

585-215-104

Issue 3, March 1992

3B2 CALL MANAGEMENT SYSTEM
Release 2, Issue 1.4
Installation and Maintenance

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NOTICE

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General Information

This document was written for AT&T service personnel who install and maintain the AT&T 3B2/ 310, 3B2/ 400, 3B2/ 500, 3B2/ 522, 3B2/ 600, and 3B2/ 1000 Model 70 computers that will be running *Release 2, Issue 1.5* of the 3B Call Management System (3B CMS or 3B2 CMS) software application.

This document is used primarily as a guide by Tier 1 engineers to do the following preinstallation or on-site tasks for the 3B2 CMS software:

Save the CMS historical data on a customer's computer when the customer's CMS historical data is migrating from one host computer to another

NOTE

If the customer's CMS historical data is migrating from AP-16 CMS to 3B2 CMS, you should be familiar with the AP-16 computer and the AP-16 CMS software.

Install the hardware connection between the 3B2 computer and an AT&T switch

Install the UNIX* System V, Release 3.2 operating system on a 3B2/ 310 or 3B2/ 400 computer

Install the UNIX System V, Release 3.2.1 operating system on a 3B2/ 500, 3B2/ 522, 3B2/ 600, or 3B2/ 1000 Model 70 computer

Install the prerequisite software.

This document is also used by a 3B CMS trained engineer located at the Technical Support Center (TSC) to do the following remote tasks:

Install the 3B2 CMS software on a 3B2 computer (including migration data, if any)

Test the 3B2 CMS software for acceptance

Upgrade the 3B2 CMS software

Maintain the 3B2 CMS software

Troubleshoot the 3B2 CMS software.

You can help us improve the next issue of the *3B2 CMS Installation and Maintenance* document by filling out the feedback form located at the front of this document.

* Registered trademark of AT&T.

How the 3B2 Call Management System Works

The 3B2 Call Management System (3B2 CMS) is a software application that has been designed to run on the AT&T 3B2/ 310, 3B2/ 400, 3B2/ 500, 3B2/ 522, 3B2/ 600, and 3B2/ 1000 Model 70 computers.

The 3B2 CMS software is used by business customers who have an AT&T telecommunications switch and who receive a large volume of telephone calls that are processed through the Automatic Call Distribution (ACD) feature of the switch. The 3B2 CMS software and the AT&T switch communicate through a hardware link that allows the switch to transfer ACD information to the 3B2 computer.

The 3B2 CMS software compiles, formats, and stores the information received from the ACD into a database that can be viewed on-line by the customer. Via the 3B2 computer and the 3B2 CMS software, the customer can monitor the real-time ACD activities to determine if the ACD should be reconfigured to provide the most efficient service possible for the calling public.

In a 3B2 CMS environment, the 3B2 computers can be connected to the following AT&T telecommunications switches:

AT&T DEFINITY* Communications System Generic 1

AT&T System 75, R1V3, Issue 1.1 or later

AT&T System 75 XE, R1V3, Issue 1.2 or later

AT&T DEFINITY Communications System Generic 2

AT&T System 85, R2V3, Issue 1.1 or later

AT&T System 85, R2V4, Issue 1.0 or later

AT&T DEFINITY Communications System Generic 3i

DIMENSION* 600 and 2000 System switches with Feature Package 8, Version 3.8 software.

* Registered trademark of AT&T.

How the 3B2 CMS Software Application Is Installed

To make the installation easy to do, the tasks required to install the 3B2 CMS software application have been divided into on-site tasks and remote tasks.

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

NOTE Although this document points out the different 3B2 CMS installation tasks performed by the on-site and remote site engineers, it can be used to do both the on-site and remote tasks at the customer's location.

Performing the On-Site Tasks

After installing the 3B2 computer and connecting the peripheral equipment (display terminals, printers, etc.), the on-site technician is also responsible for doing the following additional tasks:

Saving the CMS historical data for customers migrating their data to a new 3B2 host computer (See *Chapter 2*.)

NOTE The CMS historical data on the customer's current host computer must be saved before installing the 3B2 CMS application on the new host computer. See *Chapter 2* for more details.

Installing the Intelligent Serial Controller (ISC) hardware card

CAUTION If you install the software contained on the Diagnostics floppy that comes with the ISC card, **the Diagnostics software must remain installed.** (If you remove Diagnostics software after the X.25 Network Interface software has been administered, the 3B2 computer and switch will not be able to communicate with each other.)

NOTE For instructions on how to install the ISC, refer to the *AT&T 3B2 Computer Intelligent Serial Controller Manual* (305-531). **Do not** use the *Intelligent Serial Controller Manual* to administer the X.25 Network Interface software. In *Chapter 4*, you will be told when to install the X.25 Network Interface software. The X.25 Network Interface software will be administered when the 3B2 CMS software is installed.

How the 3B2 CMS Software Application Is Installed

Installing the Alarm Interface Circuit (AIC) card

NOTE

Use the *Remote Management Package Manual* (305-455) only to install the AIC card. **Do not** use the *Remote Management Package Manual* to install the Remote Management Utilities or to administer the AIC. In *Chapter 4*, you will be told when to install the Remote Management Utilities. The AIC will be administered when the 3B2 CMS software is installed.

Installing the hardware connection between the 3B2 computer and the switch (See *Chapter 3*.)

NOTE

A switch technician should be on-site to connect the link from the 3B2 computer to the switch and to administer the switch, if necessary.

Connecting the 3B2 computer to the Technical Support Center (TSC) (See *Chapter 3*.)

Programming the Silent Knight Autodialer* (See *Chapter 3*.)

Installing the UNIX System V, Release 3.2 or 3.2.1 operating system (See *Chapter 4*.)

Creating the file systems required by the 3B2 CMS software (See *Chapter 4*.)

Installing the prerequisite software — INFORMIX† 3.3 software, Remote Management Utilities, and X.25 Network Interface software (See *Chapter 4*.)

Turning the 3B2 computer over to the TSC (See *Chapter 4*.)

These on-site tasks must be completed *before* an engineer located at the TSC can install the 3B2 CMS software.

* Registered trademark of Silent Knight Security Systems.

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

Performing the Remote Tasks

After the on-site technician has completed the on-site tasks, the engineer at the TSC will be responsible for doing the following 3B2 CMS installation tasks:

Installing the 3B2 CMS software (See *Chapter 5*.)

Turning the 3B2 CMS over to the customer (See *Chapter 7*).

NOTE

An on-site technician will be required at the customer's location to install and remove cartridge tapes and floppy disks during a remote installation of the 3B2 CMS software.

NOTE

After the on-site technician has done the on-site tasks and inserted the medium containing the 3B2 CMS software into the customer's computer, the remote engineer can install the 3B2 CMS software from the TSC by logging into the customer's console port via the Remote Management Package (Alarm Interface Circuit) and doing the 3B2 CMS software installation procedures, which are documented in *Chapter 5*.

Escalating a Problem

This section contains the escalation procedures that you, an AT&T service technician, should use when a problem arises during or after the 3B2 CMS installation. Escalation procedures that should be followed by the customer are also included.

How a Technician Escalates a Problem During or After the Installation

If you encounter a hardware or software problem during or after the 3B2 CMS installation while you are at the customer's location, you should do the following:

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

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

How the Customer Escalates a Problem After Installation

After the installation, the customer can escalate an ACD switch feature, 3B hardware, or 3B CMS software problem **by calling the AT&T ACD/ CMS Help at 1-800-344-9670** to report the problem and obtaining a trouble ticket number so the problem can be escalated through the services organization.

NOTE

The customer will be prompted to identify the type of problem (ACD, 3B hardware, or 3B CMS) and will be connected to the appropriate service organization.

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

Understanding Terminal Dialog

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

```
# ed <filename>
```

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

```
# ed junk
```

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

Other Documents You May Need

You may need to reference the following documents while installing the 3B2 CMS software application:

AT&T 3B2/ 310 Computer Read Me First Manual (305-475)

AT&T 3B2/ 310 Computer Owner/ Operator Manual (305-472)

AT&T 3B2/ 400 Computer Read Me First Manual (305-500)

AT&T 3B2/ 400 Computer Owner/ Operator Manual (305-501)

AT&T 3B2 Computer UNIX System V Release 3 Owner/ Operator Manual (305-527)

AT&T 3B2 Computer UNIX System V Release 3 System Administrator's Guide (305-554)

AT&T 3B2 Computer SCSI Installation Manual (305-011)

AT&T 3B2 Computer SCSI Operations Manual (305-012)

AT&T 3B2 Computer Intelligent Serial Controller Manual (305-531)

AT&T 3B2 Computer Maintenance Reference Manual (305-395)

AT&T Remote Management Package Manual (305-455)

AT&T DATAPHONE II 2500-Series Data Service Units User's Manual (999-100-188)*

AT&T DEFINITY Communications System Generic 3i Implementation Manual (555-230-650, Issue 1)

AT&T DEFINITY Communications System Generic 1 Implementation Manual (555-204-654, Issue 1)

AT&T System 75 Implementation Manual (555-200-652, Issue 2)

AT&T DEFINITY Communications System Generic 2 Administration of Features and Hardware (555-104-507, Issue 1)

AT&T System 85 Feature Translations Service Manual Release 2, Version 3 (555-102-107, Issue 2)

* Registered trademark of AT&T.

Other Documents You May Need

AT&T System 85 Feature Translations Service Manual Release 2, Version 4
(555-103-107, Issue 1)

AT&T DIMENSION 400E/ 600/ 600SN/ 2000 PBX Administration and Maintenance,
Issue 1
(554-010-257)

AT&T AP-16 Call Management System Administration Guide (999-200-230 IS).

The *3B CMS Administration* (585-215-504) document contains detailed information on how to administer and use the 3B CMS software application. After the CMS software has been installed and the system has been turned over to the customer, the customer's CMS administrator should use the *3B CMS Administration* document to administer the 3B CMS software application.

Other Documents You May Need

NOTES

General Information

Use the information in this chapter **only** if the customer's Call Management System is migrating as follows:

From AP-16 CMS to 3B2/ 310/ 400 CMS

From 3B2/ 310/ 400 CMS to 3B2/ 500/ 522/ 600/ 1000 Model 70 CMS.

NOTE

For 3B5 CMS to 3B2/ 600 CMS migrations, refer to the *3B5 CMS Installation and Maintenance* (585-215-103) document.

The process of migrating the CMS historical data from one host computer to another is done in three phases:

- 1 The CMS historical data on the current host computer is saved onto tapes no later than 4 to 6 days before the 3B2 CMS software is to be installed on the new 3B2 host computer.
- 2 The tapes are sent to the Technical Support Center (TSC) via overnight delivery. The TSC migrates the data on the tapes to a format that the new 3B2 host computer understands and sends a cartridge tape or tapes containing the migrated data back to the customer.
- 3 After the 3B2 CMS preinstallation requirements have been completed in *Chapters 3* and *4*, an engineer at the TSC will be responsible for completing the 3B2 CMS software installation and will tell you when to load the tape containing the migrated data.

The remainder of this chapter explains how to save the CMS historical data on the current CMS host computer (AP-16, 3B2/ 310, or 3B2/ 400 computer), how to ship the tapes to the TSC, and how the TSC migrates the data.

How to Save the AP-16 CMS Historical Data

The CMS historical data on the AP-16 must be saved in order to migrate from AP-16 CMS to 3B2/ 310/ 400 CMS.

To save the CMS historical data located on a customer's AP-16, do the following steps at the AP-16.

NOTE	For more information about doing CMS "Saves" on an AP-16, refer to the <i>AP-16 Call Management System Administration Guide</i> (999-200-230 IS).
-------------	---

- 1 Obtain three formatted HCMR tapes.
- 2 Insert a formatted tape into the HCMR 0 tape drive.
- 3 Log into the AP-16 by using a valid CMS login ID and password.
- 4 Using the Command/ Path Line, execute the **cms cms-administration cmssave** command.
- 5 When the screen appears, enter **0** for the tape drive number.
- 6 Move the cursor to the selection box ([]) in front of "Save files containing half-hour data," and press the **ENTER** key. The screen will change to the Half-Hour Records Selection Screen.
- 7 Place an **x** in each of the selection boxes ([]). Press the **Days** screen-labeled key.
- 8 Press the **Save** screen-labeled key.
- 9 When the "Save" has finished, remove the tape from the tape drive and mark the tape with "half" and "car."
- 10 Insert another formatted tape into the HCMR 0 tape drive.
- 11 Using the Command/ Path Line, execute the **cms cms-administration cmssave** command again.
- 12 When the screen appears, enter **0** for the tape drive number.
- 13 Move the cursor to the selection box ([]) in front of "Save files containing daily data," and press the **ENTER** key. The screen will change to the Daily Records Selection Screen.

- 14 Place an **x** in each of the selection boxes ([]).
- 15 Press the `Save` screen-labeled key.
- 16 When the “Save” has finished, remove the tape from the tape drive and mark the tape with “daily” and “car.”
- 17 Insert the last formatted tape into the HCMR 0 tape drive and do the following:
 - a Log in as *root* on the AP-16 and execute the following commands:

```
# cd /sav/acd/acd1/parms
# car c alias groups
```

- b Execute the following commands:

```
# cd /sav/acd/acd1/display
# car r disfmts/*
```

- c Execute the following commands:

```
# cd /sav/acd/acd1/report
# car r rptfmts/*
```

NOTE

If the **car** command fails for *disfmts* or *rptfmts*, no custom displays or reports exist depending on which **car** command fails.

How to Save the AP-16 CMS Historical Data

NOTE

Additional customer files may be ported over by changing to the directory where the files are stored and executing the **car r file name** command.

d Remove the tape and mark it as follows: “(customer name).car”.

18 Label each tape with following additional information:

Customer’s name and address

AP-16 CMS to 3B2/ 310/ 400 CMS Migration.

19 Send the tapes to the TSC. Refer to the section *Where to Send the CMS Historical Data*.

How to Save the 3B2/310/400 CMS Historical Data

The CMS historical data on the customer's 3B2/ 310 or 3B2/ 400 computer must be saved in order to migrate to a 3B2/ 500, 3B2/ 522, 3B2/ 600, or 3B2/ 1000 Model 70 computer.

To save the CMS historical data, do the following steps:

- 1 Log into the 3B2 computer as *acd1*.
- 2 Back up the CMS historical databases by going to the MAINTENANCE **Data-Backup** screen and following the displayed instructions. Refer to the *Backing Up CMS Historical Data From the CMS Environment* section in Chapter 8 of the appropriate *3B2 CMS Installation and Maintenance* document for detailed instructions. For *Version 2.8*, refer to 585-215-102, Issue 2. For *Version 2.14*, refer to 585-215-102, Issue 3. For *Version 2.28*, refer to 585-215-104, Issue 2. For *Version 2.32* or later, refer to this document.
- 3 Label each tape with following information:
 - Customer's name and address
 - Current version of 3B CMS (for example, *Version 2.32*)
 - 3B2/ 310/ 400 CMS to 3B2/ 500/ 522/ 600/ 1000 Model 70 CMS Migration.
- 4 Send the tapes to the TSC. Refer to the section *Where to Send the CMS Historical Data*.

Where to Send the CMS Historical Data

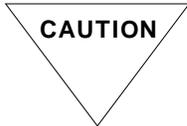
The tapes (for each ACD) that contain the CMS historical data should be sent via overnight express delivery service to:

AT&T Information Systems
TSC CMS Migrations
Room 200N
8300 East Maplewood Ave.
Englewood, Colorado 80111

After the TSC receives the tapes containing the customer's CMS historical data, tapes containing the migrated data will be mailed back to the customer within 2 to 4 business days. Therefore, the customer will lose a minimum of 4 to 6 days worth of data (2 to 4 days for processing and 2 days for shipping).

How the TSC Migrates the CMS Historical Data

The 3B CMS historical data on a customer's 3B2/ 310 or 3B2/ 400 computer can be migrated to a 3B2/ 500 or 3B2/ 600 computer.



The remaining procedures in this chapter should only be done by a qualified technician at the Technical Support Center (TSC).



The TSC has developed its own migration procedures for customers who are migrating from AP-16 CMS to 3B2/ 310/ 400 CMS.

For 3B5 CMS to 3B2/ 600 CMS migrations, refer to the 3B5 CMS Installation and Maintenance (585-215-103) document.

3B2/310/400 to 3B2/500/522/600/1000 Model 70 CMS Data Migrations

In order to migrate a customer's CMS historical data from a 3B2/ 310 or 3B2/ 400 computer to a 3B2/ 500, 3B2/ 522, 3B2/ 600, or 3B2/ 1000 Model 70 computer, you, a TSC engineer, must do the following:

- 1 From the CMS historical data backup tapes that you received from the customer, determine which load of the 3B CMS software the customer is using.
- 2 On a 3B2/ 400 computer at the TSC, install the 3B CMS software load that is the same as the customer's. (For example, if the customer currently has *Version 2.14*, you must install *Version 2.14*.)

Refer to *Chapter 4* and *5* of the appropriate *3B2 CMS Installation and Maintenance* document for instructions. For *Version 2.8*, refer to 585-215-102, Issue 2. For *Version 2.14*, refer to 585-215-102, Issue 3. For *Version 2.28*, refer to 585-215-104, Issue 2. For *Version 2.32*, and later loads, refer to this document.

How the TSC Migrates the CMS Historical Data

NOTE

The 3B2/ 400 computer at the TSC must have a 23 MB cartridge tape drive and a 60 MB SCSI cartridge tape drive.

- 3 Insert the floppy that contains the “migration” program files.
- 4 With the 3B2/ 400 computer in the multiuser state, log in as *root* and execute the following command:

```
# cd /
```

- 5 Execute the following command to download the “migration” program files:

```
# cpio -icv </dev/diskette
```

- 6 Verify that the “migration” program files were downloaded by executing the following commands:

```
# ls -l /cms/bin/mig_rest  
# ls -l /etc/feat/cms/Migration  
# ls -l /etc/feat/cms/Mig_fix
```

- 7 Insert the cartridge tape that contains the backup copy of the customer’s CMS historical data.

NOTE

The customer must have used the CMS MAINTENANCE Data-Backup program to back up the CMS historical data.

- 8 Execute the following command to install (restore) the customer's CMS historical data:

```
# /etc/feat/cms/Migration acd1
```

If the **Migration** program is interrupted, you must recover by doing the following steps:

- a Execute the following command to put the computer into the single-user mode:

```
# shutdown -g0 -y -i1
```

- b Mount the file systems by executing the following command:

```
# mountall
```

- c Use the **sysadm usrmgmt** command to delete the *acd1* user ID and the *acd1* group ID.

How the TSC Migrates the CMS Historical Data

- d Execute the following commands to remove the *acd1* directory structure:

```
# cd /cms
# rm -r acd1
```

- e Remove the CMS historical data on any other disk (for example, */cmsdsk1*) by executing the following commands:

```
# cd /cmsdskX/cms
# rm -r acd1
```

Where *X* = 1, 2, 3, 4, or 5

- f Create *acd1* again by following the instructions in *Chapter 5* of the appropriate *3B2 CMS Installation and Maintenance* document. For *Version 2.8*, refer to 585-215-102, Issue 2. For *Version 2.14*, refer to 585-215-102, Issue 3. For *Version 2.28*, refer to 585-215-104, Issue 2. For *Version 2.32* or later, refer to this document.
- g Execute the **Migration** program again as follows:

```
# /etc/feat/cms/Migration acd1
```

- 9 After the CMS historical data has been installed, upgrade the 3B CMS software with *Version 2.28* or later. Refer to *Chapter 6* in this document for instructions.

NOTE

If the customer is migrating the CMS historical from more than one 3B computer to a single 3B2/ 600 computer, only one ACD can be named *acd1*. To rename an ACD, refer to the *How to Rename an ACD* section at the end of this chapter for instructions before continuing.

- 10 Edit the */cms/acd1/maint/device* file. Change */dev/rSA/ctape1* to */dev/rSA/qtape1*.

NOTE

If the ACD is not *acd1* be sure to substitute the correct ACD name in the path.

- 11 Use the CMS MAINTENANCE Data-Backup program to back up the customer's CMS historical data via the 60 MB cartridge tape drive.
- 12 Send the tapes containing the migrated data back to the customer via overnight express service.

How to Rename an ACD

If a customer has more than one 3B computer running the 3B CMS application in a single ACD environment and is migrating the CMS historical data on each computer to a 3B2/ 600 or 3B2/ 1000 Model 70 computer, the ACD names on the second, third, and fourth 3B computer must be renamed during the migration process at the TSC.

For example, suppose a customer has a 3B2/ 310 and a 3B2/ 400 computer running the 3B CMS software application. The ACD name on each of these machines is *acd1*. In order to migrate the CMS historical data on these computers to a 3B2/ 600 or 3B2/ 1000 Model 70 computer, one of the ACDs must be renamed. The customer should decide which ACD should be renamed.

To rename an ACD on the 3B2/ 400 computer at the TSC, do the following steps:

- 1 Ask the customer which ACD should be renamed.
- 2 At the console terminal, log in as *root*.
- 3 Execute the following command to determine which state the computer is in:

```
# who -r
```

- 4 If the computer is not in the single-user state (State 1), execute the following command:

```
# shutdown -g0 -y -i1
```

- 5 Execute the following command to mount the file systems:

```
# mountall
```

- 6 Execute the following command to start the ACD renaming process:

```
# sh /etc/feat/cms/Mig_setup
```

The program prints the following message:

```
WARNING, this shell will CHANGE the ACD number of an existing ACD!  
Do you really want do this?
```

- 7 To change the ACD number of an existing ACD, enter **y**.

How the TSC Migrates the CMS Historical Data

If a *field* login ID exists, the program will respond with the following message:

```
WARNING, a CMS 'field' id is administered on this machine,  
the target machine should also have one!
```

When the UNIX operating system is installed on the new 3B host computer, a *field* login ID **must be** administered in order for the data migration to be successful.

If a *field* login ID does not exist, the program will respond with the following message:

```
WARNING, a CMS 'field' id is NOT administered on this machine,  
the target machine should NOT have one also!
```

When the UNIX operating system is installed on the new 3B host computer, a *field* login ID **must not be** administered in order for the data migration to be successful. The program then responds with the following message:

```
What is the ACD number on this machine that is to be migrated?  
Enter 1, 2, 3, or 4 - acd
```

- 8 Enter the ACD number. The program responds with:

```
What is the ACD number this CMS will be on the target machine?  
Enter 1, 2, 3, or 4 - acd
```

- 9 Enter the number that the ACD will have on the new 3B host computer. In other words, if the existing ACD is *acd1* and you want it to be *acd2* on the new 3B host computer, enter **2**.

Next, the program responds with:

```
OLD uid - <XXX>, OLD gid - <YYY>  
NEW uid - <XXX>, NEW gid - <YYY>  
Changing the 'passwd' file...  
Changing user - <user login ID>...  
. .  
Changing the 'group' file...  
Changing the 'inittab' file...  
Changing the 'at.allow' file...  
Changing the ownership of the existing ACD tree structure...  
Changing the 'menu-informix' database...  
Migration setup complete.  
Changing to multi-user state...
```

You have finished renaming the ACD.

How the TSC Migrates the CMS Historical Data

NOTES

General Information

After the 3B2 computer and the AT&T switch have been installed, follow the procedures in this chapter to:

- Install the Intelligent Serial Controller (ISC) hardware card
- Install the Remote Management Package hardware card
- Connect the 3B2 computer to the AT&T switch
- Connect the 3B2 computer to the remote maintenance center
- Program the Silent Knight Autodialer.

If you find that you do not have the parts required to complete any of the procedures in this chapter, refer to Table 3-1 for a complete listing of the hardware and software Price Elements Codes (PECs) associated with the 3B2 CMS.

Table 3 1 Price Element Codes for the 3B2 CMS

EQUIPMENT	COMCODE	PEC/ ATTRIBUTE	COMMENTS
3B2/ 400 SE		6950-CMS	
3B2/ 522		6950-CD1	
3B2/ 1000 Model 70		6950-CF1	
3B2/ 400 CMS Software		1208-010/ MSF10	CTC-based
3B2/ 400/ 500/ 522 CMS Software		1208-010/ MSF13	SCSI-based
3B2/ 600/ 1000 Model 70 CMS Software		1208-011/ MSF13	SCSI-based
3B CMS Vectoring		1208-012	
		1208-016/ MSF99	For 3B CMS Issue 1.4 (Load 2.31) and later issues.
		1208-016/ MSF10	3B2/ 310/ 400 CTC Upgrade
3B CMS Graphics		1208-016/ MSF13	3B2/ 310/ 400/ 500/ 522 SCSI Upgrade
		1208-016/ MSF14	3B2/ 600/ 1000 Model 70 SCSI Upgrade

General Information

Table 3 1 Price Element Codes for the 3B2 CMS (Contd)

EQUIPMENT	COMCODE	PEC/ ATTRIBUTE	COMMENTS
Virtual Cache Pkg		73279	3B2/ 500/ 522 only
SCSI Host Adapter		69557	Single-ended
SCSI Host Adapter		73282	Differential
SCSI Connection Kit		69562	Single-ended kit
Disk Controller Module/ 4E		6950-CB1	Single-ended
Disk Module/ 147E		69550	ESDI
Disk Module/ 300E		69551	ESDI
Disk Module/ 300S		69552	Single-ended
Disk Module/ 300DS		36206	Single-ended
XM 900S		6950-CB2	Single-ended
SCSI 60 MB Cartridge Tape Drive		6950-CB5	Single-ended
SCSI 120 MB Cartridge Tape Drive		6950-CB6	Single-ended
SCSI 9-Track Tape Drive 1600		6950-CB3	Single-ended
SCSI 9-Track Tape Drive 6250S		6950-CB4	Single-ended
SCSI 9-Track Tape Drive 6250DS		3630-013	Single-ended
1 MB Memory Board		73201	3B2/ 400 only
2 MB Memory Board		73241	3B2/ 400 only
		69555	3B2/ 400 only
2 MB Memory Board		69559	3B2/ 500/ 522/ 600/ 1000 Model 70 only
4 MB Memory Board		69560	3B2/ 500/ 522/ 600/ 1000 Model 70 only
Enhanced Ports Card		69558	
I/ O Expansion Card		69553	
Intelligent Serial Controller (ISC) Kit		69554	
		2725-16G	7 Feet
		2725-16N	14 Feet
3B2 Modular Cords		2725-16S	25 Feet
		2725-16V	50 Feet
Male Terminal/ Printer Adapter		2750-C09	RS-232C to 8-pin modular
Male Modem Connector		2750-C10	RS-232C to 8-pin modular
Male Null Modem Connector		2750-C11	RS-232C to 8-pin modular
Female Terminal/ Printer Adapter		2750-C12	RS-232C to 8-pin modular

Table 3 1 Price Element Codes for the 3B2 CMS (Contd)

EQUIPMENT	COMCODE	PEC/ ATTRIBUTE	COMMENTS
Remote Management Pkg		69556	
Remote Alarm Reporting Unit		94273	Silent Knight Autodialer
4024 Modem		2224-CE0	
Uninterruptible Power Supply (UPS)		2403-204	2 KVA
		2403-201	1 KVA
D6AP-87 Cord		2725-06N	14 Feet
		2726-06S	25 Feet
M4AS Cable		2721-03G	7 Feet
		2721-03S	25 Feet
M4AU Cable		2721-04G	7 Feet
		2721-04S	25 Feet
Data Service Unit		2225-96B	Single modem
DATAPHONE II Modem		2201-96C	9600 bps
Stand-Alone Housing		22631	For DATAPHONE II Modem
MPDM with an		2161-101	Modular Processor Data Module (MPDM)
RS-232 Interface in a Stand-Alone Housing			
MTDM		2162-TDM	Modular Trunk Data Module (MTDM)
RS-232 Interface		21621	For MTDM
Stand-Alone Housing		21702	For MTDM
ED-1E434-11, GR304		65254A/ CCT01	Includes ED-1E434-11, GR13
ED-1E434-11, GR304		65254A/ CCT02	Includes ED-1E434-11, GR13 and ED-1E434-11, GR342
ED-1E434-11, GR309		2726-03L	RS-232C 12 Feet
		2726-03S	RS-232C 25 Feet
		2726-03V	RS-232C 50 Feet
ED-1E367-11, GR971		64625-CBL03	RS-449 16 Feet
			Includes ED-1E367-11, GR970
ED-1E367-11, GR972		64625-CBL04	RS-449 29 Feet
			Includes ED-1E367-11, GR970
ED-1E367-11, GR973		64625-CBL05	RS-449 49 Feet
			Includes ED-1E367-11, GR970
ED-1E367-11, GR974		64626-CBL06	RS-449 7 Feet
			Includes ED-1E367-11, GR970 and ED-1E367-11, GR978

General Information

Table 3 1 Price Element Codes for the 3B2 CMS (Contd)

EQUIPMENT	COMCODE	PEC/ ATTRIBUTE	COMMENTS	
ED-1E367-11, GR975		64626-CBL07	RS-449 20 Feet	
			Includes ED-1E367-11, GR970 and ED-1E367-11, GR978	
ED-1E367-11, GR976		64626-CBL08	RS-449 40 Feet	
			Includes ED-1E367-11, GR970 and ED-1E367-11, GR978	
IDI		65399A		
		65399A/ CCT01	Single Common Control	
		65399A/ CCT01	Dupl. Common Control	
		65399A/ CCN06	Transition Cable	
		65399A/ LNG21	25 Feet	
		65399A/ LNG10	35 Feet	
		65399A/ LNG11	50 Feet	
		65399A/ LNG12	75 Feet	
	Switch to IDI Cable		65399A/ LNG13	100 Feet
			65399A/ LNG15	150 Feet
		65399A/ LNG16	175 Feet	
		65399A/ LNG17	200 Feet	
		70308/ LNG99, LNH01	For EIA Connection to Generic 3i, Generic 1, and System 75 XE	
B25A Cable		2720-01E	5 Feet	
		2720-01K	10 Feet	
		2720-01P	15 Feet	
		2720-01R	20 Feet	
		2720-01T	30 Feet	
		2720-01W	60 Feet	
		2720-01Z	100 Feet	
M25B Cable		2721-02A	1 Feet	
		2721-02D	4 Feet	
		2721-02K	10 Feet	
		2721-02S	25 Feet	
		2721-02V	50 Feet	

Non-Standard Hardware Configurations

AT&T Services Support

The hardware configurations described in this document are the **only** configurations that are supported (covered by AT&T warranties and service contracts). Customers with these configurations and the proper service contract or warranty will receive, free of additional charge during normal work hours, Technical Support Center assistance for installation and AT&T Call Center Helpline assistance for system troubleshooting.

Customers who choose other non-supported configurations may be charged on a Time-and-Materials basis for installation and troubleshooting, even if they purchase a 3B CMS maintenance contract.

In addition, for the Call Center Helpline to provide assistance to customers with non-supported configurations, the customer or the customer's AT&T technical consultant must supply the Helpline with the following information:

Up-to-date engineering documents that show the physical design of the link between the switch and the 3B2 computer or between peripheral equipment and the 3B2 computer. The design must include system diagrams and a list of equipment used, including equipment options and manufacturer names.

A list of names and phone numbers of customer personnel who are responsible for supporting the equipment. This list must include a contact for after-work hours.

A list of names and phone numbers of technical support personnel for all manufacturers whose equipment is included in the configuration. This list must include a contact at each manufacturer for after-work hours.

The customer must also agree to the following conditions before the Helpline will begin work:

The customer must verify that all equipment between the 3B2 computer and the switch or peripheral equipment is working.

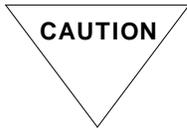
The Helpline reserves the right to troubleshoot the network between the 3B2 and the switch/ peripheral equipment **before** replacing any 3B2, link, or switch hardware.

The customer must provide loop-around capability on all components in the non-supported configuration. In addition, any and all multiplexers must have clear channel capability.

Time and Materials charges will apply for:

- All work done outside of normal work hours.
- Troubleshooting work up to the point where the standard 3B2 hardware or switch link hardware is clearly identified as the problem.
- Any other troubleshooting work on communication between the 3B2 and a device on a non-supported configuration.

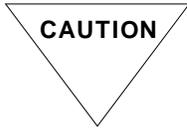
The customer must install standard configuration hardware if the Helpline cannot isolate the problem or the problem proves to be chronic. The standard configuration must be kept in place at least until the Helpline determines if the problem is in the standard 3B2 or switch link hardware.



If the customer wishes to add hardware or software not specified in this document, call the Call Center Support Group at the Sales and Technical Response Center for assistance at (800) 521-7872. This group can verify whether or not the customer's configuration is supported.

Installing the Intelligent Serial Controller

Use the *AT&T 3B2 Computer Intelligent Serial Controller Manual (305-531)* for instructions on how to install the Intelligent Serial Controller (ISC) hardware card.



CAUTION

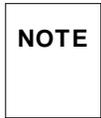
If you install the software contained on the Diagnostics floppy that comes with the ISC card, **the Diagnostics software must remain installed**. (If you remove Diagnostics software after the X.25 Network Interface software has been administered, the 3B2 computer and the switch will not be able to communicate with each other.)

In *Chapter 4*, you will be told when to install the X.25 Network Interface software.



NOTE

Do not use the *Intelligent Serial Controller Manual* to install and administer the X.25 Network Interface software. The X.25 software will be administered automatically when the 3B2 CMS software is installed.



NOTE

The Release 2, Issue 1.5 of the 3B2 CMS software requires either X.25 Network Interface Version 1.0.1, X.25 Network Interface Version 1.1, or X.25 Network Interface Version 1.1.1 software. The appropriate X.25 Network Interface Software should be included with the CMS software.

Installing the Remote Management Package

Use the *AT&T 3B2 Computer Remote Management Package Manual* (305-455) *only* to install the Alarm Interface Circuit (AIC) card and to connect the console port to the AIC.

In *Chapter 4*, you will be told when to install the Remote Management Utilities.

NOTE

Do not use the *Remote Management Package Manual* to install the Remote Management Utilities and to administer the AIC. The AIC will be administered automatically when the 3B2 CMS software is installed.

Connecting the 3B2 Computer to an AT&T Switch

In order for the CMS software to work properly, the customer's 3B2 computer and AT&T switch must be connected together *before* the CMS software is installed. This chapter describes how to connect a 3B2 computer to the following AT&T telecommunications switches:

DEFINITY Communications System Generic 1

System 75

System 75 XE

DEFINITY Communications System Generic 2

System 85

DEFINITY Communications System Generic 3_i

DIMENSION System switch.

The 3B2 computer connects to these AT&T switches by using an Intelligent Serial Controller (ISC).

For the 3B CMS application, the 3B2/ 310, 3B2/ 400, 3B2/ 500, and 3B2/ 522 computers can be connected to only one switch while the 3B2/ 600 and 3B2/ 1000 Model 70 can be connected to four switches.

The 3B2 computers are connected to the switches as follows:

An ISC port connection from the 3B2 computer to a Digital Port on the Generic 3i, Generic 1, System 75, or System 75 XE switch

NOTE

In addition to a Digital Port, the Generic 3i, Generic 1, and System 75 XE require a Processor Interface, and the System 75 requires an AP/ DCS Interface. The Processor Interface (PI) and AP/ DCS Interface are sometimes called a System Communications Interface (SCI).

Connecting the 3B2 Computer to an AT&T Switch

An ISC port connection from the 3B2 computer to the EIA connector of a Processor Interface on the Generic 1 or System 75 XE switch

NOTE

If the EIA connector on the Processor Interface is not used, a Digital Port will be required on the Generic 1 or System 75 XE switch.

An ISC port connection from the 3B2 computer to a Data Communications Interface Unit (DCIU) port on the Generic 2 or System 85 switch

An ISC port connection from the 3B2 computer to a DCIU port on the DIMENSION System switch.

Turn to the appropriate section in the following list for step-by-step instructions on how to connect the customer's 3B2 computer and switch together:

Connecting the 3B2 Computer to the Generic 3i, Generic 1, System 75, or System 75 XE Switch

Connecting the 3B2 Computer to the Generic 2 or System 85 Switch

Connecting the 3B2 Computer to the DIMENSION System Switch.

A switch technician should be on site to make the final connection from the 3B2 computer to the switch and, if necessary, to administer the switch for the ACD/ CMS feature.

NOTE

The 3B2 CMS software, which is installed later, will not be able to communicate with the switch if the ACD/ CMS feature and the DCIU/ SCI hardware on the switch have not been administered properly.

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

AT&T DEFINITY Communications System Generic 1 Implementation Manual (555-204-654, Issue 1)

AT&T System 75 Implementation Manual, Issue 2 (555-200-652)

AT&T DEFINITY Communications System Generic 2 Administration of Features and Hardware (555-104-507, Issue 1)

AT&T System 85 Feature Translations Service Manual Release 2, Version 3 Issue 2 (555-102-107)

Connecting the 3B2 Computer to an AT&T Switch

AT&T System 85 Feature Translations Service Manual Release 2, Version 4 Issue 1 (555-103-107)

DIMENSION 400E/ 600/ 600SN/ 2000 PBX Administration and Maintenance, Issue 1 (554-010-257).

To administer the DCIU/ SCI hardware on the switch that connects to the 3B2 computer, an experienced switch technician can also refer to one of the following appendices in this document:

Appendix A contains reference material about the SCI link administration for the Generic 3i, Generic 1, System 75, and System 75 XE 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 DCIU link administration for the DIMENSION system switch.

Connecting the 3B2 Computer to the Generic 3i, Generic 1, System 75, or System 75 XE Switch

Use the procedures in this section to connect an ISC port (RS-232C connection) on the 3B2 computer to a Digital Port on the Generic 3i, Generic 1, System 75, or System 75 XE switch.

You can connect the 3B2 computer to the Generic 3i, Generic 1, System 75, or System 75 XE switch by using one of the following methods:

Using a Modular Processor Data Module

Using an Analog Private Line

Using the EIA Connector on the Processor Interface.

Using a Modular Processor Data Module

If this method is used, the maximum allowable distance between the 3B2 computer and the Modular Processor Data Module (MPDM) is 50 feet, and the maximum allowable distance between the MPDM and the Generic 3i, Generic 1, System 75, or System 75 XE is 5000 feet with 24 gauge wire and 4000 feet with 26 gauge wire.

Before you begin, obtain the following parts:

KS-23267 Serial Port Connector Cable (4.5 feet long)

NOTE

If the KS-23267 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 KS-23267 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).

Connecting the 3B2 Computer to an AT&T Switch

To connect the 3B2 computer to a Digital Port on the Generic 3i, Generic 1, System 75, or System 75 XE switch, do the following (refer to Figure 3-1):

- 1 Connect the “**J**” or “**B**” plug end of the KS-23267 cable to the RS-232 connector on the MPDM. (Record the plug end of the KS-23267 cable that you use for later use.)

NOTE

If the KS-23267 cable is not long enough to reach the MPDM, obtain an ED-1E434-11, Group 309 cable to make the connection between the KS-23267 cable and the MPDM.

NOTE

The “**J**” plug end of the KS-23267 cable should have been connected to the ISC board when it was installed on the 3B2 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 into the modular telephone cord jack of the MPDM.

Connect the other end of the D8W-87 cord to the Generic 3i, Generic 1, System 75, or System 75 XE 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.

Connecting the 3B2 Computer to an AT&T Switch

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

- 5 Run a locally engineered cable from the Z100 cross-connect to the Digital Port on the Generic 3i, Generic 1, System 75, or System 75 XE. This cable also requires a modular plug on each end.
- 6 Tell the switch technician to verify that the ACD/ CMS feature on the switch has been administered.

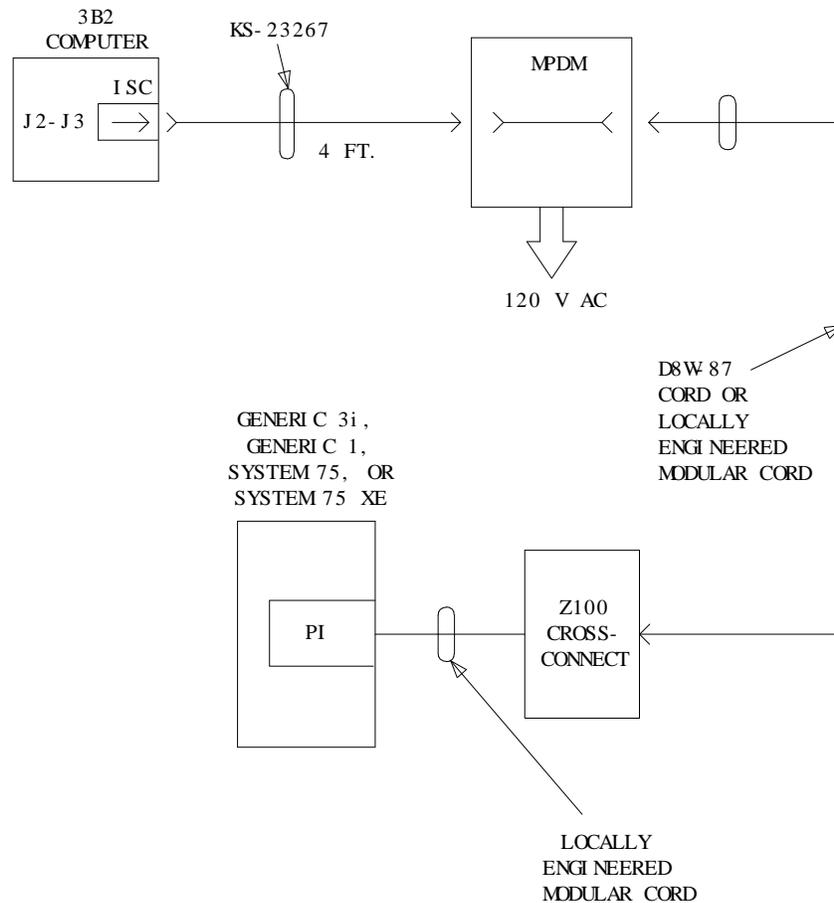


Figure 3 1 3B2 Computer to Generic 3i, Generic 1, System 75, or System 75 XE Cabling With an MPDM

Using an Analog Private Line

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

This section describes how to connect the Generic 3i, Generic 1, System 75, or System 75 XE to an analog private line that connects to a 3B2 computer.

Before you begin, obtain the following parts to connect the 3B2 computer to an analog private line:

KS-23267 Serial Port Connector Cable (4.5 feet long)

NOTE If the KS-23267 and KS-22636 cables are not long enough to reach the DATAPHONE II modem, obtain a ED-1E434-11, Group 309 (RS-232C) cable to make the connection between the KS-23267 and KS-22636 cables.

One 2096C DATAPHONE II Modem

KS-22636 RS-232-C to RS-449 transition adapter

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 standalone replacement unit. This unit must be ordered through the Custom Systems organization via the Custom Systems Automation Program (CSAP).

Also, obtain the following parts to connect the Generic 3i, Generic 1, System 75, or System 75 XE 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 standalone replacement unit. This unit must be ordered through the Custom Systems organization via the Custom Systems Automation Program (CSAP).

Connecting the 3B2 Computer to an AT&T Switch

B25A cable

One 2096C DATAPHONE II Modem

KS-22636 cable

RS-232C cable

One MTDM

D8W-87 cord.

How to Connect the 3B2 Computer to an Analog Private Line

To connect the 3B2 computer to an analog private line, do the following (refer to Figure 3-2):

- 1 Connect the “**J**” or “**B**” plug end of the KS-23267 cable to the receptacle end of the KS-22636 transition cable. Next, connect the plug end of the KS-22636 transition cable to the *EIA Customer Connector* receptacle on the DATAPHONE II modem. (Record the plug end of the KS-23267 cable that you use.)

NOTE

If the KS-23267 and KS-22636 cables are not long enough to reach the DATAPHONE II modem, obtain an ED-1E434-11, Group 309 cable and connect it between the KS-23267 and KS-22636 cables.

NOTE

The “**J**” plug end of the KS-23267 cable should have been connected to the ISC board when it was installed on the 3B2 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 *PI* 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.

Connecting the 3B2 Computer to an AT&T Switch

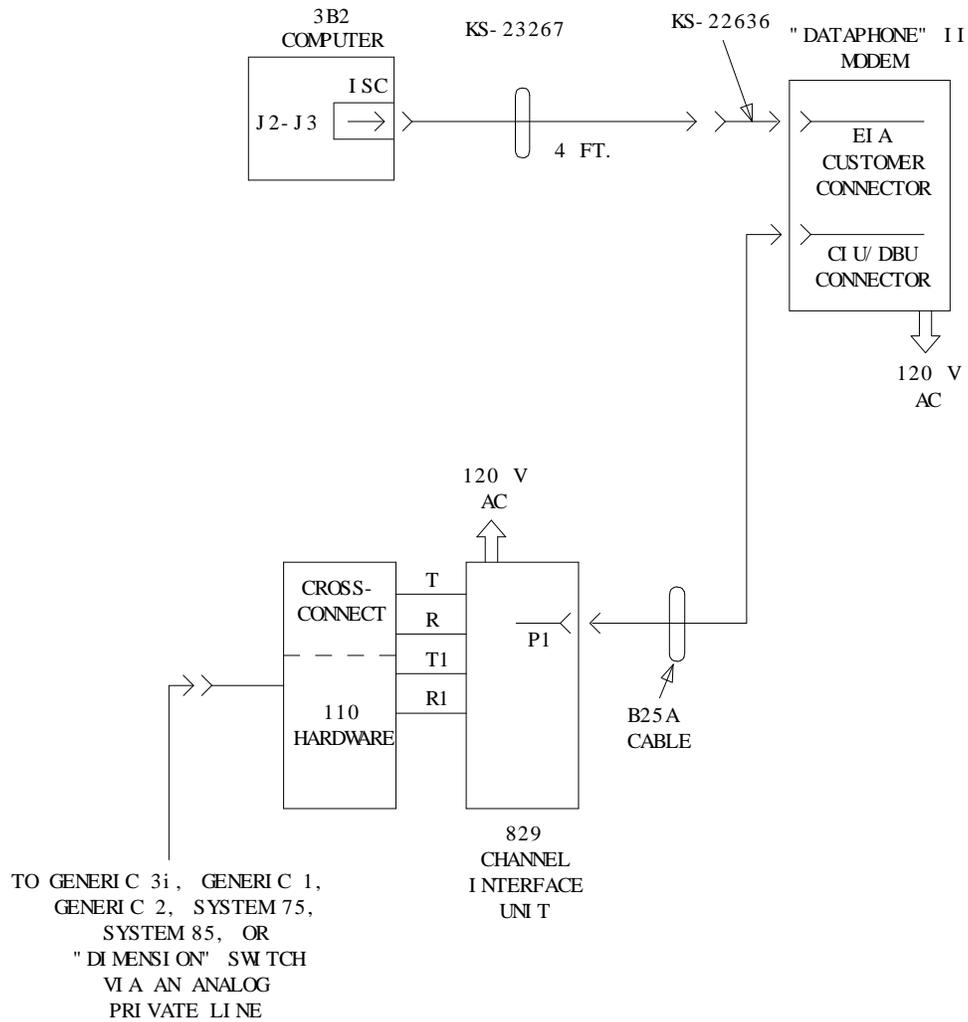


Figure 3 2 3B2 Computer Cabling to an Analog Private Line

How to Connect the Generic 3i, Generic 1, System 75, or System 75 XE to an Analog Private Line

To connect the Generic 3i, Generic 1, System 75, or System 75 XE to an analog private line, do the following (refer to Figure 3-3):

- 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 *PI* 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 KS-22636 cable to the *EIA Customer Connector* receptacle on the DATAPHONE II modem.
- 6 Set the DATAPHONE II modem's timing to internal (INT).
- 7 Connect one of the plug ends of the RS-232C cable to the receptacle end of the KS-22636 cable. Connect the other plug end of the RS-232C cable to the receptacle on the MTDM.
- 8 Set all switches on the MTDM to the OFF position except for the following:
 - SPEED to 9600 bps
 - SYNC
 - SLV
 - SIGLS.
- 9 Connect one end of the D8W-87 modular plug telephone cord into the modular telephone cord jack on the MTDM.

- 10 Connect the other end of the D8W-87 cord to the Generic 3i, Generic 1, System 75, or System 75 XE 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.

- 11 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.

- 12 Run a locally engineered cable from the Z100 cross-connect to the Digital Port on the Generic 3i, Generic 1, System 75, or System 75 XE. This cable also requires a modular plug on each end.
- 13 Tell the switch technician to verify that the ACD/ CMS feature on the switch has been administered.

Connecting the 3B2 Computer to an AT&T Switch

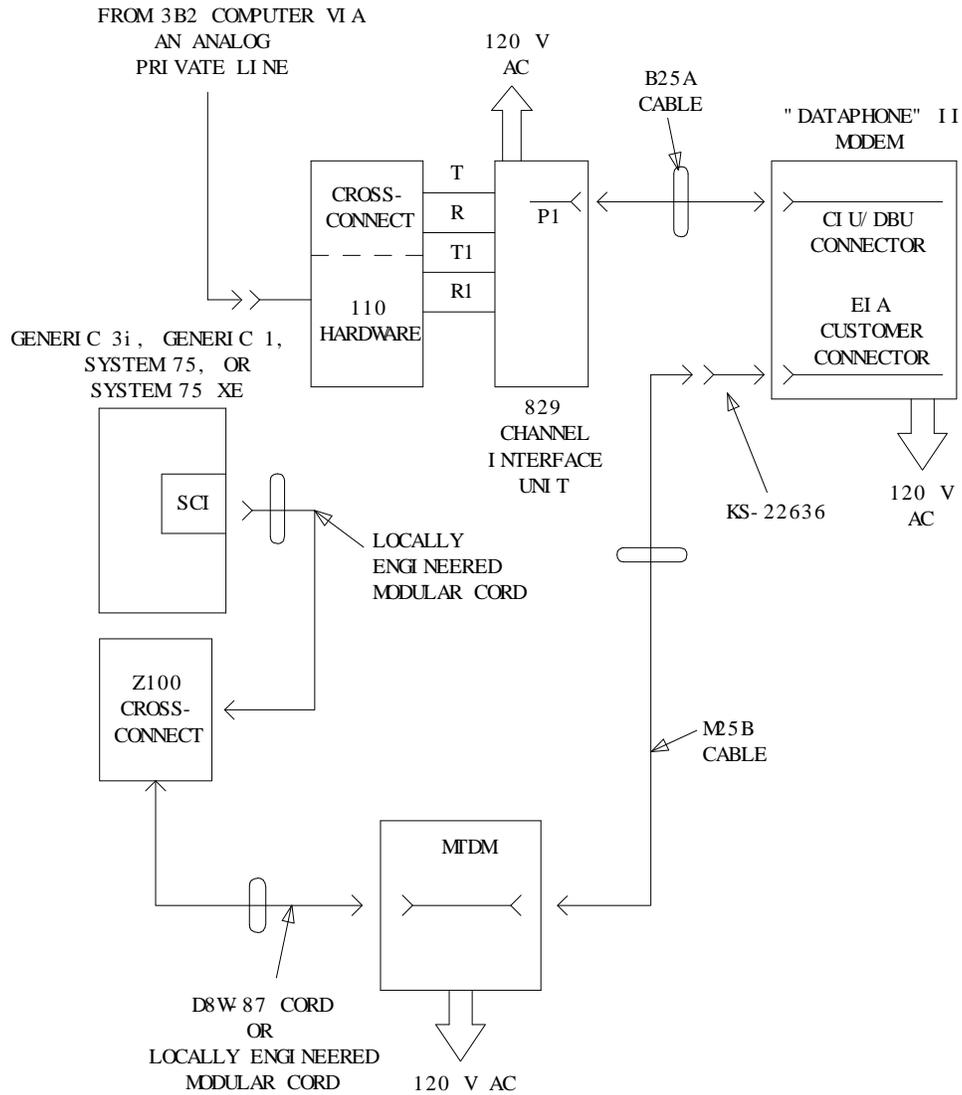


Figure 3 3 Generic 3i, Generic 1, System 75, or System 75 XE Cabling to an Analog Private Line

Using the EIA Connector on the Processor Interface

This section describes the hardware and cables required to connect an ISC RS-232C port on the 3B2 computer to the EIA connector of a Processor Interface on the Generic 3i, Generic 1 or System 75 XE switch.

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

If this method is used, the maximum allowable distance between the 3B2 computer and the Generic 3i, Generic 1, or System 75 XE switch is 50 feet.

NOTE If the Generic 3i, Generic 1, or System 75 XE switch and the 3B2 computer are over 50 feet apart, refer to the section *Connecting the 3B2 Computer to the Generic 3i, Generic 1, System 75, or System 75 XE Switch* for the proper cabling configuration.

Before you begin, obtain the following parts:

KS-23267 Serial Port Connector Cable (4.5 feet long)

ED-1E434-11, Group 175 (RS-232C to RS-449) cable

Isolating Data Interface (IDI)

ED-1E434-11, Group 304 (RS-449) cable

ED-H600-362, Group 1, 2, 3, 4 or 5 (RS-232C to RS-449) cable.

To connect the 3B2 computer to the Processor Interface of a Generic 3i, Generic 1 or System 75 XE switch, do the following (refer to Figure 3-4):

- 1 Connect the “**J**” or “**B**” plug end of the KS-23267 cable to the female end of an ED-1E434-11, Group 175 cable.

NOTE The “**J**” plug end of the KS-23267 cable should have been connected to the ISC board when it was installed on the 3B2 computer.

Connecting the 3B2 Computer to an AT&T Switch

- 2 Connect the male end of the ED-1E434-11 cable to the “**J2**” plug on the Isolating Data Interface unit.
- 3 Connect the male end of the ED-1E434-11, Group 304 cable to the “**J1**” plug 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, Group 1, 2, 3, 4 or 5 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, Group 1, 2, 3, 4 or 5 cable to Link 1 (EIA connector) of the Processor Interface.
- 6 Tell the switch technician to verify that the ACD/ CMS feature on the switch has been administered.

Connecting the 3B2 Computer to an AT&T Switch

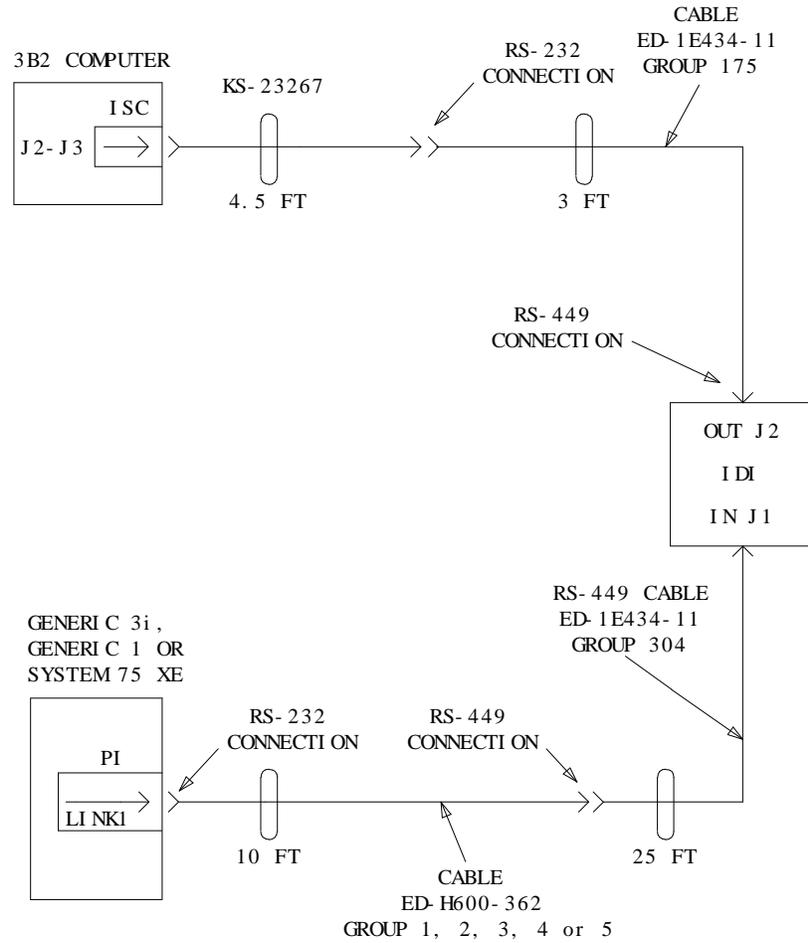


Figure 3 4 3B2 Computer to Generic 3i, Generic 1, or System 75 XE Cabling Via EIA Interface

Connecting the 3B2 Computer to the Generic 2 or System 85 Switch

Use the procedures in this section to connect an ISC port (RS-232C connection) on the 3B2 computer to the Data Communications Interface Unit (DCIU) on the Generic 2 or System 85 Switch.

You can connect the 3B2 computer to the Generic 2 or System 85 switch by using one of the following methods:

Using the Isolating Data Interface

Using Local Data Service Units (DSUs)

Using Remote Data Service Units (DSUs)

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).

Using an Analog Private Line

Using a Dedicated Switch Connection.

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

Using the Isolating Data Interface

For this method, the maximum allowable distance between the 3B2 computer and Generic 2 or System 85 switch is 400 feet.

Before you begin, obtain the following parts:

KS-23267 Serial Port Connector Cable (4.5 feet long)

ED-1E434-11, Group 175 cable (RS-232C to RS-449 transition cable)

Isolating Data Interface (IDI)

ED-1E434-11, Group 304 (RS-449) cable (up to 400 feet long).

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

To connect the 3B2 computer to the DCIU on the Generic 2 or System 85 via an IDI, do the following (refer to Figure 3-5):

- 1 Connect the “**J2**” or “**J3**” plug end of the KS-23267 cable to the receptacle end of an ED-1E434-11, Group 175 cable. (Record the plug end of the KS-23267 cable that you use.) Next, connect the plug end of the ED-1E434-11, Group 175 cable to the **J2 (OUT)** connector on the IDI.

NOTE

The “**J1**” plug end of the KS-23267 cable should have been connected to the ISC board when it was installed on the 3B2 computer.

NOTE

The IDI must be within 10 feet of the 3B2 computer.

- 2 Connect the plug end of the ED-1E434-11, Group 304 cable to the **J1 (IN)** connector on the IDI.

Connecting the 3B2 Computer to an AT&T Switch

NOTE

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

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

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

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

Connecting the 3B2 Computer to an AT&T Switch

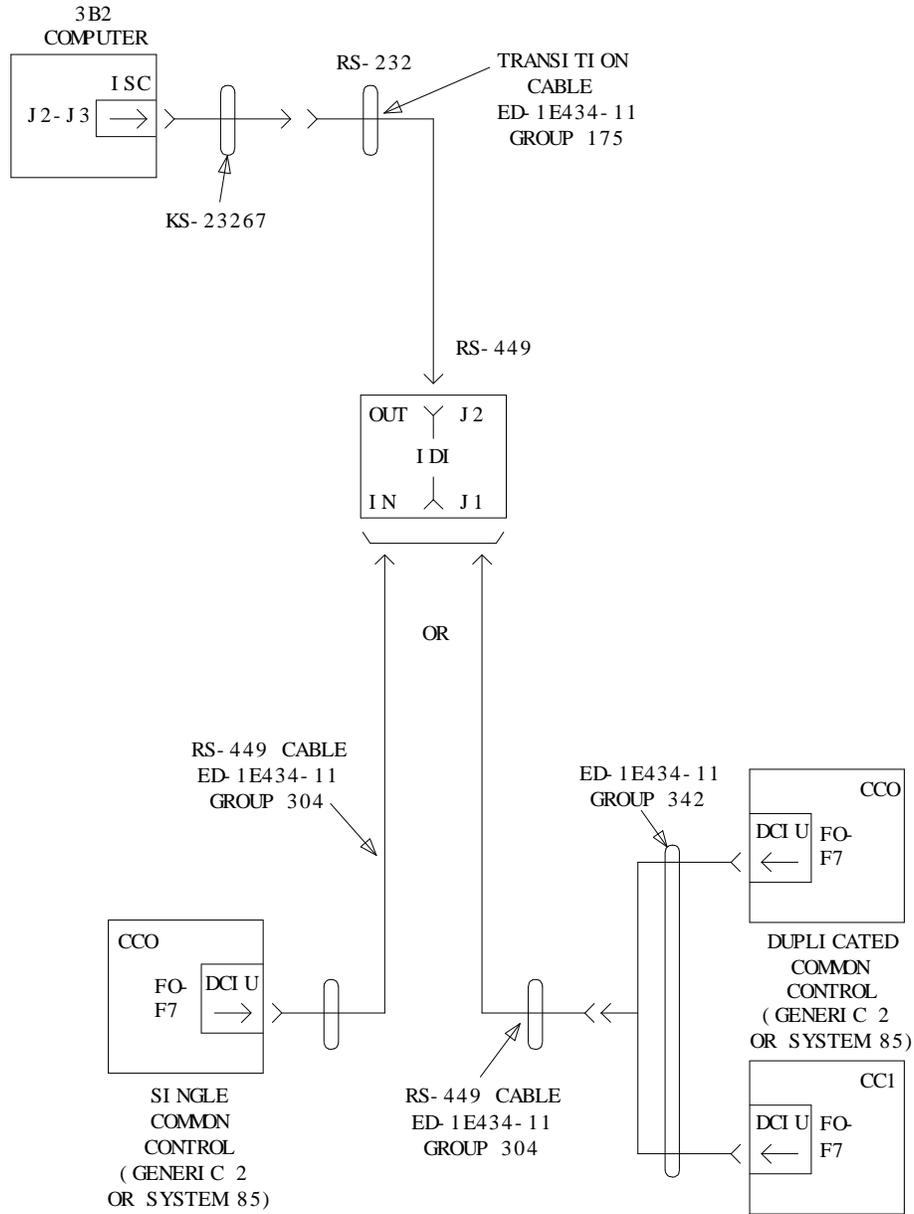


Figure 3 5 3B2 Computer to Generic 2 or System 85 Cabling Via the IDI

Using Local Data Service Units

For this method, the maximum allowable distance between the 3B2 computer and the Generic 2 or System 85 switch is 100 feet.

Before you begin, obtain the following parts:

KS-23267 Serial Port Connector Cable (4.5 feet long)

NOTE

If the KS-23267 cable is not long enough to reach the DSU, obtain an ED-1E434-11, Group 309 cable to make the connection between the KS-23267 cable and the DSU.

Two Data Service Units (DSUs)

One D8W-87 Network Cord (25 feet) — one cord is provided with each DSU

ED-1E434-11, Group 13 transition (RS-449 to RS-232C) cable (3 inches)

ED-1E434-11, Group 304 cable (RS-449) — for single or duplicated common controls

ED-1E434-11, Group 342 Y-cable (9 feet) — for duplicated common controls only.

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

To connect the 3B2 computer to the DCIU on the Generic 2 or System 85, do the following (refer to Figure 3-6):

- 1 Connect the “**J**” or “**B**” plug end of the KS-23267 cable to the receptacle labeled **DTE** on the back of the DSU. (Record the plug end of the KS-23267 cable that you use.)

NOTE

If the KS-23267 cable is not long enough to reach the DSU, obtain an ED-1E434-11, Group 309 cable to make the connection between the KS-23267 cable and the DSU.

Connecting the 3B2 Computer to an AT&T Switch

NOTE

The “**J**” plug end of the KS-23267 cable should have been connected to the ISC board when it was installed on the 3B2 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 DSU that will be used to connect to the switch. Then connect the receptacle end of the Group 13 transition cable to the plug end of the ED-1E434-11, Group 304 cable.

NOTE

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

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

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

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

Connecting the 3B2 Computer to an AT&T Switch

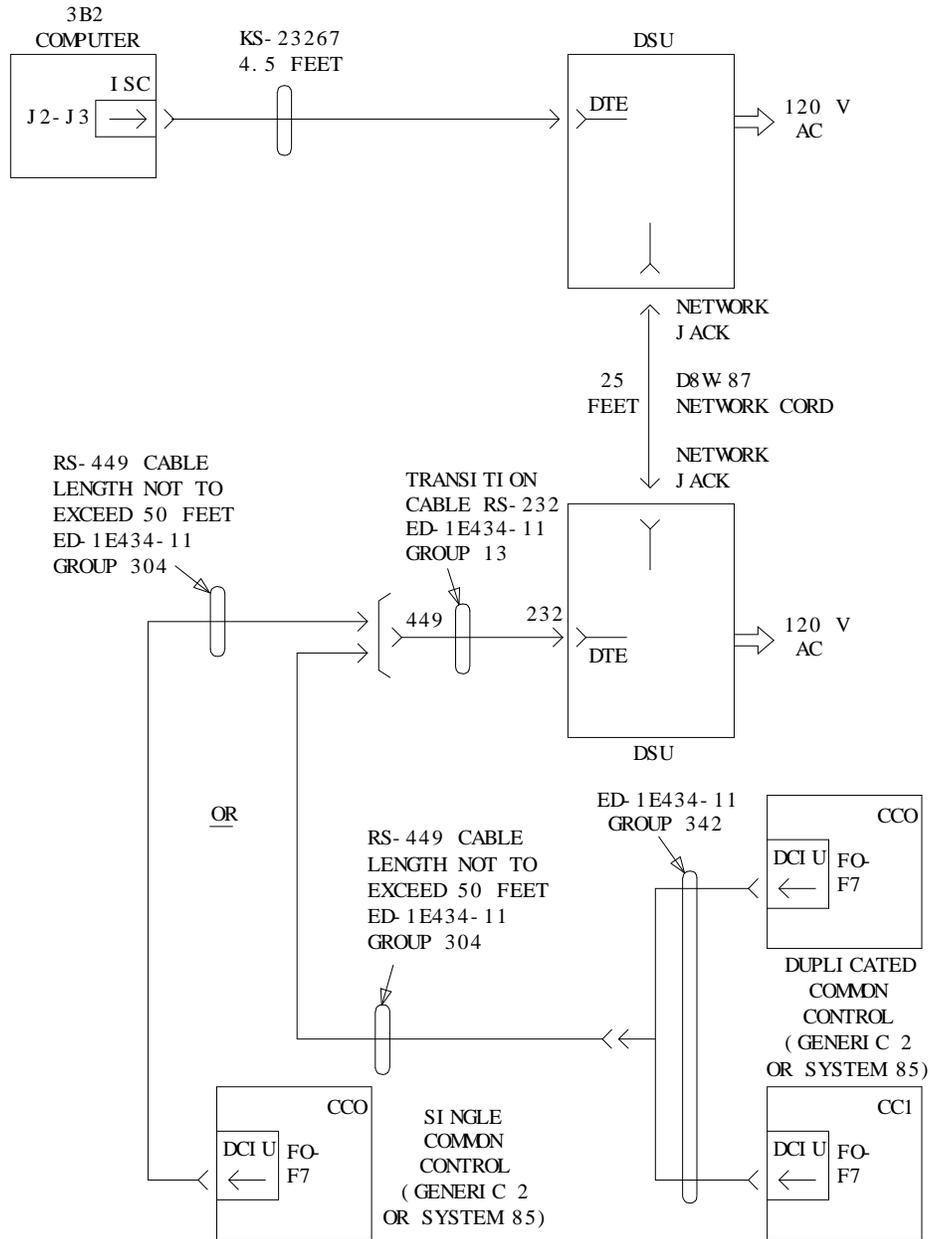


Figure 3 6 3B2 Computer to Generic 2 or System 85 Cabling With Local DSUs

Using Remote Data Service Units

Use this method when the distance between the 3B2 computer and the Generic 2 or System 85 switch is over 100 feet.

Before you begin, obtain the following parts:

KS-23267 Serial Port Connector Cable (4.5 feet long)

NOTE

If the KS-23267 cable is not long enough to reach the DSU, obtain an ED-1E434-11, Group 309 cable to make the connection between the KS-23267 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 3-2 shows the maximum allowable distances between the DSUs based on various wire sizes and a speed of 9.6 kbps.

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

Table 3 2 LADC Ranges

Connecting the 3B2 Computer to an AT&T Switch

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

To connect the 3B2 computer to the DCIU on the Generic 2 or System 85, do the following (refer to Figure 3-7):

- 1 Connect the "J2" or "J3" plug end of the KS-23267 cable to the receptacle labeled **DTE** on the back of the DSU. (Record the plug end of the KS-23267 cable that you use.)

NOTE

If the KS-23267 cable is not long enough to reach the DSU, obtain an ED-1E434-11, Group 309 cable to make the connection between the KS-23267 cable and the DSU.

NOTE

The "J1" plug end of the KS-23267 cable should have been connected to the ISC board when it was installed on the 3B2 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 3B2 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 **J1** on the DSU that will be connected to the switch. Then connect the receptacle end of the Group 13 transition cable to the plug end of the ED-1E434-11, Group 304 cable.

NOTE

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

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

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

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

Connecting the 3B2 Computer to an AT&T Switch

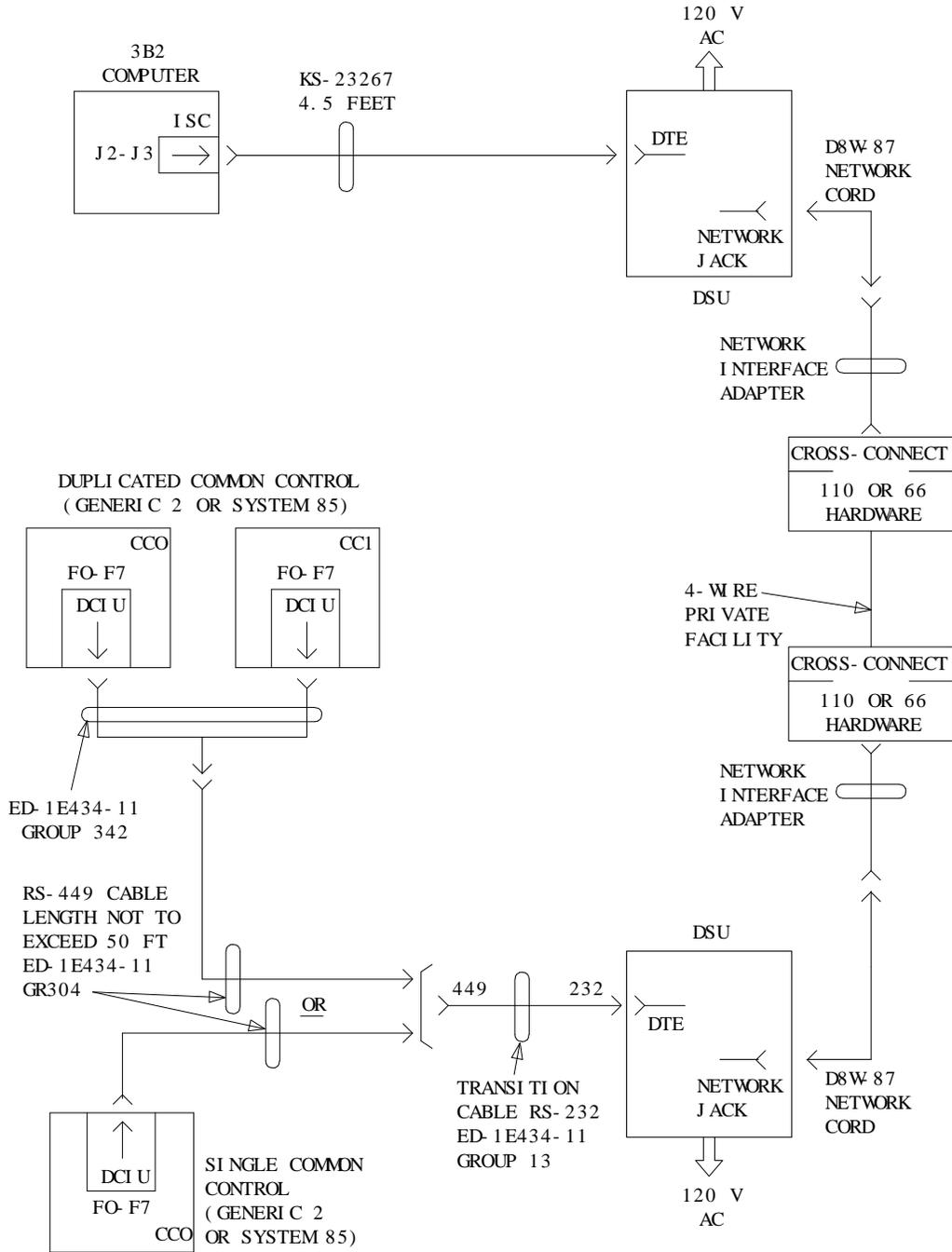


Figure 3 7 3B2 Computer to Generic 2 or System 85 Cabling With Remote DSUs

Using an Analog Private Line

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

NOTE

To connect the 3B2 computer to an analog private line, refer to the previous section in this chapter entitled *How to Connect the 3B2 Computer to an Analog Private Line*.

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

ED-1E434-11, Group 304 (RS-449) 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 standalone replacement unit. This unit must be ordered through the Custom Systems organization via the Custom Systems Automation Program (CSAP).

Connecting the 3B2 Computer to an AT&T Switch

To connect the Generic 2 or System 85 to an analog private line, do the following (refer to Figure 3-8):

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

Connecting the 3B2 Computer to an AT&T Switch

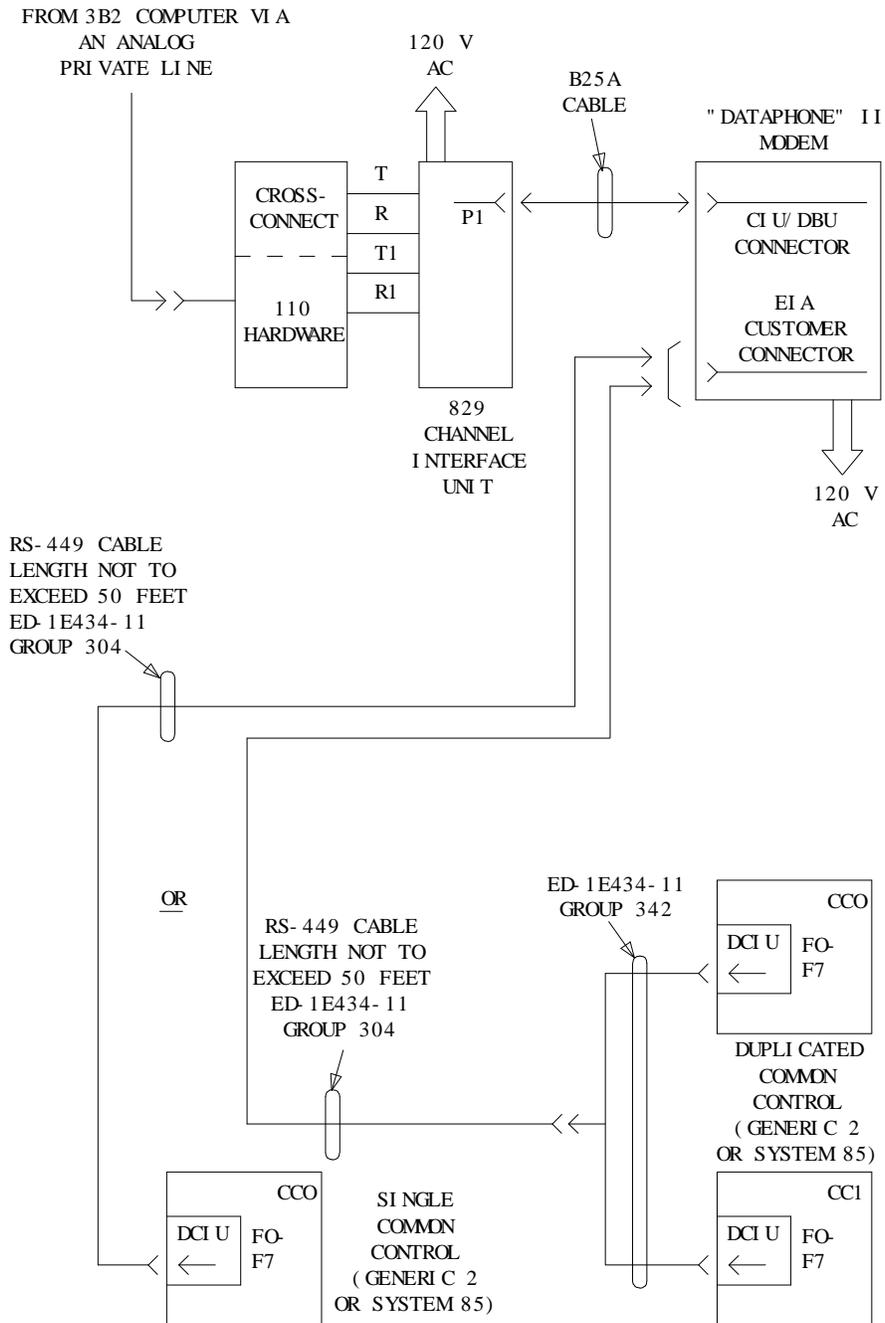


Figure 3 8 Generic 2 or System 85 Cabling to an Analog Private Line

Using a Dedicated Switch Connection

For this method, the maximum allowable distance between the 3B2 computer and the Modular Processor Data Module (MPDM) is 50 feet, and the maximum allowable distance between the MPDM and the Generic 2 or System 85 switch is 5000 feet with 24 gauge wire and 4000 feet with 26 gauge wire.

Before you begin, obtain the following parts to connect the 3B2 computer to the Generic 2 or System 85 switch:

KS-23267 Serial Port Connector Cable (4.5 feet long)

Two Modular Processor Data Modules (MPDMs)

Two D8W-87 Network Cords

ED-1E434-11, Group 13 transition (RS-449 to RS232) cable (3 inches)

For Single Common Control:

- ED-1E434-11, Group 304 (RS-449) cable (50 feet)

For Duplicated Common Controls:

- ED-1E434-11, Group 304 (RS-449) cable (50 feet)
- ED-1E434-11, Group 342 Y-cable

Connecting the 3B2 Computer to an AT&T Switch

To connect the 3B2 computer to the DCIU on the Generic 2 or System 85 configured as a Dedicated Switch Connection, do the following (refer to Figures 3-9 and 3-10):

- 1 Connect the “**J2**” or “**J3**” plug end of the KS-23267 cable to the RS-232 connector on the MPDM. (Record the plug end of the KS-23267 cable that you use for later use.)

NOTE

If the KS-23267 cable is not long enough to reach the MPDM, obtain an ED-1E434-11, Group 309 cable to make the connection between the KS-23267 cable and the MPDM (maximum distance of 50 feet).

NOTE

The “**J1**” plug end of the KS-23267 cable should have been connected to the ISC board when it was installed on the 3B2 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 the D8W-87 modular plug telephone cord into the modular telephone cord jack of the MPDM.
- 4 Connect the D8W-87 cord into a port on the General Purpose Ports (GPP) board on the Generic 2 or System 85.

NOTE

This connection may require a 4-wire modular phone connector to properly connect to the GPP on the Generic 2 or System 85.

- 5 Plug the MPDM into a 120 volt ac power source.

Connecting the 3B2 Computer to an AT&T Switch

- 6 A locally engineered connection from the DS1/ AVD Interface of one switch to the DS1/ AVD Interface on the connecting switch should have already been established.
- 7 Connect one end of a D8W-87 modular plug telephone cord into a port on the General Purpose Ports (GPP) board on the Generic 2 or System 85.

NOTE

This connection may require a 4-wire modular phone connector to properly connect to the GPP on the Generic 2 or System 85.

- 8 Connect the other end of the D8W-87 modular plug telephone cord into the modular telephone cord jack of the MPDM.
- 9 Set all switches on the second MPDM to the OFF position except for the following:

SPEED to 9600 bps

SYNC

INT

SIGLS

AANS.

- 10 Plug the MPDM into a 120 volt ac power source.
- 11 Connect the male end of the ED-1E434-11, Group 13 cord to the MPDM.
- 12 Connect the female end of the ED-1E434-11, Group 13 cable to the male end of the ED-1E434-11, Group 304 cable.

NOTE

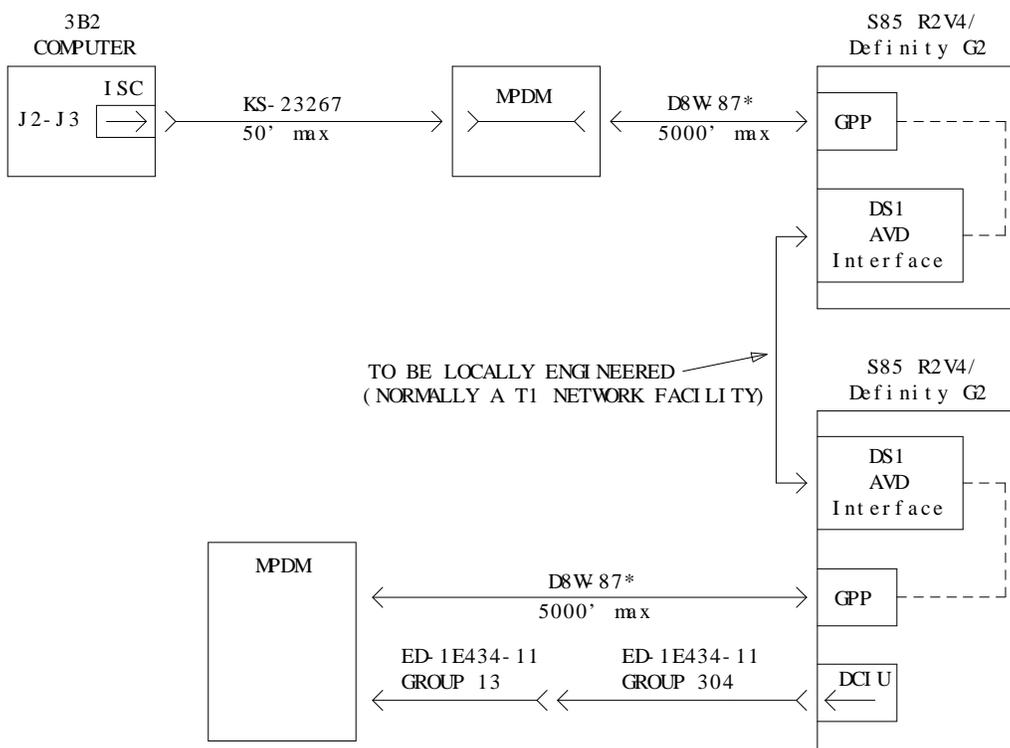
In the next step, the switch technician should make the final connection to the DCIU port.

Connecting the 3B2 Computer to an AT&T Switch

- 13 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 F1 through F8. 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 F1 through F8. 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.

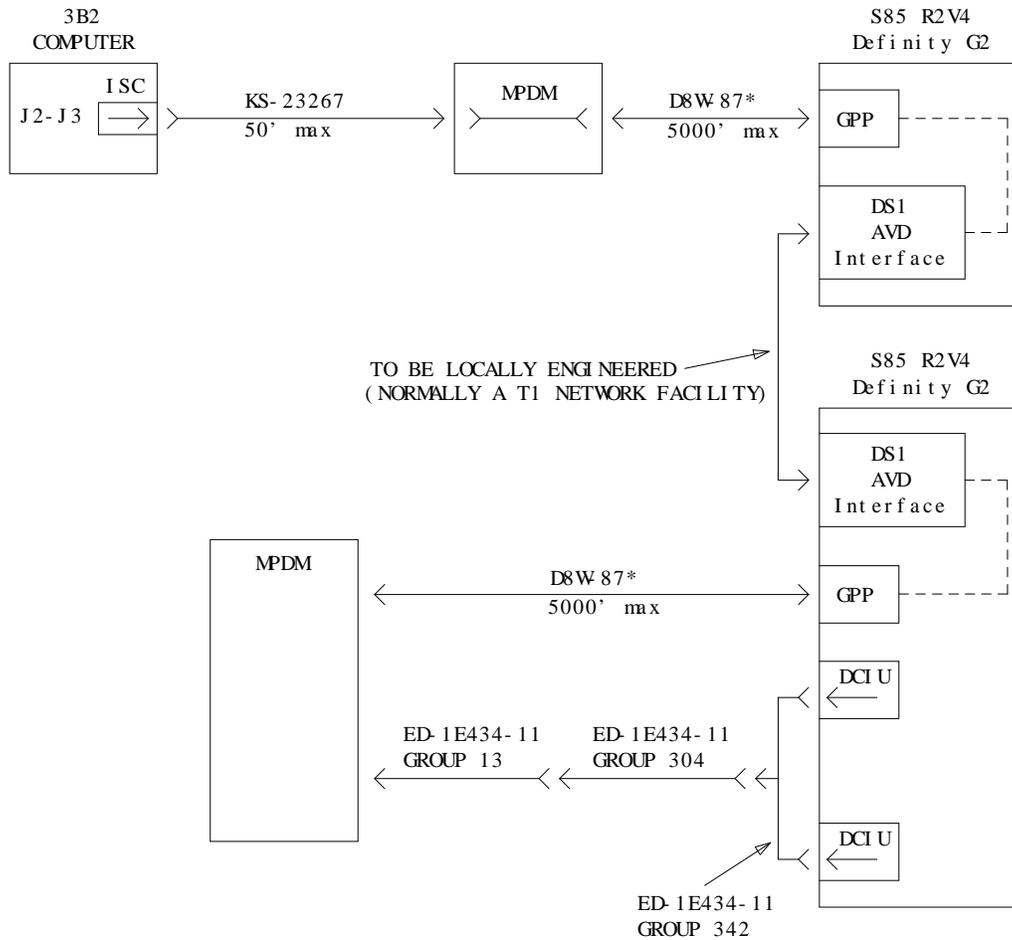
- 14 Tell the switch technician to verify that the ACD/ CMS feature on the switch has been administered.



* D8W 87 CORD OR LOCALLY ENGINEERED MODULAR CORD

Figure 3 9 Generic 2 or System 85 Cabling via Dedicated Switch Connection

Connecting the 3B2 Computer to an AT&T Switch



* D8W 87 CORD OR LOCALLY ENGINEERED MODULAR CORD

Figure 3 10 Generic 2 or System 85 Cabling via Dedicated Switch Connection (Duplicated Common Control)

Connecting the 3B2 Computer to the DIMENSION System Switch

Use the procedures in this section to connect an ISC port (RS-232C connection) on the 3B2 computer to the Data Communications Interface Unit (DCIU) on the DIMENSION System switch.

You can connect the 3B2 computer to the DIMENSION System switch by using one of the following methods:

Using Local Data Service Units (DSUs)

Using Remote Data Service Units (DSUs)

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).

Using an Analog Private Line.

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

Connecting the 3B2 Computer to an AT&T Switch

DIMENSION/DSU Specific Cabling

When connecting the 3B2 computer to a DIMENSION switch using a Data Service Unit (DSU), pins 8 and 20 must be tied together. This connection is illustrated in Figure 3-11.

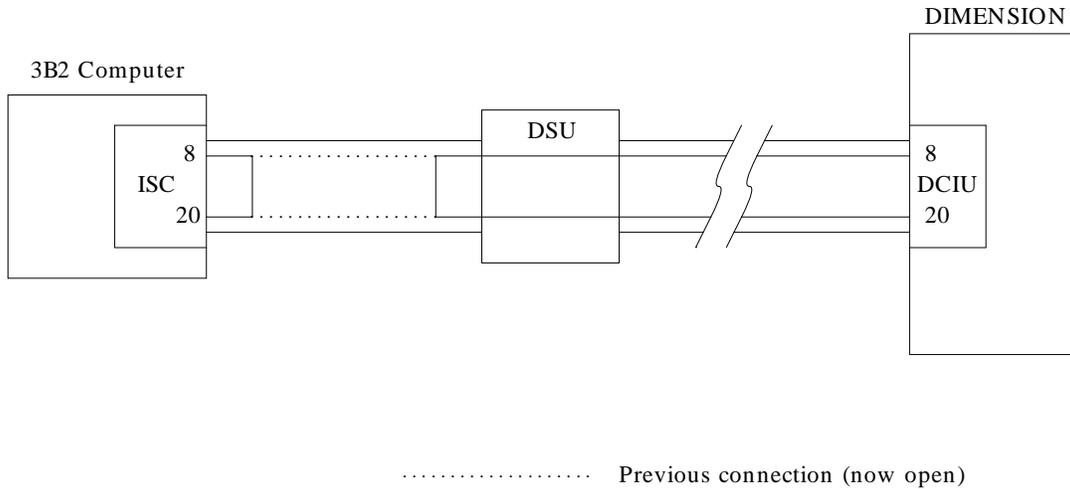


Figure 3 11 DIMENSION/DSU Cabling with Pins 8 and 20 Tied Together

Using Local Data Service Units

For this method, the maximum allowable distance between the 3B2 computer and the DIMENSION System switch is 100 feet.

Before you begin, obtain the following parts:

KS-23267 Serial Port Connector Cable (4.5 feet long)

NOTE

If the KS-23267 cable is not long enough to reach the DSU, obtain an ED-1E434-11, Group 309 (RS-232C) cable to make the connection between the KS-23267 cable and the DSU.

Two Data Service Units (DSUs)

One D8W-87 Network Cord (25 feet) — one cord is provided with each DSU

ED-1E367-11, Group 970 transition (RS-449 to RS-232C) cable (3 inches)

For Single Common Control:

- ED-1E367-11, Group 971 (17 feet), 972 (30 feet), or 973 (50 feet) cable (RS-449)

For Duplicated Common Controls:

- ED-1E367-11, Group 974 (8 feet), 975 (21 feet), or 976 (41 feet) cable (RS449)
- ED-1E367-11, Group 978 Y-cable (9 feet).

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

To connect the 3B2 computer to the DCIU on the DIMENSION System switch, do the following (refer to Figure 3-12):

- 1 Connect the “**J**” or “**B**” plug end of the KS-23267 cable to the receptacle labeled **DTE** on the back of the DSU. (Record the plug end of the KS-23267 cable that you use.)

Connecting the 3B2 Computer to an AT&T Switch

NOTE If the KS-23267 cable is not long enough to reach the DSU, obtain an ED-1E434-11, Group 309 cable to make the connection between the KS-23267 cable and the DSU.

NOTE The “**J1**” plug end of the KS-23267 cable should have been connected to the ISC board when it was installed on the 3B2 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 ED-1E367-11, Group 970 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 970 transition cable to the plug end of an ED-1E367-11, Group 974, 975, or 976 cable (duplicated common control) or an ED-1E367-11, Group 971, 972, or 973 cable (single common control).

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

- 5 If the DIMENSION System switch is equipped with single common control, connect the receptacle end of the Group 971, 972, or 973 cable to the single common control at ports F1 through F4. Record the port number that you use because it will be needed during switch administration.

If the DIMENSION System switch is equipped with duplicated common controls, connect the receptacle end of the Group 974, 975, or 976 cable to the ED-1E367-11, Group 978 Y-cable. Connect the ends of the Group 978 cable to the duplicated common controls at ports F1 through F4. 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.

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

Connecting the 3B2 Computer to an AT&T Switch

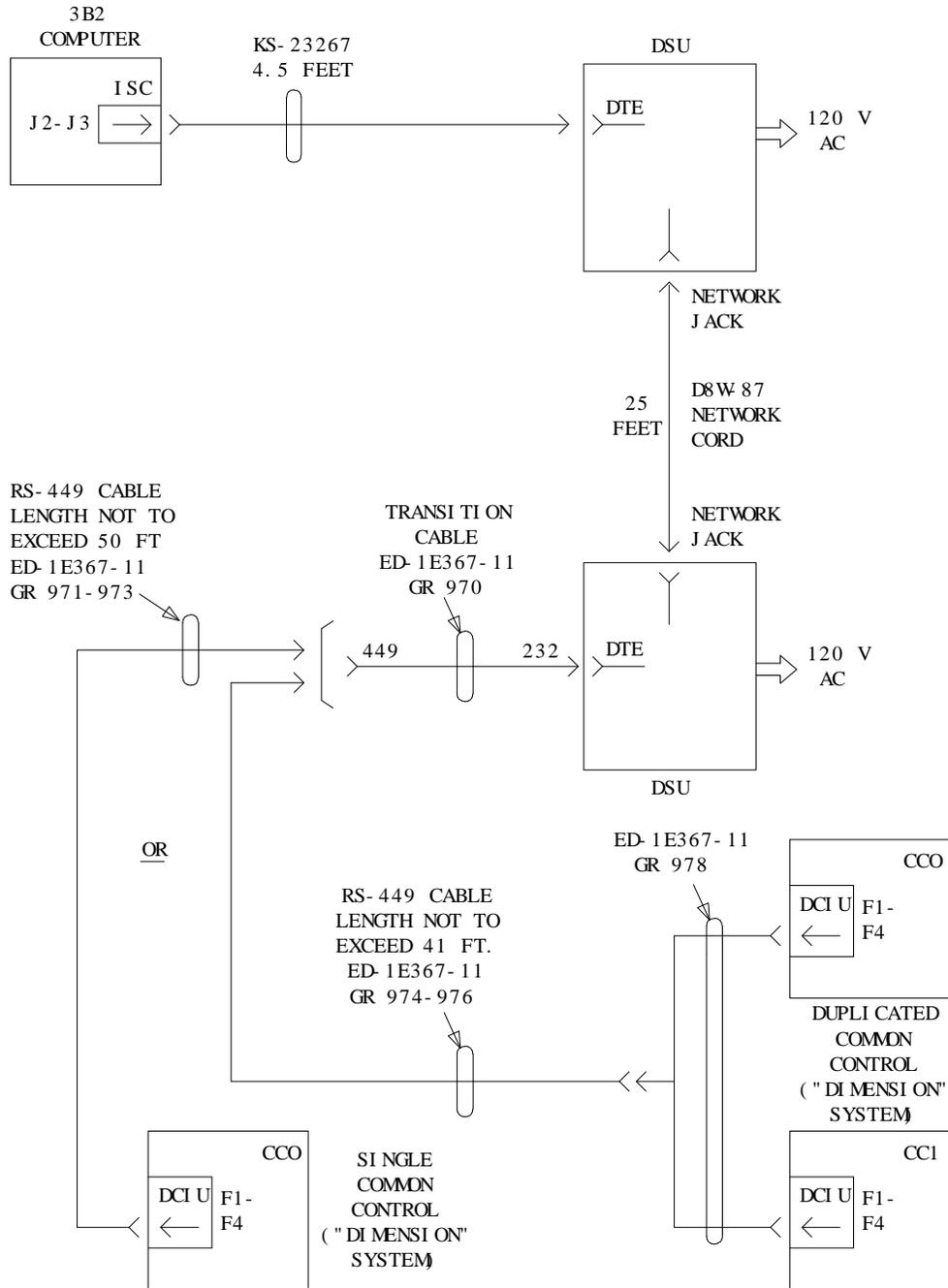


Figure 3 12 3B2 Computer to DIMENSION System Switch Cabling With Local DSUs

Using Remote Data Service Units

Use this method when the distance between the 3B2 computer and the DIMENSION System switch is over 100 feet.

Before you begin, obtain the following parts:

KS-23267 Serial Port Connector Cable (4.5 feet long)

NOTE

If the KS-23267 cable is not long enough to reach the DSU, obtain an ED-1E434-11, Group 309 (RS-232C) cable to make the connection between the KS-23267 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-1E367-11, Group 970 transition (RS-449 to RS-232C) cable (3 inches)

For Single Common Control:

- ED-1E367-11, Group 971 (17 feet), 972 (30 feet), or 973 (50 feet) cable (RS-449)

For Duplicated Common Controls:

- ED-1E367-11, Group 974 (8 feet), 975 (21 feet), or 976 (41 feet) cable (RS449)
- ED-1E367-11, Group 978 Y-cable (9 feet)

110- or 66-type cross-connect hardware

4-wire nonloaded metallic lines (LADC equivalent) (lengths as needed).

Refer to Table 3-2 for the maximum allowable distances between the DSUs based on various wire sizes and a speed of 9.6 kbps.

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

To connect the 3B2 computer to the DCIU on the DIMENSION System switch, do the following (refer to Figure 3-13):

- 1 Connect the “**J**” or “**B**” plug end of the KS-23267 cable to the receptacle labeled **DTE** on the back of the DSU. (Record the plug end of the KS-23267 cable that you use.)

NOTE

If the KS-23267 cable is not long enough to reach the DSU, obtain an ED-1E434-11, Group 309 cable to make the connection between the KS-23267 cable and the DSU.

NOTE

The “**J**” plug end of the KS-23267 cable should have been connected to the ISC board when it was installed on the 3B2 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 3B2 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 ED-1E367-11, Group 970 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 970 transition cable to the plug end of an ED-1E367-11, Group 974, 975, or 976 cable (duplicated common control) or an ED-1E367-11, Group 971, 972, or 973 cable (single common control).

Connecting the 3B2 Computer to an AT&T Switch

NOTE

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

- 12 If the DIMENSION System switch is equipped with single common control, connect the receptacle end of the Group 971, 972, or 973 cable to the single common control at ports F1 through F4. Record the port number that you use because it will be needed during switch administration.

If the DIMENSION System switch is equipped with duplicated common controls, connect the receptacle end of the Group 974, 975, or 976 cable to the ED-1E367-11, Group 978 Y-cable. Connect the ends of the Group 978 cable to the duplicated common controls at ports F1 through F4. 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.

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

Connecting the 3B2 Computer to an AT&T Switch

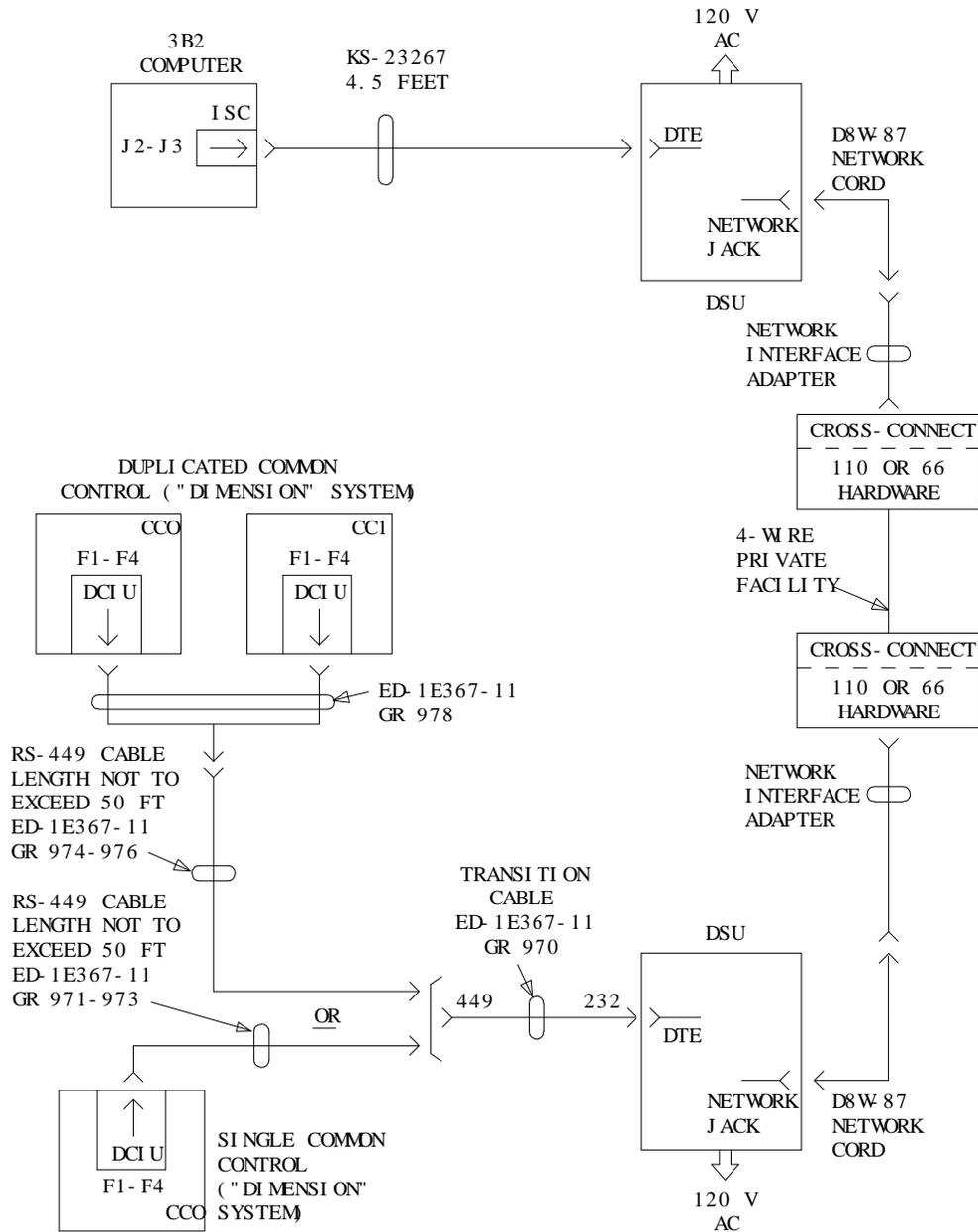


Figure 3 13 3B2 Computer to DIMENSION System Switch Cabling With Remote DSUs

Using an Analog Private Line

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

This section describes how to connect the DIMENSION System switch to an analog private line that connects to a 3B2 computer.

NOTE

To connect the 3B2 computer to an analog private line, refer to the previous section in this chapter entitled *How to Connect the 3B2 Computer to an Analog Private Line*.

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

For Single Common Control:

- ED-1E434-11, Group 971 (17 feet), 972 (30 feet), or 973 (50 feet) cable (RS-449)

For Duplicated Common Controls:

- ED-1E434-11, Group 974 (8 feet), 975 (21 feet), or 976 (41 feet) cable (RS-449)
- ED-1E434-11, Group 978 Y-cable (9 feet)

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 standalone replacement unit. This unit must be ordered through the Custom Systems organization via the Custom Systems Automation Program (CSAP).

110-type cross-connect hardware.

To connect the DIMENSION System switch to an analog private line, do the following (refer to Figure 3-14):

- 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 the *PI* receptacle on the 829 channel interface unit.
- 4 Plug the DATAPHONE II modem into a 120 volt ac power source.

NOTE

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

- 5 If the DIMENSION System switch is equipped with single common control, connect the plug end of an ED-1E367-11, Group 971, 972, or 973 cable to the *EIA Customer Connector* receptacle on the DATAPHONE II modem. Connect the receptacle end of the Group 971, 972, or 973 cable to the single common control at ports F1 through F4. Record the port number that you use because it will be needed during switch administration.

If the DIMENSION System switch is equipped with duplicated common controls, connect the plug end of an ED-1E367-11, Group 974, 975, or 976 cable to the *EIA Customer Connector* receptacle on the DATAPHONE II modem. Connect the receptacle end of the Group 974, 975, or 976 cable to the plug end of the ED-1E367-11, Group 978 Y-cable. Connect the receptacle ends of the Group 978 Y-cable to the duplicated common controls at ports F1 through F4. You must select the same ports on both common controls. Record the port number that you use because it will be needed during switch administration.

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

Connecting the 3B2 Computer to an AT&T Switch

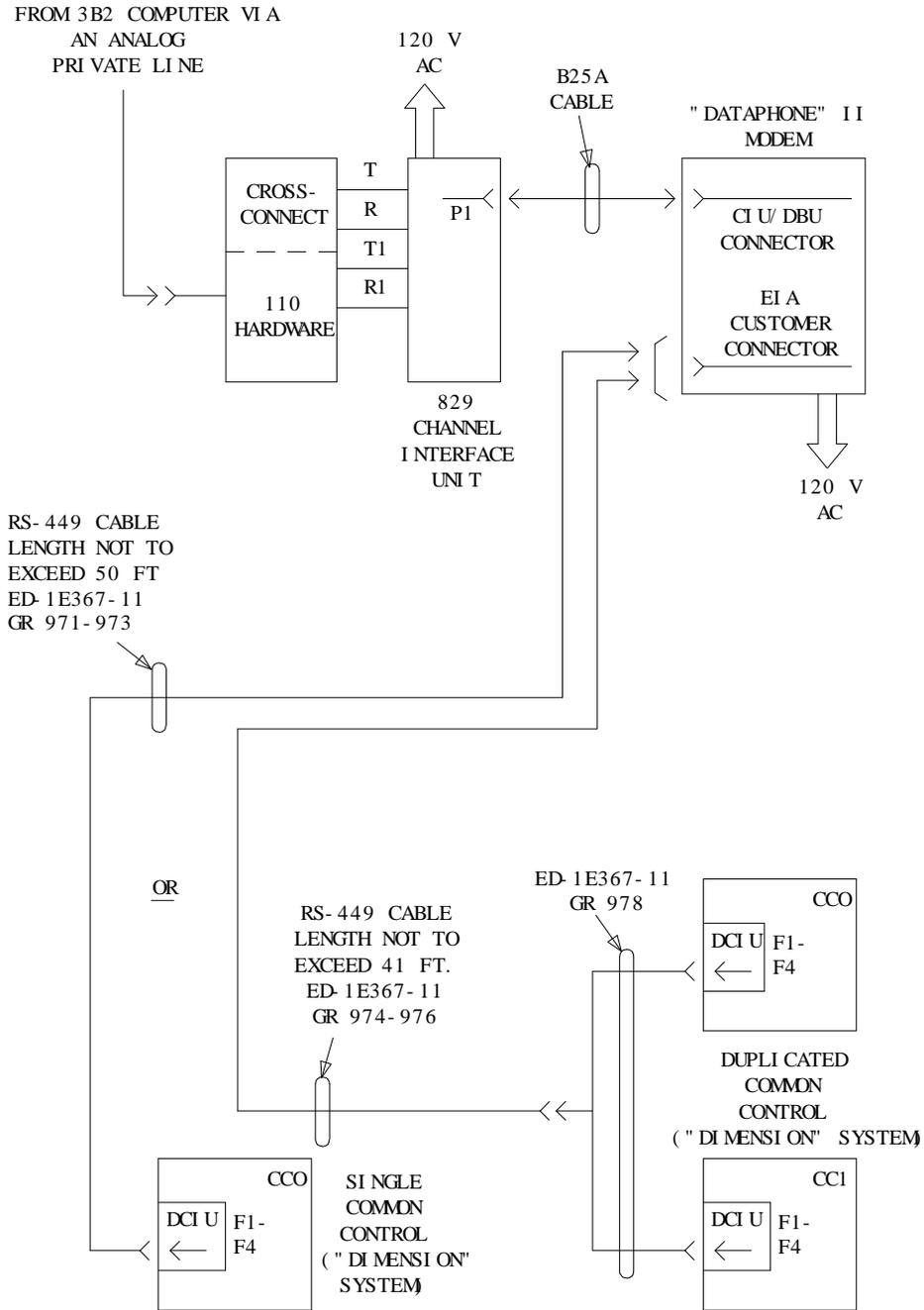


Figure 3 14 DIMENSION System Switch Cabling to an Analog Private Line

Connecting the 3B2 Computer to the Technical Support Center

The Remote Management feature provided by the Alarm Interface Circuit (AIC), which is required, provides 2-way communication between the 3B2 CMS at the customer site and the TSC. Communication takes place on a dedicated phone line provided by the customer.

NOTE This phone line is paid for by the customer.

From the TSC, highly skilled engineers can install, upgrade, maintain, and troubleshoot the 3B2 CMS software at the customer site. During remote installations and upgrades of the software, an on-site technician must be present to install the physical medium (floppy disk or tape) that contains the software.

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

If the Silent Knight Autodialer is part of the hardware configuration, you will have to program it with both a phone number, obtained from the TSC, and a customer account number while doing the procedures in this section. To get these numbers for your installation, call the Technical Support Center (TSC) at 1-800-248-1111 and request an alarm-reporting phone number and an account number for your installation. If you have any problems getting the phone number and account number, contact the System Consultant for your location.

Before you do the procedures in this section, obtain the following parts to connect the 3B2 computer to the TSC:

One 3B2 Modular Cord (2 feet long) — This cord is included with the Remote Management Package.

Two 3B2 Modular Cords (7 to 50 feet long)

One Male Terminal/ Printer Adapter (PEC 2750-C09)

One Male Modem Adapter (PEC 2750-C10)

One 4024 Modem (PEC 2224-CE0)

Connecting the 3B2 Computer to the Technical Support Center

One M4AU Cable (PEC 2721-04G or 2721-04S)

One M4AS Cable (PEC 2721-03G or 2721-03S) — Optional

Silent Knight Autodialer (PEC 94273) — Optional.

If the 3B2 computer has an optional Uninterruptible Power Supply (UPS), obtain the following additional parts:

One D6AP-87 Cable (PEC 2725-06N or 2725-06S)

One Male Terminal/ Printer Adapter (PEC 2750-C09).

To connect the 3B2 computer to the TSC, do the following (refer to Figure 3-15).

NOTE

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

- 1 Power down the 3B2 computer. (Refer to the *Owner/ Operator Manual* that came with the computer for instructions.)
- 2 Set the 4024 modem options by doing the following:
 - a Connect the console terminal to the 25-pin connector on the 4024 modem by using a M25B cable or by using a D8W 4-pair modular cable connected between two ACU modem adapters.
 - b Set all switches on the modem to the DOWN position except for Switch 6 which must be in the UP position.
 - c Administer the following options on the terminal: Speed = 1200, Send Parity = space.

Connecting the 3B2 Computer to the Technical Support Center

d At the console terminal, enter the following:

o12=y
o33=y

- e Change Switches 1, 3, and 7 on the modem to the UP position.
- f Press the reset switch on the modem.
- g Connect the console terminal and 4024 modem as documented in the following steps.

- 3 Connect one end of a 3B2 modular cable (2 feet long) to the CONSOLE port located at the back of the 3B2 computer. Connect the other end of the cable to the CONS port on the AIC circuit board.
- 4 Connect one end of a 3B2 modular cable (7 to 50 feet long) to the TRM2 (TERM2) port on the AIC circuit board. Connect the other end of the modular cable into the modular receptacle of a Male Terminal/ Printer adapter. Connect the other end of the Male Terminal/ Printer adapter to the MODEM port located at the back of the console terminal.

NOTE

If the local console terminal is mistakenly connected to TRM1 (TERM1) and the remote console terminal is connected to TRM2 (TERM2), the remote console can only transmit to the console port *when* the local console terminal is powered OFF (turned OFF). In addition, the remote console terminal will only be able to monitor the output from the console port when the local console terminal is powered ON.

- 5 Connect one end of a 3B2 modular cable (7 to 50 feet long) to the TRM1 (TERM1) port on the AIC circuit board. Connect the other end of the modular cable into the modular receptacle of a Male Modem Adapter. Connect the other end of the Male Modem Adapter to the 4024 modem.
- 6 Unlock and open the lid to the Silent Knight Autodialer.

Connecting the 3B2 Computer to the Technical Support Center

- 7 Connect one end of a M4AU modular cable to the 4024 modem. At the other end of the cable, connect the BL2W wire (pin 8) to Terminal 15 (ring) on the Silent Knight Autodialer circuit board, and connect the BL1W wire (pin 7) to Terminal 16 (tip).

NOTE

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

- 8 Connect one end of the M4AS cable to the ALM port on the AIC circuit board. At the other end of the cable, connect ALM pin 1 (black wire) and ALM pin 3 (green wire) to Terminal 11 on the Silent Knight Autodialer circuit board, connect ALM pin 2 (red wire) to Terminal 9, and connect ALM pin 4 (yellow wire) to Terminal 3.
- 9 Connect Terminal 13 (ring) and Terminal 14 (tip) on the Silent Knight Autodialer circuit board to the incoming telephone line. When a phone number is assigned at the central office to the incoming telephone line, report the phone number to the TSC.
- 10 Connect the red (positive) and black (negative) leads from the circuit board to the 6-volt battery.
- 11 On the Silent Knight Autodialer circuit board:

Terminal 3 should be jumped to Terminal 4 with a Group 32 wire (shorting wire)

Terminal 6 should be connected to Terminal 11 with a 15K ohm resistor

Terminal 9 should be jumped to Terminal 10 with a Group 32 wire (shorting wire)

The transformer that comes with the Silent Knight Autodialer should be connected to Terminals 1 and 2

Cut jumper 4.

- 12 While the Silent Knight Autodialer circuit board is exposed, go ahead and program it with the alarm-reporting phone number, assigned by the TSC, and with the customer's account number. Refer to the next section, *Programming the Silent Knight Autodialer*, if you need instructions.
- 13 Plug the transformer into a 120 V ac outlet.

Connecting the 3B2 Computer to the Technical Support Center

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

NOTE

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

- 15 Close the lid to the Silent Knight Autodialer and lock it. Remove the autodialer key and have the CMS administrator store it in a safe place.
- 16 If the 3B2 has an optional Uninterruptible Power Supply (UPS), connect one end of a D6AP-87 cable to the UPS port on the AIC circuit board. Connect the other end of the cable to the modular connector of an adapter (see Figure 3-15), and connect the other end of the adapter to the UPS. Plug the power cord of the 3B2 computer into the UPS. Plug the power cord of the UPS into a 120 V ac outlet. Turn the power to the UPS to ON.

NOTE

Two models of the UPS are now supported. Both models use an adapter (as shown in Figure 3-15) to connect to the UPS port on the AIC board via the D6AP-87 cable.

If the UPS has a model number of **010c111** on the back of the unit, the adapter is a Terminal/ Printer Adapter. Also, this unit is approximately 20 inches in height.

If the UPS has a model number of **1KVA/ e100t110** on the side of the unit, contact the TSC for information about which adapter to use. Also, this unit is approximately 14 inches in height.

- 17 Turn the power to the 3B2 computer to ON.

Programming the Silent Knight Autodialer

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

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

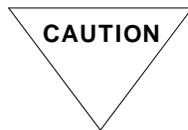
NOTE

Important: The telephone number must contain no less than 3 and no more than 13 digits. When it contains more than seven digits, you must start with the first digit in column A. Use row S to denote unused digits. Each screw in row S provides a 0.8-second delay during dialing. Turn the screws until their heads rest securely against the surface of the board.

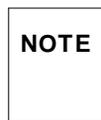
- 4 Close the lid to the Silent Knight Autodialer and lock it.
- 5 Restore power by plugging the unit back into its ac power source.
- 6 Remove the autodialer key and tell the CMS administrator to store it in a safe place.

General Information

This chapter contains the software preinstallation requirements that you must do before an engineer at the Technical Support Center (TSC) can install the 3B2 CMS software.



The procedures in this chapter will destroy all data currently residing on the hard disk system.



The procedures in this chapter should **only** be used for a 3B2 CMS installation that includes a new 3B2/ 310, 3B2/ 400, 3B2/ 500, 3B2/ 522, 3B2/ 600 or 3B2/ 1000 Model 70 computer with the Intelligent Serial Controller (ISC) and Alarm Interface Circuit (AIC) boards already installed.

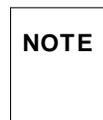
Use the procedures in this chapter to do the following tasks:

Install the UNIX System V Release 3.2 operating system on a 3B2/ 310 or 3B2/ 400 computer

Install the UNIX System V Release 3.2.1 operating system on a 3B2/ 500, 3B2/ 522, 3B2/ 600 or 3B2/ 1000 Model 70 computer

Set up the 3B2 computer for the first time

Install the INFORMIX 3.3 software, Remote Management Utilities, and the X.25 Network Interface Software



These software packages must be installed before the 3B2 CMS software is installed.

Partition additional hard disks for the 3B2 computer

Administer the terminals

Turn the system over to the TSC.

Installing the UNIX Operating System on a 3B2/310 or 3B2/400 Computer

The 3B2/ 310 Package F2 and 3B2/ 400 Package Q2 computers that support Release 2, Issue 1.4 (Load 2.35) of the 3B CMS software are currently being shipped with Small Computer System Interface (SCSI) based peripherals. However, customers with earlier versions of the 3B CMS software may have one of the following 3B2/ 310 or 3B2/ 400 computers:

3B2/ 310 Package F2 with one of the following expansion modules:

- Expansion Module Package A — contains the following:
 - + One 23 MB Cartridge Tape Drive
 - + One Cartridge Tape Controller Board.
- Expansion Module Package B — contains the following:
 - + One 30 MB Hard Disk Drive
 - + One 23 MB Cartridge Tape Drive
 - + One Cartridge Tape Controller Board.
- Expansion Module Package C — contains the following:
 - + One 72 MB Hard Disk Drive
 - + One 23 MB Cartridge Tape Drive
 - + One Cartridge Tape Controller Board.

3B2/ 400 Package D2.

Tables 4-1, 4-2, and 4-3 show how the hard disk system (non-SCSI based) for the 3B2/ 310 and 3B2/ 400 computers should be partitioned for the CMS application during the UNIX system installation.

If the customer's 3B2/ 310 or 3B2/ 400 computer has SCSI-based hard disk drives in addition to standard hard disk drives, partition them after you have installed the Essential Utilities and other system utilities required by 3B CMS. Refer to the section *Partitioning Additional Hard Disks for the 3B2 Computer*.

Table 4 1 72 MB Hard Disk Configuration

Disk	File System	Partition	Blocks
	/ (root)	/ dev/ dsk/ c1d0s0	25000
Disk 1	/ usr	/ dev/ dsk/ c1d0s2	30000
	/ cms	/ dev/ dsk/ c1d0s8	remaining blocks

Table 4 2 102 MB Hard Disk Configuration (3B2/ 310 Computer Only)

Disk	File System	Partition	Blocks
	/ (root)	/ dev/ dsk/ c1d0s0	25000
Disk 1	/ usr	/ dev/ dsk/ c1d0s2	30000
	/ cms	/ dev/ dsk/ c1d0s8	remaining blocks
Disk 2	cmsdsk1 (/ cmsdsk1)	/ dev/ dsk/ c1d1s8	all blocks

Table 4 3 144 MB or Larger Hard Disk Configuration (3B2/ 310/ 400 Only)

Disk	File System	Partition	Blocks
	/ (root)	/ dev/ dsk/ c1d0s0	25000
Disk 1	/ usr	/ dev/ dsk/ c1d0s2	30000
	/ cms	/ dev/ dsk/ c1d0s8	remaining blocks
Disk 2	/ cmsdsk1	/ dev/ dsk/ c1d1s8	all blocks
Disk 3	/ cmsdsk2	/ dev/ dsk/ cXdXs8	all blocks
Disk 4	/ cmsdsk3	/ dev/ dsk/ cXdXs8	all blocks
Disk 5	/ cmsdsk4	/ dev/ dsk/ cXdXs8	all blocks

How to Install the Essential Utilities

To partition the hard disk system and install the UNIX System V Release 3.2 operating system on a 3B2/ 310 or 3B2/ 400 computer, do the following.

NOTE

To keep a hard-copy record of the steps in this procedure, connect a printer to the AUX port on the console terminal.

- 1 Insert the first floppy disk of the UNIX System V Release 3.2 Essential Utilities into the floppy disk drive.

NOTE

The first floppy disk of the UNIX System V Release 3.2 Essential Utilities **must not** be write protected. If the first floppy is write protected, remove the write protect tab.

- 2 If the operating system is running, log in as *root* at the console terminal and execute the following command to take the system to the firmware mode:

```
# shutdown -g0 -y -i5
```

Installing the UNIX Operating System on a 3B2/ 310 or 3B2/ 400 Computer

Wait for the following message to appear on the console screen:

```
FIRMWARE MODE
```

If the “FIRMWARE MODE” message appears, skip the next step.

- 3 If you cannot log in, press the RESET switch located at the rear of the 3B2 computer cabinet.

NOTE

On a 3B2/ 400 computer, you may have to use a pen or pencil to press the RESET switch.

The following message should appear on the console screen:

```
SYSTEM FAILURE: CONSULT YOUR SYSTEM ADMINISTRATION UTILITIES GUIDE
```

Installing the UNIX Operating System on a 3B2/ 310 or 3B2/ 400 Computer

NOTE If the message does not appear immediately, press the `RETURN` key.

- 4 Enter **mcp** (firmware password). The system should respond with the following message:

NOTE If the system does not respond with the message after you enter the *mcp* password, your terminal options may be set wrong. Refer to the *How to Set the Terminal Options* section in *Chapter 8* for a display of the recommended terminal options.

```
Enter name of program to execute [ ]:
```

- 5 Enter **/unix**. The system will prompt you for the load device option number.

NOTE The following screen is just an example of what may appear on your console screen.

Installing the UNIX Operating System on a 3B2/ 310 or 3B2/ 400 Computer

Option Number	Slot	Name
0	0	FD5
1	0	<HDXX>
2	0	<HDXX>
3	1	CTC
4	4	

Enter Load Device Option Number [1 (<HDXX>)]:

- 6 Look at your console screen and find the *Option Number* for the floppy disk drive. (In this example, the Option Number for the floppy disk drive is 0.) Enter the *Option Number* for the floppy disk drive and press **RETURN**. The system should respond with the following message:

```
UNIX(R) System V Release 3.2 AT&T 3B2 Version 2
Node unix
Total real memory = <XXXXXXXX>
Available memory  = <XXXXXXXX>

*****

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intended publication of such source code.

*****
```

Installing the UNIX Operating System on a 3B2/ 310 or 3B2/ 400 Computer

The system continues by printing the following information on the console screen:

```
3B2 Release 3.2 Installation
```

- 1) Full Restore
- 2) Partial Restore
- 3) Dual-Disk Upgrade
- 4) Release Upgrade

When responding to a question, you may use the "backspace" key to erase the last character typed or the "@" key to erase the entire line. Enter "help" for additional information.

```
Selection? [ 1 2 3 4 quit help ]
```

- 7 Enter **1** because the hard disk system has to be reconfigured for the CMS software. The system prints the following message:

```
-- Full Restore --
```

The "Full Restore" will destroy EVERYTHING on both hard disks and install a 3B2 Release 3.2 Essential Utilities UNIX system.

```
Continue? [y n help ]
```

Enter **y**. The system responds with the following message:

```
Use the default hard disk partitioning? [ y n quit help ]
```

- 8 Enter **n**.

Installing the UNIX Operating System on a 3B2/ 310 or 3B2/ 400 Computer

- 9 The next three sub-steps show how to partition the hard disk system for a 3B2 computer that has 72 MB, 102 MB, or 144 MB of hard disk memory. Go to the appropriate sub-step to partition the hard disk system for the 3B2 computer you are working with:

- a **How to partition a 72 MB hard disk system:**

From the previous step, the system should have responded with the following message:

```
How many blocks for the "swap" partition?  
[ (3500 - 140498) quit again help ] (default 10106)
```

Press the `RETURN` key to assign the default value of 10106 blocks to the swap partition. The system responds with:

```
How many blocks for the "root" partition?  
[ (8928 - 139320) quit again help ] (default 18144)
```

Enter **25000**. The system responds with:

```
How many blocks for the "usr" partition?  
[ (9360 - 114210) quit again help ] (default 114210)
```

Installing the UNIX Operating System on a 3B2/ 310 or 3B2/ 400 Computer

Enter **30000** for the */usr* file system. The system responds with:

```
There are 84078 blocks remaining on disk 1.  
How many blocks for disk 1 partition 8?  
[ (0 - 84078) again quit help ] (default 84078)
```

Press the `RETURN` key to assign the remaining blocks (84078) to the */cms* file system. The system responds with:

```
Upon what directory should the file system within disk 1 partition 8  
be mounted? [ (pathname) again quit help ] (default /usr2)
```

Enter **/cms**. The system responds by printing out a table that shows how you partitioned the hard disk system. Then the system prints the following message:

```
This completes the interactive partitioning of your disk. Enter  
"go" if you are ready to proceed. Enter "again" to specify  
different partitioning for the disk.  
Type "go" to proceed, "again" to start over [ go again quit ]
```

Enter **go** if you are satisfied with the disk partitioning, or enter **again** to start over.

Installing the UNIX Operating System on a 3B2/ 310 or 3B2/ 400 Computer

b How to partition a 102 MB hard disk system:

From the previous major step, the system should have responded with the following message:

```
How many blocks for the "swap" partition?  
[ (3500 - 140498) quit again help ] (default 10106)
```

Press the `RETURN` key to assign the default value of 10106 blocks to the swap partition. The system responds with:

```
How many blocks for the "root" partition?  
[ (8928 - 139320) quit again help ] (default 18144)
```

Enter **25000**. The system responds with:

```
There are 114210 blocks remaining on disk 1 and 62450 blocks on  
disk 2. The "usr" partition requires at least 9360 blocks; by  
default, 62450 blocks would have been allocated. The system will  
typically perform better with "usr" on disk 2.
```

```
Which disk should hold the "usr"  
partition? [ 1 2 quit again help ] (default 2)
```

Installing the UNIX Operating System on a 3B2/ 310 or 3B2/ 400 Computer

Enter **1**. The system responds with:

```
How many blocks for the "usr" partition?  
[ (9360 - 114210) quit again help ] (default 114210)
```

Enter **30000** for the `/usr` file system. The system responds with:

```
There are 84078 blocks remaining on disk 1.  
  
How many blocks for disk 1 partition 8?  
[ (0 - 84078) again quit help ] (default 84078)
```

Press `RETURN` to assign 84078 blocks to the `/cms` file system. The system responds with:

```
Upon what directory should the file system within disk 1 partition 8  
be mounted? [ (pathname) again quit help ] (default /usr2)
```

Installing the UNIX Operating System on a 3B2/ 310 or 3B2/ 400 Computer

Enter **/cms**. The system responds with:

```
There are 62450 blocks remaining on disk 2.  
How many blocks for disk 2 partition 8?  
[ (0 - 62450) again quit help ] (default 62450)
```

Press the **RETURN** key to assign 62450 blocks to the */cmsdsk1* file system. The system responds with:

```
Upon what directory should the file system within disk 2 partition 8  
be mounted? [ (pathname) again quit help ] (default /usr2)
```

Enter **/cmsdsk1**.

After you have partitioned the disk system, the system responds by printing out two tables that show how you partitioned the disks. Then the system prints the following message:

```
This completes the interactive partitioning of your disks. Enter  
"go" if you are ready to proceed. Enter "again" to specify  
different partitioning for both disks.  
Type "go" to proceed, "again" to start over [ go again quit ]
```

Enter **go** if you are satisfied with the disk partitioning, or enter **again** to start over.

Installing the UNIX Operating System on a 3B2/ 310 or 3B2/ 400 Computer

c How to partition a 144 MB or larger hard disk system:

From the previous major step, the system should have responded with the following message:

```
How many blocks for the "swap" partition?  
[ (3500 - 140498) quit again help ] (default 10106)
```

Press the `RETURN` key to assign the default value of 10106 blocks to the swap partition. The system responds with:

```
How many blocks for the "root" partition?  
[ (8928 - 139320) quit again help ] (default 18144)
```

Enter **25000**. The system responds with:

```
There are 114210 blocks remaining on disk 1 and 149364 blocks on  
disk 2. The "usr" partition requires at least 9360 blocks; by  
default, 149364 blocks would have been allocated. The system will  
typically perform better with "usr" on disk 2.
```

```
Which disk should hold the "usr"  
partition? [ 1 2 quit again help ] (default 2)
```

Installing the UNIX Operating System on a 3B2/ 310 or 3B2/ 400 Computer

Enter **1**. The system responds with:

```
How many blocks for the "usr" partition?  
[ (9360 - 114210) quit again help ] (default 114210)
```

Enter **30000** for the */usr* file system. The system responds with:

```
There are 84078 blocks remaining on disk 1.  
  
How many blocks for disk 1 partition 8?  
[ (0 - 84078) again quit help ] (default 84078)
```

Press **RETURN** to assign 84078 blocks to the */cms* file system. The system responds with:

```
Upon what directory should the file system within disk 1 partition 8  
be mounted? [ (pathname) again quit help ] (default /usr2)
```

Installing the UNIX Operating System on a 3B2/ 310 or 3B2/ 400 Computer

Enter **/cms**. The system responds with:

```
There are 149364 blocks remaining on disk 2.  
How many blocks for disk 2 partition 8?  
[ (0 - 149364) again quit help ] (default 149364)
```

Press the **RETURN** key to assign 149364 blocks to the */cmsdsk1* file system. The system responds with:

```
Upon what directory should the file system within disk 2 partition 8  
be mounted? [ (pathname) again quit help ] (default /usr2)
```

Enter **/cmsdsk1**.

- d After you have partitioned the disk system, the system responds by printing out two tables that show how you partitioned the disks in the main system cabinet.

NOTE

If additional hard disks are present, located in Expansion Modules or SCSI hard disk modules, you will be able to partition them later.

Installing the UNIX Operating System on a 3B2/ 310 or 3B2/ 400 Computer

The system prints the following message:

```
This completes the interactive partitioning of your disks.  Enter
"go" if you are ready to proceed.  Enter "again" to specify
different partitioning for both disks.
```

```
Type "go" to proceed, "again" to start over [ go again quit ]
```

- e Enter **go** if you are satisfied with the disk partitioning, or enter **again** to start over.

After you have finished with the disk partitioning, the system continues with the UNIX System V Release 3.2 operating system installation. You will be prompted several times to install the next disk containing the Essential Utilities.

As soon as the system has finished reading the last Essential Utilities floppy, the system will print:

```
You may now remove the last Essential Utilities floppy.
85 blocks
```

```
This Release of UNIX System V contains software designed to enhance security.
Two areas affected by this software are 1) the shell, and 2) the User Password
Mechanism.
```

```
Please refer to the Security Section of the UNIX System V Release 3.2 Release
Notes for further information on how to determine the current security status
and how to install or remove these security features on your system.
```

```
Installation is now complete.  The system is restarting itself from
the hard disk.  It will be ready to use when you receive the "Console
Login" prompt.  This should take no more than five minutes.
```

You have just completed the steps for partitioning the hard disk(s) and installing the UNIX System V Release 3.2 Essential Utilities.

How to Install Other System Utilities

To install the UNIX System V Release 3.2 utilities required by the 3B CMS software, do the following:

- 1 At the *Console Login:* prompt, log in as *root*.
- 2 Edit the */etc/profile* file and append the following line:

```
stty erase '^h' echoe
```

Then execute the following command:

```
# . /etc/profile
```

This will let you use the `BACK SPACE` key as the erase character.

- 3 Put the computer in the single-user mode by executing the following command:

```
# shutdown -g0 -y -i1
```

NOTE

The 3B2 computer can execute a shell program in the */etc/acfail* program which can be adjusted to the time in which UPS would continue until graceful shutdown. This shell program is downloaded by the TSC at the time of the installation or the upgrade. If you do not have this shell program, contact the TSC.

Installing the UNIX Operating System on a 3B2/ 310 or 3B2/ 400 Computer

- 4 Mount the existing file systems by executing the following command:

```
# mountall
```

- 5 Next, enter the following command:

```
# sysadm installpkg
```

The system responds with:

```
Running subcommand 'installpkg' from menu 'softwaremgmt',  
SOFTWARE MANAGEMENT
```

```
Insert the removable medium for the package you want to install  
into the diskette1 drive.  
Press <RETURN> when ready. Type q to quit.
```

- 6 Install the following utilities in order:

NOTE

Do not execute the **shutdown -i6 -g0 -y** command until you have completed the steps in the section *Installing the Prerequisite Software*.

System Administration Utilities

Directory and File Management Utilities

Installing the UNIX Operating System on a 3B2/ 310 or 3B2/ 400 Computer

User Environment Utilities

Inter-Process Communication Utilities

Terminal Information Utilities — Select option **1** and enter **all** for the terminal files to install.

Basic Networking Utilities — Do not rename the 3B2 computer during this installation.

Editing Utilities

NOTE

Install the next utility if the 3B2 computer does not have an SCSI-based cartridge tape drive.

Cartridge Tape Utilities — The Cartridge Tape Utilities installation script will ask the following two questions that may be somewhat confusing:

```
Does your 1st cartridge tape package include an XM floppy disk drive?  
Does your 1st cartridge tape package include a tape drive?
```

Answer the first question with a **n**, and answer the second question with a **y**.

Line Printer Spooling Utilities — Do not administer printers at this time. All users should have access to the **disable** and **enable** commands.

System Header File Utilities

Spell Utilities

Windowing Utilities — Enter **1** for the number of windowing terminals. If more windowing terminals are connected, enter the appropriate number.

Form and Menu Language Interpreter (FMLI) Utilities

Framed Access Command Environment (FACE)

If SCSI-based peripherals have been installed:

— Extended Core Utilities

Installing the UNIX Operating System on a 3B2/ 310 or 3B2/ 400 Computer

- SCSI Host Adapter Utilities for the installed SCSI devices

NOTE

Refer to the *SCSI Installation Manual* (305-011) or *SCSI Operations Manual* (305-012) for more information.

- SCSI Cartridge Tape Utilities
- Other SCSI Utilities that may have previously been installed (if required).

Enhanced Ports Utilities — Install this utility only if an Enhanced Ports card is part of the hardware configuration.

Expansion Disk Controller Utilities — Install this utility only on a 3B2/ 400 computer that one or more Expansion Modules that contains additional 30 or 72 MB hard disks (non-SCSI based).

Install the remaining utilities only if the customer wants them installed.

NOTE

Do not execute the **shutdown -i6 -g0 -y** command until you have completed the steps in the section *Installing the Prerequisite Software*.

Go to the next section *Setting Up the 3B2 Computer for the First Time*.

Installing the UNIX Operating System on the 3B2 500, 522, 600, or 1000 Model 70 Computer

The 3B2/ 500 Package B, 3B2/ 522, 3B2/ 600 Package A, and the 3B2/ 1000 Model 70 support Release 2, Issue 1.4 (Load 2.35) of the 3B CMS software. However, customers with earlier versions of the 3B CMS software may have a 3B2/ 500 Package A computer.

NOTE If you are installing the system with the Mirrored Disk capabilities, follow the procedures located in the *Mirrored Disk — New Installation* section of *Appendix E*.

How to Install the Essential Utilities

To partition the hard disk system and install the UNIX System V Release 3.2.1 operating system on a 3B2/ 500, 3B2/ 522, 3B2/ 600, or 3B2/ 1000 Model 70 computer, do the following:

NOTE To keep a hard-copy record of the steps in this procedure, connect a printer to the AUX port on the console terminal.

- 1 Make sure that the Operating System Utilities cartridge tape is write-protected (see the *Owner/ Operator Manual* that came with the computer). Then insert the Operating System Utilities cartridge tape into the SCSI cartridge tape drive.
- 2 At the console terminal, log in as *root*.

Installing the UNIX Operating System on the 3B2 500, 522, 600, or 1000 Model 70 Computer

- 3 Change directory to *root* (/), and take the system to the firmware mode (run-level 5):

```
# cd /  
# sysadm firmware
```

The system responds with:

```
Running subcommand 'firmware' from menu 'machinemgmt',  
MACHINE MANAGEMENT  
Once started, this procedure CANNOT BE STOPPED.  
Do you want to go to firmware "express"? [y, n, ?, q]
```

- 4 Enter **y**.
- 5 Wait for the following message:

```
FIRMWARE MODE
```

Installing the UNIX Operating System on the 3B2 500, 522, 600, or 1000 Model 70 Computer

- 6 Enter **mcp** (firmware password). The system should respond with the following message.

NOTE

If the system does not respond with the message after you enter the firmware password, your terminal options may be set wrong. Refer to the *How to Set the Terminal Options* section in *Chapter 8* for a display of the recommended terminal options.

```
Enter name of program to execute [      ]:
```

- 7 Enter **/unix** for name of program to execute. The system will prompt you for the load device option number.

NOTE

The following screen is just an example of what may appear on your console screen.

```
Option Number  Slot  Name
-----
      0         0   FD5
      1         1   SCSI
```

```
Enter Load Device Option Number [1 (SCSI)]:
```

Installing the UNIX Operating System on the 3B2 500, 522, 600, or 1000 Model 70 Computer

- 8 Look at your console screen and find the *Option Number* for SCSI. (In this example, the *Option Number* for SCSI is 1.) Enter the *Option Number* for SCSI and press `RETURN`. The system should respond with the following message:

Possible subdevices are:

Option Number	Subdevice	Name
0	0	disk
1	1	tape

Enter Subdevice Option Number [(0 (disk))]:

- 9 Enter **1** for the SCSI cartridge tape drive. The system will respond with several messages before the following is printed:

UNIX System V Release 3.2.1 Installation

- 1) Full Restore
- 2) Partial Restore

When responding to a question, you may use the "backspace" key to erase the last character typed or the "@" key to erase the entire line. Enter "help" for additional information.

Selection? [1 2 quit help]

- 10 Enter **1** to do a full restore.

Installing the UNIX Operating System on the 3B2 500, 522, 600, or 1000 Model 70 Computer

The system responds with:

```
- FULL RESTORE selected -  
The ROOT disk is: /dev/dsk/clt1d0s6  
  
The possible USR disks configured on the system are:  
    1) /dev/dsk/clt1d0s6  
    2) /dev/dsk/clt1d1s6  
  
NOTE: System performance will be greater if the ROOT disk is NOT  
       the same device as the USR disk.  
  
Select disk to hold the USR file system [ (1 - 2) quit help] (default 2)
```

11 Enter **1** to assign the */usr* file system to disk drive 1.

The system will now allow you to reformat disk drive 1. If you reformat the disk drive 1, any detected bad blocks will be mapped. As the hard disk is reformatted, the VTOC will be erased. As the system verifies the hard disk, it reports the bad blocks mapped. The hard disk error logger will try to access the hard disk VTOC, but since the VTOC has been erased, the hard disk error logger will generate the following warning message:

```
WARNING: SD00: Bad sanity word in the VTOC on disk #, tc #, slot #.
```

You should ignore this warning message because the system will put a new VTOC on the hard disk when you partition it. If you do not format the hard disk (use the default answer by pressing the `RETURN` key), go to the next *Step*.

Installing the UNIX Operating System on the 3B2 500, 522, 600, or 1000 Model 70 Computer

The following is what the system displays when disk drive 1 is reformatted:

```
The disk (/dev/dsk/clt1d0s0) is formatted.
Re-formatting it may remove undetected bad-blocks.

WARNING! Reformatting will destroy the data on the entire disk!
Re-format /dev/dsk/clt1d0s0? [ yes no ] (default no) yes
Formatting /dev/dsk/clt1d0s0. . .
Format /dev/rdisk/clt1d0s0:
(DEL if wrong)
You can depress the DEL key to stop formatting
Begin Format (No more than 10 minutes)
Begin Verify (No more than 11 minutes)
```

Next, the system responds with:

```
Use the default hard disk partitioning? [ yes no quit help ] (default yes)
```

12 Enter **no**, and the system responds with:

```
How many blocks for the "sysdump" partition?
[ ( 0 - 131072) quit again help] (default 32768)
```

13 Press the key to assign the default value.

Installing the UNIX Operating System on the 3B2 500, 522, 600, or 1000 Model 70 Computer

The system responds with:

```
How many blocks for the "swap" partition?  
[ (3500 - 248997) quit again help ] (default 20640)
```

14 Press the `RETURN` key to assign the default value. The system responds with:

```
How many blocks for the "root" partition?  
[ (8928 - 237600) quit again help ] (default 25830)
```

15 Press the `RETURN` key to assign the default value. The system responds with:

```
How many blocks for the "usr" partition?  
[ (9360 - 221445) quit again help ] (default 221445)
```

16 Enter **50000** for the `/usr` file system.

Installing the UNIX Operating System on the 3B2 500, 522, 600, or 1000 Model 70 Computer

The system responds with:

```
Making file systems on the hard disk(s) ... (please wait)
There are 171360 blocks remaining on disk /dev/dsk/clt1d0s6.
How many blocks for partition /dev/dsk/clt1d0s8?
[ (0 - 171360) quit again help ] (default 171360)
```

- 17 Press the `RETURN` key to assign the remaining blocks on disk drive 1 to the `/cms` file system. The system responds with:

```
Upon what directory should the file system within partition 8
be mounted? [ (pathname) again quit help ] (default /usr2)
```

- 18 Enter `/cms`.

NOTE

The system displays the partitioning so you can verify what you have set up.

Installing the UNIX Operating System on the 3B2 500, 522, 600, or 1000 Model 70 Computer

After you have partitioned the disk drive 1, the system responds with the following message.

```
This completes the interactive partitioning of your core system.  Enter
"go" if you are ready to proceed.  Enter "again" to specify
different partitioning.
```

```
Type "go" to proceed, "again" to start over [ go again ]
```

19 Enter **go** if you are satisfied with the disk partitioning, or enter **again** to start over.

If you enter **go**, the system responds with:

```
Installing initial core system files.
<XXXX> blocks
```

```
You may remove the tape.
```

```
Performing the "Finishing touches"...
```

```
    Making /dev/root & /dev/swap nodes.
    Making hard disk bootable.
    Linking files.
```

```
Installation is now complete.  The system is restarting itself from
the hard disk.  It will be ready to use when you receive the "Console
Login" prompt.  This should take no more than five minutes.
```

The remainder of the UNIX System V Release 3.2.1 operating system is made up of utility packages residing on the SCSI cartridge tape.

How to Install Other System Utilities

To install the UNIX System V Release 3.2.1 utilities required by the 3B CMS software, do the following:

- 1 At the *Console Login:* prompt, log in as *root*.
- 2 Edit the */etc/profile* file and append the following line:

```
stty erase '^h' echoe
```

Then execute the following command:

```
# . /etc/profile
```

This will let you use the `BACK SPACE` key as the erase character.

- 3 Put the computer in the single-user mode (run-level S) by executing the following command:

```
# shutdown -g0 -y -i1
```

Installing the UNIX Operating System on the 3B2 500, 522, 600, or 1000 Model 70 Computer

- 4 Mount the existing file systems by executing the following command:

```
# mountall
```

- 5 Execute the following commands:

```
# conslog -a  
# sysadm tapepkg
```

The system responds with the following:

```
Running subcommand 'tapepkg' from menu 'softwaremgmt'.  
SOFTWARE MANAGEMENT  
  
-- Package installation/removal from SCSI tape --  
  
Do you wish to install or remove packages?  
[ install remove quit i r q ]
```

Installing the UNIX Operating System on the 3B2 500, 522, 600, or 1000 Model 70 Computer

- 6 Enter **install** to install the UNIX System V Release 3.2.1 software packages. The system responds with:

```
Insert the removable medium for the package(s) you want to install
into the qtape1 drive:
Press <RETURN> when ready. Type q to quit.
```

- 7 With the SCSI cartridge tape containing the UNIX System V Release 3.2.1 operating system in the SCSI cartridge tape drive, press the **RETURN** key.

The system will print a list of available utility packages:

```
Packages available:
```

1	Directory and File Management	11	Basic Networking
2	User Environment	12	Windowing
3	Interprocess Communications	13	AT&T Form and Menu Interpreter
4	System Administration	14	AT&T FACE
5	System Header Files	15	Enhanced Ports
6	Spell	16	SCSI Cartridge Tape
7	Terminal Information- part 1	17	SCSI Mirroring Utilities
8	Terminal Information- part 2	18	2KB File System Utilities
9	Editing	19	Release Upgrade
10	Line Printer Spooling		

```
Enter selection(s) to install [ all help quit ]:
```

- 8 Enter **all**. The system will proceed to install every package that was listed.

Installing the UNIX Operating System on the 3B2 500, 522, 600, or 1000 Model 70 Computer

9 Please use the following recommendations as the utility packages are installed:

When the Terminal Information Utilities package is installed, enter **1** to install the *terminfo* files, and enter **all** to select all of the files.

When the Basic Network Utilities package is installed, do not rename the 3B2 computer.

When installing the Windowing Utilities package, enter **1** for the number of windowing terminals. If more windowing terminals are connected, enter the appropriate number.

When installing the Disk Mirroring Utilities, enter **3** for the number of mirror devices.

Finally, the system responds with:

```
Execute "cd /; shutdown -i6 -g0 -y" and  
wait for the "Console Login:" prompt.
```

```
The installpkg from SCSI tape has completed-  
You may remove the tape after the rewind is complete.
```

NOTE

Do not execute the **cd /;shutdown -i6 -g0 -y** command until you have completed the steps in the section *Installing the Prerequisite Software*.

10 Go to the section *Setting Up the 3B2 Computer for the First Time*.

Setting Up the 3B2 Computer for the First Time

To set up the 3B2 computer from the first time, do the steps in this section after the UNIX operating system has been installed:

NOTE You should be logged in as *root*, the computer should be in the single-user state (run-level S), and the existing file systems should be mounted before you start.

- 1 At the system prompt, enter the **sysadm setup** command:

```
# sysadm setup
```

The system will respond by prompting you for the time zone, daylight savings time, date, and time of the system clock.

NOTE Answer “n” to the daylight savings time question. The customer can then manually change the time when the time changes. The time change should be coordinated so that the time on the 3B2 computer and the switch are changed at the same time.

- 2 Enter the required information as you are prompted.

Setting Up the 3B2 Computer for the First Time

Then the system will respond with the following message:

The next step is to set up logins.
The first one you make should be for yourself.

- 3 At this time, you should make a UNIX system login ID called *field* for the field support team.

NOTE During this administration, use the default values for the user ID and group ID and use the default path */usr*.

- 4 Assign a password to the *field* login ID. When you have finished administering the *field* UNIX system login ID, **do not** administer anymore login IDs.

NOTE Contact the field support team and tell them the password that you assigned to the *field* login ID.

- 5 The next section of the **setup** program will prompt you to assign passwords for administrative and system logins.

Assign passwords to the *root* login ID and to the administrative and system login IDs.

NOTE Record the passwords that you assigned to these login IDs. The customer's CMS administrator will need them.

Next, the system prints the following message:

```
The next step is to set the node name of this machine. This is the
name by which other machines know this one.
```

```
This machine is currently called "unix".
Do you want to change it? [y, n, ?, q]
```

- 6 Enter **y**. Ask the CMS administrator what you should name the 3B2 computer, and enter the computer's name when prompted to do so.

Finally, the system prints the following message:

```
This completes your initial set up of the machine.
You may now log into your login.
```

- 7 Go to the section *Installing the Prerequisite Software*.

Installing the Prerequisite Software

This section contains the procedures that will help you install the following software packages that are prerequisite to the 3B2 CMS software installation:

INFORMIX 3.3 Software

Remote Management Utilities

X.25 Network Interface Software.

NOTE

You should be logged in as *root*, the computer should be in the single-user state (run-level S), and the existing file systems should be mounted before you start.

To install the INFORMIX software, follow the instructions provided with the INFORMIX software package.

To install the Remote Management Utilities and the X.25 Network Interface Software, you must first execute the following commands:

```
# cd /  
# sysadm installpkg
```

The system responds with:

```
Running subcommand 'installpkg' from menu 'softwaremgmt',  
SOFTWARE MANAGEMENT  
  
Insert the removable medium for the package you want to install  
into the diskette1 drive.  
Press <RETURN> when ready. Type q to quit.
```

How to Install the Remote Management Utilities

You should be in the Software Management routine called “**installpkg.**” Insert the Remote Management Utilities floppy disk into the floppy disk drive, press **RETURN**, and follow the instructions on the screen.

NOTE

If the AIC board has not been installed, you will not be able to install the Remote Management Utilities.

If an Uninterruptible Power Supply (UPS) has been installed and is properly connected to the UPS port on the Alarm Interface Circuit (AIC), the Remote Management Utilities can detect the following:

- Commercial power failure
- Low battery condition in the UPS.

A null file, */etc/acfail*, is created when the Remote Management Utilities is installed. This file can be populated with a shell script or executable compiled C program to be executed upon the detection of an AC failure.

NOTE

After you have installed the Remote Management Utilities, the */etc/acfail* file will be downloaded by the TSC personnel.

How to Install the X.25 Network Interface Software

You should be in the Software Management routine called “**installpkg.**”

NOTE

Release 2, Issue 1.4 of the 3B2 CMS software requires either X.25 Network Interface Software Version 1.0.1, X.25 Network Interface Software Version 1.1, or X.25 Network Interface Software Version 1.1.1.

NOTE

If Version 1.0.1 or Version 1.1 is installed and upgraded to Version 1.1.1 at a later date, refer to the section *Upgrading the X.25 Network Interface Software* in *Chapter 8* for instructions after the upgrade has taken place.

- 1 Insert the first X.25 floppy disk into the floppy disk drive and press **RETURN**. When told to do so, insert the next X.25 floppy disk into the floppy disk drive.

At the end of the X.25 installation, you will be prompted as follows:

```
ENTER MAXIMUM PACKET SIZE (128, 256, 512), or 'h' for more information:
```

- 2 Enter **128**.

The system responds with the following message:

```
ENTER NUMBER OF X25 BOARDS (0-5), or 'h' for help:
```

- 3 Enter the number of ISC (X25) boards that are installed on the host computer.

NOTE

For a 3B2/ 310, 3B2/ 400, 3B2/ 500, and 3B2/ 522 computer, this number can only be **1**. For a 3B2/ 600 and 3B2/ 1000 Model 70 computers, this number can be **1** or **2**, depending on the number of boards installed.

The system responds with the following message:

```
ENTER SLOT NUMBER FOR X25 BOARD # 0, or 'h' for help:
```

- 4 Visually determine which slot the ISC board is in. If you need help, refer to the *3B2 Computer Intelligent Serial Controller Manual* (305-531). Enter the slot number. (If the host computer is a 3B2/ 600 or 3B2/ 1000 Model 70 computer and there are two ISC cards installed, you will be prompted twice for the SLOT NUMBER.)

Installing the Prerequisite Software

The system responds with the following message:

```
O.K. TO INSTALL THE CONFIGURATION IN /dgn/.edt_swapp (y/n)?
```

5 Enter **y**.

Finally, the system responds with this message:

```
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.
---->
```

For all supported 3B2 computers with one ISC board, enter **20**. For a 3B2/ 600 and 3B2/ 1000 Model 70 computers with two ISC boards, enter **40**.

NOTE

Disregard the “PLEASE NOTE” message that is printed. Remove the last X.25 floppy disk when told to do so.

6 Enter **q** and press the `RETURN` key to exit from the “**installpkg**” routine.

- 7 When the system prompt returns, execute the following command so that the system will recognize the utilities and the prerequisite software that you have just installed:

```
# cd /  
# shutdown -g0 -y -i6
```

- 8 When the system prompt returns, log in as *root*.
- 9 If the host computer is a 3B2/ 310 or 3B2/ 400 computer, execute the following command so the system will let the customer know when the cartridge tape drive needs cleaning:

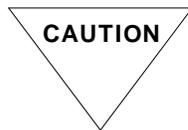
```
# sysadm resetusage
```

- 10 If the host computer has additional hard disks that require partitioning, go to the section *Partitioning Additional Hard Disks*.

If the host computer does not have any additional hard disks, go to the section *Administering the Terminals*.

Partitioning Additional Hard Disks

Use the procedures in this section to partition the hard disk drives that were not partitioned in the previous sections.



If the host computer is a 3B2/ 310 or 3B2/ 400 computer, DO NOT repartition disk drives 1 and 2. If the host computer is a 3B2/ 500, 3B2/ 522, 3B2/ 600 or 3B2/ 1000 Model 70 computer, DO NOT reformat and repartition disk drive 1.

Partition the remaining hard disks by doing the following.

- 1 Put the computer in the single-user mode (run-level S) by executing the following command:

```
# shutdown -g0 -y -i1
```

- 2 Mount the existing file systems by executing the following command:

```
# mountall
```

- 3 Execute the following command:

```
# sysadm harddisk
```

The system responds with:

```
                                HARD DISK MANAGEMENT
1 display          display hard disk partitioning
2 format          format a hard disk
3 partitioning    partition a hard disk
4 rmdisk         remove a hard disk
Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, q to QUIT:
```

NOTE

The **format** option can only be used to format SCSI-based hard disk drives.

- 4 Enter **2** to format the remaining hard disk drives. The system will respond by displaying the available hard disk drives.

CAUTION

DO NOT reformat the disk drives that have already been formatted and partitioned.

Partitioning Additional Hard Disks

After formatting a hard disk, the system responds with:

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

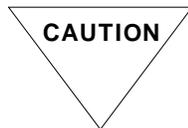
5 Press the `RETURN` key. The system responds with:

```
                                HARD DISK MANAGEMENT

1 display          display hard disk partitioning
2 format           format a hard disk
3 partitioning     partition a hard disk
4 rmdisk           remove a hard disk

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

6 Enter **3** to partition the hard disk drives.



DO NOT repartition the hard disk drives that have already been partitioned.

Table 4-4 shows how the remaining hard disks should be partitioned for a 3B CMS application.

Table 4 4 Naming Convention for Hard Disks 2, 3, 4, and 5

Disk	Partition	File System Name
2	8	/ cmsdsk1
3	8	/ cmsdsk2
4	8	/ cmsdsk3
5	8	/ cmsdsk4

- 7 Assign the available (default) blocks on each disk to the corresponding file system.
- 8 After you have the partitioned the remaining hard disks, exit from the HARD DISK MANAGEMENT menu by entering **q**.
- 9 Execute the following command:

```
# df -t
```

From the display on the terminal screen, verify that the hard disks were partitioned correctly.

- 10 If you partitioned the hard disks correctly, go to the next section *Administering the Terminals*.

Administering the Terminals

The following terminals are recommended for use with the 3B2 CMS software application:

AT&T DATASPEED* 4425 Buffered Display Terminal

605 Business Communications Terminal (BCT)

610 BCT

615 Multi-Tasking (MT) Terminal

620 Multi-Tasking Graphics (MTG) Terminal

705 Multi-Tasking (MT) Terminal

AT&T 6500 Displays (6528, 6529, 6538, and 6539).

Before you install the CMS software, you should administer the terminals connected to the 3B2 computer by doing the following:

- 1 Execute the following command to display the TTY MANAGEMENT menu:

```
# sysadm ttygmt
```

* Registered trademark of AT&T.

The computer prints the following screen:

```

                                TTY MANAGEMENT

1 lineset      show the tty line settings and hunt sequences
2 mklineset    create new tty line settings and hunt sequences
3 modtty       show and optionally modify characteristics of tty lines
Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, q to QUIT:

```

- Enter 3 (“modtty”) to modify the tty ports connected to the terminals. The computer will respond by printing a display of the tty ports available on the system. For example:

```

Changeable tty lines:
  contty  tty11  tty31  tty51  tty61  tty71  tty81  tty91
  tty101  tty12  tty32  tty52  tty62  tty72  tty82  tty92
  tty102  tty13  tty33  tty53  tty63  tty73  tty83  tty93
  tty103  tty14  tty34  tty54  tty64  tty74  tty84  tty94
  tty104  tty15  tty35  tty55  tty65  tty75  tty85  tty95
  tty105
Select the tty you wish to modify,
or enter ALL to see a report of all ttys [?, q]:

```

Administering the Terminals

- 3 Enter the name of the tty to be modified.

Here is an example of what the new tty port characteristics should be set to:

```
tty22: new characteristics:
      State           on
      Hangup Delay    off
      Line Setting     4800
      Description      cms terminal
```

NOTE

The sum of the serial baud rates (Line Setting) cannot exceed 38.4K baud per EPORTS card, and no individual baud rate can exceed 19.2K. For an EPORTS card with all 8 ports in use, the maximum Line Setting (baud rate) per port is 4.8K.

For an I/ O Expansion card, the sum of the serial baud rates cannot exceed 19.2K per I/ O Expansion card. For an I/ O Expansion card with all 4 ports in use, the maximum Line Setting (baud rate) per port is 4.8K.

Refer to the *3B2 Computer Expanded Input/ Output Capability Manual* (305-530) to determine the tty port locations.

To see a display of the recommended terminal options settings, refer to the *How to Set the Terminal Options* section in *Chapter 8*.

Turning the System Over to the TSC

This section describes what you must do before you turn the 3B2 computer over to an engineer located at the Technical Support Center (TSC).

You previously connected the hardware between the 3B2 computer and the switch. The switch technician will need the port number on the switch that is connected to the 3B2 computer. If you have not already done so, supply this port number to the switch technician, and tell the switch technician to administer the DCIU/ SCI link for the CMS application.

NOTE If the customer is migrating from 3B5 CMS to 3B2/ 600 CMS and has a Generic 2 or System 85 switch, **PROC 256, WORD 1, Field 7** must be encoded to a “2.” Refer to *Appendix B*.

The engineer at the TSC completing the 3B2 CMS software installation will need the following information pertaining to the customer’s 3B2 CMS environment:

Phone number associated with the customer’s 3B2 computer (the phone number of the line connected to the Silent Knight Autodialer).

A list of EIA ports that are connected to the printers.

A list of the printer names associated with the EIA ports. (If the customer has more than one printer, denote which printer should be the default printer.)

Switch Name — obtain from the switch technician, switch administrator, or CMS administrator.

NOTE The switch can be named anything (this is a customer option), and the switch name will be displayed on the CMS screens. The name of the switch is limited to 20 alphanumeric characters (including hyphens and underscores) with no spaces or periods allowed.

Switch Type (DEFINITY Communications System Generic 1, Generic 2, and Generic 3i, System 85, System 75, System 75 XE, or DIMENSION System switch) — obtain from the switch technician, switch administrator, or CMS administrator.

Switch Release — obtain from the switch technician.

Time zone offset — If the 3B2 computer and switch are in the same time zone, the offset is “0.” Otherwise, you will have to determine the plus or minus hours, relative to the 3B2 computer, that the switch is away from the 3B2 computer.

Turning the System Over to the TSC

Link — This is the port on the ISC (3B2 computer) that is connected to the switch. For example, port **J2** on the Serial Port Connector Cable is Link “**0**”.

Port — the local port number at the switch. See the switch technician for details.

NOTE

The switch technician must administer the remote port on the switch as “**1**” for the CMS application.

Obtain the following information about the ACD on the switch from the switch technician, switch administrator, or CMS administrator:

Number of splits

Number of agents

Number of trunk groups

Number of trunks

Number of unmeasured facilities

Number of Vector Directory Numbers (VDNs).

NOTE

Vectoring is available only on the Generic 3i, Generic 2, and System 85, R2V4 switch.

For a 3B2/ 310 or 3B2/ 400 computer, use Table 4-5 to record the information about the ACD. For a 3B2/ 500 or 3B2/ 522 computer, use Table 4-6. For a 3B2/ 600 or 3B2/ 1000 Model 70 computer, use Table 4-7.

Table 4 5 ACD Information Form for 3B2/ 310 and 3B2/ 400 Computers

ACD Variables	ACD1	Maximum
Switch Name		
Switch Type		
Switch Release		
TZ Offset		
Link		
Port		
Splits		60
Agents		400
Trunk Groups		255
Trunks		700
Unmeasured Facilities		100
VDNs		256

Table 4 6 ACD Information Form for 3B2/ 500 and 3B2/ 522 Computers

ACD Variables	ACD1	Maximum
Switch Name		
Switch Type		
Switch Release		
TZ Offset		
Link		
Port		
Splits		60
Agents		1023
Trunk Groups		255
Trunks		1400
Unmeasured Facilities		100
VDNs		256

NOTE

A minimum of 100 unmeasured facilities is required by each ACD. If more than 100 unmeasured facilities (trunks) are required and the maximum trunks are used on the ACD, the trunks (measured trunks) must be reduced accordingly.

Turning the System Over to the TSC

Table 4 7 ACD Information Form for the 3B2/ 600 and 3B2/ 1000 Model 70 Computers

ACD Variables	ACD1	ACD2	ACD3	ACD4	Maximum
Switch Name					
Switch Type					
Switch Release					
TZ Offset					
Link					
Port					
Splits					240
Agents					4092
Trunk Groups					1020
Trunks					5600
Unmeasured Facilities					400
VDNs					1024

NOTE

For Table 4-7, the sum of the ACD1, ACD2, ACD3, and ACD4 variables (splits, agents, trunk groups, trunks, and unmeasured facilities) cannot exceed the maximum values.

A minimum of 100 unmeasured facilities is required by each ACD. If more than 100 unmeasured facilities (trunks) are required and the maximum trunks are used on the ACD, the trunks (measured trunks) must be reduced accordingly.

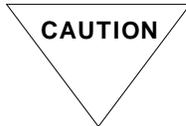
Load the cartridge tape and the floppy disk that contains the 3B2 CMS software, and relay the ACD information to the technician at the TSC. Your role in the installation process is essentially over, but your presence at the customer's location is still required during the 3B2 CMS software installation. Obtain further instructions from the technician at the TSC.

NOTE

All 3B CMS software and documentation **must** remain at the customer's site when you have finished the installation.

General Information

This chapter describes how you, an engineer located at the TSC, install the 3B2 CMS software remotely. For new customers, the 3B2 CMS software package is issued in base loads of *Release 2*, for example *Version 2.34*. For customers who are upgrading their 3B2 CMS software with a new base load or Field Update, refer to *Chapter 6* for instructions.



For 3B CMS Release 2, Version 2.34, additional 3B2 computers are being supported. Newly supported 3B2 computers include the following:

3B2/ 522 — If you are installing 3B CMS on the 3B2/ 522, follow the installation procedures for the 3B2/ 500 and install as if the 3B2/ 522 was a 3B2/ 500.

3B2/ 1000 Model 70 — If you are installing 3B CMS on the 3B2/ 1000 Model 70, follow the installation procedures for the 3B2/ 600 and install as if the 3B2/ 1000 Model 70 was a 3B2/ 600.

The procedures in this chapter will help you do the following tasks:

Install the 3B2 CMS software

Initialize the communications link between the CMS software and the telecommunications switch.

Before you do the procedures in this chapter, check with the Tier 1 technician who is on site at the customer's location to ensure that the following preinstallation tasks have been performed:

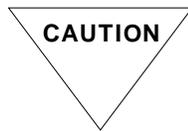
If the customer's CMS historical data is migrating from one host computer to another, the required data on the customer's current host computer has been processed at the TSC, and the tapes containing the processed data have been returned to the customer.

The Intelligent Serial Controller (ISC) hardware card has been installed.

The Alarm Interface Circuit (AIC) card has been installed.

General Information

The hardware connection between the 3B2 computer and the switch has been installed.



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

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

The 3B2 computer has been connected to the Remote Maintenance Center.

For a 3B2/ 310 or 3B2/ 400 computer:

The UNIX System V Release 3.2 operating system has been installed.

For a 3B2/ 500, 3B2/ 522, 3B2/ 600, or 3B2/ 1000 Model 70 computer:

The UNIX System V Release 3.2.1 operating system has been installed.

The file systems required by the 3B2 CMS software have been created.

The prerequisite software (INFORMIX, Remote Management Utilities, and X.25 Network software) has been installed.

NOTE

The on-site technician should also supply you with the ACD information outlined in *Chapter 4, Turning the System Over to the TSC*.

Installing the 3B2 CMS Software

After all the preinstallation tasks in *Chapter 4* have been completed by the on-site technician, do the following procedures in a sequential order to install the 3B2 CMS software:

How to Download the 3B2 CMS Software

How to Setup the CMS Environment

How to Install the CMS Feature Package

How to Create the ACDs.

Before Installing the 3B2 CMS Software

If this 3B2 CMS installation includes a CMS data historical migration from a 3B2/ 310, 3B2/ 400, or 3B5 computer to a 3B2/ 500 or 3B2/ 600 computer, do the following steps before you install the 3B2 CMS software on the new 3B host computer:

- 1 Log in as *acd1* on source 3B computer (3B2/ 310, 3B2/ 400, or 3B5 computer).

NOTE

For a 3B5 computer, this process must be done for each individual ACD.

- 2 Select the “SCHEDULER” option and obtain a printed (hard copy) list of the scheduled programs. You must do this because you have to reschedule the scheduled programs after you have installed the 3B2 CMS software on the target 3B computer (3B2/ 500 or 3B2/ 600).
- 3 Go to the “MAINTENANCE” Session-Status screen. Press the **PRINT SCREEN** screen-labeled key (SLK) to obtain a hard copy of the displayed information. The value in the Measured Splits field must be administered on the Session-Status screen on the target 3B computer after you have installed the 3B2 CMS software. (Refer to the *Initializing the CMS Software* section in this chapter.)
- 4 Execute the `/cms/bin/swsetup` command and record the information displayed about the Switch Identification, Switch Connection, and Shared Memory Allocation parameters. (**Do not change any of the parameters.**)

How to Download the 3B2 CMS Software

To keep an accurate record of the steps performed in this procedure, connect a printer to the AUX port on the terminal you are using to do the installation. Administer the printer, if necessary.

Download the 3B2 CMS software by doing the following:

- 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 Tell the on-site technician to install the 3B2 CMS floppy disk and cartridge tape.

NOTE

The default baud rate of the console port is 9600. Tell the on-site technician to execute the **sysadm consolebaud** command to change the baud rate to 1200. If the on-site technician wants to monitor the local console terminal during the 3B2 CMS software installation, the baud rate of the local console terminal must also be set to 1200, and the console terminal must be connected to TRM2 on the AIC circuit board.

- 3 From a remote terminal with a baud rate of 1200, establish a connection with the remote console port on customer's 3B2 computer and log in as *root*.
- 4 Execute the following command to determine which state the computer is in.

NOTE

The pound sign (#) in the following screens is the default prompt for the *root* login on the system console. Do not enter the pound sign when entering commands.

```
# who -r
```

- 5 If the computer is not in the single-user state (run-level S), execute the following command:

```
# shutdown -g0 -y -il
```

- 6 Execute the following command to mount the file systems:

```
# mountall
```

- 7 For a 3B2/ 500 or 3B2/ 600 computer, execute the following command to determine how much main memory the computer has:

```
# prtconf
```

Later, you will need this information before you execute the **create acds** command.

Installing the 3B2 CMS Software

- 8 Execute the following command to start the installation of the 3B2 CMS software:

```
# sysadm installpkg
```

NOTE

If the **sysadm installpkg** program is interrupted while the CMS software is being down loaded, you can start over by executing the **sysadm removepkg** program to remove the aborted or interrupted CMS down load. Then execute the **sysadm installpkg** program again to start the down load process from the beginning.

- 9 For a 3B2/ 310 or 3B2/ 400 computer with a Cartridge Tape Controller (CTC) and a standard cartridge tape drive, the **installpkg** program responds with the following message:

```
Running subcommand 'installpkg' from menu 'softwaremgmt',  
SOFTWARE MANAGEMENT  
Select which drive to use:  
  1 ctapel          2 diskettel  
Enter a number, a name, the initial part of a name, or  
? for HELP, q to QUIT:
```

Enter **2** to select the floppy disk drive.

The system responds with:

```
Insert the removable medium for the package you want to install
into the diskette drive.
Press <RETURN> when ready. Type q to quit.
```

For a 3B2/ 310 or 3B2/ 400 computer with a Small Computer System Interface (SCSI) cartridge tape drive and for a 3B2/ 500 or 3B2/ 600 computer, the `installpkg` program responds with the following message:

```
Running subcommand 'installpkg' from menu 'softwaremgmt',
SOFTWARE MANAGEMENT
```

```
Insert the removable medium for the package you want to install
into the diskette drive.
Press <RETURN> when ready. Type q to quit.
```

Installing the 3B2 CMS Software

- 10 After the on-site technician has installed the 3B2 CMS floppy disk and cartridge tape, press the `RETURN` key to continue. The program responds with the following message:

```
If the host computer is a 3B2/ 310 or 3B2/ 400 computer with CTC, the next line will appear.
Installing the Call Management System <310/400 CTC> (Version 2.XX, Issue 1.4).

If the host computer is a 3B2/ 310/ 400/ 500 computer with SCSI, the next line will appear.
Installing the Call Management System <310/400/500 SCSI> (Version 2.XX, Issue 1.4).

If the host computer is a 3B2/ 600 computer, the next line will appear.
Installing the Call Management System <600 SCSI> (Version 2.XX, Issue 1.4).
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All Rights Reserved

Run state S verified.

Directory and File Management Utilities verified.
Editing Utilities verified.
Inter-Process Communication Utilities verified.
Line Printer Spooling Utilities verified.
Shell Programming Utilities verified.
System Administration Utilities verified.
Terminal Information Utilities verified.
User Environment Utilities verified.
Basic Networking Utilities verified.
X.25 Network Interface verified.

This installation base "/cms" is part
of the "/cms" filesystem.

Confirm:   Is this installation base correct [y,n]?
```

- 11 The installation base is `/cms` and is part of the `/cms` file system. Answer the question with a `y` and press the `RETURN` key to continue.

The program prints the following message:

```
<XXX> blocks and <XXX> inodes are required in
the / filesystem to install this package.
<XXX> free blocks and <XXX> free inodes exist.

<XXX> blocks and <XXX> inodes are required in
the /usr filesystem to install this package.
<XXX> free blocks and <XXX> free inodes exist.

<XXX> blocks and <XXX> inodes are required in
the /cms filesystem to install this package.
<XXX> free blocks and <XXX> free inodes exist.

## Executing ask_model pre-installation script ##

If the host computer is a 3B2/ 310, 3B2/ 400, 3B2/ 500 computer, the next 3 lines will appear.
>> This media is intended for a 310/400/500 system.
>> Media for a 600 system must be ordered separately.

>> What type of system is this? [q = quit] [Default=400]

If the host computer is a 3B2/ 600 computer, the next 3 lines will appear.
>> This media is intended for a 600 system.
>> Media for a 310/400/500 system must be ordered separately.

>> What type of system is this? [q = quit] [Default=600]
```

- 12 Enter the appropriate system type (*400* for a 3B2/ 310 or 3B2/ 400 computer, *500* for a 3B2/ 500 computer, or *600* for a 3B2/ 600 computer).

Installing the 3B2 CMS Software

The program responds by continuing with the following messages:

```
## Executing chk_for_rmp pre-installation script ##
## Executing chk_for_conv pre-installation script ##
If the host computer is a 3B2/ 310 or 3B2/ 400 computer with CTC, the next line will appear.
  Installation will now employ /dev/rSA/ctape1 (CTC cartridge drive);

If the host computer is a 3B2/ 310/ 400/ 500/ 600 computer with SCSI, the next line will appear.
  Installation will now employ /dev/rSA/qtape1 (SCSI cartridge drive);
  Please insert cartridge tape; type <return> when ready.
```

Since this is a new computer, there should be enough free blocks and inodes to install the 3B2 CMS software.

13 Press the key to continue.

The program responds with the following message:

```
## Installing files from cartridge tape
If the host computer is a 3B2/ 310 or 3B2/ 400 computer with CTC, the next line will appear.
Call Management System <310/400 CTC> (Version 2.XX, Issue 1.4)

If the host computer is a 3B2/ 310/ 400/ 500 computer with SCSI, the next line will appear.
Call Management System <310/400/500 SCSI> (Version 2.XX, Issue 1.4)

If the host computer is a 3B2/ 600 computer, the next line will appear.
Call Management System <600 SCSI> (Version 2.XX, Issue 1.4)
created <date and time>
```

The program takes about 20 minutes to download the 3B2 CMS software from the cartridge tape to hard disk. As the software is downloaded, a list of files will be printed. If the download was successful, the following message will be printed:

```
Data read from cartridge tape successfully.

The cartridge tape may now be removed from the tape drive.

## Installing disk 1 of 1

/etc/ask_model
/etc/model
<XX> blocks

## Executing class script for "data"
/etc/feat
/etc/feat/cms
/cms/maint
/cms/maint/text
/cms/maint/text/cerrlog.dat
/cms/maint/text/cerrlog.idx
/cms/maint/text/text.dbd
/cms/maint/text/txt_alarm.dat
/cms/maint/text/txt_alarm.idx
/cms/maint/text/txt_cerr.dat
/cms/maint/text/txt_cerr.idx
/cms/maint/text/txt_cmd.dat
/cms/maint/text/txt_cmd.idx
/cms/maint/text/txt_scr.dat
/cms/maint/text/txt_scr.idx

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

## Auditing package installation
```

NOTE

Several minutes are required to audit the package installation.

Installing the 3B2 CMS Software

If the audit is successful, the following message will be printed:

```
>> No errors detected during audit.  
## Executing <program(s)> post-installation script  
## Installing /usr/options/cms.name  
  
If the host computer is a 3B2/ 310 or 3B2/ 400 computer with CTC, the next line will appear.  
Installation of the Call Management System <310/400 CTC> is complete.  
  
If the host computer is a 3B2/ 310/ 400/ 500 computer with SCSI, the next line will appear.  
Installation of the Call Management System <310/400/500 SCSI> is complete.  
  
If the host computer is a 3B2/ 600 computer, the next line will appear.  
Installation of the Call Management System <600 SCSI> is complete.  
You may now remove the medium from the diskette drive.  
  
Insert the removable medium for the package you want to  
install into the diskette drive.  
Press <RETURN> when ready. Type q to quit.
```

- 14 Tell the on-site technician to remove the cartridge tape and the floppy disk. Then enter **q** to quit.

How to Setup the CMS Environment

Prerequisites: You must be logged in as *root*, the computer must be in the single-user state (run-level S), and all file systems must be mounted.

- 1 Execute the following command to display the CMS administration menu:

```
# sysadm cms_mgmt
```

The program prints the following screen:

```
CALL MANAGEMENT SYSTEM ADMINISTRATION

1 Sys_setup      Pre-CMS Installation
2 cms_installpkg Install CMS feature package
3 create_acds    Create New ACD's
4 update_acds    Update ACD's

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

NOTE

If the **Sys setup** program is interrupted while it is executing, recover by executing the **Sys setup** program again. If you enter incorrect data while answering questions in the **Sys setup** program, press the **DELETE** key to exit from the program. Then execute the **Sys setup** program again.

Installing the 3B2 CMS Software

- 2 Enter **1** to execute the **Sys setup** administration program. The program prints the following message:

```
Setting up crontab entry for /usr/lib/cron/log...
Setting up crontab entry for /etc/wtmp...
Setting up crontab entry for /etc/utmp...
Setting up crontab entry for /usr/adm/sulog...
Setting up crontab entry for /etc/feat/cms/rm_mail_sh...

#####
# The following administration should already be done:  #
#                                                       #
# 1. Administration of a /cms file system.             #
# 2. Administration of terminals.                     #
# 3. Installation of X.25 software.                   #
# 4. Installation of INFORMIX.                       #
# 5. Installation of Remote Management Package.       #
#                                                       #
# Use "sysadm" to do this.                             #
#####

Press RETURN when ready to continue, otherwise enter q RETURN.
```

- 3 If you have done the prerequisites, the system will print the following information after you press the `RETURN` key:

```
#####
# Administering the X.25 data bases #
#####
```

During this part of the program, the X.25 network interface administration is done as a background process. The program will also print the following information:

```
#####  
# Administering the remote management package #  
#####
```

During this part of the program, the remote management package is automatically administered in the background.

Next, you will be prompted as follows about the line printer administration:

```
Do you want to administer the line printers? (y/n):
```

NOTE

Administer all CMS printers at this time.

If you are doing the CMS software installation from the customer's site, visually determine which tty ports are connected to the line printers. If you need help, refer to the *3B2 Computer Expanded Input/ Output Capability Manual* (305-530).

If you are doing the CMS software installation from a remote site, the on-site technician should have provided you with a list of tty ports that are connected to printers.

Installing the 3B2 CMS Software

- 4 Enter **y**, and the system responds with:

```
Doing a 'grep tty /etc/inittab | pg' ...
```

```
    You will need the tty number(s) for the printer ports(s)
    assigned below:
```

```
Press RETURN when ready to continue.
```

Pressing `RETURN` will *page* you through a list of the tty port numbers located in the `/etc/inittab` file. Press the `RETURN` key each time the program pauses at the colon (`:`) to see the next page of text. To see the previous page of text, enter `-1` and press the `RETURN` key. Select the tty ports connected to the printers and write them down on scratch paper. You will need these tty port numbers later in the program.

After you have paged through the list of tty port numbers, the program responds with:

```
Setting up printers...
```

```
The following printer models are available:
```

```
att460
att475
att5310
att5320
```

```
Enter your printer model selection:
```

If your printer model is not listed, refer to *Administering a New Printer* in *Chapter 8* after you have installed the CMS software.

NOTE

Printer models must be entered *exactly* as shown in the list.

Printer model "AP200" is the same as model "att460."

If the printer model is "att475" or "att476", DIP 5 on switch SW24 of the printer must be "ON" (CLOSED), and DIP 6 on switch SW24 of the printer must be "OFF" (OPEN). Refer to the *Users Guide 470/471, 475/746 Printers* (999-700-303IS) document for the AT&T 475 printer to determine the location of switch SW24.

- 5 From the printer list, enter the model number of a printer connected to the 3B2 computer. The program responds with:

Enter tty name for the <model> printer (eg., tty03):

- 6 Enter the complete tty name. The program responds with:

Enter printer name (limited to 8 characters):

Installing the 3B2 CMS Software

- 7 Select a name for the printer and enter it. For example, the CMS administrator may want to name the first printer *printer1*. The program then responds with:

```
Should this be the system default printer? (y/n):
```

- 8 Enter **y** if the CMS administrator wants the printer to be the default printer. The computer responds with:

```
Do you want to administer another printer? (y/n):
```

- 9 If there are more printers to administer, enter **y** and the program will prompt you accordingly. If there are no more printers to administer, enter **n** and the program will respond with:

```
Starting up the printer(s)...
scheduler is running
system default destination: <printer_name>
device for <printer_name>: /dev/<tty name>
<printer_name> accepting requests since <date>
printer <printer_name> is idle. enabled since <date>
```

Finally, the **Sys setup** program prints the following message:

```
sys_setup exiting normally.
```

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

10 Enter **q** to quit.

How to Install the CMS Feature Package

Prerequisites: You must be logged in as *root*, the computer must be in the single-user state (run-level S), and all file systems must be mounted.

- 1 Execute the following command to display the CMS administration menu:

```
# sysadm cms_mgmt
```

The program prints the following screen:

```
                                CALL MANAGEMENT SYSTEM ADMINISTRATION

1 Sys_setup      Pre-CMS Installation
2 cms_installpkg Install CMS feature package
3 create_acds    Create New ACD's
4 update_acds    Update ACD's

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

- 2 Enter **2** to install the 3B2 CMS feature package.

NOTE

If the **cms installpkg** program is interrupted while it is executing, recover by executing the **cms installpkg** program again.

The program responds with several messages:

```
A log is kept in /etc/feat/inst_log<XXX>
Begin Building ACDMODEL...
Building atom.sch...
Building calc.sch...
.
Building curday_sch...
Building dagent_sch deferred until later.
.
Building hvec_sh deferred until later.
Building spdays_sch...
.
Loading blocking...
.
Building ACE report aceatom...
.
```

During this time, the program prints several messages about building and loading files.

Finally, the program prints the following message:

```
Finished Initial Call Management System Installation.

*****
*****
Do you want to examine /etc/feat/inst_log<XXX>? (y or n):
```

- 3 Enter **y** to see the entire error log. Look for “not successful” errors.

NOTE

If you enter **y**, press the **RETURN** key to see the next page of the error log.

If “not successful” error messages appeared in the error log, **do not** continue with the installation until you have escalated the problem for further instructions.

Installing the 3B2 CMS Software

After printing the error log, the system responds with:

```
Auditing ACDMODEL files...
***** CMS package installation program exiting normally *****
***** Now perform the interactive portion of the installation ***
Press the RETURN key to see the cms_mgmt menu [?, ^, q]:
```

4 Enter **q** to quit.

How to Create the ACDs

Prerequisites: You must be logged in as *root*, the computer must be in the single-user state (run-level S), and all file systems must be mounted.

- 1 For customers upgrading from AP-16 CMS to 3B CMS, increase the *ulimit* by executing the following command:

```
# ulimit 50000
```

- 2 Execute the following command to display the CMS administration menu:

```
# sysadm cms_mgmt
```

Installing the 3B2 CMS Software

The program prints the following screen:

```
CALL MANAGEMENT SYSTEM ADMINISTRATION

1 Sys_setup      Pre-CMS Installation
2 cms_installpkg Install CMS feature package
3 create_acds    Create New ACD's
4 update_acds    Update ACD's

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

3 Enter 3 to create an ACD.

NOTE

If the **create acds** program is interrupted while it is executing, recover by executing the **create acds** program again.

The program responds by printing the following message:

```
A log is kept in /etc/feat/acd_log<XXX>
Begin Building ACD's...
```

If the host computer is a 3B2/ 310, 3B2/ 400, or 3B2/ 500 the following line will appear.
Enter acd id(s): (ie., acd1):

If the host computer is a 3B2/ 600, the following line will appear.
Enter acd id(s): (ie., acd1 acd2 acd3 acd4):

NOTE

The 3B2/ 310, 3B2/ 400, and 3B2/ 500 computers can only support one ACD. However, 3B2/ 600 computer can support four ACDs.

After this program has completed, check the `/etc/feat/acd log XXX` file for possible errors.

- 4 Enter the ACD ID(s). The program then responds with:

```
Clearing message queues, if any...
Clearing shared memory, if any...
Clearing semaphores, if any...
Starting msgmgr...
Copying acdmodel to acd<X>...
<XXXX> blocks
acd<X> must be administered as a new login first...
```

The ACD login was successfully added to the system when the following line is printed:

```
ADD was successfully completed.
```

Next, the program prompts you for switch identification, switch connection, and shared memory allocation parameters:

NOTE

You should already have gathered the information needed to complete this step. If this is a new installation and you don't have the required information, refer to Table 4-5 for a 3B2/ 310 or 3B2/ 400 computer, refer to Table 4-6 for a 3B2/ 500 or 3B2/ 522 computer, and refer to Table 4-7 for a 3B2/ 600 or 3B2/ 1000 Model 70 computer.

Installing the 3B2 CMS Software

```
SWITCH IDENTIFICATION  
name (20 characters):
```

NOTE

The name you enter will appear on the top right of the CMS screens. The name of the switch is limited to 20 characters.

- 5 Enter the switch's name. Press `RETURN`, and the program prints:

```
type (DIM, S75, S85, DEFINITY):
```

- 6 Enter the type of switch connected to the 3B2 computer and press `RETURN`.

NOTE

DIMENSION System = DIM, System 75 and System 75 XE = S75, System 85 = S85, and DEFINITY = DEFINITY Communications System.

If you enter DIM, S75, or S85, the program prints:

```
release (<version(s)>):
```

For a System 85, *release* is either R2V3 or R2V4. For a System 75 and System 75 XE, *release* is R1V3. For a DIMENSION System switch, *release* can only be R3L7.

For a DEFINITY Communications System, the program prints the following:

```
generic (1, 2, 3i):
```

- 7 After you enter the appropriate information, press the **RETURN** key. Next, the program prints:

SWITCH CONNECTION

If the host computer is a 3B2/ 310, 3B2/ 400, or 3B2/ 500 the following line will appear.

link (0 - 1):

If the host computer is a 3B2/ 600, the following line will appear.

link (0 - 3):

The link number represents the port on the ISC board connected to the switch.

NOTE

For a 3B2/ 310, 3B2/ 400, and 3B2/ 500 computer, **J2** on the Serial Port Connector Cable corresponds to link "0," and **J3** corresponds to link "1." For a 3B2/ 600 computer with two ISC cards installed, the ISC card with the lowest slot number has link "0" and "1." The ISC card with the highest slot number has link "2" and "3."

Installing the 3B2 CMS Software

- 8 Enter the link number. The program prints:

```
port (0 - X):
```

NOTE

In this screen, the “X” will be replaced by a value that depends on the switch type. For a System 85 with R2V3, only port 64 can be assigned to CMS. For a Generic 2 and System 85 with R2V4, ports 1 through 64 can be assigned to CMS. For a Generic 3i, Generic 1, System 75, and System 75 XE, ports 1 through 64 can be assigned to CMS. For a DIMENSION System switch, ports 1 through 20 can be assigned to CMS.

- 9 Enter the port number (local port number on the switch) and press **RETURN**. The program responds with:

```
time zone offset (-24 - 24):
```

- 10 Enter **0** if the 3B2 computer and the switch are in the same time zone. If the 3B2 computer and switch are in different time zones, determine the plus or minus hours difference, relative to the 3B2 computer, that the switch is away from the 3B2 computer. Enter the number of hours difference.

If the switch connected to the 3B2 computer is a Generic 1, Generic 2, Generic 3i, or System 85 R2V4, the following message will be printed next:

```
SWITCH FEATURES
Do you want to change switch features (yes, no)?
```

- 11 *For Generic 2, Generic 3i, and System 85 R2V4:* If the customer has purchased the Vectoring feature of CMS, enter **yes**.

For Generic 1: If the customer has the Outbound Call Management feature activated, enter **yes**.

If you enter **yes**, you will be prompted as follows for a password:

```
Password:
```

This password is known by personnel at the TSC and is used to turn on the Vectoring and OCM features of 3B CMS. Enter the password.

For Generic 2, Generic 3i, and System 85 R2V4, the program prints the following message:

```
vectoring (yes, no)?
```

Enter **yes** to turn on the Vectoring feature of 3B CMS.

Installing the 3B2 CMS Software

For Generic 1, the program prints the following message:

```
outgoing call management (yes,no)?
```

Enter **yes**, to turn on the OCM feature of 3B CMS.

Next, the program prints the following:

```
PACKAGES  
Do you want to change packages (yes, no)?
```

If the customer has purchased CMS Graphics, enter **yes** to turn on CMS Graphics. Otherwise, enter **no**.

If you enter **yes**, the following two screens will appear:

```
Password:
```

This password is known by personnel at the TSC and is used to turn on the CMS Graphics feature of 3B CMS. Enter the password.

The program responds as follows:

Bar Graphs (yes, no)?

Enter **yes** to turn on the CMS Graphics feature of 3B CMS.

NOTE

The values you enter in the next two screens should correspond to the values on the switch. To allow for future growth of the customer's ACD, the values you enter should be approximately 25 percent larger than the values on the switch. The maximum values should only be used as necessary.

SHARED MEMORY ALLOCATION

splits (1 - 60):

If the host computer is a 3B2/310 or 3B2/400 computer, the next line will appear.

agents (1 - 400):

If the host computer is a 3B2/500 or 3B2/600 computer, the next line will appear.

agents (1 - 1024):

trunk groups (0 - 255):

If the host computer is a 3B2/310 or 3B2/400 computer, the next line will appear.

trunks (0 - 700):

If the host computer is a 3B2/500 or 3B2/600 computer, the next line will appear.

trunks (0 - 1400):

unmeasured facilities (100 - 100):

Installing the 3B2 CMS Software

If the 3B2 computer is connected to a Generic 3i, Generic 2 or System 85, R2V4 switch and you answered the vectoring question with a **y**, the following line will also be printed:

```
vector directory numbers (0 - 256):
```

- 12 Enter the information accordingly. After you enter the required data, the program responds with:

```
Changes were saved successfully
```

Then the program takes a few minutes to build the “daily data save” data bases associated with the ACD.

After the “daily data save” data bases have been built, the program initializes the dictionary:

```
Initializing the dictionary...  
Loading database items.  
.....
```

While the dictionary is being initialized, the program prints out a series of dots on a single line (see last line in this screen).

After the dictionary has been initialized, the program responds with:

```
Killing dddemon...
```

If the host computer is a 3B2/ 310 or 3B2/ 400 the computer will respond with the following:

```
Enter option for the 3B2/400 tape device used for CMS backups:
```

- 1.) SCSI 9-Track Tape
- 2.) SCSI 60 MB Cartridge Tape
- 3.) 23 MB Cartridge Tape (CTC tape drive)

```
Enter Tape Device Option. Default - 3 (e.g., 1 2 3):
```

If the host computer is a 3B2/ 500 or 3B2/ 600 the computer will respond with the following:

```
Enter option for the 3B2/<500 or 600> tape device used for CMS backups:
```

- 1.) SCSI 9-Track Tape
- 2.) SCSI 60 MB Cartridge Tape

```
Enter Tape Device Option. Default - 2 (e.g., 1 2):
```

Installing the 3B2 CMS Software

- 13 Enter the correct option. The system will respond by printing the device file name for the option you selected and then print the following line:

```
acd<X> has been set up...
```

Next, the program asks the following question. (Make sure you fully understand the question before you answer it.)

```
Do you have an TSC tape for installing historical data from  
an AP16 in acd<X>? (y/n):
```

- 14 **If the customer's CMS historical data is migrating** from an AP-16 CMS to a 3B2 CMS environment and if the tape containing the CMS historical data is at the customer's site, answer the question with a **y**, and the program prints the following message:

```
Beginning the restore & upload of TSC converted AP16 data...  
Insert the tape containing the AP16 data  
into the proper drive (ctapel or qtapel).  
Press <RETURN> when ready, or q <RETURN> to quit.
```

Tell the on-site technician to install the cartridge tape containing the historical data that was received from the TSC, and then press the `RETURN` key.

The following message appears:

```
Drive Selection:
1) ctape1
2) qtape1 (SCSI)
Enter 1 or 2 to indicate which drive is being used.
```

a If you enter **1**, the following message appears:

```
SYSADM now performing restore from ctape1 ...
```

b If you enter **2**, the following message appears:

```
SYSADM now performing restore from qtape1 ...
```

Installing the 3B2 CMS Software

If a problem with the restore occurs, the following message appears:

```
SYSADM had trouble reading the tape -  
Do you wish to examine the SYSADM transaction log (y or n)?
```

If your answer is **y**, the following message appears:

```
Paging thru the transaction log ...
```

Press the key to continue paging through the log. At the end of the log, this message appears:

```
Check tape and try again ...  
(Press <RETURN> to continue, or q <RETURN> to quit)
```

Remove the tape cartridge from the drive and inspect it. If the tape cartridge appears to be in good condition, reinstall the cartridge tape and press the key. You will be prompted to enter the “Drive Selection” again and the process will start over.

The program prints the following message as the data is restored:

```

Restore of TSC data is complete ...

Performing upload of the TSC data ...

Begin database upload of acd<X>
<date>

Loading dictionary data

        synonyms ...
There were <XX> records loaded from "/cms/out/synonym".
        splits ...
There were <XX> records loaded from "/cms/out/split".
        trunk groups ...
There were <XX> records loaded from "/cms/out/trkgrp".
        report groups ...
There were <XX> records loaded from "/cms/out/rptgrp".
        login ids ...
There were <XX> records loaded from "/cms/out/loginid".

Loading historical data

        daily agents ...
There were <XX> records loaded from "/cms/out/dagent".
        daily split ...
There were <XX> records loaded from "/cms/out/dsplit".
        daily trunk group ...
There were <XX> records loaded from "/cms/out/dtkgrp".
        daily trunks ...
There were <XX> records loaded from "/cms/out/dtrunk".
        half hour agents ...
There were <XX> records loaded from "/cms/out/hagent".
        half hour split ...
There were <XX> records loaded from "/cms/out/hsplit".
        half hour trunk group ...
There were <XX> records loaded from "/cms/out/htkgrp".
        half hour trunks ...
There were <XX> records loaded from "/cms/out/htrunk".

Upload completed
<date>

The restore & upload of the TSC converted AP16 data was successful.

```

Installing the 3B2 CMS Software

- 15 **If the customer's CMS historical data is not migrating** from an AP-16 CMS to a 3B2 CMS environment, answer the question with a **n**. The program will print the following message:

Is there Migration Data to be added to acd<X> (y/n)?

NOTE

If you answer the question with a **n**, skip the rest of this step.

- a If the customer's CMS historical data is migrating from a 3B2/ 310 or 3B2/ 400 computer system to a 3B2/ 500 or 3B2/ 600 computer, insert the cartridge tape that contains the migration data and answer the question with a **y**. The program prints the following message:

Please enter Terminal Type (i.e. 4425)

- b Enter the terminal type and press the **RETURN** key. The program prints the following:

Mount tape and depress <RETURN>

Insert the cartridge tape that contains the migration data and press the `RETURN` key. The program prints the following:

Please wait for the Restore screen!

- c When the CMS Restore screen appears, press the `RETURN` key. The amount of time required to install the migration data will vary depending on how large the CMS historical data bases are. Usually, the time required is slightly longer than the time it took to do a CMS Maintenance **Data-Backup** of the same data bases on the previous 3B2 computer. In other words, it may take from several minutes to several hours to install the migration data depending on the size of the data bases.
- 16 If the host computer is a 3B2/ 600 computer and you entered more than one ACD ID at the beginning of the **create acds** program, the program will continue until the data bases for each ACD has been created.
- 17 If the host computer is a 3B2/ 500 or 3B2/ 600 the program will print the following:

Enter the number of megabytes of RAM that is installed on this machine.
Number of megabytes (i.e. 4, 6, 8, 10, 12, 14, or 16)

Enter the number that represents the amount of memory that is installed on the 3B2/ 500 or 3B2/ 600 computer.

Installing the 3B2 CMS Software

- 18 Next, the program prints the following information as it automatically reconfigures the UNIX operating system:

```
The System tunable parameters must be changed for this machine!  
Changing the kernel system file...  
. .  
Changing the msg system file...  
. .  
Changing the sem system file...  
. .  
Changing the shm system file...  
. .
```

The program continues by printing the following messages:

```
Killing msgmgr...  
Clearing message queues, if any...  
ipcrm -q0  
Clearing shared memory, if any...  
ipcrm -m0  
Clearing semaphores, if any...  
ipcrm -s0  
Do you want to examine /etc/feat/acd_log<XXX>? (y/n):
```

- 19 Enter **y** to see the entire error log. Look for “not successful” error messages that may have occurred while the ACD data base was being created. The program will page through the `/etc/feat/acd_log XXX` .

NOTE

If “not successful” error messages appeared in the error log, **do not** continue with the installation until you have escalated the problem for further instructions.

Finally, the program prints the following message:

```
"create_acds" exiting normally.
```

```
Finished...changing to multi-user state...
```

```
As soon as the login prompt appears, you may log on...
```

- 20 If you have not already done so, tell the on-site technician to remove the 3B2 CMS floppy disk and cartridge tape.
- 21 Go to the next section, *Initializing the 3B2 CMS Software*, to initialize or start up the communication link between the 3B2 CMS software and the telecommunications switch.

Initializing the 3B2 CMS Software

After the CMS software has been installed, do the steps in this section to initialize the communications link between the 3B2 CMS software and the telecommunications switch:

- 1 At the *Console Login:* prompt, log into the system by using the CMS administrator's login ID (for example, *acd1*) to bring up the CMS MAIN MENU.
- 2 Go to the "MAINTENANCE" menu screen.
- 3 After the "MAINTENANCE" menu screen appears, select the "Session-Status" option.
- 4 When the "Session-Status" screen appears, look at the "Link" field. The status should read "Up," "Down," or "Quiescent."
- 5 If the "Measured Splits" field is wrong, change the splits in the "Measured Splits" field so that it corresponds with the number of measured splits on the switch.
- 6 Press the **CONNECT** screen-labeled key. After a few seconds, the "Link" field should read "Up," the "Session" field should change from "Waiting Session Accept" to "Data Transfer," and the "CMS" field should change from "Requesting Translations" to "Data Transfer." The CMS software should now be able to monitor the ACD activities on the switch.

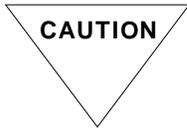
NOTE

If the host computer is a 3B2/ 600 computer with more than one ACD, return to **Step 1** until each ACD has been initialized.

Turning the System Over to the Customer

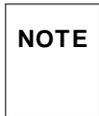
If this installation included a 3B CMS historical data migration, you must reschedule the scheduled programs.

Do the test procedures in *Chapter 7* and the backup procedures in *Chapter 8* before you turn the system over to the customer.



If the customer's system is not backed up and disk drive 1 crashes later on, the UNIX system and the 3B2 CMS software will have to be installed again.

The customer's CMS administrator will also need the information on the next page.



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

Turning the System Over to the Customer

- The password for the *root* login ID.
(Also passwords for the system login IDs
if they were assigned.) 1.
- The CMS administrator login ID and password.
(This login ID is *acd1*.) 2.
- Additional CMS-administrator login IDs and passwords 3.

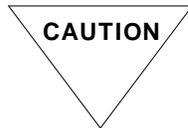
- The default CMS printer name 4.
- Additional system printer names 5.

- How many splits were assigned? 6.
- How many agents were assigned? 7.
- How many trunk groups were assigned? 8.
- How many trunks were assigned? 9.
- How many VDNs were assigned? 10.
(Generic 3i, Generic 2 and R2V4 only)

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

General Information

Use the procedures in this chapter to upgrade a customer's system to a new base load or to install a Field Update.

 **CAUTION** Before you begin the procedures in this chapter, you must back up the / and /usr file systems and the CMS file system(s) from the UNIX system environment. For instructions, refer to *Chapter 8*.

 **NOTE** If you are upgrading the system to include the Mirrored Disk capabilities, follow the procedures located in the *Mirrored Disk — Upgrade* section of *Appendix E*.

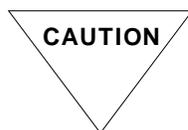
The 3B2 CMS software package is issued in base loads, for example *Version 2.28*. Customer's who are upgrading their system will be getting the latest version of the 3B2 CMS software. If a base load has to be field updated, a Field Update, for example *Version 2.28.1*, will be issued.

The following sections contain the step-by-step instructions and verification procedures necessary for you to upgrade a customer's system to a new base load of the 3B2 CMS software or to install a Field Update:

Upgrading to a New Base Load

Installing a Field Update

Verifying the Upgrade or Field Update.

 **CAUTION** For 3B CMS Release 2, Version 2.32 and later loads, additional 3B2 computers are being supported. Newly supported 3B2 computers include the following:

3B2/ 522 — If you are upgrading or updating 3B CMS on the 3B2/ 522, follow the appropriate procedures for the 3B2/ 500 and upgrade/ update as if the 3B2/ 522 was a 3B2/ 500.

3B2/ 1000 Model 70 — If you are upgrading or updating 3B CMS on the 3B2/ 1000 Model 70, follow the appropriate procedures for the 3B2/ 600 and upgrade/ update as if the 3B2/ 1000 Model 70 was a 3B2/ 600.

General Information

NOTE

Although these procedures are easy to do, you should confer with the customer's CMS administrator before starting to determine whether or not the upgrade or field update is to take place after regular working hours.

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

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

Back up the / and /usr file systems and the CMS file system(s) from the UNIX system environment. For instructions, refer to *Chapter 8*.

Make sure the on-site technician has the medium (cartridge tape and/ or floppy disk) that contains the new base load or field update of the 3B2 CMS software.

NOTE

If you are installing a new base load, the 3B2 CMS floppy disk that contains the current base load of the 3B2 CMS software will be needed.

NOTE

Special instructions may accompany the software. If this is the case, you must follow the instructions before you start the procedures in this chapter.

Obtain the passwords for the *root* and the ACD logins from the on-site technician or the CMS administrator.

Login to each ACD.

For each ACD, do the following:

- a Go to the MAINTENANCE Session-Status screen.
- b Record the number of measured splits in the Measured Splits field.

NOTE

After the upgrade has taken place, you will need to readminister this number in the Measured Splits field. Refer to the section *Verifying the 3B2 CMS Software Upgrade*.

When Upgrading From Version 2.8

If you are upgrading a customer's CMS from *Version 2.8*, you must verify the existence of the following INFORMIX files before the upgrade takes place:

ddn.dat

ddn.idx

hdn.dat

hdn.idx

These INFORMIX files are located in the *dsave* directory of the appropriate file system. For example, the *ddn.dat* and *ddn.idx* files for *acd1* may be located in the */cmsdisk1/cms/acd1/dsave* directory while the *hdn.dat* and *hdn.idx* files for *acd1* may be located in the */cms/acd1/dsave* directory. The exact location of these files will vary depending on where the CMS installation programs placed them during the installation.

NOTE

The 3B2/ 600 or 3B2/ 1000 Model 70 computer supports up to four ACDs: *acd1*, *acd2*, *acd3*, and *acd4*.

To determine the exact location of these files, execute the following commands:

```
# cd /cms/acdX/dsave
# grep location ddn_sch
# grep location hdn_sch
```

X = 1, 2, 3, or 4, *ddn_sch* is the schema associated with the *ddn.dat*, and *ddn.idx* files and *hdn_sch* is the schema associated with the *hdn.dat* and *hdn.idx* files.

The output from the **grep** commands will be the location parameters of the CMS historical databases associated with these schemas. For example, if the output is the following:

```
location "/cmsdsk1/cms/acd1/dsave/ddn"  
location "/cmsdsk1/cms/acd1/dsave/hdn"
```

then the *ddn.dat*, *ddn.idx*, *hdn.dat*, and *hdn.idx* files will be located in the */cmsdsk1/cms/acd1/dsave* directory.

Go to the *dsave* directory by using the **cd** command and execute the **ls** command to verify that these files exist. If you find that a *.dat* or *.idx* file is missing, execute the following commands to rebuild the associated CMS historical database:

```
# cd /cms/acdX/dsave  
# dbbuild schema
```

X= 1, 2, 3, or 4 and *schema* is the appropriate schema file (*ddn sch* or *hdn sch*) associated with the missing *.dat* or *.idx* INFORMIX file.

After the CMS historical database(s) has been rebuilt, return to the *dsave* directory, which should now contain the *.dat* and *.idx* INFORMIX files.

General Information

If the *ddn* CMS historical database has been rebuilt, execute the following commands:

```
# chmod 664 ddn.dat
# chmod 664 ddn.idx
# chgrp acdX ddn.dat
# chown acdX ddn.dat
# chgrp acdX ddn.idx
# chown acdX ddn.idx
```

X = 1, 2, 3, or 4.

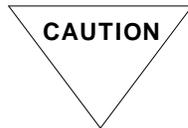
If the *hdn* CMS historical database has been rebuilt, execute the following commands:

```
# chmod 664 hdn.dat
# chmod 664 hdn.idx
# chgrp acdX hdn.dat
# chown acdX hdn.dat
# chgrp acdX hdn.idx
# chown acdX hdn.idx
```

X = 1, 2, 3, or 4.

Upgrading to a New Base Load

Before you upgrade the system to a new base load, you must do the following prerequisite steps.



Before you begin the procedures in this section, you must back up the `/` and `/usr` file systems and the CMS file system(s) from the UNIX system environment. For instructions, refer to *Chapter 8*.

- 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 or the customer's CMS administrator.

NOTE

The default baud rate of the console port is 9600. Tell the on-site technician to execute the `sysadm consolebaud` command to change the baud rate to 1200. If the on-site technician wants to monitor the local console terminal while the new base load is being installed, the baud rate of the local console terminal must also be set to 1200, and the console terminal must be connected to TRM2 on the AIC circuit board.

- 2 From a remote terminal, establish a connection with the remote console port on customer's 3B2 computer and log in as `root`.
- 3 Execute the following command to determine which state the computer is in:

```
# who -r
```

Upgrading to a New Base Load

- 4 If the computer is not in the single-user state (State 1), execute the following command:

```
# shutdown -g60 -y -il
```

- 5 Execute the following command to mount the file systems:

```
# mountall
```

- 6 For a 3B2/ 500 or 3B2/ 600 computer, execute the following command to determine how much main memory the computer has:

```
# prtconf
```

Later, you will need this information before you execute the **update acds** command.

NOTE

If any of the CMS users have customized their *.profile* files, make a backup copy of the *.profile* files— name the backup copies *profile.old*— by using the **cp** command. After the new base load has been installed, move *profile.old* to *.profile* by using the **mv** command. If you don't do this, CMS users with customized *.profile* files will receive the latest copy of the default CMS *.profile* file.

After you have completed the prerequisite steps, do the following procedures to install the new base load:

How to Uninstall the Current Base Load

How to Download the New Base Load

How to Reinstall the CMS Feature Package

How to Update the ACDs.

How to Uninstall the Current Base Load

Prerequisites: You must be logged in as *root*, and the computer must be in the single-user state (run-level S), and all file systems must be mounted and backed up.

The current base load of the 3B2 CMS software must be uninstalled before you can install the new base load of the CMS software.

To uninstall the current base load, do the following:

- 1 Execute the following command to start uninstalling the 3B2 CMS software:

```
# sysadm removepkg
```

The program responds with the following message:

```
Running subcommand 'removepkg' from menu 'softwaremgmt',  
SOFTWARE MANAGEMENT
```

A list of the software packages installed on the computer will also be printed out.

- a If the host computer is a 3B2/ 310 or 3B2/ 400 with CTC, the program displays the following screen:

```
Select which drive to use:
  1 ctapel      2 diskette1
Enter a number, a name, the initial part of a name, or
? for HELP, q to QUIT:
```

Enter **2** to select the floppy disk drive.

- b The program prints the following message regardless of which 3B2 computer is the host:

```
Insert the removable medium for the package you wish to remove
into the diskette1 drive.
Press <RETURN> when ready.  Type q to quit.
```

If you have not already done so, tell the on-site technician to insert the 3B2 CMS floppy disk that contains the old version of 3B2 CMS into the floppy disk drive.

Upgrading to a New Base Load

- 2 Press the `RETURN` key, and the program prints the following message:

If the host computer is a 3B2/ 310 or 3B2/ 400 computer with CTC, the next line will appear.
Removing Call Management System <310/400 CTC>.

If the host computer is a 3B2/ 310/ 400/ 500 computer with SCSI, the next line will appear.
Removing Call Management System <310/400/500 SCSI>.

If the host computer is a 3B2/ 600 computer, the next line will appear.
Removing Call Management System <600 SCSI>.

Run state S verified.

Removing the auditmap file(s)

For *Version 2.28* or later, the following message will also be printed:

```
## Executing chk_bkup pre-uninstallation script ##
```

```
All file systems should be backed up before continuing.  
See the Maintenance chapter in the 3B2 CMS Installation  
and Maintenance Manual for instructions.
```

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

If you have backed up the file systems, enter **y** to continue.

If you have **not** backed up the file systems, do the following:

- a Enter **n** to exit from the program.
- b Back up the file systems. Refer to the *Chapter 8* of this document for instructions.
- c Return to **Step 1** in this section, *How to Uninstall the Current Base Load*.

Next, the program prints the following message:

```
## Processing pathnames in "mdl" class
/etc/ask_model
/etc/model

## Processing pathnames in "data" class
If you are uninstalling this package in order to install a more
recent version, it is necessary to retain customer data.

ANSWER y TO THE NEXT QUESTION TO SAVE THE CUSTOMER DATA!!

Are you in the process of upgrading this package (y or n)?
```

a Enter **y**, and the program prints the following message:

```
>> Retaining customer data.
```

The program prints out a list of pathnames associated with the “ind” class files as they are saved.

Upgrading to a New Base Load

b If you enter **n**, the following message will appear:

```
You entered n which will cause the customer data to be REMOVED ...  
Confirm this by entering n again or enter y to save the data.
```

If you enter **n** again, this message will appear:

```
>>Removing customer data
```

NOTE

Only the data in the Error Log is removed, not the data in the customer's CMS historical databases.

Finally, the program prints the following messages:

If the host computer is a 3B2/ 310 or 3B2/ 400 computer with CTC, the next line will appear.
Removal of Call Management System <310/400 CTC> is complete

If the host computer is a 3B2/ 310/ 400/ 500 computer with SCSI, the next line will appear.
Removal of Call Management System <310/400/500 SCSI> is complete

If the host computer is a 3B2/ 600 computer, the next line will appear.
Removal of Call Management System <600 SCSI> is complete
You may now remove the medium from the diskette drive.

Insert the removable medium for the package you wish to remove
into the diskette drive.
Press <RETURN> when ready. Type q to quit. q

- 3 Enter **q** to exit. You have finished with the uninstall procedure.

How to Download the New Base Load

Prerequisites: You must be logged in as *root*, the computer must be in the single-user state (run-level S), all file systems must be mounted, and the previous base load must be uninstalled.

- 1 Execute the following command to access the **installpkg** program:

```
# sysadm installpkg
```

NOTE

If the **sysadm installpkg** program is interrupted while the new base load of the CMS software is being down loaded, you can start over by executing the **sysadm removepkg** program and using the floppy disk for the new base load to remove the aborted or interrupted CMS down load. Then execute the **sysadm installpkg** program again to start the down load process from the beginning.

- a **For a 3B2/ 310 or 3B2/ 400 computer with a Cartridge Tape Controller (CTC) and a standard cartridge tape drive**, the **installpkg** program responds with the following message:

```
Running subcommand 'installpkg' from menu 'softwaremgmt',  
SOFTWARE MANAGEMENT  
Select which drive to use:  
  1 ctape1          2 diskette1  
Enter a number, a name, the initial part of a name, or  
? for HELP, q to QUIT:
```

Enter **2** to select the floppy disk drive.

The system responds with:

```
Insert the removable medium for the package you want to install
into the diskette drive.
Press <RETURN> when ready. Type q to quit.
```

- b **For a 3B2/ 310 or 3B2/ 400 computer with a Small Computer System Interface (SCSI) cartridge tape drive and for a 3B2/ 500 or 3B2/ 600 computer, the `installpkg` program responds with the following message:**

```
Running subcommand 'installpkg' from menu 'softwaremgmt',
SOFTWARE MANAGEMENT
```

```
Insert the removable medium for the package you want to install
into the diskette drive.
Press <RETURN> when ready. Type q to quit.
```

- 2 If the on-site technician has installed the 3B2 CMS floppy disk and cartridge tape, press the `RETURN` key to continue.

Upgrading to a New Base Load

The program responds with the following message:

```
If the host computer is a 3B2/ 310 or 3B2/ 400 computer with CTC, the next line will appear.
Installing the Call Management System <310/400 CTC> (Version 2.XX, Issue X.X).

If the host computer is a 3B2/ 310/ 400/ 500 computer with SCSI, the next line will appear.
Installing the Call Management System <310/400/500 SCSI> (Version 2.XX, Issue X.X).

If the host computer is a 3B2/ 600 computer, the next line will appear.
Installing the Call Management System <600 SCSI> (Version 2.XX, Issue X.X).
Copyright (c) 1987, 1988 AT&T Information Systems, Inc.
All Rights Reserved.

Run state S verified.

Directory and File Management Utilities verified.
Editing Utilities verified.
INFORMIX      3.3      May 1985 verified.
Inter-Process Communication Utilities verified.
Line Printer Spooling Utilities verified.
Shell Programming Utilities verified.
System Administration Utilities verified.
Terminal Filters Utilities verified.
Terminal Information Utilities verified.
User Environment Utilities verified.
Basic Networking Utilities verified.
X.25 Network Interface verified.

This installation base "/cms" is part
of the "/cms" filesystem.

Confirm:  Is this installation base correct [y,n]?
```

- 3 The installation base is `/cms` and is part of the `/cms` file system. Answer the question with a `y` and press the `RETURN` key to continue.

The program prints the following message:

```
<XXX> blocks and <XXX> inodes are required in
the / filesystem to install this package.
<XXX> free blocks and <XXX> free inodes exist.

<XXX> blocks and <XXX> inodes are required in
the /usr filesystem to install this package.
<XXX> free blocks and <XXX> free inodes exist.

<XXX> blocks and <XXX> inodes are required in
the /cms filesystem to install this package.
<XXX> free blocks and <XXX> free inodes exist.

## Executing ask_model pre-installation script ##

>> This software was initialized previously as a <3B2 computer> system.
>> Is this correct? (y/n)
```

NOTE

The *3B2 computer* refers to a specific 3B2 computer system. The specific computer system could be 3B2/ 310, 3B2/ 400, 3B2/ 500, or 3B2/ 600.

- 4 Answer the question appropriately.

Upgrading to a New Base Load

If your answer is **y**, the program responds by continuing with the following message:

```
## Executing chk_for_rmp pre-installation script ##  
## Executing chk_for_conv pre-installation script ##  
  
If the host computer is a 3B2/310 or 3B2/400 computer with CTC, the next line will appear.  
Installation will now employ /dev/rSA/ctape1 (CTC cartridge drive);  
  
If the host computer is a 3B2/310/400/500/600 computer with SCSI, the next line will appear.  
Installation will now employ /dev/rSA/qtape1 (SCSI cartridge drive);  
Please insert cartridge tape; type <return> when ready.
```

- 5 If the on-site technician has installed the cartridge tape that contains the new base load of the 3B2 CMS software, press the **RETURN** key to continue.

The program responds with the following message:

```
## Installing files from cartridge tape

If the host computer is a 3B2/ 310 or 3B2/ 400 computer with CTC, the next line will appear.
Call Management System <310/400 CTC> (Version 2.XX, Issue X.X)

If the host computer is a 3B2/ 310/ 400/ 500 computer with SCSI, the next line will appear.
Call Management System <310/400/500 SCSI> (Version 2.XX, Issue X.X)

If the host computer is a 3B2/ 600 computer, the next line will appear.
Call Management System <600 SCSI> (Version 2.XX, Issue X.X)
created <date and time>
```

The program takes about 20 minutes to download the 3B2 CMS software from cartridge tape to hard disk. As the software is downloaded, a list of files will be printed. If the download was successful, the following message will be printed:

```
Data read from cartridge tape successfully.
The cartridge tape may now be removed from the drive.
## Installing disk 1 of 1
/etc/ask_model
/etc/model
<XX> blocks
## Executing class script for "data"
/etc/feat
/etc/feat/cms
/cms/maint
/cms/maint/text
## Installing AUDITMAP in /usr/admin/menu/packagemgmt/auditmaps
## Auditing package installation
```

Upgrading to a New Base Load

If the audit is successful, the following message will be printed:

```
>> No errors detected during audit.  
## Executing <program(s)> post-installation script
```

If required, the system's tunable parameters will be changed at this point. Next, the program prints the following message:

```
## Installing /usr/options/cms.name  
  
If the host computer is a 3B2/310 or 3B2/400 computer with CTC, the next line will appear.  
Installation of the Call Management System <310/400 CTC> is complete.  
  
If the host computer is a 3B2/310/400/500 computer with SCSI, the next line will appear.  
Installation of the Call Management System <310/400/500 SCSI> is complete.  
  
If the host computer is a 3B2/600 computer, the next line will appear.  
Installation of the Call Management System <600 SCSI> is complete.  
You may now remove the medium from the diskette drive.  
  
Insert the removable medium for the package you want to  
install into the diskette drive.  
Press <RETURN> when ready. Type q to quit.
```

- 6 Tell the on-site technician to remove the cartridge tape from the tape drive and the floppy disk from the disk drive.
- 7 Enter **q** to quit.

How to Reinstall the CMS Feature Package

Prerequisites: You must be logged in as *root*, the computer must be in the single-user state (run-level S), all file systems must be mounted, and the previous base load must be uninstalled.

NOTE

If you are in the process of completing a Field Update, **do not** perform the procedures in the section *How to Uninstall the Current Base Load*.

- 1 Execute the following command to display the CMS administration menu:

```
# sysadm cms_mgmt
```

The program prints the following screen:

```
                                CALL MANAGEMENT SYSTEM ADMINISTRATION

1 Sys_setup      Pre-CMS Installation
2 cms_installpkg Install CMS feature package
3 create_acds    Create New ACD's
4 update_acds    Update ACD's

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

- 2 Enter **2** to the install the CMS feature package.

Upgrading to a New Base Load

NOTE

If the **cms installpkg** program is interrupted while it is executing, recover by executing the **cms installpkg** program again.

The **cms installpkg** program responds with several messages:

```
A log is kept in /etc/feat/inst_log<XXX>
Begin Rebuilding ACDMODEL...
Rebuilding atom.sch...
Rebuilding calc.sch...
.
Rebuilding curday_sch...
Rebuilding dagent_sch deferred until later.
.
Rebuilding hvec_sch deferred until later.
Rebuilding spdays_sch...
.
Loading blocking...
.
Rebuilding ACE report aceatom...
.
```

During this time, the program prints many messages about rebuilding and loading files. Finally, the program prints the following message:

```
Finished reconstruction of the ACDMODEL.

*****
*****
Do you want to examine /etc/feat/inst_log<XXX>? (y or n):
```

- 3 Enter **y** to see if any “not successful” error messages have occurred.

After printing possible errors, the system responds with:

```
Auditing ACDMODEL files...
**** CMS package installation program exiting normally ****
**** Now perform the interactive portion of the installation ***
Press the RETURN key to see the cms_mgmt menu [?, ^, q]:
```

- 4 Enter **q** to exit from the CMS Administration menu.

NOTE

If “not successful” error messages appeared in the error log, **do not** continue with installation of the new base load until you have escalated the problem for further instructions.

How to Update the ACDs

Prerequisites: You must be logged in as *root*, the computer must be in the single-user state (run-level S), all file systems must be mounted, and the previous base load must be uninstalled.

NOTE

If you are in the process of completing a Field Update, **do not** perform the procedures in the section “How to Uninstall the Current Base Load.”

To update the ACD(s), do the following:

- 1 Execute the following command to display the CMS administration menu:

```
# sysadm cms_mgmt
```

The program prints the following screen:

```
CALL MANAGEMENT SYSTEM ADMINISTRATION
1 Sys_setup      Pre-CMS Installation
2 cms_installpkg Install CMS feature package
3 create_acds    Create New ACD's
4 update_acds    Update ACD's
Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, ^ to GO BACK, q to QUIT:
```

- 2 Enter **4** to update an ACD.

NOTE

If the **update acds** program is interrupted while it is executing, recover by executing the **update acds** program again.

The program prints the following message:

NOTE

After this program has completed, check the `/etc/feat/acd_log XXX` file for possible errors.

A log is kept in `/etc/feat/acd_log<XXX>`
Begin Updating ACD's...

If the host computer is a 3B2/ 310, 3B2/ 400, or 3B2/ 500 computer, the next line will appear.

Enter acd id(s): (i.e., acd1):

If the host computer is a 3B2/ 600 computer, the next line will appear.

Enter acd id(s): (i.e., acd1 acd2 acd3 acd4):

Only existing ACDs will be displayed for the 3B2/ 600 computer

NOTE

For a 3B2/ 310, 3B2/ 400, 3B2/ 500, and 3B2/ 522 computer, the ACD must be named `acd1`. For a 3B2/ 600 or 3B2/ 1000 Model 70 computer, you must update each ACD (up to four ACDs).

Upgrading to a New Base Load

- 3 Enter the ACD ID(s). The program then responds with:

```
Copying realtime report sources..  
Delete corresponding realtime object files...  
Copying realtime report structures...  
Copying historical report sources...  
Delete corresponding historical object files...  
Copying historical report structures...  
Copying ace report files...  
Copying menu changes, if any...  
Copying blocking changes, if any...  
Raising ULIMIT  
Copying callparms changes, if any...
```

The program then displays the following message:

```
Is the switch being upgraded (y/n)? y  
**** swsetup must be run to administer the  
**** Bar Graphs, so this question has been  
**** answered for you - respond to the  
**** program as necessary
```

To administer the CMS Graphics package, `swsetup` must be executed. Therefore, the software has already answered `y` and has automatically started the execution of `swsetup`.

The program then prints the following message and question:

```
You must be in 'root' and 'single-user' to make changes.  
  
SWITCH IDENTIFICATION  
    name: <name of switch>  
    type: <type of switch>  
    release: <version>  
  
Do you want to change the switch identification (yes, no)?
```

- 4 Enter **no** to specify that you do not want to change the switch identification at this time.

The next question appears:

```
SWITCH CONNECTION  
    link: <link number>  
    port: <port number>  
    time zone: <time zone offset>  
  
Do you want to change the switch connection (yes, no)?
```

- 5 Enter **no** to specify that you do not want to change the switch connection at this time.

Upgrading to a New Base Load

The next question appears:

```
SWITCH FEATURES
  vectoring? yes

Do you want to change switch features (yes, no)?
```

NOTE

The switch features will only be displayed if they are currently on the switch.

- 6 Enter **no** to specify that you do not want to change the switch features at this time.

The program then displays the following question:

```
PACKAGES
  Bar Graphs? yes

Do you want to change packages (yes, no)?
```

- 7 If the customer has purchased CMS Graphics, enter **yes** to specify that you want to administer the CMS Graphics/ Bar Graphs package on the system.

If you enter **yes**, you will be prompted as follows for a password:

Password:

The upgrade should have been coordinated with the TSC. The TSC Provisioning Coordinator (1-800-344-9670) will remotely enter the password to enable the CMS Graphics option.

NOTE

The Bar Graphs password is known only by the personnel at the TSC and is used to turn on the CMS Graphics package of 3B CMS. Contact the TSC Provisioning Coordinator at 1-800-344-9670 to have the password entered.

The program responds with:

Bar Graphs (yes, no)?

- 8 Enter **yes** to enable the Bar Graphs package on the system.

Upgrading to a New Base Load

The next question appears:

```
SHARED MEMORY ALLOCATION
  splits: XX
  agents: XXX
  trunk groups: XXX
  trunks: XXX
  unmeas trunks: XXX
  VDNs: XXX

Do you want to change data base allocation (yes, no)?
```

- 9 Enter **no** to specify that no changes will be made at this time.

The program then responds with:

```
Changes were saved successfully
**** For color/graphic support:
**** Any new or previously administered printer
**** which should be assigned one of the following
**** printer models, must be re-administered.

att477ibmg
att570
att583
att477_3.0
att570_3.0
att583_3.0
Do you want to administer the line printers (y/n)?
```

- 10 If you want to re-administer your printers or add a new printer, enter **y**.

NOTE

If you have CMS Graphics and you have printers that are graphics-capable, you must administer or re-administer these to identify them as being graphics-capable printers.

If you are using UNIX Version 3.0 or 3.1 (or an earlier version), select the printer model which contains the 3.0 suffix. For example, if you have an AT&T 583 printer with UNIX Version 3.0, you would select at t 583 3.0 as your printer model.

If you are using UNIX Version 3.2 (or a later version), select the printer model which corresponds to your printer and does **not** contain the 3.0 suffix. For example, if you have an AT&T 583 printer with UNIX Version 3.2, you would select at t 583) as your printer model.

If you entered **y** then the program responds with the following:

```
Doing a 'grep tty /etc/inittab | pg' ...
```

```
You will need the tty number(s) for the printer port(s)
assigned below:
```

```
Press RETURN when ready to continue.
```

Press .

Upgrading to a New Base Load

The program then lists the tty ports and their assignments:

```
co:234:respawn:/etc/getty console console
ct:234:respawn:/etc/getty contty contty
34:234:off:/etc/getty tty34 9600 #dedicated to <printer name>
41:234:respawn:/etc/getty tty41 9600 #cms terminal
42:234:respawn:/etc/getty tty42 9600 #cms terminal
43:234:respawn:/etc/getty tty43 9600 #cms terminal
44:234:respawn:/etc/getty tty44 9600 #cms terminal
71:234:respawn:/etc/getty tty71 9600
72:234:respawn:/etc/getty tty72 9600
73:234:respawn:/etc/getty tty73 9600
74:234:respawn:/etc/getty tty74 9600
(EOF)Press <RETURN> or enter "q <RETURN>"
```

11 Press to continue.

The program then responds with:

```
Setting up printers...

The following printer models are available:

att460
att475
att477_3.0
att477ibmg
att5310
att5320
att570
att570_3.0
att583
att583_3.0

Enter your printer model selection:
```

12 Enter the printer model from the list of printers on your screen.

If you are using UNIX Version 3.0 or 3.1 (or an earlier version), select the printer model which contains the 3.0 suffix. For example, if you have an AT&T 583 printer with UNIX Version 3.0, you would select att583_3.0 as your printer model.

If you are using UNIX Version 3.2 (or a later version), select the printer model which corresponds to your printer and does **not** contain the 3.0 suffix. For example, if you have an AT&T 583 printer with UNIX Version 3.2, you would select at t 583) as your printer model.

The program continues with:

Enter tty name for the <printer model> printer (eg., tty03):

13 Enter the tty port that the printer will be connected to.

Should this be the system default printer? (y/n):

14 If the printer being administered is the system default printer, enter **y**. If the printer is not the system default printer, enter **n**.

Do you want to administer another printer? (y/n):

15 If you want to administer another printer, enter **y**. This will start the printer administration process again.

If you do not want to administer another printer, enter **n**.

Upgrading to a New Base Load

The program then gives the status of the printers administered and responds with:

```
Starting up the printer(s)...
scheduler is running
system default destination: <system default printer name>
device for printer1: /dev/ttyXX
<printer name> accepting requests since <date and time>
printer <printer name> is idle.  enabled since <date and time>
```

NOTE

If you want to administer or re-administer a printer later, refer to the “Administering a New Printer ” section of Chapter 8 in this document.

The program responds with the following messages:

```
Clearing message queues, if any...
ipcrm -q0
Clearing shared memory, if any...
ipcrm -m0
Clearing semaphores, if any...
ipcrm -s0
Starting msgmgr...
Rebuilding atom.sch...
Starting ddaemon...
Initializing the dictionary...
Loading database items.
.....
```

While the dictionary is being initialized, the program prints out a series of dots on a single line (see last line in the previous screen).

After the dictionary has been initialized, the program responds with:

```
Killing dddemon...
```

If the switch is a System 75, a database conversion will be required.

Please respond to the following messages as necessary:

```
*****  
If this upgrade involves a System 75, a database conversion  
is required.  
  
By answering the next question with:  
  
y - you will be given a choice of performing the  
conversion now or when the upgrade is completed  
  
n - the system will be checked to verify that it is  
not a System 75 - if it is a System 75, the  
conversion will be performed now  
  
*****  
Is a System 75 involved (y or n)?
```

Upgrading to a New Base Load

16 If you enter **y**, the next question appears:

```
Do you want to perform the conversion now (y or n)?
```

a If you enter **y**, the next message appears:

```
>>> Conversion is now taking place ...
```

b If you enter **n**, the following message appears:

```
>>> Conversion will NOT be performed at this time.
```

After the upgrade is over, you can execute the following command to convert the database

```
# /cms/bin/S75dbchg /cms/acdX
```

Where $X = 1, 2, 3,$ or $4.$

17 If a System 75 is not involved in the upgrade, enter **n** and the next message will appear:

```
>>> Verifying that a System 75 is not involved
```

18 Then the system responds with the following messages:

```
Killing msgmgr...  
Clearing message queues, if any...  
ipcrm -q60  
Clearing shared memory, if any...  
ipcrm -m100  
Clearing semaphores, if any...  
ipcrm -s60
```

Upgrading to a New Base Load

Next, the program rebuilds the *.profile* files for the CMS users in the ACD being updated and then prints the following message:

```
acd<X> has been set up...
```

If the host computer is a 3B2/ 600 or 3B2/ 1000 Model 70 and you entered more than one ACD ID at the beginning of the **update acds** program, the program will continue until each ACD has been updated.

If the host computer is a 3B2/ 500 or 3B2/ 600, the program will print the following:

```
Enter the number of megabytes of RAM that is installed on this machine.  
Number of megabytes (i.e. 4, 6, 8, 10, 12, 14, or 16)
```

Enter the number that represents the amount of memory that is installed on the 3B2/ 500 or 3B2/ 600 computer.

If required, the tunable parameters will be changed. The program continues by printing the following:

```
Do you want to examine /etc/feat/acd_log<XXX>? (y/n):
```

- 19 Enter **y** to see if any “not successful” error messages occurred while the ACD databases were being updated. The program will “page” through the `/etc/feat/acd log XXX` .

NOTE

If “not successful” error messages appeared in the error log, **do not** continue with the installation of the new base load until you have escalated the problem for further instructions.

Finally, the program prints the following message:

```
"update_acds" exiting normally...changing to multi-user state...  
As soon as the login prompt appears you may log on...
```

When the *Console Login:* prompt appears, you have finished installing the new base load of the 3B2 CMS software.

NOTE

If you have not already done so, tell the on-site technician to remove the CMS software cartridge tape from the cartridge tape drive and the floppy disk from the floppy disk drive.

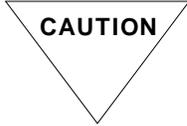
Go to the section “Verifying the 3B2 CMS Software Upgrade” in the *3B2 CMS Installation and Maintenance* (585-215-104) document, to verify that the new base load was installed successfully.

NOTE

If you upgraded the customer’s 3B CMS from *Release 2, Version 2.12 to Release 2, Version 2.28 or a later load* **and the customer is using the Vectoring feature of 3B CMS, you must reactivate the Vectoring feature by executing the `/cms/bin/swsetup` command and answering **yes** to the vectoring question.** Refer to the section “Changing the Switch Parameters” in Chapter 8 of the *3B CMS Installation and Maintenance* (585-215-104) document for instructions.

Installing a Field Update

To install a Field Update, do the following.



Before you begin the procedures in this section, you must back up the `/` and `/usr` file systems and the CMS file system(s) from the UNIX system environment. For instructions, refer to *Chapter 8*.

- 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 Tell the on-site technician to install the floppy disk and/ or the cartridge tape that contains the 3B2 CMS Field Update.

NOTE

The default baud rate of the console port is 9600. Tell the on-site technician to execute the **sysadm consolebaud** command to change the baud rate to 1200. If the on-site technician wants to monitor the local console terminal during the 3B2 CMS software Field Update, the baud rate of the local console terminal must also be set to 1200, and the console terminal must be connected to TRM2 on the AIC circuit board.

- 3 From a remote terminal, establish a connection with the remote console port on customer's 3B2 computer and log in as `root`.
- 4 Execute the following command to determine which state the computer is in:

```
# who -r
```

- 5 If the computer is not in the single-user state (run-level S), execute the following command:

```
# shutdown -g60 -y -il
```

- 6 Execute the following command to mount the file systems:

```
# mountall
```

- 7 Execute the following command to access the **installpkg** program:

```
# sysadm installpkg
```

NOTE

If the **sysadm installpkg** program is interrupted while the Field Update is being down loaded, you can start over by executing **sysadm installpkg** program again.

Installing a Field Update

- a For a 3B2/ 310 or 3B2/ 400 computer with CTC, the `installpkg` program responds with the following message:

```
Running subcommand 'installpkg' from menu 'softwaremgmt',  
SOFTWARE MANAGEMENT
```

```
Select which drive to use:
```

```
1 ctapel          2 diskettel
```

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

Enter **2** to select the floppy disk drive.

- b The program prints the following message regardless of which 3B2 computer is the host:

```
Insert the removable medium for the package you want to install  
into the diskettel drive.
```

```
Press <RETURN> when ready. Type q to quit.
```

- 8 After the on-site technician has installed the Field Update floppy disk and/or cartridge tape, press the `RETURN` key to continue.

The program responds with the following message:

```
If the host computer is a 3B2/ 310 or 3B2/ 400 computer with CTC, the next line will appear.
Installing the Call Management System <310/400 CTC> (Version 2.XX.X, Issue X.X).

If the host computer is a 3B2/ 310/ 400/ 500 computer with SCSI, the next line will appear.
Installing the Call Management System <310/400/500 SCSI> (Version 2.XX.X, Issue X.X).

If the host computer is a 3B2/ 600 computer, the next line will appear.
Installing the Call Management System <600 SCSI> (Version 2.XX.X, Issue X.X).
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All Rights Reserved

Run state S verified.

If the host computer is a 3B2/ 310 or 3B2/ 400 computer with CTC, the next line will appear.
Call Management System <310/400 CTC> verified.

If the host computer is a 3B2/ 310/ 400/ 500 computer with SCSI, the next line will appear.
Call Management System <310/400/500 SCSI> verified.

If the host computer is a 3B2/ 600 computer, the next line will appear.
Call Management System <600 SCSI> verified.

This installation base "/cms" is part
of the "/cms" filesystem.

Confirm:   Is this installation base correct [y,n]?
```

The installation base is `/cms` and is part of the `/cms` file system.

9 Answer the question with a `y` and press the `RETURN` key to continue.

Installing a Field Update

The program prints the following message:

```
<XXX> blocks and <XXX> inodes are required in
the / filesystem to install this package.
<XXX> free blocks and <XXX> free inodes exist.
<XXX> blocks and <XXX> inodes are required in
the /cms filesystem to install this package.
<XXX> free blocks and <XXX> free inodes exist.
## Executing ask_model pre-installation script ##
>> This software was initialized previously as a <310/400, 500, or 600> system.
>> Is this correct? (y/n)
```

10 Answer the question appropriately.

If your answer is **y**, the program responds by continuing with the following message:

```
## Installing disk 1 of <X>
```

NOTE

The Field Update may be on more than one floppy disk. If this is the case, you will be told when to install the next floppy.

The program will also print a list of files as they are down loaded from the floppy disk to the hard disk system. After the files in the Field Update have been down loaded, the program will print the following message.

```
## Installing AUDITMAP in /usr/admin/menu/packagemgmt/auditmaps  
## Auditing package installation
```

If the audit is successful, the following message will be printed:

```
>> No errors detected during audit.  
## Executing <programs(s)> post-installation script
```

If required, the system's tunable parameters will be changed at this point.

Installing a Field Update

11 If the **Field Update** has finished, the program will print the following message:

```
*****
*** This completes the Field Update. ***
*****

## Installing /usr/options/cms.name

If the host computer is a 3B2/ 310 or 3B2/ 400 computer with CTC, the next line will appear.
Installation of the Call Management System <310/400 CTC> is complete.

If the host computer is a 3B2/ 310/ 400/ 500 computer with SCSI, the next line will appear.
Installation of the Call Management System <310/400/500 SCSI> is complete.

If the host computer is a 3B2/ 600 computer, the next line will appear.
Installation of the Call Management System <600 SCSI> is complete.

Your may now remove the medium from the diskette1 drive.

Insert the removable medium for the package you want to
install into the diskette1 drive.
Press <RETURN> when ready.  Type q to quit.
```

Enter **q** to exit from the **installpkg** program.

Execute the following command to put the 3B2 computer into the multiuser state:

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

Go to the section, *Verifying the 3B2 CMS Software Upgrade*, at the end of this chapter to verify that the Field Update was installed successfully.

Tell the on-site technician to remove the cartridge tape from the tape drive and the floppy disk from the disk drive.

NOTE

Do not go to the next step if the Field Update has finished.

12 If the Field Update has not finished, the program will print the following message:

```

*****
*** To complete the Field Update, execute "cms_installpkg" ***
*** and "update_acds" in the CALL MANAGEMENT SYSTEM ***
*** ADMINISTRATION menu. ***
*****

## Installing /usr/options/cms.name

If the host computer is a 3B2/ 310 or 3B2/ 400 computer with CTC, the next line will appear.
Installation of the Call Management System <310/400 CTC> is complete.

If the host computer is a 3B2/ 310/ 400/ 500 computer with SCSI, the next line will appear.
Installation of the Call Management System <310/400/500 SCSI> is complete.

If the host computer is a 3B2/ 600 computer, the next line will appear.
Installation of the Call Management System <600 SCSI> is complete.

You may now remove the medium from the diskette1 drive.

Insert the removable medium for the package you want to
install into the diskette1 drive.
Press <RETURN> when ready. Type q to quit.

```

Enter **q** to exit from the **installpkg** program.

Do the following substeps to complete the Field Update:

- a Do the procedure in the *How to Reinstall the CMS Feature Package* section of this chapter.
- b Do the procedure in the *How to Update the ACDs* section of this chapter.
- c Go to the section *Verifying the 3B2 CMS Software Upgrade* at the end of this chapter to verify that the Field Update was installed successfully.

NOTE

If you have not already done so, tell the on-site technician to remove the Field Update floppy disk and/ or the cartridge tape.

Verifying the Upgrade or Field Update

After you have upgraded the customer's system to a new base load or installed a field update, do the following to verify that the upgrade or field update was successful:

NOTE

The computer must be in the multiuser state (run-level 2).

- 1 At the *Console Login:* prompt, log into the system by using the CMS administrator's login ID (for example, *acd1*) to bring up the CMS MAIN MENU.
- 2 Go to the "MAINTENANCE" menu screen.
- 3 After the "MAINTENANCE" menu screen appears, select the "Session-Status" option.
- 4 When the "Session-Status" screen appears, re-administer the Measured Splits field with the number that you recorded earlier.
- 5 Look at the "Link" field. The status should read "Up."
- 6 The "Session" field should read "Data Transfer," and the "CMS" field should read "Data Transfer." If this is the case, the CMS software can monitor the ACD. If this is not the case or the "Link" is "Down," press the **CONNECT** screen-labeled key to bring the link up.

NOTE

If the host computer is a 3B2/ 600 or 3B2/ 1000 Model 70 computer with more than one ACD, return to **Step 1** in this procedure until each ACD has been initialized.

NOTE

Do the test procedures in *Chapter 7* and the backup procedures in *Chapter 8* before you turn the system over to the customer.

General Information

This chapter contains the test procedures that you must do before you turn the 3B2 CMS software application over to the customer. By doing the procedures in this chapter, you will be able to verify that the CMS software has been installed or upgraded correctly and is working properly.

Do the procedures in this chapter to test the following:

The connection between the customer's 3B2 computer and the Technical Support Center (TSC)

NOTE

This test should be done after the 3B2 CMS software has been initially installed and does not have to be done after a new base load or Field Update has been installed.

The sanity of the 3B2 CMS software

NOTE

This sanity test should be done after the 3B2 CMS software has been initially installed or upgraded.

If any of the steps in these procedures fail, refer to *Chapter 9, Troubleshooting*, and try to solve the problem. If you encounter a problem that you cannot solve, escalate the problem through normal procedures.

Testing the Connection to the Technical Support Center

Use the information in this section to verify that the connection between the Silent Knight Autodialer and the TSC is operating correctly.

NOTE

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

The Silent Knight Autodialer is used to report alarms to the TSC. You can dial into the 3B2 computer on the same line that is used to report the alarms.

NOTE

The phone number for the TSC should have been programmed earlier by the on-site technician (refer to *Chapter 3*). If the Silent Knight Autodialer has not been programmed, the on-site technician must program it before you can continue.

There are two ways to make a test call on the 3B2 computer. The first test will test the Silent Knight Autodialer and not the software associated with the Alarm Interface Circuit (AIC) board.

To test the Silent Knight Autodialer, do the following:

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

To test the AIC board and the Silent Knight Autodialer, do the following:

- 1 From a remote console terminal, log into the customer's 3B2 computer as *root*.
- 2 Enter the following command:

```
# /etc/aicctest
```

NOTE

For more information on the **aicctest** program, refer to Appendix D.

When the prompt () appears, enter the following option:

```
> setmin
```

A minor alarm is generated.

The Silent Knight Autodialer places a call to the programmed number.

- 3 After verifying that the test worked, enter the following option:

```
> clrmin
```

The minor alarm is turned off.

- 4 To exit from the **aicctest** program, enter **q**.

Testing the Connection to the Technical Support Center

If the test was not successful, tell the on-site technician to do the following steps before you try again:

- 1 There are nine jumper wires on the autodialer unit. Verify that jumper number 4 is cut, and the remaining jumpers are intact.
- 2 Verify that the autodialer transformer is plugged into a 120 volts ac source. This transformer cuts the voltage down to 12 volts ac. Verify that this power source connects to terminals 1 and 2 on the Silent Knight Autodialer.
- 3 Check the battery connection.
- 4 Verify that the Silent Knight Autodialer is programmed correctly. See *Chapter 3*.

If the test is still unsuccessful, the on-site technician should verify the cabling of the Autodialer before you retry the test again.

NOTE

For more information on how to test the Remote Management Package, refer to the *Remote Management Package Manual* (305-455).

Testing the 3B2 CMS Software

The following procedure should be done by the on-site technician after the 3B2 CMS software has been installed or upgraded to verify the sanity of 3B2 CMS software:

- 1 At a CMS terminal, log into the system by using a CMS administrator's login ID (*acd1, acd2, acd3, acd4*). Supply the correct password when prompted to do so.
- 2 When the MAIN MENU screen appears, select the "MAINTENANCE" option. When the MAINTENANCE menu appears, select the "Session-Status" option. After the "Session-Status" screen appears, the "Link" field should read "Up" and the "Session" and "CMS" fields should read "Data Transfer." Look at the "Local Time" and the "Switch Time." The "Local Time" and the "Switch Time" should be within 5 minutes of each other. Return to the MAIN MENU by pressing the **EXIT** screen-labeled key (SLK) twice.
- 3 From the MAIN MENU, select the "REPORTS" option:
 - a When the REPORTS screen appears, select the "Standard Real-Time" option:

After the REAL-TIME REPORTS menu appears, select the "Split Summary" option and enter a valid split name or number. When the "Split Summary" report appears on the screen, press the **PRINT SCREEN** SLK to send the report to the printer. Look at the message line near the bottom of the screen. There should be a confirmation message about routing your report to the printer. Verify that the report was printed. Return to the REAL-TIME REPORTS menu screen by pressing the **EXIT** SLK.

Select the "Trunk Group Summary" report and enter a valid trunk group name or number. When the report appears on the screen, press the **PRINT SCREEN** SLK to send the report to the printer. Look at the message line near the bottom of the screen. There should be a confirmation message about routing your report to the printer. Verify that the report was printed. Return to the REAL-TIME REPORTS menu screen by pressing the **EXIT** SLK. Press the **EXIT** SLK again.

Testing the 3B2 CMS Software

- b When the REPORTS screen appears, select the “Standard Historical” option:

After the HISTORICAL REPORTS menu screen appears, move the cursor to the “Summary Split” field and press the **RETURN** key. After the screen appears, return to the HISTORICAL REPORTS screen by pressing the **EXIT** SLK.

After the HISTORICAL REPORTS screen appears, move the cursor to the “Trunk Group Daily” field and press the **RETURN** key. After the screen appears, return to the HISTORICAL REPORTS screen by pressing the **EXIT** SLK. Return to the REPORTS screen by pressing the **EXIT** SLK. Return to the MAIN MENU by pressing the **EXIT** SLK again.

- 4 From the MAIN MENU, select the DICTIONARY option. When the DICTIONARY screen appears, select the “Split-Synonyms” option. For a new installation, the fields in this screen should be blank. Press the **RETURN** key. If the customer did not upgrade from AP 16 CMS to 3B2 CMS, the message “There are no items of this type.” should appear in the message line. Return to the DICTIONARY screen by pressing the **EXIT** SLK.

When the DICTIONARY screen appears, select the “Database-Items” option. For a new installation, the fields in this screen should be blank. Press the **RETURN** key. The fields should now contain data. Return to the DICTIONARY screen by pressing the **EXIT** SLK. Return to the MAIN MENU by pressing the **EXIT** SLK again.

- 5 From the MAIN MENU, select the CONFIGURATION option. When the CONFIGURATION screen appears, select the “Extension-Assignments” option. After the CONFIGURATION - SPLIT EXTENSION ASSIGNMENTS screen appears, look at the fields in the screen. For a new installation, the fields should be blank. Return to the CONFIGURATION screen by pressing the **EXIT** SLK. Return to the MAIN MENU by pressing the **EXIT** SLK again.
- 6 From the MAIN MENU, select the ADMINISTRATION option. When the ADMINISTRATION menu screen appears, select the “System-Access” option. When the ADMINISTRATION - SYSTEM ACCESS screen appears, the cursor should be in the “User ID:” field. Enter the CMS administrator login ID that you are currently using (*acd1*, *acd2*, *acd3*, *acd4*) and press the **RETURN** key. The screen should refresh, the “User Name:” field should contain the name of the CMS administrator, and the other fields should now be populated with access data. Return to the ADMINISTRATION screen by pressing the **EXIT** SLK. Return to the MAIN MENU by pressing the **EXIT** SLK again. Press the **LOGOUT** SLK to log off.

- 7 Return to **Step 1** until each ACD has been tested. (Only the 3B2/ 600 and 3B2/ 1000 Model 70 computers can have multiple ACDs.)
- 8 At each CMS terminal, log in as *acd1* to verify that the terminals are working properly. After the MAIN MENU screen appears, press the **LOGOUT** SLK to log off.

If you were able to complete each of the steps in the test successfully, you must back up the file systems and do a CMS MAINTENANCE **Backup-Data** before you turn the 3B2 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, *Backing Up the File Systems From the UNIX System Environment*, in *Chapter 8*.
- 2 If you have not already done so, backup the customer's historical data by doing a CMS MAINTENANCE **Backup-Data** by following the procedures outlined in the section, *Backing Up CMS Historical Data From the CMS Environment*, in *Chapter 8*.
- 3 At the console terminal, log into each ACD. When the MAIN MENU appears, look at the upper right side of the screen. The time displayed should be current, and the link should be "UP." Press the **LOGOUT** SLK to log off.

This completes the test. You can now turn the 3B2 CMS application over to the customer.

Testing 3B CMS Graphics

NOTE

The following procedures are to be used only if the customer has purchased the 3B CMS Graphics package.

The following procedure should be done by the on-site technician after the 3B CMS Graphics package has been installed to verify the correct installation of the Graphics feature:

- 1 At a CMS terminal, log into the system using a CMS administrator's login ID (*acd1*, *acd2*, *acd3*, *acd4*). Supply the correct password when prompted to do so.

NOTE

Only the 3B2/ 600 and 3B2/ 1000 Model 70 computers can have multiple ACDS.

- 2 When the MAIN MENU appears, select the REPORTS option.
- 3 From the REPORTS menu, select the BAR GRAPHS option:
 - a After the BAR GRAPHS menu appears, select the "Split Historical Profiles" option.
 - b When the "SPLIT HISTORICAL PROFILES" screen appears, select the "Average Speed of Answer" option.
 - c When the "SPLIT HISTORICAL PROFILE - Graph Parameters" screen appears, enter the following in the corresponding fields and press **TAB** to move to the next field:

In the SPLIT: field, enter a valid split name or number.

In the REPORT DAY: field, leave the default value of - 1.

In the FIRST INTERVAL: field, leave the default value of 1.

In the LAST INTERVAL: field, leave the default value of 48.

In the MAXIMUM GRAPH VALUE: field, enter 30.

In the UPPER THRESHOLD: field, enter 20.

In the LOWER THRESHOLD: field, enter 10.

Press **RETURN** and wait for the Bar Graph report.

- d The “SPLIT HISTORICAL PROFILE” bar graph screen should appear. If you are using a color terminal, any bars that appear will be either GREEN, YELLOW, or RED. If you are using a monochrome terminal, any bars that appear will be displayed in either DIM, NORMAL, or BRIGHT contrast.

NOTE

If this is a new installation, there may be no historical data to be graphed. If this is the case, make sure that the horizontal and vertical axis have appeared on the screen. The screen should appear similar to Figure 15 of the *3B CMS Graphics Administration* (585-215-505) document except no bars will be displayed.

The output should appear similar to Figure 15 of the *3B CMS Graphics Administration* (585-215-505) document.

- e Press the **PRINT GRAPH** and a printed bar graph report will be sent to the default printer for that login. Look at the message line near the bottom of the screen. There should be a confirmation message about routing your report to the printer.

If the printer is administered as a graphics-capable printer, the output should appear similar to Figure 19 of the *3B CMS Graphics Administration* (585-215-505) document.

If the printer is not administered as a graphics-capable printer, the output should appear similar to Figure 20 of the *3B CMS Graphics Administration* (585-215-505) document.

- 4 Return to the BAR GRAPHS menu by pressing the **EXIT** SLK.
- 5 Return to the REPORTS menu by pressing the **EXIT** SLK.
- 6 Return to the MAIN MENU by pressing the **EXIT** SLK again. Press the **LOGOUT** SLK to log off.

Testing 3B CMS Graphics

- 7 Return to **Step 1** until each ACD has been tested. (Only the 3B2/ 600 and 3B2/ 1000 Model 70 computers can have multiple ACDS.)

NOTE

Only test the ACDS on which the Graphics package has been enabled.

- 8 At each CMS terminal, log in as *acd1* to verify that the terminals are working properly. After the MAIN MENU screen appears, press the **LOGOUT** SLK to log off.

If you were able to complete each of the steps in the test successfully, you must backup the file systems and do a CMS MAINTENANCE **Backup-Data** before you turn the 3B2 CMS application over to the customer.

NOTE

If any of the steps in the test failed, refer to Chapter 9 of this document and try to solve the problem associated with the step that failed. If you encounter a problem that you cannot solve, escalate the problem through normal procedures.

To complete the test, do the following:

- 1 If you have not already done so, back up the file systems by following the procedures outlined in the section, "Backing Up the File Systems From the UNIX System Environment" located in Chapter 8 of this document.
- 2 If you have not already done so, backup the customer's historical data by doing a CMS MAINTENANCE **Back-up Data** by following the procedures outlined in the section, "Backing Up the File Systems From the CMS Environment" located in Chapter 8 of this document.
- 3 At the console terminal, log into each ACD. When the MAIN MENU appears, look at the upper right side of the screen. The time displayed should be current, and the link should be "UP." Press the **LOGOUT** SLK to log off.

This completes the test. You can now turn the 3B2 CMS application over to the customer.

General Information

Use the procedures in this chapter, as necessary, to maintain the 3B2 CMS software application running on a 3B2 computer. You should refer to the *3B2 Computer Owner/ Operator Manual* that was shipped with the computer for information on how to maintain the 3B2 computer.

The procedures in this chapter were written for an on-site or Tier 1 technician. If you are at a remote location, you will need assistance from an on-site technician or the customer's CMS administrator to perform most of the procedures in this chapter.

The following 3B2 CMS maintenance procedures are covered in this chapter:

Backing Up the File Systems From the UNIX System Environment

Backing Up CMS Historical Data From the CMS Environment

Restoring CMS Historical Data From the CMS Environment

Recovering From a Disk Crash

Recovering From a Lack of CMS File System Space

Adding a New Hard Disk Drive to a 3B2 Computer

Adding a New ACD to the 3B2/ 600 or 3B2/ 1000 Model 70 Computer

Administering a New Terminal

Administering a New Printer

Changing the Date or Time

Changing the Switch Parameters

Performing a UNIX System Dump

Upgrading the UNIX Operating System

Upgrading the X.25 Network Interface Software.

NOTE

If you are doing maintenance work on the customer's system from a remote terminal (baud rate must be 1200) and cannot log into the customer's system, tell the on-site technician or CMS administrator to execute the **sysadm consolebaud** command to determine the baud rate of the console port. The baud rate of the console port must be set to 1200 before you can remotely log into the customer's system. Also, the customer's console terminal must be connected to TRM2 on the AIC circuit board.

Backing Up the File Systems From the UNIX System Environment

The file systems on the 3B2 computer should be backed up as follows:

After the CMS software has been initially installed and tested

NOTE

The CMS historical data for each ACD should also be backed up by using the CMS MAINTENANCE **Backup-Data** facility before you turn a new system over to the CMS administrator. (Refer to the section *Backing Up CMS Historical Data From the CMS Environment* for instructions.)

Before and after the CMS software has been upgraded to a new base load

Before and after the CMS software has been field updated.

You should back up the *root (/)* and the */usr* file systems on separate cartridge tapes. The number of cartridge tapes required to back up the CMS software will vary depending how many file systems the CMS software resides on:

/cms is on disk drive 1.

/cmsdisk1 is on disk drive 2, if equipped.

/cmsdisk2 is on disk drive 3, if equipped.

/cmsdisk3 is on disk drive 4, if equipped.

/cmsdisk4 is on disk drive 5, if equipped.

Backing Up the File Systems From the UNIX System Environment

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

```
# df -t > /usr/tmp/df
# lp /usr/tmp/df
# rm /usr/tmp/df
```

The output from the printer may be helpful when doing a backup or restore later on.

NOTE

The file system information obtained from the **df -t** command should be given to the CMS administrator for future reference.

To back up the file systems from the UNIX system environment, do the following:

- 1 At the system console, log in as *root* and put the computer into the single-user state by executing the following command:

```
# shutdown -g60 -y -i1
```

Backing Up the File Systems From the UNIX System Environment

- 2 In the single-user state, execute the following command to mount all file systems:

```
# mountall
```

- 3 Obtain a cartridge tape for each file system.

NOTE

If the host computer is a 3B2/ 310 or 3B2/ 400 with a Cartridge Tape Controller (CTC) and a standard cartridge tape drive, the cartridge tape has to be formatted. If a cartridge tape has not been formatted, execute the **sysadm tapemgmt** command and select the **format** option. It takes about 20 minutes to format a cartridge tape.

If the host computer is a 3B2/ 310, 3B2/ 400, 3B2/ 500, 3B2/ 522, 3B2/ 600, or 3B2/ 1000 Model 70 with a Small Computer System Interface (SCSI) cartridge tape drive, the cartridge tapes used with SCSI cartridge tape drives do not require formatting.

- 4 Execute the **sysadm backup** program to back up the `/` and `/usr` file systems.
- 5 Continue with the **sysadm backup** program to back up the CMS file systems (`/cms`, `/cmsdisk1`, `/cmsdisk2`, etc.). Each CMS file system should be backed up on a separate cartridge tape. Be sure to mark the backup tapes as recommended by the **backup** program.

NOTE

If the host computer has an SCSI-based cartridge tape drive, the **hsbackup** program can be used to back up the file systems associated with CMS. This process is somewhat faster than the standard **backup** program. However, the `/` and `/usr` file systems can only be backed up by using the standard **backup** program. For more information about the **hsbackup** program, refer the *AT&T 3B2 Computer UNIX System V Release 3 System Administrator's Guide* (305-554). (Cartridge tapes containing file systems backed up with the **hsbackup** program can only be restored by using the **hsrestore** program.)

Backing Up CMS Historical Data From the CMS Environment

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

After the CMS software has been installed and tested

After the CMS software has been upgraded to a new base load

After the CMS software has been field updated.

After the 3B2 CMS has been turned over to the customer, the customer's CMS administrator should also use the procedures in this section, or the corresponding section in the *3B CMS Administration* document, to periodically back up the CMS historical data. The frequency of the CMS MAINTENANCE backups will depend on how current the CMS administrator wants to keep the backup copy of the CMS historical data updated.

You can back up the CMS historical data from the CMS environment by going to the MAINTENANCE menu screen and selecting the **Backup-Data** option.

NOTE You can back up the CMS historical data from any CMS terminal.

To back up the CMS historical data, do the following:

- 1 Obtain at least two cartridge tapes.

NOTE For a 3B2/ 310 or 3B2/ 400 computer with CTC, the cartridge tapes must be formatted.

- 2 Log in as a CMS administrator (*acd1*, *acd2*, *acd3*, or *acd4*, whichever applies).

NOTE The 3B2/ 310, 3B2/ 400, 3B2/ 500, and 3B2/ 522 computers support one ACD, and the 3B2/ 600 and 3B2/ 1000 Model 70 computers support up to four ACDs.

- 3 When the MAIN MENU screen appears, select the MAINTENANCE option.

Backing Up CMS Historical Data From the CMS Environment

- 4 After the MAINTENANCE screen appears, select the Backup-Data option.
- 5 Complete the backup process by following the instructions displayed on the terminal screen.
- 6 When the backup has completed, mark the tape with the following information:

CMS Historical Data for "ACD name" (*acd1*, *acd2*, *acd3*, or *acd4*,
whichever applies)

Tape 1 of X

Date.
- 7 If the host computer is a 3B2/ 600 or 3B2/ 1000 Model 70 with multiple ACDs, return to **Step 1** until the CMS historical data for each ACD has been backed up.

Restoring CMS Historical Data From the CMS Environment

The CMS software application provides a facility that can restore the CMS historical databases when an accidental loss of historical data occurs. The cartridge tapes that contain the latest back up copy of the CMS historical databases are used during a restore process so that the databases can be restored to their most recent sane state.

NOTE

The CMS historical databases can be restored from any CMS terminal. However, the console terminal must be powered on. If it is not, the UNIX system routines that are used to do the restore cannot operate.

The 3B2/ 310, 3B2/ 400, 3B2/ 500, and 3B2/ 522 computers support only one ACD: *acd1*. However, the 3B2/ 600 and 3B2/ 1000 Model 70 computers support up to four ACDs: *acd1*, *acd2*, *acd3*, and *acd4*.

To restore the CMS historical data for a given ACD, do the following:

- 1 Insert the cartridge tape that contains the latest backup copy of the CMS historical data into the tape drive.

NOTE

The data on the cartridge tape must have previously been backed up by using the CMS MAINTENANCE **Backup-Data** facility.

- 2 Log in as the CMS administrator for the ACD that has been corrupted (*acd1*, *acd2*, *acd3*, or *acd4*, whichever applies).
- 3 Select the MAINTENANCE option in the CMS main menu, and press **RETURN**.

The Maintenance menu appears.

- 4 Select the [] Restore-Data option in the menu, and press **RETURN**.

The Restore Data screen appears.

- 5 Enter **y** in the Do you wish to continue? prompt field.
- 6 Press **RETURN**.

Restoring CMS Historical Data From the CMS Environment

The restore routines will be invoked, and the system will begin to change states to *single-user mode*.

The first screen dialogue that will be returned to the screen will be:

```
broadcast warning message to all users  
Broadcast Message from username (console)* day date time  
The system will be shut down in 15 seconds  
Please log off now.
```

The dialogue will continue to scroll down the screen, as the system prepares to enter single-user mode. Finally, the following message will appear:

```
To continue the restore,  
  please type in "/cms/bin/sh_restore" and push the return key  
  
To return to multi-user state and end restore,  
  please type in "/etc/init 2" and push the return key
```

* This element appears only if the restore is administered from the console terminal.

Restoring CMS Historical Data From the CMS Environment

Before you take any action, however, the single-user mode will be entered automatically, with the following dialogue:

```
INIT: New run level: S
INIT: SINGLE USER MODE
#
```

In single-user mode, CMS interacts with only one terminal and shuts down all others until the restore is complete.

- 7 Now, type `/cms/bin/sh restore` next to the system prompt (`#`) and press `RETURN`.

The restore process will begin, showing the following screen:

```
CALL MANAGEMENT SYSTEM          switch_name:UP or DOWN          time
MAINTENANCE -- RESTORE DATA

File Name
```

- 8 If you want the whole CMS file system restored, make no entry after `File Name`. Simply press `RETURN`. If you want to perform a partial restore, type the

Restoring CMS Historical Data From the CMS Environment

name of the file, database, or directory you want restored next to the File Name, and press `RETURN`. For partial restores, use one of the formats described as follows:

NOTE

Be familiar with the UNIX system file and directory structure before attempting a partial restore.

Historical database. You can specify a single historical database for restoration by using the following format:

```
/cms/acdn/dsave/[database name]
```

where the *n* is the number of the ACD you are logged in under.

Typing * instead of a database name in the previous format means “restore all historical databases” in a particular *dsave* directory.

The databases that you can restore at one time or separately are as follows:

Daily Database	Half-hour Database
<i>dagent</i>	<i>hagent</i>
<i>dsplit</i>	<i>hsplit</i>
<i>dtgrp</i>	<i>htkgrp</i>
<i>dtrunk</i>	<i>htrunk</i>
<i>ddn</i>	<i>hdn</i>
<i>dvector</i>	<i>hvector</i>

NOTE

The *.idx*, *.dat*, and *.sch* files associated with the database(s) will be restored automatically.

Restoring CMS Historical Data From the CMS Environment

UNIX system files. You can also specify each of the following UNIX system files for restoration by typing the complete file pathname as shown.

<code>/usr/spool/cron/atjobs</code>	System file for scheduled jobs
<code>/usr/lib/cron/at.allow</code>	System file for permissions to schedule jobs
<code>/etc/inittab</code>	System file for background programs
<code>/etc/group</code>	System file for user IDs
<code>/etc/passwd</code>	System file for passwords

Custom Report program directory or files. You can also restore the directory containing the customer's Custom Report program files or a single program file for a Custom Report. To restore a single Custom Report program file, type:

```
/cms/acdn/reports/historical/source/[report name]
or
/cms/acdn/reports/realtime/source/[report name]
```

Typing * instead of a report name will restore all program files for either historical or realtime custom reports.

NOTE

You can enter two or more database, file, or directory names at one time by typing the first name, pressing the down arrow key, and typing the next name.

When the restore is complete, the CMS *Login* prompt will appear.

The files will be displayed on this screen under the heading `File Name` as they are restored from the backup tape. This process may take up to 8 hours depending on the size of the customer's database.

Data will be restored only for the ACD you are logged in under. Repeat this procedure for each ACD in a multiple-ACD CMS, if necessary.

For more information about restoring CMS historical data, refer to the *3B CMS Administration* document.

Recovering From a Disk Crash

This section describes what you must do to restore a customer's 3B2 CMS after a disk crash has occurred.

Restore instructions are included for disk drives 1, 2, 3, 4, and 5.

Before you start any of the restore procedures in this section, make sure that the latest **sysadm** backup copies of the *root (/)*, */usr*, and CMS file systems are available and on-hand. In addition, the latest backup copy of the CMS historical data for each ACD must be available and on-hand also.

How to Restore Disk Drive 1

This procedure will help you do the following tasks:

- Reinstall the Essential Utilities for the UNIX operating system

- Repartition the disk system

- For a 3B2/ 310 or 3B2/ 400 computer with a CTC, install the Cartridge Tape Utilities

- For a 3B2/ 310, 3B2/ 400, 3B2/ 500, 3B2/ 522, 3B2/ 600, or 3B2/ 1000 Model 70 computer with a SCSI, install the SCSI Cartridge Tape Utilities

- Restore the */*, */usr*, and */cms* file systems on disk 1

- Restore the CMS historical database files.

NOTE

If the backup copies of the file systems for disk drive 1 are not available, the only way you can restore the customer's 3B2 CMS environment is by doing a complete 3B2 CMS software installation which is documented in *Chapters 4 and 5*.

To restore disk drive 1, do the following:

- 1 **For a 3B2/ 310 or 3B2/ 400 computer**, do the *Installing the UNIX Operating System on a 3B2/ 310 or 3B2/ 400 Computer* procedure in *Chapter 4*.

NOTE

For a 3B2/ 310 or 3B2/ 400 computer with a CTC, install the Cartridge Tape Utility package.

For a 3B2/ 310 or 3B2/ 400 computer with a SCSI, install the the System Administration Utilities, the Extended Core Utilities, the SCSI Host Adapter Utilities, and the SCSI Cartridge Tape Utility package.

For a 3B2/ 500, 3B2/ 522, 3B2/ 600, or 3B2/ 1000 Model 70 computer, do the *Installing the UNIX Operating System on a 3B2 500, 522, 600, or 1000-70 Computer* procedure in *Chapter 4*.

NOTE

After you have installed the Essential Utilities, you need to install the System Administration Utilities, the Extended Core Utilities, the SCSI Host Adapter Utilities, and the SCSI Cartridge Tape Utility package.

- 2 Enter the following command to remake the UNIX system:

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

Recovering From a Disk Crash

- 3 When the *Console Login:* appears, log in as *root* and execute the following command to put the computer in the single-user mode:

```
# shutdown -g0 -y -il
```

- 4 After the computer is in the single-user mode, execute the following commands:

```
# mountall  
# ulimit 250000
```

- 5 Execute the following command to restore the */* and */usr* file systems and follow the instructions displayed on the screen:

```
# sysadm restore
```

- 6 Next, restore the */cms* file system.

If the host computer is a 3B2/ 500, 3B2/ 522, 3B2/ 600, or 3B2/ 1000 Model 70 and the backup copy of the */cms* file system was generated with the **sysadm hsbackup** program, execute the **sysadm hsrestore** program to restore it.

If the host computer is a 3B2/ 310 or 3B2/ 400 and is equipped with disk 2, continue with the **sysadm restore** program until the */cmsdisk1* file system has been restored.

- 7 Enter **q** to exit from the restore program.
- 8 Execute the following command:

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

- 9 Go to the *Restoring CMS Historical Data From the CMS Environment* section in this chapter to restore the customer's CMS historical data.

NOTE

If the host computer is a 3B2/ 600 or 3B2/ 1000 Model 70 with multiple ACDs, the CMS historical data for each ACD must be restored.

How to Restore Hard Disk 2, 3, 4, and 5

After the hard disk drive has been replaced and before you start the restore procedures, obtain the latest **sysadm** backup copy of the file system that was on the old drive (*/cmsdsk1*, */cmsdsk2*, */cmsdsk3*, or */cmsdsk4*, whichever is applicable). Also, obtain the latest backup copy of the CMS historical data for each ACD.

To restore the hard disk, do the following:

- 1 Log in as *root* and execute the following command to put the computer in the single-user mode:

```
# shutdown -g0 -y -i1
```

- 2 After the computer is in the single-user mode, execute the following commands to mount the file systems for the other hard disks:

```
# mountall
```

- 3 Do the *Partitioning Additional Hard Disks* procedure in *Chapter 4* to format and partition the new hard disk.

- 4 Insert the cartridge tape that contains the **sysadm** backup copy of the file system that was on the old hard disk (*/cmsdsk1*, */cmsdsk2*, */cmsdsk3*, or */cmsdsk4*, whichever is applicable) into the cartridge tape drive.
- 5 Execute the following command to restore the file system and follow the instructions displayed on the screen:

```
# sysadm restore
```

NOTE

If the host computer is a 3B2/ 500, 3B2/ 522, 3B2/ 600, or 3B2/ 1000 Model 70 and the backup copy of the file system was generated with the **sysadm hsbackup** command, execute the **sysadm hsrestore** command instead.

- 6 After the file system has been restored, enter **q** to exit from the restore program and execute the following command:

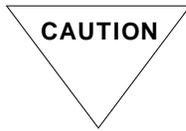
```
# shutdown -g0 -y -i6
```

- 7 Go to the section, *Restoring the CMS Historical Data From the CMS Environment*, in this chapter to restore the customer's CMS historical data.

NOTE

If the host computer is a 3B2/ 600 or 3B2/ 1000 Model 70 with multiple ACDs, the CMS historical data for each ACD must be restored.

In order to do these procedures, you should be familiar with the UNIX system commands and have some knowledge about INFORMIX and the CMS application.



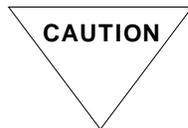
Extreme caution should be used when doing any one of these procedures because a minor mistake could bring the CMS software to a halt. We suggest that you read through each procedure thoroughly before starting.



If the free space for a file system continues to decrease after you have done these procedures, additional hard disk space will be required. In other words, the customer may have to purchase another hard disk drive to solve the file system problem. Refer to the *Adding a New Hard Disk to a 3B2 Computer* section in this chapter for instructions on how to add a new hard disk to the system.

How to Remove Certain Files That Are No Longer Used

There may be a few files on the hard disk system that are not used or needed by the CMS software. To find out if these files exist and to remove them, do the following.

 **CAUTION** Extreme caution should be used when doing this procedure because a minor mistake could bring the CMS software to a halt. We suggest that you read through this procedure thoroughly before starting.

- 1 Log into the system as *root*.
- 2 Execute the following command to determine which file system is low on disk space:

```
# df
```

The output from the **df** command lists the file systems that are mounted and the number of free blocks in each file system. Here is an example of the output from a **df** command:

```
/                (/dev/dsk/c1d0s0 ):    16396 blocks    2504 i-nodes
/usr             (/dev/dsk/c1d0s2 ):    11502 blocks    2418 i-nodes
/cms            (/dev/dsk/c1d0s8 ):      959 blocks      830 i-nodes
/cmsdsk1        (/dev/dsk/c1d1s8 ):    10730 blocks     368 i-nodes
```

Any file system that has less than 1000 free blocks is getting low on free blocks. (Notice in the example that the */cms* file system only has 959 free blocks.)

- 3 If a file system is low on free blocks, use the **cd** command to go to it. Then execute the following command to see if any *core* files are in the file system:

```
# find . -name core -print
```

- 4 If any *core* files are found, use the **rm** command to remove them.
- 5 If the */cms* file system is low on free blocks, do the following:
 - a Use the **cd** command to go to the */cms/bin* directory:

```
# cd /cms/bin  
# pwd
```

The **pwd** command will verify that you are in the */cms/bin* directory.

Execute the **ls** command as follows:

```
# ls con_sp con_ext dbchg db_con_* 3Bdownload*
```

If any of these files exist, use the **rm** command to remove them.

Recovering CMS File System Space

- b Use the **cd** command to go to the */cms/out* directory.

NOTE

The */cms/out* directory is only created when the customer upgrades from AP-16 CMS to 3B CMS. If the directory does not exist, skip this step.

```
# cd /cms/out
# pwd
```

The **pwd** command will verify that you are in the */cms/out* directory.

Execute the **rm** command as follows to remove all the files in the */cms/out* directory:

```
# rm *
```

- 6 Back up the file systems by following the procedures in the *Backing Up the File Systems From the UNIX System Environment* section in this chapter.

NOTE

If you do not back up the file systems, the files you just removed will reappear if the file systems are restored by using the earlier versions of the UNIX system backups.

- 7 If any of the following file systems are on the system and are low on free space, refer to the *How to Move Historical Database Files* and *How to Save Fewer Days of Historical Data* sections for additional information:

/cms

/cmsdsk1

/cmsdsk2

/cmsdsk3

/cmsdsk4.

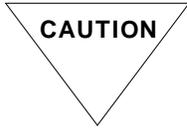
How to Move Historical Database Files

The historical database for the CMS software is made up of several INFORMIX database files (refer to Table 8-1) which are distributed across the entire hard disk system. When a CMS file system is running out of free blocks, historical data files may be moved to another file system. By doing this, you can significantly increase the number of free blocks on the CMS file system that is running out of free blocks.

Table 8 1 Naming Convention for the CMS Historical Database

HISTORICAL DATA BASE	INFORMIX FILE	schema	MAINTENANCE ARCHIVE-PARAMETER	
			DAILY FILES	HALF-HOUR FILES
dagent	dagent.dat dagent.idx	dagent sch	Agent Data	
ddn	ddn.dat ddn.idx	ddn sch	VDN Data	
dsplit	dsplit.dat dsplit.idx	dsplit sch	Split Data	
dtkgrp	dtkgrp.dat dtkgrp.idx	dtkgrp sch	Trunk Group Data	
dtrunk	dtrunk.dat dtrunk.idx	dtrunk sch	Trunk Data	
dvector	dvector.dat dvector.idx	dvec sch	Vector Data	
hagent	hagent.dat hagent.idx	hagent sch		Agent Data
hdn	hdn.dat hdn.idx	hdn sch		VDN Data
hsplit	hsplit.dat hsplit.idx	hsplit sch		Split Data
htkgrp	htkgrp.dat htkgrp.idx	htkgrp sch		Trunk Group Data
htrunk	htrunk.dat htrunk.idx	htrunk sch		Trunk Data
hvector	hvector.dat hvector.idx	hvec sch		Vector Data

To move the files for a particular historical database, do the following.



Extreme caution should be used when doing this procedure because a minor mistake could bring the CMS software to a halt. We suggest that you read through this procedure thoroughly before starting.

- 1 Back up the CMS historical data as a precaution. Refer to the *Backing Up CMS Historical Data From the CMS Environment* section in this chapter for instructions.

NOTE

Any data added to the CMS historical database files after the backup has completed will not be saved.

If another terminal is available, you can continue with the remaining steps while the CMS historical data is being backed up.

- 2 Log into the system as *root*.
- 3 Execute the **df** command as follows to determine which CMS file system has the largest number of free blocks:

```
# df
```

Recovering CMS File System Space

Possible CMS file systems are as follows:

/cms

/cmsdsk1

/cmsdsk2

/cmsdsk3

/cmsdsk4.

Record the name of the file system that has the most free space.

- 4 Look at the output from the **df** command and determine which CMS file system is low on free blocks.
- 5 Use the **cd** command to go to the *dsave* directory in the CMS file system which is low on free blocks.

For example: If the */cmsdsk1* file system is low on free blocks, execute the following command: “**cd / cmsdsk1/ cms/ acd1/ dsave**”.

- 6 Find out how much disk space is being used by the historical database files by executing the following command:

```
# du -s *
```

From the output of the **du** command, you should see several historical database files that end in *.dat* and *.idx*. Refer to Table 8-1 for a more complete listing of the historical database file names.

NOTE

A historical database file is comprised of two UNIX system files that have the same prefix names but have different file suffixes. (Together, these two files are also known as an INFORMIX database file.) For example, the *dagent* historical database is made up of the *dagent.dat* and *dagent.idx* files.

Find the largest INFORMIX database file (*.dat* and *.idx* file pair) that will fit into the file system with the most free space. Record the file names and the file system name. If necessary, more than one INFORMIX database file can be moved.

- 7 After the CMS historical data backup has completed, put the computer into the single-user mode by executing the following command:

```
# shutdown -g60 -y -i1
```

Recovering CMS File System Space

When the *Console Login:* prompt appears, log in as *root*.

- 8 Execute the following command to mount the file systems:

```
# mountall
```

- 9 Edit the *schema* file (*schema* file names end with *sch*) associated with the historical database that needs to be moved to another file system and change the location parameter to the full pathname of the file system that has the most free space. Refer to Table 8-1 for a more complete listing of the *schema* files that are associated with the historical database files.

For example:

Suppose the **dagent** database *schema* (*dagent sch*) has a location parameter called */cms/acd1/dsave/dagent* and is on the file system called **/cms** which is low on free space. If the */cmsdsk1* file system has the most free space, change directories to the */cms/acd1/dsave* directory, edit the file *dagent sch*, and change the location parameter to */cmsdsk1/cms/acd1/dsave/dagent*.

- 10 Build the database files by executing the **dbbuild** command.

For example: If you change the location parameter for the *dagent* database, execute the “**dbbuild dagent sch**” command.

- 11 So the system commands can handle potentially large database files, set the *ulimit* as follows:

```
# ulimit 250000
```

- 12 Copy the two files associated with the historical database over to the new location.

NOTE

If you are working from a remote location, you may want to put the **nohup** command at the beginning of the command line and an **&** at the end. By doing this, you will ensure that the command executes even if your connection to the computer is interrupted.

For example:

If you changed the location parameter for the *dagent* database to */cmsdsk1/cms/acd1/dsave/dagent*, execute the following command: **“ls dagent.dat dagent.idx cpio -pdmuv /cmsdsk1/cms/acd1/dsave”**. This command may take a while to execute depending on how large the files are.

- 13 Verify that the files in the new location have the same number of bytes, the same permissions, ownership, and group ID as the files in the old location.

For example:

If you changed the location parameter for the *dagent* database file to */cmsdsk1/cms/acd1/dsave/dagent*, execute the following command: **“ls -l dagent* and ls -l /cmsdsk1/cms/acd1/dsave/dagent*”**.

Recovering CMS File System Space

- 14 If the files in the new location have the same number of bytes, permissions, group, and ownership as the files in the old location, remove the files in the old location that are associated with the database that was moved.

For example:

If you changed the location parameter for the *dagent* database to */cmsdsk1/cms/acd1/dsave/dagent*, execute the following command: “**rm dagent.dat dagent.idx**”.

- 15 Put the computer into the multiuser mode.
- 16 Log into the ACD (*acd1*, *acd2*, *acd3*, or *acd4*, whichever applies), generate some historical reports associated with the database files that were moved, and verify that the reports are valid.
- 17 If you are satisfied that the historical database was properly moved, back up the CMS historical data. Refer to the *Backing Up CMS Historical Data From the CMS Environment* section in this chapter for instructions.

NOTE

If you do not back up the CMS historical data, the historical database file(s) that you just moved will appear in its (their) original location if a CMS restore is done by using the previous backup copy of the CMS historical data.

- 18 Back up the file systems by following the procedures in the *Backing Up the File Systems From the UNIX System Environment* section in this chapter.

NOTE

If you do not back up all the file systems, the historical database file(s) that you just moved will appear in its (their) original location if the file systems are restored by using the previous backup copies of the file systems.

How to Save Fewer Days of Historical Data

After the CMS software was installed, the Archive parameters were initialized or set by the CMS administrator. These parameters determine how many days of the different historical data (agent data, split data, trunk data, etc.) are saved for each historical database file. However, the Archive parameters can be changed to keep fewer days of historical data. By doing this, the historical databases will use less space on the disk.

To save fewer days of historical data, do the following.

CAUTION Extreme caution should be used when doing this procedure because a minor mistake could bring the CMS software to a halt. We suggest that you read through this procedure thoroughly before starting.

NOTE Check with the customer before you do this procedure. The customer may not want to reduce the number of days of historical data that is currently being saved.

- 1 Log into the system as *root*.
- 2 Execute the following command to determine which CMS file system is low on disk space:

```
# df
```

Recovering CMS File System Space

The output from the **df** command lists the file systems that are mounted and the number of free blocks in each file system. Here is an example of the output from a **df** command:

```
/                (/dev/dsk/c1d0s0 ):    16396 blocks    2504 i-nodes
/usr             (/dev/dsk/c1d0s2 ):    11502 blocks    2418 i-nodes
/cms            (/dev/dsk/c1d0s8 ):     959 blocks      830 i-nodes
/cmsdsk1       (/dev/dsk/c1d1s8 ):    10730 blocks    368 i-nodes
```

Any CMS file system that has less than 1000 free blocks is getting low on free blocks. (Notice in the example that the */cms* file system only has 959 free blocks.)

- 3 If a CMS file system is low on free blocks, use the **cd** command to go to the *dsave* directory in the CMS file system.

For example:

```
# cd /cmsdsk1/cms/acd1/dsave
```

- 4 To determine how many blocks are used by the historical database files in the *dsave* directory, execute the following command:

```
# du -s *
```

From the output of the **du** command, you should see several historical database files that end in *.dat* and *.idx*. Refer to Table 8-1 for a more complete listing of the historical database file names and how they are associated with the archive parameters.

NOTE

A historical database file is comprised of two UNIX system files that have the same prefix names but have different file suffixes. (Together, these two files are also known as an INFORMIX database file.) For example, the *dagent* historical database is made up of the *dagent.dat* and *dagent.idx* files.

- 5 Log into the ACD (*acd1*, *acd2*, *acd3*, or *acd4*, whichever applies).
- 6 Go to the “Maintenance Archive-Parameters” screen and reduce the number of days of data saved in the parameter field associated with the historical database files found from the previous screen.
- 7 Go to the “Maintenance Daily-Data-Archive” screen, enter “-0”, and press the **RETURN** key to delete the records that are no longer saved.
- 8 Wait for the daily data save to finish. This process may take from 5 minutes to an hour or more. You can find out when the daily data save has finished by doing one of the following:
 - a Going to the MAIN MENU and selecting the MAIL feature. When the daily data save finishes, a mail message is sent to you.
 - b Going to the MAIN MENU and selecting the UNIX system feature. Then execute the “**ps -e grep ddsav**” command. If only the UNIX system prompt returns, the daily data save has finished.
- 9 Rebuild the historical database files and return the freed INFORMIX space to the UNIX system by doing the following:
 - a Go to the MAINTENANCE Backup-Data screen and back up the CMS historical data.

NOTE

Any data added to the historical database files after the backup has finished will not be saved.

- b Go to the MAINTENANCE Restore-Data screen and execute the *restore* program. When prompted to enter a path name, enter the full pathname of the *dsave* directory located in the CMS file system that was low on space. When you enter the fullpath name, include a “/ *” at the end of the name (for example, */cmsdsk1/cms/acd1/dsave/**).

Recovering CMS File System Space

NOTE

The computer will automatically go to the single-user mode during the restore.

- c After the restore has completed and the computer has returned to the multiuser state, log into the ACD (*acd1*, *acd2*, *acd3*, or *acd4*, whichever applies) and generate some historical reports associated with the database files that were changed. Verify that these historical reports are acceptable.

NOTE

If a CMS restore is required later, use the latest backup copy of the CMS historical data. If you do not use the latest copy, the deleted records will reappear in the historical database file, which causes more free blocks to be used up. (The next execution of the “daily-data-archive” program will delete the records, but INFORMIX does not return the file system space to the UNIX system.)

- d Back up the file systems by following the procedures in the *Backing Up the File Systems From the UNIX System Environment* section in this chapter.

Adding a New Hard Disk Drive to a 3B2 Computer

After the new hard disk has been installed, do the following so that the UNIX operating system and the CMS software can utilize the new hard disk:

- 1 At the system console, log in as *root* and put the computer in the single-user mode by executing the following command:

```
# shutdown -g60 -y -i1
```

- 2 After the computer is in the single-user mode, execute the following command to mount the file systems for the other hard disks:

```
# mountall
```

- 3 Execute the following command to see which file systems are associated with the CMS software:

```
# df
```

Save the file system names printed by the **df** command for later use.

Adding a New Hard Disk Drive to a 3B2 Computer

- 4 Do the procedure *Partitioning Additional Hard Disks for a 3B2 Computer* in *Chapter 4* to format and partition the new disk.
- 5 Execute the following commands to make a *cms* directory on the new disk:

```
# cd /cmsdsk<X>
# mkdir cms
# chmod 775 cms
# ls -ld cms
```

X is the number associated with the new disk.

The **ls -ld** command is used to verify the results.

- 6 Execute the following commands to make an ACD directory in the *cms* directory:

```
# cd cms
# mkdir acd<X>
# chmod 755 acd<X>
# chown acd<X> acd<X>
# chgrp acd<X> acd<X>
# ls -ld acd<X>
```

X = 1, 2, 3, or 4 (whichever applies).

The **ls -ld** command is used to verify the results.

- 7 Make a *dsave* directory in the ACD directory by executing the following commands:

```
# cd acd<X>
# mkdir dsave
# chmod 755 dsave
# chown acd<X> dsave
# chgrp acd<X> dsave
# ls -ld dsave
```

$X = 1, 2, 3,$ or 4 (whichever applies).

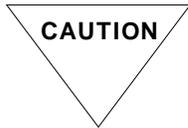
The **ls -ld** command is used to verify the results.

- 8 Go to the *How to Move Historical Database Files* section for instructions on how to move some of the CMS historical database files from the existing disks onto the new disk. You should do this so that the available disk space is evenly balanced, as much as possible, across the entire hard disk system.

Adding a New ACD to the 3B2/600 or 3B2/1000 Model 70 Computer

This section contains the procedures needed to add a new ACD to the CMS software residing on a 3B2/ 600 or 3B2/ 1000 Model 70 computer.

The 3B2/ 600 and 3B2/ 1000 Model 70 computers support up to four ACDs.



Before you begin the procedures in this section, back up the / and /usr file systems, and CMS file system(s) from the UNIX system environment. For instructions, refer to *Backing Up the File Systems From the UNIX System Environment* in this chapter.

You should confer with the customer's CMS administrator before starting the procedures in this section. The CMS administrator may want the new ACD added to the system after regular working hours.

Before you start the procedures in this section, you must follow the procedures in the section called *Connecting the 3B2 Computer to an AT&T Switch* in *Chapter 3*. Use these procedures to connect another switch to one of the ISC ports on the 3B2/ 600 or 3B2/ 1000 Model 70 computer.

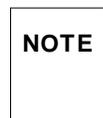


Each ISC circuit card has two RS-232C ports. If the 3B2/ 600 or 3B2/ 1000 Model 70 computer is already supporting two ACDs, another ISC circuit card must be installed to support a third and fourth ACD.

You also need to obtain the following information:

A list of the EIA ports that are connected to the printers that will be used with the new ACD

Switch Name — obtained from the switch technician, switch administrator, or CMS administrator



The switch can be named anything (this is a customer option), and the switch name will be displayed on the CMS screens associated with the new ACD. The name of the switch is limited to 20 alphanumeric characters (including hyphens and underscores) with no spaces or periods allowed.

Adding a New ACD to the 3B2/ 600 or 3B2/ 1000 Model 70 Computer

Switch Type (Generic 1, Generic 2, System 75, System 75 XE, System 85, or DIMENSION System switch) — obtained from the switch technician

Switch Release — obtained from the switch technician

Time zone offset — 0 if the computer and switch are in the same time zone. Otherwise, you will have to determine the plus or minus hours, relative to the 3B2 computer, that the switch is away from the 3B2 computer.

Link — the port (0, 1, 2, or 3) on the ISC that is connected to the switch

Port — the local port number at the switch. See the switch technician for details.

NOTE

The switch technician must administer the remote port for CMS on the switch as “1”.

Also, obtain the following information about the new ACD from the switch technician, switch administrator, or CMS administrator:

Number of splits on the switch

Number of agents on the switch

Number of trunk groups on the switch

Number of trunks on the switch

Number of unmeasured facilities

Number of Vector Directory Numbers (VDNs).

NOTE

Vectoring is available only on the Generic 2 and System 85, R2V4 switch.

Use Table 8-2 to record the information about the new ACD.

Adding a New ACD to the 3B2/ 600 or 3B2/ 1000 Model 70 Computer

Table 8 2 Form for Adding a New ACD to a 3B2/ 600 or 3B2/ 1000 Model 70 Computer

ACD Variables	ACD1	ACD2	ACD3	ACD4	Maximum
Switch Name					
Switch Type					
Switch Release					
TZ Offset					
Link					
Port					
Splits					60
Agents					1023
Trunk Groups					255
Trunks					1400
Unmeasured Facilities					100
VDNs					256

NOTE

For Table 8-2, the sum of the ACD1, ACD2, ACD3, and ACD4 variables (splits, agents, trunk groups, trunks, and unmeasured facilities) cannot exceed the maximum values.

A minimum of 100 unmeasured facilities is required by each ACD. If more than 100 unmeasured facilities (trunks) are required and the maximum trunks are used on the ACD, the trunks (measured trunks) must be reduced accordingly.

Adding a New ACD to the 3B2/ 600 or 3B2/ 1000 Model 70 Computer

To add or create a new ACD, do the following:

- 1 At the system console terminal, log in as *root* and execute the following commands:

```
# shutdown -il -g60 -y  
# mountall
```

- 2 Execute the following command to display the Switch Identification, Switch Connection, and Shared Memory Allocation parameters for an existing ACD:

NOTE

Do not change the parameters for an existing ACD. In other words, answer “**n**” to all the questions. Be sure to use Table 8-2 to record the information displayed for the existing ACDs.

```
# /cms/bin/swsetup <ACDHOME>
```

ACDHOME is the full pathname of the ACD.

NOTE

Possible ACDHOMEs are as follows: */cms/acd1*, */cms/acd2*, */cms/acd3*, and */cms/acd4*.

Repeat this step until you have recorded the parameters for each existing ACD.

- 3 Go to the *How to Create the ACDs* section in *Chapter 5* to create a new ACD.
- 4 Go to the *Initializing the CMS Software* section in *Chapter 5* to initialize or start up the communication link between the new ACD on the 3B2/ 600 or 3B2/ 1000 Model 70 computer and the telecommunications switch.

Administering a New Terminal

The following terminals have been approved for use with the 3B CMS software application:

AT&T DATASPEED * 4425

605 Business Communications Terminal (BCT)

NOTE

The 605 BCT has been manufacture discontinued (MD). CMS will still support this terminal; however, the 705 Multitasking Terminal has replaced the 605 BCT.

610 BCT

615 Multi-Tasking (MT) Terminal

NOTE

The 615 MT has been manufacture discontinued (MD). CMS will still support this terminal; however, the 615 Color Multitasking Terminal has replaced the 615 MT.

615 Color Multi-Tasking (CMT) Terminal

620 Multi-Tasking Graphics (MTG) Terminal

AT&T 6500 Displays (6528, 6529, 6538, and 6539).

705 Multi-Tasking (MT) Terminal

After a new terminal has been connected to the computer, the options on the terminal have to be set, and the UNIX system has to be administered so that the computer recognizes the new terminal.

Obtain the tty port number from the AT&T technician after the terminal has been installed. You will need the tty port number later when you administer the UNIX system so that the computer recognizes the new terminal.

* Registered trademark of AT&T.

How to Set the Terminal Options

The terminal options have to be set correctly so that the terminal and computer can communicate with each other. The following sections display the recommended settings of the terminal options for the CMS supported terminals:

The *DATASPEED 4425 Terminal Options* section displays the recommended terminal options for the DATASPEED 4425.

The *605 BCT Terminal Options* section displays the recommended terminal options for the 605 BCT.

The *610 BCT Terminal Options* section displays the recommended terminal options for the 610 BCT.

The *615 MT Terminal Options* section displays the recommended terminal options for the 615 MT.

The *615 CMT Terminal Options* section displays the recommended terminal options for the 615 CMT.

The *620 MTG Terminal Options* section displays the recommended terminal options 620 MTG.

The *705 MT Terminal Options* section displays the recommended terminal options for the 705 MT.

For information about the options for and the operation of the 6500 displays with 3B CMS, refer to *Appendix D* in the *3B Call Management System Administration* (585-215-504) document. The following documents may also be useful:

AT&T 6500 Station Cabling Guide (999-300-129IS)

AT&T 6500 Implementation Manual (999-300-130IS)

AT&T 6500 Station Manager's Guide (999-300-106IS)

AT&T 6500 Station Service Manual (999-306-030IS)

AT&T 6500 Technical Reference (999-300-131IS)

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

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

DATASPEED 4425 Terminal Options

The DATASPEED 4425 recommended options are as follows:

CURRENT OPTI ONS		Versi on			
Speed	<input type="text" value="4800"/>	Return Key	<input type="text" value="CR"/>	Transmi ssi on	<input type="text" value="char"/>
Duplex	<input type="text" value="full"/>	Newline on LF	<input type="text" value="no"/>	Li ne Send	<input type="text" value="keyed"/>
Send Parity	<input type="text" value="space"/>	Aut ow rap	<input type="text" value="on"/>	Bl ock Send	<input type="text" value="unprot"/>
Check Parity	<input type="text" value="no"/>	Cur sor	<input type="text" value="*"/>	Send Fr om	<input type="text" value="cur sor"/>
132 Columns	<input type="text" value="off"/>	Keyclick	<input type="text" value="off"/>	Edi t Keys	<input type="text" value="send"/>
Memory Access	<input type="text" value="scroll"/>	Margin Bell	<input type="text" value="*"/>	Send At tri butes	<input type="text" value="no"/>
Clock	<input type="text" value="asynch"/>	Di aler	<input type="text" value="no"/>	Aut oanswer	<input type="text" value="no"/>
Wait for DSR	<input type="text" value="no"/>	Answer on Connect	<input type="text" value="no"/>	VT 52	<input type="text" value="no"/>
"Enter" Key	<input type="text" value="<"/>	Field Separator	<input type="text" value=">"/>	Bl ock t er mi nat or	<input type="text" value="␣"/>
Answer back	<input type="text"/>				
AUXI LI ARY PRI NTER OPTI ONS					
Printer Model	<input type="text" value="*"/>	Flow Control	<input type="text" value="*"/>		
Speed	<input type="text" value="*"/>	Al ar m	<input type="text" value="*"/>		
PREVIOUS FIELD	NEXT FIELD	STEP	DEFAULT VALUES	SAVED VALUES	SAVE ALL
					row xxx col xxx PRINT SCREEN MONI TOR MODE *

* User Preference

Figure 8 1 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.

605 BCT Terminal Options

The 605 BCT recommended options are as follows:

OPTIONS SETUP

Communications	User Preferences
Speed 4800	Columns <u>_80_</u>
Send Parity <u>spac</u>	Reverse Video <u>_no_</u>
Check Parity <u>_no_</u>	Bell <u>_on_</u>
Local Echo <u>_off_</u>	Key Click <u>_off_</u>
Monitor Mode <u>_off_</u>	Scrolling <u>jump</u>
Auto Wrap <u>_on_</u>	Scroll Speed <u>med_</u>
Newline on LF <u>_no_</u>	Cursor Type <u>blk</u>
Return Key <u>_CR_</u>	Cursor Blink <u>_no_</u>
Enter Key <input style="width: 40px;" type="text" value="<-"/>	Labels <u>_on_</u>
Terminal Mode <u>norm</u>	Swap Delete/Del <u>_no_</u>

DONE 605 BCT- 1.0

CHANGE
OPTION

DEFAULT
VALUES

SAVED
VALUES

SAVE

NEXT
SETUP

CLEAR
TO END

Figure 8 2 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 BCT Terminal Options

The 610 BCT recommended options are as follows:

OPTIONS SETUP

Communications		User Preferences	
Speed	4800	Columns	-80-
Send Parity	spac	Scrolling	jump
Check Parity	-no-	Reverse Video	-no-
Local Echo	-off	Volume	-1--
Monitor Mode	-off	Key Chck	-off
Auto Wrap	-on-	Cursor Type	blk
Newline on LF	-no-	Cursor Blink	-no-
Return Key	-CR-	Labels	-on-
Enter Key	<-		

CHANGE
OPTIONDEFAULT
VALUESSAVED
VALUESSAVENEXT
SETUPCLEAR
TO END

Figure 8 3 Terminal Options for a 610 BCT

NOTE The “Volume” option in Figure 8-3 refers to the alarm bell. The settings range from 1 to 7, with 1 being the lowest volume.

If any of the 610 BCT options are incorrect, refer to the *User’s Guide, 610 Business Communications Terminal* (999-300-270 IS) for instructions on how to change the options.

615 MT Terminal Options

The 615 MT recommended options are as follows:

OPTIONS SETUP

Communications	User Preferences
I/O Card idle	Cartridge idle
Speed 4800	Columns _80_
Send Parity spac	Reverse Video _no_
Check Parity _no_	Volume _4_
Local Echo _off	Key Click _off
Encoding _off	Scrolling jump
Generate Flow _on_	Scroll Speed med_
Receive Flow _off	
Pass Flow _yes	
Monitor Mode _off	Cursor Type blkc
Auto Wrap _on_	Cursor Blink _no_
Newline on LF _no_	Labels _on_
Return Key _CR_	
Enter Key _CR_	
615 MT 1.1	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 2px;"></div> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 2px;"></div> <div style="border: 1px solid black; padding: 2px; font-size: 8px;">CHANGE OPTION</div> <div style="border: 1px solid black; padding: 2px; font-size: 8px;">DEFAULT VALUES</div> <div style="border: 1px solid black; padding: 2px; font-size: 8px;">SAVED VALUES</div> <div style="border: 1px solid black; padding: 2px; font-size: 8px;">SAVE</div> <div style="border: 1px solid black; padding: 2px; font-size: 8px;">NEXT SETUP</div> <div style="border: 1px solid black; padding: 2px; font-size: 8px;">CLEAR TO END</div> </div>	

Figure 8 4 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.

615 CMT Terminal Options

The 615 CMT recommended options are as follows:

OPTI ONS SETUP

COMMUNI CATIONS		USER PREFERENCES	
Speed	9600	Columns	80
Send Parity	none	Reverse Video	no
Check Parity	no	Volume	4
Local Echo	off	Key Click	off
Encoding	off	Scrolling	jump
Flow Control	DC1/DC3	Scroll Speed	medium
Generate Flow	on	Alternate Keypad	off
Receive Flow	off	Swap Delete/Del	no
Pass Flow	yes		
Monitor Mode	off	Cursor Type	block
Autowrap	on	Cursor Blink	no
Newline on LF	no	Labels	on
Return Key	CR	Foreground
Enter Key	Background
615 CMT 1.0			
<input type="button" value=""/> <input type="button" value="CHANGE OPTION"/> <input type="button" value="DEFAULT VALUES"/> <input type="button" value="SAVED VALUES"/> <input type="button" value="SAVE"/> <input type="button" value="NEXT SETUP"/> <input type="button" value="CLEAR TO END"/>			

Figure 8 5 Terminal Options for a 615 CMT

If any of the 615 CMT options are incorrect, refer to the *User's Guide, 615 Color Multitasking Terminal* (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.

620 MTG Terminal Options

The 620 MTG recommended options are as follows:

OPTIONS SETUP

Communications	User Preferences
Speed 4800	Reverse Video <u>_no_</u>
Send Parity <u>spac</u>	Volume <u>_4_</u>
Check Parity <u>_no_</u>	Key Click <u>_off</u>
Local Echo <u>_off</u>	Mouse Movement <u>_1:1</u>
Encoding <u>_off</u>	Mouse Button 3 <u>right</u>
Generate Flow <u>_on_</u>	Printer Type 5320
Receive Flow <u>_off</u>	Printer Alarm <u>_no_</u>
Pass Flow <u>_yes</u>	Printer Speed 1200
Monitor Mode <u>_off</u>	Printer Parity <u>none</u>
Auto Wrap <u>_on_</u>	Cursor Type <u>blk</u>
Newline on LF <u>_no_</u>	Cursor Blink <u>_no_</u>
Return Key <u>_CR_</u>	Labels <u>_on_</u>
Enter Key <u><...></u>	

620/Basic - 1.1

CHANGE
OPTION

DEFAULT
VALUES

SAVED
VALUES

SAVE

NEXT
SETUP

CLEAR
TO END

Figure 8 6 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.

705 MT Terminal Options

The 705 MT Terminal replaces or emulates the 605 BCT terminal. To properly setup 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 Multi-Tasking Terminal User's Guide* (999-300-660) for instructions on how to change the options.

After making the change, the 705 MT options should be set to the settings outlined in the following windows.

User Preferences Window

USER PREFERENCES	
Lines	24
Columns	80
Reverse Video	No
Screen Saver	30 min.
Scrolling	Jump
Scroll Speed	Medium
Labels	On
Key Click	Off
Warning Bell	On

Communications Options Window

COMMUNICATIONS OPTIONS		
MAIN		AUX
Port 2	Port Mapping	Port 1
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
None	Receive Flow	XON/XOFF
240	XOFF at	240
-	Transmit Limit	-
No	Answerback on Connect	-
Main	Clear Communication Port	Aux

General Options Window

GENERAL OPTIONS		
PRIMARY/WINDOW 1		WINDOW 2
705	Emulation	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

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

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

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

How to Administer a New Terminal

To administer the UNIX system so that the computer recognizes a new terminal, do the following:

- 1 Log in as *root* or *sysadm*. Supply the correct password when prompted to do so.
- 2 Enter the following command:

```
# sysadm ttygmt
```

The program will print a list of tty management options. Select “Option 3” (“modtty”) to modify the tty ports.

- 3 Here is an *example* of what the new tty port characteristics should be set to:

```
tty<>: new characteristics:
      State           on
      Hangup Delay    off
      Line Setting    4800
      Description     cms terminal
```

NOTE

The sum of the serial baud rates (Line Setting) cannot exceed 38.4K baud per EPORTS card, and no individual baud rate can exceed 19.2K. For an EPORTS card with all 8 ports in use, the maximum Line Setting (baud rate) per port is 4.8K.

For an I/O Expansion card, the sum of the serial baud rates cannot exceed 19.2K per I/O Expansion card. For an I/O Expansion card with all 4 ports in use, the maximum Line Setting (baud rate) per port is 4.8K.

- 4 After you have administered the tty port for the new terminal, press the **q** key to exit from the **ttymgmt** program.
- 5 Refer to the *3B2 Computer Expanded Input/ Output Capability Manual* (305-530) to determine the tty port locations, and refer to the *3B2 Computer Owner/ Operator Manual* that came with the 3B2 computer and the *3B2 UNIX System V System Administration Utilities Guide* (305-502) for more information on tty port management.

Administering a New Printer

To administer a new printer that has been connected to the 3B2 computer, do the following:

- 1 Log in as *root*. Supply the correct password when prompted.
- 2 Execute the following command to go to the directory that contains the new printer administration program and other related files:

```
# cd /etc/feat/cms/lpsetup
```

- 3 Execute the following program to administer the new printer:

```
# ./setuppr
```

Follow the directions in the program until the new printer has been administered.

NOTE

If the printer model is “att475” or “att476”, DIP 5 on switch SW24 of the printer must be “ON” (CLOSED), and DIP 6 on switch SW24 of the printer must be “OFF” (OPEN). Refer to the *Users Guide 470/ 471, 475/ 476 Printers* (999-700-303 IS) document for the AT&T 475 printer to determine the location of switch SW24.

NOTE

If you are currently using UNIX Version 3.1 or earlier, use the printer model names which contain the suffix 3.0. If you are currently using UNIX Version 3.2 or a later version, use the regular printer model names.

- 4 If the model name of the new printer is not listed as a selection in the program, exit from the program by pressing the **DELETE** or **BREAK** key and do the following:
 - a Make a copy of the *prntr.model* file and name it according to its printer model name:

```
# cp prntr.model <new_printer_model_name>
```

- b Edit the new file:

```
# ed <new_printer_model_name>
-- or --
# vi <new_printer_model_name>
```

- c Follow the directions in the new file to set the “MODES” for the new printer. Write and quit the file.

NOTE

You may have to refer to the printer manual for MODE information.

Administering a New Printer

- d Move the new file to the *CMSmodels* directory:

```
# mv <new_printer_model_name> CMSmodels
```

- e Execute the following program again:

```
# ./setuppr
```

- f Follow the directions in the program until the new printer has been administered.

AT&T 583 Printer Settings

The AT&T 583 printer options must be set correctly so that the printer will properly emulate the IBM Graphics Mode.

Follow the procedures outlined in the *580/581/583 Printer User's Guide* (999-300-563) to set the AT&T 583 printer options to emulate the IBM Graphics Mode. The appropriate settings are as follows:

583 Printer Settings for IBM Graphics Mode

Printout Settings

01. EMULATION	PROPRINTER-XL24
02. PRINT QUALITY	DRAFT
03. LQ FONT	EXTERNAL
04. SHAPE OF ZERO	0
05. EPSON CHAR SET	USA
06. IBM CHAR SET	SET1
07. POWER ON STAT	ON-LINE
08. BUZZER	ON
09. PRT DIRECTION	BI1
10. PRINT MODE	NOR
11. DOUBLE HEIGHT	MIDDLE
12. CAN CODE	ON
13. IBM AGM SUPPRT	ON

Forms Settings

01. PAGE LENGTH	11
02. LPI	6
03. CPI	12
04. AUTO LF	OFF
05. AUTO CR	OFF
06. PRINT WIDTH	13.2
07. 1" SKIP	OFF
08. BUFF. FULL LF	NO-LF
09. PE DETECT	ON
10. LEFT MARGIN	n/ a
11. RIGHT MARGIN	n/ a

Administering a New Printer

Interface

01. I/ F MODE	SERIAL
02. BUFFER SIZE	4KB
03. SELECT IN	ON
04. AUTO FEED XT	ON
05. PROTOCOL	XON/ XOFF
06. BAUD RATE	9600
07. DATA BITS	8
08. PARITY BITS	NONE
09. STOP BITS	1
10. CER SIGNAL	OFF
11. CTS SIGNAL	OFF
12. CD SIGNAL	OFF
13. RTS TIMING	DTR
14. DSR SIGNAL	OFF
15. OVER-RUN BUFF	256
16. RECEIVE DATA	MODE1

Changing the Date or Time

The UNIX system time is displayed at the top of most CMS screens, and the local time (UNIX system time) and the switch time are displayed in the “Session-Status” screen of the “MAINTENANCE” feature. If the difference between the UNIX system time and the switch time is less than 5 minutes, you don’t have to change the UNIX system time unless you have scheduled CMS programs that must run with no time tolerances.

One of the most common causes of a time difference between the computer and the switch is daylight-savings time. The UNIX system can automatically make the changes from standard time to daylight-savings and from daylight-savings back to standard time. However, the switch does not make these changes. Therefore, when setting the UNIX System time, indicate that the system is not in a Daylight Savings time location. This will allow the customer to manually change the date and time on the switch and the 3B2 computer at their convenience.

NOTE

Changing the UNIX system time or 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 At the system console terminal, log in as *root*.
- 2 Execute the following command to change the date or time:

```
# sysadm datetime
```

Follow the instructions printed on the screen to change the date and time. For more detailed information, refer to your *3B2 Computer Owner/ Operator Manual* (3B2/ 310, 305-472 and 3B2/ 400, 305-501).

NOTE

Be sure to take the customer’s time zone into consideration when changing the UNIX system time from a remote location. To determine the time zone, execute the **echo \$TZ** command.

Changing the Date or Time

- 3 To exit from the **sysadm datetime** program after you have changed the UNIX system time, enter **q**.

Changing the Switch Parameters

When the CMS software was first installed, several parameters (for example, agents, splits, trunks, trunk groups, etc.) associated with the Switch Identification, Switch Connection, and Shared Memory Allocation forms were identified to the CMS software.

NOTE

When the switch is upgraded to a new release, the Switch Identification parameters must be updated.

To change the values for any of these parameters, do the following:

- 1 At the system console terminal, log in as *root* and execute the following command:
- 2 Execute the following command to change the switch parameters:

```
# /cms/bin/swsetup <ACDHOME>
```

`ACDHOME` is the full pathname of the ACD.

NOTE

Possible `ACDHOMEs` are as follows: `/cms/acd1`, `/cms/acd2`, `/cms/acd3`, and `/cms/acd4`.

Answer the questions to the `swsetup` command and make changes to the ACD as necessary.

Changing the Switch Parameters

- 3 Execute the following command to put the 3B2 computer in the multiuser state:

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

- 4 Log into the system by using the CMS administrator's login ID (*acd1*, *acd2*, *acd3*, or *acd4*) and verify that the Measured Splits field in the System Status screen is correct.

Performing a UNIX System Dump

If the customer's 3B2 computer is "locked up," a *sysdump* will be useful to CMS developers when determining the cause of the failure.

For customers with a 3B2/ 310 or 3B2/ 400 computer running UNIX System V Release 3.0, 3.1, or 3.2, refer to the appropriate *UNIX System V Release 3 System Administrator's Guide*) for instructions.

For customers with a 3B2/ 500, 3B2/ 522, 3B2/ 600, or 3B2/ 1000 Model 70 computer running UNIX System V Release 3.1.1 or 3.2.1, 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 3B2/ 310 or 3B2/ 400 computer to the UNIX System V Release 3.2 operating system, follow the recommended procedures in the *AT&T 3B2 Computer, UNIX System V Release 3.2, Release Notes* (305-647) document.

To upgrade a customer's 3B2/ 500, 3B2/ 522, 3B2/ 600, or 3B2/ 1000 Model 70 computer to the UNIX System V Release 3.2.1 operating system, follow the recommended procedures in the the *AT&T 3B2 Computer, UNIX System V Release 3.2.1, Release Notes* (305-613) document.

These documents tell you how to back up certain files before doing the upgrade. In addition, you should also back up the */usr/lib/uucp/Dialers* file.

After you have completed the release upgrade, compare the files in the */usr/old* directory with the new ones. Edit the new files and make changes as necessary. The new */usr/inittab* file will have to be modified to contain the CMS comment lines for BEGIN and END statements in the old */etc/inittab* file.

When upgrading the UNIX operating system, the system tunable parameters are reset to the default values. This causes the 3B CMS software to be inoperable. To reset the system tunable parameters to the original values required by CMS, do the following after the operating system has been upgraded:

- 1 Execute the following command to put the computer in the single-user mode:

```
# shutdown -g0 -y i1
```

- 2 Execute the **cd** command as follows:

```
# cd /etc/feat/cms
```

- 3 Edit the *3B2 old cfg* file. In the first line of the file, change the numeric value to some other number. Write and quit the file.
- 4 Execute the following command to reset the tunable parameters:

```
# ./chk_cfg
```

- 5 After the tunable parameters have been reset to their original values, execute the following command to put the computer in the multiuser state:

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

Upgrading the X.25 Network Interface Software

The following versions of the X.25 Network Interface Software work with *Release 2, Version 2.32* or later of the 3B CMS software:

X.25 Network Interface Software Version 1.0.1

X.25 Network Interface Software Version 1.1

X.25 Network Interface Software Version 1.1.1.

For customers who have Version 1.0.1 or Version 1.1 and upgrade to Version 1.1.1, you must do the following after you have done the upgrade:

- 1 Log in as *root*.
- 2 With the computer in the single-user state, execute the following command:

```
# /etc/x25updcms
```

If you do not do this, the X.25 Network Interface software will not be able to communicate with the 3B CMS software.

General Information

This chapter contains troubleshooting information about the 3B2 CMS application. You should use the information contained in it to clear problems that may arise during and after the CMS software installation.

The following is a list of the troubleshooting sections covered in this chapter:

Using the CERR Log

Understanding Alarm Conditions

Reading the Alarm Database

Solving CMS-Related Problems

Solving Hardware-Related Problems

Solving Terminal-Related Problems

Solving Printer-Related Problems

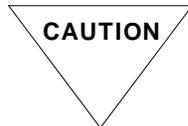
Solving Power-Related Problems.

NOTE

If you are troubleshooting the customer's system from a remote terminal (baud rate must be 1200) and cannot log into the customer's system, tell the on-site technician or CMS administrator to execute the **sysadm consolebaud** command to determine the baud rate of the console port. The baud rate of the console port must be set to 1200 before you can remotely log into the customer's system.

Using the CERR Log

When the CMS software detects an unexpected condition or an error, an entry is logged into an INFORMIX data-base file (sometimes called “Common Error log” or “CERR log”). You can use this data-base file to help you resolve a CMS or UNIX system problem.



The error descriptions and suggested actions for resolving a problem recorded in the CERR log assume that you have an in-depth knowledge of the UNIX system and the CMS internal structure. Therefore, be extremely cautious when making any modifications.

To read the CERR log, do the following:

- 1 Log into the system by using the CMS administrator’s login ID (*acd1*, *acd2*, *acd3*, or *acd4*, whichever applies).
- 2 From the MAIN MENU screen, select the “MAINTENANCE” option.
- 3 When the MAINTENANCE screen appears, select the “Error-Log” option.
- 4 After the “Error-Log” has been displayed, press the **REPORT** screen-labeled key (SLK).
- 5 The entries in the report will be in “reverse time” order. In other words, the latest entry will be printed first.

Figure 9-1 shows an example of a CERR log entry.

```
12/29/87                CALL MANAGEMENT SYSTEM                Page 1

                        Error Log Report

Tue Dec 29 14:50:51 1987, SIP=src_id, 0=src_err_num
9414 - ASTATE: agent position 0 unstaffed; state AVAIL ignored
      CMSsip=process, agmsgs.c=file, 174=line_num, 0=dups
      WARN=event, 1=acd, 0=alarm_id,                =term
```

Figure 9 1 Example of a CERR Log or Error Log Entry

The contents of the entry are described as follows:

First Line:

- a date and time of the error
- b “src id” — where the detected condition came from (example, UNIX system, INFORMIX, etc.)
- c “src err num” — the actual error number from the previous “src id”.

Second Line:

- a “error code number” (CERR ID) — a unique number for this particular condition that can be used to get more information about this condition. (See the next procedure in this section.)
- b brief text description for this condition.

Third Line:

- a “process” — the name of the CMS process which detected the condition
- b “file” — the C code source file which detected the condition
- c “line num” — the source code line number which detected the condition

NOTE

b and **c** are of no value unless you have access to the source code.

- d “dups” — a count of the duplicated occurrences that are not entered into the CERR log (avoids filling the CERR log with the same error).

Fourth Line:

- a “event” — the severity of the CERR entry; the order from least severe to the most severe is as follows: INFO (information), WARN (warning), and FATAL (fatal to a CMS function)
- b “acd” — the acd (for multi-acd machines) where the condition occurred
- c “alarm id” — the ID used to record the “alarmable” conditions in the alarm data-base file (when the same “alarm id” occurs a given number of times, a remote alarm is sent to the Remote Maintenance Center)
- d “term” — the UNIX system terminal path for the process that detected the condition (can be useful for terminal-related problems).

To expand the information about a particular error, do the following:

- 1 From the MAIN MENU screen, select the UNIX system option.
- 2 Execute the following command:

```
$ cd /cms/maint/text
```

- 3 To access the INFORMIX Database menu, enter the following command:

```
$ informix
```

- 4 To access the PERFORM menu, enter **1** and then press the **RETURN** key.
- 5 Select the “exp cerr” item by entering the number next to it and pressing the **RETURN** key.
- 6 The screen that is displayed contains the basic instructions. Follow the instructions and enter the desired “error code number” (CERRID) to get an expansion of the CERR.

Understanding Alarm Conditions

Under certain conditions, a remote alarm is sent to the Technical Support Center (TSC) via the Remote Management Package and the Silent Knight Autodialer.

When an alarm condition occurs, the Silent Knight Autodialer automatically dials a preprogrammed phone number and transmits an alarm signal to the TSC.

The following conditions will cause a remote alarm to be generated and sent to the TSC:

UNIX System Panics

AIC Sanity Time-out

CMS Software-Generated Alarms

Hardware-Generated Alarms.

NOTE

Maintenance Personnel: When an alarm has been sent to the Remote Maintenance Center, manually reset the AIC so that another alarm may be generated. See *AICTEST* in *Appendix D* to clear the alarm condition on the AIC board.

UNIX System Panics

Every UNIX system panic will cause an alarm to be generated. The first and second panic in 30 minutes will cause an auto reboot. If three panics occur in the same 30 minutes, the computer will put itself into the firmware mode and must be manually rebooted.

Panic counting starts over every 30 minutes if a panic count of 3 has not been obtained. (The panic counter was set to a value of 3 during the CMS software installation.)

AIC Sanity Time-Out

An AIC 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 AIC sanity time-out will occur causing an alarm to be sent.

CMS Software-Generated Alarms

The following list describes the different types of CMS software-generated alarms:

A UNIX system-related alarm is sent if the CMS software receives more than 10 unexpected errors in 24 hours from UNIX system calls. Access the Error Log from the CMS MAINTENANCE menu to find out which UNIX system calls are failing and why.

An INFORMIX related alarm is sent if the CMS software receives more than 15 unexpected errors in 24 hours from the INFORMIX data-base software. Access the Error Log from the CMS MAINTENANCE menu to find out which INFORMIX calls are failing and why.

An Inter-Process Communication (IPC) related alarm is sent if the CMS software gets more than 5 unexpected errors in 24 hours from the UNIX system IPC software. Access the Error Log from the CMS MAINTENANCE menu to find out which IPC calls are failing and why.

A Message Manager related alarm is sent when the CMS Message Manager *daemon* cannot start due to UNIX system, IPC, or INFORMIX errors, or because more than 7 unexpected errors have been received from the UNIX system or INFORMIX data-base software in 24 hours. See the file `/cms/maint/text/msgmgr_error` for details.

Hardware-Generated Alarms

An ac power failure condition will cause an alarm if an Uninterruptible Power Supply (UPS) with an ac sense lead is present and connected to the AIC and the Silent Knight Autodialer.

NOTE

The steps in the next section explain how to get more information about CMS generated alarms, but they do not address the other sources of alarms.

Reading the Alarm Database

To get more detailed information about CMS generated alarms, do the following:

- 1 If you are at the Remote Maintenance Center, and the CMS generates a “software low priority alarm,” note the time of the alarm and log into the customer’s system.
- 2 If you are at the customer’s site, log into the customer’s system. From the MAIN MENU screen, select the “UNIX system” option.
- 3 Execute the following command:

```
$ cd /cms/maint/text
```

- 4 To access the INFORMIX Database menu, enter the following command:

```
$ informix
```

- 5 To access the PERFORM menu, enter **1** and then press the **RETURN** key.
- 6 Select the “exp alarm” item by entering the number next to it and then pressing the **RETURN** key.

The screen that is displayed contains the basic instructions.
- 7 Display all of the alarm entries.
- 8 Find the entry that is close to the time the alarm was sent, or find the entry with the most recent time. (See the field “time/ date the last time this alarm sent.”)
- 9 Read the “message expansion” for this entry.
- 10 Note the alarm ID (call it *xxxx*).

- 11 Exit from INFORMIX (enter **b** as necessary to exit the INFORMIX screens).
- 12 If you are at the Remote Maintenance Center, enter **su - acd1** at the UNIX system prompt to log in and access the MAIN MENU screen.

If you are at the customer's site, press the **EXIT** SLK to return to the MAIN MENU.
- 13 From the MAIN MENU screen, select the "MAINTENANCE" feature.
- 14 When the MAINTENANCE screen appears, select the "Error-Log" option.
- 15 After the "Error-Log" has been displayed, press the **REPORT** SLK and select the terminal option.
- 16 The entries in the report will be in "reverse time" order. In other words, the latest entry will be printed first.
- 17 Search for the alarm ID "xxx" found in **Step 11**. In other words, press the SEARCH SLK, enter "xxx=alarm id", and press the **RETURN** key.
- 18 Note the messages and CERR IDs that are involved. Hopefully these messages and IDs will give you some clues as to what caused the alarm.

NOTE

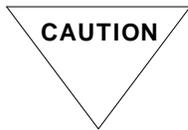
To get expanded information on any CERR ID, refer to the section, *Using the CERR Log*, in this chapter.

Solving CMS-Related Problems

This section describes some of the problems that may arise during and after the installation of the CMS software. Each problem in this section has a corresponding solution step.

When the Switch Time Is Out-of-Sync

If there are more than 5 minutes difference between the local time (UNIX system time) and the switch time, an “out-of-sync” message will appear next to the switch time in the “Session-Status” screen.



Some CMS data will be lost when the time on the switch is changed.

To correct the time on the switch, do the following:

- 1 From the MAIN MENU screen, select the “MAINTENANCE” option.
- 2 When the MAINTENANCE screen appears, select the “Session-Status” option.
- 3 Press the **RELEASE** SLK to change the CMS Session to “Quiescent.”
- 4 Tell the switch administrator to reset the time on the switch to that of the 3B computer.
- 5 After the switch time has been reset, press the **CONNECT** SLK.

When the CMS Session changes to “Data Transfer,” both the local (UNIX system) time and the switch time should be within 5 minutes of each other, and the “out-of-sync” message should disappear.



To change the time on the 3B2 computer, refer to *Chapter 8*.

When the Link Is Down

If you notice that the link is down by observing the “Up/Down” field at the top right of a CMS screen, do the following to reestablish the link connection:

- 1 From the MAIN MENU screen, select the “MAINTENANCE” option.
- 2 When the MAINTENANCE screen appears, select the “Session-Status” option.
- 3 After the “Session-Status” screen has been displayed, look at the “Link” field to verify that the link is “Down.”
- 4 If the link is “Down,” press the `RELEASE` SLK.
- 5 After the response message has been displayed, press the `CONNECT` SLK.

The computer will attempt to reestablish the switch session.

When a CMS Historical Database Is Corrupted

An INFORMIX sanity checker program (`/cms/bin/fcheck`) automatically runs in the background after a daily data save has completed. This program may take from 1 to 3 hours to execute depending on the size of the INFORMIX databases.

During low occupancy, use the following table to determine how long `fcheck` will take to check the CMS historical data bases:

3B Computer	Minutes/ Megabyte
3B2/ 310	4.6
3B2/ 400	4.6
3B2/ 500	1.8
3B2/ 522	1.8
3B2/ 600	1.8
3B2/ 1000 Model 70	1.8

During high occupancy, increase the factors in the table by 100 percent.

To determine how many megabytes of disk space the historical databases use, do the following:

- 1 For an ACD, go to the `dsave` directory or directories and execute the `Is -l` command.
- 2 Add the total bytes used by the files displayed and divide by 1,000,000 to convert to megabytes.
- 3 Multiply the sum in megabytes by the appropriate factor shown in the previous table to determine approximately how many minutes `fcheck` will take to run.

Solving CMS-Related Problems

The **fcheck** program checks to make sure that no old data base records are in the *dsave* files and that the proper *serial* and *jdate* INFORMIX fields are in the correct order. During this time, the **fcheck** also checks the basic sanity of the CERR log file. The results of **fcheck** are contained in `/cms/maint/text/check_err`. The *check_err* file may display the following error message:

```
jdate out of order [actual date]
```

This message normally indicates that the database contains duplicate entries of that *jdate*, but INFORMIX will still operate correctly.

If the program detects an error, an error message (14050) will appear in the MAINTENANCE Error Log (CERR Log).

If a 3B CMS Historical database is found to be corrupt, the data base must be restored with the procedure, *Restoring 3B CMS Historical Data From the 3B CMS Environment*, found in *Chapter 8*.

NOTE

The problem may also be solved by using the INFORMIX **CHECK FILE** and **REPAIR FILE**. Refer to the *INFORMIX Relational Database Management System User's Manual* (999-803-015 IS) for more information.

If the **fcheck** takes more than 8 hours to execute, do the following:

- 1 Execute the following commands:

```
# cd /cms/bin  
# mv fcheck Fcheck
```

- 2 Edit (create) *fcheck* and append the following line:

```
/cms/bin/Fcheck -i /cms/maint/text/cerrlog
```

- 3 Execute the following command:

```
# chmod 775 fcheck
```

NOTE

fcheck can also be executed on demand. The available options can be viewed by executing the `/cms/bin/fcheck -h` command.

When the Backup Fails

This section describes some of the most common backup failures that occur during and after the CMS installation.

Symptom: You are in the process of backing up `/`, `/usr`, or a CMS file system from the UNIX system environment and you observe the message “**errno: 5, Can’t write output.**”

Solution: The end-of-tape marker has been detected. Do the following to continue with the backup:

- 1 Remove the cartridge tape from the cartridge tape drive, and insert a new formatted cartridge tape.

Solving CMS-Related Problems

- 2 For a 3B2/ 310 or 3B2/ 400 computer with a CTC tape drive, input the following line:

```
/dev/rSA/ctape1
```

Make sure you press the **RETURN** key.

- 3 For a 3B2/ 310, 3B2/ 400, 3B2/ 500, 3B2/ 522, 3B2/ 600, or 3B2/ 1000 Model 70 computer with a SCSI tape drive, input the following line:

```
/dev/rSA/qtape1
```

Make sure you press the **RETURN** key.

NOTE

The characters that you input will not be displayed on the terminal screen. If you input the cartridge tape drive “name” correctly, the backup process should continue in a few seconds. If you receive the message “That didn’t work try again.”, input the cartridge tape drive name again and press the **RETURN** key.

Symptom: You try to do a backup from the CMS environment, the computer has locked up, and you can’t input anything at the keyboard.

Solution: You tried to do a backup in the CMS environment and forgot to turn the console terminal ON. Do the following to correct the problem:

- 1 If the computer still does not respond to your terminal, try to log in at another terminal.
- 2 If you can’t log in at another terminal, press the RESET switch located at the rear of the 3B2 computer. It will take about 10 minutes for the 3B2 computer to bring itself up to the multiuser state.

Solving Hardware-Related Problems

This section describes how to solve computer hardware problems that may arise during or after the installation of the CMS software.

When the Local Area Data Sets Fail

Prior to Load 2.28, Local Area Data Sets (LADS) were used for computer-to-switch communications when the 3B2 computer was connected to a System 85 switch.

To verify the option settings for the LADS, refer to Table 9-1.

Table 9 1 LADS Option Settings

Strap Identity	Settings for 3B2 Computer to Switch Communications
XMIT LEVEL	0
XMIT TMG	INT
DX MODE	FULL
CAR CNT	ON
RCV HOLD	MARK
DATA RATE (Kbps)	9.6
TX IMPD	150
4/ 2 WIRE	4
RCV IMPD	150
CA/ CB DELAY (ms)	0
RXEQLR	IN
CF DELAY	40 ms
GND	AB

Solving Terminal-Related Problems

This section describes some of the day-to-day problems that may occur during the normal operation of the terminals supporting the CMS application.

If you are experiencing a problem with a terminal that has been working properly, go to the *Existing Terminal Problems* section.

If you are experiencing a problem with a terminal that has just been installed and has never been used, go the *New Terminal Problems* section.

In each section you will find several documented symptoms and corresponding solution steps. When you find a symptom that is similar to the problem you are experiencing with your terminal, follow the solution step or steps in order until the problem no longer exists.

In some of the solution steps, you may have to refer to your terminal manual.

NOTE	After you have tried to solve your terminal problem by using this section and your terminal manual, and the terminal is still not functioning properly, escalate the problem through normal procedures.
-------------	---

When an Existing Terminal Fails to Operate

For problems with existing terminals, find the symptom in this section and follow the corresponding solution step(s).

Symptom: Several unexpected or “garbage” characters are displayed on the screen.

Solution: Try holding down the **CTRL** key and pressing the **L** key. This should cause the screen to be repainted without the “garbage” characters.

Symptom: The screen suddenly goes blank.

Solution:

- 1 If the terminal has not been used recently, press a key on the keyboard. The screen should be restored if the power is on. (The screen will automatically go blank after about 1 hour of nonuse to protect the screen.)
- 2 Check the power cord at the back of the terminal. Wiggle both ends of the cord. If the terminal screen flashes, the power cord is not connected properly, or the power cord is defective.

- 3 At the rear of the terminal, locate the power switch. Turn the terminal OFF. Wait a few seconds. Turn the terminal ON.
- 4 If all the other terminals have gone blank, a major power supply loss has probably occurred. Check the power source for the terminals.

Symptom: The terminal “bell” is too loud or cannot be heard.

Solution: Adjust the volume control on the backside of the keyboard. (Refer to your terminal manual for details.)

Symptom: Characters are not being displayed on the screen when the keys are pressed.

Solution:

- 1 If the small letters “ns” appear between the third and fourth SLKs, the **NO SCROLL** key has been pressed by mistake. Press the **NO SCROLL** key again to restore the normal functioning.

NOTE

All keys that were previously pressed will have the corresponding characters displayed on the screen. If you need to, make the necessary corrections.

- 2 At the rear of the terminal, locate the power switch. Turn the terminal OFF. Wait a few seconds. Turn the terminal ON.

Symptom: You turn the terminal ON, but nothing is being displayed on the screen.

Solution:

- 1 The terminal intensity may need adjusting. The intensity control is located underneath the lower left side of the terminal screen. (Refer to your terminal manual for details.)
- 2 Make sure that the terminal has been turned ON. Check the power switch at the rear of the terminal.
- 3 Check the power cord at the back of the terminal. Wiggle both ends of the cord. If the terminal screen flashes, the power cord is not connected properly, or the power cord is defective.

Solving Terminal-Related Problems

Symptom: You turn the terminal ON, and it displays “garbage” characters.

Solution:

- 1 Press the `RETURN` key once. Pause for a few seconds. Press the `RETURN` key about four times.
- 2 At the rear of the terminal, locate the power switch. Turn the terminal off. Wait a few seconds. Turn the terminal on.

Symptom: The terminal is “locked up.” In other words, the terminal screen does not respond to keyboard input.

Solution:

- 1 If your last request is taking an extremely long time to complete, press the `BREAK` key. Wait a few seconds. If the terminal does not respond, press the `BREAK` key about four or five times. Wait a few seconds.
- 2 If the terminal still does not respond, turn the terminal off. Wait a few seconds. Turn the terminal on and log in again.

Symptom: The terminal appears to be out of control. In other words, characters are randomly printing on the screen.

Solution:

- 1 Press the `BREAK` key and wait a few seconds. If the terminal does not respond, press the `BREAK` key about four or five times. Wait a few seconds.
- 2 If the terminal still does not respond, turn the terminal off. Wait a few seconds. Turn the terminal on and log in again.

Symptom: The message “login incorrect” is displayed when you try to log in.

Solution: Either the login or password you entered is not correct. Carefully, reenter your login and password. Make sure you are not trying to enter an old password. If you still can't log in, see the CMS administrator, or escalate the problem through normal procedures.

Symptom: You can't find a symptom that relates to your terminal problem, or the solution step(s) corresponding to your terminal did not work.

Solution: The solution is a list of things to try. If a particular step doesn't work or you have already tried it, go to the next step in the list.

NOTE

In some cases, you will be logged off. If this happens, log in again.

- 1 Hold the **CTRL** key down and press the **L** key. In most cases, doing this will refresh the screen.
- 2 Press the **BREAK** key, and wait a few seconds.
- 3 Press the **BREAK** key two or three times, and wait a few seconds.
- 4 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.)
- 5 Check the terminal connections:
 - a Check the power cord at the back of the terminal. Wiggle both ends of the cord. If the terminal screen flashes, the power cord is not connected properly, or the power cord is defective.
 - b Check for a loose connection at the keyboard and the terminal.
 - c At the rear of the terminal, locate the cable connected to the connector labeled "modem." Make sure that the cable is connected properly to the "modem" connector. If possible, follow this cable to the computer, and check the connection at the computer end.
 - d If another terminal is available, try using it.
 - e See the CMS administrator, or escalate the problem through normal procedures.

When a New Terminal Fails to Operate

For problems with new terminals, find the symptom in this section and follow the corresponding solution step(s).

Symptom: Terminal does not display anything.

Solution:

- 1 Make sure that the terminal has been turned ON. Check the power switch at the rear of the terminal.
- 2 Check the power cord at the back of the terminal. Wiggle both ends of the cord. If the terminal screen flashes, the power cord is not connected properly, or the power cord is defective.
- 3 The terminal intensity may need adjusting. The intensity control is located underneath the lower left side of the terminal screen. (Refer to your terminal manual for details.)

Symptom: Terminal prints “garbage” on the screen.

Solution: The terminal baud rate and the computer baud rate may not match. Refer to the section, *Administering a New Terminal*, in *Chapter 8* to verify that the terminal options have been properly administered on the terminal and that the terminal baud rate has been properly administered on the computer.

Symptom: Terminal screen displays “login:” but does not respond to keyboard input.

Solution:

- 1 Check for a loose connection at the keyboard and at the terminal.
- 2 The computer does not recognize the new terminal. Refer to the section, *Administering a New Terminal*, in *Chapter 8* for instructions on how to administer a new terminal.

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 3B2 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/reject

/usr/lib/accept

/usr/lib/lpshut

/usr/lib/lpsched

/usr/lib/lpmove.

Solving Printer-Related Problems

NOTE

If you log in as *lp* or *root*, you will need to know the corresponding passwords.

Also, some other commands used in the following sections that can be executed while logged in as *acd1*, *acd2*, *acd3*, *acd4*, *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 *AT&T 3B2 Computer UNIX System V Utilities Volume 3* (305-506).

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 **PRINT SCREEN** SLK. 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 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 MAIN MENU screen, select the UNIX 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, reposition the paper to the next fan-fold.

- 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 Press the **EXIT** SLK to return to the MAIN MENU.

How to Stop and Discard Current Print Job

- 1 From the MAIN MENU screen, select the UNIX 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 to the next fan-fold.

How to Stop and Reprint Current Print Job

- 1 From the MAIN MENU screen, select the “UNIX 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 to the next fan-fold.
- 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 MAIN MENU screen, select the “UNIX system” option.
- 2 When the \$ prompt appears, execute the following command:

```
$ lpstat -t
```

From the output, determine if the *scheduler* is running.

- 3 If the *scheduler* is not running, execute one of the following commands to log in as *lp* or *root*:

```
$ su lp
```

```
-- or --
```

```
$ su root
```

- 4 Enter the correct password when prompted to do so.

- 5 Next, execute the following command to turn the *scheduler* on:

```
# /usr/lib/lpsched
```

- 6 Execute the next command to verify that the *scheduler* is running:

```
# lpstat -t
```

- 7 To return to the MAIN MENU screen in the CMS environment, press the `EXIT` SLK twice.

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 MAIN MENU screen, select the "UNIX system" option.
- 2 Disable the printer by executing the following command:

```
$ disable -r"<reason printer is broken>" <printer_name>
```

The *r* option for the **disable** command allows you to send a message to a user who submits a print job to a disabled printer. The message is sent to the user via the mail facility.

- 3 Fix the problem as necessary. (Refer to your printer manual if necessary.)
- 4 After the printer has been fixed, reposition the paper to the next fan-fold.

- 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 Press the **EXIT** SLK to return to the MAIN MENU.

How to Reject Print Jobs

To reject print jobs until the printer has been fixed, do the following:

- 1 From the MAIN MENU screen, select the “UNIX system” option.
- 2 Disable the printer by executing the following command:

```
$ disable -r"<reason printer is broken>" <printer_name>
```

The *r* option for the *disable* command allows you to send a message to a user who submits a print job to a disabled printer. The message is sent to the user via the mail facility.

- 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 -r"<reason printer has been disabled>" <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 If you want to return to the MAIN MENU screen in the CMS environment, press the **EXIT** SLK twice.
- 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 going to the MAIN MENU screen and selecting the "UNIX system" option.
- 11 After the printer has been fixed, reposition the paper to the next fan-fold.

Solving Printer-Related Problems

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 MAIN MENU screen in the CMS environment, press the **EXIT** SLK twice.

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 the current print jobs from a broken printer to one that works, do the following:

- 1 From the MAIN MENU screen, select the "UNIX system" option.
- 2 Disable the printer by executing the following command:

```
$ disable -r"<reason printer is broken>" <printer_name>
```

The *r* option for the **disable** command allows you to send a message to a user who submits a print job to a disabled printer. The message is sent to the user via the mail facility.

- 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 Execute the following commands to turn the *scheduler* off and to move the print jobs currently queued to the broken printer (*printer1*) to a printer (*printer2*) that works:

NOTE

The next two commands must be repeated when a new print job is queued to the broken printer.

```
# /usr/lib/lpshut
# /usr/lib/lpmove <printer1> <printer2>
```

Solving Printer-Related Problems

- 6 Execute the following command to turn the *scheduler* on:

```
# /usr/lib/lpsched
```

- 7 You can redirect new print jobs queued to the broken printer to another printer by using one of two methods:
 - a To allow new print jobs to be queued to the broken printer, execute the following command:

```
# /usr/lib/accept <printer_name>
```

Then execute the following commands, as necessary, to move the queued print jobs to a printer that works:

```
# /usr/lib/lpshut  
# /usr/lib/lpmove <printer1> <printer2>  
# /usr/lib/lpsched
```

- b To change the default printer destination for the users of the broken printer, select the “ADMINISTRATION” feature from the MAIN MENU. When the ADMINISTRATION screen appears, select the “System-Access” option. For each CMS user who uses the broken printer, replace the name of the printer in the “Printer Destination” field with the name of a printer that works. Tell those users to log off and log in again.

Record the names of the users whose printer destinations were changed so you can reassign them after the printer has been fixed.

NOTE

This method works only in cases where the user is asked for a printer destination.

- 8 If you want to return to the MAIN MENU screen in the CMS environment, press the **EXIT** SLK twice.
- 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 going to the MAIN MENU screen and selecting the “UNIX system” option.
- 11 After the printer has been fixed, reposition the paper to the next fan-fold.
- 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 If you previously executed the command **/usr/lib/accept** to let the printer accept new print jobs, skip Steps 13 and 14 and go to Step 15.

Solving Printer-Related Problems

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 MAIN MENU screen in the CMS environment, press the **EXIT** SLK twice.
- 17 If you previously changed the default printer destination for any CMS user, select the “ADMINISTRATION” feature. When the ADMINISTRATION screen appears, select the “System-Access” option. For each CMS user whose default printer destination was changed, administer the “Printer Destination” field back to its original state. Tell those CMS users to log off and log in again.

How to Reject Print Jobs

To reject print jobs until the printer has been fixed, do the following:

- 1 From the MAIN MENU screen, select the “UNIX system” option.
- 2 Disable the printer by executing the following command:

```
$ disable -r"<reason printer is broken>" <printer_name>
```

The *r* option for the **disable** command allows you to send a message to a user who submits a print job to a disabled printer. The message is sent to the user via the mail facility.

- 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.

Solving Printer-Related Problems

- 5 Reject all future print jobs by executing the following command:

```
# /usr/lib/reject -r"<reason printer has been disabled>" <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 If you want to return to the MAIN MENU screen in the CMS environment, press the `EXIT` SLK twice.
- 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 going to the MAIN MENU screen and selecting the “UNIX system” option.
- 11 After the printer has been fixed, reposition the paper to the next fan-fold.
- 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.

Solving Printer-Related Problems

- 15 Accept all future print jobs by executing the following command:

```
# /usr/lib/accept <printer_name>
```

- 16 To return to the MAIN MENU screen in the CMS environment, press the **EXIT** SLK twice.

Solving Power-Related Problems

If the 3B2 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 15 minutes.

If the 3B2 computer is supported by a UPS and the power outage lasts longer than 15 minutes or if the 3B2 is not supported by a UPS, do the following steps:

- 1 Turn the console terminal ON and wait for the cursor to appear.
- 2 Make sure the latches on the floppy disk drive and the cartridge tape are parallel with their drive slots.
- 3 Wait 2 minutes before going to the next step.
- 4 Momentarily press the 3B2 computer POWER SWITCH to the ON position. After doing so, the 3B2 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 3B2 computer because of a power failure, refer to the *AT&T 3B2 Computer Owner/ Operator Manual* (3B2/ 310, 305-472 and 3B2/ 400, 305-501).

NOTES

General Information

The 3B Call Management System (3B CMS) application can collect and process Automatic Call Distribution (ACD) data from the DEFINITY Communications System Generic 3i and Generic 1, System 75 Release 1 Version 3 (R1V3), and System 75 XE switch. However, before the 3B CMS can collect and process the ACD data, a special hardware interface on the switch must be properly administered. For the Generic 3i, Generic 1, and System 75 XE switches, the hardware interface is a Processor Interface. For the System 75 R1V3, the hardware interface is the Interface-3 Data Module. These hardware interfaces are sometimes called the CMS interface.

In addition to the CMS interface, the following CMS features on the switch must also be administered:

- Abandoned Call Search
- Agent Call Handling
- Hunt Groups
- Intraflow and Interflow
- Queue Status Indications
- Recorded Announcements
- Service Observing.

The following documents can be used by a qualified switch technician to implement the CMS interface and features:

AT&T DEFINITY Communications System Generic 1 Implementation Manual
(555-204-654, Issue 1)

AT&T System 75 and System 75 XE Implementation Release 1 Version 3 (555-200-652,
Issue 2)

AT&T System 75 Administration (555-200-500, Issue 3)

General Information

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, Generic 1, System 75, and System 75 XE Switch

This section contains the procedures required to establish a communications link between the 3B2 computer and the Generic 3i, Generic 1, System 75 R1V3, or System 75 XE switch.

The Processor Interface on the Generic 3i and 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 3B2 computer.

The System 75 and System 75 XE have four interface links (01 to 04), one of which can be assigned to the 3B2 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 (Generic 3i and Generic 1 Only)

Processor Interface Form (System 75 XE Only)

Interface-3 Data Module Form (System 75 R1V3 Only)

Data Module (MPDM/ MTDM) Form

Processor Channel Assignment Form

Interface Links Form.

NOTE	If the EIA port on the Processor Interface is used to make the connection to the 3B2 computer, you do not have to fill out the Data Module form.
-------------	--

How to Assign the Processor Interface or Interface-3 Data Module

The following procedures can be used to add the Processor Interface on the Generic 3i, Generic 1, or System 75 XE and the Interface-3 data module on the System 75 R1V3:

- 1 Verify System Access Terminal displays:

enter command:

- 2 Enter **add data-module 2005** where *2005* is the extension number assigned to the interface. The extension number you use will automatically appear in the “Data Extension” field of a Data Module form. Press the RETURN key.
- 3 The screen displays a data module form. (Use Figures A-1 and A-2 for references.)
- 4 In the field labeled “Type,” enter **procr-inf3** for Generic 3i and Generic 1 or enter **interface** for System 75 and System 75 XE. 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 3B2 computer, physical channel number 01 must be used.

- 7 Press the RETURN key.
- 8 The cursor is positioned on the “Name” field.
- 9 Enter **3B2 CMS**, and press the RETURN key.

Administering CMS Interface On Generic 3i, Generic 1, System 75, and System 75 XE Switch

10 The cursor is positioned on the “COS” field.

NOTE The “COS” and “COR” fields are defaulted to 1.

11 Make no changes to the “COS” and “COR” fields, press the ENTER key.

12 Screen displays:

command successfully completed,

enter command:

```
DATA MODULE
Data Extension: 2005      Type: procr-infc      Physical Channel: 01
      Name: 3B2 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:
2:      3:      4:
```

Figure A 1 Data Module Form for Generic 3i and Generic 1

Administering CMS Interface On Generic 3i, Generic 1, System 75, and System 75 XE Switch

DATA MODULE

Data Extension: 2005

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 System 75 and System 75 XE

How to Assign a Data Module to the 3B2 Computer

After the Processor Interface or Interface-3 module has been assigned, the Data Module can be administered and connected to the 3B2 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 3B2 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:

Administering CMS Interface On Generic 3i, Generic 1, System 75, and System 75 XE Switch

- 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 an Data module form. (Use Figures A-3 and A-4 for references.)
- 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 that the data module is connected to.

For a Generic 3i or 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).

For a System 75 R1V3 and System 75 XE, enter one letter and a 4-digit number.

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**.

Administering CMS Interface On Generic 3i, Generic 1, System 75, and System 75 XE Switch

- 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:
2:
3:
4:
```

Figure A 3 Data Module Form for Generic 3i and Generic 1

Administering CMS Interface On Generic 3i, Generic 1, System 75, and System 75 XE Switch

```
DATA MODULE

Data Extension: 2009      Type: pdm      Port: A0204
      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:
2:
3:
4:
```

Figure A 4 Data Module Form for System 75 and System 75 XE

After the Processor Interface or the Interface-3 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 3B2 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.

Assigning the Processor Channel on the Generic 3i or Generic 1

The following procedure can be used to assign processor channels on the Generic 3i or 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-5 for reference.)

NOTE

The sample screen shown in Figure A-5 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 “port” number when the CMS software was installed. For more information on changing the port/ link number, refer to one of the following sections: *How to Create the ACDs* in Chapter 5, *How to Update the ACDs* in Chapter 6, or *Changing the Switch Parameters* in Chapter 8.

- 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.

Administering CMS Interface On Generic 3i, Generic 1, System 75, and System 75 XE Switch

- 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 Chan	Appl.	Interface Link	Chan	Priority	Remote Proc Chan	Machine-ID
1:	mis	1	1	h	1	
2:						
3:						
4:						
5:						
6:						
7:						
8:						
9:						
10:						
11:						
12:						
13:						
14:						
15:						
16:						

Figure A 5 Processor Channel Assignment Form for Generic 3i or Generic 1

NOTE

The 3B CMS software requires that the “Interface Chan” assignment be administered as “1.” Priority on this channel must be set to **h** (high).

Assigning the Processor Channel on the System 75 R1V3 and System 75 XE

The following procedure can be used to assign processor channels on the System 75 R1V3 and System 75 XE:

- 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-6 for reference.)
- 4 The cursor is positioned on the “Interface Link” field.
- 5 Enter **1** in the “Interface Link” field. This field is associated with the “Interface Chan” field and must be assigned as a pair.
- 6 Press the RETURN key.
- 7 The Cursor is positioned on the “Interface Chan” field.
- 8 Enter **1** in the “Interface Chan” field and press the RETURN key.
- 9 The cursor is positioned on the “Priority” field.
- 10 Enter **h** in the “Priority” field and press the RETURN key.
- 11 The cursor is positioned on the “Remote Proc Chan” field.
- 12 Enter **1** in the “Remote Proc Chan” and press the RETURN key.
- 13 The cursor is positioned on the “Appl” field.
- 14 Enter **mis** in the “Appl” field and press the RETURN key.
- 15 Cursor is positioned on the “MACHINE-ID” field.
- 16 Make no entry, press the ENTER key.

Administering CMS Interface On Generic 3i, Generic 1, System 75, and System 75 XE Switch

17 Screen displays:

command successfully completed,

enter command:

PROCESSOR CHANNEL ASSIGNMENT							
Proc	Interface		Remote		MACHINE		
Chan	Link	Chan	Priority	Proc	Chan	Appl.	ID
1:	1	1	h	1		mis	
2:							
3:							
4:							
5:							
6:							
7:							
8:							
9:							
10:							
11:							
12:							
13:							
14:							
15:							
16:							

Figure A 6 Processor Channel Assignment Form for System 75 and System 75 XE

NOTE The 3B CMS software requires that the remote channel assignment be administered as “1.” Priority on this channel must be set to **h** (high).

How to Enable the Interface Link on the Generic 3i or Generic 1

The following steps are used to enable the CMS interface link on the Generic 3i or 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-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 “Est Conn” field.
- 7 Enter “y” to establish a connection to the MPDM that connects to the 3B2 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 3B2 computer and press the RETURN key.
- 13 The cursor is positioned on the “Destination Brd” field.
- 14 Leave this field blank and press the RETURN key.
- 15 The cursor is positioned on the “DTE/ DCE” field.
- 16 Enter “DTE” for the 3B2 computer and press the RETURN key.
- 17 The cursor is positioned on the “Identification” field.

Administering CMS Interface On Generic 3i, Generic 1, System 75, and System 75 XE Switch

18 Enter a 15-character name for the link. This field may be left blank.

19 Press the ENTER key.

20 Screen displays:

command successfully completed,

enter command:

INTERFACE LINKS								
Link	Enable	Est Conn	PI Ext	Prot	Destination Digits	Brd	DTE/ DCE	Identification
1:	y	y	2005	BX.25	2009		DTE	
2:	y							
3:	y							
4:	y							

Figure A 7 Interface Links Form for Generic 3i or Generic 1

How to Enable the Interface Link on the System 75 R1V3 and System 75 XE

The following steps are used to enable the CMS interface link:

- 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 Figures A-8 for reference.)
- 4 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 “Establish Connection” field.
- 7 Enter “y” to establish a connection to the MPDM that connects to the 3B2 computer and press the RETURN key.
- 8 The cursor skips the “Interface Extension” field because the extension number is automatically displayed in this field.
- 9 The cursor is positioned on the “Destination Number” field.
- 10 Enter the extension number for the MPDM that connects to the 3B2 computer and press the RETURN key.
- 11 The cursor is positioned on the “DTE/ DCE” field.
- 12 Enter “DTE” (DTE is the default) for the 3B2 computer and press the RETURN key.
- 13 The cursor is positioned on the “Identification” field.
- 14 Enter a 15-character name for the link. This field may be left blank.
- 15 Press the ENTER key.

Administering CMS Interface On Generic 3i, Generic 1, System 75, and System 75 XE Switch

16 Screen displays:

command successfully completed,

enter command:

INTERFACE LINKS						
Link	Enabled	Establish Connection	Interface Extension	Destination Number	DTE/DCE	Identification
1:	y	y	2005	2009	DTE	
2:	n	n	2006		DTE	
3:	n	n	2007		DTE	
4:	n	n	2008		DTE	

Figure A 8 Interface Links Form for System 75 and System 75 XE

How to Enable the EIA Port on the Processor Interface

If the EIA port on the Processor Interface of a System 75 XE is used to make the connection to the 3B2 computer, refer Figure A-9:

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 9 Interface Links Form for EIA Port on Processor Interface

NOTE

For 3B2 CMS the DTE/ DCE field must be set to "DTE."

General Information

The 3B Call Management System (3B CMS) application can collect and process Automatic Call Distribution (ACD) data from the DEFINITY Communications System Generic 2, System 85 R2V4, and System 85 R2V3 switches. However, before the 3B 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 3B CMS application requires that the following software and hardware be present on the System 85 switch:

For R2V4, Issue 1.0 or later software

For R2V3, Issue 1.1 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 3, Issue 2 (555-102-107)

AT&T System 85 Feature Translation Service Manual Release 2, Version 4, Issue 1 (555-103-107).

General Information

Use this appendix to do the following:

Administer the CMS Feature on the DEFINITY Generic 2 and System 85 R2V4

Administer the CMS Feature on the System 85 R2V3

Administer the Dedicated Switch Connection (DSC) Feature on the System 85 R2V4

Administer the Dedicated Switch Connection (DSC) Feature on the DEFINITY Generic 2

NOTE

Any changes to the switch translations should only be made by a skilled switch technician.

Administering the CMS Feature on the DEFINITY Generic 2 and System 85 R2V4

On a Generic 2, use the Manager II to administer the CMS feature. On a System 85 R2V4, use the VMAAP or MAAP panel.

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

275 Word 4 Enables or disables CMS for the system. CMS must be busied out in Procedure 028 Word 2 before it can be enabled or disabled.

Field 13 Enter the CMS assignment:

1 Enable

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 terminates in an ACD group or to a VDN.

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).

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 measure 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

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.

NOTE

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.

Administering the CMS Feature on the DEFINITY Generic 2 and System 85 R2V4

Field 7 Enter the type of machine interface:

8 3B2

Field 8 Enter the destination machine number:

1-7 For APs, the AP number
If this is the first "AP," enter 1.

256 Word 2 Administers the BX.25 level 2 characteristics. Included are the link number, the retransmission timer, the idle timer, the maximum number of retransmissions, and the maximum number of unacknowledged frames allowed on the link.

Field 1 Enter the DCIU physical link number (1-8).

Field 2 Enter the time in seconds before retransmitting unacknowledged frames (1-255). For CMS, the value is 1.

Field 3 Enter the time in seconds before frames are exchanged on a link (1-255). For CMS, the value is 10.

Field 4 Enter the maximum number of retransmissions of an acknowledged frame (1-15). For CMS, the value is 2.

Field 5 Enter the maximum number of frames transmitted on a link without acknowledgement (1-7). For CMS, the value is 7.

256 Word 3 Administers the BX.25 level 3 characteristics. Included are the link number, the activity timer, the acknowledgement timer, interrupt timer, the restart timer, 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.

Administering the CMS Feature on the DEFINITY Generic 2 and System 85 R2V4

- Field 3 Enter the time, in seconds, waited for acknowledgement of data packet before resetting a logical channel (1-255). For CMS, the value is 20.
- Field 4 Enter the time, in seconds, waited for confirmation of an interrupt packet before resetting a logical channel (1-255). For CMS, the value is 180.
- Field 5 Enter the time, in seconds, waited before retransmitting an unconfirmed reset request package (1-255). For CMS, the value is 8.
- Field 6 Enter the time, in seconds, waited before retransmitting an unconfirmed restart request package (1-255). For CMS, the value is 8.
- Field 10 Enter the maximum number of times an unacknowledged data packet can be transmitted (1-7). For CMS, the value is 4.

Local/ Remote Setup for CMS

257 Word 5 Reserves ports for CMS usage including the port number, the application type, and the application instance number.

- Field 1 Enter "64" for the number of the local port.
- Field 2 Enter "11" to specify the application type as CMS.
- Field 3 Enter "1" for the application instance number.

257 Word 2 Administers the port characteristics including the local port, the remote port/ destination, the alternate routing destination routing code, and the alternate routing postage.

- Field 1 Enter "64" for the local port number.
- Field 2 Enter "1" for the remote port/ destination.

CMS Channel

257 Word 1 Administers the network channel for CMS applications. Included are the switch link, the logical channel on the local port, the hardware link, the logical channel, the priority, and the alternate routing flag.

- | | |
|---------|--|
| Field 1 | Enter "0" for the local link number (Component A). |
| Field 2 | Enter "64" for the logical channel number on the local link/ switch. |
| Field 3 | Enter the link number (Component B):
1-8 Hardware links (this link is connected to the link specified in Field 1) |
| Field 4 | Enter "1" for the logical channel number on the link. |
| Field 5 | Enter "1" for the priority level (high). |
| Field 6 | Enter "0" for the alternate routing flag status. |

Local/ Remote Setup for Maintenance Channel

257 Word 5 Reserves ports for CMS usage including the port number, the application type, and the application instance number.

Field 1 Enter "6" for the number of the local port.

Field 2 Enter "10" to specify the DCIU test (TEST).

Field 3 Enter "1" for the application instance number.

257 Word 5 Reserves ports for CMS usage including the port number, the application type, and the application instance number.

Field 1 Enter "20" for the number of the local port.

Field 2 Enter "10" to specify the DCIU test (TEST).

Field 3 Enter "2" for the application instance number.

257 Word 2 Administers the port characteristics including the local port, the remote port/ destination, the alternate routing destination routing code, and the alternate routing postage.

Field 1 Enter "6" for the local port number.

Field 2 Enter "20" for the remote port/ destination.

257 Word 2 Administers the port characteristics including the local port, the remote port/ destination, the alternate routing destination routing code, and the alternate routing postage.

Field 1 Enter "20" for the local port number.

Field 2 Enter "6" for the remote port/ destination.

Maintenance Channel

257 Word 1 Administers the network channel for CMS applications. Included are the switch link, the logical channel on the local port, the hardware link, the logical channel, the priority, and the alternate routing flag.

- Field 1 Enter "0" for the local link number (Component A).
- Field 2 Enter "6" for the logical channel number on the local link/ switch.
- Field 3 Enter "0" for the link number (Component B).
- Field 4 Enter "20" for the logical channel number on the link.
- Field 5 Enter "0" for the priority level (low).
- Field 6 Enter "0" for the alternate routing flag status.

Initialize the Changes

258 Word 1 Swaps the changes made to the DCIU scratch-pad table with the machine-read memory. Use this procedure *after* making any DCIU changes.

- Field 1 Enter a "1" to swap the tables and reboot DCIU.

028 Word 2 This procedure is used to busy out CMS while translation changes are made. After making the translation changes, the CMS busy out must be released.

- Field 1 Enter the CMS busy out specifications:
 - 0 Not busied out

275 Word 1 Activates the DCIU.

- Field 17 Enter the DCIU assignment:
 - 1 Enable

Administering the CMS Feature on the System 85 R2V3

Use a MAAP panel to administer the CMS feature on a System 85 R2V3 switch.

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

275 Word 4 Enables or disables CMS for the system. CMS must be busied out in Procedure 028 Word 2 before it can be enabled or disabled.

Field 13 Enter the CMS assignment:

1 Enable

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 terminates in an ACD group or to a VDN

Field 3 Enter ACD group number (1-30) which is the destination for the specified trunk group.

Administering the CMS Feature on the System 85 R2V3

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.

A trunk group which does not directly terminate to a split is still measured (DID, DNIS) using this procedure. In Field 1, enter the trunk group number. In Field 3, enter a dash (-). In Field 5, enter the appropriate CMS measurement type.

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).

CAUTION

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.

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:

2 3B2

Field 8 Enter the destination machine number:

1-7 For APs, the AP number
If this is the first "AP," enter 1.

Administering the CMS Feature on the System 85 R2V3

256 Word 2 Administers the BX.25 level 2 characteristics. Included are the link number, the retransmission timer, the idle timer, the maximum number of retransmissions, and the maximum number of unacknowledged frames allowed on the link.

- Field 1 Enter the DCIU physical link number (1-8).
- Field 2 Enter the time in seconds before retransmitting unacknowledged frames (1-255). For CMS, the value is 1.
- Field 3 Enter the time in seconds before frames are exchanged on a link (1-255). For CMS, the value is 10.
- Field 4 Enter the maximum number of retransmissions of an acknowledged frame (1-15). For CMS, the value is 2.
- Field 5 Enter the maximum number of frames transmitted on a link without acknowledgement (1-7). For CMS, the value is 7.

256 Word 3 Administers the BX.25 level 3 characteristics. Included are the link number, the activity timer, the acknowledgement timer, interrupt timer, the restart timer, the maximum number of unacknowledged packets.

- Field 1 Enter the DCIU physical link number (1-8).
- Field 2 Enter the time, in seconds, before sending a window advancement packet to indicate the present condition of a logical channel (1-255). For CMS, the value is 180.
- Field 3 Enter the time, in seconds, waited for acknowledgement of data packet before resetting a logical channel (1-255). For CMS, the value is 20.
- Field 4 Enter the time, in seconds, waited for confirmation of an interrupt packet before resetting a logical channel (1-255). For CMS, the value is 180.
- Field 5 Enter the time, in seconds, waited before retransmitting an unconfirmed reset request package (1-255). For CMS, the value is 8.
- Field 6 Enter the time, in seconds, waited before retransmitting an unconfirmed restart request package (1-255). For CMS, the value is 8.
- Field 10 Enter the maximum number of times an unacknowledged data packet can be transmitted (1-7). For CMS, the value is 4.

Local/ Remote Setup for CMS

257 Word 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 2 Administers the port characteristics including the local port, the remote port/ destination, the alternate routing destination routing code, and the alternate routing postage.

Field 1 Enter "6" for the local port number.

Field 2 Enter "20" for the remote port/ destination.

257 Word 2 Administers the port characteristics including the local port, the remote port/ destination, the alternate routing destination routing code, and the alternate routing postage.

Field 1 Enter "20" for the local port number.

Field 2 Enter "6" for the remote port/ destination.

Maintenance Channel

257 Word 1 Administers the network channel for CMS applications. Included are the switch link, the logical channel on the local port, the hardware link, the logical channel, the priority, and the alternate routing flag.

Field 1 Enter "0" for the local link number (Component A).

Field 2 Enter "6" for the logical channel number on the local link/ switch.

Field 3 Enter "0" for the link number (Component B).

Field 4 Enter "20" for the logical channel number on the link.

Field 5 Enter "0" for the priority level (low).

Field 6 Enter "0" for the alternate routing flag status.

Initialize the Changes

258 Word 1 Swaps the changes made to the DCIU scratch-pad table with the machine-read memory. Use this procedure *after* making any DCIU changes.

Field 1 Enter a “1” to swap the tables and reboot DCIU.

028 Word 2 This procedure is used to busy out CMS while translation changes are made. After making the translation changes, the CMS busy out must be released.

Field 1 Enter the CMS busy out specifications:

0 Not busied out

275 Word 1 Activates the DCIU.

Field 17 Enter the DCIU assignment:

1 Enable

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 3B2 CMS.
-------------	--

The translations should be done at both the local and distant end switches. If one of the switches is a DEFINITY Generic 2, follow the administration procedures in the “Administering a Dedicated Switch Connection on a Definity Generic 2” section in this appendix.

000 Word 1 Administers the extension number and class of service.

Field 1 Enter the extension number of the distant end.

Field 7 Enter the class-of-service associated with the extension.

051 Word 1 Administers the characteristics of the data module.

Fields 1-5 Enter the terminal equipment location of the MPDM.

Field 6 Enter a “4” to specify “PDM” as the type of data module.

Field 10 Enter a “2” to set the extension origination preference as the “Prime Appearance.”

Field 11 Enter a “0” to set the extension termination preference to “None.”

Field 13 Enter a “0” to disable keyboard dialing feature.

Administering a Dedicated Switch Connection on the System 85 R2V4

052 Word 1 Administers the characteristics of the data module.

- Fields 1-5 Enter the terminal equipment location of the MPDM.
- Field 6 Enter a "0" to specify the device type as a basic set.
- Field 7 Enter a "0" to specify the button number.
- Field 8 Enter the extension number of the MPDM.
- Field 9 Enter a "1" to specify the line appearance number.
- Field 10 Enter a "1" to specify the line type.
- Field 11 Enter a "1" to set ringing type.
- Field 12 Enter a "1" to specify that it is the home terminal.
- Field 13 Enter a "0" to specify that is the terminal is not an originating only terminal.
- Field 14 Enter a "0" to specify that this terminal is not in a SAC group.

Activate the Dedicated Switch Connection Feature

360 Word 1 Administers the Dedicated Switch Connection (DSC) between the MPDM and the DS1 circuit.

- Field 1 Enter a "1" to activate the DSC feature.
- Field 2 Enter an unused DSC number (0-1023).
- Fields 3-7 Enter the equipment location for the MPDM.
- Field 8 Enter a "1" to set the "I" channel to voice.
- Fields 10-14 Enter the equipment location for the DS1 channel.
- Field 15 Enter a "-" to specify the port is not a GPP.

NOTE

When using the DSC feature, Procedure 260 Word 1 Field 8 should be set to "0" to specify 24th Channel Signaling. Also, Procedure 116 Word 1 Field 8 should be set to "1" to disable signaling.

Administering a Dedicated Switch Connection on the DEFINITY Generic 2

On a DEFINITY Generic 2, 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.

Administering a Dedicated Switch Connection on the DEFINITY Generic 2

052 Word 1 Administers the characteristics of the data module.

- Fields 1-5 Enter the terminal equipment location of the MPDM.
- Field 6 Enter a “0” to specify the device type as a basic set.
- Field 7 Enter a “0” to specify the button number.
- Field 8 Enter the extension number of the MPDM.
- Field 9 Enter a “1” to specify the line appearance number.
- Field 10 Enter a “1” to specify the line type.
- Field 11 Enter a “1” to set ringing type.
- Field 12 Enter a “1” to specify that it is the home terminal.
- Field 13 Enter a “0” to specify that is the terminal is not an originating only terminal.
- Field 14 Enter a “0” to specify that this terminal is not in a SAC group.

Activate the Dedicated Switch Connection Feature

360 Word 1 Administers the Dedicated Switch Connection (DSC) between the MPDM and the DS1 circuit.

- Field 1 Enter a “1” to activate the DSC feature.
- Field 2 Enter an unused DSC number (0-1023).
- Fields 3-7 Enter the equipment location for the MPDM.
- Field 8 Enter a “1” to set the “I” channel to voice.
- Fields 10-14 Enter the equipment location for the DS1 channel.
- Field 15 Enter a “-” to specify the port is not a GPP.

NOTE

When using the DSC feature, Procedure 260 Word 1 Field 8 should be set to “0” to specify 24th Channel Signaling. Also, Procedure 116 Word 1 Field 8 should be set to “1” to disable signaling.

NOTES

Appendix C: DIMENSION 2000 System Switch DCIU Administration

This appendix illustrates how the DCIU link translations on a DIMENSION 2000 System switch with Feature Package 8, Version 3.8 software should be administered for the 3B Call Management System (3B CMS).

Also, the following hardware, with the current or later vintage, must be present on the DIMENSION 2000 System switch:

LC501 V1

LC502 V3

LC503 V4

LC504 V16

LC505 V5.

The following procedures can be used by a qualified switch technician to verify that the DCIU link connected to the 3B2 computer has been administered correctly.

NOTE

If necessary, the switch technician should use the *DIMENSION 400E/ 600/ 600SN/ 2000 PBX Administration and Maintenance*, Issue 1 (554-010-257) document as a reference.

PROC 276

NOTE DCS or AP services bit must be set to “1”.

PROC 275

Word 1, Field 17 = 1
Word 4, Field 6 = 1

PROC 650

Test 2, Busy Out

PROC 256

Maintenance Port

Word 5, Field 1 = 6
Field 3 = 6
Field 4 = 1

CMS Port

Word 5, Field 1 = 10
Field 3 = 10
Field 4 = 1

NOTE Press Reset, Add, and Execute to initialize the tables.

Maintenance Port

Word 3, Field 1 = 6
Field 2 = 6

CMS Port

Word 3, Field 1 = 10
Field 2 = 1

Word 1, Field 1 = Physical Link (1-4)
Field 2 = 1
Field 3 = 6
Field 4 = 0

Maintenance Port

Word 2, Field 1 = 5
Field 2 = 6
Field 3 = 5
Field 4 = 6
Field 5 = 0

CMS Port

Word 2, Field 1 = 5
Field 2 = 10
Field 3 = Physical Link (1-4)
Field 4 = 1
Field 5 = 1

NOTE	The 3B CMS software does not require a clock channel.
-------------	---

PROC 650

Test 2, Release Busy Out

PROC 028

CMS Not Busy

Word 2, Field 1 = 0

NOTES

Appendix D: AIC Manual Pages

This appendix contains the manual pages for the **aictest** command. For more information on the **aictest** command and other commands concerning the AIC, refer to the *Remote Management Package Manual* (305-455).

NAME

aictest – command for reading and writing the AIC device directly

SYNOPSIS

aictest [-b c d i l r s]

DESCRIPTION

aictest allows maintenance personnel to directly interrogate and send commands to the AIC (Alarm Interface Circuit) board. The following options are recognized by **aictest**:

- b Check for UPS low battery condition.
- c Clear the AIC Control Status Register (CSR).
- d Disable the AIC Sanity Timer.
- i Initialize AIC.
- l Display the contents of the AIC CSR during last panic.
- r Display the contents of the AIC CSR.
- s Shutdown AIC disabling alarm generation capabilities and sanity timer.

There are 16 commands which the AIC understands in the interactive mode. The interactive mode is entered by executing the command with no options.

setbit num Set bit “num” in the AIC CSR (range 0 through 2, 4 through 8, or 15).

clrbit num Clear bit “num” in the AIC CSR (range 0 through 8 or 15).

- rdcsr** Display the contents of the AIC CSR.
 - setmin** Set minor alarm.
 - clrmin** Clear minor alarm.
 - setmjr** Set major alarm.
 - clrmjr** Clear major alarm.
 - enalrm** Enable alarm generation on the AIC.
 - inhlrm** Inhibit alarm generation on the AIC.
 - enasan** Enable the sanity timer on the AIC.
 - dissan** Disable the sanity timer on the AIC.
 - dtron** Keep data terminal ready (DTR) forced active on TRM1 and TRM2 of the AIC.
 - dtroff** AT&T 3B2 Computer system UART controls data terminal ready (DTR) on TRM1 and TRM2 of AIC.
- NOTE** If a modem is used on either TRM1 or TRM2 of the AIC, DTR will be dropped when changing UNIX System levels. In other words, the modem will drop the connection.
- rstcnt** Reset the AIC sanity counter.
 - clrcsr** Clear the AIC CSR.
 - q** Quit the interactive mode and exit.

FILES

/dev/aic

SEE ALSO

aiclog(4), acfail(1M), aic(7), sanedaemon(1M)

BUGS

Mirrored Disk New Installation

The 3B CMS mirrored disk configuration produces an extra measure of reliability. The external disk drive records (mirrors) the same information as the internal disk drive for designated partitions. This prevents data from being lost in the event there is a head-crash on one of the disks.

NOTE

If this is an upgrade to an existing CMS system, follow the *Mirrored Disk Upgrade* section of this appendix.

To install an external mirrored disk before 3B CMS has been installed, follow the steps in this section.

- 1 Log in as *root* at the console terminal.
- 2 Power down the 3B2/ 500, 3B2/ 522, 3B2/ 600, or 3B2/ 1000 Model 70 by executing the following command:

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

- 3 Depress the power switch to the **STANDBY** position. **STANDBY** is the same as **OFF**.
- 4 Install the external SCSI disk drive according to the instructions in the *AT&T 3B2 Computer SCSI Installation Manual* (305-011) and the *AT&T 3B2/ 600 Computer SCSI Installation Manual Supplement* (305-574) documents. Set the device ID to **4** on the back of the drive.
- 5 After returning power to the machine, proceed with the installation of the UNIX 3.1.1 or 3.2.1 software according to the procedures located in the *Installing the UNIX Operating System on the 3B2 500, 522, 600, or 1000 Model 70 Computer* section in *Chapter 4* of this document. Write down file size partitions for */root*, */swap*, */usr*, */cms*, and */cmsdisk1* if a second drive is used for CMS data storage. The disk drive which will have file systems mirrored to it, will need to have sufficient space to hold those mirrored file systems.
- 6 Format the external disk drive by executing the **sysadm harddisk** command.

Mirrored Disk New Installation

- 7 Install prerequisite software (Informix 3.3, Remote Management Utilities, X.25, etc.) on the first two disk drives using the procedures located in the *Installing the Prerequisite Software* section in *Chapter 4* of this document.
- 8 Install **AT&T 3B2 SCSI Disk Mirroring Utilities Release 1.0** from the 3.2.1 tape using the **sysadm tapepkg** command. Use the default number of mirror devices when prompted (default=16).
- 9 Install CMS Release 2, Issue 1.4 according to the procedures in the *Chapter 5, 3B2 CMS Software Installation Procedures* of this document. The machine will exit **create acds** and return to the multiuser state.
- 10 Partition the external drive for mirroring by using the following command:

```
# sysadm mirpartition
```

The system responds with:

```
Select which drive to use:  
1 disk1      2 disk2      3 disk3  
Enter a number, a name, the initial part of name, or  
? for HELP, q to QUIT:
```

- 11 Enter **3** to select the external SCSI disk.

The system responds with:

```
Do you want a bootable partition to mirror root?  
[yes no quit help]
```

12 Enter **yes** if you wish to make a bootable partition on the mirrored drive. The system responds with:

```
There are 629610 blocks remaining on disk 3.  
How many blocks for disk 3 partition 1 (swap)?  
[ (0 - 629610) again quit help ] (default 629610)
```

13 Enter **20640**. The system responds with:

```
How many blocks for disk 3 partition 0 (root)?  
[ (0 - 608640) again quit help ] (default 608640)
```

14 Enter **25830**.

Mirrored Disk New Installation

The system responds with:

```
How many blocks for disk 3 partition 2 (/usr)?  
[ (0 - 582528) again quit help ] (default 582528)
```

15 Enter **50085**.

NOTE

This number is one block larger than specified for */usr* in **df -t** output, but will be the same as the number of blocks specified for */usr* in the 'prtvtoc' printout.

The system responds with:

```
How many blocks for disk 3 partition 4?  
[ (0 - 532224) again quit help ] (default 532224)
```

16 Enter **171360** or **172620** if the system has embedded controllers. This is the mirrored partition for the */cms* file system.

The system responds with:

```
How many blocks for disk 3 partition 3 (dump)?  
[ (0 - 360864) again quit help ] (default 360864)
```

17 Enter **32768**. The system responds with:

```
How many blocks for disk 3 partition 5?  
[ (0 - 327936) again quit help ] (default 327936)
```

18 Enter **302085** or **303345** if the system has embedded controllers. This is the mirrored partition for the */cmsdsk1* file system.

NOTE

This number is one block larger than specified for */usr* in **df -t** output, but will be the same as the number of blocks specified for */usr* in the 'prtvtoc' printout.

Mirrored Disk New Installation

The system responds with:

```
How many blocks for disk 3 partition 8?  
[ (0 - XXXXX) again quit help ] (default XXXXX)
```

19 Press the “RETURN” key to accept the default value. This disk space will not be used but still must be partitioned.

20 Execute the following command:

```
# sysadm rootsetup
```

The system responds with:

```
Enter the file systems that are to be mirrored.  
Possibilities are: root, usr, swap, all [(default all) ?, q]
```

21 Enter **all** to make the mirrored disk bootable.

The system responds with:

```
The root partition is on the disk1 drive partition 0.  
Select the second disk on which you want to mirror root:  
    1 disk1      2 disk2      3 disk3  
Enter a number, a name, the initial part of a name, or  
? for HELP, q to QUIT:
```

22 Enter **3** to select the external SCSI disk.

The system responds with:

```
Select the second partition on the disk3 drive to mirror root.  
Possibilities are : 0 1 2 3 4 5 8 [?,q]:
```

23 Enter **0**.

Mirrored Disk New Installation

The system responds with:

```
By continuing with this command, the CCCCCC file system
will be destroyed.  be sure this is what you want to do!

Do you want to continue? [y, n]
```

24 Enter **y**. The system responds with:

```
The usr partition is on the disk1 drive partition 2.

Select the second disk on which you want to mirror usr:

    1 disk1          2 disk2          3 disk3

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

25 Enter **3** to select the external SCSI disk. The system responds with:

```
Select the second partition on the disk3 drive to mirror root.

Possibilities are : 0 1 2 3 4 5 8 [?,q]:
```

26 Enter **2**.

The system responds with:

```
By continuing with this command, the CCCCCC file system
will be destroyed.  be sure this is what you want to do!

Do you want to continue? [y, n]
```

27 Enter **y**. The system responds with:

```
The swap device(s) is/are:
  disk 1 drive partition 1

Select the first disk you want to contain the swap portion:

  1 disk1      2 disk2      3 disk3

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

28 Enter **1** to select the internal SCSI disk.

```
Select the partition on the disk1 drive used for swap.
Possibilities are : 0 1 2 3 4 5 8 [?,q]:
```

29 Enter **1**.

Mirrored Disk New Installation

The system responds with:

```
Select the second disk on which you want to mirror swap:
  1 disk1          2 disk2          3 disk3
Enter a number, a name, the initial part of a name, or
? for HELP, q to QUIT:
```

30 Enter **3** to select the external SCSI disk. The system responds with:

```
Select the second partition on the disk3 drive to mirror swap.
Possibilities are : 0 1 2 3 4 5 8 [?,q]:
```

31 Enter **1**. The system responds with:

```
By continuing with this command, the CCCCCC file system
will be destroyed. be sure this is what you want to do!
Do you want to continue? [y, n]
```

32 Enter **y**.

The system responds with:

```
/etc/system has been modified and should be used during a
reboot of the system.
```

```
The setup for mirroring root, usr, and swap partitions is
now complete. In order for the mirroring to become effective,
you must reboot the system now.
```

```
Execute shutdown -i6 -g0 -y and
wait for the Console Login: prompt.
```

- 33 Reboot the system using the **shutdown -i6 -g0 -y** command. When the system returns to the multi-user mode execute the following commands:

```
shutdown -i1 -g0 -y
mount /usr
```

Be sure that the */cms* and */cmsdisk1* filesystems are not mounted.

NOTE

Ignore the message **WARNING: MD Partition 123, 0 of mirror partition 0 has been moved to OOD state.**

Mirrored Disk New Installation

34 Execute the following command to mirror */cms* and */cmsdisk1* partitions.

```
# sysadm mirror
```

The system responds with:

```
Enter which function you want to perform:
```

1. mirror two disk partitions to an available mirror device
2. mirror a single disk partition to an already mirrored disk partition

```
[1,2,?,q]:
```

35 Enter **1** to mirror two disk partitions. The system responds with:

```
Select which disk on the System has the first partition to mirror.
```

```
1 disk1      2 disk2      3 disk3
```

```
Enter a number, a name, the initial part of a name, or
```

```
? for HELP, q to QUIT:
```

36 Enter **2** to select the internal SCSI disk.

The system responds with:

Select which partition on the disk1 drive to mirror.

Possibilities are : 0 1 2 3 4 5 8 [?,q]:

37 Enter **8** to select the partition for */cms*. The system responds with:

The selected disk and partition is currently included in */etc/fstab*.

Would you like to substitute the mirror entry for it? [y,n,q]

38 Enter **y** to substitute the mirror entry for mounting at boot time. The system responds with:

Select which disk on the System has the second partition to mirror.

1 disk1 2 disk2 3 disk3

Enter a number, a name, the initial part of a name, or

? for HELP, q to QUIT:

39 Enter **3** to select the external SCSI disk.

Mirrored Disk New Installation

The system responds with:

```
Select the second partition on the disk3 drive to mirror.
```

```
Possibilities are : 0 1 2 3 4 5 8 [?,q]:
```

40 Enter **4**. The system responds with:

```
Enter which function you want to perform:
```

```
1.initialize partition 8 of the disk1 drive to be up-to-date
```

```
2.initialize partition 4 of the disk3 drive to be up-to-date
```

```
3.let the system try to determine the up-to-date partition
```

```
[1,2,3,?,q]:
```

41 Enter **1** to initialize partition 8 of disk1 to be up-to-date.

The system responds with:

```
The mir003 device has been used to mirror these disk partitions.  
Would you like this entry to be mirrored  
automatically when the system comes up.  
Enter [yes,no,?]:
```

42 Enter **yes** to activate automatic mirroring of these partitions. The system responds with:

```
Do you want to mirror another disk? [y,n,q]
```

43 Enter **y** to mirror the */cmsdisk1* partition. The system responds with:

```
Enter which function you want to perform:  
1.mirror two disk partitions to an available mirror device  
2.mirror a single disk partition to an already mirrored disk partition  
[1,2,?,q]:
```

44 Enter **1** to mirror two disk partitions.

Mirrored Disk New Installation

The system responds with:

```
Select which disk on the System has the first partition to mirror.  
  1 disk1          2 disk2          3 disk3  
Enter a number, a name, the initial part of a name, or  
? for HELP, q to QUIT:
```

45 Enter **1** to mirror two disk partitions. The system responds with:

```
Select which partition on the disk2 drive to mirror.  
Possibilities are: 8 [?,q]:
```

46 Enter **8** to select the partition for */cmsdisk1*. The system responds with:

```
The selected disk and partition is currently included in /etc/fstab.  
Would you like to substitute the mirror entry for it? [y,n,q]
```

47 Enter **y** to substitute the mirror entry for mounting at boot time.

The system responds with:

```
Select which disk on the System has the second partition to mirror.
```

```
1 disk1          2 disk2          3 disk3
```

```
Enter a number, a name, the initial part of a name, or
```

```
? for HELP, q to QUIT:
```

48 Enter **3** to select the external SCSI disk. The system responds with:

```
Select the second partition on the disk3 drive to mirror.
```

```
Possibilities are : 0 1 22 3 4 5 8 [?,q]:
```

49 Enter **5**.

Mirrored Disk New Installation

The system responds with:

```
Enter which function you want to perform:
  1.initialize 8 of the disk2 drive to be up-to-date
  2.initialize 5 of the disk3 drive to be up-to-date
  3.let the system try to determine the up-to-date partition
[1,2,3,?,q]:
```

50 Enter **1** to initialize partition 8 of disk2 to be up-to-date. The system responds with:

```
The mir004 device has been used to mirror these disk partitions.
Would you like this entry to be mirrored
automatically when the system comes up.
Enter [yes,no,?]:
```

51 Enter **yes** to activate automatic mirroring of these partitions.

The system responds with:

```
Do you want to mirror another disk? [y,n,q]
```

52 Enter **n**.

53 Execute the following command to initialize the disk mirroring function:

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

NOTE

Ignore the message **WARNING: MD Partition 123, 0 of mirror partition 0 has been moved to OOD state.**

Mirrored Disk New Installation

At the mountall command, the normal file system names will be replaced with mir001, mir003, and mir004 for */usr*, */cms*, and */cmsdisk1* respectively.

After the system has returned to multiuser state, execute **sysadm mirdisp** command to get a listing of the current mirroring status.

```
MIRROR DEVICE          DISK PART #1 (STATE)  DISK PART#2 (STATE)
=====
mir000                 c1t1d0s0 (ACTIVE)    c1t3d0s0 (OUT-OF-DATE)
mir001                 c1t1d0s2 (ACTIVE)    c1t3d0s2 (ACTIVE)
mir002                 c1t1d0s1 (ACTIVE)    c1t3d0s1 (ACTIVE)
mir003                 c1t1d0s1 (ACTIVE)    c1t3d0s4 (OUT-OF-DATE)
mir004                 c1t1d1s8 (ACTIVE)    c1t3d0s5 (OUT-OF-DATE)
```

The system will automatically restore the OUT-OF-DATE partitions to the ACTIVE state in the background. Once all of the partitions have been updated to ACTIVE, a mail message will be delivered to the root login ID.

Once the restore has finished, execute the **sysadm mirdisp** command and the following display appears:

```
MIRROR DEVICE          DISK PART #1 (STATE)  DISK PART#2 (STATE)
=====
mir000                 c1t1d0s0 (ACTIVE)    c1t3d0s0 (ACTIVE)
mir001                 c1t1d0s2 (ACTIVE)    c1t3d0s2 (ACTIVE)
mir002                 c1t1d0s1 (ACTIVE)    c1t3d0s1 (ACTIVE)
mir003                 c1t1d0s1 (ACTIVE)    c1t3d0s4 (ACTIVE)
mir004                 c1t1d1s8 (ACTIVE)    c1t3d0s5 (ACTIVE)
```

Mirrored Disk Upgrade

The 3B CMS mirrored disk configuration produces an extra measure of reliability. The external disk drive records (mirrors) the same information as the internal disk drive for designated partitions. This prevents data from being lost in the event there is a head-crash on one of the disks.

To install an external mirrored disk after 3B CMS has been installed, follow the steps in this section.

- 1 Log in as *root* at the console terminal.
- 2 Power down the 3B2/ 500, 3B2/ 522, 3B2/ 600, or 3B2/ 1000 Model 70 by executing the following command:

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

- 3 Depress the power switch to the **STANDBY** position. **STANDBY** is the same as **OFF**.
- 4 Install the external SCSI disk drive according to the instructions in the *AT&T 3B2 Computer SCSI Installation Manual* (305-011) and the *AT&T 3B2/ 600 Computer SCSI Installation Manual Supplement* (305-574) documents. Set the device ID to **4** on the back of the drive.

Mirrored Disk Upgrade

- 5 Print the following to identify the system configuration and peripherals:

```
# prtconf
# prtvtoc /dev/rdisk/c1t1d0s7
# prtvtoc /dev/rdisk/c1t3d0s7
```

- 6 Format the external disk drive by executing the **sysadm harddisk** command.
- 7 Use the **sysadm mirsetup** command to change mirror devices to “16.” The utilities were installed during the initial installation.
- 8 Return the system to multiuser state by executing the following command:

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

- 9 Partition the external drive for mirroring by executing the following command:

```
# sysadm mirpartition
```

The system responds with:

```
Select which drive to use:
  1 disk1      2 disk2      3 disk3
Enter a number, a name, the initial part of name, or
? for HELP, q to QUIT:
```

10 Enter **3** to select the external SCSI disk. The system responds with:

```
Do you want a bootable partition to mirror root?
[yes no quit help]
```

11 Enter **yes** if you wish to make a bootable partition on the mirrored drive. The system responds with:

```
There are 629610 blocks remaining on disk 3.
How many blocks for disk 3 partition 1 (swap)?
[ (0 - 629610) again quit help ] (default 629610)
```

12 Enter **20640**.

Mirrored Disk Upgrade

The system responds with:

```
How many blocks for disk 3 partition 0 (root)?  
[ (0 - 608640) again quit help ] (default 608640)
```

13 Enter **25830**. The system responds with:

```
How many blocks for disk 3 partition 2 (/usr)?  
[ (0 - 582528) again quit help ] (default 582528)
```

14 Enter **50085**.

NOTE

This number is one block larger than specified for */usr* in **df -t** output, but will be the same as the number of blocks specified for */usr* in the 'prtvtoc' printout.

The system responds with:

```
How many blocks for disk 3 partition 4?  
[ (0 - 532224) again quit help ] (default 532224)
```

15 Enter **171360** or **172620** if the system has embedded controllers. This is the mirrored partition for the */cms* file system.

The system responds with:

```
How many blocks for disk 3 partition 3 (dump)?  
[ (0 - 360864) again quit help ] (default 360864)
```

16 Enter **32768**. The system responds with:

```
How many blocks for disk 3 partition 5?  
[ (0 - 327936) again quit help ] (default 327936)
```

17 Enter **302085** or **303345** if the system has embedded controllers. This is the mirrored partition for the */cmsdsk1* file system.

NOTE

This number is one block larger than specified for */usr* in **df -t** output, but will be the same as the number of blocks specified for */usr* in the 'prtvtoc' printout.

Mirrored Disk Upgrade

The system responds with:

```
How many blocks for disk 3 partition 8?  
[ (0 - XXXXX) again quit help ] (default XXXXX)
```

18 Press the “RETURN” key to accept the default value. This disk space will not be used but still must be partitioned.

19 Execute the following command:

```
# sysadm rootsetup
```

The system responds with:

```
Enter the file systems that are to be mirrored.  
Possibilities are: root, usr, swap, all [(default all) ?, q]
```

20 Enter **all** to make the mirrored disk bootable.

The system responds with:

```
The root partition is on the disk1 drive partition 0.  
Select the second disk on which you want to mirror root:  
    1 disk1      2 disk2      3 disk3  
Enter a number, a name, the initial part of a name, or  
? for HELP, q to QUIT:
```

21 Enter **3** to select the external SCSI disk.

```
Select the second partition on the disk3 drive to mirror root.  
Possibilities are : 0 1 2 3 4 5 8 [?,q]:
```

22 Enter **0**. The system responds with:

```
By continuing with this command, the CCCCCC file system  
will be destroyed. be sure this is what you want to do!  
Do you want to continue? [y, n]
```

23 Enter **y**.

Mirrored Disk Upgrade

The system responds with:

```
The usr partition is on the disk1 drive partition 2.  
Select the second disk on which you want to mirror usr:  
    1 disk1      2 disk2      3 disk3  
Enter a number, a name, the initial part of a name, or  
? for HELP, q to QUIT:
```

24 Enter **3** to select the external SCSI disk. The system responds with:

```
Select the second partition on the disk3 drive to mirror root.  
Possibilities are : 0 1 2 3 4 5 8 [?,q]:
```

25 Enter **2**. The system responds with:

```
By continuing with this command, the CCCCCC file system  
will be destroyed. be sure this is what you want to do!  
Do you want to continue? [y, n]
```

26 Enter **y**.

The system responds with:

```
The swap device(s) is/are:
  disk 1 drive partition 1

Select the first disk you want to contain the swap portion:

  1 disk1      2 disk2      3 disk3

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

27 Enter **1** to select the internal SCSI disk. The program responds with:

```
Select the partition on the disk1 drive used for swap.
Possibilities are : 0 1 2 3 4 5 8 [?,q]:
```

28 Enter **1**.

Mirrored Disk Upgrade

The system responds with:

```
Select the second disk on which you want to mirror swap:
  1 disk1          2 disk2          3 disk3
Enter a number, a name, the initial part of a name, or
? for HELP, q to QUIT:
```

29 Enter **3** to select the external SCSI disk. The program responds with:

```
Select the second partition on the disk3 drive to mirror swap.
Possibilities are : 0 1 2 3 4 5 8 [?,q]:
```

30 Enter **1**. The system responds with:

```
By continuing with this command, the CCCCCC file system
will be destroyed. be sure this is what you want to do!
Do you want to continue? [y, n]
```

31 Enter **y**.

The system responds with:

```
/etc/system has been modified and should be used during a
reboot of the system.
```

```
The setup for mirroring root, usr, and swap partitions is
now complete. In order for the mirroring to become effective,
you must reboot the system now.
```

```
Execute shutdown -i6 -g0 -y and
wait for the Console Login: prompt.
```

- 32 Reboot the system using the **shutdown -i6 -g0 -y** command. When the system returns to the multi-user mode execute the following commands:

```
shutdown -i1 -g0 -y
mount /usr
```

Be sure that the */cms* and */cmsdisk1* filesystems are not mounted.

NOTE

Ignore the message **WARNING: MD Partition 123, 0 of mirror partition 0 has been moved to OOD state.**

Mirrored Disk Upgrade

33 Execute the following command to mirror */cms* and */cmsdisk1* partitions:

```
# sysadm mirror
```

The system responds with:

Enter which function you want to perform:

1. mirror two disk partitions to an available mirror device
2. mirror a single disk partition to an already mirrored disk partition

[1,2,?,q]:

34 Enter **1** to mirror two disk partitions. The system responds with:

Select which disk on the System has the first partition to mirror.

1 disk1 2 disk2 3 disk3

Enter a number, a name, the initial part of a name, or

? for HELP, q to QUIT:

35 Enter **1** to select the internal SCSI disk.

The system responds with:

```
Select which partition on the disk1 drive to mirror.  
Possibilities are : 0 1 2 3 4 5 8 [?,q]:
```

36 Enter **8** to select the partition for */cms*. The system responds with:

```
The selected disk and partition is currently included in /etc/fstab.  
Would you like to substitute the mirror entry for it? [y,n,q]
```

37 Enter **y** to substitute the mirror entry for mounting at boot time. The system responds with:

```
Select which disk on the System has the second partition to mirror.  
  
1 disk1          2 disk2          3 disk3  
  
Enter a number, a name, the initial part of a name, or  
? for HELP, q to QUIT:
```

38 Enter **3** to select the external SCSI disk.

Mirrored Disk Upgrade

The system responds with:

```
Select the second partition on the disk3 drive to mirror.
```

```
Possibilities are : 0 1 2 3 4 5 8 [?,q]:
```

39 Enter **4**. The system responds with:

```
Enter which function you want to perform:
```

```
1.initialize partition 8 of the disk1 drive to be up-to-date
```

```
2.initialize partition 4 of the disk3 drive to be up-to-date
```

```
3.let the system try to determine the up-to-date partition
```

```
[1,2,3,?,q]:
```

40 Enter **1** to initialize partition 8 of disk1 to be up-to-date.

The system responds with:

```
The mir003 device has been used to mirror these disk partitions.  
Would you like this entry to be mirrored  
automatically when the system comes up.  
Enter [yes,no,?]:
```

41 Enter **yes** to activate automatic mirroring of these partitions. The system responds with:

```
Do you want to mirror another disk? [y,n,q]
```

42 Enter **y** to mirror the */cmsdisk1* partition. The system responds with:

```
Enter which function you want to perform:  
1.mirror two disk partitions to an available mirror device  
2.mirror a single disk partition to an already mirrored disk partition  
[1,2,?,q]:
```

43 Enter **1** to mirror two disk partitions.

Mirrored Disk Upgrade

The system responds with:

```
Select which disk on the System has the first partition to mirror.  
  1 disk1          2 disk2          3 disk3  
Enter a number, a name, the initial part of a name, or  
? for HELP, q to QUIT:
```

44 Enter **2** to select the internal SCSI disk. The system responds with:

```
Select which partition on the disk2 drive to mirror.  
Possibilities are: 8 [?,q]:
```

45 Enter **8** to select the partition for */cmsdisk1*. The system responds with:

```
The selected disk and partition is currently included in /etc/fstab.  
Would you like to substitute the mirror entry for it? [y,n,q]
```

46 Enter **y** to substitute the mirror entry for mounting at boot time.

The system responds with:

```
Select which disk on the System has the second partition to mirror.
```

```
1 disk1          2 disk2          3 disk3
```

```
Enter a number, a name, the initial part of a name, or
```

```
? for HELP, q to QUIT:
```

47 Enter **3** to select the external SCSI disk. The system responds with:

```
Select the second partition on the disk3 drive to mirror.
```

```
Possibilities are : 0 1 2 3 4 5 8 [?,q]:
```

48 Enter **5**.

Mirrored Disk Upgrade

The system responds with:

```
Enter which function you want to perform:  
1.initialize 8 of the disk2 drive to be up-to-date  
2.initialize 5 of the disk3 drive to be up-to-date  
3.let the system try to determine the up-to-date partition  
[1,2,3,?,q]:
```

49 Enter **1** to initialize partition 8 of disk2 to be up-to-date. The system responds with:

```
The mir004 device has been used to mirror these disk partitions.  
Would you like this entry to be mirrored  
automatically when the system comes up.  
Enter [yes,no,?]:
```

50 Enter **yes** to activate automatic mirroring of these partitions.

The system responds with:

```
Do you want to mirror another disk? [y,n,q]
```

51 Enter **n**.

52 Execute the following command to initialize the disk mirroring function.

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

NOTE

Ignore the message **WARNING: MD Partition 123, 0 of mirror partition 0 has been moved to OOD state.**

Mirrored Disk Upgrade

At the mountall command, the normal file system names will be replaced with mir001, mir003, and mir004 for /usr, /cms, and /cmsdisk1 respectively.

After the system has returned to multiuser state, execute **sysadm mirdisp** command to get a listing of the current mirroring status.

```
MIRROR DEVICE          DISK PART #1 (STATE)  DISK PART#2 (STATE)
=====
mir000                 c1t1d0s0 (ACTIVE)    c1t3d0s0 (OUT-OF-DATE)
mir001                 c1t1d0s2 (ACTIVE)    c1t3d0s2 (ACTIVE)
mir002                 c1t1d0s1 (ACTIVE)    c1t3d0s1 (ACTIVE)
mir003                 c1t1d0s1 (ACTIVE)    c1t3d0s4 (OUT-OF-DATE)
mir004                 c1t1d1s8 (ACTIVE)    c1t3d0s5 (OUT-OF-DATE)
```

The system will automatically restore the OUT-OF-DATE partitions to the ACTIVE state in the background. Once all of the partitions have been updated to ACTIVE, a mail message will be delivered to the root login ID.

Once the restore has finished, execute the **sysadm mirdisp** command and the following display appears:

```
MIRROR DEVICE          DISK PART #1 (STATE)  DISK PART#2 (STATE)
=====
mir000                 c1t1d0s0 (ACTIVE)    c1t3d0s0 (ACTIVE)
mir001                 c1t1d0s2 (ACTIVE)    c1t3d0s2 (ACTIVE)
mir002                 c1t1d0s1 (ACTIVE)    c1t3d0s1 (ACTIVE)
mir003                 c1t1d0s1 (ACTIVE)    c1t3d0s4 (ACTIVE)
mir004                 c1t1d1s8 (ACTIVE)    c1t3d0s5 (ACTIVE)
```

Glossary

ACD (Automatic Call Distribution)

A communications control system designed to evenly and automatically distribute incoming calls among a group of individuals (agents) for processing.

Agent

A person who is responsible for answering ACD calls.

Agent login ID

A 4-digit number (System 85 or Generic 2) or a 1- to 9-digit number (System 75 or Generic 1) entered by the agent at an ACD extension to activate (STAFF) the position. Agent logins are required for all CMS-measured ACD extensions.

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.

CMS

Call Management System. Sometimes called an MIS (Management Information System). Collects call data on an ACD and provides management reporting plus some ACD administration including dynamic load balancing.

Database

A collection of data available for a particular use. In INFORMIX, a database is a collection of files containing data that are accessed by an executing process.

DCIU

Data Communication Interface Unit. A hardware device on the System 85 and DIMENSION System switches that prepares and sends architected messages to other switches or to application processors.

Historical Database

A disk-resident database that contains up to 387 days worth of call data. The historic database contains half-hour and daily records for each agent, split, trunk group, and trunk that is translated as being measured.

INFORMIX

The relational database management system used to organize most of CMS's data.

INFORMIX file

A file that INFORMIX creates and that is part of an INFORMIX database. INFORMIX files are made up of two UNIX system files — .dat files and .idx files.

SCI

System Communications Interface. A System 75 device similar to the DCIU. This is also referred to as a Processor Interface (PI) board.

Split

A group of extensions staffed by agents trained to handle a certain type of incoming phone call.

Split number

A number associated with a split that identifies a particular split to the switch and to CMS.

Trunk

Communications link between any two switches, either public or private.

Trunk group

A group of similarly administered trunks carrying calls to the switch. An ACD has its own trunk groups, but other trunk groups such as DID trunk groups can carry ACD calls.

Trunk group number

A number associated with a trunk group that identifies a particular trunk group to the switch and to CMS.

UNIX System

The operating system on the 3B2 computer on which CMS runs. A user can access the system via the UNIX system option on the CMS main menu.

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