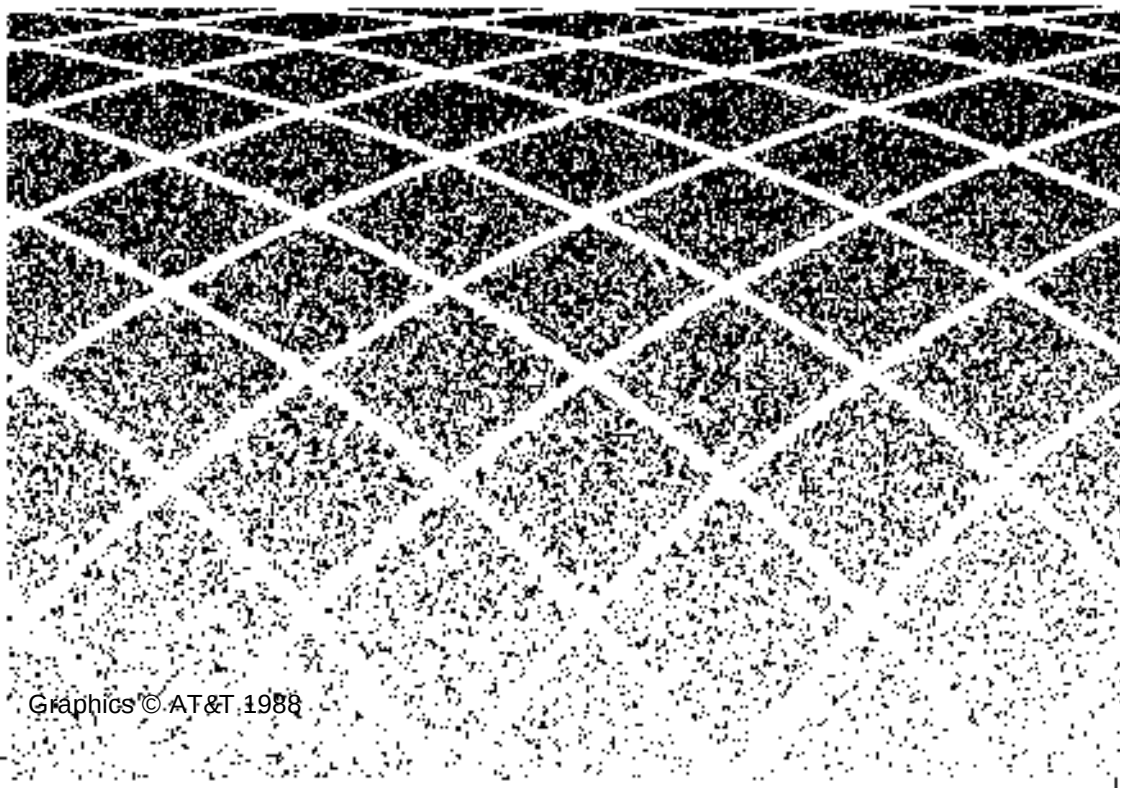
555-006-520
Issue 2
October, 1994

Call Accounting System Plus V3.1.1

Installation and User's Guide



Notice

While reasonable efforts were made to ensure that the information in this document was complete and accurate at the time of printing, AT&T can assume no responsibility for any errors. Changes and corrections to the information contained in this document may be incorporated into future reissues.

Trademarks

AT&T is a registered trademark of AT&T Communications

Carbon Copy Plus is a tradmark of Microcom Systems, Inc.

Epson is a registered trademark of Seiko Epson Corporation

HP, LaserJet, and PaintJet are trademarks of Hewlett-Packard Company

IBM, PS/2, Proprinter, and Quietwriter are registered trademarks of International Business Machines Corporation

Lotus and 1-2-3 are registered trademarks of Lotus Development Corporation

MCI is a registered service mark of MCI Communications Corporation

MS-DOS is a registered trademark of Microsoft Corporation

PostScript is a registered trademark of Adobe Systems Incorporated

CAS Plus, Definity, Dimension, Merlin and Spirit are trademarks of AT&T

CAS Plus V3.1.1 contains portions of Vermont Views software, ©1988, 1990 Vermont Creative Software. All Rights Reserved

Contents

About This Document

This document describes every CAS Plus V3.1.1 function, following the order of its menu system. An introductory chapter precedes the body of CAS Plus V3.1.1 function descriptions. Appendixes provide additional reference material.

Organization

- Chapter 1, *Overview*, introduces telephony and call accounting terms, as well as describes the user interface.
- Chapter 2, *Installation*, describes how to install the application.
- Chapter 3, *Processing*, describes the functions used to screen, cost, and store all calls received from the switch.
- Chapter 4, *Reports*, describes all report and chart generating and scheduling functions.
- Chapter 5, *Directory*, describes how to look up, list, change, or create entries in your company organization table.
- Chapters 6 and 7, *Administration* and *Configuration,* respectively, describe system maintenance functions.
- Chapter 8, *HackerTracker*, describes how to set up and use the Hacker-Tracker features.
- Appendix A, *Sample Reports*, shows sample printouts of call accounting reports.

- Appendix B, *Specifications*, provides technical information about software and hardware requirements, capacities, and recommended maintenance schedules.

Conventions

The following typographic conventions are used in this document:

- Terminal keys that you press are shown in brackets — for example:

  To close the current window, press <ESC>.

- Two or more keys that you press simultaneously are shown together in brackets — for example:

  To abort the operation, press <Ctrl-C>.

- Some commands are executed by typing the first letter of the command name (shown in brackets) — for example:

  Press <U>pdate.

- The word "enter" in a procedure means to type a value and press <RETURN> (or <ENTER>, whichever key is found with the letter set of your keyboard) — for example:

  Enter **y** to continue.

- Information displayed on the screen is shown in `constant-width` type — for example:

  The message `Record added.` appears.

- User entries are shown in **`constant-width bold`** type if they must be typed exactly as shown, or in *italic* type if they are variables — for example:

  At the `C:\` prompt, enter **CAS**, then the *level 1, level 2,* or *level 3* password.

Overview

1

The CAS Plus V3.1.1 system is an important, new tool designed specifically to help you control and administer telecommunications costs in your business. Before describing it in detail, this chapter will provide some basic background on call accounting in general.

This chapter is organized into three major sections:

- *Basics of Call Accounting* — introduces such telephony concepts as the public switched network, long distance carriers, trunks, and private telephone traffic routing on premises.
- *Your Call Accounting System* — introduces CAS Plus V3.1.1, how the system works and what it can do for you.
- *User Guide* describes how to log into CAS Plus V3.1.1 and use the menu system, data entry screens, and function keys on the PC keyboard.

Basics of Call Accounting

Using telephones costs money. In small as well as large companies, telephone expense is a major budgetary item, and rising costs are a concern to every manager.

- Reducing costs and optimizing resources go hand in hand. ("Am I using my telephone services to the fullest?" "Do I have a problem with unauthorized use of services?" "What kind of facilities will serve me best?")

- Then, there is the problem of allocating expenses. ("Who gets charged for these calls?" "How do I bill back clients? ...company departments? ...cost centers?")

- The total picture is not always clear. ("Can our calling patterns be handled better with special services? …is the expense justified?" "Is there a trend in long distance calling? …is it company-wide? …what are our sales and services departments doing?")

CAS Plus V3.1.1 can help you answer these and similar questions.

Doing so is not difficult; however, there are some concepts concerning telecommunications management — the national telephone network, your own telephone system, and basic call accounting — that should be familiar before you use the system.

Let's begin by looking at how the public switched network functions, then at the carriers, trunks, and services in the network.

The Public Network

The public telephone network is built upon the Central Office (CO) system. COs provide the equipment that routes and connects all telephone "traffic" originating from a local area. Calls are directed from the caller into the CO and out to the number called.

COs are connected to each other, as well as to local users, with intermediate switching offices providing the link to larger COs in increasingly larger groups. Depending on the call destination, several switching offices may be used to reach the called party — across the street or across the nation.

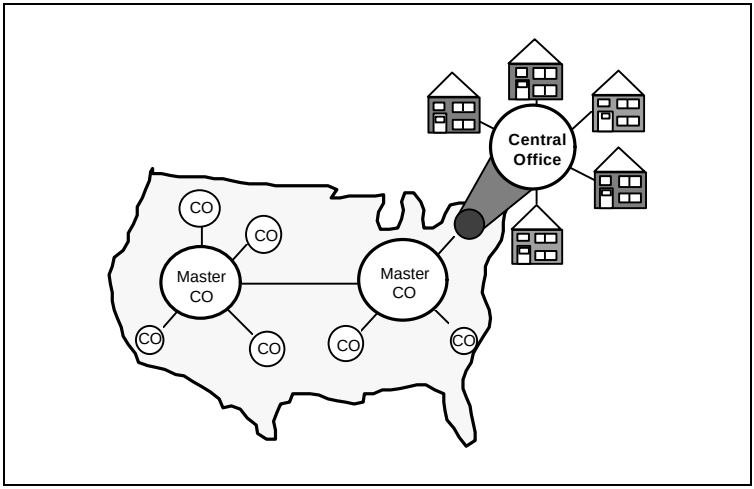


Figure 1-1. Building Blocks of the National Network

In the U.S., when you dial a typical local call, a 3-digit *exchange* identifies the CO servicing the called line (identified by the last 4 digits). For some long distance calls, a 3-digit *area code* (dialed before the local number) identifies the regional link to a group of local COs.

The international network follows a similar system of local switching offices, clustered into larger facilities. This network also has a numbering plan to connect callers from different parts of the world. The calling pattern uses a 2 or 3 digit *country code*, followed by the specific national network calling pattern (area or city code, local exchange, and user line number).

Carriers

Telephone companies are called "carriers." They include your local telephone company and long-distance carriers like AT&T and MCI.

- Local telephone companies — also called *local exchange carriers* or *LECs* — operate the COs that carry and switch calls via a local exchange. They provide access from a customer's premise and to long distance and international services offered by other carriers for calls outside their Local Access Transport Area (LATA). A LATA may cover many COs.

- Long-distance carriers — also called *interexchange carriers* or *IXCs* — provide services between LATAs and other special services. AT&T Communications, for example, provides Direct Distance Dial (DDD), International Direct Distance Dial (IDDD), and operator assistance through CO lines. AT&T also provides leased facilities like SDN, FX, TIE, and Megacom services through dedicated lines.

Equal Access

According to AT&T's divestiture agreement, local telephone companies have reprogrammed their COs so that customers can have the same type of connection — that is, "Equal Access" — to any long distance carrier's network.

For those carriers who have opted for full Equal Access, subscribers can dial 1 plus the area code and number to place the call serviced by their selected primary carrier. To access other carriers' services, subscribers dial a carrier's assigned 101*xxxx* (1995 NANP), then the area code and local number.

Trunks and Services

Today's technology has made it possible for telephone companies to offer a wide variety of telephone lines — also called "trunks" — and services in local and long distance voice and data communications.

- A *CO trunk* is a point-to-point line between the local CO (Central Office) and, for example, your premises.
- An *FX* (Foreign Exchange) line connects your premises to a remotely located CO. This allows placing “local” calls through the remote exchange. FX services are charged a flat monthly fee and not per call — commonly used by businesses who call frequently a specific location.
- A TIE line "ties" two private telephone systems. Users at either end can dial “inside” calls as well as “outside” calls through the other exchange. Because this service is also charged a flat monthly fee, intracompany call costs can be dramatically reduced.
- *WATS* (Wide Area Telephone Service) lines provide in-bound or out-bound access to wider areas than a single point TIE or FX line. *Out-WATS* is used to place calls by the subscriber. *In-WATS* (800 numbers) is used to receive calls — toll-free for the caller, paid by the subscriber.

  AT&T discount services such as Pro WATS I, II, and III — which use regular CO lines — are quickly replacing leased (dedicated) WATS lines.
- *Software Defined Network* (SDN) lines connect a subscriber’s multi-site network. Each site has its own SDN number. A call over an SDN line goes to a local service office which looks up the subscriber database, translates the number, and forwards the call via the public network. “On-net” calls go to a local service office and on to the called site over an SDN line; “off-net” calls go to a local CO, out of the SDN. Substantial discounts apply to calls that stay on-net throughout.
- *Integrated Services Digital Network* (ISDN) lines, although not universally deployed at this time, promises many benefits to its users. The two most important benefits are Automatic Number Identification (ANI) and Answer Supervision (see next page).

  ANI allows users of services like AT&T Megacom 800 to capture the phone number of the calling party. CAS Plus V3.1.1 supports ANI for switches that can provide this feature.

Private Switching Systems

Businesses face similar traffic problems as in the public network — namely, how to route calls in the most efficient and cost-effective manner. To do so, they install private switching systems, using a KTS (Key Telephone System) or a PBX (Private Branch Exchange).

- KTS' are small switches — typically, for less than 30 lines — that use programmable "keys" for choosing the specific line to place an outside call. KTS' may also offer hold, transfer, and other call features.
- PBXs are large equipment systems that coordinate the use of all trunks. PBX features may include sophisticated in-house services like call forwarding, automatic call backs, and programmable route selection for placing outside calls.

Switches often possess other features and limitations relating to call accounting. The most important feature is *SMDR* (Station Message Detail Recording) and the most important limitation is the lack of *Answer Supervision*.

Station Message Detail Recording

SMDR-capable systems can output an electronic record — also called *CDR* (Call Detail Recording) — of every call routed through the system. This record "details" information such as:

- Time of call
- Call duration
- Call origin (extension or incoming trunk) and destination (extension or outgoing trunk)
- Carrier service (if other than primary carrier was used)
- Account and/or Authorization Code (if used and the switch supports these features)
- Number called (outgoing call) or calling number (incoming call, if the switch supports this feature)

Answer Supervision

Answer Supervision is the capability to detect when a call is answered. Telephone charges start when your telephone company billing equipment detects that the called party has answered. Some private switches, however, cannot tell when a call has completed its connection.

CAS Plus V3.1.1 can accommodate any duration adjustments — including setting up its own, if required. This results in a better approximation to the actual charges by the telephone company.

Call Accounting Systems

Controlling telecommunication costs starts by finding a balance between services needed on premises, the services that are available outside, and of course, whether their costs are justifiable.

To make informed decisions, managers must either wait for the telephone bill, or monthly reports from an off-premise call accounting service, or use special-purpose systems that gather data directly from the switch on premises.

CAS Plus V3.1.1 offers the following advantages:

- On-line access and ad hoc reports provide current and historical data, either as summaries of trends and traffic patterns, or in detail to pinpoint problem areas.
- Organization reports consistent with your company's corporate structure and billing practices allow flexible cost allocation.
- Complete coverage of your carriers and services results in improving information to reduce costs and assess current needs.
- Latest call pricing — offer with periodic rate updates — results in accurate costing of calls without the hassle of keeping up the complex database of telephone tariffs.

Your Call Accounting System

CAS Plus V3.1.1 is a comprehensive call accounting software package that runs on an MS-DOS based personal computer (PC) , and receives SMDR input directly from the switch on premises.

Figure 1-2 displays typical system components.

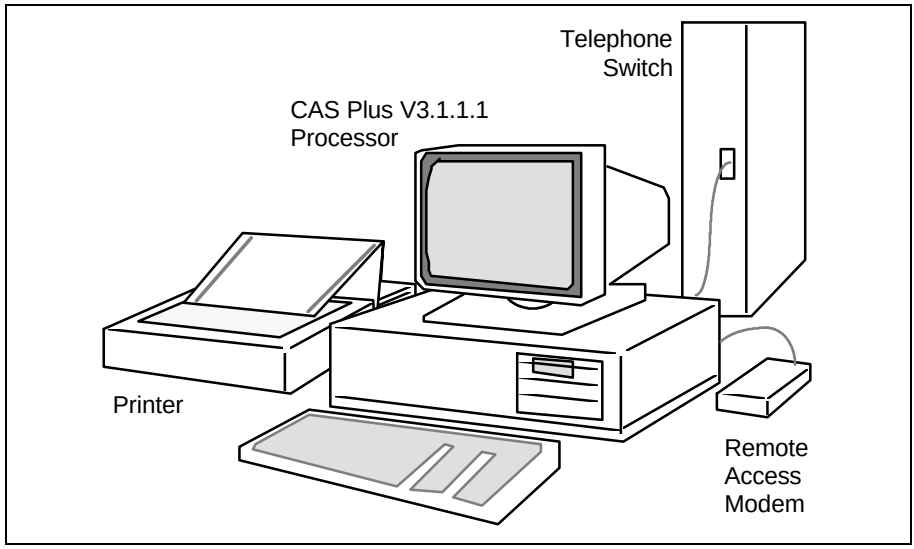


Figure 1-2. System Components

This section describes how your system works in the background; it also introduces you to the menus and screen displays that you will later use in requesting reports and maintaining accurate system information.

System Operation

Figure 1-3 illustrates the flow of a working system:

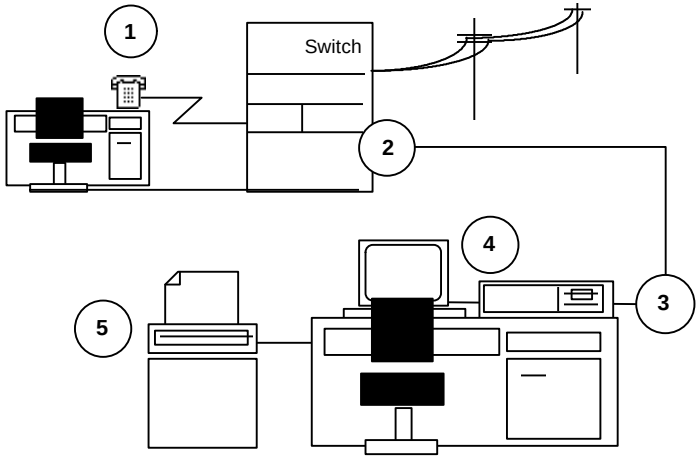


Figure 1-3. Operational Flowchart

1. As a phone call is placed or received on premises, it is routed through the switch to its final destination.

2. The switch prepares an electronic record of the transaction.

3. A background task receives the switch output and stores it in the call input buffer until call processing time.

   The system uses the *Serial Port Configuration* to understand communications with the switch and the Set Time and Date to stamp the date on the call (see chapter 7).

4. When you start call processing at the PC, all calls in the buffer are screened, costed, and then stored.

   You use the *Call Processing Monitor* (see chapter 3) to initiate this task. The system uses the *PBX/KTS Interface* to translate the record (see chapter 7) and various *Processing* functions to screen and cost the calls (see chapter 3).

5. Stored call record information is accessible for reports.

   You use the *Reports and Charts* functions to establish the reporting period, schedule a report, or request a report or chart (see chapter 4).

   At the time the report runs, the system uses the *Organization Table* (see chapter 5) to charge the proper department and cost center, the *Account Code Table* (see chapter 6) to charge the proper account, and the *Cost Adjustment Table* (see chapter 3) to mark up charges.

Modes of Operation

Once you install CAS Plus V3.1.1, your PC will operate in one of two modes:

- *call processing* — that is, your PC is entirely dedicated to this task — or ....
- *multi-function* — when you use the PC for any other function, inside or outside the CAS Plus V3.1.1 application. In this mode, call records are collected in the background.

At all times, the PC must remain ON. However, should it ever be shut down — accidentally or by power failure — an *autorecovery* feature has been built into the system to restart call collection in the background as soon as the system reboots. You should always dedicate the PC to call processing after a shutdown.

User Guide

CAS Plus V3.1.1 is easy to use. It displays information in plain language, using menus — to tell it what function to perform next — and data entry windows or screens — to complete the selected function.

Logging In

To log into CAS Plus V3.1.1, enter **cas** at the C> prompt:

```
C:\>  cas
```

The menu shown in figure 1-4 then appears.

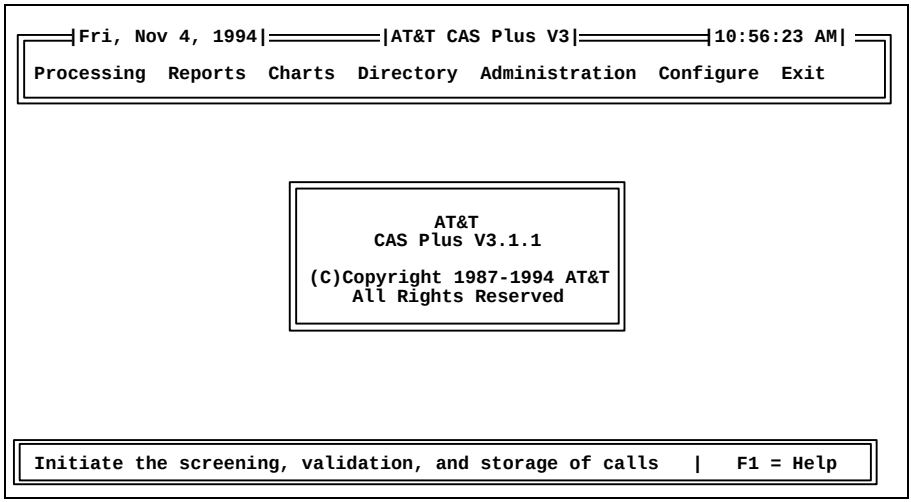


Figure 1-4. Main Menu

This menu displays the titles of what will become the familiar "pull-down" windows. All operations are initiated here, through a system of sub-menus — each level further identifying the task to be performed next.

Using Menus

The main menu appears as a bar at the top of the screen displaying the main functions. Each function opens into a "pull-down" menu window.

Menu selections ultimately lead into a data entry window or screen. These are used to complete the function by a query or an update of information, or by starting a process such as generating a report.

To select an item from a menu:

- Move the highlighted bar* over the item (with the arrow keys) and press <RETURN>, or…
- Type the highlighted key* in the item's name — for example, press **D** for **D**irectory.

Arrows (>) by a menu item indicate the existence of another menu. For example, "`Print Directory >`" in figure 1-5 opens the menu to its right.

If an option appears dimmed*, you cannot use it — either it is not applicable or you do not have access to it.

To open a "help" window describing a selection, press <F1>; to close a window and return to the last display, press <ESC>.

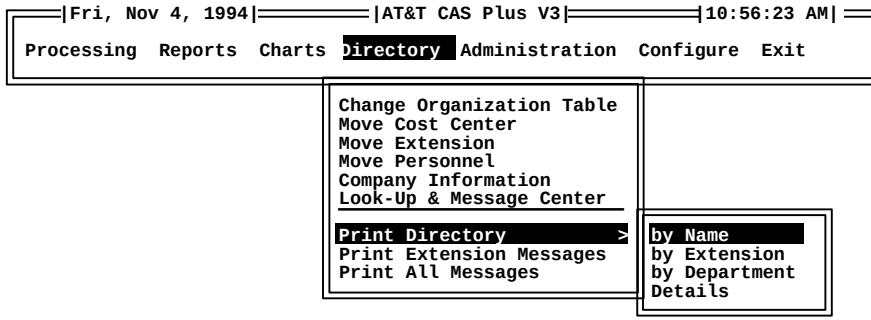


Figure 1-5. Sample Pull-down Menu

* The above descriptions assume default color settings.

Using Data Entry Windows

Menu selections that lead into data entry windows have an ellipsis (…) by its name. For example, `Printer Configuration...` under the `Charts` menu (Figure 1-6, left) opens a window insert similar to the figure on the right:

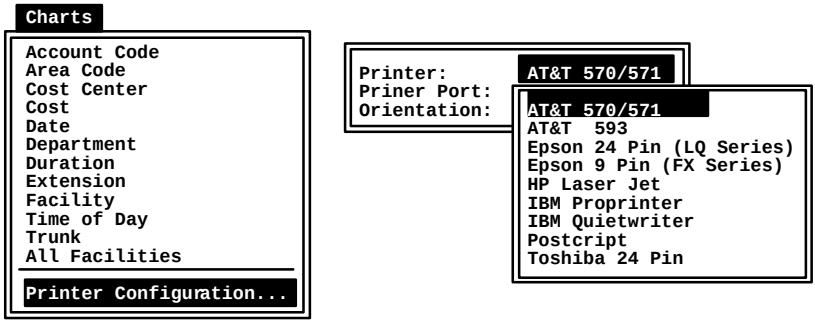


Figure 1-6. Sample Data Entry Window

In a data entry window, the current field is highlighted.

- If the field can have more than one value, you can open a window of valid choices by pressing <F2>. To select a value from this window, use the arrow keys and <ENTER> (<ESC> closes the choices window without changing the field value).
- If the field has only two values, press <Spacebar> to change from one value to another.

To save the changes and exit the data entry window, press <F10>; to exit without changes, press <ESC> (in either case, the screen will prompt you for confirmation).

Using Data Entry Screens

Data entry screens serve as data exchange between users and most files. Records from a file appear one at a time, displaying current *field* values within bracketed areas. Some files have a single record; others have more than one record. Multi-record files can have a simple one-level sequential structure (for example, the `Rate Tables`) or a multi-level hierarchy (for example, the `Company Organization Table`).

When a menu selection opens a data entry screen, all *data fields* are blank. Available commands appear in a list of *instructions*. At this point, these are the only valid entries from the keyboard.

> ⚠ *Do not enter commands that are not in the list of instructions. The PC will either beep or it may show an unusual display (should this happen, press <S>creen to return to the original screen).*

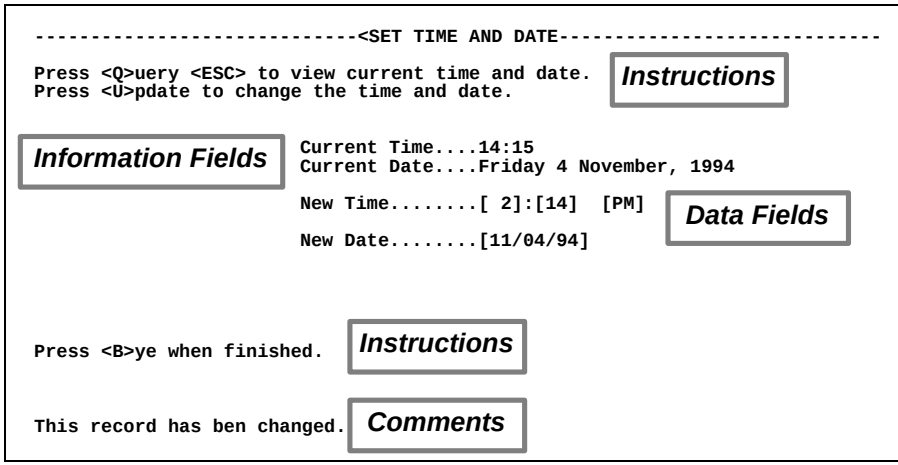


Figure 1-7. Sample Data Entry Screen

When a data entry command is initiated, the PC keyboard will respond as a regular typewriter. The *comments* at the bottom of the screen will display field prompts and messages to guide you through the data entry session.

Control Keys

↑ ↓ → ←

Arrow keys move the current menu selection in the direction of the arrow; in data entry, it moves the cursor one character (or one field) in the direction of the arrow.

F1

<F1> displays a window describing the current selection; return to the prior display by pressing <ESC> or <ENTER>.

F2

Where enabled in data entry windows, <F2> displays a choices window. Then, arrow keys move selection, <ENTER> selects value, <ESC> returns without a value.

Space Bar

Where enabled in data entry windows, <Spacebar> "toggles" between two field values.

↵

<ENTER> executes a menu selection; in a data entry screen, it moves the cursor to the next field.

F10

<F10> closes the current data entry window, saving the changes.

Esc

<ESC> closes the current window (without changes in a data entry window); in a data entry screen, it executes a <Q>uery, <A>dd, or <U>pdate command (see *Database Commands* in the next section).

Ctrl C

In a data entry screen, <Ctrl-c> aborts changes.

Ctrl S

In a report display, <Ctrl-s> pauses; resume display by pressing any key.

Database Commands

Q <Q>uery <ESC> access all records in a file and displays the first one.

Some functions allow <Q>uery to access records that match a given field value. To do so, you press <Q>, type a value on a key field (you may use wildcards), then press <ESC>. For details, see the individual function as documented in this manual.

N P <N>ext and <P>revious display (one by one) sequential records from a file accessed by <Q>uery. See also <D>etail and <M>aster below.

D M In a hierarchical file, <D>etail and <M>aster move from the "master" record on display, to its "detail" records, or vice versa.

For example, the Company Organization file is structured as a hierarchy of department, cost center, extension, and personnel records.

- To move from Department to cost center, press <D>etail.
- To move from cost center to extension, press <D>etail.
- To move from extension to personnel, press <D>etail.
- To move from cost center to department, press <M>aster.
- To move from extension to cost center, press <M>aster.
- To move from personnel to extension, press <M>aster.

A <A>dd creates a new database record. Not all functions allow additions. Where enabled, press <A>dd and enter the appropriate values on the screen. <ESC> completes the command; <Ctrl-c> aborts it.

U <U>pdate changes the database record that appears on the screen. To do so, press <U>pdate and type over the field(s) that require changes. <ESC> completes the command; <Ctrl-c> aborts it.

R <R>emove deletes the record on the screen. Not all functions allow it. Where enabled, press <R>emove then, <Ctrl-c> to abort or <ESC> to continue — if you continue, you must respond to a confirmation prompt by pressing <Y>es or <N>o.

B <B>ye leaves a data entry screen and returns to the prior menu.

Installation

2

This chapter describes how to install CAS V3.1.1 and to customize it for your specific needs. Other helpful information — for example, basic call accounting concepts — appears in chapter 1.

We have divided the installation process into the following key tasks:

- *Task 1: Equipment Preparation* — in which you prepare the necessary equipment and inspect the contents of the installation package.
- *Task 2: Information Collection* — in which you collect telephone system and company information into worksheets. This may require you to contact different people — telephone system service personnel, your own company personnel department, etc.
- *Task 3: Software Installation;* — in which you load the CAS Plus V3.1.1 software package onto your PC and test that switch-to-PC communications have been established.
- *Task 4: Customization* — in which you customize the system using the information gathered on the worksheets.

Task 1: Equipment Preparation

Installing CAS V3.1.1 is not difficult, provided the preparation has been thorough. By the time this manual reaches you, all equipment should be at hand and the switch should have been programmed to work with CAS V3.1.1.

Hardware Requirements

Verify that the following equipment is in place and properly set up:

- An MS-DOS-based processor, with:
  - (at least) 4 Mb RAM, 80 Mb hard disk, one parallel port, one serial port (COM1) for switch input and, if used, one serial port (COM2) for the remote access modem
  - MS-DOS version 3.1, 3.2, 3.3, 4.01, 5.0, 6.0 or 6.2x (we recommend a single DOS partition, with default configuration. Do NOT select SHARE, MEMMAKER or DOUBLESPACE.)*
- A video graphics controller and monitor such as:
  - CGA and 640x200-pixel, monochrome monitor
  - EGA and 640x350-pixel,16-color or monochrome monitor
  - VGA and 640x480-pixel, 16-color monitor
  - MGA and 720x348-pixel monochrome monitor
- A parallel printer such as:
  - AT&T CAS Printer
  - AT&T 570 and 571 (dot matrix) and 593 (HP Laser Jet Model)
  - Epson 24 pin (LQ series) and 9 pin (FX series)
  - HP LaserJet
  - IBM Proprinter II
  - Any printer that handles PostScript (for transfer of chart files only)

* You will also need the MS-DOS System Disk(s) used to install your PC's operating system .

- SMDR cabling from the switch, terminated in a 25- or 9-pin (depending on your PC's COM1 port) female, EIA connector, and capable of transceiving RS232C signals:
  - — CAS V3.1.1 expects RD and DCD from the switch
  - — CAS V3.1.1 supplies TD, RTS, and DTR; the switch must detect DTR so that it doesn't send records before CAS V3.1.1 is ready to receive them

  Although you should connect the PC to the switch (with the PC turned off), do not enable SMDR at the switch at this time. Some switches set an alarm condition if the receiving device cannot acknowledge transmissions.

- If using the remote access option:
  - — A Hayes command set (AT) compatible modem, set up for:
    - Interface-controlled DTR, DCD, and DSR signals
    - "AT" command set recognition
    - Command characters echoed
    - Word result and Autoanswer enabled
  - — A direct telephone line (outside the switch) terminated in an RJ11 wall jack and the phone cord to connect it to the modem
  - — Modem cable from the modem's RS232C port to the PC's COM2 port

Software Package

Verify the contents of the CAS V3.1.1 software package:

- System Disks A to C (3.5" diskettes) or A to E (5.25" diskettes)
- City/State Disk 1 (3.5" diskettes) or Disks 1 and 2 (5.25" diskettes)
- PBX/KTS Interface Disk(s)
- Remote Access Disk
- Zero-Cost Rate Disk
- Serial Number and Key (in a card in the package)

Task 2: Information Collection

Now you can begin the task of gathering the information required to complete the worksheets. To do so, you will meet with the people you have previously identified as your information contacts.

Because the information in the worksheets must be referred to throughout the installation process, you must complete these worksheets before you can proceed:

- Telephone System & Facilities Cost
- Dialed Digit Processing
- Call Processing Configuration
- Company Organization

Blank worksheets and procedures to complete them appear in the following pages.

Telephone System & Facilities Cost

This worksheet is used to identify the facilities used on site and how calls using those facilities should be costed.

Enter the completed worksheet into the `Telephone System Configuration` and `update facilities cost` screens.

Make as many copies of the blank worksheet from the end of this section as required, making certain that the pages are numbered.

Telephone System Configuration & Facilities Cost Worksheet					
Add data via the TELEPHONE SYSTEM CONFIGURATION screen			**Add data via the UPDATE FACILITIES COST screen**		
Facility Name	**Dial Access Code**	**Trunk Line**	**Rate (cents)**	**per Call or per Minute**	**Carrier**
CO	22	2201	-1		0
		2202			
		2203			
		2204			
TIENY	30	3001	10	M	

Figure 2-1. Sample Worksheet

1. Starting with the CO facility, identify every telephone service used at the site. You may want to use the following sources of information:
   - Your telephone switch service technician
   - WATS, FX, and TIE monthly invoices to compute the average cost of calls using these services.
2. Enter a *facility name* up to 5 characters long.
   - CAS reserves the name "CO" for your local and long distance carriers' facility, including MegaWATS and PRO-WATS. Since facility names other than CO are reported as call types, we suggest using descriptive names (for example, TIENY as a TIE line to New York).
   - The names ABN, ANI, ANIAB, IDDD, IS-IL, IS-OL, LATA, LO-CAL, MTS, OS-IL, OS-OL, SPCL, and ZERO+ are reserved by CAS V3.1.1 and may not be used.
3. Enter an *access code*. This value is used to group trunks in a facility with the same billing scheme. If you do not have this information, fill in the first trunk number for this group when you complete the next step. The application can accommodate up to 32 distinct access codes.

4. List all *trunks* in this facility that are available via the *access code* from step 3. Typically, these are string of digits in the SMDR field called “line used,” “used access code’” “route number,” etc.

   Start at the top of the sheet and work your way down (skipping lines between different access codes will make your list easier to read). The application can accommodate up to 255 distinct trunks.

   If your switch requires that you follow different instructions regarding access code numbers and trunks, these will print at installation when you select your *PBX/KTS Interface.*

5. For facilities costed by rate tables:

   a. Enter a *rate* of “-1” and skip the *per call or minutes* entry.

   b. Enter the *carrier:* “0” for costing by your primary carrier’s rate tables; “2” for costing by your secondary carrier’s rate tables.

6. For any other facility, enter the average *rate* in cents per “M” (minute) or “C” (call) and skip the *carrier* entry.

7. If there are more facilities to enter, skip a line and repeat steps 2 to 6.

Telephone System Configuration & Facilities Cost Worksheet					
Add data via the TELEPHONE SYSTEM CONFIGURATION screen			**Add data via the UPDATE FACILITIES COST screen**		
Facility Name	**Dial Access Code**	**Trunk Line**	**Rate (cents)**	**per Call or per Minute**	**Carrier**

Dialed Digit Processing

Use this worksheet if any of the special cases below apply. Use the completed form for input into the `DIALED DIGIT PROCESSING` screen.

- The built-in rates listed in the *Default Dialed Digit Processing Table* (see next page) are not correct for your site.
- The switch reports extra digits dialed in "voice mail" calls.
- The switch reports "speed dial codes" instead of actual numbers.
- When using TIE lines, the switch outputs digits in the dialed number field that are not valid phone numbers — for example, RNX codes for on-net calls or access codes in a tandem or remote access call.
- Users at the site want to mask sensitive phone numbers.
- You will be installing a switch interface that supports ISDN and you want to report incoming calls with Automatic Number Indentification (ANI) information.
- You have activated Intra-switch SMDR.

1. Copy the *Default Dialed Digit Processing Table* on the next page. Review the preprinted values and, if necessary, enter these corrections:
   - The rates for information and other service numbers.
   - The dialed digits for "dial-it" local services
2. Make as many copies of the *Dialed Digit Processing Worksheet* at the end of this section as required, making certain that the pages are numbered.
3. Identify the dialed patterns that require additional processing.

   The table *Special Cases in Dialed Digit Processing* at the end of the procedure shows the entries that will process the cases mentioned at the beginning of this section.

Default Dialed Digit Processing Table								
SEARCH FOR		**COST AS**						
Dialed Digits	**Access Code**	**Cost Method**	**Rate (cents)**	**Dialed Digits**	**Substitute Digits?**	**Access Code**	**Call Type**	**Comments**
0%		A	0		N		ZERO+	*Operator assisted*
011????????&		A			N			*International*
411		C	43		N		SPCL	*Local information*
?411		C	43		N		SPCL	
911		C	0		N		SPCL	*Emergency number*
?11		C	0		N		SPCL	*General x11 services*
5551212		C	43		N		SPCL	*Local information*
?5551212		C	43		N		SPCL	
???5551212		C	60		N		SPCL	*Long distance information*
????5551212		C	60		N		SPCL	
800???????%		C	0		N		SPCL	*Toll free numbers*
1800???????%		C	0		N		SPCL	
900???????%		M	50		N		SPCL	*900 service numbers*
1900???????%		M	50		N		SPCL	
976????		M	50		N		SPCL	*Dial-it local services*
?		D			N			*Incompletely dialed calls*
??		D			N			
???		D			N			
????		D			N			
?????		D			N			
???????		D			N			

4. Enter dialing patterns under the "*search for dialed digits*" column using a sequence of digits, letters, and/or (? and %) wild cards:

   ? = any single character in that position. For example, "385???" is any 7-digit number with 385 as a local exchange.

   % = any number of trailing characters. Use only at the end of the pattern. For example,"0%" is any number starting with 0.

5. Skip the *access code* entry, unless you want to flag specific facilities such as TIE lines or private networks — in which case, enter its *dialed access code* from the *Telephone System Configuration and Facilities Cost Worksheet.*

6. Indicate the *cost method:*

   D Discard call. This line is complete.

   M Cost per minute. Enter a *rate* in cents.

   C Cost per call. Enter a *rate* in cents.

   A Cost using the dialed digit pattern specified in step 7 and/or the access code specified in step 8.

7. For patterns not discarded, you may enter a substitution pattern using a similar format based on your entry in step 4:

   - Trailing digits found by `%` in the "search for" pattern are matched to `%` in the "cost as" pattern — for example, a search for `00%`, cost as `0%` would find `003856440` and cost it as `03856440`.
   - Every digit found by a `?` in the "search for" pattern is matched to a `?` or a `.` (period) in the "cost as" pattern by its position from the left; a "`?`" keeps the digit, "`.`" discards it — for example, a search for `?223????` and cost as `.223????` would find `12231234` and cost it as `2231234`.
   - If there are less ?s in the "cost as" pattern, the right-most matches will be discarded. For example, a search for `?223????` and cost as `223????` would find `12234567` and cost it as `2231456`.

8. To cost as some other dialed access code (*cost method* A only), enter the *cost as access code*. Otherwise, leave blank.

9. If you substituted digits in step 7, indicate if you wish to store the substitution digits in the call record. "Y" will produce reports with the new number, "N" will cost the call with the new number, but will report the number received from the switch.

10. Enter the name of a valid *call type* for your system, as you wish it to appear on reports. A blank uses the name associated with the dialed digits and access code in the "cost as" pattern. Built-in names are:

ABN	abandoned call	LATA	7- and 8-digit calls
ANI	incoming ANI call	LOCAL	local
ANIAB	abandoned ANI call	MTS	long distance
IDDD	international direct dial	OS-IL	out-of-state, in-LATA
INCOM	incoming	OS-OL	out-of-state/LATA
IS-IL	in-state/LATA	SPCL	special
IS-OL	in-state, out-of-LATA	WATS*n*	WATS band *n*=0 - 6
IWTS*n*	inWATS band *n*=0 - 6	ZERO+	operator assisted

Other call types are derived from the *facility name* (other than "CO") in the *Telephone System Configuration and Facilities Cost Worksheet*.

Table of Special Cases in Dialed Digit Processing

Special Case	SEARCH FOR		COST AS					
	Dialed Digits	Access Code	Cost Method	Rate	Dialed Digits	Access Code	Sub. Digits?	Call Type
Speed dialed "code" instead of "number"	*code*% eg: **#30%**	(*)	A		*number*% eg: **10288%**		Y	
Network call: off-net "code" in dialed number	*code*% eg: **#18%**		A		%		Y	
Network call: local on-net call does not have exchange (xxx)	**????**		A				Y	
Network call: "RNX" code in dialed number instead of the area code (npa) and exhange (nxx)	*RNX***????** eg: **333????**		A		*npanxx***????** eg: **716385????**		Y	
Mask sensitive phone numbers			A				Y	
Switch with ISDN adds "*" (ANI calls) to dialed number	**???????* ??????????***		A		**??????? ?????????**		Y	ANI
Report intra-switch calls	Remove the "incompletely dialed call" entry from the default table (typically, **???** or **????**).							
(*) Use network dialed access code.								

Dialed Digit Processing Worksheet						
SEARCH FOR		**COST AS**				
Dialed Digits	**Access Code**	**Cost Method**	**Rate (cents)**	**Dialed Digits**	**Sub. Digits?**	**Call Type**

Call Processing Configuration

This worksheet is used to identify which types of exceptional calls it should store, print, and/or monitor.

1. Select call storage options: you may discard local calls (in a system with custom rates) and short duration calls.

2. Select call output options: you may set duration and cost limits to print to very lengthy or costly calls. We do not recommend changing the default Call Monitor option "after processing."

Option	Prompt	Entry
Call Storage Options	Store local calls? **Default: Y**	
	Store any call whose duration is greater than (seconds)... **Default: 30 seconds**	
Call Output Options	Print all monitored calls? **Default: Y**	
	Print any call whose duration is greater than (seconds)... **Default: 30 seconds**	
Call Monitor Options	Print any call whose cost is greater than (cents)... **Default: 1000 cents**	
	Monitor calls... A: As received from telephone system B: After processing **Default:** Y	

Company Organization

This worksheet identifies the company structure used to charge calls placed by extensions. Personnel entries for extension users provide a useful internal directory.

Department: MARKETING				
Cost Center	**Extension**	**Name (last, first)**	**Home phone**	**Alternate contact**
505-STAFF	223	SMITH, BILL	3816546	STEVENS
	224	STEVENS, MARGARET	2231212	SMITH
	225	SANDS, PETE		
501-NEW	305	TURNER, BOB		
		PEREZ, BETTY		
	306	PONTE, SUE		

Figure 2-2. Sample Worksheet

1. Each worksheet is devoted to a single department. Make as many copies of the blank worksheet at the end of this section as necessary. For each worksheet, enter a department name (1 to 15 characters).

2. In the next box, enter a cost center name (1 to 15 characters) from that department. Then, list:

   a. All the cost center's extensions.

   b. Optionally, all extension user(s)' name (last name, up to 15 characters; first name, up to 10 characters), home phone (7 digits) and alternate contact (up to 20 characters).

   ⇛ Department and Cost Center names must be unique. If more than one Department uses the same Cost Center name, append a letter or number to distinguish them — for example, 505-A, 505-B, etc.

3. Repeat step 2 for each cost center in the department.

Company Organization Worksheet				
Department:				
Cost Center	**Extension**	**Name (last, first)**	**Home phone**	**Alternate contact**

Task 3: Software Installation

This task involves loading the CAS V3.1.1 software,"branding" it with your serial number and key, then identifying your switch and testing its connection.

⇛ If your system was ordered as "bundled" hardware and software, you may move to the *Customization* task.

Loading the System Software

1. Power up the PC without a diskette in drive A. Then insert the CAS V3.1.1 *System Disk A* into disk drive A, at the c:\> prompt, type **a:install** and press <ENTER>.

2. Wait for the load to complete, then follow the screen instructions to load the remaining system disk(s), one at a time.

3. Next, the screen asks if you want City/State designations.

   To use this option, press <Y>es and load the *City/State Disk 1* (followed by *Disk 2* for 5.25" diskettes). Otherwise, press <N>o. (The City/State disk may be loaded later via the `Install Update` function).

4. When prompted, load the Remote Access disk, making sure it is not write-protected.

   The screen will ask you a few questions to configure the monitor properly. Respond as necessary. When a screen similar to figure 2-3 appears, proceed as follows:

   a. Press **A** to select the serial port used by the modem. Follow the screen instructions to select **COM2**.

   b. Press **B** to select its baud rate, using a similar procedure as above.

   c. Press **C** to select your modem type from the list provided. If your modem does not appear, select **AT Compatible** for the appropriate baud rate "**1200**," "**2400**," or "**V.32**" (for 9600 baud).

   Leave the other default values as they appear in your screen. Press **x** to exit and save these settings.

When you remove the Remote Access diskette from the drive, make certain that you lock its write-protect tab (3.5" disk) or cover its write-protect notch (5.25" disk).

```
     GENERAL PARAMETERS                          MENU LIST
A -- Comm Port Address...COM2                Q -- Quit, changes not saved
B -- Baud Rate...........2400                X -- eXit, changes saved
C -- Modem Type..........AT Compatible 2400
D -- Keyboard handling...USA Keyboard
E -- Display Type........Default
F -- Menu Colors.........Yellow on Black
G -- Working Directory...Default Directory
H -- Menu Level Options..Advanced

     MENU LIST
1 -- CC Optional Configuration Parameters
2 -- CCHELP Optional Configuration Parameters
3 -- Call Table
4 -- Password Table

                      Type letter for selection:_
```

Figure 2-3. Sample Remote Access Configuration

5. The screen will prompt you for the *serial number* and *key* printed on the branding number card. Enter these numbers, letters, and symbols exactly as printed. Do not confuse the number zero with the letter "O" or a number 1 for the letters "I" or "L."

6. Follow the screen prompt to load the *Rate disk* (Zero-Cost or a custom-rate disk), then enter your company's home area code.

7. Follow the screen prompt to load the MS-DOS system disk. If you have more than one system disk, insert the Operations disk at this time. The system will prompt you for the additional disk, if necessary.

   If you do not have an MS-DOS system disk, leave the Rate disk in the drive and press any key. The *Do's and don'ts* section at the end of this chapter will show you how to copy the DOS files `MORE.COM` and `ANSI.SYS` used by CAS V3.1.1.

8. Finally, the screen will prompt you to remove the last disk from the drive and re-start the PC by pressing <Ctrl - Alt - Del> simultaneously.

Setting Up the Switch Interface

The next set of screen displays will guide you in installing and testing the switch interface. Read all instructions carefully — they show how to use data entry screens. (For example, the COMPANY INFORMATION screen will guide you in entering your *Company Name* and *Address*.)

1. Load the *PBX/KTS Interface disk* as prompted.
   a. The screen displays a menu of telephone switches. Make certain your printer is ready, then select the appropriate interface.
   b. The PBX/KTS Interface Help then prints. (See Figure 2-5) This printout will provide samples of unprocessed, incoming and outgoing call records from the selected switch, followed by the same records, processed by the interface. Retrieve your printout because it will help you set up and test the switch interface.
2. The Serial Port Configuration screen appears on display.
   a. Press <Q>uery <ESC> to display the default values.
   b. To enter changes — for example to enter **8** *Bits/Char* — press <U>pdate. The cursor moves to the Baud field. Press <RETURN> to advance to the Bits/Char field, then type **8** and press <ESC>.
   c. When ready to move out of this screen, press <B>ye.

```
----------------------< SERIAL PORT CONFIGURATION >----------------------

 Press <Q>uery <ESC> to display current values.
 Press <U>pdate to change values.

       Configure your PC to match your Telephone System's output:

                   Serial (COM) Port...[1]
                   Baud................[1200]
                   Parity..............[0]
                   Bits/Char...........[8]
                   Stop Bits...........[1]


 *WARNING* You must leave this procedure and restart the PC <CTRL-ALT-DEL>
          to make these changes work.

 Press <B>ye to leave this procedure.
```

Figure 2-4. Sample Serial Port Configuration Screen

```
                              PBX/KTS INTERFACE HELP
--------------------------------------------------------------------------------


1. Your have selected the AT7T DEFINITY G1/G2 24 Word Standard ISDN
                           (Unformatted) PBX Interface

2. Typical transmission settings for the SMDR port in your telephone system
    are:    NOT TYPICAL VALUES AVAILABLE.

3. Call record samples from a telephone system such as yours are:

                          A. OUTGOING CALLS, UNPROCESSED
----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----
090010001  445432    13016546704      1000          123451234567       23 1
  243
----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----
14255400A54441234       12453180      2300           2334            432
----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----

                  SAME CALLS, PROCESSED BY PBX/KTS INTERFACE TEST
 DATE     TIME   DURATION  EXT   TNK     ACC    DIALED      ACCOUNT CODE
--------  -----  --------  ----  -----  -----  -----------  -----------------
04/11/91  08:00  01:00:00  1000    243    243  13016546704  12345
--------  -----  --------  ----  -----  -----  -----------  -----------------
04/11/91  08:45  05:40:00  2300   1243   1243  12453180    2334
```

Figure 2-5. Sample PBX/KTS Interface Help (Partial Printout)

3. Remove the disk from the drive and press <Ctrl - Alt - Del>.

4. When the `Set Time and Date` screen appears on display, press <Q>uery <ESC> to display the PC's current values.

   Make certain the time and date are correct. CAS V3.1.1 stamps call records with the PC's date. Incorrectly dated call records would corrupt your call accounting reports.

   To enter changes, press <U>pdate, enter a new time (hours, minutes, "AM" or "PM") and/or a new date (month/date/year) and press <ESC>. When complete, press <B>ye to continue.

5. The PBX/KTS Interface Test screen then appears:

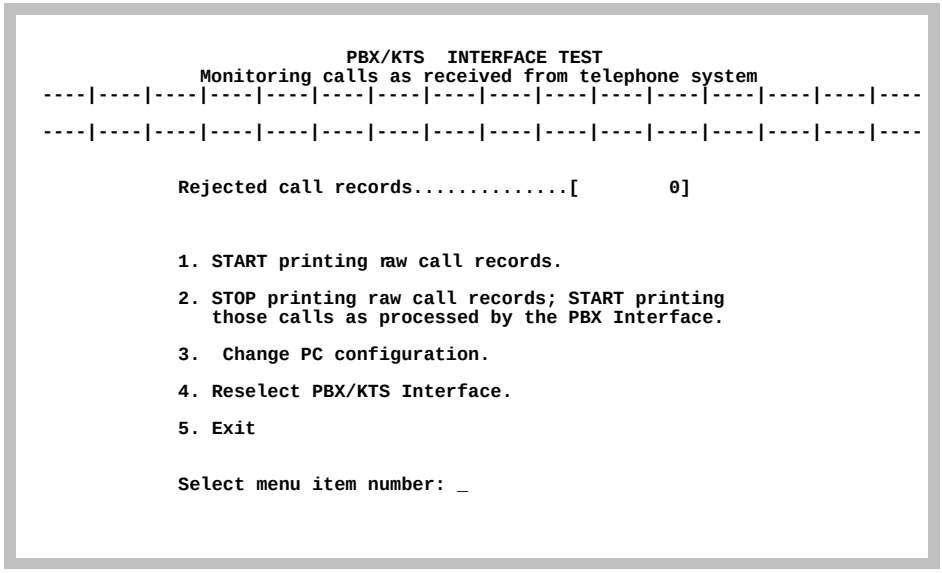


Figure 2-6. PBX/KTS Interface Test Screen

a. Enable SMDR at the switch now.

   If your telephones are in use, call records should begin appearing on the screen, between the dotted lines.

   Some PBXs — Northern Telecom SL-1, for example — output multiline records which appear to be rejected. If the printouts from step 24 are produced, the test is successful. If call records are not processing correctly, however, you need to locate and correct the problem. Refer to the troubleshooting chart at the end of this section.

b. Enter **1** to print call records as received from the switch. After printing a few records, type **2** to print the same records after processing.

c. Compare these printouts with the *PBX/KTS Interface Help* printed earlier. If calls appear to be processing correctly, type **5** to exit.

d. If calls are not processing correctly, you need to locate and correct the problem. Refer to the troubleshooting chart on the next page.

Switch Interface Troubleshooting Chart		
Problem	**Possible Cause**	**Solution**
Not receiving call records	PC serial port values do not match those programmed for the switch	Select option 3 from Interface Test menu and/or change the serial port values.
	Bad or wrong cable	Consult switch manual to check pinouts on its SMDR port or use a breakout box to verify pin signals when calls are being transmitted. Get the right cable.
	Switch is not sending calls	Consult switch manual or call the TSC
	Bad serial port on the PC	Consult the PC manual or call the TSC
Receiving calls, but they are being rejected	Wrong interface	Compare the printout of raw call records to the PBX/KTS INTERFACE HELP printout. If they do not match, select option 4 from the Interface Test menu and choose another interface.
Characters that do not resemble the call record samples from the PBX/KTS INTERFACE HELP appear between the dotted lines	PC serial port values do not match those programmed for your switch	Select option 3 from the Interface Test menu to verify and/or change the PC serial port values.
	Switch is outputting these unusual characters	Consult your switch manual or call the TSC
* For assistance, call AT&T Technical Support Center (TSC) at 1-800-422-6622.		

6. The screen displays a message to remind you that you must complete the installation in order to properly process calls (press <ENTER> to acknowledge this message).

   The screen then displays a welcome message and reminds you again that CAS V3.1.1 is now recording calls but that the installation is not complete without entering the system tables. It then displays: `Continue installation [y/n]?`

   a. Enter **y** to invoke the database initialization program. Proceed to the next section, *Customization.*

      This task assumes that you have the completed worksheets from which you can transfer this information.

   b. Enter **n** to postpone the database initialization and exit to DOS.

      When you are ready to continue, collect your completed database worksheets and proceed to to the next section, *Customization*.

      To resume the process at this point, enter **CAS** at the `C:\>` prompt:

      ```
      C:\>  CAS
      ```

Task 4: Customization

This final task involves transferring the information on your worksheets to configure the CAS V3.1.1 databases.

To do so, an installation program will walk you through data entry screens in the following order:

- Telephone System Configuration
- Update Facilities Cost
- Carrier Information
- Dialed Digit Processing
- Call Processing Options
- Company Organization

If you exited to DOS after the PBX/KTS Interface Test, enter **CAS** at the C> prompt:

```
C:\>  CAS
```

After the set of instructions, the Telephone System Configuration screen will appear on display.

Telephone System Configuration

The first set of data entry screens involve entering the first three columns of your *Telephone System & Facilities Cost Worksheet*. We shall use the sample below to illustrate data entry.

Facility Name	Dial Access Code	Trunk Line	Rate (cents)	per Call or per Minute	Carrier
CO	22	2201	-1		0
		2202			
		2203			
		2204			
TIENY	30	3001	10	M	

Figure 2-7. Worksheet Sample

1. Press <S>creen to bring the `Facility` screen on display.

2. Press <Q>uery and <ESC>. The default value `CO` is displayed.

3. Press <D>etail to move to the `Dial Access Code` field. The default value `NONE` is displayed.

   If you pressed <D>etail one more time, the `Trunk Line` field with the default value `???????` appears. **Do not change or delete default entries.** They are used to record calls with undefined or incorrectly defined access codes and trunks.

4. Refer to your worksheet and add your CO *access code*. For example, we press <A>dd, enter **22**, and <ESC>.

5. Press <D>etail to move to the `Trunk Line` field. Your PC will beep with the message `There are no records satisfying the conditions` at the bottom of the screen. Ignore this.

6. Refer to your worksheet to add your CO *trunks*, one at a time. For example, we press in succession:

   < A>dd, **2201**, and <ESC>
   < A>dd, **2202**, and <ESC>
   < A>dd, **2203**, and <ESC>
   < A>dd, **2204**, and <ESC>

   Figure 2-8 shows the screen after the first entry. When your list is complete, proceed to step 7 (or to step 9 if your worksheet is complete).

```
--------------------------------< TRUNK LINE >--------------------------------

 Press <N>ext and <P>revious to browse through the list of Trunk Lines.
 Press <A>dd to add a new Trunk Line to the Facility and Dial Access Code shown.
 Press <U>pdate to change the value of the Trunk Line currently displayed.
 Press <R>emove to remove the Trunk Line currently displayed.


                     Facility  Dial Access Code   Trunk Line
                       -----         -----           -----
                         CO            22           {2201 ]



 Press <M>aster to select a different Access Code.
 Press <B>ye to leave the Facilities-Access Code-Trunk procedure.
```

Figure 2-8. Screen Sample

7. Press <M>aster twice to return to the `Facility` field. Enter your other facilities and associated information:

   a. Press <A>dd, enter a *facility* (**TIENY**, in our example) and <ESC>.

   b. Press <D>etail, then <A>dd, enter its *access code* (**30**, in our example) and <ESC>.

   c. Press <D>etail, then add the list of trunks — in our example, we press <A>dd, enter **3001** and <ESC>, and again, we press <A>dd, enter **3002**, and <ESC>.

   Repeat this step in its entirety until all facilities are entered.

8. When your worksheet is completed, press <B>ye to move out to the next installation screen.

Update Facilities Cost

To set up facilities costs, refer to the last two columns on your *Telephone System & Facilities Cost Worksheet*.

1. Press <Q>uery and <ESC> to call up the facilities defined in the previous steps (see sample screen below).

2. For your CO facility, verify that the name of your primary carrier appears on the screen.

```
--------------------------< UPDATE FACILITIES COST >--------------------------

 Press <Q>uery <ESC> to view the list of existing Rates.
 Press <N>ext and <P>revious to browse through the list of Trunk Lines.
 Press <U>pdate to change the value of the Trunk Line currently displayed.


                                        Per Min     Carier     Carrier
    Facility   Access Code     Rate     or Call      Code       Name
      -----       -----       -----       ---        ---        ---
        CO         [22]       {-1  ]      [M]        [0]        ATT


 Notes:  A rate of -1 is used to indicate cost table costing.
         The primary carrier is the one used for 1+ dialing and is shown in
         the carrier code and carrier name fields.  If your system was generated
         with two carriers and you wish to change the primary carrier for this
         facility, change the carrier code to a 0 or 1 depending on its current
         value.

 Press <B>ye to leave the Facilities-Access Code-Trunk procedure.
```

Figure 2-9. Custom System Screen Sample

3. If you have non-CO facilities, press <N>ext, <U>pdate, enter the *rate* per minute or call from your worksheet — in our example (Figure 2-7), we press <N>ext until we see our facility **`TIENY`**. Then we type **`10`** <RETURN>, **`M`** <RETURN>, and <ESC>.

   Repeat this procedure with your own non-CO facilities.

4. When your worksheet is complete, press <B>ye to move to the next installation screen.

Carrier Information

This screen is used to view the list of carriers built into your system, along with their Equal Access prefixes.

```
----------------------------< CARRIER INFORMATION >---------------------------

 Press <Q>uery <ESC> to display the list of carriers.
 Press <N>ext and <P>revious to browse through the list of carriers.
 Press <U>pdate to change the information about the carrier currently displayed.


                                  Number of Authorization
    Carrier Name     Dialing Prefix       code digits         Carier Code
       -----             -----               -----               ---
        ATT             [10288]             {0    ]             [0   ]




 Press <B>ye to leave this procedure.
```

Figure 2-10. Screen Sample

1. If your area has Equal Access, press <B>ye to move to the next installation screen. Otherwise, press <Q>uery <ESC>.

2. Press <U>pdate, enter the number dialed to use the carrier (typically a “950xxx” number), the number of digits in your authorization code, and <ESC>.

3. Press <N>ext and repeat step 2. When all carriers have been examined, press <B>ye to move to the next installation screen.

Dialed Digit Processing

This screen is used to verify the built-in list of Special Numbers and to transfer the information on your *Dialed Digit Processing Worksheet*.

1. Press <S>creen, then <Q>uery <ESC> to retrieve the built-in list.

   Examine each entry using <N>ext or <P>revious. If necessary, press <U>pdate, write over any of the entries, and <ESC>.

```
-------------------------< DIALED DIGIT PROCESSING >-------------------------

 Press <Q>uery <ESC> to display the list of Dialed Digit Patterns.
 Press <N>ext and <P>revious to browse through the list.
 Press <U>pdate to change the current entry.
 Press <A>dd to add a new entry.
 Press <R>emove to remove the entry currently displayed.

 Search for:  Dialed Digits..............[1???5551212   ]
              Access Code................................[     ]

 Cost as:     Cost Method................................[C]
                Rate (cents per min or per call)..[60    ]
                Dialed Digits.............[1??5551212   ]
                Access Code.......................[     ]
                Substitute Dialed Digits?.............[ ]
              Call Type..............................[SPCL ]


 Press <B>ye to leave this procedure.
```

Figure 2-11. Screen Sample

2. The following line illustrates entering values from a worksheet (below):

   Press <A>dd, enter **#30%** (*dialed digits*), **1** (*access code*), **A** (*cost method*), **10222%** (*dialed digits*), press <RETURN> to skip *access code*, **Y** (*substitute digits?*), and press <ESC>.

SEARCH FOR		COST AS				
Dialed Digits	Access Code	Cost Method	Rate (cents)	Dialed Digits	Sub. Digits?	Call Type
#30%	1	A		10222%	Y	

Figure 2-12. Sample Worksheet

3. Follow the procedure in step 2 for your own entries. When your worksheet is complete, press <B>ye to move to the next installation screen.

Call Processing Configuration

This screen is used to transfer the information on your *Call Processing Configuration Worksheet*.

```
----------------------< CALL PROCESSING CONFIGURATION >-----------------------

 Press <Q>uery <ESC> to display current option values.
 Press <U>pdate to change the current option values.


          Call Storage Options                    Call Output Options
 ------------------------------------   ------------------------------------
 Store all local calls..............[Y]   Print Monitored calls.............[Y]
 Store any call whose duration          Print any call whose duration
   is greater than (seconds).....[  30]     is greater than (minutes)...[  60]
                                        Print any call whose cost
                                          is greater than (cents)...[100000]


                             Call Monitor Options
 ------------------------------------------------------------------------------
 Monitor Calls.....................[B]   Note - Some calls may not be
   as received fro telephone system..A       monitored with option A.  (All
   after they have been processed....B       calls will be stored.)


 Press <B>ye to leave this procedure.
```

Figure 2-13. Sample Screen

1. Press <Q>uery <ESC> to display current options. If necessary, press <U>pdate, type over any value that needs change, and <ESC>.

2. When finished making your changes, press <B>ye to continue with the next installation screen.

Company Organization

The last set of data entry screens are used to transfer the information on your *Company Organization Worksheet*. To illustrate data entry, we shall use the sample worksheet, below.

Department: MARKETING				
Cost Center	**Extension**	**Name (last, first)**	**Home phone**	**Alternate contact**
505-STAFF	223	SMITH, BILL	3816546	STEVENS
	224	STEVENS, MARGARET	2231212	SMITH
	225	SANDS, PETE		

Figure 2-14. Sample Worksheet

Calls to/from telephone extensions not included in the Company Organiz ation will be reported under the "UNATTACHED" department and cost center. **Do not change or delete these defaults.** They are used by the system to store calls made or received by u ndefined extensions.

If you should see `UNATTACHED` entries in your Organization reports, use the `Move Extension` function to assign them to the appropriate Cost Center.

1. Press <S>creen, then <Q>uery <ESC> to move to the `Department` screen.

2. Press <A>dd, enter the name of a department from your worksheet — **`MARKETING`**, in our example — and <ESC>.

3. Press <D>etail to move to the `Cost Center` field. Your PC will beep with the message `There are no records satisfying the conditions` at the bottom of the screen. Ignore this.

4. Press <A>dd, enter the name of a cost center associated with this department — **`505-STAFF`**, in our example — and <ESC>.

5. Press <D>etail to move to the `Extension` field. Your PC will beep with the message `There are no records satisfying the conditions` at the bottom of the screen. Ignore this.

6. Press <A>dd, enter an extension number associated with this cost center (**`223`**, in our example — and <ESC>.

```
--------------------------------< EXTENSION >--------------------------------
```

```
Press <N>ext and <P>revious to browse through the list of Extensions.
Press <A>dd to add a new Extension to this Cost Center.
Press <R>emove to remove the Extension number currently displayed.


     Department         Cost Center     Extension
  ---------------    ---------------     -----
  MARKETING          505-STAFF           [223 ]




Press <D>etail to find the People assigned to this extension.
Press <M>aster to select a different Cost Center or Department.
Press <B>ye to leave the Organization Table Edit procedure.
```

Figure 2-15. Screen Sample

7. If you do not wish to add the employee(s) using this extension, proceed to step 9. Otherwise, press <D>etail, <A>dd, enter the name, home phone, and alternate contact — for example, **SMITH, BILL**, <ENTER>, **3816546** <ENTER>, **STEVENS** <ENTER> — then press <ESC>.

8. If this extension has more users, add them one at a time following a procedure similar to step 7. When complete, press <M>aster to move back to the `Extension` field.

9. Repeat steps 6 to 8 until all extensions under this cost center are completed. Then press <M>aster to move back to the `Cost Center` field.

10. Repeat steps 4 to 9 until all cost centers under this department are completed. Then press <M>aster to move back to the `Department` field.

11. Repeat steps 2 to 10 until all worksheets are completed. Then press <B>ye to conclude the installation program.

Print System Tables

At this point the information you have just entered will print. Check the printouts for errors. If you need to make any corrections, refer to the editing functions explained in chapters 3 to 7 in this guide.

After the tables print, the main menu will appear. This indicates that you have now completed the last of your four major installation tasks. Congratulations!

Ready To Go

Now that the system is ready, we recommend following these procedures at your earliest convenience:

- Setup *HackerTracker* to help stop fraudalent use of your telephone switch — see chapter 8 for details.
- Identify your printer via the `printer control parameters` and `printer configuration` screens — see these topics in chapters 6 and 4 (respectively).
- Schedule periodic reports via the `schedule preselected reports` screen — see *Define Preselected Reports* in chapter 4.
- Set up your table of accounts via the `ADD/UPDATE ACCOUNT CODE` screen — see *Account Code Management Functions* in chapter 6.
- Verify default cost adjustments via the `Call Type Cost Adjustments` screen — see *Cost Adjustment Parameters* in chapter 3.
- For PCs with expanded memory, improve its performance via the `set swap path` screen — see *Set Swap Path* in chapter 7.
- Backup the system on blank diskettes via the `backup system` screen — see chapter 6.
- Set *passwords* for user access to the system via the `define passwords` screen — see chapter 6.

Please examine the do's and don'ts statements on the next page.

DO's and DON'Ts

DO	...if you did not load the MS-DOS System Disk at installation, copy the MORE.COM and ANSI.SYS files into the /M3USR directory by entering the following lines at the C:\> prompt: C:\> **COPY *DOS*\MORE.COM \M3USR** <ENTER> C:\> **COPY *DOS*\ANSI.SYS \M3USR** <ENTER> where *DOS* is the name of your MS-DOS directory.
	...leave your PC in the CALL PROCESSING MONITOR screen as often as possible.

DO NOT	...turn the PC off — or it will not record calls.
	...leave a diskette in the disk drive—otherwise, a power outage will disable autorecovery, stopping call collection. To resume call collection, restart the PC (press <Ctrl - Alt - Del>).
	...use the MS-DOS Mode command nor alter such characteristics as the attributes and interrupt address of the COM1 or COM2 ports — these could disable the background task, stopping call collection. To resume call collection, restart the PC (press <Ctrl - Alt - Del>).
	...change or delete the M3USR directory, or the CONFIG.SYS, ANSI.SYS, AUTOEXEC.BAT, and COMMAND.COM files.*

* This software has modified the AUTOEXEC.BAT file and possibly, the CONFIG.SYS file. (Your original files are saved as AUTOSAVE.BAT and CONFIG.SAV, respectively.) The application requires the following definitions in CONFIG.SYS:

```
FILES = 30
BUFFERS = 30
BREAK = OFF
DEVICE = ANSI.SYS
```

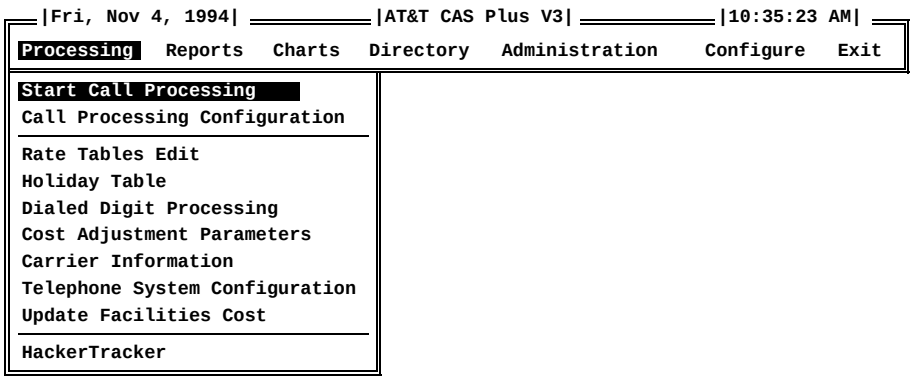
If the original 'FILES =' and 'BUFFERS =' exceeded these requirements, the original values are kept. Should memory errors occur during reports generation, set the values as recommended.

Processing

3

This chapter describes the functions used in screening, costing, and storing calls received from the switch.

The chapter is organized into sections following the order they appear on the `Processing` menu:



HackerTracker features and installation are documented fully in Chapter 8.

Figure 3-1 illustrates the interaction of these functions in processing a call.

START CALL PROCESSING brings all calls from the input buffer for processing:

Note: The Call Monitor displays only one call at a time on the monitor screen.

```
  DATE   TIME  DURATION TNK EXT DIALED NUMBER  ACCOUNT CODE
-------- ----- -------- --- --- -------------- ------------
11/04/94 09:06 00:05:00 801 223 17165551212
11/04/94 13:22 00:10:00 821 223 17163856000    12345
11/04/94 17:10 00:15:00 831 223 3856440
```

CALL PROCESSING CONFIGURATION checks call duration to determine if the call is valid.

Long or costly calls print. Invalid calls are discarded.

DIALED DIGIT PROCESSING (DDP) resolves dialed incosistencies and sets costing of special calls such as directory assistance, emergency, 800 numbers, etc.

TELEPHONE SYSTEM CONFIGURATION identifies Trunks, Access Codes, Facilities; the FACILITIES COST table sets costing by rate table or flat rates.

COST ADJUSTMENT PARAMETERS adjusts duration by the connection time for the appropriate call type.

CO | WATS, FX,TIE, etc. | SPCL

Call is costed:

CARRIER INFORMATION identifies carrier.

FACILITIES COST sets flat rate per call or minute

DDP sets rate per call or min.

HOLIDAY TABLE determines if there is a holiday discount.

RATE TABLES compute distance to called number, finds rate band.

At report time, COST ADJUSTMENT PARAMETERS marks up cost for the appropriate call type.

CO | WATS, FX,TIE, etc. | SPCL

```
                DURATION                                        ACCOUNT
  DATE    TIME  HH:MM:SS TRUNK EXT. TYPE  DIALED NUMBER   CODE    COST
-------- ----- -------- ----- ---- ----- -------------- ------- ------
11/04/94 09:06 00:05:00 801   223  SPCL  17165551212             $ 0.60
11/04/94 13:22 00:10:00 821   223  OS-OL 17163856000   12345     $ 2.15
11/04/94 17:10 00:15:00 831   223  FX-RO 3856440               $ 0.75

End of report...
```

Figure 3-1. Call Processing Flow

Start Call Processing

Use this function to bring the CALL PROCESSING MONITOR on display and initiate the screening, validation, costing, and storage of all call records that were waiting in the input buffer.

To do so, simply select Processing from the main menu, then, Start Call Processing. A display similar to the figure below appears.

```
                              <B> for Bye
---------------------<CALL PROCESSING MONITOR>---------------------

       Call Storage Options          Call Output Options
--------------------------------  --------------------------------
Store all local calls.........[Y]  Print allmonitored calls......[Y]
Store any call whose duration      Print any call whose duration
 is greater than (seconds)..[ 30]   is greater than (minutes)..[ 60]
                                   Print any call whose cost
                                    is greater than (cents)..[10000]


                     Call Volume Statistics
                     ----------------------
              Number of Calls in Disk Storage..[  2308]
              Number of Calls in Disk Buffer...[    10]
              7 digit Calls in Disk Buffer.....[    10]
              Calls below minimum threshold....[     0]


                          CALL MONITOR
                    Monitoring calls after costing.
TIME  DUR   EXT  TRUNK REGION DIALED NUMBER TYPE  ACCOUNT CODE  COST
----- ----- ---- ----- ------ ------------- ----- ------------ ------
14:05 00:05 105  801          385-7447      LOCAL              $ 0.00
```

Figure 3-2. Sample Call Processing Monitor Screen

Although calls are collected in the background, they are not processed unless the CALL PROCESSING MONITOR *is on display. Since the size of the input buffer is limited to 64,000 records and available disk space, you should process calls regularly.* ***In particular, process calls before printing reports, otherwise calls remaining in the input buffer will not be included in your reports.***

The following list describes all fields in figure 3-2.

- `Call Storage Options` displays the local call and call duration screening values specified via the `Call Processing Options` (documented in this chapter).

- `Call Output Options` displays the current print options for monitored calls and for calls that exceed the cost and duration thresholds (specified via the `Call Processing Options`).

  If your printer is not ready when a print option executes, calls will be buffered and the message `Printer Not Ready` will appear on display. Call processing resumes when the printer responds again. The message, however, will remain on display until you exit and re-enter the `Call Processing Monitor`.

- `Call Volume Statistics` shows current information:

  — The `Number of calls in disk storage` show the size of your call record database.

  — The `Number of calls in disk buffer` show how many calls are waiting to be processed.

  — The `7-digit calls in disk buffer` show how many calls dialed with 7 digits are waiting to be processed.

  — The `Calls below minimum threshold` indicates how many calls are discarded because they are shorter than the minimum duration storage option. (If the number shown is high, check the threshold — you may be discarding valid calls).

- `Call Monitor` displays calls as they are processed — "as received from the telephone system" or "after costing."

  Monitored calls "after costing" do not include adjustments specified through the `Cost Adjustments Parameters` (documented in this chapter).

Call Processing Configuration

Use this function to set the screening, printing, and monitor features used at the time calls are processed. The current options will appear on the CALL PROCESSING MONITOR display.

To do so, proceed as follows:

1. From the Processing menu, select Call Processing Configuration.

2. Press <Q>uery <ESC>. A display similar to the figure below appears.

```
----------------------< CALL PROCESSING CONFIGURATION >-----------------------

 Press <Q>uery <ESC> to display current option values.
 Press <U>pdate to change the current option values.


          Call Storage Options                    Call Output Options
 ------------------------------------   ----------------------------------
 Store all local calls..............[Y]   Print Monitored calls.............[Y]
 Store any call whose duration            Print any call whose duration
   is greater than (seconds).....[  30]     is greater than (minutes)...[  60]
                                          Print any call whose cost
                                            is greater than (cents)...[100000]


                             Call Monitor Options
 ------------------------------------------------------------------------------
 Monitor Calls.....................[B]   Note - Some calls may not be
   as received fro telephone system..A       monitored with option A.  (All
   after they have been processed....B       calls will be stored.)


 Press <B>ye to leave this procedure.
```

Figure 3-3. Sample Call Processing Options Screen

3. To change values, press <U>pdate and enter values for the fields that follow. When complete, press <ESC>.

- `Call Storage Options`. Used to discard short duration and/or local calls.
- `Call Output Options`. Used to print all calls or calls above the specified duration (`0` to `32000` seconds) and/or cost (`0` to `32000` cents). Use this feature to call attention to very costly or lengthy calls.

  Be sure to keep printer ready and on-line. Laser printers will not print until a full page is received by the printer.
- `Call Monitor Option`. Used to display calls on the `Call Processing Monitor` either as received from the switch or after their costs have been computed.

4. To exit, press <B>ye. This completes the procedure.

Rate Table Edit

Use this function to look up any one of your carriers' rates for a specific area code/exchange in the U.S or country code abroad.

We do not recommend using `Edit Rate Tables` for updating your rates. You can obtain greater costing accuracy, especially for local and in-state calls, by installing a customized call rating update.

To look up a carrier's rates to a dialed number:

1. From the `Processing` menu, select `Rate Table Edit`. A screen similar to figure 3-4 appears.

2. Press <C>hange carrier to select rate tables for the carrier or carrier service of interest.

   The `Carrier` field cycles through the code-name for the built-in carriers' direct and operator assisted rate schedules. Systems with custom rates may show, for example, ATT and ATTOA, for AT&T's direct dial and operator-assisted rates.

```
                              RATE TABLE EDIT

NPA/NXX: 716/385   Carrier:ATT    Tariff:usa.os-ol   Call Type: OS-OL

                                                Period:
                                            Surcharge: 0.000
  ---------- BANDS  ----------           Minimum charge: 0.00
             Initial  Add'l
  Mileage    60 sec   60 sec             ---PERCENTAGE DISCOUNT---
       10    0.260    0.190              Rate Period Specific Billing
      292    0.260    0.190              Start
      430    0.310    0.260               Time   M-F  Sat  Sun  Hol
     1910    0.310    0.260               8:00     0   60   60   60
     3000    0.370    0.290              17:00    40   60   40   40
    16000    0.430    0.340              23:00    60   60   60   60


<Q>uery <C>hange carrier <N>ext <P>revious <U>pdate <B>ye
```

Figure 3-4. Sample Rate Tables Edit Screen

3. To find the rates to a specific calling area:

   a. Press <Q>uery.

   b. In the NPA/NXX field, enter a valid area code and exchange separated by a slash (/) for long distance domestic calls (for example, **315/458**) or the country code for international calls (for example, **011/044** for the United Kingdom).

   c. Press <ESC>.

   The appropriate table appears on display, with an arrow by the mileage band for that area. For example, it may show:

```
NPA/NXX: 315/458
---------- BANDS ----------
          Initial  Add'l
 Mileage  60 sec   60 sec   --------- DISCOUNT ---------
       10 0.260    0.190    Rate Period Specific Billing
  -> 292  0.260    0.190    Start
      430 0.310    0.260    Time    M-F   Sat    Sun   Hol
     1910 0.310    0.260     8:00   Day  Nite   Nite   Hol
     3000 0.370    0.290    17:00   Eve  Nite    Eve   Hol
    16000 0.430    0.430    23:00  Nite  Nite   Nite  Nite
```

4. Use this display to calculate the cost of a call to that area code/exchange — for example, a 10-minute call placed on a Friday at 6:00 pm:

Initial minute	$	0.26	(under BANDS-Initial)
Plus 9 additional minutes	+	1.71	(under BANDS-Add'l)
Subtotal	$	1.97	
Less 40% discount	-	0.79	(under M-F discount)
Cost of call	$	1.18	

5. To edit the table on display, press <U>date and change values for the fields that follow. When complete, press <ESC>.

   User-modified tables are not covered by your maintenance contract. To obtain greater costing accuracy, we recommend a custom rate update package.

   - `Bands`. The rates for the *period* (see below) in tabular form. Rates are specified in dollars to three decimal places for each initial and additional time intervals. Time intervals are expressed in whole seconds.

   - `Period`. The name of the rate period.

     — A blank if the tariff specifies rate period discounts as a % of standard rates. In this case, the bands contain the standard rates and the discount table contains the specific % discount values.

     — The names `DAY`, `EVE`, `NITE` (or `STD`, `DISC`, `ECON`), and `HOL`. In this case, the bands contain the rates of the specified period and the discount table displays the rate period names.

   - `Surcharge/Minimum Charge`. Flat rates expressed in dollars to three decimal places — used typically to set local message unit rates — according to the formula:

     Call cost = the greatest of (a) *minimum charge* or (b) call cost less applicable discount plus *surcharge.*

   - `Discount`. The display of specific discount values or rate period names in tabular form (if the discount for a rate period is applied only to the portion of a call within that period, the title `Rate Period Specific Billing` appears; otherwise, discounts in effect at the start of the call are applied to the entire call).

6. To end the procedure, press <B>ye.

Holiday Table

Use this function to specify (and then look up, change or remove) the holidays during which rates are discounted. *The default list of holidays includes most American Holidays.*

1. From the `Processing` menu, select `Holiday Table`.

2. Press <Q>uery <ESC>. A display similar to the figure below appears.

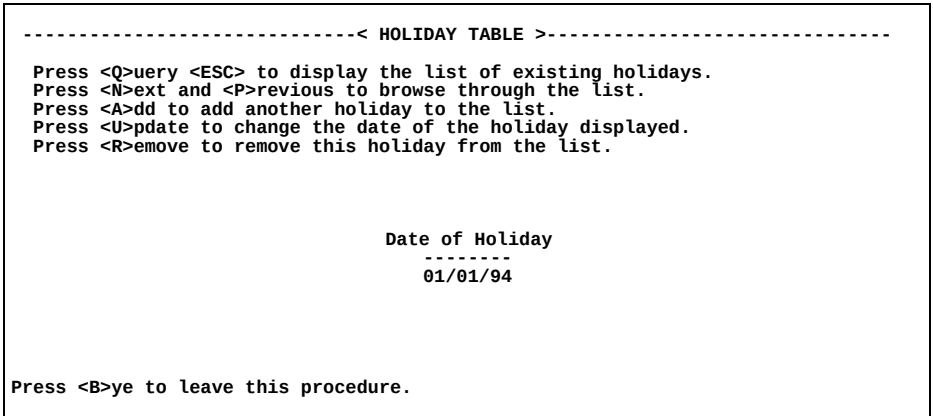


Figure 3-5. Sample Holiday Table Screen

3. To view the list of dates, press <N>ext or <P>revious.

4. To create a new holiday, press <A>dd, enter a date in the format *mm/dd/yy* , and press <ESC>.

5. To remove a date on display, press <R>emove and then, <Y>es to confirm.

6. To end the procedure, press <B>ye.
   .

Dialed Digit Processing

Use this function to identify dialed number patterns that require special processing in order to be properly interpreted and costed.

Dialed digit processing (DDP) occurs as soon as AT&T CAS Plus V3.1.1 receives a call record and identifies its access code. At this point, the system checks if the call is dialed in any of the specified number patterns and/or access codes and, upon a match, it will perform one of the following actions — as instructed in the table:

- Discard the call
- Cost the call:
  - — At a specified rate per minute or per call
  - — As if dialed through another access code
  - — As if dialed using a substitute dialed number pattern

  If not discarded, the call may be reported under a specified call type and/or the substitute dialed number.

They system includes a default DDP table with entries that take care of most dialed number exceptions and may not require any additions or corrections (see the table on the next page):

- "0+" calls (except international direct dial "011" calls) are given the call type name ZER0+.
- Calls to directory assistance, "dial-it" services, 800, and 900 service numbers are costed at special rates (these values should have been updated at installation, as they may vary for each locality); the call type is set to SPCL.
- Calls dialed using less than 7 digits are discarded (these values should have been removed at installation if you use and want to report station-to-station calls).

Default Dialed Digit Processing Table								
SEARCH FOR		**COST AS**						
Dialed Digits	**Access Code**	**Cost Method**	**Rate (cents)**	**Dialed Digits**	**Substitute Digits?**	**Access Code**	**Call Type**	**Comments**
0%		A	0		N		ZERO+	*Operator assisted*
011????????&		A			N			*International*
411		C	43		N		SPCL	*Local information*
?411		C	43		N		SPCL	
911		C	0		N		SPCL	*Emergency number*
?11		C	0		N		SPCL	*General x11 services*
5551212		C	43		N		SPCL	*Local information*
?5551212		C	43		N		SPCL	
???5551212		C	60		N		SPCL	*Long distance information*
????5551212		C	60		N		SPCL	
800???????%		C	0		N		SPCL	*Toll free numbers*
1800???????%		C	0		N		SPCL	
900???????%		M	50		N		SPCL	*900 service numbers*
1900???????%		M	50		N		SPCL	
976????		M	50		N		SPCL	*Dial-it local services*
?		D			N			*Incompletely dialed calls*
??		D			N			
???		D			N			
????		D			N			
?????		D			N			
???????		D			N			

Other cases when you should use DDP are:

- To identify inbound calls with Caller Number Information, CAS Plus V3.1.1 adds the "*" and/or "#" characters to the dialed digits on incoming calls. The CALLER IDENTIFICATION is available when switches are equipped with special features, typically a Primary Rate Interface for an ISDN Link. Refer to the *Table of Special Cases in Dialed Digit Processing* for details.

- The switch reports "speed dialed" codes instead of the actual number.

- The switch reports extra digits dialed for voice mail messages.

- When using TIE or private network lines, the switch outputs digits in the dialed number field that are not valid phone numbers — for example, RNX codes for on-net calls or access codes in a tandem or remote access call.
- You want to mask sensitive phone numbers.
- You use a PBX/KTS interface that supports ISDN and you want to report incoming calls with Automatic Number Identification information.
- You want to add a new area code and/or exchange (typically, adjacent to an existing one, from which it evolved by a split).

To view or change the DDP table, proceed as follows:

1. From the `Processing` menu, select `Dialed Digit Processing`.
2. Press <S>creen, then, <Q>uery <ESC>. A display similar to the figure below appears.

```
-------------------------< DIALED DIGIT PROCESSING >-------------------------

 Press <Q>uery <ESC> to display the list of Dialed Digit Patterns.
 Press <N>ext and <P>revious to browse through the list.
 Press <U>pdate to change the current entry.
 Press <A>dd to add a new entry.
 Press <R>emove to remove the entry currently displayed.

 Search for:  Dialed Digits..............[1???5551212   ]
              Access Code.....................[     ]

 Cost as:     Cost Method.............................[C]
                Rate (cents per min or per call)..[60    ]
                Dialed Digits.............[1???5551212   ]
                Access Code.....................[     ]
                Substitute Dialed Digits?.............[ ]
              Call Type.........................[SPCL ]


 Press <B>ye to leave this procedure.
```

Figure 3-6. Sample Dialed Digit Processing Screen

3. To view entries one at time, press <N>ext and <P>revious.

4. To change or remove the entry on display, perform one of the following:

   a. Press <U>pdate, move to the field of interest, type over the new value, and press <ESC>.

   b. Press <R>emove and then, <Y>es to confirm.

5. To create a new definition, press <A>dd, and enter values for the fields listed below.

   ⇒ See the table at the end of this section to cover the special DDP cases mentioned earlier.

6. To end the procedure, press <B>ye.

The list below describes all fields in figure 3-6:

- `Search for`. The `Dialed Digits` and/or `Access Code` that require additional processing:

  — `Dialed Digits` is the dialing pattern defined as a sequence of up to 15 digits (**0** - **9**) and/or **#** and *****. Use **?** and **%** as wild cards:

  ? represents any single character in that position. For example, "385???? " is any 7-digit number with 385 as a local exchange.

  % represents any number of trailing characters. Use only at the end of the pattern. For example,"0%" is any number starting with 0.

  — `Access Code` should be blank, unless you want to flag specific facilities such as TIE lines or private networks — in which case, it is a valid dial access code in the Telephone System Configuration.

- `Cost as`. The costing and replacement instructions for processing calls that match the `Search for` conditions:
  - `Cost Method`. One of the following choices:
    D = discard call
    M = cost at the specified *rate* per minute
    C = cost at the specified *rate* per call
    A = cost using the *dialed digits* or *access code* below
  - `Rate.` Used with *cost method* "`M`" or "`C`" only. **`0`** to **`32000`** cents per minute or call.
  - `Access Code`. Used with *cost method* "A" only. Leave blank to cost by the facility actually used, but with the *dialed digits* specified above. To cost as if another facility was used, enter that facility's dialed access code.
  - `Dialed Digits.` A dialing pattern, up to 16 digits, to define replacement rules for the `Search for` pattern:
    - Every digit represented by a **?** in the search pattern is matched to a **?** a **.** (period) in the replace pattern by its position from the left (first, second, etc.). For example, replacing **?385????** with **.385????** results in 1-385-6440 reported as (local) 385-6440.
    - Trailing digits represented by a **%** in the search pattern are matched to a **%** in the replace pattern (if a **%** is not present in the replace pattern, the digits are dropped). For example, replacing **10222%** with **%** results in 10222-1-716-385-6440 (MCI) reported as (AT&T) 1-716-385-6440.
    - If there are less **?**s to replace the search pattern, the right-most matches are discarded. For example, replacing **?385????** with **385????** results in 1-385-6440 reported as 385-1644.
  - `Substitute Dialed Digits?` **Y** (yes) stores and reports the number entered in the "cost as" pattern; **N** (no, default) retains the number reported by the switch.
  - `Call Type.` The name of a valid call type, as you wish it to appear on reports. A blank uses the name associated with the call as dialed.

Built-in call type names are:

ABN	abandoned call	LATA	7- and 8-digit calls
ANI	incoming ANI call	LOCAL	local
ANIAB	abandoned ANI call	MTS	long distance
IDDD	international direct dial	OS-IL	out-of-state, in-LATA
INCOM	incoming	OS-OL	out-of-state/LATA
IS-IL	in-state/LATA	SPCL	special
IS-OL	in-state, out-of-LATA	WATS*n*	WATS band *n*=0 - 6
IWTS*n*	inWATS band *n*=0 - 6	ZERO+	operator assisted

Other call types are derived from the *facility name* (other than "CO") in the Telephone System Configuration.

Table of Special Cases in Dialed Digit Processing

Special Case	SEARCH FOR		COST AS					
	Dialed Digits	Access Code	Cost Method	Rate	Dialed Digits	Access Code	Sub. Digits?	Call Type
Speed dialed "code" instead of "number"	*code*% eg: **#30%**	(*)	A		*number*% eg: **10288%**		Y	
Network call: off-net "code" in dialed number	*code*% eg: **#18%**		A		%		Y	
Network call: local on-net call does not have exchange (xxx)	**????**		A				Y	
Network call: "RNX" code in dialed number instead of the area code (npa) and exhange (nxx)	*RNX***????** eg: **333????**		A		*npanxx***????** eg: **716385????**		Y	
Mask sensitive phone numbers			A				Y	
Switch with ISDN adds "*" (ANI calls) to dialed number	**???????* ??????????***		A		**??????? ??????????**		Y	**ANI**
(*) Use network dialed access code.								

For switches which support intra-switch SMDR (or internal call SMDR), be sure to delete the default Dialed Digit Processing entry for an incompletely dialed number. This is usually the 3- or 4-digit entry.

Cost Adjustment Parameters

Use this function to view or change the values by which the system adjusts the cost of calls, according to its type.

Adjustments are necessary, for example, to add local taxes, mark up or discount calls in reselling telephone services, or to correct the call duration reported by switches without answer supervision.

System defaults result in no adjustments to incoming calls; outgoing calls of less than a 30-second duration are discarded. If a call is not discarded, its duration is reduced by 15 seconds.

To view or change cost adjustments, proceed as follows:

1. From the `Processing` menu, select `Cost Adjustment Parameters`.

2. Press <Q>uery <ESC>. A display similar to the figure below appears.

```
------------------------< CALL TYPE COST ADJUSTMENTS >-------------------------

Press <Q>uery <ESC> to view the list of existing Call Types.
Press <N>ext and <P>revious to browse through the list of Call Types.
Press <U>pdate to change the cost adjustment values for the Call Type displayed.


                                   Call Type
                                 --------------
                                 Name....[ZERO+]


                                 Cost Adjustment
                          ---------------------------------------
                         Tax (%).........................[0   ]
                         Markup (%)......................[-100]
                         Surcharge (cents)...............[0   ]
                         Minimum Charge..................[0   ]
                         Minimum Duration (seconds)......[30  ]
                         Network Correction (seconds)....[15  ]


 Press <B>ye to leave this procedure.
```

Figure 3-7. Sample Cost Adjustments Parameters Screen

Do not remove any Call Type Cost Adjustment records.

3. To view table entries one at time, press <N>ext and <P>revious; to change the display, press <U>pdate, move to the field of interest, type over a new value, and press <ESC>.

- `Call Type`. The type of call dialed. Built-in call types:

ABN	abandoned call	LATA	7- and 8-digit calls
ANI	incoming ANI call	LOCAL	local
ANIAB	abandoned ANI call	MTS	measure traffic service
IDDD	international direct dial	OS-IL	out-of-state, in-LATA
INCOM	incoming	OS-OL	out-of-state/LATA
IS-IL	in-state/LATA	SPCL	special
IS-OL	in-state, out-of-LATA	WATS*n*	WATS band *n*=0 - 6
IWTS*n*	inWATS band *n*=0 - 6	ZERO+	operator assisted

  Other call types are derived from the *facility name* (other than "CO") in the Telephone System Configuration.

- `Tax` (0 to 100 %), `Markup` (-100 to 100 percent), `Surcharge` (-9999 to 9999 cents), `Minimum Charge` (0 to 32000 cents) — applied as in the formula below (these values are newly computed prior to every report run, without modifying the stored cost).

  Reported cost = the largest of (a) *minimum charge* or (b) adjusted cost, where adjusted cost = (call cost + (call cost x *markup* x 0.01) + *surcharge*) x (1 + (*tax* x 0.01))

- `Minimum Duration`. A length of time in seconds (0 to 32767) that defines a valid call. Call records with a duration lower than this value are discarded.

- `Network Correction`. A length of time in seconds (0 to 180) subtracted from the duration of a valid call, to account for the time before it is answered. This is done in calculating and storing the cost of the call only; call records are stored with the duration reported by the switch.

4. To end the procedure, press <B>ye.

Carrier Information

Use this function to view or change the dialed code to access the services of long distance carriers from your site.

If you have Equal Access, do not change this information.

1. From the Processing menu, select Carrier Information.
2. Press <Q>uery <ESC>. A display similar to the figure below appears.
3. a. To view table entries one at time, press <N>ext and <P>revious.
   b. To change the display, press <U>pdate, move to the field of interest, type over a new value, and press <ESC>.

```
----------------------------< CARRIER INFORMATION >---------------------------

 Press <Q>uery <ESC> to display the list of carriers.
 Press <N>ext and <P>revious to browse through the list of carriers.
 Press <U>pdate to change the information about the carrier currently displayed.


                                  Number of Authorization
    Carrier Name     Dialing Prefix       code digits         Carier Code
       -----             -----               -----               ---
        ATT             [10288]             {0    ]             [0   ]




 Press <B>ye to leave this procedure.
```

Figure 3-8. Sample Carrier Information Screen

The list on the next page describes all fields in figure 3-8.

- Carrier Name. (Display only) If you have custom rates, this is the name of a long distance carrier whose tariffs have been included as part of the rate customization for your system. Call AT&T Customer Support (1-800-422-6622) should you have any questions about your carrier.

- `Dialing Prefix`. In Equal Access areas, this is the 10*xxx* or 101xxxx code that you dial to access the carrier's network (do not change this entry); in areas without Equal Access, this is the carrier's local phone number — typically, a 950*xxxx* number.

- `Number of Digits in Authorization Code`. In Equal Access areas, this should be zero (0); in areas without Equal Access, this is the length of the account number with that carrier — typically, a 14-digit code.

- `Carrier Code.` (Display only) The internal code numbers for your primary carrier (`0`) or secondary carrier (`2`).

Telephone System Configuration

The Telephone System Configuration is structured as a hierarchy of facilities, access codes, and trunk lines — following a typical way of programming trunk access at the switch. This information is closely tied to how calls using those facilities should be costed.

⇛ Trunking data is switch-specific. The *PBX/KTS Interface Help* printed when executing `Reselect PBX/KTS Interface`, describes your specific requirements.

The diagram below shows a sample grouping of trunk information.

Facility Name	Code Access	Scheme Billing	Trunk Line
CO	9	by rate tables	901, 902, 903, 904, 905, 906
WATS4	80	6¢/minute	80, 811, 812
FX-NY	70	13¢/minute	70, 701

To edit the Telephone System Configuration, proceed as follows:

1. From the `Processing` menu, select `Telephone System Configuration`.

2. Press <S>creen, then <Q>uery <ESC>. The `FACILITY` screen appears on display.

   a. To change or remove an entry and/or its details, press <N>ext or <P>revious to bring it to the screen.

   b. To create a new facility, press <A>dd, enter its name as described in the list at the end of the procedure, and press <ESC>. Proceed directly to step 4.

3. To change the display, press <U>pdate, enter a new name, and press <ESC>.

   To remove the entry on display, remove its details first, then press <R>emove and confirm by pressing <Y>es.

   ⇛ *Do not remove the facility* `CO`*; it is used to cost calls routed through undefined trunks.*

4. To add, change, or remove facility details, press <D>etail. The `ACCESS CODE` screen appears on display.

   a. To create a new entry, press <A>dd, enter an access code, and press <ESC>.

   b. To change the display, press <U>pdate, enter a new access code, and press <ESC>.

   c. To remove the entry on display, remove its details first, then press <R>emove and confirm by pressing <Y>es.

      ⇛ *Do not remove the access code* `NONE`*; it is used to cost calls routed through undefined trunks.*

5. To return to the facility level, press <M>aster and go to step 2a or 2b; to add, change, or remove details, press <D>etail.

6. The `TRUNK LINE` screen (see Figure 3-9) appears on display.

   a. To update an existing entry, press <N>ext or <P>revious to bring it to the screen. Press <U>pdate and tab to the field you wish to change. Press <ESC> to confirm the update.

   b. To create a new entry, press <A>dd, enter a trunk, and press <ESC>. Proceed directly to step 8.

```
--------------------------------< TRUNK LINE >--------------------------------

 Press <N>ext and <P>revious to browse through the list of Trunk Lines.
 Press <A>dd to add a new Trunk Line to the Facility and Dial Access Code shown.
 Press <U>pdate to change the value of the Trunk Line currently displayed.
 Press <R>emove to remove the Trunk Line currently displayed.


                     Facility  Dial Access Code   Trunk Line
                       -----         -----           -----
                         CO            9            {901 ]



 Press <M>aster to select a different Access Code.
 Press <B>ye to leave the Facilities-Access Code-Trunk procedure.
```

Figure 3-9. Sample Trunk Line Screen

7. To remove the entry on display, press <R>emove and confirm by pressing <Y>es.

   ⇒ *Do not remove the trunk/line* ???????; *it is used to cost calls routed through undefined trunks.*

8. To return to the dial access code level, press <M>aster and go to step 4; to end the procedure, press <B>ye.

The following list describes all fields in figure 3-9.

- `Facility.` The name — 1 to 5 characters long — of a telephone service. Names other than "CO" will be used to report the call type. We suggest entering names that are descriptive (for example, **FX-LA** is an FX line to Los Angeles).

  ⇒ "CO" is used for the services provided by your local and long distance carriers, which are costed by the rate tables built for your system. Also, the names ABN, ANI, ANIAB, IDDD, IS-IL, IS-OL, LATA, LOCAL, MTS, OS-IL, OS-OL, SPCL, and ZERO+ are reserved for call type names and may not be used.

- `Access Code.` This is an arbitrary number (`0` to `9999`) that you associate with the group of trunks in this facility (typically, a number identical to the *trunk line*) . AT&T CAS Plus V3.1.1 ties this facility's access code to a billing scheme — carrier's rates or flat rates per minute or call — via the `Update Facilities Cost` function.

- `Trunk Line.` The identifier (`0` to `9999999`) reported by the switch and interpreted by the PBX/KTS Interface for the route of a call.

  Calls reported by the switch as using trunks not included in the Telephone System Configuration will be treated as `CO` *calls with Access Code* `NONE` *and question marks* (?) *for the trunk.*

Update Facilities Cost

Use this function to identify the costing method associated with a facility, for calls that do not require Dialed Digit Processing. CAS Plus V3.1.1 uses these methods:

- Costing by a rate per minute or per call, regardless of the dialed number. This is typical of facilities with dedicated trunks such as TIE, FX, or WATS — in which the cost of a single call or a minute's usage must be averaged from last month's bill.

- Costing by rate tables, depending on the dialed number. If the number was dialed directly, the system uses the rates of the carrier shown on the `UPDATE FACILITIES COST` screen. Otherwise, the system uses the rates of the carrier whose code was dialed (identified in `Carrier Information`, documented in this chapter.)

To update the Facilities Cost table, proceed as follows:

1. From the `Processing` menu, select `Update Facilities Cost`.

2. Press <Q>uery <ESC>. A display similar to the figure below appears.

```
---------------------------< UPDATE FACILITIES COST >---------------------------

 Press <Q>uery <ESC> to view the list of existing Rates.
 Press <N>ext and <P>revious to browse through the list of Trunk Lines.
 Press <U>pdate to change the value of the Trunk Line currently displayed.


                                      Per Min     Carier     Carrier
   Facility   Access Code     Rate     or Call      Code       Name
     -----       -----       -----       ---        ---        ---
       CO         [22]       {-1  ]      [M]        [0]        ATT


 Notes:  A rate of -1 is used to indicate cost table costing.
         The primary carrier is the one used for 1+ dialing and is shown in
         the carrier code and carrier name fields.  If your system was generated
         with two carriers and you wish to change the primary carrier for this
         facility, change the carrier code to a 0 or 1 depending on its current
         value.

 Press <B>ye to leave the Facilities-Access Code-Trunk procedure.
```

Figure 3-10. Sample Update Facilities Cost Screen

3. To view the list of *facility names* and their associated *access codes,* press <N>ext or <P>revious.

4. To change the display, press <U>pdate, enter values for the fields listed below. When complete, press <ESC>.

   - `Rate.` The costing used: `-1` for rate table costing; for all others, a flat rate — `0` to `32000` cents — according to the rate type below. We suggest you average actual telephone bills over two or three billing periods.

   - `Per Call or Minutes.` The costing associated with the flat rate specified above — either `C` (per call) or `M` (per minute).

   - `Carrier Code.` The numbers `0`, `1`, `2`, or `3`. `0` is used for the primary carrier.

5. To end the procedure, press <B>ye.

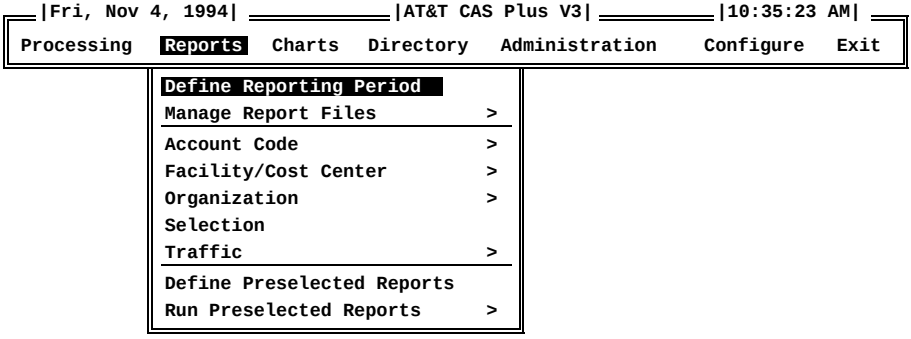
Reports

4

This chapter describes all report and chart generating functions.

It is organized into sections following the `Reports` menu — preceded by a general section on reporting options, and followed by the sections on *Charts* and *Application Tips*.

The `Reports` menu appears below:



General Information About Reports

CAS Plus V3.1.1 offers a variety of reporting options to meet practically all your information needs.

You can produce reports on demand via the individual report generating functions and through the preselected reports. All output can be sent to the terminal screen, the system printer, or saved to a file; some report files may be reformatted for export to other software programs.

Summary reports have graphic representations — these are available by generating the individual report into a file, then requesting the report via the individual chart generating function.

All reports — except the Selection Report — include calls within the range of dates established via the reporting period definition function; the Selection Report allows ad hoc definition for date range.

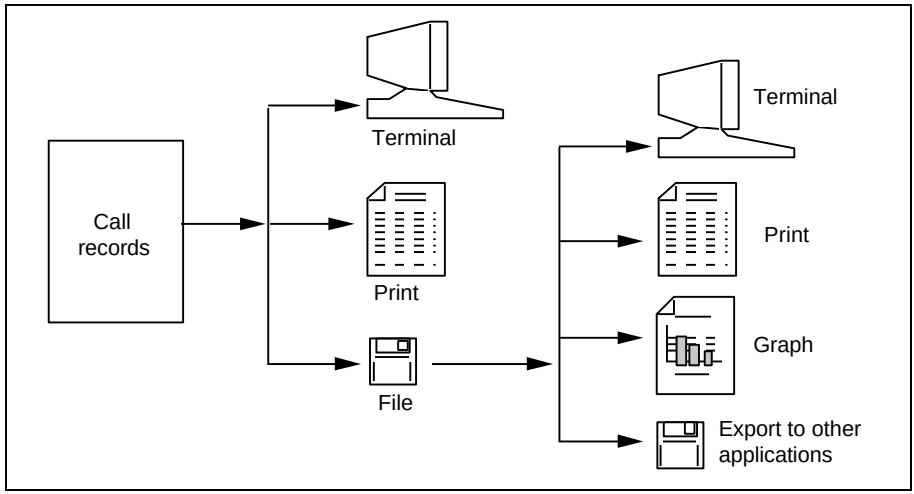


Figure 4-1. CAS Plus V3.1.1 Reporting Options

Define Reporting Period

Use this function to set the reporting period for all Account Code, Facility/Cost Center, Organization, Preselected, and Traffic Reports. Calls within this period will be included in the report.

Make certain the reporting period is up-to-date, particularly after a scheduled Preselected Report prints does not increment the dates to cover next period's calls).

1. Select `Define Reporting Period` from the `Reports` menu.

2. Press <Q>uery <ESC>. A screen similar to the figure below appears.

```
------------------------<Define Reporting Period>------------------------

Press <Q>uery <ESC> to display the current reporting period.
Press <U>pdate to change the reporting period.


       Reporting Period......... A. All Calls
                                 B. User defined interval

       Reporting Period......... [B]


       Start at 12:00 AM on....  [10/01/1994]
       End at 11:59 PM on......  [10/31/1994]



Press <B>ye to leave this procedure.
```

Figure 4-2. Sample Define Reporting Period Screen

3. Press <U>pdate and enter values for:

   - `Reporting Period`. **A** for all calls in storage (default setting) or **B** for the interval specified below.
   - `Start at 12:00 AM on`... and `End at 11:59 PM on`... Enter the beginning and ending dates as *mm/dd/yy* — for example, **`10/01/94`** and **`10/31/94`**.

4. When complete, press <ESC>. Press <B>ye to exit.

Manage Report Files

Reports and table listings may be saved to a file at the time they are requested. This is done prior to generating its chart or to "export" it in a format usable by other applications. In addition, a chart itself may be saved to a file at the time it is requested.

Report files are created under the names listed below, in the directory `\m3usr\reports.dir`. Chart and export files append the extension `.grf`, `.wk1`, or `.asc` to the name of an existing file.

Report Name	Report File	Chart	WK1 Export	ASCII Export
Account Code Detail Report	acnt-det		.wk1	.asc
Account Code Summary Report	acnt-sum	.grf	.wk1	.asc
Account Code Table	acnt-tbls			
All Facilities Report	alf-sum	.grf	.wk1	.asc
All Organization Summary Reports	org-sum			
All Traffic Reports	traf-sum			
Area Code Traffic Report	ac-sum	.grf	.wk1	.asc
Call Type Traffic Report	ct-sum		.wk1	.asc
Cost Center Report	fcc-sum		.wk1	.asc
Cost Traffic Report	cost-sum	.grf	.wk1	.asc
Date Traffic Report	date-sum	.grf	.wk1	.asc
Directory by Extension	dir-ext			
Directory by Department	dir-dept			
Directory by Name	dir-name			
Directory Details	dir-det		.wk1	.asc
Duration Traffic Report	dur-sum	.grf	.wk1	.asc
Facility Report	fac-sum	.grf	.wk1	.asc
Organization Detail Report	org-det		.wk1	.asc
Organization Summary by Cost Center	cc-sum	.grf		
Organization Summary by Department	dept-sum	.grf		
Organization Summary by Extension	ext-sum	.grf		
Preselected Report # *n* (*n* = 1 to 5)	presel*n*			
Selection Report	sel-rpt		.wk1	.asc
System Tables Report	sys-tbls			
Time of Day Traffic Report	time-sum	.grf	.wk1	.asc
Trunk Traffic Report	tnk-sum	.grf	.wk1	.asc

One file per report type is created; subsequent saves overwrite an existing file unless you rename the original file via the `Copy` *function described below.*

To use the *Manage Report Files* functions, proceed as follows:

1. From the `Reports` menu, select `Manage Report Files` and proceed to step 2a, 2b, 2c, 2d, 2e, or 2f, as appropriate.

2. Select:

   a. `List` to display a list of all report files, their file size and the date and time created.

   b. `View` or `Print` to display any report on file or to print any report or chart on file. Enter the file name.

   c. `Copy` to rename any report file or to copy it to another directory or to a diskette. Enter the original file name and the new file name. After the copy, the system allows you to delete the original file.

      Renamed report files are not accessible to chart or export functions.

   d. `Delete` to remove a file. Enter the file name and confirm the deletion.

   e. `Export to WK1 Format` to translate a report into a format usable by the Lotus 1-2-3 program. The output is renamed "*report*`.wk1`".

   f. `Export to ASCII Format` to translate a report into a flat ASCII format — lines of text with variable length fields, each field terminated in a pipe (`|`) symbol. The output is renamed "*report*`.asc`".

3. When complete, press <ENTER> and if necessary, <B>ye, to return to the menu.

Account Code Reports

The two account code reports available are used to allocate telephone charges to the *account code* associated with the call (some installations use *authorization codes*, instead; this depends on which feature your switch reports and which *PBX/KTS interface* you selected at installation). Sample reports appear in appendix A.

- The `Account Code Summary Report` lists all active accounts in alphanumerical order (that is, account "10000" lists before "200"). It provides the account name, total number of calls, duration, and cost for each account. This report may be saved to a file, then generated as a chart.
- The `Account Code Detail Report` lists itemized records of every call associated with active accounts, sorted chronologically, with optional page breaks between account codes.

⇛ *Only processed calls within the current reporting period appear in a report. Before requesting a report, make certain that the reporting period is correct. See Define Reporting Period in this chapter for details.*

The detail report prints in a 132-column format. If you do not have a wide-carriage printer, make certain that the printer control parameters are correct. See Printer Control Parameters in chapter 7 for details.

To generate an Account Code Report or Chart, proceed as follows:

1. From the `Reports` menu, select `Account Code`, and then, your choice of `Summary` or `Detail`.

2. If you selected `Detail`, a display similar to figure 4-3 appears. Press <Q>uery <ESC>, then:

   a. To change values, press <U>pdate, then <Y>es or <N>o, and <ESC>.

   b. Press <B>ye, then enter <Y>es to run the report.

```
----------------------< ACCOUNT CODE DETAIL REPORT >----------------------

Press <Q>uery <ESC> to view current report selection.
Press <U>pdate to change report selection.


Begin a new page after each account code total? (Y/N)?.............[Y]




Press <B>ye to leave this screen and generate the report.
```

Figure 4-3. Sample Account Code Detail Report Screen

3. The display now prompts: `Output to Printer, File, or Screen (P/F/S)?` Enter <P>rint, <F>ile, or <S>creen, as appropriate. (For a summary report's chart, enter <F>ile.)

   Use the Screen option only on reports shorter than a page. For larger r e-ports, view them via the File option. Take care, however, that you have enough space on your hard disk before sending a detail report to a file.

4. To generate charts for a summary report saved to a file:

   a. Press <ESC> to return to the main menu, select `Chart`, then `Account Code`.

   b. The screen will display the chart of the original file (`acnt-sum`) and will offer the option to print or save in printer format to a file named `acnt-sum.grf` or advance it to the next chart. Enter your choice.

   This completes the procedure.

Facility/Cost Center Reports

The following Facility/Cost Center reports are available:

- The `Facility Report` provides individual subreports for each facility defined in the Telephone System Configuration. Each subreport is paginated by department, listing every cost center under this department. Each line lists a cost center with the total number of calls, duration, cost, and % usage* of the facility within the reporting period.

- The `Cost Center Report` provides individual subreports for each cost center in your Organization. Each subreport lists every facility in the Telephone System Configuration. Each line lists a facility and trunk reference, with the total number of calls, duration, cost, and % usage* by this cost center within the reporting period. The trunk reference displays the first entry in the Telephone System Configuration under the facility.

- The `All Facilities Report` provides individual subreports for each department in your Organization Table. Each subreport lists the distribution (as a % usage*) of calls made by its cost centers, within the reporting period.

  This report accommodates up to 18 facilities across a 132-column format and up to 9 facilities, otherwise. If there are more facilities than the printer can fit across a page, they will print in consecutive pages.

Sample reports appear in appendix A.

* % usage = total facility duration for Cost Center ÷ total facility duration for all Cost Ce nters.

Only processed calls within the current reporting period appear in a report. Before requesting a report, make certain that the reporting period is correct. See Define Reporting Period in this chapter for details.

To generate a Facility/Cost Center Report or Chart, proceed as follows:

1. From the `Reports` menu, select `Facility/Cost Center`, and then, your choice of `Cost Center, Facility`, or `All Facilities`.

2. The display now prompts: `Output to Printer, File, or Screen (P/F/S)?` Enter <P>rint, <F>ile, or <S>creen, as appropriate. (For a summary report's chart, enter <F>ile.)

   Use the Screen option only on reports shorter than a page. For longer reports, view them via the File option .

3. To generate charts for a report saved to a file:

   a. Press <ESC> to return to the main menu, select `Chart`, then your choice of `Facility`, or `All Facilities`.

   b. The screen will display the date and time of the original file ("***report***") and will offer the option to print or save in printer format to a file named ***report.*****`grf`** or advance to the next chart.

   This completes the procedure.

   The central office facility is reported as `CO LOCAL` (or `CO-LOC`), `CO INCOMING` (or `CO-INC`), and `CO LONG DISTANCE` (or `CO-LD`). Systems without custom rates will find local calls included in the long distance summaries.

Organization Reports

The following Organization Reports are available:

- The `Organization Summary by Department` (or `by Cost Center`, or `by Extension`, or all three) lists all selected departments (and/or cost centers, and/or extensions within the selected departments) sorted in alphanumeric order. Each line provides the total number of calls, duration, and cost that match the time, cost, and type of call selected by you. These reports may be saved to a file, then generated as charts.

  These reports are useful for obtaining an overview of departmental telephone activity. Typical applications include chargebacks, tracking project costs, and productivity reports.

- The `Organization Detail Report` lists all the stored call record details matching the selection values, for each extension number under the selected department(s). Call records appear in ascending order by time and date, as received from the telephone switch.

  This report is useful for obtaining a complete list of departmental telephone activity and isolating how specific extensions are being used.

Sample reports appear in appendix A.

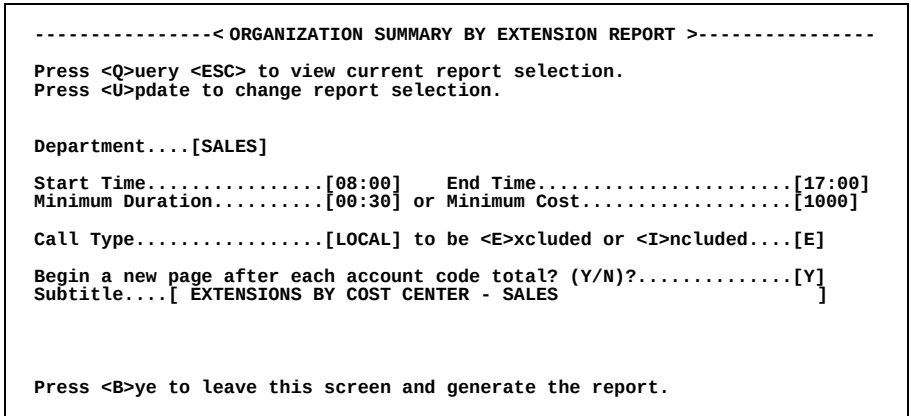
Only processed calls within the current reporting period appear in a report. Before requesting a report, make certain that the reporting period is correct. See Define Reporting Period in this chapter for details.

The detail report prints in a 132-column format. If you do not have a wide-carriage printer, make certain that the printer control parameters are correct. See Printer Control Parameters in chapter 7 for details.

The All Organization Summary Report function does not export to an ASCII or a WK1 file.

To generate an Organization Report or Chart, proceed as follows:

1. From the `Reports` menu, select `Organization`, and then, your choice of `Summary by Department`, `Summary by Cost Center`, `Summary by Extension`, `All Summary Reports`, or `Detail`.
2. Press <Q>uery <ESC>. A display similar to the figure below appears.



```
----------------< ORGANIZATION SUMMARY BY EXTENSION REPORT >----------------

Press <Q>uery <ESC> to view current report selection.
Press <U>pdate to change report selection.


Department....[SALES]

Start Time.............[08:00]    End Time.....................[17:00]
Minimum Duration.......[00:30] or Minimum Cost................[1000]

Call Type..............[LOCAL] to be <E>xcluded or <I>ncluded....[E]

Begin a new page after each account code total? (Y/N)?.............[Y]
Subtitle....[ EXTENSIONS BY COST CENTER - SALES                      ]



Press <B>ye to leave this screen and generate the report.
```

Figure 4-4. Sample Organization Report Screen

3. Press <U>pdate and enter values for the following fields:
   - `Department`. A valid department name. May use an asterisk (*****) as wild card — for example, **S*** includes all departments starting with "S." A blank means all departments.
   - `Start Time` /`End Time`. The time range is in 24 hour format.
   - `Minimum Duration` or `Cost`. Call duration (*hh:mm*) or cost (up to `32767` cents) filters. Leave a field empty ("`0`" appears when empty) if you wish not to filter calls by that criteria.
   - `Call Type to be <E>xcluded or <I>ncluded`. A valid call type for your system. To report all call types, leave the call type field empty and enter <E>xcluded.
   - `Begin new page after each total`. <Y>es or <N>o.
   - `Subtitle`. Up to 60 characters to print under the report header.

4. When complete, press <ESC>, then <B>ye and enter <Y>es to run the report. The display now prompts:

   ```
   Output to Printer, File, or Screen (P/F/S)? _
   ```

5. Enter <P>rint, <F>ile, or <S>creen, as appropriate. (For a summary report's chart, enter <F>ile.)

   Use the Screen option only on reports shorter than a page. For longer reports, view them via the File option. Take care, however, that you have enough space on your hard disk before sending a detail report to a file.

6. To generate charts for a summary report saved to a file:

   a. Press <ESC> to return to the main menu, select Chart, then Organization, your choice of Department, Cost Center, or Extension.

   b. The screen will display the chart of the original file ("***report***") and will offer the option to print or save in printer format to a file named ***report*.grf** or advance to the next chart. Enter your choice.

This completes the procedure.

Selection Report

The Selection Report is a versatile tool, used primarily to pinpoint details (or summarize trends) in problem areas discovered by other reports. A selection screen allows you to print a summary or detail report that match any combination of the following criteria:

- A range of dates, times, duration, extensions, and/or costs
- One or all trunk(s), account code(s), call type(s), called number(s), department(s), and cost center(s)

A detail report lists call records in ascending order by time and date. Sample reports appear in appendix A.

The detail report prints in a 132-column format. If you do not have a wide-carriage printer, make certain that the printer control parameters are correct. See Printer Control Parameters in chapter 7 for details.

1. From the `Reports` menu, select `Selection`.

2. Press <Q>uery <ESC>. A display similar to the figure below appears.

```
--------------------------<SELECTION REPORT >--------------------------

Press <Q>uery <ESC> to view current report selection.
Press <U>pdate to change report selection values.

              Date       Start/Time   Duration     Extension     Cost
            ----------     -------     --------     ---------    -------
Low         [10/01/94]     [00:00]     [00:00]       [0    ]     [0    ]
High        [10/31/94]     [23:59]     [23:59]       [9999]     [32767]

Trunk.....................[     ]      Area Code..................[   ]
                                       Exchange...................[   ]
Account Code...[                ]      Station Identifier.........[   ]

Print Detail or Summary .....[D]       Department...[                  ]
                                       Cost Center..[                  ]

Call Type.................[     ]


Press <B>ye to leave this screen and generate the report.
```

Figure 4-5. Sample Selection Report Screen

3. Press <U>pdate and enter values for the fields below. When complete, press <ESC>.

   - `Date Low/High`. Month, day, and year — from `1/01/85` to `12/31/99`.
   - `Start Time Low/High`. Hours and minutes in 24 hour notation — from `00:00` to `23:59`.
   - `Duration Low/High`. Hours, minutes, and seconds — from `0:00:00` to `23:59:00` (the max. recorded duration = `09:06:07`).
   - `Extension Low/High`. Valid extension numbers from the Organization Table — from `0` to `9999`.
   - `Cost Low/High`. Cents — from `0` to `32767`.
   - `Trunk`. A valid trunk number, up to 7 digits, from the Telephone System Configuration or a blank (all selected).
   - `Account Code`. A valid code, up to 16 digits, or the word `UNASSIGNED` (calls without account codes) or a blank (all).
   - `Print Detail or Summary`. <D>etail or <S>ummary.
   - `Call Type`. A valid call type or a blank (all).
   - `Area Code`, `Exchange`, and `Station Identifier`. The digits *npa* (area code), *nxx* (exchange), *dddd* (station) of a valid telephone number (*npa-nxx-dddd)* or blanks (all).
   - `Department` and `Cost Center`. Valid names from the Organization Table or blanks (all values selected).

4. Press <B>ye and enter <Y>es to run the report. The display now prompts:

   ```
   Output to Printer, File, or Screen (P/F/S)? _
   ```

5. Enter <P>rint, <F>ile, or <S>creen, as appropriate.

   Use the Screen option only on reports shorter than a page. For longer reports, view them via the File option. Take care, however, that you have enough space on your hard disk before sending a detail report to a file.

This completes the procedure.

Traffic Reports

The following Traffic Reports are available:

- The `Area Code Summary` provides the total number, duration, and cost, an average and % duration, and the cost-per-minute of calls to and/or from every area code routed via the facility selected. Area codes list in numerical order, followed by a line for each, "`LOCAL`," "`FOREIGN`," and "`OTHER`."
- The `Call Type Summary` provides call activity by all call types in your system. This report helps pinpoint facility usage.
- The `Cost Summary` sorts call activity by seven cost ranges. This report is helpful for highlighting expensive calls.
- The `Date Summary` gives you daily totals that show traffic variance for every day within the reporting period.
- The `Duration Summary` sorts calls by duration ranges to highlight the length of calls. This report helps analyze productivity levels or possible abuse.
- The `Time Summary` breaks down telephone activity into 24-hour periods for busy and after-hours call analysis.
- The `Trunk Summary` identifies the trunks which see heavy (or light) usage to help evaluate existing needs.

These reports may be saved to a file, then generated as charts. Sample reports appear in Appendix A.

Only processed calls within the current reporting period appear in a report. See Define Reporting Period in this chapter for details.

The All Organization Summary Report function does not export to an ASCII or a WK1 file.

To generate a Traffic Report or Chart, proceed as follows:

1. From the `Reports` menu, select `Traffic`, and then, your choice of `Area Code`, `Call Type`, `Cost`, `Date`, `Duration`, `Time of Day`, `Trunk`, or `All Traffic Reports`.

2. For an Area Code Summary, enter a facility name (or a blank for all facilities) and whether or not you wish to include incoming and outgoing calls.

3. The display now prompts: `Output to Printer, File, or Screen (P/F/S)?` Enter <P>rint, <F>ile, or <S>creen, as appropriate. (For a summary report's chart, enter <F>ile.)

   Use the Screen option only on reports shorter than a page. For longer reports, view them via the File option.

4. To generate charts for a report saved to a file:

   a. Press <ESC> to return to the main menu, select `Chart,` then `Traffic`, then your choice of report.

   b. The screen will display the chart of the original file ("***report***") and will offer the option to print or save in printer format to a file named ***report.*****`grf`** or advance to the next chart. Enter your choice.

   This completes the procedure.

Define Preselected Reports

Use this function to select up to 11 reports for printing on demand or according to the specified schedule.

Preselected reports can only run if the PC is displaying the `call processing monitor` or a menu. If the report cannot run within five (5) hours of the scheduled time, it will be cancelled. After a preselected report runs, the display returns to the menu it was at before running reports.

Preselected report 7 through 11 have been defined with default entries to compliment HackerTracker. If you decide to change these entries, remember to update the Report Name.

To define a Preselected Report, proceed as follows:

1. Select Define Preselected Reports from Reports menu.

2. Press <Q>uery <ESC>. A display similar to the figure below appears.

```
  ----------------< DEFINE AND SCHEDULE PRESELECTED REPORTS >-----------------

  Press <Q>uery <ESC> to display the list of available reports.
  Press <N>ext and <P>revious to move through the list.
  Press <U>pdate to change the report selection values.

  Report Name.....[   Preselected Report - #1   ]

Report Output: P. Printer      Select Report Type.. [A]
               F. File                               A. Organization Detail
               S.Screen                              B. Account Code Detail
                                                     C. Summary
  Send Report                                        D. Selection
  Output to...[P]                                    E. Facilities

  Report Frequency (M, W, S, S, or U)..... [M]
    Day to Run (for Monthly or Weekly)..... [1]
    Date (for Single Report)............... [00/00/00]
    Time ...............................    [00:01]



  Press <B>ye to leave this screen and generate the report.
```

Figure 4-6. Sample Schedule Preselected Reports Screen

3. Press <U>pdate and enter values for the fields below.

   - `Report Name`. This field cycles through all eleven reports, IPreselected Report - #*n*" (where *n* = 1 to 6).
   - `Report Type`. The letter A to E corresponding to a type of report. If you choose a Selection or Organization report, select criteria as documented in this chapter.
   - `Report Frequency`. <M>onthly, <W>eekly, <D>aily, <S>ingle, or <U>nscheduled.
   - `Day to Run` (the day of the month — `1` to `31` — or the day of the week — `1` to `7`) or `Date` (*mm/dd/yy* for a single report).
   - `Time`. The time to run the report in a 24-hour format.
   - `Report Output`. <P>rinter, <F>ile, or <S>creen.

4. When complete, press <ESC> and <B>ye.

Run Preselected Reports

Use this menu to run any one of the reports previously defined via the `Schedule Preselected Reports`.

To do so, select `Reports` from the main menu; next, select `Run Preselected Reports` and then, your choice of `Preselected Report #1` to `#11`.

Only processed calls within the current reporting period appear in a report. Before requesting a report, make certain that the reporting period is correct. See Define Reporting Period in this chapter for details.

The detail report prints in a 132-column format. If you do not have a wide-carriage printer, make certain that the printer control parameters are correct. See Printer Control Parameters in chapter 7 for details.

Charts

Two forms of graphic representation for call accounting summary reports are available:

- The bar chart of one parameter — account code, area code, cost, date, etc.— versus either cost, number of calls, or usage.
- A pie chart in which individual “slices” represent the parameter — account code, area code , cost, date, etc.— as a percent of the total cost, number of calls, or usage.

Bar Charts

A bar chart represents a summary report as follows:

- The horizontal axis represents line entries — account codes in an `account summary report`, cost ranges in a `cost summary report`, etc. There will be one *bar* per entry (for a maximum of 25 bars with the largest values) in alphanumeric order (that is, account code “10000” appears before “600”).
- The vertical axis represents the cost, number of calls, or percent usage (depending on the report), scaled to display the largest value and 5 to 10 scale divisions — for example, if the largest value is 265 calls, the vertical scale will display the divisions, `0`, `50`, `100`, `150`, `200`, `250`, and `300`. A bar’s height corresponds to the value on the scale.

The figure on the next page shows a bar chart as it appears in print or monochrome monitors (charts in color monitors appear in full color).

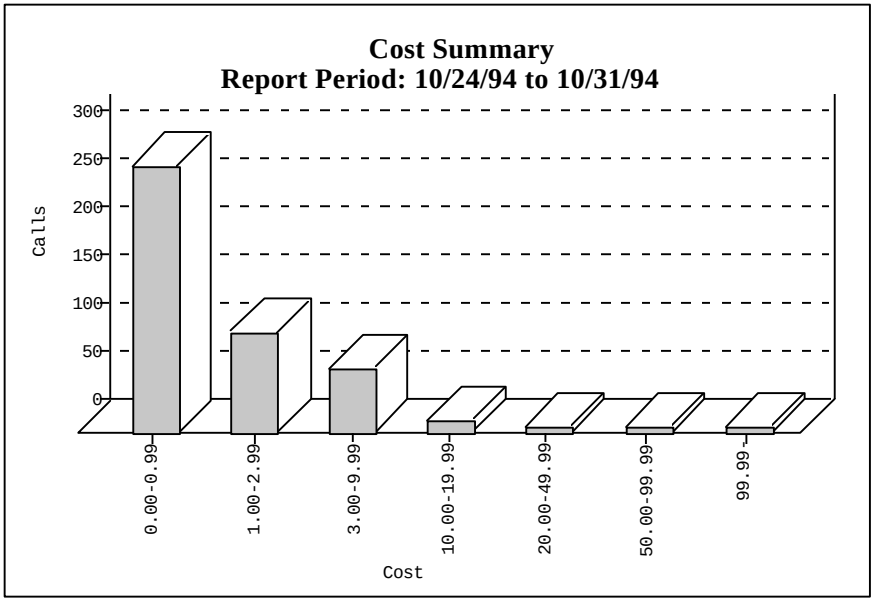


Figure 4-7. Bar Chart Sample

Pie Charts

A pie chart represents a summary report as follows:

- Pie slices represent single report entries — account codes in an `account summary report`, cost ranges in a `cost summary report`, etc. Only the top 25 entries will be represented in a pie chart; thus, totals in reports with more than 25 entries will not coincide with its chart's totals.

- The size of a slice corresponds to the percent value of an entry over the total value — cost, number of calls, or usage (depending on the report). Entries with less than 4% of the total will be grouped together under the slice called "`other`."

The figure on the next page shows a pie chart as it appears in print or monochrome monitors (charts in color monitors display a different color per fill pattern).

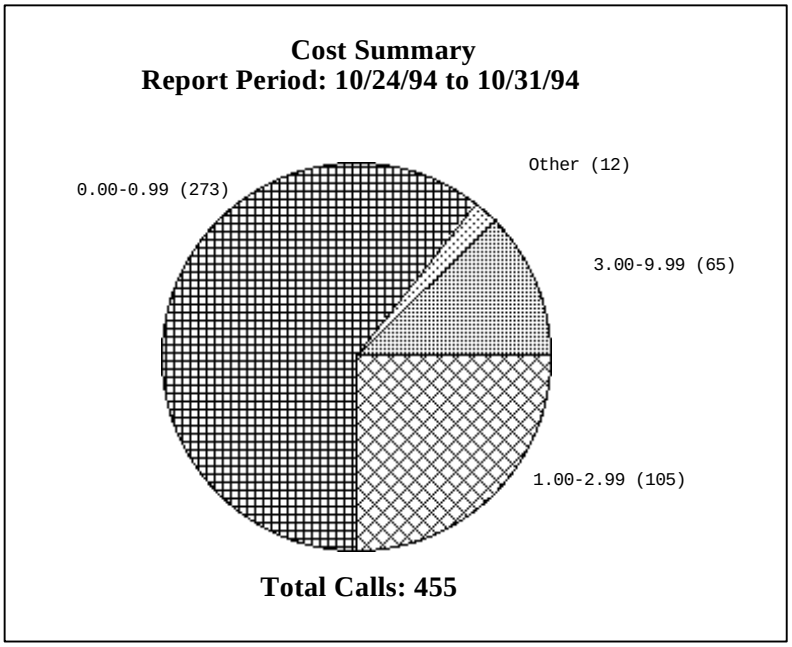


Figure 4-8. Pie Chart Sample

Printer Configuration

This option is used in handling graphic commands to your printer, the printer port used, and the page orientation for generating charts.

To set up printing parameters for charts, proceed as follows:

1. From the `Charts` menu, select `Printer Configuration`.

   A window insert similar to the figure below appears.

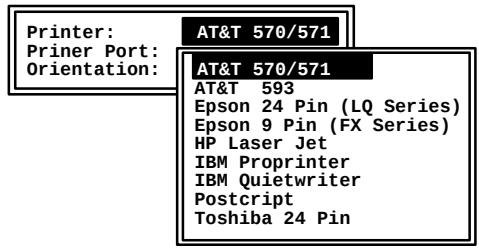


Figure 4-9. Printer Configuration Window

2. Use the arrow keys to select a printer from the list and press <ENTER>.

3. a. When the printer port selection list appears, use the <Spacebar> to select `lpt1` or `lpt2` (as appropriate), and then press <ENTER>.

   b. When the orientation selection list appears, use the <Spacebar> to select `portrait` or `landscape` (as appropriate), and then press <ENTER>.

4. When the prompt to exit appears, press <Y>es to end this procedure.

Application Tips

The following pages review some report benefits.

Spotting Telephone Abuse

Excessive personal calls, calls placed by unauthorized personnel (visitors, delivery personnel, janitorial staff), and calls to dial-up recordings are all forms of abuse.

- Check calls to specific telephone numbers in a Selection Report. Here are a few suggestions:
  - — Your competitors (Is someone giving out inside information?)
  - — Local media (Who is talking to the press?)
  - — Time and weather, dial-a-joke, etc. Dial-up recordings in many locations are identified by the 976 exchange.
- Check calls dialed after office hours. You will find the Time of Day Report helpful in determining if this abuse exists. Use the Selection Report to find the details.
- Check incoming WATS in a Call Type Report. Are people giving out 800 numbers to friends? Use the Selection Report to look for a pattern — for example, every Friday noon, extension 315 receives a WATS call and talks for an hour.

Allocating Costs

Departments, cost centers, and individual company personnel are often accountable for expenses incurred and need to remain within their respective budgets. Some companies operate individual departments on a profit center basis, making expense accountability mandatory.

The Organization Summary Reports will provide managers enough information to keep track of their groups' telephone costs.

To allocate expenses by other than corporate structure level names, certain groups within the company may profit by redefining the Organization Table — for example, using "cost centers" as a project name to keep track of project costs, or using "departments" and/or "cost centers" for the names of managers and project leaders, respectively.

Generating Revenue

Today's technologies allow telephone equipment to be shared by multiple users. This is called reselling and until recently, it was limited to the lodging industry. Hospitals, universities, or complexes with shared facilities (such as condominiums for housing or office space) can be served by a single switch with shared access to WATS lines or other discounted long distance services.

To charge calls placed by patients, students, or tenants (as the case may be), define "departments" and "cost centers" accordingly and use printed copies of the Organization Detail Report as the actual telephone bill for selected departments and/or cost centers.

To charge at a profit, use the *Cost Adjustments Parameters* prior to generating these reports to markup surcharges. Remove the markups after generating the reports to produce the estimated costs on your other reports.

Billing Back Clients

Calls are frequently placed on behalf of clients or particular projects. Professional service departments within an organization must be able to account for their time in order to bill their clients. These calls can result in recovering hundreds of dollars from calls which may otherwise go unbilled.

Obtain detail or summary Account Code reports. Use the printout as the actual bill to your client.

To charge at a profit, use the *Cost Adjustments Parameters* prior to generating these reports to markup surcharges. Remove the markups after generating the reports to produce the estimated costs on your other reports.

Measuring Productivity

Telephone intensive organizations such as telemarketing firms, credit collection agencies, your sales department, and other similar environments require intensive use of their phones.

Use the Organization Summary Reports to check calls made by selected extensions. Are your employees making enough calls? Who are they calling?

Use the Selection Report to check incoming calls received by selected extensions. How busy is your customer service department?

Use the Selection Report on incoming calls in support of your service calls. Police, fire departments, security agencies, or any customer service oriented organization may want to compare the time of a complaint, call for service, etc., with the time help was actually dispatched.

Stopping Facilities Misuse

Misuse refers to unknowingly placing calls that incur excess usage charges. They normally occur because of ignorance or misunderstanding on the part of the user, although they may occur because the ARS (Automatic Route Selection) pattern in the switch is set incorrectly.

Use the Call Type Report to find if there are many calls under the SPCL call type name, then pinpoint details to calls to directory assistance via the Selection Report (even small 50 cent calls can add up to a large bill.)

Use the Call Type Report to find your long-distance calling patterns. Are you using your WATS for all your long distance calls?

Optimizing Networks

Many long distance service alternatives exist today. WATS, TIE, FX, and T1 lines are a few examples. An optimally designed network for each of your sites will have the proper mix of these services.

Use your Facility Reports to monitor loads. If the load for a facility appears too large, coupled with little or no usage on other lines, this might indicate some of the other circuits need servicing. Light usage may also justify deleting some lines.

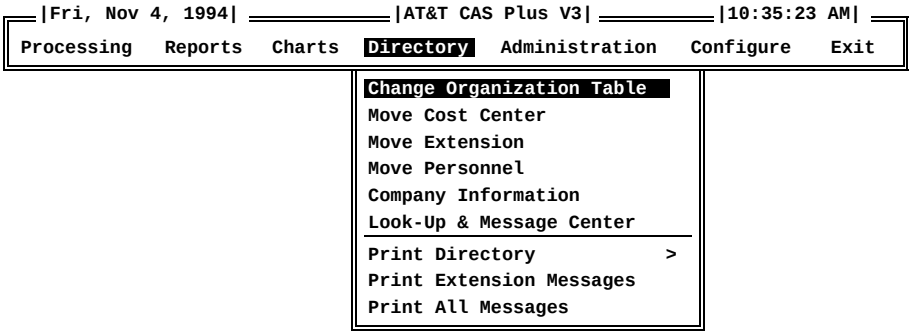
Use your Time of Day Report to analyze your busy hour traffic patterns. Then pinpoint facility usage for those hours with a Selection Report. Busy lines at peak hours require rerouting to more expensive lines — perhaps changing calling patterns to a different time of day will solve network delays. Heavy usage may also justify adding some lines.

Directory

5

This chapter describes the functions to look up, list, change, or create entries in your company organization table.

The chapter is organized into sections following the order they appear in the `Directory` menu:



Change Organization Table

CAS Plus V3.1.1 structures a "company" into "departments," and these into "cost centers," to allocate telephone expenses for calls charged to any "extension." In addition, "personnel" entries — for extension users — serve as a database for the directory Look-up feature.

Figure 5-1 illustrates the "tree-like" structure of this table.

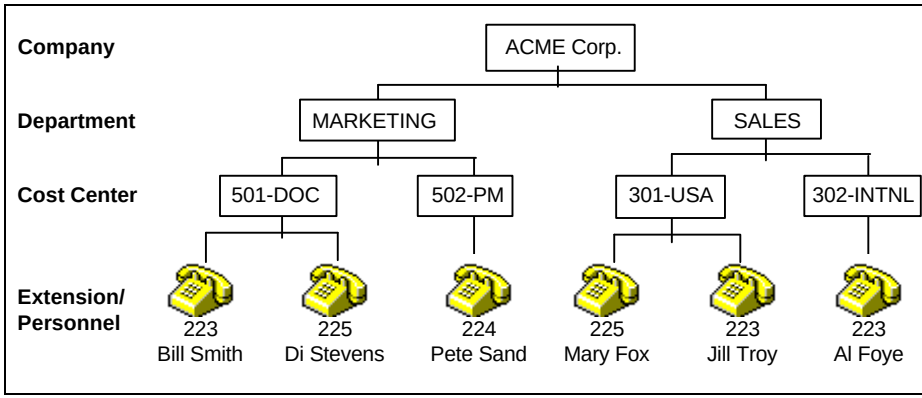


Figure 5-1. Sample of a Directory Structure

Use the Change Organization Table function to add, remove, or change departments, cost centers, extensions, or the name, home phone, and alternate contact of the employee(s) using an extension.

- To reassign entire company "branches" to a different part of the organization tree, use the Move Extension, Cost Center or Personnel functions.
- The `UNATTACHED` department and cost center, as well as the `9999` extension and `UNASSIGNED` name entries are used to store calls made or received by extensions that were not defined in your Organization Table. **Do not change or remove these entries**.

1. From the `Directory` menu, select `Change Organization Table`. A screen describing the structure of the Company Organization appears on display.

2. Press <S>creen, then <Q>uery <ESC>. The first Department entry appears on display.

3. At the Department level:

   a. To move through the list of departments, press <N>ext or <P>revious until the department of interest appears on the screen.

   b. To create a new department, press <A>dd, enter its name as described at the end of this section, and press <ESC>.

   c. To change the department on display, press<U>pdate, enter the new name, and press <ESC>.

   d. To remove the department on display, make certain its details are removed first, then press <R>emove and follow screen instructions.

   e. To access department details (cost centers, extensions, and personnel), press <D>etail.

   f. To end the procedure, press <B>ye.

4. At the Cost Center level:

   a. To move through the list of cost centers, press <N>ext or <P>revious until the cost center of interest appears on the screen.

   b. To create a new cost center, press <A>dd, enter its name as described at the end of this section, and press <ESC>.

   c. To change the cost center on display, press<U>pdate, enter the new name, and press <ESC>.

   d. To remove the cost center on display, make certain its details are removed first, then press <R>emove and follow screen instructions.

   e. To return to the department level, press <M>aster.

   f. To access cost center details (extensions and personnel), press <D>etail.

   g. To end the procedure, press <B>ye.

5. At the Extension extension level:
   a. To move through the list of extensions, press <N>ext or <P>revious until the extension of interest appears on the screen.
   b. To create a new extension, press <A>dd, enter its number, and press <ESC>.
   c. To change the extension on display, press<U>pdate, enter the new number, and press <ESC>.
   d. To remove the extension on display, make certain its details are removed first, then press <R>emove and follow screen instructions.
   e. To return to the cost center level, press <M>aster.
   f. To access extension details (personnel information), press <D>etail.
   g. To end the procedure, press <B>ye.
6. At the organization entry level (see Figure 5-2):
   a. To move through the list of entries, press <N>ext or <P>revious until the name of interest appears on the screen.
   b. To create a new entry, press <A>dd, enter the information, and press <ESC>. (Repeat, if this extension has more users.)
   c. To change any values on display, press<U>pdate, enter the changes, and press <ESC>.
   d. To remove the entries on display, press <R>emove and follow screen instructions.
   e. To return to the extension level, press <M>aster.
   f. To end the procedure, press <B>ye.

```
----------------------------< ORGANIZATION ENTRY >----------------------------

 Press <N>ext and <P>revious to browse through the list of People.
 Press <A>dd to add a new Person to this Extension.
 Press <R>emove to remove this person from this Extension.


     Department         Cost Center      Extension
   ---------------     ---------------     -----
   MARKETING           505-STAFF            223


         Last Name      First Name   Home Phone    Alternate Contact
       --------------   ----------    -------    -------------------
      [Stevens      ]  [Bill     ]   [2236546]   [Smith              ]


 Press <M>aster to select a different Extension, Cost Center or Department.
 Press <B>ye to leave the Organization Table Edit procedure.
```

Figure 5-2. Sample Organization Entry Screen

The following list describes the fields in figure 5-2.

- `Department and Cost Center.` The names (1 to 15 alphanumeric characters) of the master and detail levels (respectively) under which extensions are placed. You may not duplicate a cost center name under a different department.

  ⇛ To speed the sorting process in reports, we recommend single word names (using such separators as "-" or "_" if necessary, for example, `NEW_SALES`).

- `Extension.` The station number (1 to 4 digits) as it appears in the call record from the switch. Extension numbers are unique. The system will not allow the same extension under another cost center/department.

  ⇛ Unidentified extensions will be added to the table under the `UNATTACHED` department and cost center. To assign "unattached" extensions to the proper department and cost center, use the *Move Extension* function documented in this chapter.

- `Last name` and `First Name` (the name of an extension user, up to 15 and up to 10 characters, respectively), `Home Phone` (7 digits), and `Alternate Contact` (up to 20 characters).

  ⇛ An extension may have more than one user; however, only the first entry will appear on reports. Extensions without users will be listed as `UNASSIGNED`.

Move Cost Center, Extension, or Personnel

Use this function to reassign any company subdivision — cost center, extension, or user, including its lower “branches” — to a different part of the organization “tree.”

The UNATTACHED department and cost center, as well as the 9999 extension and UNASSIGNED name entries are used to store calls made or received by extensions that were not defined in your Organization Table. **Do not change or delete these entries.**

1. From the Directory menu, select your choice:
   - Move Cost Center (to another department)
   - Move Extension (to another cost center)
   - Move Personnel (to another extension)

2. Press <Q>uery <ESC>. Depending on your choice in step 1, a screen similar to figure 5-3 appears.

```
------------------<MOVE EXTENSIONS TO ANOTHER COST CENTER>--------------------

1. Press <Q>uery <ESC> to view the list of existing Extensions.
      Press <N>ext and <P>revious to browse through the list of Extensions.


              Extension      From Cost Center
                 ----          -------------
                [222 ]         [UNATTACHED  ]


2. Press <F>ile to switch to the list of existing Cost Centers.
3. Press <Q>uery <ES> to view the list of existing Cost Centers.
      Press <N>ext and <P>revious to browse through the list of Cost Centers.

            To Cost Center.............[NEW SALES       ]

4. Press <F>ile to switch back to the list of existing Extensions.
5. Press <U>pdate to move an extension to the selected Cost Center.
6. Press <C>urrent to re-display the updated screen.



Press <B>ye to leave this procedure.
```

Figure 5-3. Sample Move Extensions to Another Cost Center Screen

3. Bring on display the cost center, extension, or personnel entry you wish to move by pressing <N>ext and <P>revious.
   Its current placement will appear under the heading `From Department`, `From Cost Center`, or `From Extension` (as appropriate).

4. Press <F>ile, then <Q>uery <ESC>. Bring its *destination* on display by pressing <N>ext and <P>revious:
   `To Department` (or `Cost Center` or `Extension`)`....`[*destination*]

5. Press <F>ile, then <U>pdate to effect the move.

6. To re-display the updated screen, press <C>urrent. Check your entries.

7. If you need to correct any mistake, repeat the procedure; otherwise, press <B>ye.

Company Information

Use this function to change the company name in report headers and the address displayed on the screen.

1. From the `Directory` menu, select `Company Information.`
2. Press <Q>uery <ESC>. A screen similar to the figure below appears.
3. To change the display, press <U>pdate, type over your corrections, and press <ESC>.
4. To end the procedure, press <B>ye.

```
---------------------------< COMPANY INFORMATION >----------------------------

 Press <Q>uery <ESC> to display company name.
 Press <U>pdate to change the company information.


 Company Name.............[YOUR COMPANY NAME     ]

 Address....[YOUR COMPANY ADDRESS                  ]

 Phone Number.........................716-381-6000




 Press <B>ye to exit company information.
```

Figure 5-4. Sample Company Information Screen

The phone number on display is not editable. In systems with custom rates, it is the number of record when your system was built; in systems with Zero Cost rates, it is a “dummy” number.

Look-Up & Message Center

Use this function to look up the names and extension numbers of anyone in your organization, as well as leave and retrieve messages for any extension user.

To use this function, proceed as follows:

1. From the `Directory` menu, select `Look-Up & Message Center`. A screen similar to the sample below (without field values) appears on display.

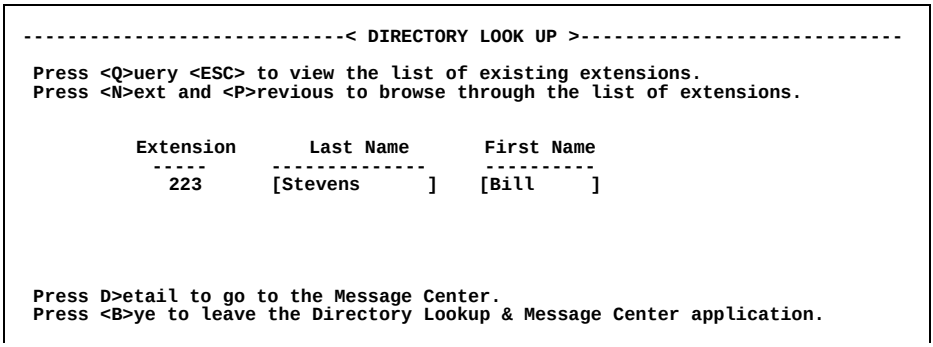


Figure 5-5. Sample Directory Look Up Screen

2. Press <Q>uery. Optionally, fill out the *extension, last name,* and/or *first name* fields for specific selections. When complete, press <ESC>. The system will retrieve all organization records that match your entries and display the first one on the screen.

3. Press <N>ext and <P>revious, if necessary, to bring the record of interest on display.

4. To look up or leave a message for this extension's user, press <D>etail.

   A screen similar to the sample on the next page appears on display.

```
----------------------------< DIRECTORY LOOK UP >----------------------------

 Press <N>ext and <P>revious to browse through the messages.
 Press <A>dd, <R>emove and <U>pdate to modify the messages for an extension.


          Extension       Last Name       First Name
            -----      --------------     ----------
            [223]      [Stevens      ]    [Bill     ]


                     |-1. Please call.                          Date..10/26
                     |-2. Will call again.                      Time..12:46
 Message....[1]----- |-3. Returned your call.
                     |-4. Urgent, return call immediately.

 Message... [Send FAX to office 716-385-6546.                   ]
            [                                                   ]
            [                                                   ]



 Press <M>aster to return to Directory Lookup.
 Press <B>ye to leave the Directory Lookup & Message Center procedure.
```

Figure 5-6. Sample Message Center Screen

5. Follow screen instructions to view, add, remove, or update a message. New messages will be stamped with the PC's time and date.

6. To return to the prior screen, press <M>aster; to return to the main menu, press <B>ye.

Print Directory

This menu provides access to the following functions:

- `Print Directory By Name` — used to print a list of all extension users in alphabetical order. Each line shows the user's name, extension, department, and cost center. *

- `Print Directory By Extension` — used to print the list of all extensions in numerical order. Each line shows the extension, name, department, and cost center.*

- `Print Directory by Department` — used to print a list of all departments in alphabetical order. Cost centers are listed under their departments. Within each cost center, extensions and their users are reported in numerical order by extension.

- `Print Directory Details` — used to print a complete alphabetical listing (by employee) of all information in the Organization Table. *

  This list includes all the details shown in the sample below:

```
SEALE, ANNE
Department:  MUSIC
Cost Center: MANAGER
Extension:   567
Home Phone:  (999) 555-1000
Alternate Contact: BETTY JONES
```

* Extensions without users will list as "Unassigned."

Print Messages for an Extension

Use this function to print any messages left to the users of the specified extension.

```
                          *** MESSAGES ***
                           October 26 1990

Messages for Extension: 211

    Message 1:
        Date 10/26/90     12:46 PM
        Message Type:  Please call

        PET EXPRESS WANTS TO CHANGE E/C AD. CAN'T GET HOLD OF SUSAN.

End of Messages for Extension 211
```

Figure 5-7. Sample of a Printed Message

Print all Messages

Use this function to print all messages currently stored in the system.

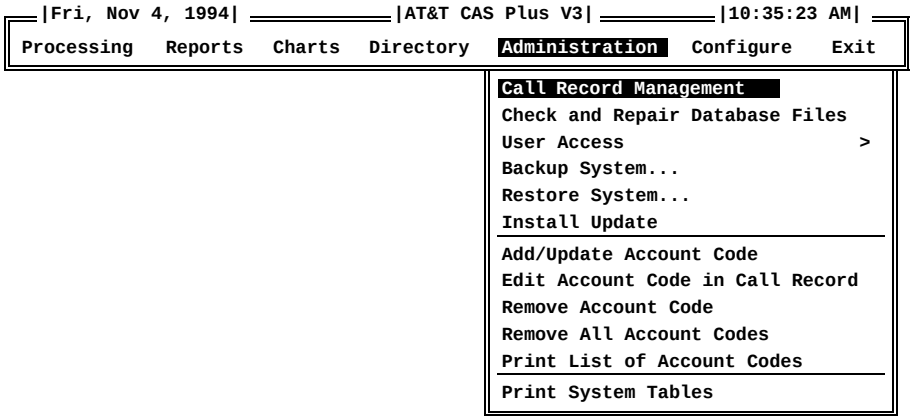
A daily printout of all messages supplements existing office procedures and provides a backup system, in the event a message was not received through normal channels. After printing, individual messages can be distributed through intra-company mail.

Administration

6

This chapter describes how to perform several maintenance tasks — such as deleting call records, backing up the system, installing updates, etc.

The chapter is organized into sections following the order they appear in the `Administration` menu:



Call Record Management

Use this function to display current call storage and to clear the oldest call records to make room for new calls.

1. From the `Administration` menu, select `Call Record Management`. A screen similar to the figure below appears on display.

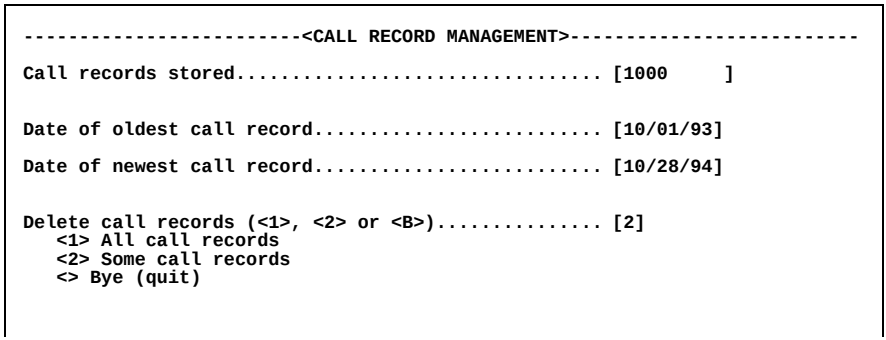


Figure 6-1. Sample Call Record Management Screen

2. a. To delete all call records, press <1> and then, <Y>es to confirm.

   b. To delete some call records, press <2>. The bottom of the screen displays:

```
Today's date is..[07/26/94]
Is this date correct (<Y> or <N>)?..[ ]
Delete call records before a given date.
Date (Month/Day/Year) or <RETURN> to abort..[      ]
```

   c. Enter the cut-off date. If you do not wish to delete any records, simply press <ENTER> without a date.

   d. If you continue the delete process, screen displays:

```
Do you really want to do this (<Y> or <N>)?..[ ]
```

3. To end the procedure, press <B>ye.

Check & Repair Database Files

Use this function periodically to maintain the integrity of your database files — particularly, after a power interruption or a PC reset.

Before using this function, you should exit CAS Plus V3.1.1 and execute the MS-DOS command `chkdsk /f` or `scandisk` (if you have MS-DOS 6.2x).

Call AT&T Customer Support if the screen displays messages that it cannot fix errors.

This function may take several hours, depending on the speed of the PC processor and the size of your call record and organization databases. Once it starts executing, do not abort it by resetting the PC or turning it off.

1. From the Administration menu, select Check and Repair Database Files.

2. The system will perform a test on the entire database, checking indexes for consistency. If the indexes are corrupt, the system will rebuild them. As each file is checked, messages will appear on display:

```
Checking organization database...
Checking account code database...
Checking call record database...
```

   In addition, a log of the operation will become accessible to service personnel under the file name BCHK-DB, via the Manage Report Files functions (see Chapter 3, *Generating Reports and Charts*).

3. When the test concludes, the system returns to normal operations.

Defining User Access

Use these functions to define passwords and levels of access for users. Three levels of user access are available. Once defined, CAS Plus V3.1.1 will prompt for passwords whenever you log in.

Gray bars in the chart below indicate the functions permitted at each level:

Function	Level 1	Level 2	Level 3
Processing			
Start Call Processing	■	■	■
All Other Functions	■		
Reports & Charts			
Run any report or chart	■	■	■
List, view, print export files	■	■	■
All other functions	■	■	
Directory			
Lookup & Print	■	■	■
Company Information	■	■	
All Other Functions	■		
Administration			
Print functions	■	■	■
Backup, Install Update	■	■	
Add/Update Account Codes	■	■	
All Other Functions	■		
Configure			
Time & Date, Printer, Color & Display	■	■	
All Other Functions	■		
Exit	■	■	■

1. From the Administration menu, select User Access, and then, your choice of Change User, Define Passwords, or Remove Passwords.

2. a. If you selected Define Passwords, the screen will prompt you for the *level 1, level 2,* and *level 3* passwords.

   b. If you selected Change User, the screen will prompt you for a password. Your entry — the *level 1, level 2,* or *level 3 password* — will determine all subsequent permissions (see the table of user access levels).

   c. If you selected Remove Passwords, the screen will prompt you for confirmation. Once removed, the Change User and Remove Passwords functions will be disabled, until new definitions are created

   .

3. Press <ESC>, then <Y>es to exit. The procedure is complete.

Back Up System

Use this function periodically to copy all CAS Plus V3.1.1 data files — call records and system tables — onto diskettes. We recommend weekly backups.

Back up data at times of low telephone traffic. Should the switch send a heavy stream of calls during a backup, the PC will "freeze," causing a loss of calls. Should this happen, restart the PC by pressing <Ctrl-Alt-Del>.

Before using this function, you should run the `Check and Repair Database Files` to ensure a good backup.

1. Make certain to have a supply of diskettes and labels ready. The number required will largely depend on the size of your call record database: CAS Plus V3.1.1 needs approximately 1K per 16 call records.

2. From the `Administration` menu, select `Backup System`.

   A window to select the diskette size and density appears on display.

3. Identify the appropriate one for your PC's drive A. Use the arrow keys and then, press <ENTER> or <F10> to select the following choices:

   ```
   360k - 5 1/4" Double Density
   720k - 3 1/2" Double Density
   1.2 M - 5 1/4" High Density
   1.44 M - 3 1/2" High Density
   ```

4. Follow the screen instructions to load and label the diskette(s) in order.

   Do not fail to label the diskettes with today's date and number them in order. Restoring data requires loading back these diskettes in the proper order.

5. When complete, make certain no diskette remains in the drive.

Restore System

Use this function to re-install a prior backup — typically, to run reports on archived calls (see note below on running reports from a prior backup) or to re-build CAS Plus V3.1.1 files after a system failure (in which case, calls received since the last backup will be lost).

1. Retrieve the set of diskettes from a prior backup.

2. From the `Administration` menu, select `Restore System`. The screen displays a message window similar to the one below.

```
CAUTION -    Before continuing this function, please make sure that you have a
             current backup of your system.  This function will overwrite call
             records and system files stored on the hard disk.

             Press the F10 key to continue with this function.
             Press ESC to exit this screen without restoring.
```

3. Press <F10> to execute the restore procedure and then, press <Y>es to a confirmation prompt. (You may exit without backing up, by pressing <ESC>)

4. Load the first diskette from the prior backup into disk drive A and press any key. As each diskette completes loading, follow the screen prompt to load the next.

5. When the last diskette has been loaded and removed from the drive, the operation is complete.

To run reports on archived data, proceed as follows:

1. Backup current data.
2. Restore data from the time of interest and run the reports.

Do not process calls while old data resides on disk.

3. Restore current data.
4. Start call processing to resume normal operations.

Install Update

Use this function to load any system update software — rate updates, city/state reporting option, etc. — from one or more diskettes.

Typically, an update installation guide will accompany the software package. If this guide is missing, proceed as follows:

1. From the `Administration` menu, select `Install Update`. The screen will prompt you to load the *Update Disk*.

2. Insert the *Update Disk* into the drive. If you have received more than one diskette, insert the one labeled “1” or “A.” Press any key to continue.

3. When the load completes, remove the diskette from the drive and press any key to continue.
   If you have received more than one diskette, the screen will prompt you to load the next one. Repeat steps 2 and 3 until all diskettes in your update package have been loaded.

4. If the installation requires additional steps, these will appear on the screen for you to follow. Otherwise, the procedure is complete.

Account Code Management

CAS Plus V3.1.1 supports the account code or the authorization code feature — whichever has been programmed for your switch ***and you have selected for PBX/KTS Interface at installation***. The system maintains an internal list of accounts and reports their telephone activity under the Account Code Reports.

When you use account codes to identify calls — usually by dialing a preassigned code before the call is completed — the switch adds it to the call record. As the call is processed, the application checks the internal list, adding new codes automatically (to the default account named `UNASSIGNED`).

Other account code maintenance-related tasks are performed via the `Administration` functions, described in this section:

- Add/Update Account Code
- Edit Account Code in Call Record
- Remove Account Code
- Remove All Account Codes
- Print List of Account Codes

Add/Update the Account Code

Use this function to add or change an account code number and/or name to the system internal list.

You should access this function periodically to check all account codes appearing under the name "`UNASSIGNED`" and update them to their correct names.

1. From the Administration menu, select Add/Update Account Code.

2. Press <Q>uery <ESC>. A display similar to the figure below appears.

```
--------------------------<ADD.UPDATE ACCOUNT CODES>-------------------------

Press <Q>uery <ESC> to display the list of Account Codes.
Press <N>ext and <P>revious to browse through the list of Account Codes.
Press <U>pdate to change the name of the Account Code currently displayed.
Press <A>dd to add a new Account Code and Name.


              Account Code              Account Name
             ---------------          --------------------
            [               ]        [UNASSIGNED         ]
```

Figure 6-2. Sample Add/Update Account Codes Screen

3. Press <N>ext and <P>revious to display the list of accounts, one at a time.

4. To change the display, press <U>pdate, enter changes, and <ESC>.

5. To create a new entry, press <A>dd, enter values for the following fields, and press <ESC>.

   - Account Code. One to 16 digits corresponding to the client account programmed for the switch.
   - Account Name. One to 20 alphanumeric characters corresponding to the name associated with the account code.

6. To end the procedure, press <B>ye.

Edit Account Code in Call Record

Use this function to change an account (or authorization) code — incorrectly dialed and, hence, stored — in a call record.

We do not recommend using this function to add an account code to a call record that did not have one at the time the call was completed. Although possible, this operation could require examining thousands of call records.

1. From the `Administration` menu, select `Edit Account Code in Call Record`.

2. Press <S>creen to continue.

3. Press <Q>uery <ESC>. A display similar to the figure below appears.

```
-------------------------<SELECT NEW ACCOUNT CODE KEY>------------------------

1. Press <Q>uery <ESC> to display the Account Code list.
     Press <N>ext or <P>revious to browse through the list of Account Codes.

     Select the Account Code you wish to assign in a Call Record.
     Please copy down the Key that corresponds to the Account Code.


            Account Code              Account Name          Key
           ---------------          --------------------    -----
          [12345          ]        [METCALF MUSICWORKS ]   [12  ]

2. Press <S>creen to continue.
```

Figure 6-3. Sample Edit Account Code in Call Record - Initial Screen

4. Select the new account code by pressing <N>ext and <P>revious until it appears on display.

5. Write down the *key* associated with this account code (for example, 12 in the sample above), as you will need it in step 8, ahead. Then press <S>creen to continue.

6. Press <Q>uery <ESC>. A display similar to the figure below appears.

```
-------------------------<SELECT OLD ACCOUNT CODE KEY>-----------------------

3. Press <Q>uery <ESC> to display the Account Code list.
     Press <N>ext or <P>revious to browse through the list of Account Codes.

     Select the Account Code you wish to assign in a Call Record.


              Account Code              Account Name
             ---------------          --------------------
            [12345          ]        [UNASSIGNED         ]

4. Press <D>etail to continue.
```

Figure 6-4. Sample Edit Account Code in Call Record - Second Screen

7. Select the old account code by pressing <N>ext and <P>revious until it appears on display.

   If this is a non-existent account dialed by mistake, you should remove it from the account code table after completing this function.

8. When you are ready to continue, press <D>etail. A display similar to the figure below appears.

```
------------------------------<UPDATE CALL RECORD>----------------------------

5. Press <N>ext or <P>revious to browse through the list of Call Records.
6. Press <U>pdate to change the Key selected earlier.

        Time       Date     Ext    Phone Number      Account Code
       -----     --------   ----    ----------     -----------------
       10:00     10/08/94  [123 ]  716-385-6000    1245


         Key     Cr_key   Cr_Date_Time  Cr_Npa    Cr_Nxx  Cr_xxxx
        -----    -----     ----------     ---       ---     ----
       [12  ]  [89984 ]   [3164280 ]   [?  ]     ]?  ]   [????]


  Press <M>aster to return to the SELECT NEW ACCOUNT CODE KEY screen.
  Press <B>ye to leave this procedure.
```

Figure 6-5. Sample Edit Account Code in Call Record - Last Screen

9. If necessary, press <N>ext or <P>revious to bring the record of interest to the screen. Then, press <U>pdate, type the *key* you copied in step 4, and press <ESC>.

   The call record is changed. From now on, your account code reports will include information from the updated call record.

10. To return to the initial screen, press <M>aster; to end the procedure, press <B>ye.

Remove Account Code

Use this function to remove an account code from the system internal list. If there are any stored call records linked to this account, the system will remove the link and reassign the call records to the set of "UNASSIGNED" accounts.

1. From the Administration menu, select Remove Account Code.

2. Press <S>creen to continue.

3. Press <Q>uery <ESC>. A display similar to the top of figure 6-6 appears.

4. Select the account code you wish to delete by pressing <N>ext and <P>revious until it appears on display.

5. Press <F>ile. A display similar to the bottom of figure 6-6 appears. This screen will inform you if there are any call records in the database linked to this account code.

6. To delete the account from the master list, as well as from all call records associated with it, press <U>pdate, enter <Y>es, and <ESC>. For verification enter <Y>es again

7. To return to the initial screen, press <F>ile; to end the procedure, press <B>ye.

This procedure could take some time because the system needs to rebuild the database.

```
--------------------------<SELECT AN ACCOUNT CODE >-------------------------

1. Press <Q>uery <ESC> to display the Account Code list.
     Press <N>ext or <P>revious to browse through the list of Account Codes.

     Select the Account Code you wish to assign in a Call Record.


              Account Code              Account Name
             ----------------        --------------------
            [12345          ]        [UNASSIGNED        ]

2. Press <F>ile to continue.
```

```
--------------------------<REMOVE AN ACCOUNT CODE >--------------------------

3. To remove this Account Code, press <U>pdate, then follow the instructions
   provided at the bottom of the screen.


        Account Code            Account Name            Number of Calls
       ----------------      --------------------      ---------------
     [12345          ]     [UNASSIGNED        ]        12


          Delete?
            ---
            [Y]

4. Press < F>ile to return to the SELECT AN ACCOUNT CODE screen.

     Press <B>ye to leave this procedure.
```

Figure 6-6. Sample Remove Account Code - Master and Detail Screens

Remove All Account Codes

Use this function to clear the system internal list of account codes and to remove any account codes in the stored call records themselves.

This operation is typically performed after clearing the entire call record database (for details, see *Deleting Call Records from Storage*), as part of maintenance procedures.

To do so, simply access the `Administration` menu, and then, `Remove All Account Codes`. Confirm the deletion when prompted.

Call records previously associated with account codes will be reassigned to the set of "`UNASSIGNED`*" accounts and will appear on account code reports, under unassigned.*

This procedure could take some time because the system needs to rebuild the database.

Print List of Account Codes

Use this function to print the system internal list of account codes.

To do so, simply access `Administration` from the main menu, and then, `Print List of Account Codes`.

Print System Tables

Select this function from the `Administration` menu to obtain a printout of the following tables:

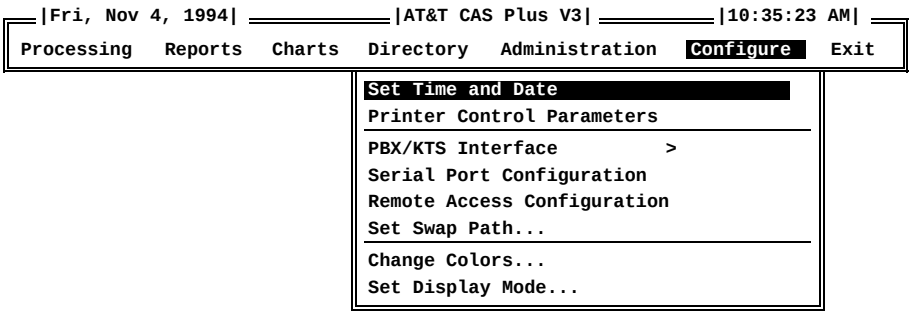
- `Company Information`
- `Trunk Table` (the names of facilities with defined trunks and their associated access codes, trunks, and costing method)
- `Call Processing Configuration`
- `PBX/KTS Port Configuration`
- `Holiday`
- `Dialed Digit Processing`
- `Call Type Cost Adjustment` (the complete list of call types and their associated cost adjustments)
- `Alarm Criteria`

Configuration

7

This section describes the functions used to perform several system-wide configuration tasks — such as changing the time and date, switch interface, serial port and remote access, etc.

The chapter is organized into sections following the order they appear in the `Configure` menu:



Set Time and Date

Use this function to reset the time and date in your PC.

Your PC's internal clock and calendar is used to date calls received from the switch and to schedule your Preselected Reports. If your PC does not have a real-time clock card, make certain to restore the proper date and time after every PC reset.

1. From the Configure menu, select Set Time and Date.
2. Press <Q>uery <ESC>. A display similar to the figure below appears.
3. To change the display, press <U>pdate, enter changes, and <ESC>.
4. To end the procedure, press <B>ye.

```
----------------------------<SET TIME AND DATE----------------------------

Press <Q>uery <ESC> to view current time and date.
Press <U>pdate to change the time and date.


                         Current Time....14:15
                         Current Date....Friday 4 November, 1994

                         New Time........[ 2]:[14]  [PM]

                         New Date........[11/04/94]




Press <B>ye when finished.
```

Figure 7-1. Sample Set Time and Date Screen

Printer Control Parameters

Use this function to identify your printer for generating detail reports in compressed type. This is necessary if your printer has a narrow (80-column) carriage. The system default results in no compression.

1. From the `Configure` menu, select `Printer Control Parameters`.

2. Press <S>creen, then<Q>uery <ESC>. A screen similar to the figure below appears.

```
------------------------<PRINTER CONTROL PARAMETERS>-----------------------

1. Press <Q>uery <ESC> to view current printer name.
2. Press <U>pdate to change values.
3. Press <F>ile <Q>uery <ESC> to view a list of possible printers.
     Press <N>ext, <P>revious, <A>dd or <U>pdate to edit the list.
4. Press <F>ile to switch back to the current printer name.


                              List of Printers
               -------------------------------------------------
               Current Printer Code.............[2  ]
               Printer Name.....................[AT&T 477    ]
               Start Compressed Mode............[\xØF        ]
               Stop Compressed Mode.............[\x12        ]




Press <B>ye to leave this procedure.
```

Figure 7-2. Sample Printer Control Parameters Screen

3. To change the current values, press <U>pdate.

4. Find your printer in the *Table of Printer Control Characters* (next page). This table shows the built-in list of printers and character strings that control compressed type printing.

   a. If your printer is listed on the table, enter the *printer code* number **1** to **16**, as appropriate, and <ESC>. This completes the procedure.

   b. If your printer is not listed, consult your printer manual to obtain the control strings to start and stop compress mode. Then proceed to step 5.

Printer Control Parameters					
Code	Printer Name	Start Compressed Mode Printer	Start Compressed Mode Control Char	Stop Compressed Mode Printer	Stop Compressed Mode Control Char
1	No compression	(none)	(none)	(none)	(none)
2	AT&T 477	SI	\xØF	DC2	\x12
3	AT&T 470	<Esc>Q	\eQ	<Esc>E	\eE
4	EPSON	SI	\xØF	DC2	\x12
5	HP LaserJet	<Esc>&K2s	\e&K2s	<Esc>&KØs	\e&KØs
6	IBM Graphic	SI	\xØF	DC2	\x12
7	IBM Color				
8	OKIDATA	GS	\x1Ø	RS	\x1E
9	AT&T 570	SI	\xØF	DC2	\x12
10	AT&T 571				
11	AT&T 572				
12	AT&T 573				
13	AT&T 580				
14	AT&T 581				
15	AT&T 583				
16	AT&T 593				

5. Press <F>ile, <Q>uery <ESC>, then <A>dd. Enter values for the fields below. When complete, press <ESC>.

   - `Printer Name`. A 1- to 15-character name to identify your printer.
   - `Start` (`Stop`) `Compressed Mode`. These refer to the control characters (up to 10 characters long) that start and stop compressed printing. Specify control characters using one of these formats:

     \x*nn*{**\x***nn*…} or *****char*{*char*…}

     Where *nn* = the hexadecimal value of an ASCII character and *char* =a printable character or the values **0** (null), **b** (<Backspace>), **f** (<Form Feed>), **n** (<New Line>), **r** (< Return>), **t** (<Tab>), or **e** (<ESC>).

   For example, to add a printer that you wish to call "LASER" and that uses <ESC><C> to start and <ESC><E> to stop compress mode, press <A>dd, then enter the values below and press <ESC>.

   ```
   Printer Name.............[LASER          ]
   Start Compressed Mode...[\eC       ]
   Stop Compressed Mode....[\eE       ]
   ```

6. Note the value assigned as `Printer Code` to this definition. Press <F>ile, then <U>pdate, enter the *printer code*, and press <ESC>.

7. This completes the procedure. Press <B>ye to exit.

8. Please turn the Printer OFF, then ON, to clear any previous commands.

PBX/KTS Interface

The PBX/KTS Interface is the program that translates call records received from your switch into a standard format.

When CAS Plus V3.1.1 was installed, you selected the interface from a list of PBXs and key switching systems. The system printed a page of guidelines to help you define trunk information for your particular switch and then, allowed you to test the switch-to-PC connection.

The `PBX/KTS Interface` menu allows you to perform similar installation tasks via the following functions:

- `Display Selection` is used to look up the name of the PBX/KTS interface currently in use.
- `Reselect Interface` is used to install a different interface. The procedure requires a *PBX/KTS Interface* disk containing a list of switches from which you select the one with the features used on premises. This includes an interface test (see below).
- `Interface Test` is used to perform a test to check that CAS Plus V3.1.1 is currently collecting call records.

To use the switch interface functions, proceed as follows:

1. From the `Configure` menu, select `PBX/KTS Interface`, and then, your choice of `Display Selection`, `Reselect Interface`, or `Interface Test`. Proceed to step 2, 3, or 4 — as appropriate.

2. If you selected `Display Selection`, the screen now shows the name of the interface in use. For example,

```
SYS85W24
System 85 R2V4 DEFINITY G2 (24 Word Unformatted)
Press any key to exit.
```

3. If you selected `Reselect Interface`, the screen now prompts you to load a *PBX/KTS Interface disk*.

   a. After you do so, the screen displays a menu of switches, their software version and features. For example:

```
List of PBX/KTS Interfaces:
   A - AT&T DEFINITY G1/G2 24 Word Standard ISDN
   B - AT&T MERLIN LEGEND - Standard
   C - AT&T MERLIN LEGEND - ISDN
   D - Try another PBX/KTS Interface Disk
   Choose (or press 0 to abort):
```

   b. Make certain your printer is ready and then, type the letter that appears next to the name of the interface of interest.

   c. The *PBX/KTS Interface Help* prints. This printout provides samples of unprocessed, incoming and outgoing call records from the selected switch, followed by the same records processed by the interface. Information to help set up the *dial access codes* and *trunk/lines* for your Telephone System Configuration also prints.

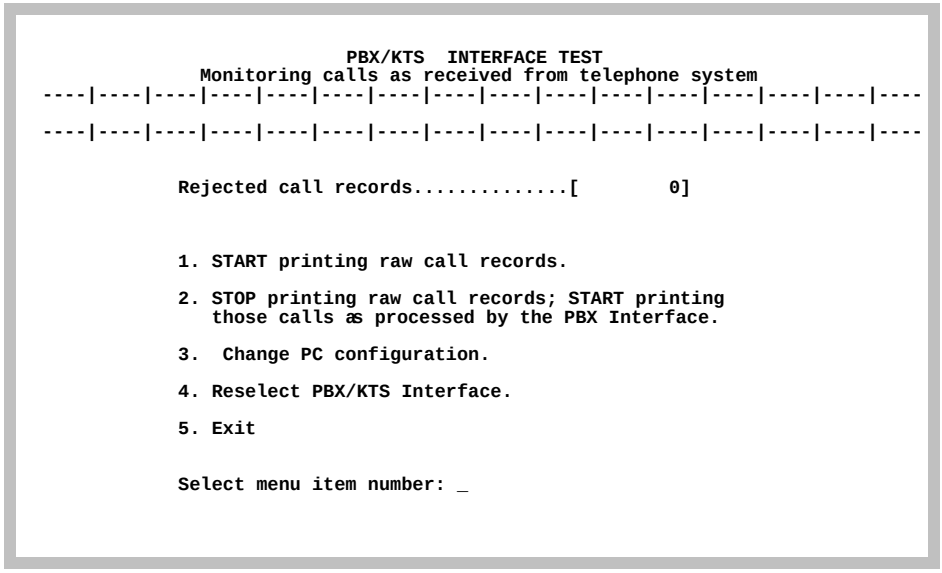
   d. The `Serial Port Configuration` screen appears on display to enter any changes required by the new interface. For details, see *Serial Port Configuration* documented in this chapter.

   e. Press <B>ye to continue. Remove the diskette from the drive and press <Ctrl-Alt-Del>.

   f. The `Set Time and Date` screen appears on display to enter any changes required by the new interface. For details, see *Set Time and Date* documented in this chapter.

   g. The `PBX/KTS Interface Test` screen appears on display. Proceed to step 4 to continue.

4. If you selected `Interface Test`, the `PBX/KTS Interface Test` screen appears on display.



```
                        PBX/KTS  INTERFACE TEST
              Monitoring calls as received from telephone system
----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----

----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----

             Rejected call records.............[        0]


             1. START printing raw call records.

             2. STOP printing raw call records; START printing
                those calls as processed by the PBX Interface.

             3.  Change PC configuration.

             4. Reselect PBX/KTS Interface.

             5. Exit

             Select menu item number: _
```

Figure 7-3. PBX/KTS Interface Test Screen

a. If your telephones are in use, call records should begin appearing on the screen, between the dashes.

b. Enter **1** to print call records as received from the switch. After printing a few records, type **2** to print the same records after processing.

c. Compare these printouts with the *PBX/KTS Interface Help* printed earlier.

- If calls appear to be processing correctly, type **5** to exit.
- If calls are not processing correctly, you need to locate and correct the problem. Refer to the *Switch Interface Troubleshooting Chart* (in *Setting Up the Switch Interface*) in chapter 2.

This ends the procedure.

Serial Port Configuration

Use this function to change the switch-to-PC transmission values.

1. From the `Configure` menu, select `Serial Port Configuration`.

2. Press <Q>uery <ESC>. A display similar to the figure below appears.

```
----------------------< SERIAL PORT CONFIGURATION >----------------------

 Press <Q>uery <ESC> to display current values.
 Press <U>pdate to change values.

       Configure your PC to match your Telephone System's output:

                   Serial (COM) Port...[1]
                   Baud................[1200]
                   Parity..............[0]
                   Bits/Char...........[8]
                   Stop Bits...........[1]


 *WARNING* You must leave this procedure and restart the PC <CTRL-ALT-DEL>
          to make these changes work.

 Press <B>ye to leave this procedure.
```

Figure 7-4. Sample Serial Port Configuration Screen

3. To change the display, press <U>pdate, enter values for the fields as described in the list below, and press <ESC>.

   - `Serial (COM) Port`. The port connected to the switch — `1` or `2`. (`COM 1` recommended)
   - `Baud Rate`. The transmission speed —`300`, `600`, `1200`, `2400`, `4800` or `9600` bits per second.
   - `Parity`. The type of parity check — `0` (no), `1`(even), or `2` (odd).
   - `Bits/Character`. The number of bits — `7` or `8` — in the transmission of a single character.
   - `Stop Bits` —the number of bits —`1` or `2` — trailing after the transmission of a single character.

4. To end the procedure, press <B>ye.

If you changed the display, restart the PC (press <Ctrl-Alt-Del>).

Remote Access Configuration

Use this option to change the settings for the program used by service personnel to access your system.

1. From the `Configure` menu, select `Remote Access Configuration`. A display similar to figure 7-5 appears.

2. Type the letter for the field that requires change:

   A for the serial port used by the remote access modem. Select **COM2**.

   B for its baud rate. Select **1200**, **2400**, or **9600** as appropriate.

   C for the modem type. Select the proper modem from the list that appears on the screen. If your modem does not appear, select an **AT Compatible** for the appropriate baud rate ("**1200**," "**2400**," or "**V.32**" for 9600 baud).

3. Leave the other default values as they appear in your screen. Press **X** to save the values and exit. This completes the procedure.

```
     GENERAL PARAMETERS                          MENU LIST
A -- Comm Port Address...COM2                Q -- Quit, changes not saved
B -- Baud Rate...........2400                X -- eXit, changes saved
C -- Modem Type..........AT Compatible 2400
D -- Keyboard handling...USA Keyboard
E -- Display Type........Default
F -- Menu Colors.........Yellow on Black
G -- Working Directory...Default Directory
H -- Menu Level Options..Advanced

     MENU LIST
1 -- CC Optional Configuration Parameters
2 -- CCHELP Optional Configuration Parameters
3 -- Call Table
4 -- Password Table

                          Type letter for selection:_
```

Figure 7-5. Sample Remote Access Port Configuration Screen

Set Swap Path

Use this option on processors that have installed RAM expansion cards, to speed up menu selections.

If your PC has expanded RAM, you should consider installing a *RAM DISK driver* to improve performance. To do so, follow your MS-DOS manual instructions. Then, return to this option and identify the driver in the procedure to set the path of swap files.

1. From the `Configure` menu, select `Set Swap Path` .

   The display will show the current path name and allow you to change it. For example:

   ```
   Enter the path for the swap file:
         c:\m3usr\tmp;
   ```

2. Enter a list of drive and/or directory paths, separated by semicolons (`;`) as follows:

   drive_1`;`*drive_2*`;...;`*drive_n*`;`

   Where *drive_1* is a RAM DISK, if you have it installed, and *drive_n* is recommended to be the default `c:\m3usr\tmp`. For example:

   d:\;c:\m3usr\tmp;

3. Press <F10> to save changes or <Esc> to cancel, then confirm (choose <Y>es) that you want to quit this form. This completes the procedure.

Change Colors

Use this function to change the colors of the menu and screen displays. Color choices are as follows:

- Foreground: black, blue, green, cyan, red, purple, brown, grey dark grey, light blue, light green, light cyan, light red, light purple, yellow, and white.
- Background: black, blue, green, cyan, red, purple, brown, grey.

1. From the `Configure` menu, select `Change Colors`. A window similar to figure 7-6, appears on display.

2. Select values for the fields that follow. Numbers in parentheses refer to call-outs in figure 7-7.

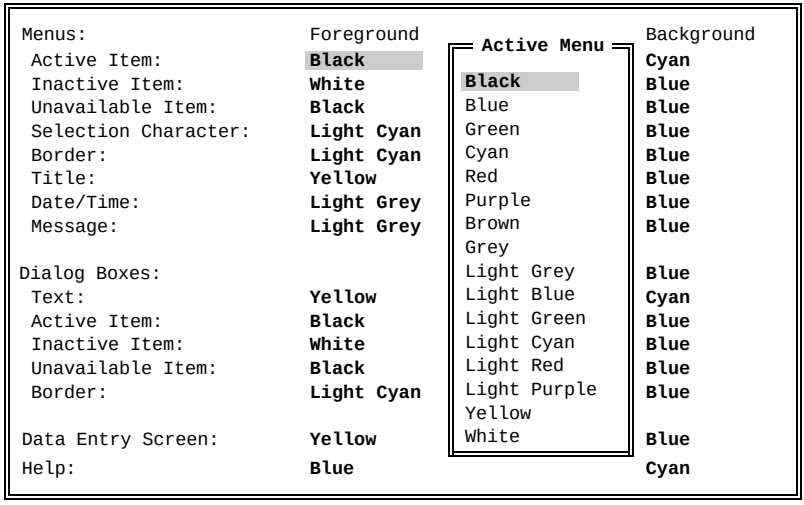


Figure 7-6. Change Colors Window (Default Settings) and Color Choices (Insert)

- `Menus`. The `Foreground` and `Background` colors used in the graphic display of menus.
  - — `Active Item`. The currently selected item (1).
  - — `Inactive Item.` Any menu item which is not currently selected, but which you are allowed to select (2).

— `Unavailable Item.` Any item that is not accessible — either it is not applicable or you do not have permission to use it (3).

— `Selection Character.` The unique character in a menu item which when typed, executes the item (4).

— `Border.` The frame surrounding the menu display (5).

— `Title.` The "`CAS Plus V3.1.1`" title at the top of the main menu (6).

— `Date/Time.` The current date and time slots at the top left and top right of the main menu display (7).

— `Message`. The text — instructions, comments, and messages — in the box at the bottom of a menu display (8).

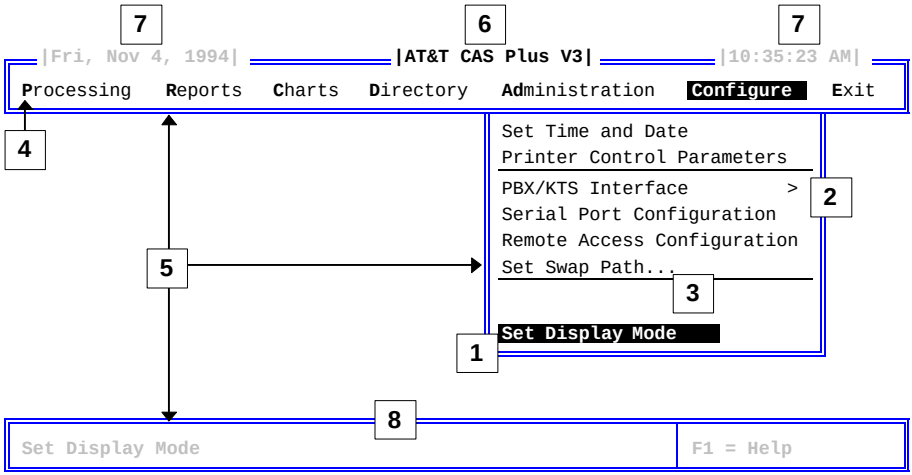


Figure 7-7. Sample Menu Display

- Dialog Boxes. The Foreground and Background colors in the graphic display of dialog boxes.
  - Text. Any informational text in the box.
  - Active Item. The current field for data entry.
  - Inactive Item. Any field that is not currently selected, but which is accessible.
  - Unavailable Item. Any item that is not accessible (either it is not applicable or you do not have permission to change it).
  - Border. The frame surrounding the dialog box.
- Data Entry Screen. The Foreground and Background colors used in a data entry screen display.
- Help. The Foreground and Background colors used in the window called up by pressing <F1>.

3. Press <F10> to save changes or <Esc> to cancel, then confirm (choose <Y>es) that you want to quit this form.

Set Video

Use this option to identify the video card installed in your PC.

1. From the `Configure` menu, select `Set Video`. A window similar to the figure below appears on display.

2. Select the proper card with the arrow keys and press <ENTER>. This completes the procedure.

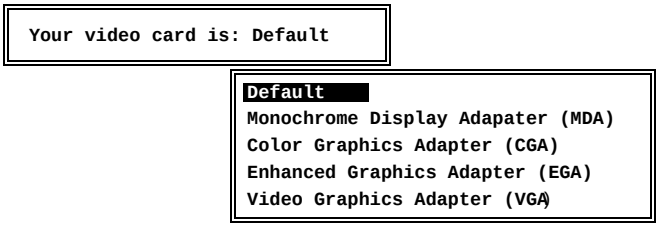


Figure 7-8. Sample Set Display Mode Window

3. Press <F10> to save changes or <Esc> to cancel, then confirm (choose <Y>es) that you want to quit this form.

HackerTracker

8

HackerTracker is an enhancement to your call accounting software, designed to help you stop fraudulent use of your telephone switch.

How does “switch fraud” happen?

Switches with auto attendant, voice mail, or remote access lines are common targets of toll theft. One scenario is a hacker’s computer dialing into a switch and trying thousands of dial-out codes; codes that work are then used or sold. Like corporate secrets, there are many other ways to steal authorization codes — the unfortunate result is an astronomical phone bill for switch owners.

How can HackerTracker help?

- Detect the hacker. You can monitor facility or authorization code usage and receive alarms that tell you of possible hackers trying to break into your telephone system.
- Reduce liabilities after a security breach. You can monitor long distance calls by the hour and detect abuse early enough to change codes and keep damages to a minimum.
- Give peace of mind. You can set up daily reports to keep you informed on how secure your switch is; you can also do quick checks from your call accounting system monitor.

This chapter will help you set up HackerTracker to work with CAS Plus V3.1.1 and perform the functions described above.

Installation

HackerTracker requires a *dedicated* PC. In addition...

- To report alarms by pager, you can use your remote access modem.
- To FAX alarms, you must install an Intel® SatisFAXtion™ board and software (purchased from AT&T) following its *How to Install* manual and the sequence outlined below.

Installing the Intel SatisFAXtion Board and Software

1. If the COM 2 port on your PC is on-board (that is, you did not install an add-on I/O port card), you MUST disable it before proceeding. Consult your PC user's manual to do so.

2. Reboot the PC, then rename the `autoexec.bat` file as `auto.sav` (consult your MS-DOS manual to do so).

3. Turn OFF the PC and install the FAX modem board as documented in its manual. If your PC already has an internal modem board, remove it first.

4. Turn ON the PC and load the FAX modem software as documented in its manual.

   You may use the default directory (`c:\FAX`), port (`com2`), and options on the `First Time Setup` screen. When you exit SETUP, choose `yes` to update the `config.sys` and `autoexec.bat` files.

5. After you reboot the PC, delete the newly updated `autoexec.bat` file and rename your old `auto.sav` back as the `autoexec.bat` file.

6. Finally, reboot the PC one more time.

Setting Up

This section describes how to customize HackerTracker.

To check or clear alarm messages, see *Viewing, Printing, and Deleting Alarm Messages*. To check alarm criteria count/cost totals for the past hour, see *Checking Alarm Status*.

HackerTracker works only while your PC is processing calls. Make certain to leave the PC processing calls after setup.

Alarm Criteria

Use this feature to view or edit the set of criteria for up to 10 alarm-triggering events and how they are reported.

HackerTracker monitors call processing; if a call matches any alarm criteria, it is added to the totals ("buckets") of call count and cost for the past hour. An alarm is triggered when a call causes an alarm bucket to exceed specified limits. A message is logged and sent to the enabled devices, alarm buckets are reset to zero, and monitoring resumes.

1. From the `Processing` menu, select `HackerTracker`, then `Set Alarm Criteria`.

2. Press <Q>uery <ESC>; use <N>ext and <P>revious to display the *criteria set* of interest. See Figure 2.

3. Press <U>pdate to change values as described in the list that follows; when complete, press <ESC>.

4. To exit, press <B>ye.

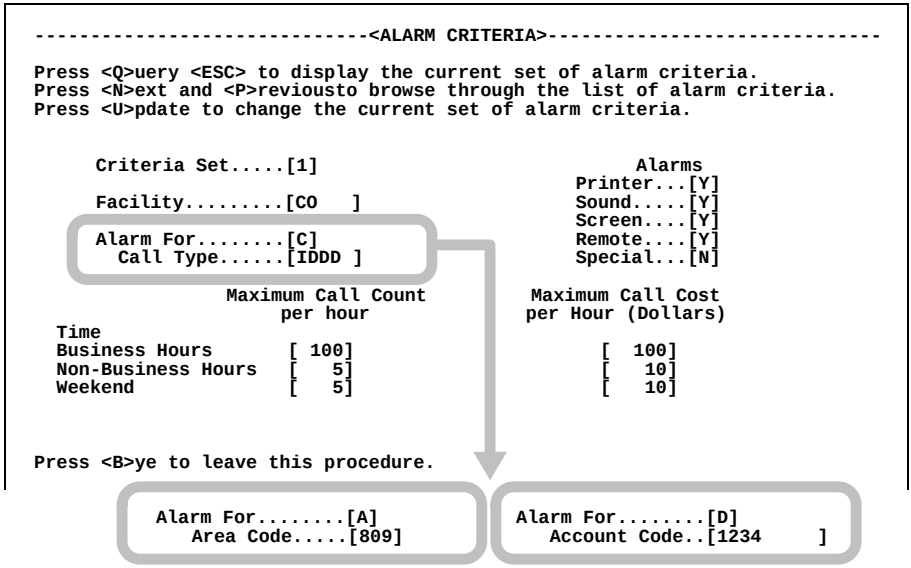


Figure 8-1. Sample Alarm Criteria Screen

The following list describes the fields in Figure 8-1:

- `Facility`. A facility from the Telephone System Configuration you wish to monitor or a blank (all facilities).
- `Alarm For`. The calls to track on the named facility:
  - — The <A>rea code named in the associated field.
  - — The <C>all type named in the associated field. For use with tariff-based names (such as `IDDD`)on the CO facility.
  - — The account co<D>e named in the associated field. Do not use unless your current PBX/KTS Interface reports *authorization codes* as *account codes*.
  - — <E>very call.
  - — <N>one (to disable this criteria set).

- `Alarms`. Enable — <Y>es or <N>o — immediate reporting of alarms via one or more of these devices:

  — `Printer`. The alarm message prints. This option requires that your printer always be on-line.

  > If the printer is offline, an alarm causes an error and prompts, "`Abort, Retry, Ignore?`" DO NOT <A>bort or you must restart the PC. Instead, fix the printer and <R>etry.

  — `Sound`. The PC sounds a 2-tone alarm, lasting until a key is pressed.

  — `Screen`. The screen displays the message. Call processing resumes in 5 seconds or after a key is pressed.

  — `Remote`. The message is sent to the FAX number in `Configure Remote Alarm`. This option requires the FAX modem.

  — `Special`. The PC signals the pager specified via `Configure Pager`. See *Special Alarms* for other options.

  > The pager option requires that you keep the remote access function of your call accounting system disabled. If you need AT&T remote support services, see *Enabling/Disabling Remote Access* in this section to enable it momentarily.

- `Maximum Call Count` (and `Cost`) `per Hour`. Alarm-triggering limits (count = `0` to `9999`; cost = `0` to `32000` dollars) for these time periods:

  — `Business` (and `Non-business`) `Hours`. The hours, Monday to Friday, defined by the `Configure Business Hours` feature.

  — `Weekend`. Saturdays and Sundays.

  Count and cost accumulate by the hour; exceeding the current period's limit triggers the alarm.

Alarm Fax Number

Use this feature to specify the phone number of the FAX machine used for remote alarm reporting.

1. From the `Processing` menu, select `HackerTracker`, then `Configure Remote Alarm`.

2. Press <Q>uery <ESC>. A display similar to Figure 8-2 appears.

```
-----------------------------<ALARM FAX NUMBER>-----------------------------

Press <Q>uery <ESC> to display the alarm fax number.
Press <U>pdate to change the alarm fax number.


              Remote Fax Machine Number...[                  ]

              Note:
                   Any characters in the number will be ignored except
                   for digits and commas.  Commas may be used to specify
                   a pause in dialing.
```

Figure 8-2. Sample Alarm FAX Number Screen

3. Press <U>pdate to enter the dialing pattern used to reach the remote FAX machine. When complete, press <ESC>.

   Use the same pattern as if you were dialing yourself — except you may insert commas (**,**) for each 3-second pause: *dial-out access* + *pause* + *1* + *area code* + *exchange* + *station* (for example: **9,17165551212**).

4. To exit, press <B>ye. This completes the procedure.

   Unless you need to set up other features, we suggest that you return to `Start Call Processing` now.

Business Hours

Use this feature to change the time periods used as `Business Hours` and `Non-Business Hours` in the `SET ALARM CRITERIA` screen. System defaults are shown in Figure 4.

1. From the `Processing` menu, select `HackerTracker`, then `Configure Business Hours`.

2. Press <Q>uery <ESC>. A display similar to Figure 8-3 appears.

```
------------------------------<ALARM HOURS>------------------------------

Press <Q>uery <ESC> to display the current hours setting.
Press <U>pdate to change the hours setting.


                     Starting Time     Ending Time
   Business Hours       [08:00]          [18:00]
   Non-business Hours   [18:00]          [08:00]
```

Figure 8-3. Sample Alarm Hours Screen

3. Press <U>pdate to enter the *starting* and *ending times* of the Business (or Non-business) hours as *hours:min,* in 24-hour format.

   The system automatically fills out the remaining fields to cover a 24-hour period without gaps or overlaps.

   When complete, press <ESC>.

4. To exit, press <B>ye. This completes the procedure.

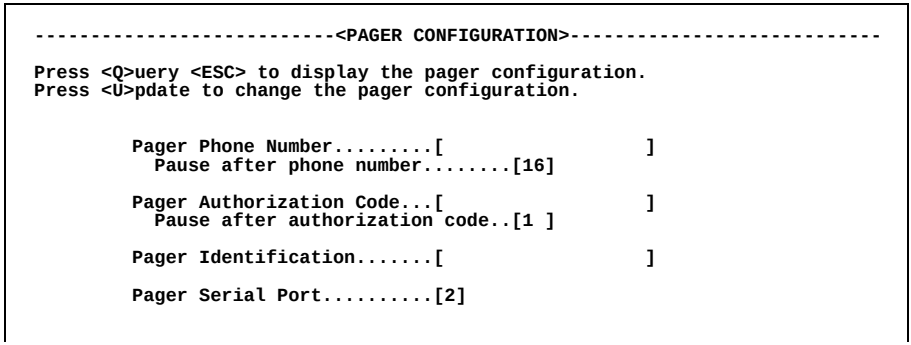
   Unless you need to set up other features, we suggest that you return to `Start Call Processing` now.

Pager Configuration

Use these features to set up and test the pager used for special alarm reporting.

1. From the main menu, select `HackerTracker`, then `Configure Pager`.

2. Press <Q>uery <ESC>. A display similar to Figure 8-4 appears.



```
--------------------------<PAGER CONFIGURATION>--------------------------

Press <Q>uery <ESC> to display the pager configuration.
Press <U>pdate to change the pager configuration.


         Pager Phone Number.........[                  ]
           Pause after phone number........[16]

         Pager Authorization Code...[                  ]
           Pause after authorization code..[1 ]

         Pager Identification.......[                  ]

         Pager Serial Port..........[2]
```

Figure 8-4. Sample Pager Configuration Screen

3. Press <U>pdate to enter the values in the list below. When complete, press <ESC> and <B>ye.

   - `Pager Phone Number`. Typically, the local number to signal your pager or reach your pager service. Enter the pattern as if you were dialing it yourself, then indicate how long to pause (in seconds) to dial additional code sequences.

   - `Pager Authorization` and `Identification`. The dialed numbers that you must provide to use the service — your account or authorization number and any pager ID or notification number — in the order expected by the pager.

     Indicate how long to pause (in seconds) between code sequences. The code fields accept the digits `0` to `9` and symbols `*` and `#` as if dialed from a phone.

   - `Pager Serial Port`. The com port number used by the modem — typically **2** (shared with Remote Access functions).

4. To check this configuration, select `Test Pager` from the `HackerTracker` menu. You should hear the modem dial, as well as any pager service recording during the pauses.

   If your pager responds, the test is successful; otherwise you may have to adjust the pauses and repeat the procedure.

Special Alarms

HackerTracker allows experienced users to create a program that performs a special task upon an alarm. The program must be placed in the file named `tracker.bat` (under the `m3usr` directory) and you must enable the `Special` alarm reporting in `SET ALARM CRITERIA`.

At installation, "`tracker.bat`" contains these lines to call the pager program:

```
echo off
ttysend pager.scr
```

You may add other executables; however, you will disable the pager feature if you remove the pager program lines.

Report Schedules

Some Preselected Reports are defined for HackerTracker:

- Reports #1 to #6 are not preset; reports #7 to #11 are preset as Selection Reports with editable values as in Table 8-1.
- Report names are editable; defaults are: `Preselected Report #1` to #6; reports #7 to #11, as in Table 8-1. Current names appear in the `Run Preselected Reports` menu; however, only the names of Selection reports appear as report headers (other report types keep the name of the report — for example, `Organization Detail Report`).
- Reporting periods are adjusted automatically by the frequency, so that last period's calls do not show in the next run.

Consult your call accounting system manual to re-enter your old preselected report definitions or to change the new reports.

Table 8-1. Predefined Reports

Presel. Rept.#	Report Nmae	Selection	Date	Frequency Day to Run	Time
7	**International Calls**	Call Type = **IDDD**	*today*	<D>aily	**06:00**
8	**Caribbean Calls**	Area Code = **809**	*today*	<D>aily	**06:15**
9	**Lengthy Calls**	*Duration >30 min*	*today*	<D>aily	**06:30**
10	**Expensive Calls**	*Cost > $10*	*today*	<D>aily	**06:45**
11	**Weekend Calls**	*See Date*	*next Sat & Sun*	<W>eekly 1 (on Mon)	**07:00**

Reports are loaded with the date (high/low) shown above, which remains unchanged until reports run the next morning; at that point , the date is moved ahead by the frequency (that is , one day or one week).

Enabling/Disabling Remote Access

HackerTracker FAX and pager options require keeping the Remote Access feature disabled. For this reason, the command to invoke Remote Access was removed from the `autoexec.bat` file during HackerTracker installation.

Should you need AT&T's remote support services, you must enable Remote Access manually. However, if you plan to use HackerTracker's pager and/or FAX, you must disable Remote Access after the service call.

If you installed a FAX modem, identify it to the remote access package (this needs to be done only once):

1. From the main menu, select `Configure`, then `Remote Access Configuration`.
2. Identify the FAX modem's serial port, baud rate, and modem type.
3. Reboot the PC. (Unless you need the remote access feature now, return to `Start Call Processing`.)

- To enable Remote Access, exit to DOS and enter **`remote`** at the `C:\>` prompt:

  `C:\>` **`remote`** <Return>

- To disable Remote Access, simply reboot the PC.

  Remember to access your call accounting system (enter "**`cas`**" at the DOS `C:\>` prompt) and return to `Start Call Processing`.

Viewing, Printing, and Deleting Alarm Messages

Use these features to display, print, or delete the log of alarm messages. The HackerTracker System can store up to 100 messages.

1. From the main menu, select `HackerTracker`, then your choice of `View` (or `Print` or `Delete`) `Alarm Messages`.

   - If you are viewing or printing alarms, messages similar to Figure 8-5 appear on the screen display or printer. Proceed to Step 2a.
   - If you chose deleting alarms, the system asks for confirmation. Proceed to Step 2b.

```
********WARNING*************    10-10-94 / 22:05

HACKER TRACKER Alarm Criteria 1
Maximum call count of 100 per hour exceeded for:
Facility: CO      Area Code: 809
Trigger Event:    Date: 10-10-94       Call Detail:
Start Durn.   Extn Trunk Region Dialed Digit Type  Account Code     Cost
Time  h:mm:ss                                                        $
----- ------- ---- ----- ------ ------------ ----- --------------- ------
20:30 1:34:30 6819 90123 CARIB  18096581234  OS-OL 123456           25.20
```

Figure 8-5. Sample Alarm Message

2. a. To scroll through the messages on display, use the up and down arrow keys.

   b. To clear the log, enter <Y>es; to leave the log unchanged, enter <N>o.

3. When complete, press <ESC>. This ends the procedure.

   Unless you need to set up other features, we suggest that you return to `Start Call Processing` now.

Checking Alarm Status

HackerTracker monitors alarm conditions while your system processes calls. At such times, you may conduct quick checks — such as viewing the last alarm message or the current count and cost alarm "buckets." To do so, proceed as follows:

1. From the `CALL PROCESSING MONITOR` screen:
   a. To view the last alarm message, press <L>ast alarm. A display similar to Figure 8-5 appears on the screen.
   b. To view alarm criteria summaries, press <A>larm criteria. A display similar to Figure 8-6 appears on the screen.
2. To return to the call monitor screen, press <ESC>.

Criteria Set	Current Count	Maximum Count	Current Cost	Maximum Cost	C.T., A.C. or Acct Code
1	5	10	$ 34.55	$ 10.00	AC: 912
2	1	10	$ 13.50	$ 10.00	CT: IDDD
3	5	10	$ 34.55	$ 10.00	ACCT: 123456
4	0	20	$ 0.00	$ 25.00	Everything
5	0	0	$ 0.00	$ 0.00	None
6	0	0	$ 0.00	$ 0.00	None
7	0	0	$ 0.00	$ 0.00	None
8	0	0	$ 0.00	$ 0.00	None
9	0	0	$ 0.00	$ 0.00	None
10	0	0	$ 0.00	$ 0.00	None

Bucket Start Date: 2/10/92 Bucket Start Time: 13:50
Business

Figure 8-6. Sample Alarm Status

The Maximum Count and Cost show the limits for the period (Business or Non-Business or Weekend) listed at the bottom of the screen.

CT = call type; AC = area code; ACCT = authorization code.

Bucket Start Time & Date show the date and time of the oldest call in the alarm bucket.

Sample Reports

A

This appendix provides samples of the following reports:

- Account Code Detail
- Account Code Summary
- Facility
- Cost Center
- All Facilities
- Organization Summary by Cost Center
- Organization Detail
- Selection Reports
- Area Code Summary
- Call Type Summary
- Cost Summary
- Date Summary
- Duration Summary
- Trunk Summary
- Time Summary

Account Code Reports

```
                        ACCOUNT CODE SUMMARY REPORTS                      Page  1
09:39 AM                      Your Company Name                        Apr 08 1994
                     Report Period:  04/02/94 to 04/03/94
-------------------------------------------------------------------------------

  ACCOUNT CODE        NAME          NUMBER     DURATION        COST
                                               HH:MM:SS
----------------  --------------    ------    --------      ----------
                  UNASSIGNED           192    31:02:19      $   251.34
1001              A B C                  6     1:06:09      $    26.10
1002              CLARKSON               4     0:50:16      $    20.45
1003              ROGERS                23     3:38:45      $    22.16
1004              MORGAN & FAY          61     7:07:21      $    30.40
1005              SALVADOR MENDIA       40     8:00:00      $    40.00
1006              CARRUTHERS             2     0:25:05      $     7.96
2004              BAY LTD               81    10:09:11      $    60.45
                                       ------   --------      ----------
ORGANIZATION TOTALS:                    409    62:21:06      $   458.86


End Of Account Code Summary…
```

```
                        ACCOUNT CODE DETAIL REPORT                    Page   1
09:39 AM                      Your Company Name                        Apr 08 1994
                     Report Period:  04/02/94 to 04/03/94
-------------------------------------------------------------------------------
Account Code:    1002           Account Name: CLARKSON

  DATE    TIME  DURATION EXT   DESTINATION    DIALED DIGITS  TYPE    COST
                HH:MM:SS
-------- ----- -------- ---- --------------- -------------- ----- ---------
04/02/94 10:15  0:08:32  100                       792-1234 LOCAL  $   0.00
04/02/94 11:26  0:06:07  110  CABOT COVE ME    207-873-0551 OS-OL  $   2.10
04/02/94 13:17  0:20:14  105                               INCOM  $   0.00
04/02/94 15:02  0:15:23  133  FRANCE              3392311234 IDDD   $  18.35
                --------                                          ---------
TOTALS          0:50:16         TOTAL CALLS: 4                    $  20.45
```

Facility/Cost Center Reports

```
                              FACILITY REPORT                              Page    1
05:26 PM                     Your Company Name                          Apr 08 1994
                   Report Period:  04/05/94 to 04/06/94
--------------------------------------------------------------------------------
Facility:  CO-LD

Department:   SALES
                               DURATION
COST CENTER        NUMBER      HH:MM:SS         COST         % USAGE
-----------        ------      --------       --------       -------
NORTHEAST             121      11:24:06       $ 186.40          9.6%
SUPPORT                21       3:44:18       $  19.70          6.4%
TRAINING               48       5:10:35       $  23.55          8.9%
WEST COAST             68       6:00:30       $  73.50          5.0%
```

```
                            COST CENTER REPORT                             Page    1
05:26 PM                     Your Company Name                          Apr 08 1994
                   Report Period:  04/05/94 to 04/06/94
--------------------------------------------------------------------------------
Department:   SALES
Cost Center:  NORTHEAST

             TRUNK                DURATION
FACILITY  REFERENCE   NUMBER     HH:MM:SS      COST      % USAGE
--------  ---------   ------     --------    --------    -------
CO-LOC    001            157     8:22:44    $   0.00      14.2%
CO-INC    001            190     8:08:41    $   0.00      14.1%
CO-LD     001            121    11:24:06    $ 186.40       9.6%
FX-LA     110              0     0:00:00    $   0.00       0.0%
FX-NY     210            110     8:12:30    $  29.52      34.2%
```

```
                          ALL FACILITIES REPORT                              Page   1
05:26 PM                     Your Company Name                          Apr 08 1994
                   Report Period:  04/05/94 to 04/06/94
--------------------------------------------------------------------------------
Department:   SALES

Cost Center   CO-LOC  CO-INC  CO-LD   FX-LA   FX-NY
-----------   ------  ------  ------  ------  ------
NORTHEAST      14.2%   14.1%    9.6%    0.0%   34.2%
SUPPORT         7.7%    5.6%    6.4%    7.7%    0.0%
TRAINING        8.3%   12.2%    8.9%    9.6%    7.6%
WEST COAST      3.2%    2.8%    5.0%   83.2%    0.0%
```

Organization Reports

```
                          ORGANIZATION SUMMARY REPORT                Page    1
09:39 AM                     Your Company Name                     Apr 08 1994
                       Report Period:  04/02/94 to 04/03/94
--------------------------------------------------------------------------------

                             SUMMARY BY - DEPARTMENT
                                        - COST CENTER
                          ********************************

DEPARTMENT                  NUMBER      DURATION         COST
     COST CENTER                        HH:MM:SS
------------------          ------      --------      ----------
MARKETING
     M2300                     30       1:45:56      $   52.06
     M5000                     10       0:34:10      $    6.50
                            ------      --------      ---------
MARKETING TOTALS:              40       2:20:06      $   58.56

CUSTOMER SRVC
     CS100                     65      10:25:56      $   28.16
     CS200                     75      10:10:44      $   26.94
                            ------      --------      ---------
CUSTOMER SRVC TOTALS:         140      20:36:40      $   55.10

SALES
     S6300                    109      20:33:40      $   28.16
     S3800                    120      19:50:40      $   26.94
                            ------      --------      ---------
SALES TOTALS:                 229      40:24:20      $  345.20

UNATTACHED
     UNATTACHED                 0      00:00:00      $    0.00
                            ------      --------      ---------
UNATTACHED TOTALS:             0      00:00:00      $    0.00

                            ------      --------      ---------
ORGANIZATION TOTALS:          409       62:21:06     $  458.86


End Of Cost Center Summary…
```

```
                                ORGANIZATION DETAIL REPORT                          Page
1
09:50 AM                                Company Name                               Apr 08
1994
                          Report Period:  04/05/94 to 04/06/94
                       MARKETING:  DAYTIME  L.D. OVER 30 MINUTES/$10.00
-------------------------------------------------------------------------------------------
-

Details for  - Department    :   MARKETING
             - Cost Center   :   390-44

Extension:  11           Name:   JIM KARR

DATE     TIME  DURATION TRUNK  DESTINATION  DIALED DIGITS  TYPE   ACCOUNT CODE
               HH:MM:SS
-------- ----- -------- ----- ------------- -------------- ----- -------------- ---------
04/05/94 08:16  0:36:07 88    FRESNO     CA 1-209-221-0551 WATS5                $    2.12
04/05/94 10:37  1:05:10 91    CARIBBEAN      0118098241536 IDDD                 $   30.20
04/05/94 13:17  0:09:36 91    FARGO      ND 1-701-251-1635 OS-OL                $   10.60
04/05/94 14:18  0:18:01 78    CYPRUS         0113573432214 IDDD                 $   16.53
                --------                                                        ---------
TOTALS           2:08:54           TOTAL CALLS: 4                               $   60.05



                                ORGANIZATION DETAIL REPORT                          Page
2
09:50 AM                                Company Name                               Apr 08
1994
                          Report Period:  04/05/94 to 04/06/94
                       MARKETING:  DAYTIME  L.D. OVER 30 MINUTES/$10.00
-------------------------------------------------------------------------------------------
-

Details for  - Department    :   MARKETING
             - Cost Center   :   390-44

Extension:  12           Name:   CHRIS TRAGESER

DATE     TIME  DURATION TRUNK  DESTINATION  DIALED DIGITS  TYPE   ACCOUNT CODE
               HH:MM:SS
-------- ----- -------- ----- ------------- -------------- ----- -------------- ---------
04/05/94 09:18  0:18:01 91    FARGO      ND 1-701-251-1635 OS-OL                $   14.20
                --------                                                        ---------
TOTALS           0:18:01           TOTAL CALLS: 1                               $   14.20
```

Selection Reports

```
                                    Selection                                 Page   1
09:39 AM                        Your Company Name                          Apr 8 1994

--------------------------------------------------------------------------------


                            ***   SELECTION REPORT   ***

       Beginning Date    : 04/06/94    Beginning Call Start-Time:  09:30
       Ending Date       : 04/06/94    Ending Call Start-Time   :  10:00

       Minimum Duration  : 00:00:00    Minimum Cost             :   0.00
       Maximum Duration  : 23:59:00    Maximum Cost             : 327.67

       Matching Trunk    : Any Trunk   Matching Call Type       : Any Call Type

       Lowest Extension  :  1000       Department               : Any Department
       Highest Extension :  9000       Cost Center              : Any Cost Center

                           Area Code  :  Any Area Code
                           Exchange   :  Any Exchange
                           Station    :  Any Station

                           Matching Account Code  :  Any Account Code

                           Detailed Reporting


TIME DURATION EXT  TRUNK DESTINATION  DIALED NUMBER  TYPE  ACCOUNT CODE  COST
---- -------- ---- ----- ----------- --------------- ----- ------------ -------
DATE  04/06/94

09:38  0:10:56 2109 010   UK          1-441-570-5599 IDDD                $ 14.43
09:39  0:02:52 2229 021   OLANDO FL   1-305-624-2400 OS-OL               $  1.20
09:40  0:01:34 2420 011                    262-5250 LOCAL                $  0.00
09:44  0:01:58 7147 012   DENVER CO   1-303-347-5192 OS-OL               $  1.67
      --------                                                          ---------
       0:17:20                                                         $   17.30

Records Selected    =      4
Records in Database =  10012

End of Selection Report.....
```

```
                                    Selection                                  Page   1
09:39 AM                         Your Company Name                          Apr 8 1994

--------------------------------------------------------------------------------


                              ***   SELECTION REPORT   ***

       Beginning Date    : 04/06/94    Beginning Call Start-Time:  09:30
       Ending Date       : 04/06/94    Ending Call Start-Time   :  10:00

       Minimum Duration  : 00:00:00    Minimum Cost             :   0.00
       Maximum Duration  : 23:59:00    Maximum Cost             : 327.67

       Matching Trunk    : Any Trunk   Matching Call Type       : Any Call Type

       Lowest Extension  :  1000       Department               : Any Department
       Highest Extension :  9000       Cost Center              : Any Cost Center

                             Area Code  :  Any Area Code
                             Exchange   :  Any Exchange
                             Station    :  Any Station

                             Matching Account Code  :  Any Account Code

                             Summary Reporting Only


Records Selected    =      4
Records in Database =  10012

End of Selection Report.....
```

Traffic Reports

```
                         Area Code Summary Report                   Page   1
05:30 PM                   Your Company Name                        Apr 10 1994
                 Report Period:  Apr 08 1994  to  Apr 08 1994
-----------------------------------------------------------------------------------
FACILITY: CO          Both incoming and outgoing calls

                                     TOTAL                 AVERAGE      % OF TOTAL
       AREA CODE  NUMBER   DURATION       COST      DURATION   COST/MIN   DURATION
          ---     ------   --------    ----------   --------  ----------    -----
          201          1    0:03:55  $       1.04    0:03:55  $      0.26      0.7
          303          3    0:19:27  $       4.79    0:06:29  $      0.24      3.3
          307          1    0:33:36  $       0.00    0:03:38  $      0.00      0.6
          312          7    0:33:36  $       6.90    0:04:48  $      0.20      5.7
          315          1    0:05:07  $       1.30    0:05:07  $      0.25      0.9
          317          1    0:03:28  $       0.00    0:03:28  $      0.00      0.6
          414          3    0:15:42  $       2.83    0:05:14  $      0.18      2.7
          415          3    0:14:48  $       3.12    0:04:56  $      0.21      2.5
          510          1    0:05:04  $       1.30    0:05:04  $      0.25      0.9
          517          1    0:21:00  $       4.83    0:21:00  $      0.23      3.6
          608          2    0:06:40  $       2.08    0:03:20  $      0.31      1.1
          700          1    0:03:20  $      50.00    0:03:20  $     15.00      0.6
          702          1    0:03:38  $       1.04    0:03:38  $      0.28      0.6
          716         57    6:56:14  $     157.67    0:07:18  $      0.37     70.5
          808          1    0:06:15  $      50.00    0:06:15  $      8.00      1.1
          818          1    0:04:20  $       1.30    0:04:20  $      0.30      0.7
          900          1    0:01:10  $      50.00    0:01:10  $     42.85      0.2
          970          1    0:01:10  $       0.23    0:01:10  $      0.19      0.2
        OTHER          4    0:21:30  $       3.64    0:05:22  $      0.16      3.6
                  ------   --------   ----------                                -----
AREA CODE TOTALS:     91    9:50:02  $     341.07                               100.0

End of Area Code Summary....
```

```
                       TRUNK SUMMARY REPORT                        Page    1
09:39 AM                 Your Company Name                         Apr 08 1994
                  Report Period:  04/02/94 to 04/03/94
--------------------------------------------------------------------------------

      TRUNK                     NUMBER           DURATION          COST
                                                 HH:MM:SS

     -------                    ------           --------        ---------
     ???????                         0            0:00:00        $    0.00
     010                            36            5:49:05        $  115.99
     011                             9            1:24:30        $   11.71
     012                            27            3:42:02        $   56.68
     021                           199           26:04:23        $    4.39
     022                            17            2:22:30        $  191.64
     023                            35            7:13:25        $   35.60
     101                            86           13:45:11        $   42.85
                                ------           --------        ---------
     ORGANIZATION TOTALS:          409           62:21:06        $  458.86


End Of Trunk Summary…
```

```
                          CALL TYPE SUMMARY REPORT                          Page    1
09:39 AM                        Your Company Name                        Apr 08 1994
                     Report Period:  04/02/94 to 04/03/94
-------------------------------------------------------------------------------

 CALL TYPE            NUMBER          DURATION             COST
                                      HH:MM:SS
-----------          ------          --------          ----------
ABN                       0           0:00:00          $   0.00
ANI                       0           0:00:00          $   0.00
ANIAB                     0           0:00:00          $   0.00
IDDD                     17           2:22:30          $ 191.64
INCOM                   178          25:14:03          $   0.00
IS-IL                     6           0:43:00          $   6.10
IS-OL                    80          13:02:11          $  37.75
IWTS0                     0           0:00:00          $   0.00
IWTS1                     0           0:00:00          $   0.00
IWTS2                     0           0:00:00          $   0.00
IWTS3                     0           0:00:00          $   0.00
IWTS4                     0           0:00:00          $   0.00
IWTS5                     0           0:00:00          $   0.00
LATA                      0           0:00:00          $   0.00
LOCAL                    57           7:56:52          $  72.78
MTS                       0           0:00:00          $   0.00
OS-IL                    35           7:13:25          $  35.60
OS-OL                    36           5:49:05          $ 115.99
SPCL                      0           0:00:00          $   0.00
SPEED                     0           0:00:00          $   0.00
WATS0                     0           0:00:00          $   0.00
WATS1                     0           0:00:00          $   0.00
WATS2                     0           0:00:00          $   0.00
WATS3                     0           0:00:00          $   0.00
WATS4                     0           0:00:00          $   0.00
WATS5                     0           0:00:00          $   0.00
ZERO+                     0           0:00:00          $   0.00
                     ------          --------          ----------
ORGANIZATION TOTALS:    409          62:21:06          $ 458.86

End Of Call Type Summary…
```

```
                            COST SUMMARY REPORT                             Page   1
09:39 AM                        Your Company Name                        Apr 08 1994
                     Report Period:  04/02/94 to 04/03/94
-------------------------------------------------------------------------------

         COST                NUMBER          DURATION             COST
                                             HH:MM:SS
    ----------------         ------          --------          ---------
    $  0.00 - $  0.99           307          42:08:32          $   59.08
    $  1.00 - $  2.99            63          12:19:22          $  103.99
    $  3.00 - $  9.99            32           6:21:21          $  170.62
    $ 10.00 - $ 19.99             5           1:03:51          $   82.83
    $ 20.00 - $ 49.99             2           0:28:00          $   42.34
    $ 50.00 - $ 99.98             0           0:00:00          $    0.00
    $ 99.99 - OVER                0           0:00:00          $    0.00
                             ------          --------          ---------
    ORGANIZATION TOTALS:        409          62:21:06          $  458.86


End Of Cost Summary…
```

```
                              DATE SUMMARY REPORT                          Page    1
09:39 AM                      Your Company Name                          Apr 08 1994
                   Report Period:  04/02/94 to 04/03/94
--------------------------------------------------------------------------------

      DATE                NUMBER            DURATION             COST
                                            HH:MM:SS
    --------              ------            --------          ----------
    04/02/94                 265            43:03:20          $   307.01
    04/03/94                 144            19:17:46          $   151.85
                            ------            --------          ----------
    ORGANIZATION TOTALS:     409            62:21:06          $   458.86

End Of Date Summary…
```

```
                           DURATION SUMMARY REPORT                           Page    1
09:39 AM                     Your Company Name                             Apr 08 1994
                     Report Period:  04/02/94 to 04/02/94
--------------------------------------------------------------------------------

            DURATION                        NUMBER       DURATION         COST
     HH:MM:SS - HH:MM:SS                                 HH:MM:SS
     ------------------                     ------       --------       ---------
     00:00:00 - 00:00:59                         0        0:00:00       $    0.00
     00:01:00 - 00:02:59                        47        1:40:33       $   11.48
     00:03:00 - 00:04:59                        93        7:03:28       $   71.72
     00:05:00 - 00:14:59                       207       34:24:57       $  277.73
     00:15:00 - 00:29:59                        60       18:03:11       $   94.53
     00:30:00 - 00:59:59                         2        1:08:57       $    3.50
     01:00:00 - OVER                             0        0:00:00       $    0.00
                                               ------       --------       ---------
     ORGANIZATION TOTALS:                      409       62:21:06       $  458.86

End Of Duration Summary…
```

```
                              TIME SUMMARY REPORT                          Page   1
09:39 AM                       Your Company Name                        Apr 08 1994
                      Report Period:  04/02/94 to 04/03/94
--------------------------------------------------------------------------------

         TIME                   NUMBER          DURATION               COST
                                                HH:MM:SS
    ---------------             ------          --------            ---------
    12:00A - 12:59A                0             0:00:00            $    0.00
    01:00A - 01:59A                0             0:00:00            $    0.00
    02:00A - 02:59A                0             0:00:00            $    0.00
    03:00A - 03:59A                0             0:00:00            $    0.00
    04:00A - 04:59A                0             0:00:00            $    0.00
    05:00A - 05:59A                0             0:00:00            $    0.00
    06:00A - 06:59A                0             0:00:00            $    0.00
    07:00A - 07:59A                0             0:00:00            $    0.00
    08:00A - 08:59A               45             7:52:51            $    1.80
    09:00A - 09:59A               67            10:29:15            $  120.90
    10:00A - 10:59A               70            10:20:26            $  128.87
    11:00A - 11:59A               66             8:33:21            $   48.25
    12:00P - 12:59P                8             1:10:20            $   19.76
    01:00P - 01:59P               41             7:33:43            $   17.96
    02:00P - 02:59P               42             6:17:36            $   28.70
    03:00P - 03:59P               38             5:08:04            $   16.33
    04:00P - O4:59P               30             4:38:10            $   66.05
    05:00P - 05:59P                2             0:17:20            $   11.32
    06:00P - 06:59P                0             0:00:00            $    0.72
    07:00P - 07:59P                0             0:00:00            $    0.00
    08:00P - 08:59P                0             0:00:00            $    0.00
    09:00P - 09:59P                0             0:00:00            $    0.00
    10:00P - 10:59P                0             0:00:00            $    0.00
    11:00P - 11:59P                0             0:00:00            $    0.00
                                ------          --------            ---------
    ORGANIZATION TOTALS:         409            62:21:06            $  458.86


End Of Time Summary…
```

Specifications

B

This appendix provides some technical information about the hardware and software requirements for running CAS Plus V3.1.1 on your personal computer (PC). The information is organized into the following topics:

- Processor
- Printer
- Serial Port Pinouts
- Switch Interface
- Remote Access Modem
- Capacities
- Maintenance Schedules

Processor

CAS Plus V3.1.1 requires a 386/25 Mhz, MS-DOS-based PC with the following minimum configuration:

- Memory — 4Mb RAM
- Disk drives — 80 Mb hard disk drive and one 3.5-in (1.44 Mb or 720 K) or 5.25-in (1.2 Mb or 360 K) floppy disk drive.
- Parallel port — one port (`LPT1`) for printer output (see *Printer* in this appendix for the list of supported printers)

- Serial port(s) — one port for SMDR input; the remote access option requires a second serial port. CAS Plus V3.1.1 supports RS-232C signalling conventions — see *Serial Port Pinouts* in this appendix
- Video display controller and monitor — one of the following:
  - — CGA adapter and a 640x200-pixel resolution, mono-chrome monitor
  - — EGA adapter and a 640x350-pixel resolution, mono-chrome or 16-color monitor
  - — VGA or Super VGA (supported as VGA) adapter and a 640x480-pixel resolution, 16-color monitor
  - — MGA adapter and a 720x348-pixel resolution, mono-chrome monitor
- Real-time clock (recommended)
- MS-DOS version 3.1, 3.2, 3.3, 4.01, 5.0, 6.0, or 6.2x. (All MS-DOS files must be kept at the same version.)
- `Config.Sys` — Uses the following definitions:

```
BREAK = OFF
BUFFERS = 30
FILES = 30
DEVICE = ANSI.SYS
```

Printer

CAS Plus V3.1.1 requires a parallel printer with a wide-carriage for its detail reports. For smaller carriage, report compression is available — provided the printer can start and stop compressed-mode printing controlled from the PC.

The table on the next page shows a default list of printers and control characters. Other printers may be added via the `Printer Control Parameters` function (in the `Configure` menu).

Printer Control Parameters					
Code	Printer Name	Start Compressed Mode Printer	Start Compressed Mode Control Char	Stop Compressed Mode Printer	Stop Compressed Mode Control Char
1	No compression	(none)	(none)	(none)	(none)
2	AT&T 477	SI	\xØF	DC2	\x12
3	AT&T 470	<Esc>Q	\eQ	<Esc>E	\eE
4	EPSON	SI	\xØF	DC2	\x12
5	HP LaserJet	<Esc>&K2s	\e&K2s	<Esc>&KØs	\e&KØs
6	IBM Graphic	SI	\xØF	DC2	\x12
7	IBM Color				
8	OKIDATA	GS	\x1Ø	RS	\x1E
9	AT&T 570	SI	\xØF	DC2	\x12
10	AT&T 571				
11	AT&T 572				
12	AT&T 573				
13	AT&T 580				
14	AT&T 581				
15	AT&T 583				
16	AT&T 593				

To print charts, the printer must have graphic-handling capabilities. The following printers (or compatibles) are supported:

- AT&T CAS Printer
- AT&T 570 and 571 (dot matrix) and 593 (HP Laser Jet Model)
- Epson 24 pin (LQ series) and 9 pin (FX series)
- HP LaserJet
- IBM Proprinter II
- PostScript printers (for transfer of chart files only)

Serial Port Pinouts

CAS Plus V3.1.1 supports RS-232C signalling conventions on its serial ports. Since many PCs have a 9-pin connector for their serial ports, the table below shows equivalent 25- and 9-pin positions.

Signal	25-pin	9-pin	Signal	25-pin	9-pin
Transmit Data (TD)	pin #2	pin #3	Signal Ground (SG)	pin #7	pin #5
Receive Data (RD)	pin #3	pin #2	Data Carrier Detect (DCD)	pin #8	pin #1
Request to Send (RTS)	pin #4	pin #7	Data Terminal Ready (DTR)	pin #20	pin #4
Clear to Send (CTS)	pin #5	pin #			
Data Set Ready (DSR)	pin #6	pin #6	Ring Indicator (RI)	pin #22	pin #9

Switch Interface

CAS Plus V3.1.1 requires a cable to link the SMDR port on the switch to the COM1 port on the back of the PC. The switch must be capable of transceiving RS232C signals:

- CAS Plus V3.1.1 sends these signals: Transmit Data (TD), Request to Send (RTS), and Data Terminal Ready (DTR). The switch must detect DTR so that it does not send records before CAS Plus V3.1.1 is ready to receive them.
- CAS Plus V3.1.1 expects these signals: Receive Data (RD) and, if supplied, Data Carrier Detect (DCD).

Remote Access Modem

The Remote Access feature requires a Hayes command set (AT) compatible modem, configured for:

- Interface-controlled signals: Data Terminal Ready (DTR), Data Carrier Detect (DCD), and Data Set Ready (DSR)
- "AT" command set recognition, command characters echoed, word result codes, and autoanswer enabled

The modem is cabled from its RS-232C port to the COM2 port on the back of the PC and from its "line" jack to the RJ11 wall jack of a telephone line installed for this purpose (DID or non-switch line).

Capacities

The database has the following capacities:

- Call records. A function of disk space — each record is 64 bytes. The maximum recorded cost is $327.67; the maximum recorded duration is 9:06:07 (32,767 seconds). A practical limit due to overall performance issue is 250,000 records.
- Extensions (one to 4-digit extensions):
  — model 100: 100 extensions
  — model 300: 150 extensions
  — model 500: 500 extensions
  — model 2000: 2,000 extensions
  — model 5000: 5,000 extensions
- Departments and cost centers (1 to 15 characters): unlimited
- Extension user entries: unlimited
  — last name (up to 15 characters)
  — first name (up to 10 characters)
  — alternate contact (up to 20 characters)
  — home phone (7 digits)

- Account codes (1 to 16-digit account codes):
  — model 100: 2,000 account codes
  — models 200 and 500: 5,000 account codes
  — models 2000 and 5000: 15,000 account codes
- Dialed Digit Patterns (1 to 16 characters): 300

  CAS Plus V3.1.1 includes a default Dialed Digit Processing table with entries that take care of most dialed number exceptions and may not require any additions or corrections:

  — Operator assisted calls are directed to the primary carrier's operator assisted rates; call type is set to ZERO+ and equal access prefixes are removed from the dialed number.

  — Calls to directory assistance, "dial-it" services, 800, and 900 service numbers are costed at special rates; the call type is set to SPCL.

  — Incompletely dialed calls are discarded.
- Facilities (1 to 5 digits): 24
- Access codes (1 to 5 digits): 32
- Trunks (1 to 7 digits): 255
- Carriers: 2 — A primary and secondary carrier.
- Call types (1 to 5 characters): 51 — of which, the following names are system defaults identifying the type of call dialed (other names are derived from the facility name, see below)

ABN	Abandoned (far end disc.)	ANI	Incoming ANI call
ANIAB	Abandoned , ANI call	IDDD	Int'l Direct Distance Dial
INCOM	Incoming	IS-IL	In-State, In-LATA
IS-OL	In-State, Out-of-LATA	LOCAL	Local
OS-IL	Out-of-State, In-LATA	OS-OL	Out-of-State, Out-of-LATA
SPCL	Special number	LATA	Local Access Transport Area
MTS	Message Telephone Service	IWTSN	In WATS Band n=0-6
WATSN	WATS Band n=0-6	ZERO+	Operator assisted

Maintenance Schedules

We recommend maintaining the database as per the following schedule:

Task	Weekly	Monthly	Quarterly	As needed
Backup System	Archive			
Reporting Period		Update Dates		
Facility Cost		Update rates		
Dialed Digit Processing		Update rates		New definitions
Account Codes		Clear old accounts		New accounts
Call Record Management		Clear old calls		
Rates by Tariff			Install Update	
Company Organization				Personnel changes
Schedule Reports				New definitions
Cost Adjustments				New definitions
Define Passwords				New definitions
PBX/KTS Port Config.				Equipment changes
Telephone Sys. Config.				Equipment changes
Check/Repair Database		Before backup		After power failure
Carrier Information				New definitions
Call Processing Config.				New definitions

Glossary

A

access code
A field in a call detail record that contains a switch-identifier representing the group of trunk lines used by a telephone facility such as central office; in some switches, access codes are the digit(s) dialed to be connected to an outgoing trunk. The application uses access codes to associate facility costs.

account code
A field in a call detail record that contains a user-defined identifier (some systems use *authorization codes,* instead; this depends on which feature is reported by the switch and which switch interface you selected at installation). Account codes are typically dialed when placing a call to identify the call subject matter and/or client account.

account code reports
A report listing summary or detailed call information for each active client account number.

add
The <A>dd command; used to append a new record to a file.

answer supervision
The capability to detect when a telephone call has been answered.

area code
A geographic area encompassing many central office exchanges. A telephone number, for example 716-385-6440, identifies the area code (716) and central office exchange (385) used by the subscriber's line (6440). An area code is also called an NPA (Numbering Plan Area).

area code report
A report providing inforamtion for incoming and/or outgoing calls, sorted by area codes.

ASCII
The standard digital code for alphanumeric characters sent between computers established by the American Standards Committee for Information Exchange.

authorization code
A field in a call detail record that contains a user-defined identifier. If you installed a switch interface that uses authorization codes, the application reports these identifiers as *account codes*. Authorization codes are typically dialed when placing a call to identify the call origin or charge information.

automatic number identification (ANI)
The ability of ISDNs' equipment to pass to their subscribers (in digital form) the phone number of subscribers' callers. ANI is supported for switches that provide this feature.

autorecovery
A feature that automatically restarts background processes in the event of a PC power down.

B

backup
A function which allows copying into diskettes all system databases.

baud rate
A measurement of digital transmission speed representing the number of signal events per second. If the signal event represents the presence or absence of one bit, then the baud is identical to bits per second.

bits per character
The length (number of bits) of a single character transmission.

buffer
A temporary storage area in your PC.

bye
The <B>ye command; used to exit a data entry screen and return to the originating menu window.

C

call detail recording (CDR)
A switch capability with which the details concerning the path of a call from origination to termination are recorded as a call detail record.

call type
The type of telephone service used by the call. Local, IDDD, WATS, etc. are call type examples used in reports.

carrier
1. A company that provides telephone services, such as AT&T Communications, MCI, and US SPRINT. 2. A field in a call record that contains the interexchange carrier (IXC) code for the carrier used by a call.

central office (CO)
The telephone company facility that routes and connects calls from a local area.

correction time
An estimate of how long it takes to make a telephone connection. This includes all non-chargeable time from dialing to answering a call.

cost center
A level in a company's organizational hierarchy to allocate telephone expenses.

cost center report
A report that summarizes facility usage, broken down by cost centers.

cursor
A movable pointer that designates where your input is entered on the screen or where you select an item from a displayed menu. The cursor occupies one character position.

D

database
Information in tables that identifies its users' equipment, company organization, geographical area, etc.

data carrier detect (DCD)
An RS-232C signal.

data entry screen
The screen display used to view and/or edit database records.

data set ready (DSR)
An RS-232C signal.

data terminal ready (DTR)
An RS-232C signal.

default
The value, option, or feature automatically supplied by the system, unless the user specifies otherwise.

department
A level in a company's organizational hierarchy used to allocate telephone expenses.

destination
The city and state reached by a phone call.

detail
The <D>etail command; used to access a "branch" in a tree- like structured file.

dialed digit processing
A feature whereby dialed number inconsistencies can be identified for additional processing.

dialing pattern
The way a telephone number is dialed from a locality.

directory
1. A set of functions used to look up, change, or print associated information from the Company Organization table. 2. Reports listing the company's employees, their extensions and departmental information sorted under either department, extension, or user names.

Disk Operating System (DOS)
The program that manages your PC's resources — memory, disk drives, etc. You must load the DOS system disks before you can use any application software.

diskette
A thin, flexible platter (also called a floppy disk) coated withe magnetic material and used as a storage medium.

E

enter
The <ENTER> key in the PC keyboard, referred to as <RETURN> on screen displays.

equal access
The ability to place long-distance calls over any carrier network. A customer's primary carrier is typically accessed by dialing 1 or 0 before the telephone number, any other carrier is accessed by its 101xxxx dialed code.

escape
The escape key on the keyboard referred to as <ESC> on screen displays; used to close a window or execute an <A>dd, <Q>uery, or <U>pdate command.

exchange
A geographic area within which calls are generally toll-free. A telephone number, for example, 716-385-6440, identifies the area code (716) and CO exchange (385) used by the subscriber's line (6440).

extension
A field in a call record that contains the number of a voice terminal, indicating the origin of an outgoing call or the destination of an incoming call.

F

facility
A service provided by a telephone company to its subscribers.

facility report
A report that provides summary usage information for each facility in your *Telephone System Configuration.*

file
A collection of program, instructions, or data records stored on a disk. Each file has a label, following the operating system naming conventions.

foreign exchange (FX)
A line connecting a subscriber's switch to a remote CO.

format
The arrangement or layout of data.

H

hard disk
A rigid platter coated with magnetic material and used as a storage medium.

help
The <F1> and the <Ctrl-w> keys on the keyboard; used to display information about functions.

holidays
The holidays during which telephone discount rates apply.

I

Integrated Services Digital Network (ISDN)
A network that provides end-to-end digital communications to support a wide range of services, including voice and data, to which users have access by a set of standard, multipurpose user network interfaces.

interexchange carrier (IXC)
See carrier.

interface
A device or system forming a common boundary at which independent devices or systems interact.

International Direct Distance Dial (IDDD)
The call type for calls to a foreign country dialed using the 011 toll prefix.

ISDN
See *Intergrated Services Digital Network.*

IS-IL
The call type for in-state, in-LATA calls; a toll call placed within its own state and LATA boundaries.

IS-OL
The call type for in-state, out-of-LATA calls; a toll call placed within its own state, but outside its LATA boundaries.

IXC
Interexchange carrier; see *carrier.*

K

KTS
Key Telephone System; see switch.

L

LATA
Local Access Transport Area; a region covering adjacent COs. Calls within their LATA are serviced by the local telephone company, calls outside their LATA require the services of a long distance carrier.

login
The process of gaining access to a computer system.

M

master
The <M>aster command; used from a "lower branch" to access the "parent" record in a tree-like structured file.

Mb
Megabyte. One million bytes.

Megacom
Megacom 800 and Megacom are two services of AT&T similar to InWATS and OutWATS — except that the local lines from a subscriber's site and the AT&T service office are the responsibility of the subscriber (typically T1 lines).

memory
The working storage area in the computer where programs and data are processed.

menu
A list of selectable items on a screen.

Message Telephone Services (MTS)
A call rating system for long distance services.

minimum duration
A user-specified threshold value set to help validate calls.

N

NANP
The North American Numbering Plan. Refers to North America's method of identifying telephone trunks in the public network. Beginning in 1995, the NANP — to accommodate additional area codes —allows any digit other than "0" or "1" for its second digit.

next
The <N>ext command; used to access the next sequential record in a file retrieved by the <Q>uery command.

O

OS-IL
A call type for out-of-state, in-LATA calls; a toll call that crossed its state boundaries, but stayed within its own home LATA.

OS-OL
A call type for out-of-state, out-of-LATA calls; a toll call that crossed both its state and LATA boundaries.

P

parity
A method used by some devices to check that data was transmitted correctly. Parity can be “odd,” “even,” or not used at all.

password
A unique string of characters that a user enters to access a program.

PBX
Private Branch Exchange. See switch.

port
The data transmission "outlet" on a device used for communicating with other devices.

preselected reports
A collection of up to eleven previously defined reports that can be run at pre-scheduled times.

previous
The <P>revious command; used to access the record previously displayed on the screen.

private line
A telephone line between two points reserved for the use of a single customer.

Q

query
The <Q>uery command; used to retrieve selected records from a file. The first record will be displayed on the screen. Subsequent records, if any, are displayed using the <N>ext command.

R

RAM
Random access memory. The primary memory in a computer.

RD
Receive data. An RS-232C signal.

region
The geographical area reached by a phone call.

remote access
A feature for users who have purchased this service, whereby technical personnel can access the system for service and diagnostics.

remove
The <R>emove command; used to permanently delete a database record from its file.

return
The carriage return key on your PC keyboard. Referred to as <RETURN> on screen displays.

reporting period
The date interval covered in a report.

restore
The function that allows you to copy back into storage the system database, previously backed up into diskettes.

RS-232C interface
Recommended standard number 232, revision C; an Electronic Industries Association (EIA) standard 25-pin interface between data terminal equipment (DTE and data communication equipment (DCE) using serial binary interchange signals.

S

selection report
A report that lists summary or detailed call record information based on the selection of a time, date, cost, duration, extension, account code, number, etc.

SMDR
Station Message Detail Recording. A switch capability with which the details concerning the path of a call from origination to termination are recorded in the form of an SMDR record. Also called *call detail recording* (CDR).

Software Defined Network (SDN)
An AT&T service for connecting subscriber's multiple sites in a network.

SPCL
The call type for "special numbers," such as 411, 800 and 900 numbers.

stop bits
The number of bits that trail after the transmission of a single character.

switch
The software-controlled communications processor complex that interprets dialing pulses, tones, and/or keyboard characters, and makes the proper interconnections both within the system and external to the system. The switch itself consists of a digital computer, software, storage device (memory), and carriers with special hardware to perform the actual connections. A switch provides voice and/or data communications services (including access to public and private networks) for voice and data terminals on a customer's premises.

T

T1
A digital facility that can carry multiple, simultaneous voice or data communications at high speeds on the same physical link. At T1 line is connected to a customer's switch using transmit/receive interface equipment that translates the voice or data streams into and out of a carrier's digital network.

threshold
A critical level which, when reached, produces a system response.

tie
A line that "ties" together two telephone switches. Extensions at either point, as well as the CO exchange, can be dialed locally.

traffic reports
A collection reports that focus on trends, telephone usage, productivity, etc.

transmit data (TD)
An RS-232C signal.

trunk
1. A dedicated communication channel between two switches. 2. A field in a call detail record that contains the identifier for the specific trunk (or group of trunks) used by the call. The application translates the "access code used" in AT&T switches as trunks.

U

update
The <U>pdate command; used to edit the information in the record currently on display.

V

valid calls
Calls that have computable costs. That is, calls over the duration threshold, routed through defined trunks, and dialed using a pattern "understood" as able to reach a destination. Invalid calls are discarded.

W

WATS
Wide Area Telephone Services; a type of long distance service provided by some telephone companies like MCI and AT&T, where bulk usage over a billing period determines the rates for calls within the same distance band.

window
A display format resembling a box, containing a menu listing, data entry fields, help text, etc.

Z

ZERO+
The call type for operator-assisted calls.

Index

D

E

F

H

I

K

L

M

N

O

P