   COS: 1   COR: 1
Connected to: dte   ITC: restricted
Remote Loop-Around Test? y

ABBREVIATED DIALING
List1:

SPECIAL DIALING OPTION: _____

ASSIGNED MEMBERS (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:**

| Link | Enabled | X.25 Extension | Destination Number | Establish Connection | Identification |
|------|---------|----------------|--------------------|----------------------|----------------|
| 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 "is" 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 Chapter 2, "swsetup."

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<br>Chan                 | Appl. | Interface<br>Link | Chan | Local<br>Port | Remote<br>Port | Adjunct<br>Name | Machine-ID |
| 1:                           | mis   | 1                 | 1    | h             | 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 R3V2 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:**

```

ADMINISTERED CONNECTION
Connection Number: 1 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**



---

# Overview

This appendix outlines the hardware and software installation procedures performed by the factory for the **Model 3332** computer. You can use these procedures to bring Model 3332 computers in the field up to factory standard. The factory performs the following installation procedures:

## A. Hardware Procedures

1. Tie up flexible disk drive flex cable
2. Install the single in-line memory modules (SIMMs)
3. Install the SCSI streaming tape drive
4. Install SCSI hard disk(s)
5. Install the host adapter board and cabling
6. Install the general purpose synchronous controller(s) (GPSC-AT/E)
7. Install the MEGAPLEX-96 board
8. Connect the keyboard, monitor, and power cable
9. Connect external drives (if equipped)
10. Power up computer and verify Setup
11. Run SCSI utilities
12. Install the KickStart 2.5 Board (international) or the Landmark KickStart 3 Remote Maintenance Board (domestic) and Connect the Modem

## B. Software Procedures

1. Install the UNIX System V/386 Release 3.2 Version 2.3 operating system
2. Administer the COM1 Port
3. Install the Remote Terminal Package
4. Install the Megaport Device Driver, Version 2.4.7
5. Install 2 to 16 User License Package
6. Install 16 to Unlimited User License Package
7. Install the Remote Maintenance Package
8. Set up the CMS file system
9. Administer the second hard disk (if installed)
10. Administer the third through sixth hard disks (if installed)

11. Install the INFORMIX 4.10 software
12. Install the X.25 Network Interface
13. Install UNIX Maintenance Disk #1
14. Install the Crash (1M) Patch (NCR Fix 188)
15. Install the Korn Shell
16. Install the CMS application.
17. Set Authorizations

---

## Additional Documents

You need to reference the following document while installing the Model 3332 hardware:

- *NCR System 3000 Model 3332 User's Manual*

---

## Manufacturing Information

Tables D-1 through D-4 provide the Price Element Codes (PECs) for a small, medium, large, and extra-large CMS configuration. You can use this information when ordering a part that is missing or defective on arrival (DOA).

**Table D-1: R3V2 CMS Small Agent Package**

| PEC      | Attribute | Description                                           | Comcode                         | Quantity  |   |
|----------|-----------|-------------------------------------------------------|---------------------------------|-----------|---|
| 1208-5SM |           | 3332 PROCESSOR E/W KB                                 | 406901819                       | 1         |   |
|          |           | ADAPTEC SCSI CABLE                                    | 407241983                       | 1         |   |
|          |           | ADAPTEC SCSI HOST ADAPT                               | 407124015                       | 1         |   |
|          |           | SCSI SUPPORT PACKAGE                                  | 406818138                       | 1         |   |
|          |           | SCSI SUPPORT PACKAGE VERSION 2.3,<br>ADAPTEC HA PATCH | 107540403                       | 1         |   |
|          |           | 1GB SCSI HDU                                          | 407123462                       | 1         |   |
|          |           | 320/525MB SCSI TAPE DR                                | 407290691                       | 1         |   |
|          |           | 4 MB RAM                                              | 406902759                       | 1         |   |
|          |           | 16 MB RAM                                             | 406902767                       | 1         |   |
|          |           | COLOR MONITOR                                         | 406932590                       | 1         |   |
|          |           | EQUINOX CONTROLLER                                    | 406876482                       | 1         |   |
|          |           | EQUINOX MULTIPLEXER                                   | 406876581                       | 1         |   |
|          |           | GPSC-AT/E CARD                                        | 406801647                       | 1         |   |
|          |           | GPSC-AT/E RS232 CBL                                   | 406801688                       | 1         |   |
|          |           | X.25 SOFTWARE                                         | ED3P00170 G-1514                | 1         |   |
|          |           | GPSC DIA ENH SFTW                                     | 106926751                       | 1         |   |
|          |           | KICKSTART 2.5 (PLUS) or KICKSTART 3                   | 406991299/                      | 1         |   |
|          |           | 10' SHIELDED CABLE                                    | 846983039                       | 1         |   |
|          |           | ACU/MDM F ADAPTER                                     | ED3P00170 G-1307                | 1         |   |
|          |           | REM CONSOLE ADAPTER                                   | ED3P00170 G-1308                | 1         |   |
|          |           | OFF LINE ADMIN SOFT                                   | 107019317                       | 1         |   |
|          |           | ALARM TRAN/REC/ADP                                    | 846461564                       | 1         |   |
|          |           | 50' SHIELDED CBL                                      | 846983047                       | 1         |   |
|          |           | UNIX 3.2.3 UNL TP                                     | 106839640                       | 1         |   |
|          |           | SYSTEM TAPE BACKUP                                    | 106943954                       | 1         |   |
|          |           | FACTORY L/L                                           | 684938467                       | 2         |   |
|          | SFT101    |                                                       | INFORMIX 4.10.UD1               | 406985770 | 1 |
|          | SFT101    |                                                       | INFORMIX 4.10.UD2               | 406985788 | 1 |
|          | SFT101    |                                                       | CMS SOFTWARE                    | 107053662 | 1 |
|          | SFT101    |                                                       | CMS R3V2 ADMIN MANUAL           | 107024929 | 1 |
|          | SFT101    |                                                       | CMS R3V2 CUSTOM RPRTS MANUAL    | 107024937 | 1 |
|          | SFT101    |                                                       | MS R3V2 I&M MANUAL WGS COMPUTER | 107024879 | 1 |
| SFT101   |           | CMS R3V2 JOB AID                                      | 107095002                       | 1         |   |
| SFT101   |           | CMS R3V2 100 AGENT RTU                                | 107061715                       | 1         |   |

Table D-2: R3V2 CMS Medium Agent Package

| PEC      | Attribute | Description                                           | Comcode                         | Quantity  |   |
|----------|-----------|-------------------------------------------------------|---------------------------------|-----------|---|
| 1208-5MD |           | 3332 PROCESSOR E/W KB                                 | 406901819                       | 1         |   |
|          |           | ADAPTEC SCSI CABLE                                    | 407241983                       | 1         |   |
|          |           | ADAPTEC SCSI HOST ADAPT                               | 407124015                       | 1         |   |
|          |           | SCSI SUPPORT PACKAGE                                  | 406818138                       | 1         |   |
|          |           | SCSI SUPPORT PACKAGE VERSION 2.3,<br>ADAPTEC HA PATCH | 107540403                       | 1         |   |
|          |           | 1GB SCSI HDU                                          | 407123462                       | 2         |   |
|          |           | 320/525MB SCSI TAPE DR                                | 407290691                       | 1         |   |
|          |           | 4 MB RAM                                              | 406902759                       | 1         |   |
|          |           | 16 MB RAM                                             | 406902767                       | 2         |   |
|          |           | COLOR MONITOR                                         | 406932590                       | 1         |   |
|          |           | EQUINOX CONTROLLER                                    | 406876482                       | 1         |   |
|          |           | EQUINOX MULTIPLEXER                                   | 406876581                       | 2         |   |
|          |           | GPSC-AT/E CARD                                        | 406801647                       | 1         |   |
|          |           | GPSC-AT/E RS232 CBL                                   | 406801688                       | 1         |   |
|          |           | X.25 SOFTWARE                                         | ED3P00170 G-1514                | 1         |   |
|          |           | GPSC DIA ENH SFTW                                     | 106926751                       | 1         |   |
|          |           | KICKSTART 2.5 (PLUS) or KICKSTART 3                   | 406991299                       | 1         |   |
|          |           | 10' SHIELDED CABLE                                    | 846983039                       | 1         |   |
|          |           | ACU/MDM F ADAPTER                                     | ED3P00170 G-1307                | 1         |   |
|          |           | REM CONSOLE ADAPTER                                   | ED3P00170 G-1308                | 1         |   |
|          |           | OFF LINE ADMIN SOFT                                   | 107019317                       | 1         |   |
|          |           | ALARM TRAN/REC/ADP                                    | 846461564                       | 1         |   |
|          |           | 50' SHIELDED CBL                                      | 846983047                       | 1         |   |
|          |           | UNIX 3.2.3 UNL TP                                     | 106839640                       | 1         |   |
|          |           | SYSTEM TAPE BACKUP                                    | 106943954                       | 1         |   |
|          |           | FACTORY L/L                                           | 684938467                       | 2         |   |
|          |           | SFT101                                                | INFORMIX 4.10.UD1               | 406985770 | 1 |
|          |           | SFT101                                                | INFORMIX 4.10.UD2               | 406985788 | 1 |
|          |           | SFT101                                                | CMS SOFTWARE                    | 107053662 | 1 |
|          |           | SFT101                                                | CMS R3V2 ADMIN MANUAL           | 107024929 | 1 |
|          |           | SFT101                                                | CMS R3V2 CUSTOM RPRTS MANUAL    | 107024937 | 1 |
|          |           | SFT101                                                | MS R3V2 I&M MANUAL WGS COMPUTER | 107024879 | 1 |
|          | SFT101    | CMS R3V2 JOB AID                                      | 107095002                       | 1         |   |
|          | SFT101    | CMS R3V2 100 AGENT RTU                                | 107061715                       | 1         |   |

**Table D-3: R3V2 CMS Large Agent Package**

| PEC      | Attribute | Description                                           | Comcode               | Quantity  |   |
|----------|-----------|-------------------------------------------------------|-----------------------|-----------|---|
| 1208-5LG |           | 3332 PROCESSOR E/W KB                                 | 406901819             | 1         |   |
|          |           | ADAPTEC SCSI CABLE                                    | 407241983             | 1         |   |
|          |           | ADAPTEC SCSI HOST ADAPT                               | 407124015             | 1         |   |
|          |           | SCSI SUPPORT PACKAGE                                  | 406818138             | 1         |   |
|          |           | SCSI SUPPORT PACKAGE VERSION 2.3,<br>ADAPTEC HA PATCH | 107540403             | 1         |   |
|          |           | 1GB SCSI HDU                                          | 407123462             | 2         |   |
|          |           | 1GB SCSI HDU EXT                                      | ED3O00170G272         | 1         |   |
|          |           | 320/525MB SCSI TAPE DR                                | 407290691             | 1         |   |
|          |           | 16 MB RAM                                             | 406902767             | 4         |   |
|          |           | COLOR MONITOR                                         | 406932590             | 1         |   |
|          |           | EQUINOX CONTROLLER                                    | 406876482             | 1         |   |
|          |           | EQUINOX MULTIPLEXER                                   | 406876581             | 2         |   |
|          |           | GPSC-AT/E CARD                                        | 406801647             | 1         |   |
|          |           | GPSC-AT/E RS232 CBL                                   | 406801688             | 1         |   |
|          |           | X.25 SOFTWARE                                         | ED3P00170 G-1514      | 1         |   |
|          |           | GPSC DIA ENH SFTW                                     | 106926751             | 1         |   |
|          |           | KICKSTART 2.5 (PLUS) or KICKSTART 3                   | 406991299             | 1         |   |
|          |           | 10' SHIELDED CABLE                                    | 846983039             | 1         |   |
|          |           | ACU/MDM F ADAPTER                                     | ED3P00170 G-1307      | 1         |   |
|          |           | REM CONSOLE ADAPTER                                   | ED3P00170 G-1308      | 1         |   |
|          |           | ALARM TRAN/REC/ADP                                    | 846461564             | 1         |   |
|          |           | 50' SHIELDED CBL                                      | 846983047             | 1         |   |
|          |           | UNIX 3.2.3 UNL TP                                     | 106839640             | 1         |   |
|          |           | SYSTEM TAPE BACKUP                                    | 106943954             | 1         |   |
|          |           | FACTORY L/L                                           | 684938467             | 2         |   |
|          | SFT101    |                                                       | INFORMIX 4.10.UD1     | 406985770 | 1 |
|          | SFT101    |                                                       | INFORMIX 4.10.UD2     | 406985788 | 1 |
|          | SFT101    |                                                       | CMS SOFTWARE          | 107053662 | 1 |
|          | SFT101    |                                                       | CMS R3V2 ADMIN MANUAL | 107024929 | 1 |
| SFT101   |           | CMS R3V2 CUSTOM RPRTS MANUAL                          | 107024937             | 1         |   |
| SFT101   |           | MS R3V2 I&M MANUAL WGS COMPUTER                       | 107024879             | 1         |   |
| SFT101   |           | CMS R3V2 JOB AID                                      | 107095002             | 1         |   |
| SFT101   |           | CMS R3V2 100 AGENT RTU                                | 107061715             | 1         |   |

Table D-4: R3V2 CMS XL Agent Package

| PEC      | Attribute | Description                                           | Comcode                      | Quantity  |   |
|----------|-----------|-------------------------------------------------------|------------------------------|-----------|---|
| 1208-5XL |           | 3332 PROCESSOR E/W KB                                 | 406901819                    | 1         |   |
|          |           | ADAPTEC SCSI CABLE                                    | 407241983                    | 1         |   |
|          |           | ADAPTEC SCSI HOST ADAPT                               | 407124015                    | 1         |   |
|          |           | SCSI SUPPORT PACKAGE                                  | 406818138                    | 1         |   |
|          |           | SCSI SUPPORT PACKAGE VERSION 2.3,<br>ADAPTEC HA PATCH | 107540403                    | 1         |   |
|          |           | 1GB SCSI HDU                                          | 407123462                    | 2         |   |
|          |           | 1GB SCSI HDU EXT                                      | ED3O00170G272                | 1         |   |
|          |           | DB50 TO CENTRONIX ADAPTER                             | 406973735                    |           |   |
|          |           | 320/525MB SCSI TAPE DR                                | 407290691                    | 1         |   |
|          |           | 16 MB RAM                                             | 406902767                    | 4         |   |
|          |           | COLOR MONITOR                                         | 406932590                    | 1         |   |
|          |           | EQUINOX CONTROLLER                                    | 406876482                    | 1         |   |
|          |           | EQUINOX MULTIPLEXER                                   | 406876581                    | 2         |   |
|          |           | GPSC-AT/E CARD                                        | 406801647                    | 1         |   |
|          |           | GPSC-AT/E RS232 CBL                                   | 406801688                    | 1         |   |
|          |           | X.25 SOFTWARE                                         | ED3P00170 G-1514             | 1         |   |
|          |           | GPSC DIA ENH SFTW                                     | 106926751                    | 1         |   |
|          |           | KICKSTART 2.5 (PLUS) or KICKSTART 3                   | 406991299                    | 1         |   |
|          |           | OFF LINE ADMIN SOFT                                   | 107019317                    | 1         |   |
|          |           | 10' SHIELDED CABLE                                    | 846983039                    | 1         |   |
|          |           | ACU/MDM F ADAPTER                                     | ED3P00170 G-1307             | 1         |   |
|          |           | REM CONSOLE ADAPTER                                   | ED3P00170 G-1308             | 1         |   |
|          |           | ALARM TRAN/REC/ADP                                    | 846461564                    | 1         |   |
|          |           | 50' SHIELDED CBL                                      | 846983047                    | 1         |   |
|          |           | UNIX 3.2.3 UNL TP                                     | 106839640                    | 1         |   |
|          |           | SYSTEM TAPE BACKUP                                    | 106943954                    | 1         |   |
|          |           | FACTORY L/L                                           | 684938467                    | 2         |   |
|          |           | SFT101                                                | INFORMIX 4.10.UD1            | 406985770 | 1 |
|          |           | SFT101                                                | INFORMIX 4.10.UD2            | 406985788 | 1 |
|          |           | SFT101                                                | CMS SOFTWARE                 | 107053662 | 1 |
|          |           | SFT101                                                | CMS R3V2 ADMIN MANUAL        | 107024929 | 1 |
|          |           | SFT101                                                | CMS R3V2 CUSTOM RPRTS MANUAL | 107024937 | 1 |
|          | SFT101    | MS R3V2 I&M MANUAL WGS COMPUTER                       | 107024879                    | 1         |   |
|          | SFT101    | CMS R3V2 JOB AID                                      | 107095002                    | 1         |   |
|          | SFT101    | CMS R3V2 100 AGENT RTU                                | 107061715                    | 1         |   |

---

# Factory Hardware Installation Procedures

The following steps outline the factory hardware installation procedures and include:

- An installation sequence
- Documentation references
- SCSI ID and option settings, board locations, etc.

Note

Before you begin the hardware installation, make sure that the computer is unplugged and you are wearing a static ground strap.

In addition, read Chapter 4 “Installing Options” from the *NCR System 3000 Model 3332 User’s Manual*. You then need to reference only specific sections of Chapter 4 as you proceed through the hardware installation steps.

---

## Step 1: Tie-Up Flexible Disk Drive Cable

- a. Locate flex cable inside the Model 3332 cabinet. The flex cable is connected from the flexible disk drive to the system board.
- b. Roll up the excess cable and, using a plastic tie strip, fasten the strip around the bundle and tighten. Cut off the excess length of tie strip.

Note

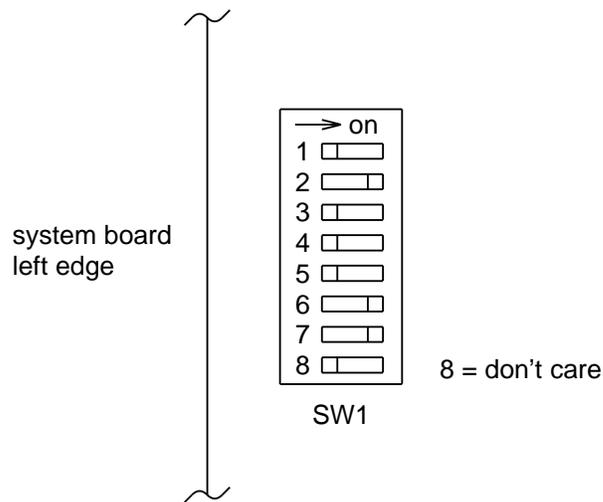
The 3.5-inch flexible disk drive is connected via the middle connector on the cable, which is non-standard.

## Step 2: Install the SIMMs on the System Board

Reference: NCR System 3000 Model 3332 User's Manual  
Chapter 1: "Memory Background Information"

### System Board Switch Settings

Verify that the SW1 switch is set according to Figure D-1.



**Figure D-1: System Board SW1 Settings**

**Note** Some 3332s may have a black and white twisted-pair cable bundled with the wire harness to the front panel. Ignore this black and white cable; it connects to nothing.

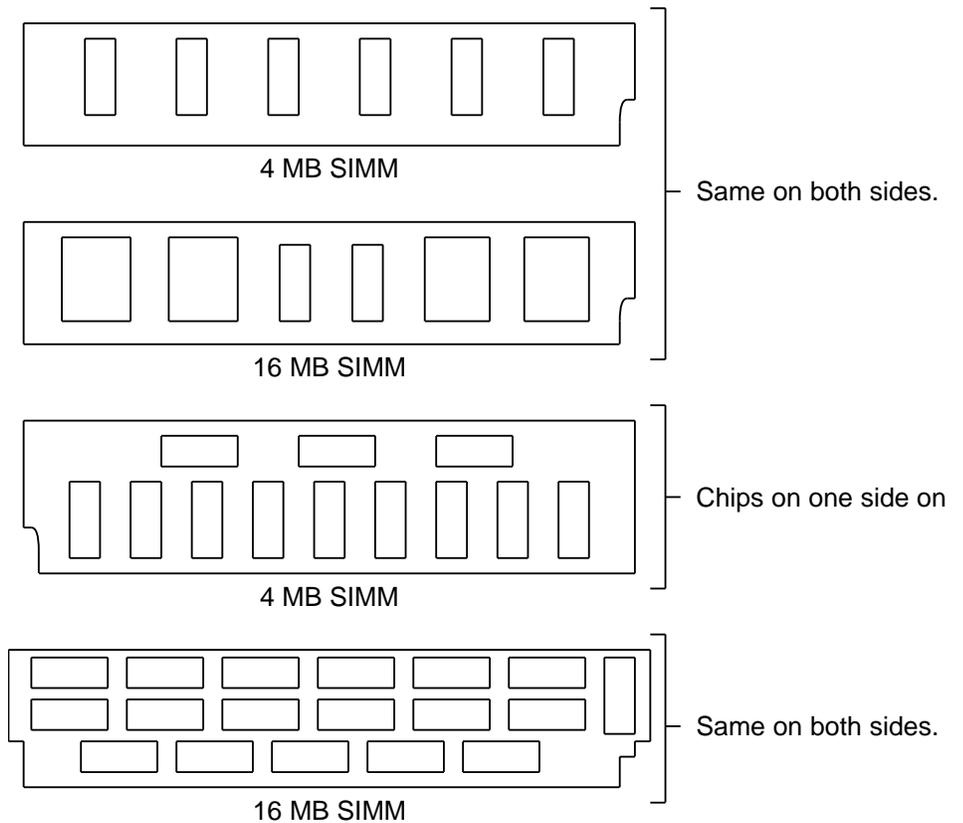
### SIMMs

The Model 3332 is shipped to the AT&T Denver factory with one 4 MB single in-line memory module (SIMM) in Socket 1 (top socket). You need to install additional SIMMs based on the CMS configuration.

Table D-5 shows the SIMM combinations based on the CMS configuration. Figure D-2 shows the difference between 4 MB and 16 MB SIMMs

**Table D-5: SIMM Combinations for CMS Configuration**

| CMS Configuration | Total Memory | Socket 1 (Top Socket) | Socket 2 | Socket 3 | Socket 4 |
|-------------------|--------------|-----------------------|----------|----------|----------|
| Small             | 24 MB        | 4 MB                  | 4 MB     | 16 MB    | None     |
| Medium            | 40 MB        | 4 MB                  | 4 MB     | 16 MB    | 16 MB    |
| Large             | 64 MB        | 16 MB                 | 16 MB    | 16 MB    | 16 MB    |



**Figure D-2: 4 MB and 16 MB SIMMs**

**Note** When you insert a SIMM into a socket, make sure the 72 on the SIMM and socket correspond.

### Step 3: Install the Streaming Tape Drive

Reference: NCR System 3000 Model 3332 User's Manual  
 Chapter 4, "Installing Disk Drives"  
 NCR 3355-K780 320/525 MB SCSI Tape Drive  
 User Information

#### Setting the SCSI ID

The SCSI bus can support up to eight devices, including the host adapter. Each device attached to the SCSI bus has a unique address or SCSI ID. Table D-6 shows the SCSI ID for each device and the location of the device.

**Table D-6: SCSI IDs, Devices, and Locations for the 3332**

| SCSI ID | Device                | Location |
|---------|-----------------------|----------|
| 0       | 1st (base) disk       | internal |
| 1       | 2nd disk              | internal |
| 2       | x-Tape or 6th disk    | external |
| 3       | 320/525 MB tape drive | internal |
| 4       | 3rd disk              | external |
| 5       | 4th disk              | external |
| 6       | 5th disk              | external |
| 7       | host adapter board    | internal |

You need to set the SCSI ID to 3 before you install the streaming tape drive. Locate the jumpers on jumper bank JP1 on the underside of the drive. Put the jumpers on jumper positions 1 and 2 as shown in Figure D-3.

#### Procedure

1. Make sure the terminating resistors are **removed** from the drive (see Figure D-3).
2. Install the streaming tape drive into the upper 5.25-inch drive bay using the plastic guide rails and metal grounding strips.
3. Remove the attached power cable extender and then connect the power cable to the drive.

**Note** The SCSI cable is connected in Step 5.

Note 1: Jumper position K may or may not be present.

Note 2: Verify terminating resistors are removed from sockets RN1, RN2, and RN3.

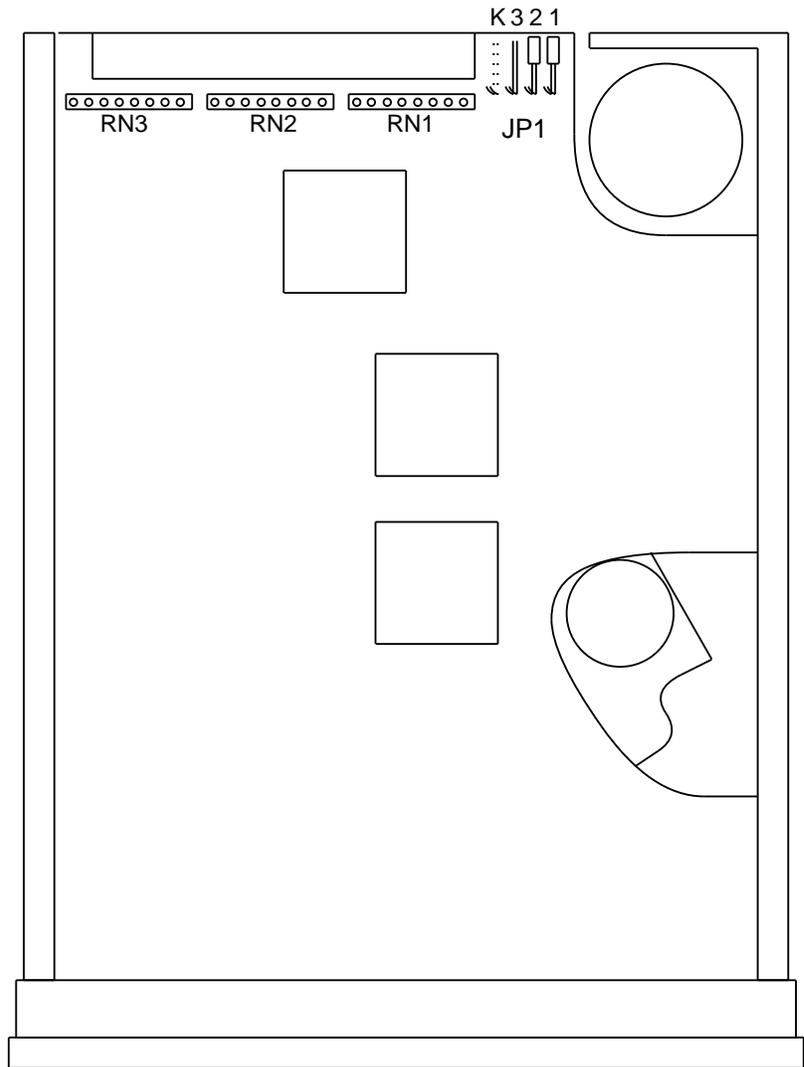


Figure D-3: Location of JP1 on Underside of Streaming Tape Drive

## Step 4: Install Internal Hard Disk(s)

Reference: NCR System 3000 Model 3332 User's Manual  
Chapter 4, "Installing Disk Drives"  
Digital Storage Products  
Disk Drive  
Installation Guide  
Model DSP3105  
Model DSP3085  
EK-DS001-IG-004

### Setting SCSI IDs

The Model 3332 can support two internal hard disks. Each of these disks has a unique SCSI ID, which you must set.

Do these steps to set the SCSI ID:

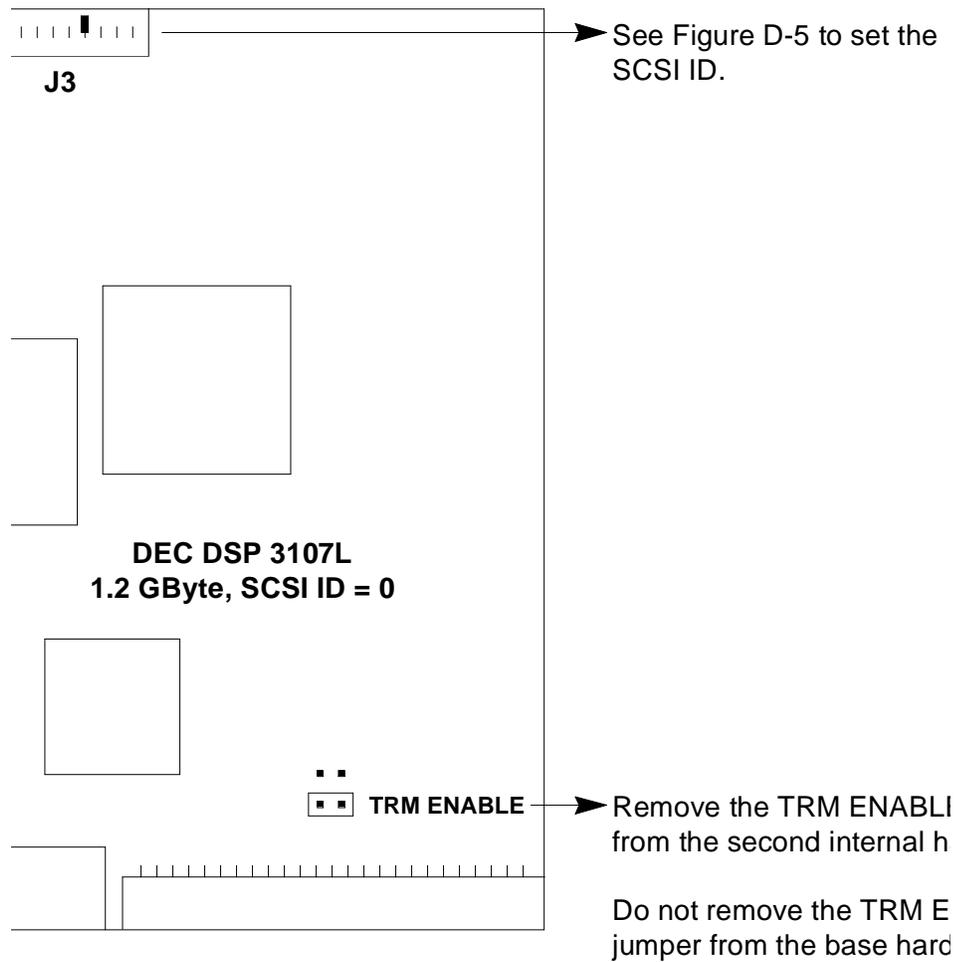
1. Determine the SCSI ID:

| Internal Disk   | SCSI ID |
|-----------------|---------|
| 1st (base) disk | 0       |
| 2nd disk        | 1       |

2. Locate jumper bank J3 on the underside of the hard disk (see Figure D-4).
3. Reset the jumpers as follows:
  - For the base hard disk, remove all jumpers from pins 1 through 6.
  - For the second internal hard disk, position one jumper across pins 1 and 2.See Figure D-5.

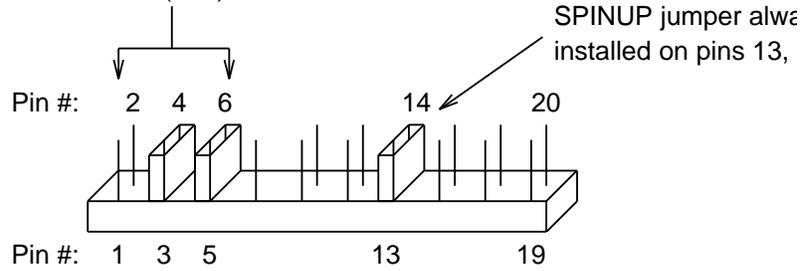
### Terminating Jumper

If the Model 3332 is equipped with two internal hard disks, remove the TRM ENABLE jumper from the second internal hard disk. Do **not** remove the TRM ENABLE jumper from the base hard disk. See Figure D-4.



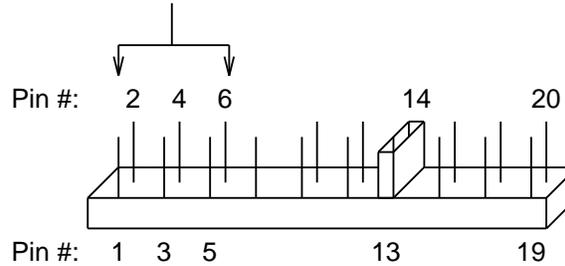
**Figure D-4: Underside of Internal Hard Disk**

Jumpers positioned on pins 1 through 6 set the SCSI ID. Default SCSI ID = 6 (2+4).



SI ID value  
when jumper present: 1 2 4

For the base internal hard disk, remove all jumpers from pins 1 through 6 (SCSI ID 0).



For the second internal hard disk, position one jumper across pins 1 and 2 (SCSI ID 1).

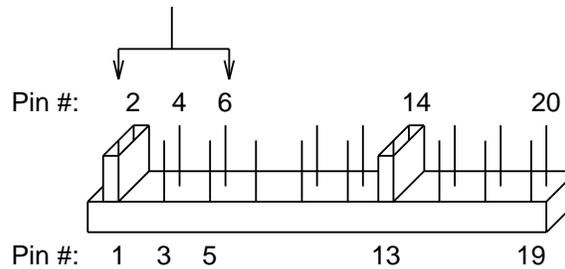
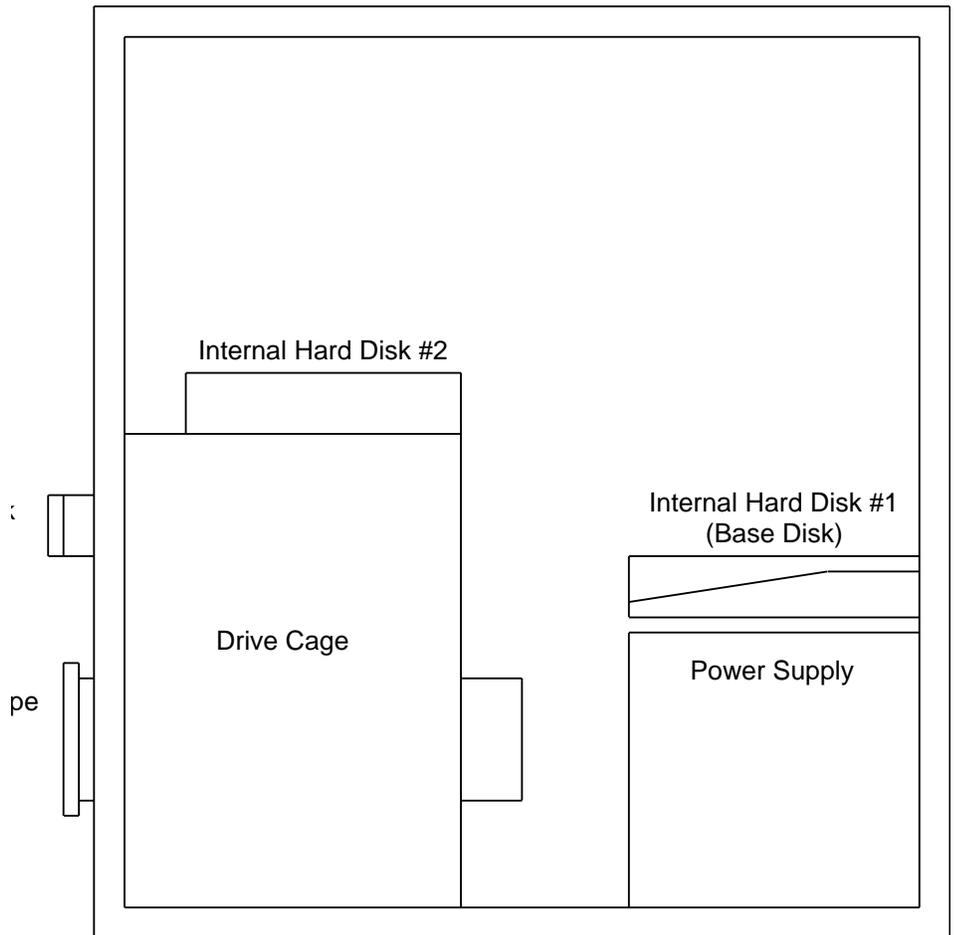


Figure D-5: J3 Jumper Bank

**Locations for Internal Hard Drives**

Install the base hard disk on the 3.5-inch platform above the power supply. Install the second internal hard disk (if equipped) on the 3.5-inch platform above the drive cage. See Figure D-6.

After installing the hard disk(s), connect the power cable.



**Figure D-6: Model 3332 Cabinet Interior**

## Step 5: Install the Host Adapter Board and Cabling

Reference: NCR System 3000 Model 3332 User's Manual  
 Chapter 4, "Installing a Board"  
 Adaptec AHA-1540CF/1542CF  
 Installation Guide

### Procedure

Do these steps to install the host adapter:

1. Install the host adapter board into Slot 8 (Slot 1 is the top slot).
2. Connect the wire labeled "Drawing Number 017-0056798 Issue A" from connector J17 on the system board to jumper bank J1 on the host adapter board. See Figure D-7.
3. Connecting this wire enables the LED on the front panel to light when a hard disk is operating.
4. Connect the host adapter cable.
  - a. Find the connector block on the host adapter cable labeled "J-BOARD."
  - b. Connect the J-BOARD block to the host adapter board.
  - c. Find the connector block labeled "J-LASTDRIVE."
  - d. Connect the J-LASTDRIVE block to the base hard disk located above the power supply.
  - e. Using the intermediate blocks, connect the second hard disk (if equipped) and the streaming tape drive. See Figure D-8.
5. Set the DIP switches. See Table D-7.

**Table D-7: S1 Switch Block Settings**

|     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|
| sw8 | sw7 | sw6 | sw5 | sw4 | sw3 | sw2 | sw1 |
| On  | On  | Off | On  | Off | Off | Off | Off |



OFF = Open = Away from board/numbers

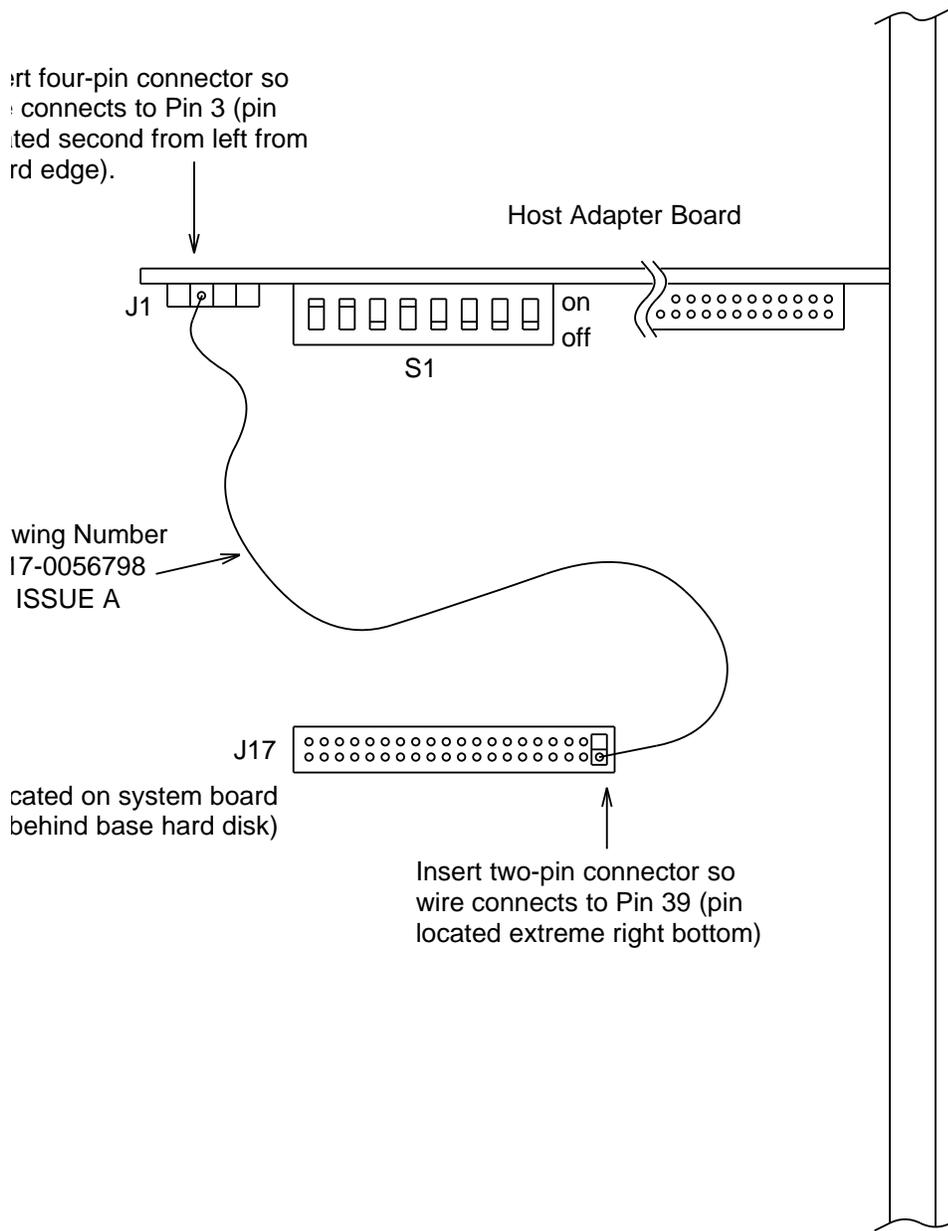
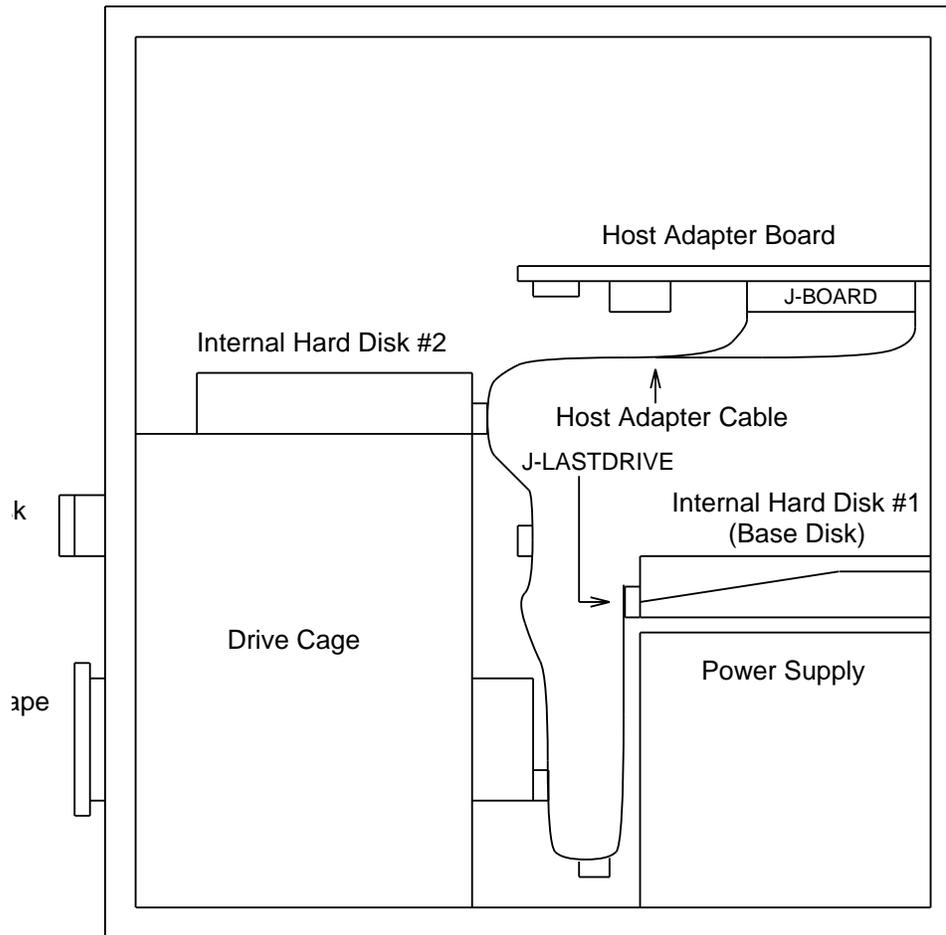


Figure D-7: Connecting Wire From System Board to Host Adapter



**Figure D-8: Connecting the Host Adapter Cable**

**Step 6: Install the  
General Purpose  
Synchronous  
Controller(s)  
(GPS-AT/E)**

Reference: AT&T General Purpose Synchronous Controller - AT/E  
Installation Guide  
999-120-737, Issue 1  
  
NCR System 3000 Model 3332 User's Manual  
Chapter 4, "Installing a Board"

**Options**

For each GPSC-AT/E, add Port B DIP shunt (DTE setting) and jumper J5 (activate both ports).

GPSC-AT/E #0 I/O address space = 240

GPSC-AT/E #1 I/O address space = 250

See Figure D-9.

**Location**

Install GPSC-AT/E #0 into expansion Slot 1 (top slot) and GPSC-AT/E #1 (if equipped) into expansion Slot 2.

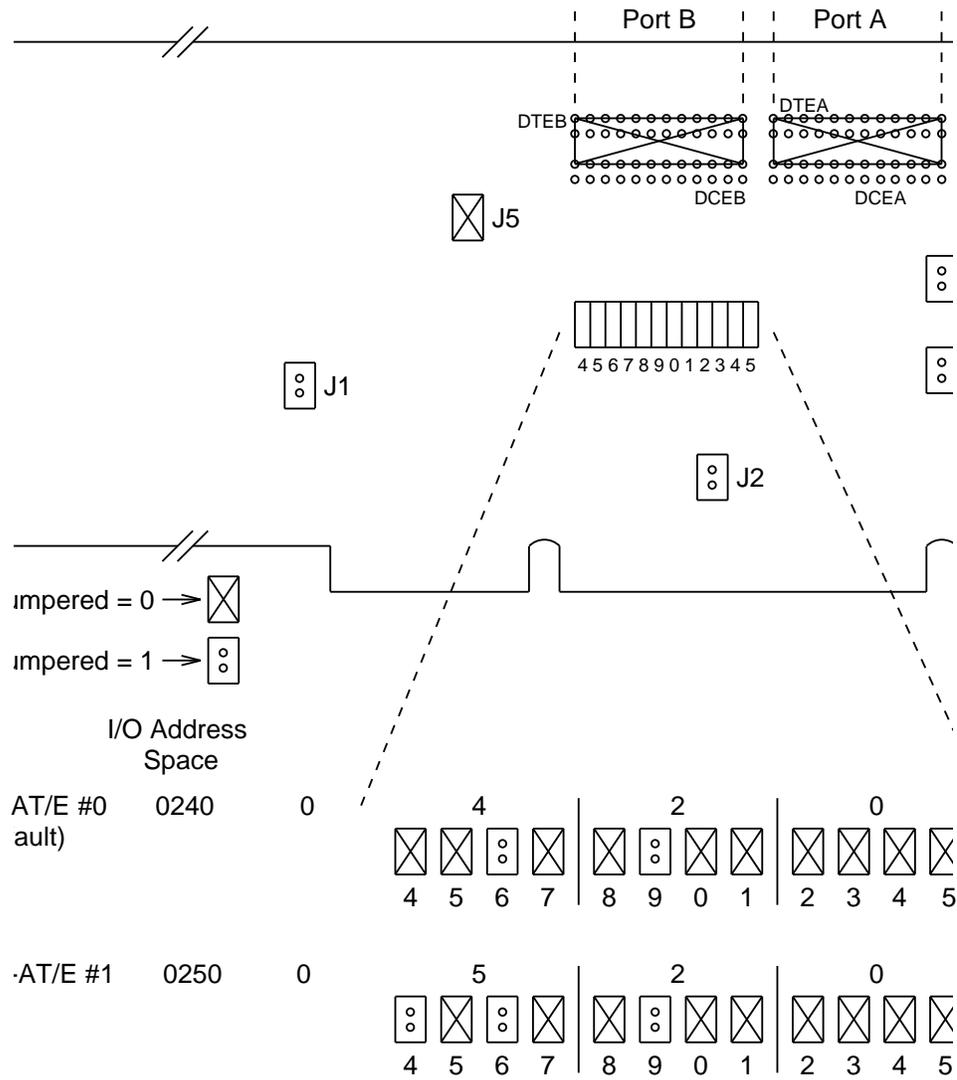


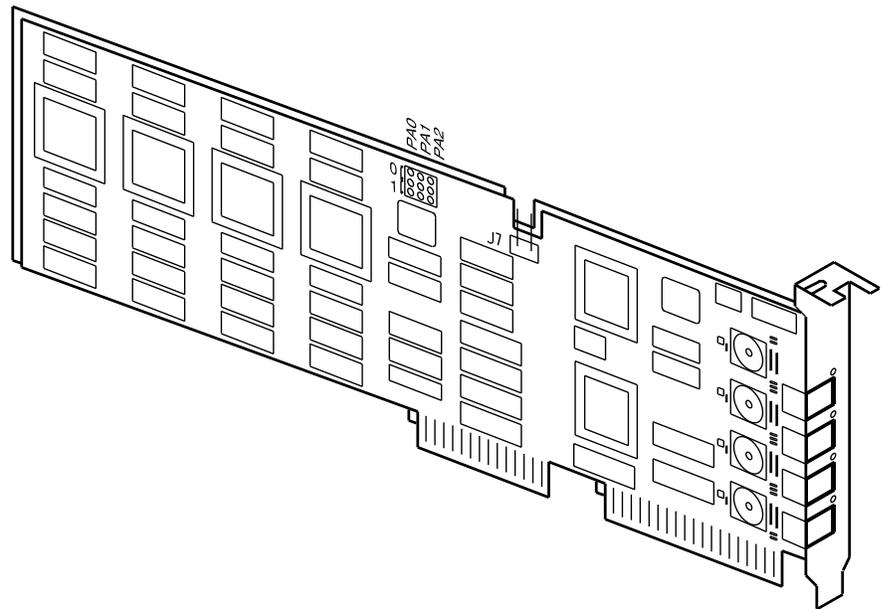
Figure D-9: GPSC-AT/E DIP Shunts and Jumper Settings

## Step 7: Install the MEGAPLEX-96 Board

Reference: NCR System 3000 Model 3332 User's Manual  
 Chapter 4, "Installing a Board"  
 Call Management System  
 Release 3 Version 2  
 MEGAPLEX®-96 Board Installation  
 Chapter 1, "Introduction"  
 Chapter 3, "Hardware Installation Procedures"

## Setting the MEGAPLEX-96 to the Bus Architecture

If you are installing the MEGAPLEX-96 board into an ISA bus system (NCR 3332), make sure that **no** jumpers are installed on positions PA0 through PA2 (see Figure D-10).



tpa 750753/01

**Figure D-10: ISA Jumper Example**

## Location

Install the MEGAPLEX-96 board into expansion Slot 4 (Slot 1 is the top slot).

---

## Step 8: Connect Keyboard, Monitor, and Power Cable

Reference: NCR System 3000 Model 3332 User's Manual  
Chapter 1, "Assembling the Hardware"

---

## Step 9: Connect External Drives (If Equipped)

Reference: AT&T 1 GB SCSI Hard Disk Drive Reference Manual  
AT&T SCSI Expansion Module (SXM) User's Guide  
x-Tape®  
AT&T UNIX System V Release 3 Systems Installation and Operation Guide

## Setting SCSI IDs

External drives ship from the factory with these default SCSI IDs:

- external hard disks with SCSI ID 4, and
- x-Tape modules with SCSI ID 6.

If you are installing an external drive other than the third hard disk, you need to reset the SCSI ID. See Table D-8 to set SCSI IDs.

**Table D-8: SCSI IDs for External Drives**

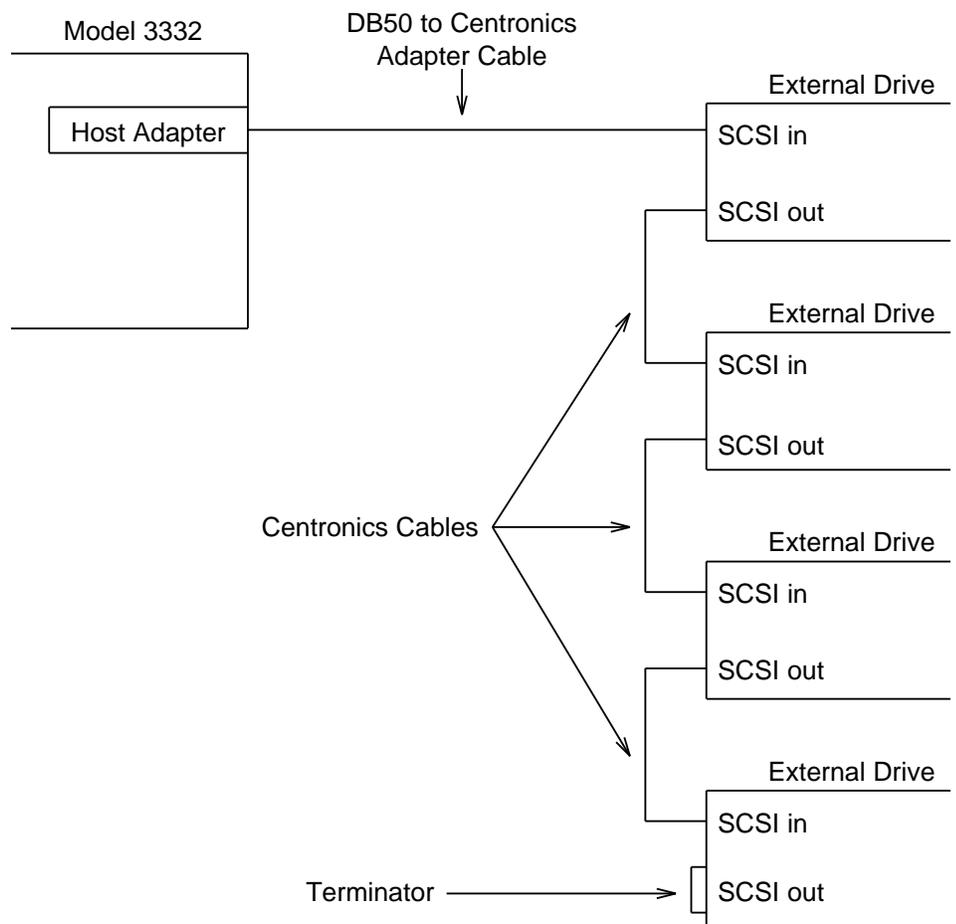
| External Drive     | SCSI ID |
|--------------------|---------|
| 3rd disk           | 4       |
| 4th disk           | 5       |
| 5th disk           | 6       |
| 6th disk or x-Tape | 2       |

## Cabling

Figure D-11 shows how to daisy chain a single SCSI bus through the external drives. In addition, you need to make the power connections for these drives.

The figure shows the maximum number of external drives configured for the 3332. If the customer's external configuration is less than maximum, you must place the terminator on the last drive in the chain.

**Note** There are no removable resistors on the Adaptec SCSI Host Adapter. Termination is software controlled.



**Figure D-11: External Drive SCSI Cabling**

## Step 10: Power Up Computer and Verify Setup

Reference: NCR System 3000 Model 3332 User's Manual  
Chapter 1, "Setup"

Once you have assembled the computer and installed any external drives, you need to power up the system and verify Setup.

### Procedure

Do these steps to verify Setup:

- a. Insert the "**3330 Generic Support Software for NCR and OEM Disk 1 of 2 Version 1.04**" diskette into the flexible disk drive.
- b. Turn on the computer and peripherals.

The Power On Self Tests (POST) operate each time you turn on the computer or press Reset. POST tests the basic system components.

At the completion of the tests, messages display similar to the ones below. These messages vary according to the features installed on the computer.

```
ROM BIOS Version 0E.B2.00 (3330, 3332)
MAIN BOARD DIAGNOSTICS COMPLETE,
  TEST AND INITIALIZE:
  _DMA CONTROLLERS
  _TIMER ZERO
  _INTERRUT CONTROLLERS
CONVENTIONAL MEMORY TEST
00512 KB
EXTENDED MEMORY TEST
XXXXX KB
  _REMAPPED FOR SHADOW MEMORY 00256 KB
TOTAL MEMORY XXXXX KB
  _PROCESSOR SPEED: 66 MHz
  _486 INTERNAL CACHE ENABLED
  _SECOND LEVEL CACHE INSTALLED
  _KEYBOARD
PRESS <F1> IF SETUP IS DESIRED
  _FLEX DISK
  _EXTERNAL ROMS E000
```

```

Adaptec AHA-1540CF/1542CF BIOS v1.00
(c) 1992 Adaptec, Inc. All Rights Reserved.

<<< Press <Ctrl> <A> for SCSI Utility >>>

SCSI ID #0 - DEC DSP3105S SCSI ID #1 - WANGTEK 5525ES SCSI

BIOS Installed Successfully
    
```

After the diagnostic messages display, this screen appears:

After the diagnostic messages display, this screen appears:

---

ALLATION UTILITY VEI

---

|                           |       |                      |
|---------------------------|-------|----------------------|
| Return to DOS             |       |                      |
| Number of Cylinders       | 25956 |                      |
| Number of Heads           | 102   |                      |
| ing Write Precompensation | 26727 | ALL ENTRIES IN DECIM |
| Number of ECC Bytes       | 105   |                      |
| Landing Zone              | 27755 |                      |
| Number of Sectors/Track   | 109   |                      |

Activate the HDD type enter System Setup while booting (press e ''Fixed disk C: Type 1'' and leave Setup by pressing <END

---

= Store Data and Exit <ESC> = Exit without

---

c. Press Esc to return to DOS.

The A> prompt appears.

d. Display the first Setup screen by entering:

```
A> setup
```

e. Verify that the computer's settings correspond to the settings shown below. Change any settings if necessary. Changes appear in the New Settings column.

Setup, Version E.R2.E8

| Device                         | Current Settings         | New Settings |
|--------------------------------|--------------------------|--------------|
| Date: _____                    | <current date>           |              |
| Time: _____                    | <current time>           |              |
| Single/Lower Flex Drive: _____ | 1.44MB, 3.5"             |              |
| Upper Flex Drive: _____        | Not installed            |              |
| Determine Drive A: _____       | Lower Drive              |              |
| Fixed disk C: _____            | Not installed            |              |
| Fixed disk D: _____            | Not installed            |              |
| Extended memory size: _____    | 64512 KB*                |              |
| Primary display: _____         | EGA/VGA graphics display |              |
| Screen width: _____            | 80 Columns               |              |

|               |                                                                           |
|---------------|---------------------------------------------------------------------------|
| __-__-__ Date | Format for entry of date:<br>MM-DD-YYYY<br>(Date will be set immediately) |
|---------------|---------------------------------------------------------------------------|

|                                                                             |                                                                                               |
|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| ↑ Move up a selection<br>↓ Move down a selection<br>← Enter the new setting | F2 Software Controlled Registers<br>ESC Exit without changes<br>END Save the changes and exit |
|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|

\*

| Total Memory | Extended Memory Size |
|--------------|----------------------|
| 24 MB        | 23808 KB             |
| 40 MB        | 40192 KB             |
| 64 MB        | 64512 KB             |

- f. Press the **F2** function key to view the second Setup screen.
- g. Verify that the computer's settings correspond to the settings shown below. Change any settings if necessary. Changes appear in the **New** column.

Software Controlled Registers and Memory Setup

| Setting               | Current | New | Settings              | Current | New |
|-----------------------|---------|-----|-----------------------|---------|-----|
| Flex Disk Interface:  | Yes     |     | Shadow BIOS ROM:      | Yes     |     |
| AT-Drive Interface:   | Yes     |     | Shadow VIDEO ROM:     | Yes     |     |
| AT-Bus Speed (MHz):   | 8.25    |     | Shadow VIDEO at:      | C0000   |     |
| Parallel Port:        | Yes     |     | Shadow 32K at C8000:  | No      |     |
| Add of Parallel Port: | LPT1    |     | Shadow 64K at D0000:  | No      |     |
| 25 Pin Serial I/O:    | Yes     |     | 486 Internal Cache:   | Yes     |     |
| 9 Pin Serial I/O:     | Yes     |     | Second Level Cache:   | Yes     |     |
| Primary COM Port:     | 25Pin   |     | Non Cacheable Area 1: | No      |     |
|                       |         |     | Non Cacheable Area 2: | No      |     |
|                       |         |     | Non Cacheable Area 3: | No      |     |

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| <input type="checkbox"/> Setting | 0 = No (Disable Flex Disk Controller)<br>1 = Yes (Enable Flex Disk Controller) |
|----------------------------------|--------------------------------------------------------------------------------|

|                                 |                                         |
|---------------------------------|-----------------------------------------|
| ↑ ↓ Move up,down a selection    | ESC Return to the first Screen          |
| ← → Move left,right a selection | END Save and return to the first Screen |
| ← ↵ Enter the new setting       |                                         |

- h. Press **End** to save changes or **Esc** to exit without changes.

**Note** **End** returns you to the previous Setup screen. Saves the changes on the second Setup screen when you exit the Setup routine by pressing **End** again.

**Esc** returns you to the previous Setup screen. Does not save the changes on the second Setup screen; keeps the original contents.

The first Setup screen appears.

- i. Press **End** again to save changes or **Esc** to exit without changes.
- j. If you saved changes, the system reboots. Verify POST messages.  
If you exited without saving changes, the A> prompt appears. Press Reset and verify POST messages.
- k. Remove the “**3330 Generic Support Software for NCR and OEM Disk 1 of 2**” diskette from the flexible disk drive before the system can boot from it.
- l. Press the **F1** function key when you see this message:

**PRESS <F1> IF SETUP IS DESIRED**

If you take too long pressing **F1**, press Reset and start again.

- m. Verify that the computer’s settings correspond to the settings shown below. Change any settings if necessary.

Setup, Version E.R2.E8

| Device                    | Current Settings         | New Settings |
|---------------------------|--------------------------|--------------|
| Date:_____                | <current date>           |              |
| Time:_____                | <current time>           |              |
| Single/Lower Flex Drive:  | 1.44MB, 3.5"             |              |
| Upper Flex Drive: _____   | Not installed            |              |
| Fixed disk C: _____       | Not installed            |              |
| Fixed disk D: _____       | Not installed            |              |
| Conventional memory: ____ | 512 KB                   |              |
| Extended memory size: __  | 64512 KB*                |              |
| Primary display:_____     | EGA/VGA graphics display |              |
| Redirect Console-COM1:__  | No Redirect Console      |              |
| Redirect Console-COM2:__  | No Redirect Console      |              |

|                 |                                                                           |
|-----------------|---------------------------------------------------------------------------|
| __-__-____ Date | Format for entry of date:<br>MM-DD-YYYY<br>(Date will be set immediately) |
|-----------------|---------------------------------------------------------------------------|

|                                                                             |                                                           |
|-----------------------------------------------------------------------------|-----------------------------------------------------------|
| ↑ Move up a selection<br>↓ Move down a selection<br>← Enter the new setting | ESC Exit without changes<br>END Save the changes and exit |
|-----------------------------------------------------------------------------|-----------------------------------------------------------|

\*

| Total Memory | Extended Memory Size |
|--------------|----------------------|
| 24 MB        | 23808 KB             |
| 40 MB        | 40192 KB             |
| 64 MB        | 64512 KB             |

n. Press **End** to save changes or **Esc** to exit without changes.

If you saved changes, the system reboots.

If you exited without saving changes, the system continues its power-up sequence.

**Note** Be prepared to press **Ctrl A** immediately if the system continues its power-up sequence.

## Step 11: Run SCSI Utilities

**Reference:** Adaptec  
AHA-1540CF/1542CF  
Installation Guide

Running the SCSI Utilities initializes the host adapter. Continue with these steps as the system reboots or continues its power-up sequence:

- a. Press **Ctrl** **A** when you see this message:

`<<< Press <Ctrl> <A> for SCSI Utility >>>`

The program responds:

```
If you have only one AHA-1540CF/1542CF
host adapter, press <Enter>.

For multiple host adapters, move the
cursor to the port address of the one
to be configured and press <Enter>.

<F5> - Toggle color/monochrome
<ESC> - Exit utility
```

| Host Adapter<br>Port Address |
|------------------------------|
| 130                          |
| 134                          |
| 230                          |
| 234                          |
| .....330.....                |
| .....334.....                |

If you take too long pressing **Ctrl** **A**, press Reset and start again.



- e. Change the Host Adapter DMA Channel from 5 (the default) to 6.
- f. If the system is equipped with external drives, change the Host Adapter SCSI Termination from enabled (the default) to disable.

After these changes, the screen looks like this:

```

      AHA-1540CF/1542CF at Port 330h
-----
 Configuration
-----
Host Adapter Interrupt (IRQ) Channel..... 15
Host Adapter DMA Channel..... 6
Host Adapter SCSI ID..... 7

SCSI Parity Checking..... Enabled
DMA Transfer Rate..... 5.0 MB/sec
Host Adapter SCSI Termination..... Enabled

▷ SCSI Device Configuration..... Press <Enter>
▷ Advanced Configuration Options..... Press <Enter>

      <F6> Reset to Host Adapter Defaults

-----
 BIOS Information
-----
Revision..... 1.00
Base Address..... E0000h

-----
 Firmware Information
-----
Revision..... 00
Checksum..... BB15h

```

**Note** In the above screen, the Host Adapter SCSI Termination should read Disabled if external drives are connected.

- g. Press **Esc** to save the changes.
- h. Enter **y** to the Save Changes Made? message.

- i. Choose the “SCSI Disk Utilities” option. The program responds:

```
          AHA-1540CF/1542CF at Port 330h
-----
Select SCSI/Disk and press <Enter>
SCSI ID #0:  DEC      DSP3105S
          #1:  No Device
          #2:  No Device
          #3:  Wangtek 5525ES SCSI
          #4:  No Device
          #5:  No Device
          #6:  No Device
          #7:  AHA-1540CF/1542CF
```

**Note**

The above screen varies according to the computer's configuration.

- j. Verify that the host adapter sees all installed SCSI devices and that these devices have the correct SCSI IDs.
- k. Exit out of the SCSI Utilities. Reboot the system when prompted.

## Step 12: Install the KickStart Board

**References:** KickStart 2.5 or KickStart 3  
 Multifunction Diagnostic Card  
 User's Manual  
 Chapter 1, "Installation"

KickStart is an interim Remote Maintenance Board (RMB) for the 3332. Since the KickStart 2.5 slows the response time for the Setup and SCSI utilities, it is installed after you have accessed these utilities.

KickStart 2.5 Boards are shipped with international orders for CMS on the 3332 platform. KickStart 3 Boards are shipped with domestic orders for CMS on the 3332 platform.

### KickStart Board Option Settings

Verify that switches SIP1 through SIP3 and jumpers W1 through W4 are set according to Figure D-12.

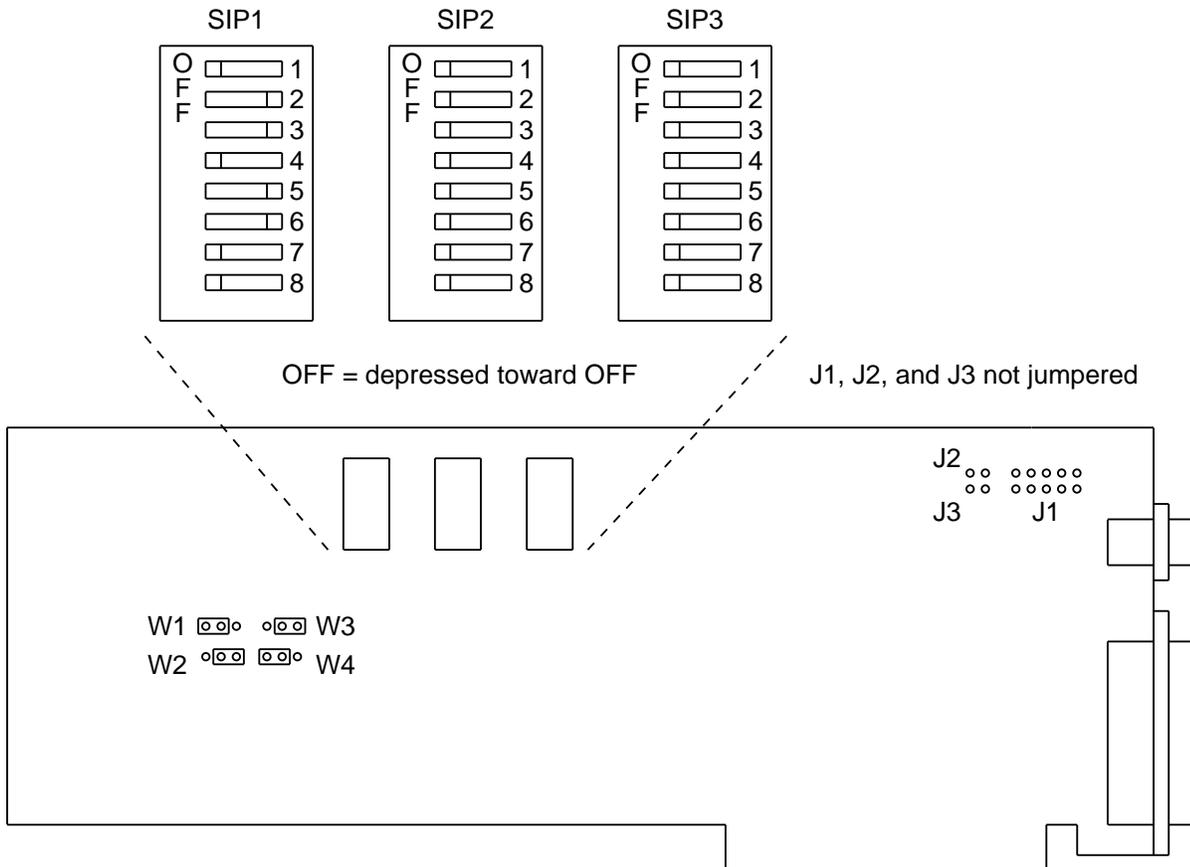


Figure D-12: KickStart Switch Settings

## Installation Procedure

- a. Shut down the computer by entering:

```
Shutdown -g0 -i0 -y
```

The program starts the shutdown process:

```
Shutdown started. <date and time>  
<Broadcast Message>
```

- b. When you see “Reboot the system now”, **turn off** the computer.
- c. Install the KickStart board into expansion Slot 6 (Slot 1 is the top slot).

**Note**

Hardware installation into the cabinet interior is now complete. Install filler plates for any empty slots and close the Model 3332 cabinet.

---

## 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. Administer the COM1 Port
3. Install the Remote Terminal Package
4. Install the Megaport Device Driver, Version 2.4.7
5. Install 2 to 16 User License Package
6. Install 16 to Unlimited User License Package
7. Install the Remote Management Package
8. Set up the CMS file system
9. Administer the second hard disk (if installed)
10. Administer the third through sixth hard disks (if installed)
11. Install the INFORMIX 4.10 software
12. Install the X.25 Network Interface software
13. Install UNIX Maintenance software
14. Install the Crash (1M) Patch (NCR Fix 188)
15. Install the Korn Shell
16. Install the CMS application.
17. Set Authorizations

## Verifying Software Package Installation

You can verify which software packages are installed on the computer. First, log in as root at the console terminal. Then, enter the `displaypkg` command. If all packages are installed, you should see a list similar to the following:

The following software packages have been installed:

```
Call Management System (31xxx)
Editing Package Version 2.1
FACE HELP Version 1.2
FACE Version 1.2.2
FMLI Version 1.2
Equinox MEGAPORT Device Driver Version 2.4.7
INFORMIX-SQL
INFORMIX-SE
KornShell Version 06/03/86a 386 Release 1.1
Network Support Utilities Package (1.2) Version 2.1
SCSI Support Package - Version 2.1
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
```

## 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 the Model 3332 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 Chapter 2 of the *UNIX System V/386 Release 3.2 Version 2.3 Operation/System Administration Guide* included 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 SCSI Boot Floppy V2.3 diskette into the flexible disk drive.
2. Press Reset or turn on the computer to boot from the diskette.

The resident diagnostics and "Booting the UNIX System" messages appear. Then, memory and copyright messages display 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, 1990, 1991 AT&T
Copyright (c) 1987, 1988 Microsoft Corp.
All Rights Reserved

HA01 SCSI subsystem enabled (920909.1600)

NOTICE: SCSI: HA 0 TC 0 configuring disk ''DEC DSP3105S ''

NOTICE: SCSI: HA 0 TC 3 configuring tape ''WANGTEK 5525ES SCSI''

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 varies according to the computer's configuration. NOTICE messages indicate what vendors supplied the SCSI devices.

3. Press **Return**. If the UNIX System is already installed on the hard disk, this message appears:

```
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`. Response:

```
$Do you want to format the Hard Disk (y or n)?
```

6. Enter `y`. Response:

```
Formatting the Hard Disk . . .
```

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.
```

```
WARNING: The DOS partition cannot be larger than 3%.
```

```
You must partition the disk manually.
```

```
Type <RETURN> to continue.
```

Since the base hard disk is not UNIX formatted, you need to format the base disk twice.

7. If this is the second format of the disk (i.e. you have repeated steps 3 through 7), then go to the next section "Partition the Hard Disk." Otherwise, go to Step 8.
8. Press **Del** to escape to the UNIX shell. The UNIX prompt (#) appears.
9. Shut down the computer by entering:

```
# uadmin 2 0
```

The program responds:

```
Reboot the system now.
```

10. Press Reset and repeat steps 3 through 7.

## Partition the Hard Disk

After you have formatted the base disk a second time, you set up the disk partitions for DOS and 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 3%. You must  
partition the disk manually. Type <RETURN> to continue.
```

1. Enter n. Response:

```
Total hard disk size is 1001 cylinders  
  
Cylinders  
Partition  Status  Type           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.

Response:

```
$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. Response:

```
$Indicate the percentage (1-100) of the hard disk you want this  
partition to use (or enter "c" to specify in cylinders):
```

4. Enter 1. The DOS partition must contain at least 1 percent of disk space (about 6 MByte) so you can install the Remote Management Package. Response:

```
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.

Response:

```
$Total hard disk size is 1001 cylinders
```

```
    Cylinders
Partition  Status  Type              Start  End  Length  %
-----
      1              DOS              0     9     10     1
```

```
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. Response:

```
$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. Response:

```
The UNIX System partition must use at least 2% of the hard
disk. Indicate the percentage (2-100) of the hard disk you
want this partition to use (or enter "c" to specify in
cylinders).
```

8. Enter 99.

Response:

```
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. Response:

```
$Partition 2 is now the Active partition
```

The program updates the following screen:

```
$Total hard disk size is 1001 cylinders
```

| Partition | Status | Type     | Cylinders |      | Length | %  |
|-----------|--------|----------|-----------|------|--------|----|
|           |        |          | Start     | End  |        |    |
| 1         |        | DOS      | 0         | 9    | 10     | 1  |
| 2         | Active | UNIX Sys | 10        | 1000 | 991    | 99 |

```
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.

Response:

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 . Response:

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.

This step is time consuming.

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 991 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 218 cylinders (228589568 bytes),  
a user (/usr) filesystem of 307 cylinders (321912832 bytes),  
an extra user filesystem (/usr2) of 307 cylinders (321912832  
bytes),
```

```
along with a crash/dump area of 40 cylinders (41943040 bytes)  
and a swap/paging area of 118 cylinders (123731968 bytes).
```

```
Is this allocation acceptable to you (y/n)?
```

1. Enter `n`. Response:

```
Do you wish to have separate root and user filesystems (y/n)?
```

2. Enter `y`. Response:

```
Do you want an additional /usr2 filesystem (y/n)?
```

3. Enter `y`.

Response:

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. Response:

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 (1-988)?

5. Enter 160. Response:

How many cylinders would you like for a crash/  
area (0-828)?

6. Enter 64. Response:

How many cylinders would you like for root (1-766)?

7. Enter 12.

Response:

```
How many cylinders would you like for /usr (1-754)?
```

8. Enter 200. Response:

```
The remaining 554 cylinders will be assigned to /usr2.
```

```
You have specified the following disk allocation:  
A root filesystem of 12 cylinders (12582912 bytes),  
a user (/usr) filesystem of 200 cylinders (209715200 bytes),  
an extra user filesystem (/usr2) of 554 cylinders (580911104  
bytes),
```

```
along with a crash/dump area of 64 cylinders (67108864 bytes)  
and a swap/paging area of 160 cylinders (167772160 bytes).
```

```
Is this allocation acceptable to you (y/n)?
```

9. Enter y.

```
UNIX System file system(s) will now be created on your hard  
disk ...
```

After the UNIX System file systems are created, the program continues:

```
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 periods continue to appear as the UNIX root file system is installed on the hard disk.

The program continues:

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 flexible disk drive.
11. Press Reset.

## Install Remaining UNIX System and Foundation Set

You install the remaining UNIX System files and the Foundation Set from the 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.

Response:

```
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** to start the installation. Response:

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

The remaining UNIX System files are copied from the cartridge tape to the hard disk.

After the UNIX System files are copied, the program responds:

```
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 continues:

Enter a password for the 'root' or super-user.

(Note: This password must be kept EXTREMELY secure) New password:

4. Enter the "root" password. Response:

Re-enter new password:

5. Re-enter the "root" password. Response:

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. Response:

Re-enter new password:

7. Re-enter the "install" password.

The program displays these messages:

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 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 lists the packages you entered:

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  to confirm. Response:

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  to start the Foundation Set installation. Response:

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. Response:

```
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.

Response:

```
The installation of the FACE HELP Version 1.2 package is now
complete.
```

## Install the SCSI Support Package and Patch

To complete the UNIX System V installation, you need to install the SCSI Support Package and the SCSI Support Package Patch.

## 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 2.3** diskette into the flexible disk drive.
2. Press **Return**.

Response:

Verifying the SCSI Support Package floppy

The program continues with these screens:

Searching for the Size file

Install in progress

Copyright (C) 1989, 1990, 1992 AT&T  
All Rights Reserved

Installing SCSI Support Package - Version 2.3 ...

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 flexible disk drive and the cartridge tape from the tape drive.
4. Press Reset.

After the system has rebooted, you can log in as *root* and enter the **displaypkg** command to view the installed software packages.

## SCSI Support Package Patch

The *SCSI Support Package Version 2.3, Adaptec HA Patch - 9/7/94* addresses two problems:

- It eliminates timing for the one SCSI command that was identified.
- It makes the timeout value a tunable, variable parameter with a much larger default value.

This patch can only be installed on CMS systems that have AT&T UNIX V/386, Release 3.2, Version 2.3, operating system with SCSI Support Package Version 2.3 and an Adaptec SCSI Host Adapter installed.

To install the patch:

1. At the # prompt enter **installpkg**. The system 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. Select **F** to install from diskette. The system responds:

```
Confirm
```

```
Please insert the floppy disk.
```

```
If the program 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.
```

3. Insert the **SCSI Support Package Version 2.3, Adaptec HA Patch - 9/7/94** diskette into the disk drive and press Enter. The following messages will be displayed:

Installation in progress -- do not remove the floppy disk.

Searching for the Size file

Install in progress

Installing:

SCSI Support Package Version 2.3, Adaptec HA Patch - 9/7/94.

The UNIX operating System will now be rebuilt.

This will take approximately 2 minutes. Please wait.

The UNIX Kernel has been rebuilt.

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.

4. Remove the **SCSI Support Package Version 2.3, Adaptec HA Patch - 9/7/94** diskette from the disk drive before rebooting. When ready press Enter. The system responds:

Shutdown started.

.  
.  
.

The system is down.

Reboot the system now.

5. Press Reset.
6. After the system has rebooted, you can log in as *root* and enter the **displaypkg** command to view the installed software packages.

## Administering the COM1 Port

**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 enable the Remote Console feature, you need to administer the COM1 (tty00) port by doing these steps:

1. Access the FACE program by entering:

```
# face
```

The system displays the FACE menu.

2. From the FACE menu, select **System Administration**.
3. From the System Administration menu, select **Peripherals Setup**.
4. From the Peripherals Setup menu, select **Serial Ports Setup**.

The system responds by displaying information about Port Number 01 (/dev/tty00).

5. In the **Serial Port Number:** field, enter **01 (/dev/tty00)**.
6. In **Device Type:** field, enter **Modem**.
7. In the **Device Speed:** field, enter **2400**.
8. Press .

9. After setting the options in the **Serial Ports Setup** form, the system displays the **Connect to Modem** form. You need to enter the appropriate modem information.
10. In the **Modem Name:** field, enter the name of the modem. You can see the valid entries for this field by pressing the “Choices” function key.

|      |
|------|
| Note |
|------|

Administer the AT&T 2400 modem as **Hayes Smartm**.

Administer the AT&T 3710 modem as **Hayes Smartm 2400**

.Administer the AT&T 3715 modem as **Hayes Smartm 2400**

11. In the **Device Connection:** field, enter **Incoming calls only**.
12. Press **Save**.
13. Press **Cont**.
14. Press the **F7** function key, select exit, and press **Return**.
15. The system prompt (#) returns to your screen.
16. Edit the `/etc/conf/init.d/ua_tty00` file and change 2400 to 2400NP. Write and quit the file.
17. Initialize the port and implement the previous changes by entering:

```
# /etc/conf/bin/idmkinit -o /etc
# telinit q
# shutdown -i6 -g0 -y
```

## 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:

1. Insert the **Remote Terminal Package** diskette into the flexible disk drive.
2. Start the installation process by entering:

```
# 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.

Response:

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 .

The program displays the following messages:

```
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 lists the terminfo files:

```
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
teleray.ti   televideo.ti  ti.ti        tymshare.ti
visual.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. Response:

```
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.

Response:

The installation of Remote Terminal Package Version 2.1 is now complete.

9. Remove the diskette from the flexible disk drive.

## Installing the MEGAPORT Device Driver

**Prerequisites:** The UNIX System V software must be installed, and you should be logged in as *root* at the console terminal.

To install the MEGAPORT device driver, do the following:

1. Insert the “**MEGAPORT Device Driver, Version 2.4.7 AT&T UNIX System V/386**” diskette into the flexible disk drive.
2. Start the installation process by entering:

```
# 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.

Response:

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** to start the installation. The program responds with these screens:

Installation is in process -- do not remove the floppy disk.

Searching for the Size file

Install in Progress

```
=====
                EQUINOX SYSTEMS INC.
                MEGAPORT/MEGAPLEX DRIVER Installation
                UNIX System V/386 Rel 3.2 and SVR4
Copyright (c) 1989-1991 Equinox Systems Inc. All Rights Reserved.
=====
```

Installing Equinox MEGAPORT/MEGAPLEX Package Version 2.4.7

```
=====
                *** MEGAPORT/MEGAPLEX Configuration ***
=====
```

What do you wish to install:

- (1) MEGAPORT
- (2) MEGAPLEX
- (3) Help

Enter 1 or 2: 2

5. Enter 2. Response:

```
=====
Up to 2 MEGAPLEX boards may be installed.
```

Enter number of boards to install [ 1 ]: CR

6. Enter 1 or press **Return** to select the default.

Response:

```
=====
BOARD ADDRESSING
=====

Where do you wish to install the board(s) in memory:

(1) Between 640KB and 1MB
(2) Above 1MB
(3) 512 KB (AT&T and AST only)
(H) Help

Enter 1 if there is 16MB or more of physical memory installed in
your system.
Enter 2 if there is less than 16MB of physical memory installed
in your system.
Enter 3 to install at 512 KB (AT&T or AST machine.) Default is
between 640KB and 1MB [ 1 ]: CR
=====
```

7. Enter 1 or press  to select the default. Response:

```
=====
BUFFER BLOCK
=====

8KB of unoccupied memory is required for the MEGAPLEX
board(s). This 8KB memory block must reside on a 8KB
boundary with the last four hex digits being one of the
following:

0000, 2000, 4000, 6000, 8000, a000, c000, e000.

Enter 8 KB Common Buffer Bloc address: [d0000] CR
```

8. Press  to select the default d0000.

Response:

```

=====
MEGAPLEX CONTROL BLOCK
=====

Each MEGAPLEX requires 32KB of unoccupied memory. This 32KB
control block must reside on a 32KB boundary with the last four
hex digits being one of the following:

0000, 8000.

Board 1: Enter address of 8 KB Control Block: [ d8000 ] CR
=====

```

9. Press  to select the default d8000. Response:

```

=====
MEGAPLEX CONFIGURATION SUMMARY
=====
Number of boards installed:           1
8 KB Buffer Block:                   0xd0000

Board number 1           32 KB Control Block: 0xd8000

=====
Is this correct (y/n) y

```

10. Enter y. Response:

```

Creating Node file for MEGAPORT/MEGAPLEX Devices.

-Installing the driver.
  - Installing mpdi.
  - Installing mpdo
  - Installing mpsc
  - Installing mpsp
  - Installing /usr/bin files.
  - Installing /etc files.

```

The program continues:

```
Is this an EISA machine (y/n) [ No ]?
```

11. Press **Return** to enter the default No. Response:

```
The MEGAPORT/MEGAPLEX Driver is installed.  
You must rebuild the kernel to use the driver.
```

```
Rebuild the kernel now (y/n) [ No ]? y
```

12. Enter **y**. Response:

```
The UNIX Operating System will now be rebuilt.  
This will take approximately 2 minutes. Please wait.
```

```
The UNIX Kernel has been rebuilt.
```

```
* Driver installation complete. *
```

```
**** Warning. After installing the driver you must cycle ****  
**** power during the reboot procedure ****  
**** To configure ports on the MEGAPORT board(s) ****  
**** run /etc/megadiag ****
```

```
Press enter to continue ..... CR
```

13. Press **Return**. Response:

```
Please remove floppy now.
```

14. Remove the diskette from the flexible disk drive.

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 when the shutdown has completed.

Strike ENTER when ready  
or ESC to stop.

15. Press . The program starts the shutdown process:

Shutdown started. <date and time>

<Broadcast Message>

16. When you see the "Reboot the system now" message, **turn off** the computer and then turn it on.

**Note**

If you **reboot** the system instead of turning it off and back on, you will get the error message Board not found.

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:

1. Insert the **2 to 16 User License Package** diskette into the flexible disk drive.
2. Start the installation process by entering:

```
# 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.

Response:

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** to start the installation. The program responds with these 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 . Response:

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 . Response:

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**.

Response:

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 flexible disk drive.

9. Press **Return**. The program starts the shutdown process:

Shutdown started. <date and time>

<Broadcast Message>

10. When you see the "Reboot the system now" message, press Reset. 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:

1. Insert the **16 to Unlimited User License Package** diskette into the diskette drive.
2. Start the installation process by entering:

```
# 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.

Response:

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** to start the installation. The program responds with these 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 . The program continues:

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 .

Response:

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 flexible disk drive.
8. 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 Reset.  
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 1 percent of disk space. You should be logged in as *root* at the console terminal.

You install UNIX files and MS-DOS diagnostics for remote use. Then, you load the diagnostic for the GPSC-AT/E onto the MS-DOS partition.

1. Insert the **Remote Maintenance Circuit Version 2.0 UNIX System V/386 Release 3.2** diskette into the diskette drive.
2. Start the installation by entering:

```
# 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.

Response:

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 . The program responds with these 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 Off-Line Administration and Maintenance

Do you want to install Remote Maintenance Circuit (RMC)?  
(y or n)

5. Enter n. Response:

Do you want to install Off-Line Administration and Maintenance?  
(y or n)

6. Enter y. Response:

Installation of the UNIX System portion of Off-Line  
Administration and Maintenance is complete

WARNING: The DOS portion of Off-Line Administration and  
Maintenance must still be installed! Please make sure the  
following actions are executed: a) Remove the Remote  
Management 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 Management  
Package DOS floppy disk has booted, type INSTALL at the DOS  
prompt to continue with the installation of Off-Line  
Administration and Maintenance.

The installation of the Remote Management Package (RMP) version  
1.0 is now complete.

7. Remove the name of the Remote Management Package by entering:

```
# rm /usr/options/remote.name
```

8. Remove the **Remote Maintenance Circuit UNIX System** diskette from the flexible disk drive and insert the **DOS (Off-Line Administration and Maintenance, Version 2.0 — DOS)** diskette.
9. Execute a shutdown by entering:

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

The program starts the shutdown process:

```
Shutdown started <date and time>  
  
<Broadcast Message>  
  
.  
.  
.  
  
The system is down.  
Automatic reboot performed.
```

The resident diagnostics messages, primary boot strap messages, and copyright messages appear. Then the DOS prompt appears.

```
.  
.   
.   
A>
```

10. Enter the following command:

```
A> install
```

The program responds:

```
Off-Line Administration and Maintenance, Version 2.0  
Copyright (c) 1989 AT&T  
All Rights Reserved.
```

```
System will boot the active partition after installation has  
completed.  
Do you wish to mark the DOS partition active? (y/n)
```

11. Enter *y*.

Response:

```
The DOS partition will be formatted.  
  
WARNING, ALL DATA ON NON-REMOVABLE DISK  
DRIVE C: WILL BE LOST!  
Proceed with Format (Y/N)?
```

12. Enter *y*. After the disk has formatted, the program continues:

```
XX percent of disk formatted  
  
Format complete  
System transferred  
  
Volume label (11 characters, ENTER for none)?
```

13. Enter *CMS\_RMB*. Response:

```
XXXXXXXX bytes total disk space  
XXXXXXX bytes used by system  
XXXXXXXX bytes available on disk  
  
XXXX bytes in each allocation unit  
XXXX allocation units available on disk  
  
Volume Serial Number is XXXX-XXXX  
  
Please enter the directory where Off-Line Administration  
and Maintenance files will be installed. [C:\OLAM]
```

14. Press  to enter the default (C:\OLAM).

Response:

Transfer is in progress. -- Do not remove the floppy disk.  
Do you wish to run Off-Line Administration and Maintenance  
each time the DOS partition is booted? (y/n)

15. Enter n. Response:

Will you be using (a)NSI or (s)cancode terminals on COM1  
and/or COM2?

16. Enter a. Response:

New password:

17. Press . Response:

Re-enter new password:

18. Press .

Response:

```
Off-Line Administration and Maintenance installation is now
complete.
```

```
Be sure the floppy drive is empty and strike ENTER to
reboot from the hard disk.
```

19. Remove the **Off-Line Administration and Maintenance** diskette from the diskette drive and press the Reset button.

The system performs a reboot. The resident diagnostics messages, primary boot-strap messages, and copyright messages appear. Then the system prompt appears.

```
.
.
.
C> PATH=C:\;C:\OLAM
C>
C>
```

20. Insert the **StarServer S GPSC Diagnostics Enhancement, Issue 1.0** diskette into the diskette drive.
21. Enter the following command:

```
C> a:v2fix
```

The program responds:

```
C> copy a:\gpsce.ioi c:\olam\inst\gpsce.ioi
      1 File(s) copied
```

```
C>
```

22. Remove the **StarServer S GPSC Diagnostics Enhancement** diskette from the diskette drive.

23. Enter this command to load DOS diagnostics:

```
C> dgmon /a
```

The /a option will cause the program to ask you which active partition to reboot the system from once the RMB installation is complete. Response:

```
-----
                        AT&T Off-Line Administration and Maintenance
-----
<< 1  Install Package >>
      2  Remove Package
      4  I/O Card Diagnostics
      5  Change Password
<ESC>  Reboot Operating System
-----

Select an item and press <ENTER>
```

24. Select 1 to install a package and press **Return**.

**Note**

The following menu actually continues to a second page. Use the arrow keys to move up and down the menu.

Response:

-----  
Install Package  
-----

- << 1 Systems Diagnostics >>
- 2 Cartridge Tape
- 3 Fiber Optic Station
- 4 GPSC-AT (X.25/SNA)
- 5 GPSC-AT/E (X.25/SNA)
- 6 Interlan NP600 (Ethernet)
- 7 IPC-802/900 (8 ports)
- 8 IPC-1600 (16 ports)
- 9 10 Mb & 1 Mb PC NAU, EN100 NAU & 10 Mb Fiber NAU (Starlan)
- 10 10 Mb EISA NAU (Starlan)
- 11 Remote Maintenance Circuit \*\*\*
- 12 SCSI H.A. 1
- 13 VDC 600
- 14 EISA Configuration Utilities

<ESC> Return to Off-Line Administration and Maintenance Menu  
-----

Select an item and press <ENTER>.

**Note**

Three asterisks appear to the right of Remote Maintenance Circuit indicating that the package is installed.

25. Select 5 to install the GPSC-AT/E (X.25/SNA) package and press **Return**. Response:

This system has two floppy drives  
Strike 0 to install from drive 0  
or 1 to install from drive 1.

26. Press 0.  
Response:

Insert the GPSC-AT/E (X.25/SNA)  
floppy disk into drive 0.

Strike ENTER to continue  
or ESC to stop.

27. Insert the **GPSC-AT/E Diagnostics and Installation** (X.25/SNA) diskette into the diskette drive and press **Return**. Response:

Installation is in progress -- do not remove the floppy disk.

```
!att5067.cfg
!att5068.cfg
!att506f.cfg
autoexec.bat
command.com
gpdiag.exc
gpdload.exc
gpupload.exc
```

You may remove the GPSC-AT/E (X.25/SNA) floppy disk.

The installation of the GPSC-AT/E (X.25/SNA)  
package is now complete.

Strike ENTER to continue.

28. Remove the **GPSC-AT/E Diagnostics and Installation** diskette from the diskette drive and press **Return**.

The program returns to the Install Package menu:

```
-----  
                          Install Package  
-----  
<< 1  Systems Diagnostics          >>  
    2  Cartridge Tape  
    3  Fiber Optic Station  
    4  GPSC-AT (X.25/SNA)  
    5  GPSC-AT/E (X.25/SNA)        ***  
    6  Interlan NP600 (Ethernet)  
    7  IPC-802/900 (8 ports)  
    8  IPC-1600 (16 ports)  
    9  10 Mb & 1 Mb PC NAU, EN100 NAU & 10 Mb Fiber NAU (Starlan)  
   10  10 Mb EISA NAU (Starlan)  
   11  Remote Maintenance Circuit   ***  
   12  SCSI H.A. 1  
   13  VDC 600  
   14  EISA Configuration Utilities  
  
<ESC> Return to Off-Line Administration and Maintenance Menu  
  
-----  
  
Select an item and press <ENTER>.
```

**Note** Three asterisks appear to the right of GPSC-AT/E (X.25/SNA) indicating that the package is installed.

29. Press **Esc** to return to the Off-Line Administration and Maintenance menu.

Response:

```

-----
                        AT&T Off-Line Administration and Maintenance
-----
<< 1  Install Package >>
    2  Remove Package
    4  I/O Card Diagnostics
    5  Change Password
    6  EISA Configuration Utilities

<ESC> Reboot Operating System

-----

Select an item and press <ENTER>

```

30. Select 2 to remove a package and press **Return**. Response:

```

-----
                        Remove Package
-----
<< 5  GPSC-AT/E (X.25/SNA) >>
    11 Remote Maintenance Circuit

<ESC> Return to Off-Line Administration and Maintenance Menu

-----

Select an item and press <ENTER>

```

31. Select 11 for Remote Maintenance Circuit and press **Return**.

Response:

```
-----  
Remove Package  
-----  
<< 5 GPSC-AT/E (X.25/SNA) >>  
  
<ESC> Return to Off-Line Administration and Maintenance Menu  
  
-----  
  
Select an item and press <ENTER>
```

32. Press **Esc** to return to the Off-Line Administration and Maintenance menu. Response:

```
-----  
AT&T Off-Line Administration and  
-----  
<< 1 Install Package >>  
2 Remove Package  
4 I/O Card Diagnostics  
5 Change Password 6 EISA Configuration Utilities  
  
<ESC> Reboot Operating System  
  
-----  
  
Select an item and press <ENTER>
```

33. Press **Esc** to reboot.

Response:

```

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  
 active and strike ESC to reboot.

34. Press 2. Response:

```

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  
 active and strike ESC to reboot.

35. Press **Esc** to reboot.

## Setting Up the CMS File System

You need to rename the *usr2* filesystem that was set up during the UNIX installation to *cms*\*.

**Prerequisites:** The UNIX System V must be installed, and you should be logged in as *root* at the console terminal.

1. Make sure you are in the *root* directory by entering:

```
# cd /
```

2. Unmount the *usr2* file system by entering:

```
# umount /usr2
```

3. Edit the */etc/partitions* file by entering:

```
# umount /usr2
```

4. Change *usr2* to *cms*. There is one occurrence of *usr2* in this file.
5. Write and quit the file.
6. Edit the */etc/fstab* file and change *usr2* to *cms*. There is one occurrence of *usr2* in this file.
7. Write and quit the file.

8. Enter the following commands:

```
# mv usr2 cms  
# labelit /dev/dsk/c0t0d0s4 cms cms
```

The program displays the file system information:

```
Current fsname: usr2, Current volname: disk0, Blocks: 1134592,  
Inodes: 65488  
FS Units: 1Kb, Date last modified: <date and time>  
NEW fsname = cms, NEW volname = cms -- DEL if wrong!!
```

9. Mount the *cms* file system by entering:

```
# mountall
```

The program responds:

```
mount -f S51K /dev/dsk/c0t0d0s4 /cms
```

10. Verify the *cms* file system is mounted by entering:

```
# /etc/mount
```

If the screen displays */cms*, the file system is mounted.

11. Create the */usr/dbtemp* directory by entering:

```
# mkdir /usr/dbtemp
```

## 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.

**Note**

If you are retrofitting CMS with a second hard disk, you must turn off CMS to do these procedures.

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. Access the FACE utilities by entering:

```
# face
```

The program displays the AT&T FACE menu.

2. From the AT&T FACE menu, select the **System Administration** menu.
3. From the System Administration menu, select the **Bus Administration** menu.
4. From the Bus Administration menu, Select the **SCSI** menu.
5. From the SCSI menu, select the **Add Peripheral** menu.
6. From the Add Peripheral menu, select the **Disk** menu.

Response:

```
6 Adding Disk
Enter Device Name
in the form c?t?d?. _____
```

7. Enter c0t1d0 (the second hard disk device name) and press **F3** for **SAVE**. Response:

```
7 Warning
This is a destructive operation that will destroy the
contents of the disk.
```

8. Press **F3** for **CONT**. Response:

```
Do you want to format the Hard Disk (y or n)?
```

9. Enter **y** to format the hard disk. Response:

```
Formatting the Hard Disk . . .
```

After the disk has formatted, the program responds:

```
Do you want to setup this disk to mirror the boot device?  
(y or n)
```

10. 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 3%.  
You must partition the disk manually.  
Type <RETURN> to continue.
```

1. Enter n.

Response:

```
Total hard disk size is 1001 cylinders
```

```

                                Cylinders
Partition  Status  Type                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. Response:

```
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. Response:

```
The UNIX System partition must use at least 2% of the hard
disk. Indicate the percentage (2-100) 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.

Response:

```
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. Response:

```
Partition 1 is now the Active partition
```

The program updates the following screen:

```
Total hard disk size is 1001 cylinders
```

| Partition | Status | Type        | Cylinders |      |        |    |
|-----------|--------|-------------|-----------|------|--------|----|
|           |        |             | Start     | End  | Length | %  |
| 1         | Active | UNIX System | 0         | 1000 | 1001   | 10 |

```
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.

Response:

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.

Do you want to perform a surface analysis on this disk (y/n)?

7. Enter *y* to perform a surface analysis. Response:

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.

**Note**

This step is time consuming.

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 install the *dbtemp*, *lp*, and *cms1* user file systems and allocate disk space for them.

The program continues:

```
The UNIX System partition has 1001 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] | 500       | 524288000 |
| 4           | [user] | 500       | 524288000 |

```
Is this allocation acceptable to you (y/n)?
```

1. Enter n. Response:

```
Do you wish additional swap space on this disk (y/n):
```

2. Enter n.

Response:

```
How many user filesystems would you like on  
this disk (1-12)?
```

3. Enter 3. Response:

```
Enter name for user slice 1 (1-6 chars/digits beginning with  
a char):
```

4. Enter dbtemp. Response:

```
Enter name for user slice 2 (1-6 chars/digits beginning with  
a char):
```

5. Enter lp. Response:

```
Enter name for user slice 3 (1-6 chars/digits beginning with  
a char):
```

6. Enter cms1.

Response:

One megabyte of disk is approximately 1 cylinders.

How many of the remaining 1000 cylinders do you wish to allocate to dbtemp?

7. Enter 80. Response:

How many of the remaining 920 cylinders do you wish to allocate to lp?

8. Enter 10. Response:

How many of the remaining 910 cylinders do you wish to allocate to cms1?

9. Enter the number of remaining cylinders. The program displays the disk allocation:

You have specified the following disk allocation:

| Partition # | name   | cylinders | bytes     |
|-------------|--------|-----------|-----------|
| 3           | dbtemp | 80        | 83886080  |
| 4           | lp     | 10        | 10485760  |
| 5           | cms1   | 910       | 954204160 |

Is this allocation acceptable to you (y/n)?

10. Enter y.

Response:

```
Do you want to have the filesystems on the new disk mounted
automatically (y/n)?
```

11. Enter *y*. The program responds with these 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
```

12. Press **Return**.

## Updating the Disk Administration Files

You need to update the disk administration files since you added the *cms1*, *dbtemp*, and *lp* file systems.

The program returns to the Add Peripheral menu:

```
5 Add Peripheral
> Disk
  Cartridge Tape
  9 Track Tape
```

1. Press the **F7** function key, select exit, and press **Return**. The system prompt (**#**) returns to your screen.
2. Unmount the *cms1010* file system by entering:

```
# umount /cms1010
```

3. Edit the */etc/partitions* file by entering:

```
# vi /etc/partitions
```

4. Change *cms1010* to *cms1*. There is one occurrence of *cms1010* in this file.
5. Write and quit the file.
6. Edit the */etc/fstab* file and change *cms1010* to *cms1*. There is one occurrence of *cms1010* in this file.
7. Write and quit the file.

8. Enter the following commands:

```
# mv cms1010 cms1  
# labelit /dev/dsk/c0t1d0s5 cms1 cms1
```

The program displays the file system information:

```
Current fsname: cms101, Current volname: disk01, Blocks: 1863680,  
Inodes: 65488  
FS Units: 1Kb, Date last modified: <date and time>  
NEW fsname = cms1, NEW volname = cms1 -- DEL if wrong!!
```

9. Mount the *cms1* file system by entering:

```
# mountall
```

The program responds:

```
mount -f S51K /dev/dsk/c0t1d0s5 /cms1
```

10. Enter these commands to set up the *dbtemp* file system:

```
# cd /  
# umount dbtemp010
```

11. Edit the */etc/partitions* file and change *dbtemp010* to *dbtemp*.  
There is one occurrence of *dbtemp010* in this file.
12. Write and quit the file.
13. Edit the */etc/fstab* file and change */dbtemp010* to */usr/dbtemp*.  
There is one occurrence of */dbtemp010* in this file.
14. Write and quit the file.
15. Enter the following commands:

```
# rm -rf /dbtemp010  
# labelit /dev/dsk/c0t1d0s3 dbtemp dbtemp
```

The program displays the file system information:

```
Current fsname: dbtemp, Current volname: disk01, Blocks: 163840,  
Inodes: 20480  
FS Units: 1Kb, Date last modified: <date and time>  
NEW fsname = dbtemp, NEW volname = dbtemp -- DEL if wrong!!
```

16. Mount the *dbtemp* file system by entering:

```
# mountall
```

The program responds:

```
mount -f S51K /dev/dsk/c0t1d0s3 /usr/dbtemp
```

17. Enter these commands to set up the *lp* file system:

```
# 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 one occurrence of *lp010* in this file.

19. Write and quit the file.

20. Edit the */etc/fstab* file and change */lp010* to */usr/spool/lp*. There is one occurrence of */lp010* in this file.

21. Write and quit the file.

22. Enter the following commands:

```
# rm -rf /lp010  
# labelit /dev/dsk/c0t1d0s4 lp lp
```

The program displays the file system information:

```
Current fsname: lp010, Current volname: disk01, Blocks: 20480,  
Inodes: 2560 FS Units: 1Kb, Date last modified: <date and time>  
NEW fsname = lp, NEW volname = lp -- DEL if wrong!!
```

23. Mount the *lp* file system by entering:

```
# mountall
```

The program responds:

```
mount -f S51K /dev/dsk/c0t1d0s4 /usr/spool/lp
```

The second hard disk is now administered.

## Administering the Third Through Sixth Hard Disks

Use these steps if you have installed a third through sixth 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.

**Note** If you are retrofitting CMS with an additional hard disk, you must turn off CMS to do these procedures.

Administering a third through sixth 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.

## Disk Numbering and Device Names

Disks are numbered and named as follows:

**Table D-9: Device Names for Hard Disks**

| Number of Disks | Location | SCSI ID Number | Device Name |
|-----------------|----------|----------------|-------------|
| 1 (base disk)   | Internal | 0              | c0t0d0      |
| 2               | Internal | 1              | c0t1d0      |
| 3               | External | 4              | c0t4d0      |
| 4               | External | 5              | c0t5d0      |
| 5               | External | 6              | c0t6d0      |
| 6               | External | 2              | c0t2d0      |

**Note** SCSI ID 3 is reserved for the tape unit, and SCSI ID 7 is used by the SCSI Host Adapter.

A device name (*cxytzydz*) is built as follows:

- *x* is the number of the SCSI Host Adapter [beginning with zero (0)]
- *y* is the number of the SCSI ID [beginning with zero (0)]
- *z* is the number of the disk on that controller [beginning with zero

(0)].

For example, the third additional external disk on the first SCSI Host Adapter would have  $x = 0$ ,  $y = 4$ , and  $z = 0$ . The device name would be `c0t4d0`.

## Device Filenames

A device filename adds the partition (slice) number to the device name. For example, `c0t4d0s3` for partition 3.

## Adding the Hard Disk to the SCSI Bus

Start the administration by adding the additional hard disk to the SCSI bus:

1. Access the FACE utilities by entering:

```
# face
```

The program displays the AT&T FACE menu.

2. From the AT&T FACE menu, select the **System Administration** menu.
3. From the System Administration menu, select the **Bus Administration** menu.
4. From the Bus Administration menu, Select the **SCSI** menu.
5. From the SCSI menu, select the **Add Peripheral** menu.
6. From the Add Peripheral menu, select the **Disk** menu. The program responds:

```
6 Adding Disk
Enter Device Name
in the form c?t?d?. _____
```

7. Enter the device name and press for **F3 SAVE**. See Table D-9 for the appropriate device name.

The program responds:

```
7                Warning
This is a destructive operation that will destroy the
contents of the disk.
```

8. Press **F3** for **CONT.** Response:

```
Do you want to format the Hard Disk (y or n)?
```

9. Enter **y** to format the hard disk. Response:

```
Formatting the Hard Disk . . .
```

After the disk has formatted, the program responds:

```
Do you want to setup this disk to mirror the boot device?
(y or n)
```

10. 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. Response:

Total hard disk size is 1001 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.

Response:

```
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. Response:

```
The UNIX System partition must use at least 2% of the hard disk.  
Indicate the percentage (2-100) 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. Response:

```
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. Response:

```
Partition 1 is now the Active partition
```

The program updates the following screen:

Total hard disk size is 1001 cylinders

| Cylinders |        |             |       |      |        |     |  |
|-----------|--------|-------------|-------|------|--------|-----|--|
| Partition | Status | Type        | Start | End  | Length | %   |  |
| 1         | Active | UNIX System | 0     | 1000 | 1001   | 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. Response:

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.

Do you want to perform a surface analysis on this disk (y/n)?

7. Enter y to perform a surface analysis. Response:

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.

**Note**

This step is time consuming.

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 1001 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] | 500       | 524288000 |
| 4           | [user] | 500       | 524288000 |

```
Is this allocation acceptable to you (y/n)?
```

1. Enter n. Response:

```
Do you wish additional swap space on this disk (y/n):
```

2. Enter n. Response:

```
How many user filesystems would you like on
this disk (1-12)?
```

3. Enter 1.

Response:

Enter name for user slice 1 (1-6 chars/digits beginning with a char):

4. Enter the *cms* file system name. See below for the appropriate file system name.

| Disk | File System Name |
|------|------------------|
| 3rd  | cms2             |
| 4th  | cms3             |
| 5th  | cms4             |
| 6th  | cms5             |

The program responds:

How many of the remaining 1000 cylinders do you wish to allocate to cmsX?

**Note** The variable "X" (for example, cmsX, cmsX0X0, etc.) has the following values depending on the disk you are administering:

| Disk | cmsX | cmsX0X0 | c0tXd0 | disk0X0 |
|------|------|---------|--------|---------|
| 3rd  | cms2 | cms2040 | c0t4d0 | disk040 |
| 4th  | cms3 | cms3050 | c0t5d0 | disk050 |
| 5th  | cms4 | cms4060 | c0t6d0 | disk060 |
| 6th  | cms5 | cms5020 | c0t2d0 | disk020 |

5. Enter the number of remaining cylinders.

Response:

You have specified the following disk allocation:

| Partition # | name | cylinders | bytes      |
|-------------|------|-----------|------------|
| 3           | cmsX | 1000      | 1048576000 |

Is this allocation acceptable to you (y/n)?

6. Enter *y*. Response:

Do you want to have the filesystems on the new disk mounted automatically (y/n)?

7. Enter *y*. The program responds with these 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 .

## 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. Press the **F7** function key, select exit, and press **Return**. The system prompt (**#**) returns to your screen.
2. Unmount the *cmsX0X0* file system by entering:

```
# umount /cmsX0X0
```

3. Edit the */etc/partitions* file and change *cmsX0X0* to *cmsX*. For example, change *cms2040* to *cms2*, *cms3050* to *cms3*, etc.
4. Write and quit the file.
5. Edit the */etc/fstab* file and change *cmsX0X0* to *cmsX*.
6. Write down the device pathname for */cmsX*.

**Note**

If 100 percent of a disk is dedicated to a single file system, the partition (slice) is 3. For example, if *cms2* has 100 percent of the third hard disk, and the third hard disk uses SCSI ID 4, then the device filename for */cms2* is *c0t4d0s3*. The device pathname for */cms2* is */dev/dsk/c0t4d0s3*.

7. Write and quit the file.

8. Enter the following commands

```
# mv cmsX0X0 cmsX
# labelit <device filename> cmsX cmsX
```

**Note**

For the labelit command, use the device pathname noted in Step 6. An example for the third hard disk would be:

```
\s9labelit /dev/dsk/c0t4d0s3 cms2 cms2\s0
```

The program displays the file system information:

```
Current fsname: cmsX0X, Current volname: disk0X, Blocks: 2048000,
Inodes: 65488
FS Units: 1Kb, Date last modified: <date and time>
NEW fsname = cmsX, NEW volname = cmsX -- DEL if wrong!!
```

9. Mount the cmsX file system by entering:

```
# mountall
```

The program responds:

```
mount -f S51K /dev/dsk/c0tXd0s3 /cmsX
```

The additional hard disk is now administered.

## Installing the INFORMIX 4.10 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 4.10 software, refer to the documentation provided with the INFORMIX 4.10 package.

Installing the Informix 4.10 software consists of the following tasks:

- Set the environment
- Install the Informix SE (Standard Engine) package
- Install the Informix SQL software package.

## Set the Environment

Do these steps to set the environment:

1. Enter the following commands:

```
# TERM=XXXXX #  
export TERM
```

where XXXXX is the terminal in use. For example, enter `TERM=AT386` if you are using a color VGA monitor as the console terminal.

2. Edit the `/etc/ttytype` file by entering:

```
# vi /etc/ttytype
```

3. Go to the line that contains “console” and change `AT386-M` to `AT386`. The “-M” designates a monochrome monitor, but the Model 3332 is equipped with a color monitor.

4. Write and quit the file.
5. Edit the `/etc/group` file by entering:

```
# vi /etc/group
```

6. Add the following line to the end of the file to create a new group called **informix**:

```
informix::102:informix
```

7. Write and quit the group file.
8. Add a new user (**informix**) to the password file system by entering:

```
# passmgmt -a -u102 -g102 -c informix informix
```

9. Create a directory for the INFORMIX-SQL software by entering:

```
mkdir /usr/informix
```

10. Set the environment variables by entering:

```
# INFORMIXDIR=/usr/informix
# export INFORMIXDIR
# PATH=$PATH:$INFORMIXDIR/bin
# export PATH
```

11. Change to the INFORMIX directory by entering:

```
# cd $INFORMIXDIR
```

## Install the Informix SE Package

After you have set the environment, you install the Informix SE package. The Informix SE package consists of two floppy disks.

1. Begin the Informix SE installation by entering:

```
# 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 **f** to specify that you are installing the software from a floppy

disk.

Response:

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.

3. Insert **disk 1** of the "INFORMIX-SE" package into the flexible disk drive.
4. Press  to start the installation. The program responds with these screens:

Installation is in progress -- do not remove the floppy disk.

Searching for the Size file

Install in Progress

After approximately 2 minutes, your terminal beeps and displays 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.
```

5. Remove **disk 1** from the diskette drive and insert **disk 2** of the "INFORMIX-SE" package.
6. Press . After about a minute, your terminal displays this message:

```
Installing INFORMIX-SE into /usr/informix

Installation Procedure for INFORMIX-SE

Copyright(C) 1981-1991
INFORMIX SOFTWARE, INC.

Verifying files in INFORMIX-SE ...

Enter your 11-character serial number (for example,
RDS#R999999) exactly as it appears on your media:
```

7. Enter the 11-character serial number located on either INFORMIX-SE diskette. Response:

```
Enter your 6-character serial number KEY exactly as it
appears on the customer registration form enclosed with
this shipment:
```

8. Enter the 6-character serial number key located on your customer registration form.  
Response:

```
Installing INFORMIX-SE ...
```

```
The installation of the INFORMIX-SE is now complete.
```

```
#
```

The Informix SE software is now installed. Remove **disk 2** of the "INFORMIX-SE" package from the diskette drive.

## Install the Informix SQL Package

After you have installed the Informix SE package, you install the Informix SQL package. The Informix 4.10 SQL package consists of four floppy disks.

1. Begin the Informix SQL installation by entering:

```
# 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 **f** to specify that you are installing the software from a floppy disk. Response:

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.

3. Insert **disk 1** of the "INFORMIX-SQL" package into the flexible disk drive.

4. Press **Return** to start the installation.

The program responds with these screens:

Installation is in progress -- do not remove the floppy disk.

```
Searching for the Size file
```

```
Install in Progress
```

After approximately 2 minutes, your terminal beeps and displays 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.
```

5. Remove **disk 1** from the diskette drive and insert **disk 2** of the "INFORMIX-SQL" package.
6. Press .

After approximately 3 minutes, your terminal beeps and displays 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 3 and strike the  
<ENTER> key.
```

7. Remove **disk 2** from the diskette drive and insert **disk 3** of the "INFORMIX-SQL" package.
8. Press **Return**. After approximately 3 minutes, your terminal beeps and displays 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 4 and strike the  
<ENTER> key.
```

9. Remove **disk 3** from the diskette drive and insert **disk 4** of the "INFORMIX-SQL" package.
10. Press **Return**.

After approximately 2 minutes, your terminal displays this message:

```
Installing INFORMIX-SQL into /usr/informix

Installation Procedure for INFORMIX-SQL

Copyright(C) 1981-1991
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:
```

11. Enter the 11-character serial number located on either INFORMIX-SQL diskette. Response:

```
Enter your 6-character serial number KEY exactly as it
appears on the customer registration form enclosed with
this shipment:
```

12. Enter the 6-character serial number key located on your customer registration form. Response:

```
Installing INFORMIX-SQL ...

The installation of the INFORMIX-SQL is now complete.

#
```

The Informix SQL software is now installed. Remove **disk 4** of the "INFORMIX-SQL" package from the diskette drive.

## 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. Insert the CMS cartridge tape into the tape drive.
2. Start the installation process by entering:

```
# 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 that you are installing the software from the cartridge tape.

## Response

Confirm

Please insert the cartridge tape into the tape drive.

Strike ENTER when ready  
or ESC to stop.

4. Press **Return**.

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 re-tension the tape.

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.

6. Press **Return**.

Packages available for installation:

1. X25 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 X.25 Network Interface package, then press **Esc**.

**Note** These procedures instruct you to install the above packages one at a time. You can, however, enter 5 to install all the packages. If you install all the packages, the installation script (program responses) will vary slightly from the remaining instructions. In addition, remember to do the Special Instructions for X.25 Network Software Version 1.2.1 and to install the Crash (1M) Patch (NCR Fix 188) after the installation.

**Note** If IPC boards are used instead of an Equinox board, call the TSC to obtain different installation address values.

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.
```

8. Press **Return**. Response:

```
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  
Copying X.25 software ...

ENTER THE NUMBER OF BOARDS TO BE INSTALLED (q, 1 - 4):

10. Enter the number of boards installed. The 3332 supports a maximum of two GPSC-AT/E boards. Response:

Current board: #0  
Is the shared memory range (C0000 - CFFFF) acceptable [y/n]?

11. Enter n. Response:

Is the shared memory range (D0000 - DFFFF) acceptable [y/n]?

12. Enter n. Response:

Is the shared memory range (80000 - 8FFFF) acceptable [y/n]?

13. Enter y.

Response:

```
Is the IO address range (240 - 24F) acceptable [y/n]?
```

14. Enter `y`. Response:

```
Is the interrupt vector (10) acceptable [y/n]?
```

15. Enter `y`.

**Note**

If you entered 2 for Step 10, the program prompts you to enter values for the second GPSC-AT/E board. Use these values for the second board:

|                      |             |
|----------------------|-------------|
| Memory address space | 90000-9FFFF |
| I/O address space    | 250-25F     |
| Interrupt            | 11          |

After you enter the parameters for the GPSC-AT/E board(s), the program continues:

```
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.

Response:

```
ENTER MAXIMUM PACKET SIZE (128, 256, 512),
or 'h' for more information:
```

17. Enter 128. Response:

```
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 continues:

```
***** 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    | 10     | 80000-8FFFF       |

```
Hit <return> when you are done copying
```

**Note** If you entered parameters for a second board, they will be displayed in the above screen.

18. Press **Return**. Response:

The installation of the X.25 Network Interface - Version 1.2.1  
SL1.51.1.25 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 **Esc**. Response:

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:

```
# cd /etc/conf/pack.d/x25
```

3. Edit the *space.c* file by entering:

```
# vi space.c
```

4. Go to line 16 which contains *(int)1*.
5. Change the 1 to a 0.
6. Repeat step 5 for lines 41, 67, and 93.
7. Write and exit the file.
8. Change to the *root* directory by entering:

```
# 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:

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

The program starts the shutdown process:

```
Shutdown started. <date and time>  
  
<Broadcast Message>
```

11. 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 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. Start the installation process by entering:

```
# 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. Response

```
Confirm
```

```
Please insert the cartridge tape into the tape drive.
```

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

4. Press `Return`.

Response:

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**. The program responds with a list of packages for installation:

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 (3lxxx)
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**.

Response:

```
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**.

```
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** to start the installation. The program responds with these 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**. Response:

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 Reset.

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 Crash (1M) Patch (NCR Fix 188)

**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.

NCR Fix 188 needs to be installed to allow systems with greater than 16MB of memory to take a crash dump. You can install this package only after Maintenance Disk #1 has been installed.

To install the NCR Fix 188, do the following:

1. Insert the **UNIX System V/386 R3.2.3 Crash (1M) Patch, 11/04/92 NCR Fix 0188** flexible disk into the flexible disk drive.
2. Start the installation process by entering:

```
# 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.

Response:

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** to start the installation. The program responds with these screens:

Installation is in process -- do not remove the floppy disk.

Searching for the Size file

Install in Progress

Installing:

```
AT&T UNIX System V/386 R3.2.3 crash(1M) Patch, 11/04/92
The UNIX Operating System will now be rebuilt.
This will take approximately 2 minutes. Please wait.
```

```
The UNIX Kernel has been rebuilt.
```

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.

5. Remove the **UNIX System V/386 R3.2.3 Crash (1M) Patch, 11/04/92 NCR Fix 0188** flexible disk from the flexible disk drive.
6. Press . The program starts the shutdown process:

```
Shutdown started. <date and time>
```

```
Broadcast Message>
```

7. When you see the "Reboot the system now" message, press Reset.  
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.

```
Confirm
```

```
Please insert the cartridge tape into the tape drive.
```

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

4. Press `Return`.

Response:

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.

Packages available for installation:

1. X25 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 (3lxxx)
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**.  
Response:

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**.

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** to start the installation. The program responds with  
these screens:

Installation in progress -- Do not remove the cartridge tape

```
Installing KornShell Version 11/16/88d 386 Release 2.0 ....  
The installation of the KornShell Version 11/16/88d 386 Release  
2.0 is now complete.  
#
```

You can verify that the package is installed by entering the **displaypkg** command.

## Downloading the CMS Software

This section describes how to download the R3V2 CMS software.

To install the R3V2 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.

Do the following steps to download the CMS software:

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. Have the on-site technician insert the R3V2 CMS cartridge tape into the tape drive.
3. From a remote terminal with a baud rate of 2400, establish a connection with the remote console port on the customer's computer and login as *root*.
4. Enter the following command to determine which state the computer is in.

---

```
# 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 this command:

```
# shutdown -g0 -y -i2
```

6. Start the installation of the R3V2 CMS software by entering:

```
# 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.
```

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

Response:

Confirm

Please insert the cartridge tape into the tape drive.

Strike ENTER when ready  
or ESC to stop.

8. Press **Return**. Response:

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.

9. 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.

10. Press **Return**. Response:

Packages available for installation:

1. X25 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 (3lxxx)
  
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:

11. 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 (3lxxx)

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.

12. Press **Return**. Response:

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.

13. Press **Return**.

Response:

Installation in progress -- Do not remove the cartridge tape

Installing the Call Management System (3lxxx).  
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 2.3 verified.  
UNIX System V/386 Release 3.2 Version 2.3 Maintenance Disk #1  
verified.  
INFORMIX-SQL Version 2.10.J <date> verified.  
Remote Maintenance Package (RMP) Version 1.0 verified.

Creating cms group id  
Creating cms user id  
Assigning a new password for cms  
New password:

14. Enter an appropriate password. Response:

Re-enter new password:

15. Re-enter the password. Response:

Assigning a new password for cmssvc New password:

16. Enter an appropriate password for services.  
Response:

```
$Re-enter new password:
```

17. 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 R3V2 CMS software from cartridge tape to hard disk. As the software is downloaded, several rows of periods display indicating that the program is running. Next, a list of downloaded files displays. When the download finishes, this message appears:

```
## Auditing package installation
```

The audit requires several minutes to complete.

If the audit is successful, these messages display:

```
>> 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 (31xxx)
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.
```

18. Press **Return**. The program starts the shutdown process:

```
Shutdown started. <date and time>
<Broadcast Message>
```

19. When you see the “Reboot the system now” message, press Reset.

Once the system has rebooted, you can verify that the package is installed by logging in as *root* and entering the **displaypkg** command.

20. Remove the cartridge tape after it finishes rewinding (drive light not lit).

## **Setting Authorizations**

---

AT&T Production Associates set authorizations for the CMS features purchased by the customer. See Chapter 6, "Setting Authorizations."



# Glossary

Abandoned Call	A call in which a caller hangs up before receiving an answer from an agent. The call could be queued to a split or in the vector/VDN before abandoning.
Access Permissions	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.
ACD	<p>A switch feature. Automatic Call Distribution (ACD) is software that channels high-volume incoming call traffic to agent groups (splits).</p> <p>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).</p>
Acknowledgment	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.
Action List	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.
After Call Work (ACW)	An agent state representing work related to the preceding ACD call. Going on-hook after an ACD call during MANUAL-IN operation places the call in ACW. With Generic 1 and Generic 3, ACW is accessible by a button on the agent's set.
Agent	A person who answers calls to an extension in an ACD split. Known to CMS by a login identification keyed into a voice terminal.

Agent Login ID	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.
Agent State	A feature of agent call handling that allows agents to change their availability to the system (for example, ACW, AVAIL, ACD).
Announcement	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.
Auxiliary Work (AUX)	An agent state. The agent is engaged in non-ACD work, is on break, in a meeting, or at lunch. An agent can reach this state by pressing the AUX WORK button or dialing the proper access code from the voice terminal. The agent can also reach the state by going off-hook to make or answer an extension call while in AVAIL.
Available (AVAIL)	An agent state. The extension is able to accept an ACD call.
Average Speed of Answer	The average amount of time a caller waits in queue before connecting to an agent. Average speed of answer is usually an objective set by your call center's management.
Backup	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.
Blocking	Used by the Forecasting subsystem just as traffic engineers use it: to model system performance based on specified levels of accessibility to the system. This feature is administered on a trunk-group-by-trunk-group basis. This feature also allows you "what if" modeling options — by allowing conceptual control over the trunking just as call characteristics allow conceptual control over agent activities.

Call-Based Items	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.
Calculation	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.
Call Vectoring	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.
CONN	A trunk state. A call is in progress on this trunk.
Current Interval	Represents the current intrahour interval which can be 15, 30, or 60 minutes. The current interval is part of the real-time database.
Current Window	The user window in which you are currently working.
Custom Reports	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.
DABN	A trunk state. The caller abandoned the call, and the trunk quickly goes to idle.
DACD	An agent state. The agent is on a direct agent ACD call.
DACW	An agent state. The agent is in the after call work state for a direct agent ACD call.
Daily Data	Interval data that has been converted to a 1-day summary.

Data collection off	CMS is not collecting ACD data. If you turn off data collection, you will lose data on current call activity.
Database	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.
Database Item	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.).
Database Tables	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.
Exception	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).
FBUSY	A trunk state. The caller receives a forced busy.
Forecast Reports	Display expected call traffic and agent/trunk group requirements for your call center for a particular day or period in the future.
FDISC	A trunk state. The caller receives a forced disconnect.
Grayed Out	When you do not have access to a menu or action list item, it will be grayed out (that is, dimmed or displayed in a different color from the rest of the menu or action list).

Historical Database	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.
Historical Reports	Display past ACD data for various agent, split, trunk, trunk group, vector, or VDN activities.
IDLE	A trunk state. The trunk is not in use.
HOLD	A trunk state. The agent has put the call on this trunk on hold.
Interval-Based Items	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.
Intrahour Interval	A 15, 30, or 60 minute segment of time starting on the hour. An intrahour interval is the basic unit of CMS report time.
MBUSY	A trunk state. The trunk is maintenance busy, out of service for maintenance purposes.
Measured	A term that means an ACD element (agent, split, trunk, trunk group, vector, VDN) has been identified to CMS for collection of data.
Menu	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.
Messages	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.

Multiuser Mode	Any administered CMS user can log into CMS. Data continues to be collected if data collection is “on.”
Name (Synonym) Fields	Fields in which you may enter a name (synonym) that has been entered in the Dictionary subsystem (for example, names of agents, splits, agent groups, trunk groups, vectors, VDNs).
Open Window	A user window that remains open because you have not yet closed it with the <b>Exit</b> 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 <b>Current</b> SLK.
OTHER	An agent state. The agent is working on a direct agent call, working on a call for another split, or has put a call on hold and has not chosen another work mode.
Previous Interval	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.
Primary Window	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.
Pseudo-ACD	An area you create on your CMS for a model ACD. CMS uses this area to place previously backed-up ACD data. A pseudo-ACD is not a <i>live</i> (real) ACD and does not communicate with any switch.

Queue	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.
QUEUED	A trunk state. An ACD call is in queue waiting for an agent to answer.
Read Permission	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.
Real-Time Database	Consists of the current and previous intrahour data on each CMS-measured agent, split, trunk, trunk group, vector, and Vector Directory Number (VDN).
Real-Time Reports	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.
Refresh Rate	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.
RINGING	<p>An agent state. The time a call rings at an agent's voice terminal after leaving the queue and before the agent answers the call. <i>Available only with Generic 2, Load 3.1 or later with the ring state enabled and with Generic 3.</i></p> <p>A trunk state. A call is ringing at the agent's voice terminal.</p>
Screen-Labeled Key (SLK)	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.

Secondary Window	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.
SEIZED	A trunk state. The trunk is seized either incoming or outgoing.
Service Level	A time specified in seconds in which all calls should be answered. Normally set as an objective by management.
Shortcut	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.
Single-User Mode	Only one person can log into CMS. Data continues to be collected if data collection is "on."
Split	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.
String Values	The descriptive words that appear on reports dealing with agents, splits, and trunk. A <i>word</i> is used to describe the value of the data (for example, HOLD, AVAIL, YES, etc.).
Submenu	A menu that appears as a result of a menu selection. All menu selections followed by an ">" have submenus.
Subsystem	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.
Switch/PBX	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.

Task	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).
Timetable	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.
Trunk	A telephone line that carries calls between two switches, between a Central Office (CO) and a switch, or between a CO and a phone.
Trunk Group	A group of trunks that are assigned the same dialing digits — either a phone number or a Direct Inward Dialed (DID) prefix.
UNIX System	The operating system on the computer which CMS runs. A user can access the UNIX system from the <b>Commands</b> SLK.
UNKNOWN	<p>An agent state. CMS does not recognize the current state (for example, the link is down).</p> <p>A trunk state. CMS does not recognize the state (for example, when the link first comes up and CMS is not receiving ACD data).</p>
UNSTAF	Unstaffed, an agent state. The agent is not logged in and being tracked by CMS.
User ID	The login ID for a normal CMS user or CMS administrator.
User Window	A window you can move, size, or scroll. It may contain input fields, reports, or help information.
Vector	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.

**Vector Command** The keyword in a vector step that describes the action to be executed on an incoming call.

**Vector Directory Number (VDN)** 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.

**Vector Step** One processing step listed in a vector. A vector step consists of a command and one or more conditions.

**Vector Step Condition** A condition accompanying a vector command that defines the circumstances in which the command will be applied to a call.

**Voice Terminal** A telephone set, usually with buttons, that gives an agent some control over the way calls are handled.

**Weekly/Monthly Data** Daily data that has been converted to a weekly or monthly summary.

**Window** Any rectangle on your screen that encloses a menu, data entry fields, reports, or messages.

**Window Count** The number of primary windows that can be open at any one time.

**Write Permission** 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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