AT&T 585-305-506
Issue 3
Comcode 106917172
October 1992

AUDIX®

Call Detail Recording Package

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.

Your Responsibility for Your System's Security

You are responsible for the security of your system. AT&T does not warrant that this product is immune from or will prevent unauthorized use of common-carrier telecommunication services or facilities accessed through or connected to it. AT&T will not be responsible for any charges that result from such unauthorized use. Product administration to prevent unauthorized use is your responsibility and your system administrator should read all documents provided with this product to fully understand the features available that may reduce your risk of incurring charges.

Federal Communications Commission Statement

Class A Statement. This equipment generates, uses, and can radiate radio-frequency energy and, if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment.

Operation of this equipment in a residential area is likely to cause interference, in which case the user at his/her own expense will be required to take whatever measures may be requiured to correct the interference.

Network Registration Number. This equipment is registered with the FCC under FCC network registration number AS593M-14695-MAE.

Trademarks

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

Ordering Information

The ordering number for this document is 585-305-506. To order this document, call the AT&T Customer Information Center at 1-800-432-6600 (In Canada, use 1-800-255-1242). For more information about AT&T documents, refer to the *Business Communications Systems Publications Catalog* (555-000-010).

Comments

To comment on this document, return the comment card at the front of the document.

Acknowledgment

This document was prepared by the BCSystems Product Documentation Development Department in Denver, CO.

Contents

LIST OF FIGURES

LIST OF TABLES

About This Document

This document describes the AUDIX® Call Detail Recording (CDR) feature. CDR is a software program installed on a personal computer (PC) that provides the AUDIX system with the ability to create special records (call detail records) that you can transfer from the AUDIX system to the PC for further processing.

CDR is installed on a PC along with the AUDIX Administration and Data Acquisition Package (ADAP), and uses some of ADAP's capabilities. Like ADAP, CDR uses two interfaces to the AUDIX system:

- The ADAP menu-driven interface called PC2AUDIX
- The ADAP command line interface

INTENDED AUDIENCES

This document contains information for the following two primary audiences:

- AUDIX administrators — to install and administer CDR, and download CDR data using the PC2AUDIX interface.
- Data processing professionals — to download CDR data using the ADAP command line interface, and to understand the CDR data format so they can use it in customized traffic and billing applications.

Secondarily, this document contains information for traffic engineers, programmers, or other persons responsible for incorporating CDR data into programs to create AUDIX traffic, billing or usage reports.

PREREQUISITE SKILLS AND KNOWLEDGE

The audiences of this document who will be installing, administering, and/or using the CDR feature must have a working knowledge of PCs, ADAP, and AUDIX administration forms.

ORGANIZATION OF THIS DOCUMENT

This document is organized as follows:

- Chapter 1, *Introduction*, provides an overview of the CDR feature, describes the data that the AUDIX system collects for CDR, and describes the relationship between CDR and ADAP.
- Chapter 2, *Installing CDR*, describes CDR installation prerequisites, cabling the AUDIX system to the ADAP PC, and installing CDR software.
- Chapter 3, *Administering CDR*, describes how to administer CDR on the AUDIX system, on the switch, and on the ADAP PC.

- Chapter 4, *Using CDR*, describes how to collect CDR data, how to download it either on demand or scheduled via ADAP, and how to perform routine CDR tasks such as changing the maximum number of CDR records that the AUDIX system collects.
- Appendix A, *Cabling Configurations*, contains diagrams and parts lists for the four types of connections that can be used to transfer CDR data from the AUDIX system to the ADAP PC.
- Appendix B, *Applications and Examples*, describes sample applications for the CDR feature and the records that would be created for these applications.
- Appendix C, *Event Log Error Messages*, provides a list of the error messages that may occur with CDR and possible reasons for the message.
- Appendix D, *Voice Session CDR Records*, describes the structure, format, and content of voice session CDR records as stored on the ADAP PC. This appendix also shows (by the content of various fields) how CDR data differs depending on which type switch the AUDIX system is connected to or depending on the type of voice session for which the AUDIX system created the record.
- Appendix E, *Outgoing Call CDR Records*, describes the structure, format, and content of outgoing call CDR records as stored on the ADAP PC.
- Appendix F, *System Activity CDR Records*, describes the structure, format, and content of system activity CDR records as stored on the ADAP PC.
- Appendix G, *Network Session CDR Records*, describes the structure, format, and format of network session CDR records as stored on the ADAP PC.

An index is also included in this document.

HOW TO USE THIS DOCUMENT

Use this document together with the *AUDIX Administration and Data Acquisition Package* (585-302-502). Place this document in the back of the ADAP binder to keep all the information together.

In using these documents, first become familiar with the ADAP manual, especially the PC2AUDIX and command line interface information. (All audiences will require this ADAP background.)

AUDIX administrators who will install, administer, and use CDR should read the following chapters:

- Chapter 1, *Introduction*, to get an overview of CDR.
- Chapter 2, *Installing CDR*, to verify that all the prerequisites are met, to complete the connection between the ADAP PC and the AUDIX system for transferring CDR data, and to load the CDR software.
- Chapter 3, *Administering CDR*, to familiarize yourself with the steps for administering CDR on the AUDIX system, the switch, and the ADAP PC.
- Chapter 4, *Using CDR*, to learn how to use ADAP forms to transfer CDR data from the AUDIX system to the ADAP PC either on demand, or by scheduling the data transfer, and how to modify CDR parameters on AUDIX administration forms.
- Appendix A, *Cabling Configurations*, to see the complete data path (for all four configurations) between the AUDIX system and the ADAP PC, and to verify parts lists, if necessary.
- Appendix C, *Event Log Error Messages*, to understand possible error messages for troubleshooting CDR problems.

Data processing professionals, who will use the ADAP command line language to transfer CDR data to the PC should read the following chapters:

- Chapter 1, *Introduction*, to get an overview of CDR.
- Chapter 4, *Using CDR*, to learn how to use the ADAP command line language to transfer CDR data from the AUDIX system to the ADAP PC on demand, and to learn to use the ADAP scheduling form to schedule the data transfer.
- Appendix B, *Applications and Examples*, to find out various uses of CDR, and the records that are produced for each.
- Appendix C, *Event Log Error Messages*, to understand possible error messages for troubleshooting CDR problems.
- Appendices D, E, F, and G, *Voice Session CDR Records*, *Outgoing Call CDR Records*, *System Activity CDR Records*, and *Network Session CDR Records*, respectively, to get a thorough understanding of how CDR data is structured for all record types and with all switch configurations.

Traffic engineers, programmers, and other persons responsible for creating programs using the CDR data to generate AUDIX traffic, billing and usage reports, should read Appendices D, E, F, and G, *Voice Session CDR Records*, *Outgoing Call CDR Records*, *System Activity CDR Records*, and *Network Session CDR Records*, respectively, to get a thorough understanding of how CDR data is structured for all record types and with all switch configurations.

CONVENTIONS USED IN THIS DOCUMENT

The following typographic conventions are used in this document:

- Terminal keys that you press are shown in rounded boxes. For example, an instruction to press the return, carriage return, or equivalent key is shown in this document as:

  Press RETURN.

- The word *enter* means to type a value and press RETURN. For example, an instruction to type `y` and press RETURN is shown in this document as:

  Enter **`y`** to continue.

- Two or three keys that you press at the same time (that is, you hold down the first key while pressing the second key and, if appropriate, the third key as well) are shown together in a rounded box and are separated by hyphens. For example, an instruction to press and hold ALT while typing the letter *d* is shown in this document as:

  Press ALT-d.

- Information that is displayed on your terminal screen — including screen displays, field names, prompts, and error messages — is shown in typewriter-style constant-width type. Information that you enter from your keyboard is shown in constant-width bold type. Here is an example:

  At the `Login ID?` prompt, enter **`snowfox`**

- Variables that the system supplies or that you must supply are shown in italic type. For example, an error message that is displayed on the screen with one of your specific filenames might be shown generically in this document as:

  `Your file` *filename* `is formatted incorrectly.`

TRADEMARKS AND SERVICE MARKS

The following trademarks are mentioned throughout this guide:

- AUDIX® System is a registered trademark of AT&T.
- DEFINITY® Communications System is a registered trademark of AT&T.
- DIMENSION® PBX is a registered trademark of AT&T.
- ESS™ Switch is a trademark of AT&T.

RELATED RESOURCES

This section lists all resources related to CDR and its use.

- For a complete description of ADAP and its use, refer to the *AUDIX Administration and Data Acquisition Package* (585-302-502).
- For complete instructions on installing various AUDIX configurations, refer to *AUDIX Installation* (585-305-105).
- For details on AUDIX-related switch translations, refer to *Switch Administration Guide for AUDIX* (585-305-505).
- For complete instructions on how to configure, install, and administer an AUDIX network, refer to the *AUDIX Networking* (585-300-903).

To order additional AT&T documents, call the AT&T Customer Information Center by dialing the toll free number (1-800-432-6600) and requesting each item by the appropriate document number.

For information about other AUDIX documents, refer to the *AUDIX Documentation Guide* (585-300-010).

HOW TO MAKE COMMENTS ABOUT THIS DOCUMENT

The reader comment card is located after the title page. While we have tried to make this document fit your needs, we are interested in your suggestions for improving it and urge you to fill one out.

If the reader comment card has been removed from this document, please send your comments to:

AT&T Technical Publications Department
Room 22-2C11
11900 North Pecos Street
Denver, Colorado 80234

AUDIX Helpline Information

NOTE

Installation is not included in the purchase price for the Call Detail Recording (CDR) feature; therefore, you will be billed for all calls to the helpline regarding CDR installation. Also, the AUDIX helpline service is *not* there to help you write or debug programs for using or interpreting CDR data.

The AT&T AUDIX helpline is a centralized telephone information service that provides a fast and convenient way for AUDIX administrators and technicians to report problems and get information about AUDIX capabilities and administration procedures.

The AUDIX helpline is free of charge for calls regarding CDR administration or troubleshooting, as long as your AUDIX is under warranty or if your company has purchased a maintenance contract. However, calls to the helpline are billable once your AUDIX is out of warranty, if your company does not have a maintenance contract, or if your calls are regarding CDR installation.

Calls to the AUDIX helpline are handled by AT&T personnel using an automated tracking system. You only need to give your name and the name of your company to the support representative who answers your call. (Of course, if your company has multiple locations or networks of AUDIX machines, you may need to provide more identifying details to the support representative, such as your location or the name of your machine.)

Once you have established your identity, your pertinent information (name, location, configuration, maintenance contract information, recent system trouble history) is displayed on the support representative's screen. The support representative can then answer your questions or help you isolate and solve your problem either by talking you through a particular troubleshooting procedure or by remotely accessing your system and performing the troubleshooting procedure.

AT&T AUDIX HELPLINE

1-800-56-AUDIX (1-800-562-8349)

8am to 5pm Monday through Friday

Excluding AT&T holidays

(Helpline hours are for the time zone where the call originates.)

WHO SHOULD CALL THE AUDIX HELPLINE

The helpline is intended to provide support for AUDIX administrators and technicians. AUDIX subscribers should not call the helpline directly. Instead, subscribers should direct their questions or problems to their AUDIX administrator, who can solve most routine subscriber issues or call the helpline for assistance.

WHAT TO DO BEFORE YOU CALL

Gather all relevant facts prior to calling the helpline. Then read through your documentation before calling the helpline. (You can find many answers in your documentation.)

WHAT THE HELPLINE COSTS

The AUDIX helpline service is provided at no extra charge for calls regarding CDR administration or troubleshooting, as long as your AUDIX system is under warranty or if your company has purchased a maintenance contract. However, calls to the helpline are billable once your AUDIX system is out of warranty, if your company does not have a maintenance contract, or if your calls are regarding CDR installation (installation is not included as part of the CDR purchase price).

1. Introduction

The AUDIX Call Detail Recording (CDR) feature is a separately orderable software package. CDR consists of two software pieces: one piece is included with the standard AUDIX software, and one piece (contained on a floppy diskette) you install on the same PC as your AUDIX Administration and Data Acquisition Package (ADAP).

CDR provides the following capabilities:

- To create special CDR records containing detailed billing and traffic information on the following AUDIX activities:
  - — Voice sessions
  - — Outgoing calls
  - — Network sessions
  - — System activities that may affect CDR data collection for the other two record types
- To download the CDR records to the ADAP PC where you can use the data to create billing reports, or you can upload it to a mainframe
- To archive the CDR records on tape or floppy diskettes

When the CDR feature is activated (via the AUDIX `system : cdr` form), it provides the AUDIX system with the ability to create and store a CDR record each time one of the above activities occurs. Then using ADAP, you can download the CDR records to the ADAP PC, where they can be used in customized programs to generate AUDIX traffic, billing, and usage reports, then archived to tape or floppy diskettes.

NOTE

Initially, CDR must be activated separately on each AUDIX machine by the Technical Service Center (TSC), then you can activate or deactivate it per machine using the `system : cdr` form.

Also, the AUDIX CDR package does *not* include the programs nor any capabilities for generating billing and usage reports. Your company must provide these programs.

The CDR capabilities are similar to ADAP—collecting data and downloading it to the PC. However, the data that the AUDIX system collects for CDR contains specific information on individual subscriber system usage and connection time, as well as information for all calls originated by the AUDIX system, including outcalling. This information is not available without the CDR feature. This new data on the various voice sessions, outgoing calls, network sessions, and system activities allows your company to create more comprehensive and accurate reports, such as billing reports.

CDR RECORD DESCRIPTION

CDR records are information records containing discrete fields of data called details. The types of CDR records are as follows:

- Voice session
- Outgoing call
- Network session
- System activity

When CDR is activated, the AUDIX system always creates system activity CDR records; however, the AUDIX system only creates the voice session, outgoing call, or network session CDR records if you enable them on the `system : cdr` form. (This is described in more detail in the *Administering CDR on the AUDIX System* section in Chapter 3, *Administering CDR*.)

Voice Session CDR Records

When you enable voice session CDR records, the AUDIX system creates one record for every individual voice session (a single phone call or voice port access could result in multiple voice session CDR records). The voice session CDR records are composed of details (or fields) that specify the routing of a call handled by the AUDIX system (calling party ID, called party ID, AUDIX port ID, mailbox IDs and their respective community IDs); the time and duration of the call; the reason the AUDIX system was employed (direct call, redirected call, outcall, etc.); the type of session (Voice Mail, Call Answer, Automated Attendant, or other feature-related reference); the message activity (messages created, played, saved, and deleted); and log-in attempts. See Appendix D, *Voice Session CDR Records* for details on this record type.

Outgoing Call CDR Records

When you enable outgoing call CDR records, one record is created for every outgoing call originated by the AUDIX system via a voice port. This includes call transfers, outcalls, outgoing message delivery calls and stand-alone switch connection message waiting indications sent over a voice port.

If the outgoing call results in a voice session and voice session CDR records are enabled, the AUDIX system creates a voice session CDR record also. (the AUDIX system does not create a voice session CDR record for message waiting indication calls.) See Appendix E, *Outgoing Call CDR Records* for details on this record type.

Network Session CDR Records

When you enable network session CDR records, the AUDIX system creates one record for every incoming and outgoing AUDIX networking call. This includes AUDIX digital networking, AMIS analog networking, as well as outgoing message deliveries.

The AUDIX system will also create a network session CDR record for every non-networking call that uses an AUDIX networking data port. This includes calls for CDR and Text Services applications. See Appendix G, *Network Session CDR Records* for details on this record type.

System Activity CDR Records

System activity records are enabled whenever the CDR feature is activated (you cannot disable this CDR record type). System activity records are created when:

- Time zone or daylight savings status where the AUDIX system is located is changed
- The system clock is changed or reset (except at system restart)
- A non-empty CDR file is overwritten
- The CDR memory buffer is overwritten due to an I/O failure
- CDR data is corrupted
- The start and end of a CDR file transmission between the AUDIX system and the ADAP PC

See Appendix F, *System Activity CDR Records* for details on this record type.

CDR'S RELATIONSHIP TO ADAP

CDR and ADAP are separate features that are loaded on the same PC.

NOTE

Although these features use the same PC, CDR has data transfer requirements that prevent it from running on all the same model PCs as ADAP. Please see the list of CDR supported PCs in the *Prerequisites* section of Chapter 2.

Like ADAP, CDR allows you to download AUDIX data to the PC. Other than some traffic data, CDR data is different from the ADAP data. It is collected separately by the AUDIX system provides a greater level of detail, and is downloaded to the PC via a different COM port and cable connection (the AUDIX system must have an ACC or ACCE board installed for the CDR cable connection).

Although CDR is a separate feature, it does not have its own user interface. It uses the two ADAP interfaces—PC2AUDIX forms interface and the command line interface.

Before you can install, administer, or use CDR, you must thoroughly understand ADAP. Therefore, if you have not already read the *AUDIX Administration and Data Acquisition Package* (585-302-502), please do so before continuing with this document.

2. Installing CDR

This chapter describes the prerequisites and procedures for installing the CDR feature. It contains the following sections:

- Prerequisites
- Task 1: Complete the AUDIX-to-PC cable connection
- Task 2: Install the CDR software

Read each of these sections before you begin to make sure all the prerequisites are complete, that you have all the required hardware and software, and you are familiar with the full procedure.

PREREQUISITES

The prerequisites for installing CDR depend on the selected configuration. (The configuration should have been determined before the CDR feature was purchased.) There are four possible configurations:

- DCP data module connection
- DCP modem pool connection
- RS-232 modem connection
- RS-232 direct connection

Each of these configurations connects to one of the PCs supported by CDR. The supported PCs include the following:

- AT&T 6386/25 Work Group Station (WGS)
- AT&T 6386/SX/EL WGS
- AT&T 6386 WGS
- AT&T 6286
- AT&T 6312 WGS
- AT&T 6300
- Compaq 386/20E

NOTE

This list is a subset of the PCs supported by ADAP. If you have had ADAP installed prior to installing CDR, make sure the PC you are using is in the list above.

For more complete configuration information, see Appendix A. *Cabling Configurations*. It contains diagrams of each of these configurations along with a complete parts list. If you do not know which configuration you will be installing, ask your Telecommunications Manager.

The prerequisites for each of the configurations are listed below. Make sure all the prerequisites for your configuration are complete before you install the CDR feature:

- For all configurations:
  - — The ACC or ACCE board must be installed in the AUDIX system. This must be done for each AUDIX machine that will be using the CDR feature.

    AT&T Services completes this as part of the purchase of the ACC/ACCE board. *AUDIX Networking* (585-300-903) describes this procedure.
  - — The AUDIX system is up and running.
  - — The CDR feature must be activated by the Technical Service Center (TSC) on *each* AUDIX machine for which CDR was purchased.

    Your AT&T Account Team places a special service order for activating CDR (PEC 1253-CDR, coordination code 07) at the time they place the order for the CDR feature (PEC 70254).

    You can see if CDR has been activated by checking the `call detail recording active` field on the `system : cdr` form. If this field contains a `y`, CDR is active, if it contains an `n`, call your AT&T Account Team and tell them your CDR feature is not active on this particular AUDIX machine.
  - — A PC with AUDIX Administration and Data Acquisition (ADAP) software (including PC2AUDIX) must be installed and connected to the AUDIX system.

    Your company must install the PC unless they have submitted an order for AT&T Services to install it; however, your company must install the ADAP software regardless of who installs the PC. The *AUDIX Administration and Data Acquisition Package* (585-302-502) contains recommended PC configurations and software installation procedures.
- For all configurations except the direct connection:
  - — The AUDIX ACC/ACCE board must be connected to the switch and translated.

    Your company must complete the connection and translations unless they have submitted an order for AT&T Services to perform this. The *Switch Administration for AUDIX Voice Messaging* (585-305-505) describes these translations.
  - — The CDR connection to the PC must be translated on the switch.

    Your company must complete these translations unless they have submitted an order for AT&T Services to complete this. The *Administering CDR on the Switch* section in chapter 3, *Administering CDR*, describes these translations.
  - — House wiring must be installed between the switch and the room containing the ADAP PC.

- For the DCP/modem pool connection only:

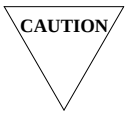
  In addition to the above prerequisites, the modem pool must be installed and translated on the switch.

  AT&T Services completes this as part of the purchase of the modem pool. The *AUDIX Installation* (585-305-105) describes this procedure.

- For the direct connection only:

  An RS-232C cable is connected between the AUDIX ACCE board and a specially-engineered AT&T ACCE null modem (PEC 70287).

  Your company must complete this unless they have submitted an order for AT&T Services to install the null modem. *AUDIX Networking* (585-300-903) describes this procedure.

  You *must* use either the specially engineered AT&T ACCE null modem or a custom RS-232 cable for this connection. Using an improper null modem or cable may damage equipment.

- In addition to the equipment required for the preceding prerequisites, the following hardware and software must be onsite:

  — One 50-foot, M25A RS-232 cable with a male connector on one end and a female connector on the other end.

  — One of the following:

    - For the DCP data module connection, one 7400A data module, or an MPDM with associated cable
    - For the DCP modem pool or RS-232 modem connection, one Hayes-compatible asynchronous modem with associated cable

  — The Call Detail Recording Software and Installation Program diskette

  You may require additional equipment, depending on the configuration and which portions of the installation AT&T Services was contracted to complete. Check with your Telecommunications Manager for complete details.

TASK 1: COMPLETE THE AUDIX-PC CABLE CONNECTION

This section describes how to complete the cable connection (for transferring CDR data) between the AUDIX system and the ADAP PC. Even though there are four possible configurations for this connection, this task is basically the same for all four configurations. Appendix A, *Cabling Configurations*, contains illustrations and parts lists for each of the four configurations, showing the full path between the AUDIX system, the switch (for networked configurations) and the ADAP PC.

1. Connect the male end of the RS-232 cable to the COM1 port on the back of the ADAP PC. (Because of the network-type connection required for CDR, we recommend that you connect CDR to COM1 and ADAP to COM2.)
2. Connect the female end of the RS-232 cable to either the the data module or modem. (For the modem connections, it is possible to connect the modems directly to the PC; therefore you would not need the RS-232 cable.)
3. Connect the other cable (the DCP cable for data module connections or analog cable for modem connections) between the data module and a standard information outlet.
4. Set the options on the modem as listed in Table 2-1, *Modem Option Settings*; set the options on the data module as listed in Table 2-2, *Data Module Option Settings*.

Table 2-1. Modem Option Settings

OPTION	SETTING
Baud rate	1200, 2400, 4800, 9600, or 19200
Parity	none
Data bits	8
Stop bits	1

Table 2-2. Data Module Option Settings

7400A or B	MPDM
ANS=AUTO	FDX=ON
BRKDSK=LONG	ASYN
CI=OFF	EXT=ON
CH=OFF	DISC=ON
CTS=ON	KYBD=ON
DCD=ON	PRTY=OFF
DSR=ON	DMLL=OFF
DTR=5 MSEC	MKBY=OFF
DTR=FOLLOW	SIGLS=ON
LL=OFF	AANS=OFF
PARITY=SPACE	
REMLOOP=GRANT	
RI=ON	
RL=OFF	
SIGLS DISC=ON	
TM=OFF	

TASK 2: INSTALL THE CDR SOFTWARE

NOTE

The ADAP software (including PC2AUDIX) must be installed before you install the CDR software. See the *AUDIX Administration and Data Acquisition Package* (585-302-502) for installation instructions.

The Call Detail Recording Software and Installation Program is supplied on both 3 1/2-inch and 5 1/4-inch diskettes. Select the correct size diskette for your PC (both diskettes contain the same software), then complete the installation, as follows:

1. If the PC is not turned on, press the POWER button on the back of the PC. Messages describing the power-up procedure are displayed on the screen, followed by the `C>` prompt.
2. Insert the *Call Detail Recording Software and Installation Program* diskette into drive A (or any floppy disk drive).
3. Enter **`setup`**.

   The following prompt is displayed:

```
Drive to setup FROM [A: is default]:
```

4. Enter *x*: (where *x* is the letter corresponding to the drive containing the CDR software), or press RETURN to use the default drive (a:).

   The following menu is displayed:

```
    SETUP FOR AUDIX CDR PC SOFTWARE     (vers 1.0)

SELECT AN OPTION:
            C     INSTALL CDR ACCESS SOFTWARE
            Q     QUIT SETUP PROGRAM


Selection:
```

5. Press **c** to select *INSTALL CDR ACCESS SOFTWARE*. (If you press any keys other than **c** or **q**, the screen will display an `invalid command` message.)

   The following menu is displayed:

```
        INSTALL CALL DETAIL RECORDING SOFTWARE

SELECT AN OPTION:
                I     INSTALL
You must have already properly installed ADAP on the hard disk drive before hitting 'I'
                R     RETURN TO SETUP MENU
                Q     QUIT SETUP PROGRAM


Selection:
```

6. Press **i** to select *INSTALL*. (If you press any keys other than **i**, **r**, or **q**, the screen will display an `invalid command` message.)

   Messages describing the installation are displayed on the screen. When the software on the *Call Detail Recording Software and Installation Program* diskette is successfully installed, the following message is displayed:

```
Installation complete, press any key to return to setup menu...
```

7. Press any key to continue.

   The *SETUP FOR AUDIX CDR PC SOFTWARE* menu (shown in step 4) is redisplayed on the screen.

8. Press **q** to quit.

9. Remove the CDR diskette from drive A (or from the drive containing the diskette).

Continue with the administration procedures contained in chapter 3, *Administering CDR*.

3. Administering CDR

The CDR feature must be administered on the following systems:

- The AUDIX system
- The switch (not required for direct connections)
- The PC on which CDR and ADAP are loaded

There is no required order for completing these procedures. You may follow the order presented in the remaining sections of this chapter or choose the order most convenient for you. However, we recommend that you administer CDR on the PC *last*, so that you can initiate a test call when you are finished to verify CDR's installation and administration.

ADMINISTERING CDR ON THE AUDIX SYSTEM

There are three tasks you must perform to administer CDR on the AUDIX system:

1. Enable the types and maximum number of CDR records for the AUDIX system to collect (using the `system : cdr` form)
2. Verify system status filesystem size for CDR (using the `system : limits` and `filesystem : detail` form)
3. Identify the CDR PC as a remote networking machine (using the `system : translation : machine : adjunct` form)

You can administer CDR directly from the AUDIX administrator's terminal, or you can download the forms using ADAP and administer CDR from the PC using the following DOS commands:

- `getscdr`
- `setscdr`
- `getadj`
- `setadj`

If you are going to perform the administration from the PC, see the *AUDIX Administration and Data Acquisition Package* (585-302-502) for information on using the DOS commands to retrieve and store the AUDIX forms, then refer to this procedure for the CDR information that you must enter on the forms. For complete details on using AUDIX forms from the administration terminal, see *AUDIX Release 1 Version 7 Forms Reference* (585-305-208).

Task 1: Enable CDR Record Collection

Use the `system : cdr` form to enable the types and maximum number of CDR records that you want the AUDIX system to collect, as follows:

1. Log in to the AUDIX system.
2. Type **`sy cd`** on the `PATH` line and press F8 (ENTER).

   The `system : cdr` form is displayed:

```
AUDIX STATUS:  alarms: none,  logins: 1,  thresholds: none
  PATH:  system : cdr

call detail recording active (y/n)? n

CDR records (maximum): 64000

record types to be collected (y/n):

      voice session (y/n)? n              outgoing call (y/n)? n
      network session (y/n)? n
      system activity: y

Error and confirmation messages appear here.

| CHANGE or RUN | ADD | DELETE |   | HELP | FIELD HELP |   | CLEAR FORM | EXIT | ENTER |
```

The form shows a `y` for the `call detail recording active` field (as set by the TSC) and the factory defaults for the remaining fields.

NOTE

AT&T personnel at the Technical Service Center (TSC) must initially activate the CDR feature on each AUDIX machine before you can change any fields on the `system : cdr` form to administer and use the feature.

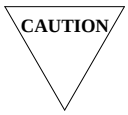
If the `call detail recording active` field contains an **`n`**, contact your AT&T Account Team for information about having CDR initially activated.

3. To change any of the values in the fields, move the cursor to the field to be changed and type the new value over the existing value.

   The following list describes each field and the valid entries for each.

   - `call detail recording active` — (as described above) allows you to activate and deactivate the CDR feature.

     Valid entries: **y** (activate CDR) or **n** (deactivate CDR).

     If you deactivate the CDR feature, the AUDIX system resets the CDR file, causing you to lose any data that was in that file.

   - `CDR records (maximum):` — allows you to set the maximum number of CDR records for the AUDIX system to collect.

     Valid entries: **64000** (the default and minimum allowable entry) to **128000** (the maximum number of CDR records the AUDIX system can store in the CDR file).

     If you have a small system, you probably do not need to change this value initially. You may either allow CDR to run for a week, then download the CDR records to see how many CDR records the AUDIX system is collecting. Or, you can check the total number of Voice Mail, Call Answer, and outcalling sessions on the AUDIX traffic forms.

     If the number is close to 64000 (or if a threshold exception occurs before the week is up), increase this value.

     If you have a large system, producing a large volume of AUDIX traffic, you may need to increase this value now to prevent threshold exceptions.

     NOTE

     This field cannot be changed while CDR is active; you must first deactivate CDR before you can change this field. See the *Changing CDR Maximum Records* section in Chapter 4, *Using CDR*, for details.

   - `record types to be collected (y/n)?: voice session?` — allows you to enable and disable collection of voice session CDR records.

     Valid entries: **y** (enable collection) or **n** (disable collection).

     Enable one or all of the CDR record fields to fully use the CDR feature. Otherwise, you will only be collecting system activity CDR records, which do not provide you with any billing or traffic data.

   - `record types to be collected (y/n)?: outgoing call?` — allows you to enable and disable collection of outgoing call CDR records.

     Valid entries: **y** (enable collection) or **n** (disable collection).

   - `record types to be collected (y/n)?: network session?` — allows you to enable and disable collection of network session CDR records.

     Valid entries: **y** (enable collection) or **n** (disable collection).

- `record types to be collected (y/n)?: system activity:` — specifies whether system activity CDR records are enabled or disabled.

  This is a display-only field. It will show system activity CDR records enabled (**y**) when CDR is active; disabled (**n**) when CDR is not active.

  NOTE

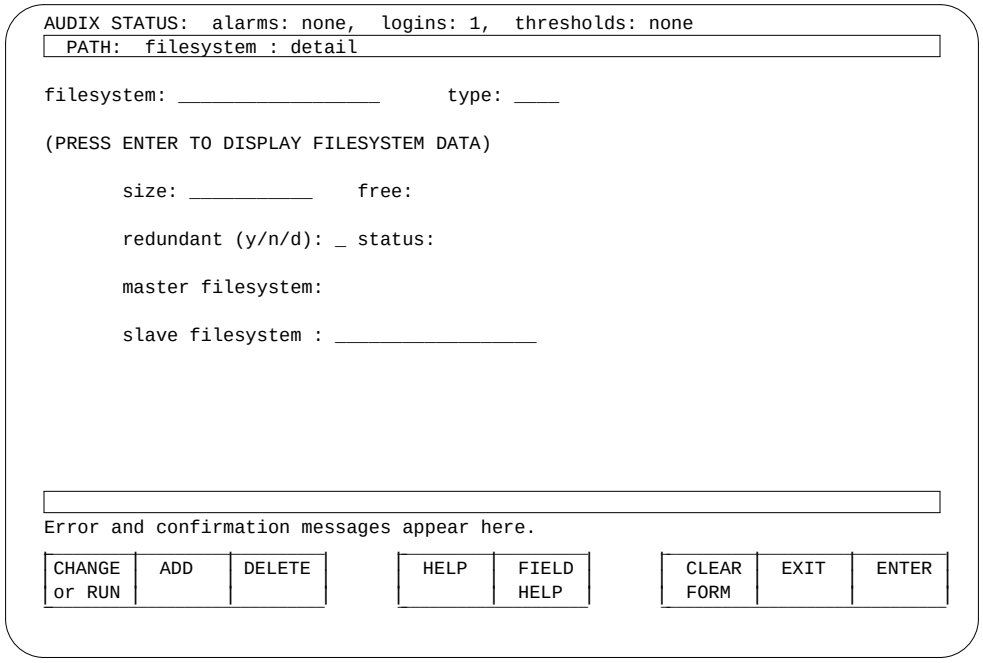
  If CDR is not active, the AUDIX system will not collect any CDR records, regardless of the individual record type selections.

4. After you have made all the changes to this form, press F1 (CHANGE or RUN) to save the changes.

Task 2: Verify CDR Filesystem Size

The recommended size of the CDR file is included in the calculation for the system status filesystem. This value is listed on the `system : limits` form. Compare the recommended size against the actual size, as follows:

1. With the cursor on the `PATH` line, type **sy l** and press F8 (ENTER). The `system : limits` form is displayed on the screen.
2. Write down the size recommended for the system status filesystem.
3. Press F7 (EXIT) twice to exit this form.
4. With the cursor on the `PATH` line, type **`fi d`** and press F8 (ENTER). The `filesystem : detail` form is displayed on the screen:



5. With the cursor at the `filesystem` field, type *volume*`.ss` (where *volume* is a 1- to 7-character name of the volume on which the system status filesystem resides and *ss* is the designator for the system status filesystem).
6. Move the cursor to the `type` field and type **`sst`** for the system status filesystem type.
7. Press F8 (ENTER) to display the current data for the system status filesystem.
8. If the value in the `size` field is greater than or equal to the recommended size from the `system : limits` form, press F7 (EXIT) then continue with the next task. Otherwise, perform the following:
   a. Press F7 (EXIT).
   b. Perform an administration shutdown (see the *Shutdown Form* in the *AUDIX Release 1 Version 7 Forms Reference* (585-305-208) for details on this task).
   c. Repeat steps 1 through 7 of this task.
   d. Move the cursor to the `size` field and type the value recommended on the `system : limits` form.
   e. Press F1 (CHANGE or RUN) to save the change.

Task 3: Identify the PC as a Remote Network Machine

Since the CDR records are downloaded to the PC via the AUDIX networking ports (ACC or ACCE), you must identify the CDR PC to the AUDIX system as a remote network machine, as follows:

1. On the `PATH` line, type **`sy tr m adj`** and press F8 (ENTER).

   The `system : translation : machine : adjunct` form is displayed:

```
AUDIX STATUS:  alarms: none,  logins: 1,  thresholds: none
  PATH:  system : translation : machine : adjunct

machine name: ____________   password: __________
(PRESS ENTER TO DISPLAY CURRENT INFORMATION)

machine type (c/t): _

network connection type: _____  data rate: _____  channel: _
  dial string:_____________________________________________________________

header transmission schedule    (hh:mm)

1. start: __:__  end:  __:__   interval:  __:__
2. start: __:__  end:  __:__   interval:  __:__
3. start: __:__  end:  __:__   interval:  __:__

purge text service transmission queue (y/n)? _

new machine name: __________

Error and confirmation messages appear here.

| CHANGE or RUN | ADD | DELETE |   | HELP | FIELD HELP |   | CLEAR FORM | EXIT | ENTER |
```

2. With the cursor on the `machine name` field, type a 1 to 10 alphanumeric name to be assigned to the CDR (and ADAP) PC.

   This name must match the name you enter in the `PC Machine Name` field on the `PC2AUDIX Setup Parameters` form when you administer CDR on the PC.

3. Move the cursor to the `password` field and type a 5 to 10 alphanumeric password that will allow access to the CDR PC. This is an optional field; however, it is recommended for security.

   This name must match the name you enter in the `Password` field on the `PC2AUDIX Setup Parameters` form when you administer CDR on the PC.

4. Move the cursor to the `machine type` field and type a **`c`** (for CDR).

   Only one adjunct machine may be administered as a CDR PC at any given time. If you attempt to designate a second machine as a CDR PC, the AUDIX system rejects the designation and displays the message `CDR PC already administered.` If this happens, and you do not know what machine is currently designated as the CDR PC, display the `list : machine` form.

5. Move the cursor to the `network connection type` field and type one of the following:
   - **dcp**—for configurations using modem pooling or a direct connection (via a data module). See Appendix A, *Cabling Configurations*, for further details on configuration types.
   - **rs232a**—for all other configurations.
6. Move the cursor to the `data rate` field and type one of the following:
   - For RS-232A network connection types: 1200, 2400, 4800, 9600, or 19200
   - For DCP network connection types: 1200, 2400, 4800, 9600, 19200, 56000, or 64000

   NOTE

   You do not need to change any of the remaining fields, they are not used for CDR. See *AUDIX Release 1 Version 7 Forms Reference* (585-305-208) for further details on any of these fields.

7. After you have made all the changes to this form, press F2 (ADD) to save the changes.

CDR administration is complete. Continue with the next section *Administering CDR on the Switch*.

ADMINISTERING CDR ON THE SWITCH

NOTE

If you are using a DCP data module, DCP modem pool connection, or RS-232 to analog modem connection, you must translate the connection on the switch. If you are using a direct connection, switch translation is not necessary; therefore, skip to the next section, *Administering CDR on the ADAP PC*.

The following sections describe the switch administration procedures for CDR. These procedures depend on the configuration and type of switch that the CDR PC is connected to. For complete details on switch administration and your particular administration PC or terminal type (CSM, SAT, SMT, Manager I, Manager II, or later Manager product), refer to your switch documentation.

Go to the section that corresponds to your CDR configuration and switch type and follow that administration procedure.

DCP Data Module Connection: System 75, Generic 1, or Generic 3

This section describes the procedure in the format for SATs. If you have a CSM or a Manager I or later Manager product, refer to your switch documentation.

1. On your administration terminal/PC, enter **`add data-module`** *xxxxx* (where *xxxxx* is a 1- to 5-digit unused extension number for the CDR PC).

   The `add data-module` form is displayed.

2. Set the `Type` field to **`pdm`**.

3. Set the `Connected to` field to **`dte`**.
4. Set the `Port` field to the equipment location of the specific TN754 DCP circuit that is connected to the CDR PC.
5. Press ENTER.

DCP Data Module Connection: System 85 or Generic 2

This section describes the procedure in the format for SMTs. If you have a Manager II, enter the same field data on the Manager II's corresponding form. If a particular field's data is different on a Manager II, both the SMT and Manager II data is provided.

1. Display Proc 010, Word 1 and Proc 010, Word 3 to determine if there is a class of service (COS) defined for touch-tone dialing and data protection.

   If there is, write down that COS. Otherwise, see the appropriate switch documentation for the procedure on creating new classes of service.
2. Display/Execute Proc 000, Word 1.
3. Assign an unused DID extension for the CDR PC.

   If you do not know which extensions are unused, display Proc 75 and Proc 354 to determine the unused extensions.
4. Assign the `COS` described in step 1.
5. Display/Execute Proc 051, Word 1.
6. Identify the equipment location for the SN270B DCP port that is connected to the CDR PC.
7. Assign the following characteristics:
   - `Terminal Type` = **`A`** on an SMT, or **3** on a Manager II
   - `Originating Preference` = **`2`** (prime appearance)
   - `Terminating Preference` = 0 (none)
   - `Keyboard Dialing` = 1 (active)
   - For Manager II only,
     - `Option` = 0 (data only)
     - `Data` = 1
8. Display/Execute Proc 052, Word 1.
9. Identify the equipment location for the SN270B DCP port that is connected to the CDR PC.
10. Assign the following characteristics:
    - `Device Type` = 0 (basic)
    - `Member` = 0 (first appearance)
    - `Extension Number` = the extension you assigned on Proc 000, Word 1 (in step 3)

- `Call Appearance Number on this Set` = 1
- `Line Type` = 1 (prime line)
- `Ring Type` = 1 (ring)
- `Home Terminal` = 1 (home terminal)
- `Originating Call Appearance Only` = 0 (not originating only)
- `SAC Group` =0 (not an SAC member)

DCP Modem Pool or RS-232 Modem Connection

If you are using either a DCP modem pool or RS-232 modem connection for CDR, follow the modem administration procedure in the appropriate switch documentation. (For some switches, modem administration is the same as voice port administration.)

ADMINISTERING CDR ON THE ADAP PC

There are three tasks you must perform to administer CDR on the PC:

1. Create directories for CDR on your hard disk
2. Establish PC2AUDIX setup parameters for CDR
3. Perform a test call to make sure CDR is configured and administered correctly

This document describes the steps for completing the PC administration tasks for CDR; however, for complete details on ADAP, PC2AUDIX and Setup Parameters, refer to the *AUDIX Administration and Data Acquisition Package* (585-302-502).

Task 1: Create Directories for CDR on Your Hard Disk

You must have a directory on the PC's hard disk corresponding to each AUDIX machine that will be sending CDR data to the PC. Therefore, if you plan to collect CDR data from more than one AUDIX machine in a network, repeat this task for each AUDIX machine.

If you have created this directory (or directories) for ADAP, skip this task.

1. Use the MS-DOS date and time commands to verify that the date and time are correct on your PC.
2. At the DOS C> prompt, enter **`cd \`** to ensure that you are in the root directory of your hard disk (drive C:).
3. Enter **`mkdir`** *machine_name* (where *machine_name* is the name of your AUDIX machine) to create a CDR directory for that AUDIX machine.

Task 2: Establish PC2AUDIX Setup Parameters for CDR

Setup parameters define the link between your PC and the AUDIX machine from which it will retrieve CDR data. If you created directories for more than one machine in the previous task, you must repeat this task for each machine.

1. At the DOS C> prompt, enter **cd** *machine_name* to change to the directory you created for your AUDIX machine in the previous task.
2. Enter **pc2audix** to call the PC2AUDIX software:

   Copyright information will appear on the screen for approximately five seconds. Press RETURN to bypass this delay.

   The PC2AUDIX Root Menu is displayed on the screen.
3. Select option **8** (PC2AUDIX Setup Parameters).

   Page 1 of the PC2AUDIX Setup Parameters form is displayed.
4. Press F6 (NEXT PG) to display page 2.
5. Press F6 (NEXT PG) again to display page 3.

   The following form is displayed on the screen.

```
PC2AUDIX Setup Parameters                    Page 3/3

FOR RETRIEVING CDR DATA FROM AUDIX
     Type of connection:       (direct, hayes, pdm)

     Baud Rate:                (1200, 2400, 4800, 9600, 19200)

     Port Number: 2            (1=COM1, 2=COM2)

     CDR Data Format: a         (a=ASCII Format, d=dBASE Format)

     Access Phone #:

     PC Machine Name:

     AUDIX Machine Name:

     AUDIX Password:

STATUS:

                                F6 NEXT PG | F7 PREV FORM | F8 CHANGE RUN | F9 ROOT FORM | F10 HELP
```

Figure 3-1. PC2AUDIX Setup Parameters

6. With the cursor at the `Type of connection` field, type one of the following (no default value is provided):

   - **direct** (for a direct connection)
   - **hayes** (for either a DCP modem pool or RS-232 modem connection using a Hayes-compatible modem)
   - **pdm** (for a DCP data module connection)

   This field must match the type of cabling connection configured between AUDIX and the PC. Refer to Appendix A, *Cabling Configurations*, for details.

7. Move the cursor to the `Baud Rate` field and type one of the baud rates listed (no default value is provided).

   This field must match the entry in the `data rate` field on the AUDIX `system : translation : machine : adjunct` form.

8. Move the cursor to the `Port Number` field and type **`1`** (for COM1).

   COM1 is the recommended port connection for CDR; however, check the connection on the back of the PC to make sure that is the port to which CDR is actually connected.

9. Move the cursor to the `CDR Data Format` field and select the format in which the CDR data will be stored on the PC. Valid entries are as follows:

   - **`a`** (the default) specifies that the data will be stored in ASCII format.

     In ASCII format, for each CDR data transfer PC2AUDIX creates one file containing all the CDR record types. PC2AUDIX names the file using the following naming convention: *mmddyy*_{**a-z**}**.cdr**, where *mmddyy* is the date that the data was transferred, **a-z** is an identifier for the sequence of data transfers (i.e., **a** identifies the first data transfer on that date, **b** identifies the second, etc.), and **cdr** is the identifier for CDR files.

     NOTE

     If you want to create separate files for each CDR record type, you must run the ADAP command line interface `splitcdr` command (see *Separating ASCII-Formatted CDR Files* in Chapter 4 of this manual for details).

   - **`d`** specifies that the data will be stored in dBASE format.

     In dBASE format, for each CDR data transfer PC2AUDIX collects all the CDR data then separates the data and creates a file for each CDR record type. PC2AUDIX names these files using the following naming convention: *mmddyy*{**v, o, n, s**}{**a-z**}**.dbf**, where *mmddyy* is the date that the data was transferred; in the seventh position **v** specifies voice session CDR records, **o** specifies outgoing call CDR records, **n** specifies network session CDR records, and **s** specifies system activity CDR records; in the eighth position **a-z** is an identifier for the sequence of data transfers (i.e., **a** identifies the first data transfer on that date, **b** identifies the second, etc.); and **dbf** is the identifier for dBASE files.

10. Move the cursor to the `Access Phone #` field and type the telephone number for the network port on the AUDIX system (no default value is provided).

11. Move the cursor to the `PC Machine Name` field and type the name of the PC to which the AUDIX system is to download CDR data (no default is provided).

This name must match the name you entered in the `machine name` field on the `system : translation : machine : adjunct` form for the AUDIX system that you are currently administering.

12. Move the cursor to the `AUDIX Machine Name` field and type the name of the AUDIX system that you are currently administering (no default is provided).

    This name must match the name that you entered in the `local` field on the `system : translation : machine : audix/amis/call delivery` form for the AUDIX system that your are currently administering. (This name should also match the name of the directory that you created for this AUDIX machine, and that you are currently operating in.)

13. Move the cursor to the `AUDIX Password` field and type the password for the AUDIX system that you are currently administering (no default is provided).

    This password must match the password entered in the `password` field on both the `system : translation : machine : adjunct` form and the `system : translation : machine : audix/amis/call delivery` form for the local AUDIX system.

14. After you have made all the changes on the Setup Parameters form, press F8 (CHANGE or RUN) to save the parameters.

15. Press F9 (ROOT FORM) to display the PC2AUDIX Root Menu.

16. Enter **9** (EXIT to MS-DOS) to return to the DOS prompt.

17. Enter **`cd \`** to return to the root directory on your hard disk.

18. Repeat this procedure for every AUDIX machine from which you will be collecting CDR data, including individual machines networked together.

Task 3: Initiate a Test Call

After you have completed the installation and administration of CDR, initiate a test call between the PC and the AUDIX system to make sure the configuration and administration is complete and correct.

To initiate a test call from the PC, you use the ADAP command line **`get_cdr`** command. This document describes the steps for completing this task; however, for complete details on using the ADAP command line language, refer to the *AUDIX Administration and Data Acquisition Package* (585-302-502).

1. Log into the AUDIX system from the PC. The **`C>`** prompt is displayed on the screen when the login is completed successfully.

2. At the **`C>`** prompt, enter:

   get_cdr **–d** *device* [**–b** *baud_rate*] [**–p** {**1** or **2**}] **–t** *pc_name audix_password audix_name* [*phone_number*]

–d	Identifies that the argument following is the device type. This flag must be followed by *device*.
device	Specifies the device type. Valid types are `pdm` (MPDM data modules), `hayes` (Hayes-compatible modems), `att4000` (AT&T-compatible dialing modem), and `direct` (direct cable connection).

−b	Identifies the argument following as a baud rate. This flag must be followed by a baud rate.
baud_rate	Specifies the transfer baud rate. Valid baud rates are 1200, 2400, 4800, 9600, and 19200. If no baud rate is specified, the default (4800) is used.
−p	Identifies the argument following as a communications port number. This flag must be followed by a communications port number.
1 or **2**	Specifies the number of the COM port connected to the AUDIX system for CDR. Valid port numbers are 1 and 2. If no port is specified, the default (1) is used.
−t	Causes the modem loop-around test to be performed. This is the option required to perform the test call.
pc_name	Identifies the PC's network name as administered by the AUDIX system using the `system : translation : machine : adjunct` form.
audix_password	Identifies the AUDIX password as administered on the `system : translation : machine : audix/amis/call delivery` form for the local machine. This must also be the same password that is administered on the `system : translation : machine : adjunct` form.
audix_name	Identifies the AUDIX machine name as administered on the `system : translation : machine : audix/amis/call delivery` form.
phone_number	Identifies the AUDIX network port phone number. This number is not required for direct cable connections. If using an AT&T 4000 modem, enter `t` in front of the phone number for touch-tone dialing.

Example: **get_cdr -d pdm -b9600 -p 2 -t cdr pass1 aud1 87413**

If the test call is successful, status information will be written to the screen.

3. Log off of the AUDIX system.

CDR administration is complete. The AUDIX system will collect the CDR records that are enabled, and you can set up a schedule or download records on demand as described in Chapter 4, *Using CDR*.

4. Using CDR

This chapter describes the various tasks you can perform with CDR. These include:

- Transferring CDR data on demand (using either the PC2AUDIX forms or the ADAP command line interface)
- Scheduling the CDR data transfer (using the PC2AUDIX forms)
- Separating an ASCII-formatted CDR file into individual files, one for each CDR record type (using the `splitcdr` command)
- Changing the maximum number of CDR records that the AUDIX system collects (using the `system : cdr` form either from the AUDIX administrator's terminal or using the ADAP command line interface from the PC)
- Enabling and/or disabling the types of CDR records that the AUDIX system collects (using the `system : cdr` form either from the AUDIX administrator's terminal or using the ADAP command line interface from the PC)
- Deactivating and/or activating the CDR feature (using the `system : cdr` form either from the AUDIX administrator's terminal or using the ADAP command line interface from the PC)

TRANSFERRING CDR DATA ON DEMAND

You can transfer CDR data from the AUDIX system to the PC on demand (to receive the data immediately) or you can schedule the data transfer at some convenient time (such as after business hours).

When you download CDR data you cannot use the PC for any other purpose until the download is complete. Depending on the amount of data, the download can take several hours. Because of this, we recommend that (in most cases) you schedule the download for after hours on a frequent basis. However, if (for example) a CDR threshold exception occurs, we recommend that you download the CDR data on demand as soon as conveniently possible so that you do not lose any data.

To download CDR data to the PC on demand, use one of the following:

- Command line interface `get_cdr` command
- PC2AUDIX Data Retrieval form

This manual describes the steps for the CDR tasks. However, for complete details on PC2AUDIX and the command line interface, see the *AUDIX Administration and Data Acquisition Package* (585-302-502).

Using the get_cdr Command

1. At the DOS C> prompt, enter **cd** *machine_name* (where *machine_name* is the name of the directory you created for the AUDIX machine from which you now want to download data).
2. Enter:

   get_cdr –**d** *device* [–**b** *baud_rate*] [–**p** {**1** or **2**}] [–**m** *stop_date* –**h** *stop_time*] [–**ivw**] *pc_name audix_password audix_name* [*phone_number*] [**>** *ofile*]

–**d**	Identifies that the argument following is the device type. This flag must be followed by *device*.
device	Specifies the device type. Valid types are `pdm` (MPDM data modules), `hayes` (Hayes-compatible modems), `att4000` (AT&T-compatible dialing modem), and `direct` (direct cable connection).
–**b**	Identifies the argument following as a baud rate. This flag must be followed by a baud rate.
baud_rate	Specifies the transfer baud rate. Valid baud rates are 1200, 2400, 4800, 9600, and 19200. If no baud rate is specified, the default (4800) is used.
–**p**	Identifies the argument following as a communications port number. This flag must be followed by a communications port number.
1 or **2**	Specifies the communications port number. **1** specifies COM1; **2** specifies COM2. If no port is specified, the default (1) is used.
–**m**	Identifies the argument following as a stop date. This flag must be followed by a stop date and the -h stop time.
stop_date	Specifies the stop date for retry attempts. Dates must be in the format *mm/dd/yy* with leading zeros included.
–**h**	Identifies the argument following as a stop time. This flag must be followed by a stop time and preceded by the -m stop date.
stop_time	Specifies the stop time for retry attempts. Times must be in the format *hh:mm* using a 24-hour clock with leading zeros included.
–**i**	Specifies for the system to bypass the search for the Data Set Ready (DSR) signal. Use this option only with Hayes-compatible modems.
–**w**	Writes a one-line summary of the exit status of this command into the file alogin.rc and tries to write the status to the ADAP event log.
–**v**	Writes verbose status information to the screen. This is primarily a debugging aid.
pc_name	Identifies the PC's network name as administered by the AUDIX system using the `system : translation : machine : adjunct` form.
audix_password	Identifies the AUDIX password as administered by the AUDIX system using the `system : translation : machine : audix/amis/call delivery` form.
audix_name	Identifies the AUDIX machine name as administered on the `system : translation : machine : audix/amis/call delivery` form.

phone_number Identifies the AUDIX network port phone number. This number is not required for direct cable connections. If using an AT&T 4000 modem, enter **t** in front of the phone number for touch-tone dialing.

> *ofile* Specifies the name of the file to which status information will be written. The filename must be preceded by the symbol **>**. If no output file is specified, status is written to the screen. (The CDR data is not written to *ofile*, it is written to a file with the naming convention *mmddyy*_{**a-z**}**.cdr**. This is described in detail at the end of this procedure.)

Example: **get_cdr -d pdm -m081990 -h 13:00 -v cdr pass1 aud1 87413**

3. Verify that the connection to the AUDIX system is successful.

   The PC tries to login to the AUDIX networking port using the data from the get_cdr command.

   - If the login is unsuccessful, one of the following occurs:
     - — If the AUDIX name, password, or software version is incorrect, the PC will display an error message.
     - — If the PC cannot establish a connection to the AUDIX system, it will attempt two retries. If it still cannot establish a connection, it will display an error message.
   - If the login is successful, the PC will try to transfer the data and display the CDR Off Load Status screen.

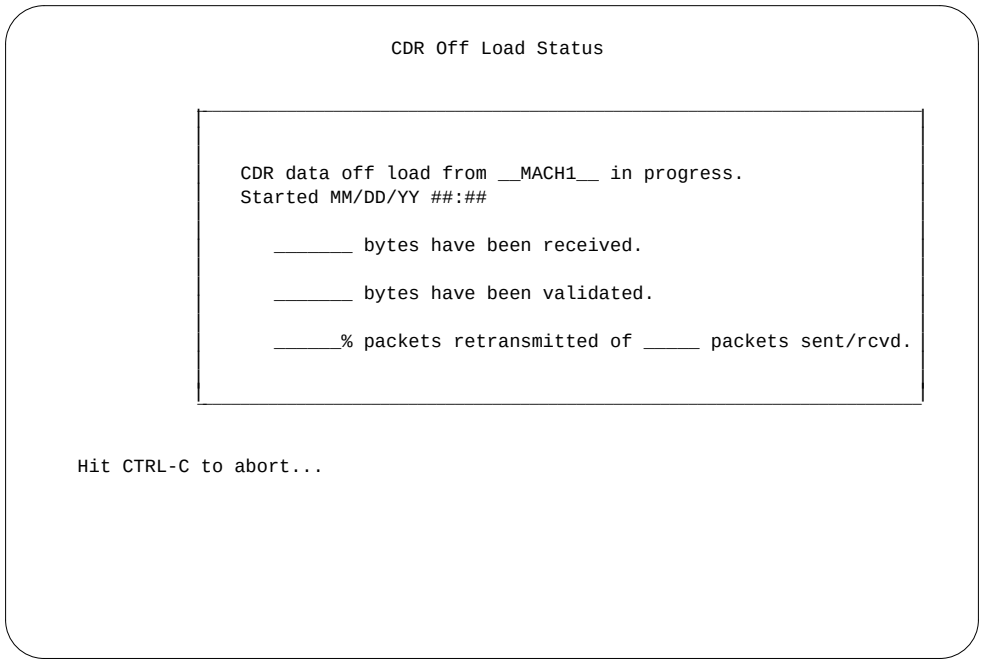


Figure 4-1. CDR Off Load Status Screen

Then one of the following occurs:

- If there is no data to transfer, the AUDIX system will log an entry in the event file and the PC will display an error message.
- If there is not enough disk space for all the CDR data, the PC will delete the partial file and display an error message.
- If the transmission begins successfully, the PC receives CDR data in small transmission files. The PC compiles these into the main CDR file. As each transmission file is received, its data is written to the main file and the AUDIX system is instructed to remove the data in the small transmission file. This data is validated.
- If the connection is dropped during transmission, the PC will attempt two retries to reconnect. If the reconnection is unsuccessful, the PC will delete the partial file and display an error message. If the reconnection is successful, some data may have to be retransmitted. The data that is validated is permanently stored on the PC and will not have to be retransmitted.

When the transfer is completed successfully, the PC displays an acknowledgment message.

A successful transfer may take several hours. During this process, the status screen displays the progress of the transfer. The number of bytes received is incremented every second on the status screen; the number of validated bytes is only incremented when a transmission file is completely transmitted.

The status screen also shows the number of packets retransmitted. If more than one packet is retransmitted out of 100 sent/received, your system is experiencing transmission difficulties such as bad transmission lines or a slow PC.

The CDR data is written to a file with the naming convention *mmddyy*_{**a-z**}.**cdr**, where *mmddyy* is the date that the data is transferred, {**a-z**} is an identifier for the sequence of data transfers (i.e., **a** identifies the first CDR file transferred on a particular date, **b** identifies the second CDR file, etc.) and **cdr** is the identifier for CDR files.

If you want to separate this file into individual files for each CDR record type, see the *Separating ASCII-Formatted CDR Files* section in this chapter.

4. To abort the transfer at any time, press the CTRL and c keys simultaneously.

Using PC2AUDIX Data Retrieval Form

1. At the DOS C> prompt, enter **cd** *machine_name* (where *machine_name* is the name of the directory you created for the AUDIX machine that you now want to download data).
2. Type **pc2audix** and press RETURN. The PC2AUDIX Root Menu is displayed.
3. Select option **1** (Data Retrieval). The Data Retrieval form is displayed:

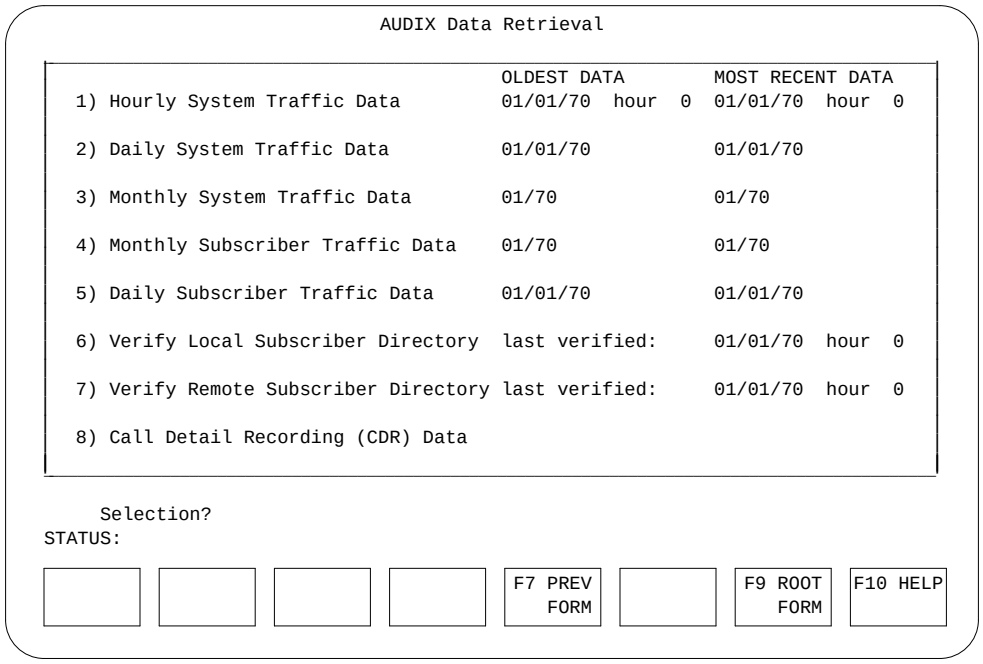


Figure 4-2. AUDIX Data Retrieval Form

4. Select option **8** [Call Detail Recording (CDR) Data]. The Call Detail Recording (CDR) Data form is displayed:

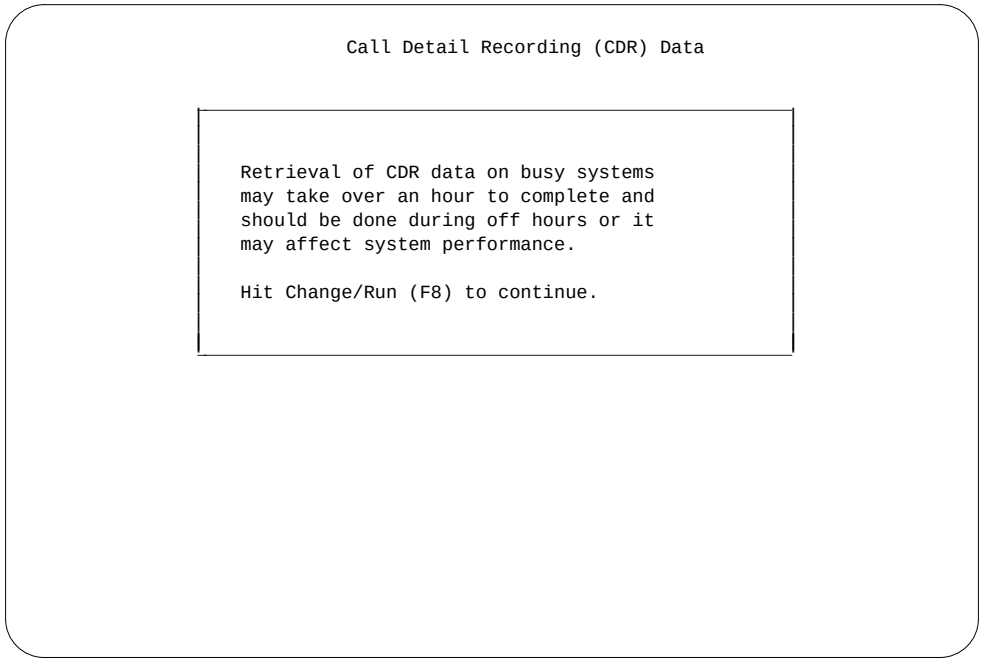


Figure 4-3. Call Detail Recording (CDR) Data Form

5. Verify that the connection to the AUDIX system is successful.

   The PC tries to login to the AUDIX networking port using the data from the the PC2AUDIX Setup Parameters form.

   One of the following occurs:

   - If the login is unsuccessful:
     - — If the AUDIX name, password, or software version is incorrect, the PC will display an error message.
     - — If the PC cannot establish a connection to the AUDIX system, it will attempt two retries. If it still cannot establish a connection, it will display an error message.
   - If the login is successful, the PC will try to transfer the data and display the CDR Off Load Status screen.

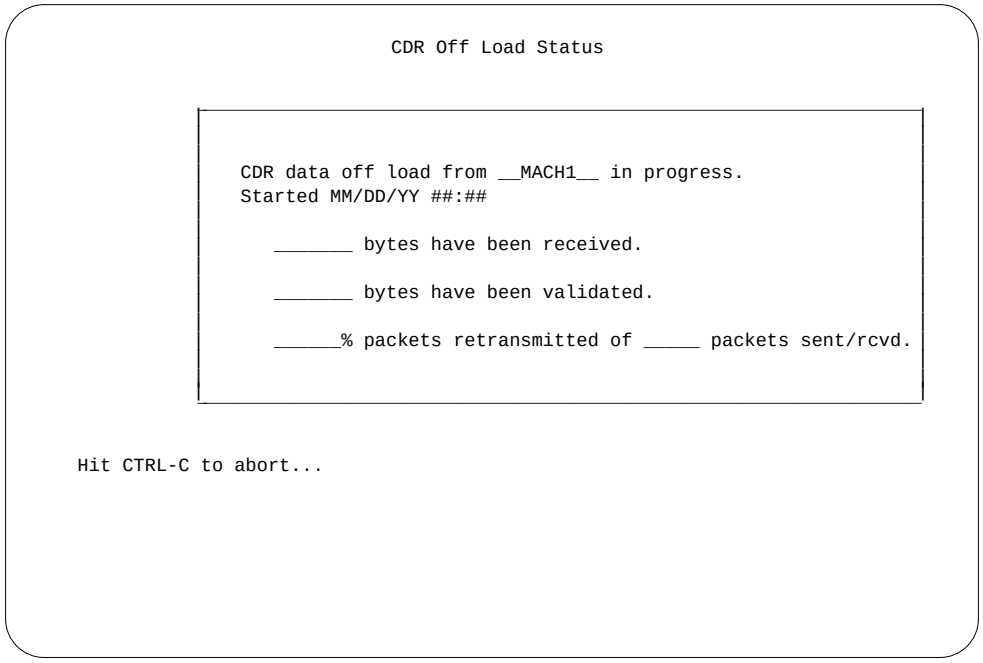


Figure 4-4. CDR Off Load Status Screen

Then one of the following occurs:

- If there is no data to transfer, the AUDIX system will log an entry in the event file and the PC will display an error message.
- If there is not enough disk space for all the CDR data, the PC will delete the partial file and display an error message.
- If the transmission begins successfully, the PC receives CDR data in small transmission files. The PC compiles these into the main CDR file. As each transmission file is received, its data is written to the main file and the AUDIX system is instructed to remove the data in the small transmission file. This data is validated.
- If the connection is dropped during transmission, the PC will attempt two retries to reconnect. If the reconnection is unsuccessful, the PC will delete the partial file and display an error message. If the reconnection is successful, some data may have to be retransmitted. The data that is validated is permanently stored on the PC and will not have to be retransmitted.

When the transfer is completed successfully, the PC displays an acknowledgment message.

A successful transfer may take several hours. During this process, the status screen displays the progress of the transfer. The number of bytes received is incremented every second on the status screen; the number of validated bytes is only incremented when a transmission file is completely transmitted.

The status screen also shows the number of packets retransmitted. If more than one packet is retransmitted out of 100 sent/received, your system is experiencing transmission difficulties such as bad transmission lines or a slow PC.

The CDR data is initially written to a file with the naming convention *mmddyy*_{**a-z**}.**cdr**, where *mmddyy* is the date that the data is transferred, **a-z** is the identifier for the sequence of CDR data transfers (i.e., **a** identifies the first CDR file transferred on a particular date, **b** identifies the second CDR file, etc.) and **cdr** is the identifier for CDR files.

If you have specified **dBASE** format on the PC2AUDIX Setup Parameters form, the *mmddyy*_{**a-z**}**.cdr** file is split into separate files, one for each CDR record type that was collected. The naming convention for each of the split files is *mmddyy*{**v**, **o**, **n**, **s**}{**a-z**}**.dbf**, where *mmddyy* is the date from the main CDR file; in the seventh position **v** is the identifier for voice session CDR records, **o** is the identifier for outgoing call CDR records, **n** is the identifier for network session CDR records, **s** is the identifier for system activity CDR records; in the eighth position **a-z** is an identifier for the sequence of CDR data transfers; and **dbf** is the identifier for dBASE files.

If you have specified **ASCII** format on the PC2AUDIX Setup Parameters form, the *mmddyy*_{**a-z**}**.cdr** file is not split into separate files. If you want to separate this file into individual files for each CDR record type, see the *Separating ASCII-Formatted CDR Files* section in this chapter.

6. To abort the transfer at any time, press the CTRL and c keys simultaneously. To return to the PC2AUDIX root menu, press F9.

SCHEDULING TRANSFER OF CDR DATA

Because of the time is takes to transfer CDR data, we recommend that you use the PC2AUDIX scheduler to specify a convenient time for the AUDIX system to download the CDR data.

You can schedule up to 100 events on a daily, weekly, bi-weekly, monthly, or bi-monthly basis. Select a schedule that accommodates the AUDIX traffic on your system to ensure you do not lose data.

NOTE

The AUDIX system will overwrite CDR data (a block at a time—up to 4000 CDR records) if the file becomes full before you download the data to the PC.

This document identifies the steps for scheduling CDR data retrieval only. For complete details on the PC2AUDIX scheduler, see the *AUDIX Administration and Data Acquisition Package* (585-302-502).

1. At the PC2AUDIX root menu, select option **5** (PC2AUDIX Schedule).

   The PC2AUDIX Scheduling menu is displayed with the options shown below:

   1. Display/Edit Schedule by day/time.
   2. Display/Edit Schedule by machine/day/time.
   3. Display Event Log for Scheduler.

2. Choose one of the following:

   - Select option **1** to display the Display/Edit Schedule form with the entries sorted by day and time. Choose this option for a non-networked AUDIX system.
   - Select option **2** to display the Display/Edit Schedule form with the entries sorted first by machine then by day and time (per machine). Choose this option for networked AUDIX systems.

   For either option, the Display/Edit Schedule form is displayed:

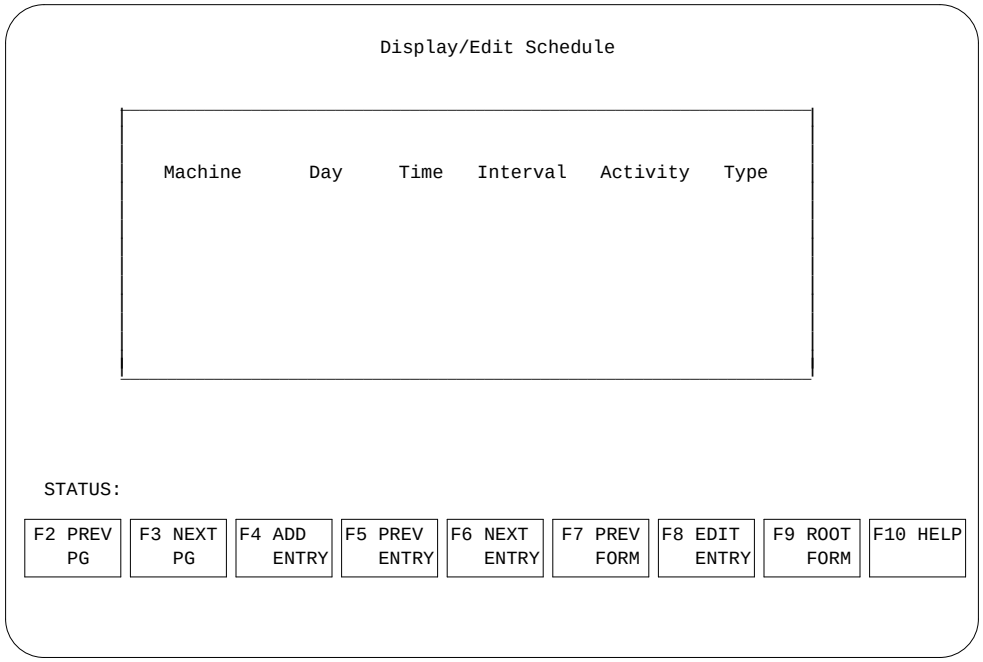


Figure 4-5. Display/Edit Schedule Form

3. Press F4 (ADD ENTRY).

   The Edit Schedule Entry form is displayed:

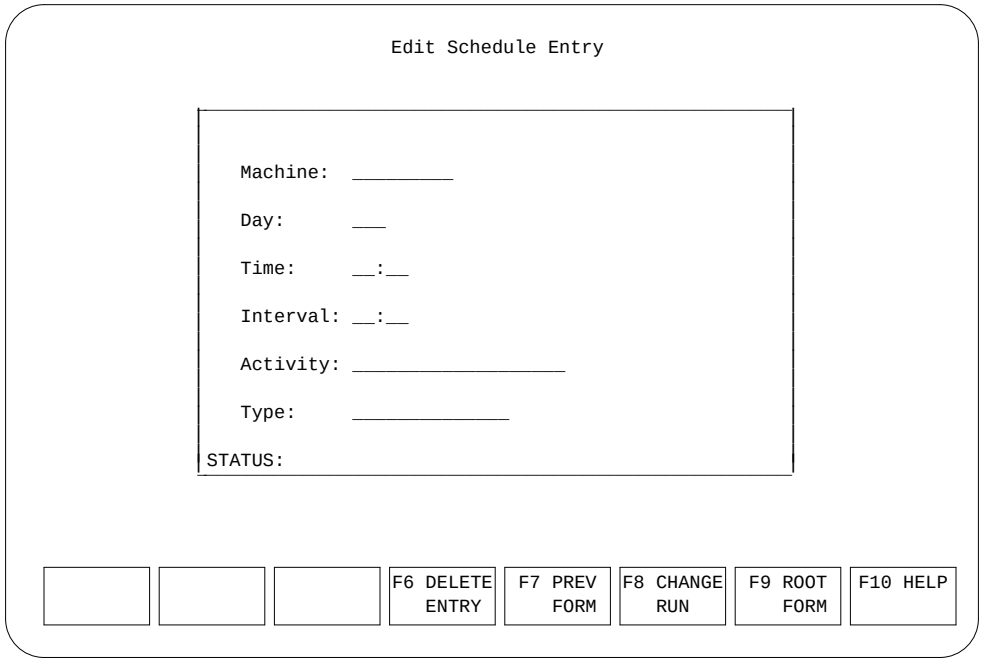


Figure 4-6. Edit Schedule Entry Form

4. With the cursor at the `Machine` field, type the 1- to 10-character name of the AUDIX machine to be called at the specified time. This name must match the name administered on that AUDIX machine, and match the name of the directory that you created on the PC to receive the CDR data.
5. Move the cursor to the `Day` field and type one of the following:
   - A 3-character abbreviation for the day of the week (**sun, mon, tue, wed, thr, fri, sat,** or **all**)
   - A 1- or 2-digit number representing the day of the current month (**1** to **31**)
6. Move the cursor to the `Time` field and type the time of day (hh:mm) that the transmission is to begin. Specify the hour (hh) from **00** to **23**, and the minute (mm) from **00** to **59**.
7. Move the cursor to the `Interval` field and type an interval time — the amount of time (hh:mm) after the scheduled starting time in which the transmission must begin. Specify the hour (hh) from **00** to **23**, and the minute (mm) from **00** to **59**. If the transmission has not begun within this interval, the event is skipped.
8. Move the cursor to the `Activity` field and type **`cdr`**.

9. Press F8 (CHANGE or RUN) to save the scheduling changes.

   ADAP verifies that the fields contain valid entries. If any of the fields contain invalid entries, the PC displays an error message and redisplays the Edit Schedule Entry form with the cursor positioned on the invalid field.

   Verify the valid entries, make the corrections, and press F8 (CHANGE or RUN) again.

10. After scheduling this event, choose one of the following:

    - Press 7 to return to the Display/Edit Schedule form to schedule or edit an event
    - Press F9 to return to the PC2AUDIX Root Menu

11. Press 0 (Exit to Scheduled Events) to exit PC2AUDIX and display the ADAP Schedule Mode screen:

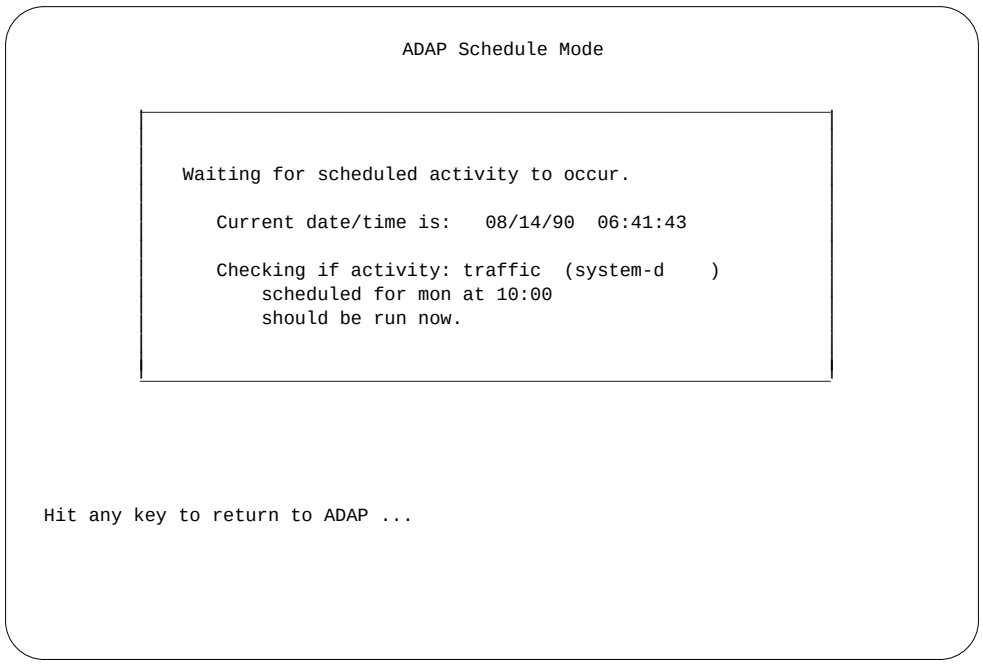


Figure 4-7. Schedule Mode Status Screen

The ADAP Schedule Mode screen displays the current time as well as the time of the next scheduled event.

NOTE

The ADAP Schedule Mode screen must be displayed at the time that the next scheduled event is to begin, or the event will be skipped.

12. If a scheduled data transfer is not in progress, you can press any key to return to the PC2AUDIX Root Menu. However, *before* the next scheduled event is to begin, you must invoke the scheduling mode — select option **0** (Exit ADAP to Scheduled Events) from the ADAP Root Menu — or the event will be skipped.

Displaying the Scheduled Event Log

If you have been away from the PC and want to see if a scheduled activity completed successfully, check the event log using the following procedures.

1. From the PC2AUDIX root menu, select option **5** (PC2AUDIX Schedule).

   The PC2AUDIX Schedule menu is displayed.

2. Select option **3** (Display Event Log for Scheduler).

   The ADAP Event Log form is displayed:

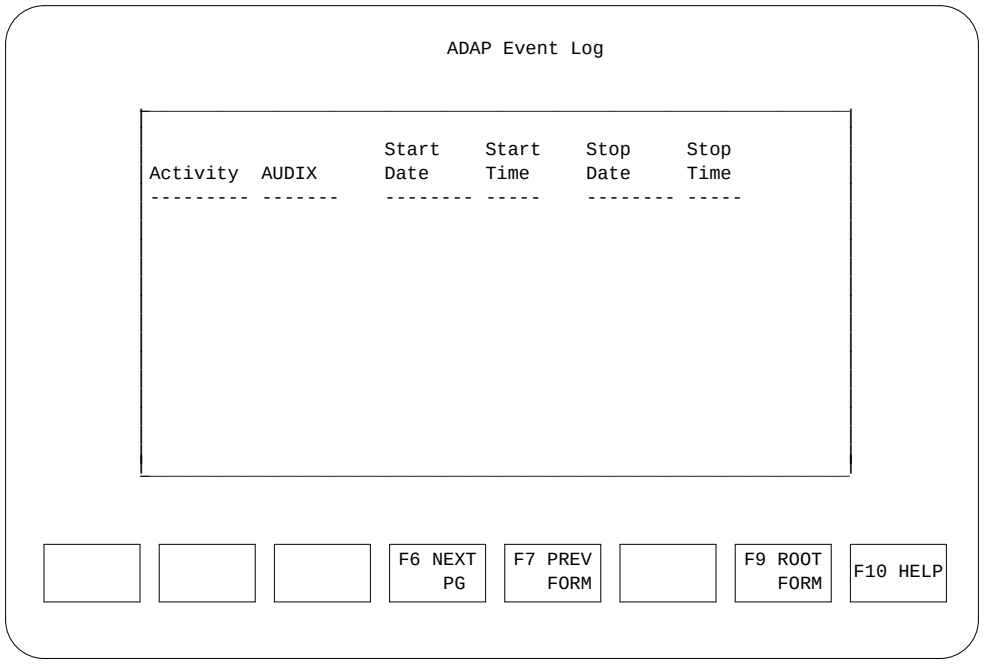


Figure 4-8. ADAP Event Log Form

   Up to 500 entries are shown in the event log, starting with the most recently logged.

3. Use the F6 and F7 keys to move through this log.

   For each recently scheduled event, there is an entry stating whether the event completed successfully or failed and the reason for the failure.

See appendix C, *Event Log Error Messages*, for a listing of error messages relating to CDR transfers that appear in the event log.

Displaying and Editing Scheduled Events

You can display and edit any currently scheduled event, as follows:

1. At the PC2AUDIX root menu, select option **5** (PC2AUDIX Schedule).

   The PC2AUDIX Scheduling menu is displayed with the options shown below:

   1. Display/Edit Schedule by day/time.
   2. Display/Edit Schedule by machine/day/time.
   3. Display Event Log for Scheduler.

2. Choose one of the following:

   - Select option **1** to display the `Display/Edit Schedule` form with the entries sorted by day and time. Choose this option for a non-networked AUDIX system.
   - Select option **2** to display the `Display/Edit Schedule` form with the entries sorted first by machine then by day and time (per machine). Choose this option for networked AUDIX systems.

   For either option, the Display/Edit Schedule form is displayed:

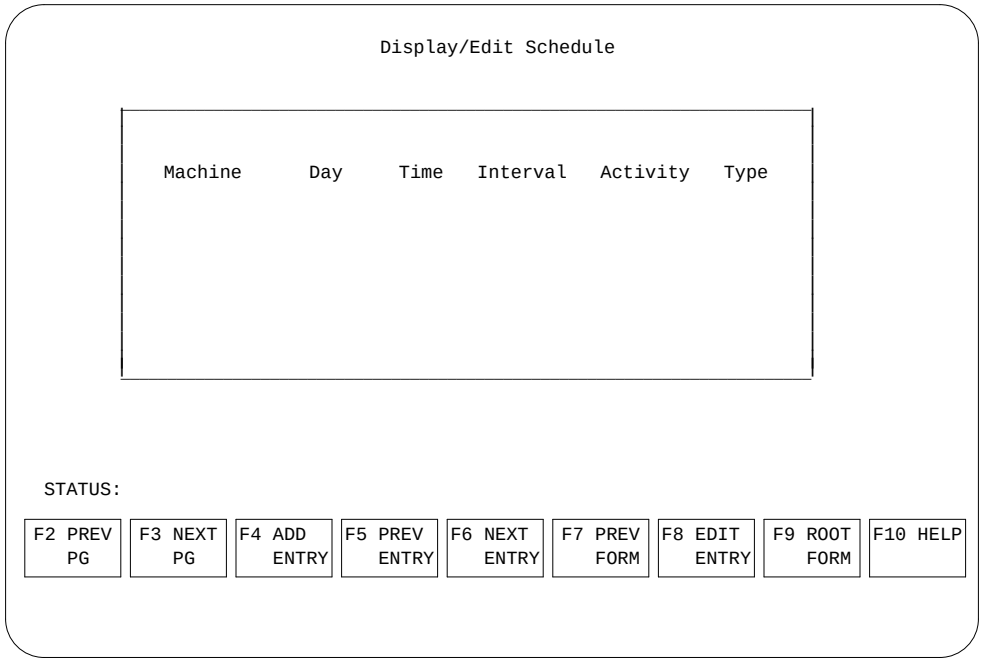


Figure 4-9. Display/Edit Schedule Form

3. Use the F2 (PREV PG) and F3 (NEXT PG) function keys to scroll through the schedule to the specific event you want to see or edit.
4. Use the F5 (PREV ENTRY) and F6 (NEXT ENTRY) function keys to select a specific event to be edited.
5. Press F8 (EDIT ENTRY).

   The Edit Schedule Entry form is displayed with the selected event highlighted for editing.
6. Change the data in the fields as appropriate, and press F8 (CHANGE or RUN), or press F6 (DELETE) to delete the event.
7. Optionally press F7 (PREV FORM) to redisplay the Display/Edit Schedule form.
8. Optionally press F9 (ROOT MENU) to return to the PC2AUDIX Root Menu.

When you are done editing, reinvoke the scheduling mode (select option **0** from the PC2AUDIX Root Menu) *before* the next scheduled event is to begin, or the event will be skipped.

SEPARATING ASCII-FORMATTED CDR FILES

If you have specified ASCII format on the PC2AUDIX Setup Parameters form, the CDR data is stored in a single, ASCII-formatted file after it is transferred to the PC. To separate this file into individual files, one for each CDR record type that is collected, perform the following procedure.

1. At the DOS C> prompt, enter **cd** *machine_name* (where *machine_name* is the name of the directory for the AUDIX machine whose CDR data you want to split).
2. Enter **splitcdr** *mmddyy*_{**a**-**z**}**.cdr** (where *mmddyy*_{**a**-**z**}**.cdr** is the name of the CDR file that you want to split).

The CDR data is split into separate files with the naming convention *mmddyy*_{**a**-**z**}.{**voi, out, net, sys**} (where *mmddyy*_{**a**-**z**} is the date and sequence identifier from the original filename, **voi** identifies the voice session CDR record file, **out** identifies the outgoing call CDR record file, **net** identifies the network session CDR record file, and **sys** identifies the system activity CDR record file).

CHANGING CDR MAXIMUM RECORDS

You can perform this task from the AUDIX administrator's terminal or from the PC using the ADAP command line interface setscdr command.

NOTE

If you want to save the CDR records currently stored in the AUDIX system, download the records to the PC before performing this task. This task requires that you deactivate CDR, which causes the AUDIX system to reset the CDR file (effectively losing all data).

From the AUDIX Administrator's Terminal

To change the maximum number of CDR records that AUDIX collects from the AUDIX administrator's terminal, perform the following:

1. Login to the AUDIX system.
2. On the `PATH` line, type **`sy cd`** and press F8 (ENTER).

   The `system : cdr` form is displayed.
3. With the cursor on the `call detail recording active` field, type **`n`**.
4. Press F1 (CHANGE or RUN).

   A confirmation message is displayed at the bottom of the screen (there is a short delay before the message is displayed).
5. Move the cursor to the `CDR records (maximum)` field and type the new maximum value.

   Valid range of entries include **64000** (the minimum and default value) to **128000**.
6. Press F1 (CHANGE or RUN) to save the changes.
7. Move the cursor to the `call detail recording active` field and type a **`y`**.
8. Press F1 (CHANGE or RUN) to reactivate CDR.

From the PC

To change the maximum number of CDR records that the AUDIX system collects, perform the following:

1. At the DOS C> prompt, enter **`cd`** *machine_name* (where *machine_name* is the name of the directory you created for the AUDIX machine from which you now want to download data).
2. Type **`setscdr -a n`** and press RETURN to deactivate the CDR feature.
3. Type **`setscdr -n`** *value* (where *value* represents a number between 64000 and 128000) and press RETURN to set the maximum number of CDR records that the AUDIX system collects to the new *value*.

4. Type **`setscdr -a y`** and press RETURN to activate the CDR feature again.
5. Perform *Task 2: Verify CDR Filesystem Size* in Chapter 3, to see if you need to increase the size of the /ss filesystem. (By increasing the maximum number of CDR records collected, you may have exceeded the size of the /ss filesystem.)

CHANGING CDR RECORD TYPE COLLECTION

You can perform this task from the AUDIX administrator's terminal or from the PC using the ADAP command line interface `setscdr` command.

From the AUDIX Administrator's Terminal

To change the type of CDR records that the AUDIX system collects from the AUDIX administrator's terminal, perform the following:

1. Login to the AUDIX system.
2. On the `PATH` line, type **`sy cd`** and press F8 (ENTER).

   The `system : cdr` form is displayed.
3. Move the cursor to `record types to be collected` field that you want to change and type a **y** to enable collecting that particular CDR record type, or an **n** to disable collection.
4. Press F1 (CHANGE or RUN) to save the changes.

From the PC

To change the type of CDR records that the AUDIX system collects, perform the following:

1. At the DOS C> prompt, enter **`cd`** *machine_name* (where *machine_name* is the name of the directory you created for the AUDIX machine that you now want to administer).
2. Enter **`setscdr`** and choose from the following arguments:
   - append **`-s y`** to enable voice session CDR records
   - append **`-s n`** to disable voice session CDR records
   - append **`-o y`** to enable outgoing call CDR records
   - append **`-o n`** to disable outgoing call CDR records
   - append **`-N y`** to enable network session CDR records
   - append **`-N n`** to disable network session CDR records

DEACTIVATING AND/OR ACTIVATING THE CDR FEATURE

You can perform this task from the AUDIX administrator's terminal or from the PC using the ADAP command line interface setscdr command.

NOTE

Deactivating CDR causes the AUDIX system to reset the CDR file (effectively losing all data). If you want to save the CDR records currently stored in the AUDIX system, download the records to the PC before deactivating CDR.

From the AUDIX Administrator's Terminal

To deactivate and/or activate CDR records from the AUDIX administrator's terminal, perform the following:

1. Login to the AUDIX system.
2. On the `PATH` line, type **`sy cd`** and press F8 (ENTER).

   The `system : cdr` form is displayed.
3. With the cursor on the `call detail recording active` field, type **n** to deactivate CDR or **y** to activate CDR.
4. Press F1 (CHANGE or RUN).
5. A confirmation message is displayed at the bottom of the screen (there is a short delay before the message is displayed).

From the PC

To deactivate and/or activate CDR from the PC, use the ADAP command line interface setscdr command, as follows:

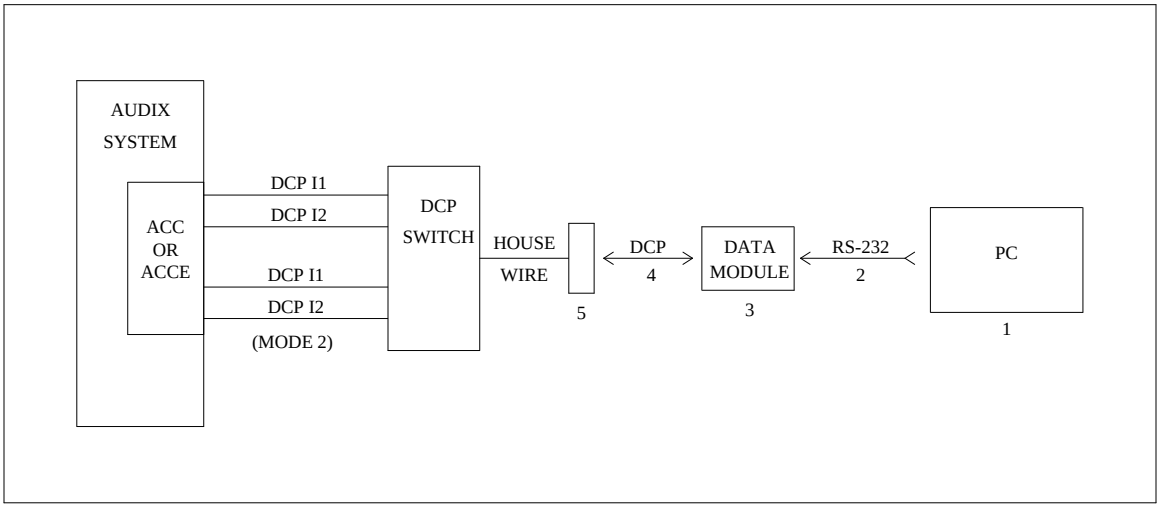
1. At the DOS C> prompt, enter **`cd`** *machine_name* (where *machine_name* is the name of the directory you created for the AUDIX machine that you now want to administer).
2. Choose one of the following:
   - Type **`setscdr -a n`** and press RETURN to deactivate the CDR feature.
   - Type **`setscdr -a y`** and press RETURN to activate the CDR feature.

A. Cabling Configurations

This appendix contains illustrations and parts lists for each of the four AUDIX-to-PC CDR cabling configurations:

- DCP data module connection
- DCP modem pool connection
- RS-232 modem connection
- RS-232 direct connection

DCP DATA MODULE CONNECTION



The following PC configurations and transmission rates have been certified for use with CDR data module connections:

PC	RAM	Maximum Baud
AT&T 6386SX/EL	2 Mbyte	9600
AT&T 6386SX/EL	3 Mbyte	19200
AT&T 6312WGS	1 Mbyte	19200
AT&T 6300	640 Kbyte	9600
AT&T 6286	1 Mbyte	19200
Compaq 386/20E	1 Mbyte	9600

Use the following parts list for a CDR PDM connection.

	Part	PEC	Attr	Qty
1.	One of the following certified PCs:			
	AT&T 6386/SX/ELWGS	3722-G40 to G42, M40 to M42	MSF19	1
	AT&T 6312 WGS	N/A		1
	AT&T 6300	N/A		1
	AT&T 6286	3724-M301 to M351		1
	Compaq 386/20E	N/A		1
2.	M25B, 4-foot RS-232 cable	2721-02D		1
3.	MPDM with	2161-PDM		1
	RS-232 card, and	21611		1
	Standalone mounting	21702		1
	or			
	7400A data module with	2171-ADM		1
	Standalone power supply	21625		1
4.	7-foot, 4-pair cable for MPDM included with standalone mounting			
	or			
	25-foot, D8W-87, 4-pair modular cable for 7400A	2725-27S	COL18	1
5.	103A connect block	2750-D08		1

DCP MODEM POOL CONNECTION

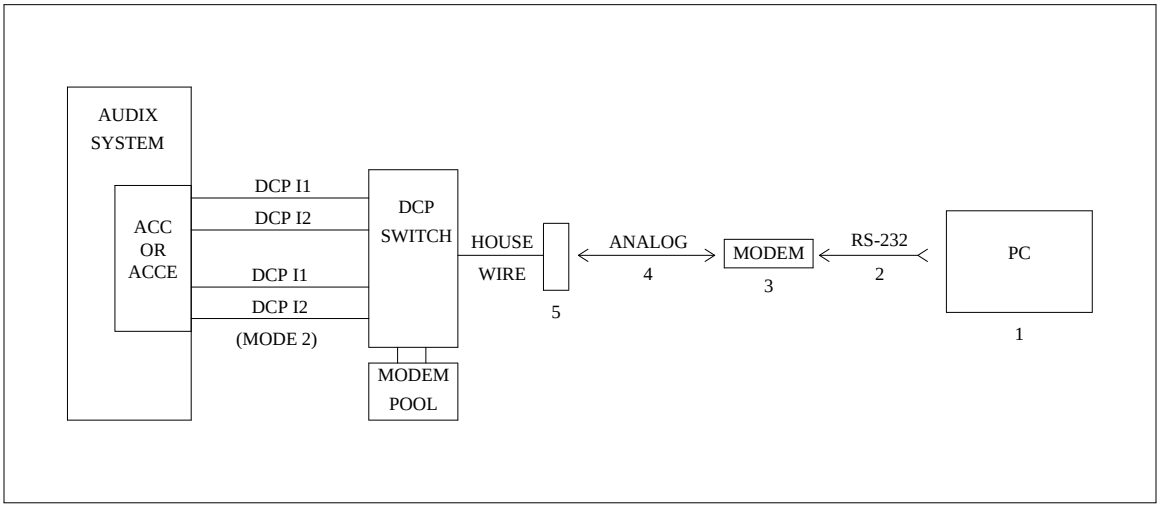


Figure A-1. DCP Modem Pool Connection

The following PC configurations and transmission rates have been certified for use with CDR modem pool connections:

PC	RAM	Maximum Baud
AT&T 6386/25	4 Mbyte	9600
AT&T 6300	640 Kbyte	9600
Compaq 6386/20	1 Mbyte	9600

Use the following parts list for a CDR modem pool connection.

	Part	PEC	Attr	Qty
1.	One of the following PCs:			
	AT&T 6386/25 WGS	3713-311 to 315	MSF19	1
	AT&T 6300	N/A		1
	Compaq 386/20E	N/A		1
2.	M25B RS-232 cable, 4-foot	2721-02D		1
3.	Modem DM424	2260-M42		1
4.	D8W-87, 4-pair modular cord	2725-07S	COL18	2
5.	103A connect block	2750-D08		1

RS-232 MODEM CONNECTION

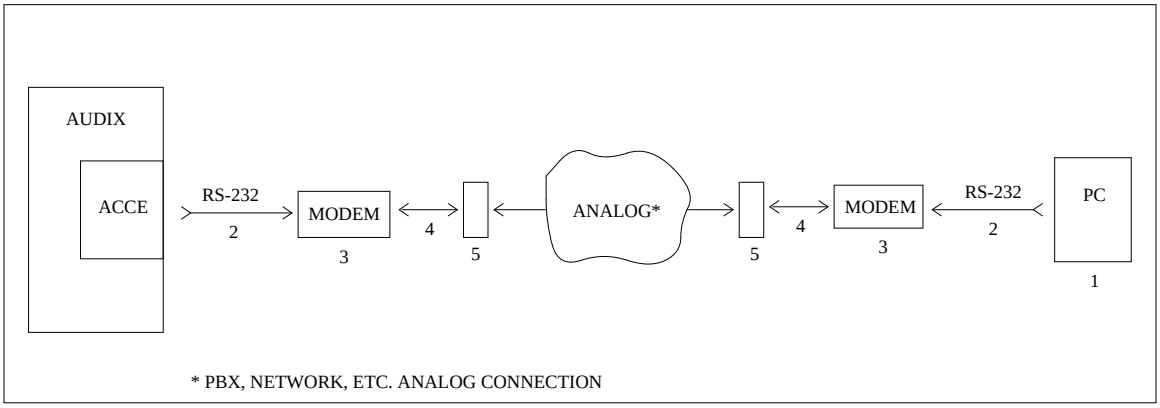


Figure A-2. RS-232 Modem Connection

The following PC configurations and transmission rates have been certified for use with CDR RS-232 modem connections:

PC	RAM	Maximum Baud
AT&T 6386/25	4 Mbyte	9600
AT&T 6300	640 Kbyte	9600
Compaq 6386/20	1 Mbyte	9600

Use the following parts list for a CDR RS-232 modem connection.

	Part	PEC	Attr	Qty
1.	One of the following PCs:			
	AT&T 6386/25 WGS	3713-311 to 315	MSF19	1
	AT&T 6300	N/A		1
	Compaq 386/20E	N/A		1
2.	M25B, 4-foot RS-232 cable	2721-02D		2
3.	Modem DM424	2260-M42		2
4.	D8W-87, 4-pair modular cord	2725-07S	COL18	2
5.	103A connect block (for PBX use)	2750-D08		2

RS-232 DIRECT CONNECTION

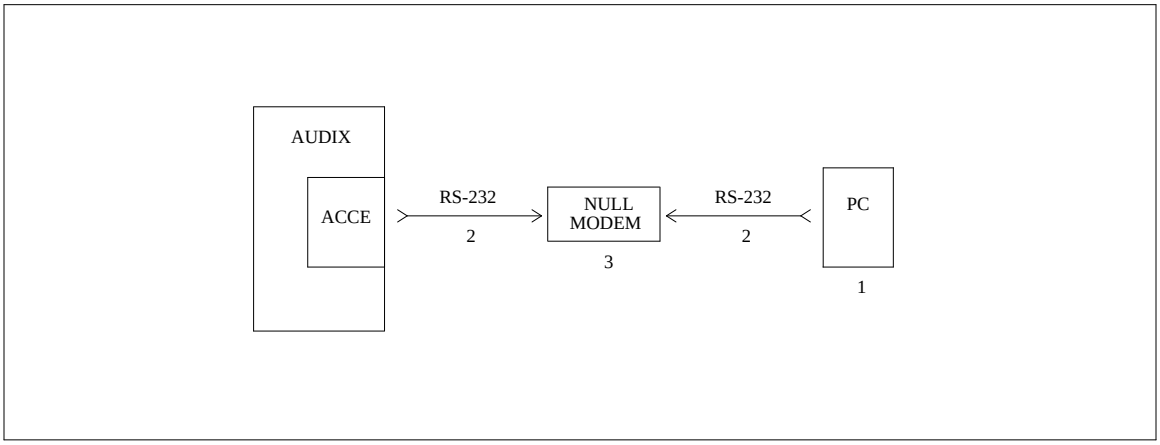


Figure A-3. RS-232 Direct Connection

The following PC configurations and transmission rates have been certified for use with CDR direct connections:

PC	RAM	Maximum Baud
AT&T 6386/25	4 Mbyte	19200
AT&T 6386SX/EL	2 Mbyte	9600
AT&T 6386SX/EL	3 Mbyte	19200
AT&T 6312WGS	1 Mbyte	19200
AT&T 6386WGS	2 Mbyte	19200
AT&T 6300	640 Kbyte	9600

Use the following parts list for a CDR direct connection.

	Part	PEC	Attr	Qty
1.	One of the following PCs:			
	AT&T 6386/25 WGS	3713-311 to 315	MSF19	1
	AT&T 6386/SX/ELWGS	3722-G40 to G42, M40 to M42	MSF19	1
	AT&T 6312 WGS	N/A		1
	AT&T 6300	N/A		1
2.	M25B, 4-foot RS-232 cable	2721-02D		2
3.	Null Modem cable, included with the ACCE board (PEC 70319 or 70219)		1	

B. Applications and Examples

A primary function of the records is to provide raw data from which billing and usage reports can be generated. Many voice mail service businesses require CDR for accounting and system troubleshooting. Since a record is generated for major system events, CDR provides a rigorous array of data for management reports.

Examples of the various count fields within the voice session CDR record are shown below.

a. Assume that during a single Voice Mail session the subscriber creates and sends two messages; one is addressed to two individual subscribers and to a list of ten others, the second is addressed to one subscriber and is saved in the file cabinet. A third message was recorded but deleted prior to addressing.

   The following fields will have the corresponding values:

Total Messages Created	= 2
Total Recipients Specified	= 13
Messages Created and Filed	= 1

b. Assume that during a single Voice Mail session the subscriber creates and sends a single broadcast voice message. The message is not saved in the file cabinet.

   The following fields will have the corresponding values:

Total Messages Created	= 1
Total Recipients Specified	= 1
Messages Created and Filed	= 0

c. Assume that during a single Call Answer session the subscriber leaves a message for the called subscriber.

   The following fields will have the corresponding values:

Total Messages Created	= 1
Total Recipients Specified	= 1
Messages Created and Filed	= 0

d. Assume that during a single Voice Mail session the subscriber listens to five new messages and deletes three of them. The subscriber also listens to six old and/or unopened messages, deleting four of them. For one of the messages, the subscriber replies to the sender with a voice message. The reply is not saved in the subscriber's file cabinet.

The following fields will have the corresponding values:

Total Messages Created	= 1
Total Recipients Specified	= 1
Messages Created and Filed	= 0
New Messages Played and Saved	= 2
New Messages Played and Deleted	= 3
Total Messages Deleted	= 7

C. Event Log Error Messages

The following sections list error log entries for both general events and specific CDR events.

GENERAL EVENT LOG ENTRIES

For failed off load of traffic data, the valid entries are:

- Log: "Failed off load of hourly traffic data."
  - — Insufficient space to sort load_hr.dbf, feat_hr.dbf, tr_nethr.dbf, and spfeathr.dbf
  - — Insufficient free space on disk. Free space = NNN
  - — Invalid Collection Range specification
  - — Invalid date/hour specification
  - — Start collection is more than 192 hours previous to current time
  - — Stop collection time past present hour/date
  - — Login result: <failure message from alogin command>
  - — <failure msg from getfeat> (feat_hr -dMM/DD/YY -tNN)
  - — <failure msg from getload> (load_hr -dMM/DD/YY -tNN)
  - — <failure msg from getnet> (tr_nethr -dMM/DD/YY -tNN)
  - — <failure msg from getspfeat> (spfeathr -dMM/DD/YY -tNN)
- Log: "Failed off load of daily traffic data."
  - — Insufficient space to sort load_day.dbf, feat_day.dbf, tr_netda.dbf, spfeatda.dbf, and tr_remda.dbf
  - — Insufficient free space on disk. Free space = NNN
  - — Invalid date specification
  - — Start collection is more than 31 days previous to current date
  - — Stop collection date past present date
  - — Login result: <error message from alogin>
  - — <error message from getfeat> (feat_day -dMM/DD/YY)
  - — <error message from getload> (load_day -dMM/DD/YY)
  - — <error message from getnet> (tr_netda -dMM/DD/YY)
  - — <error message from getspfeat> (spfeatda -dMM/DD/YY)
  - — <error message from getrem> (tr_remda -dMM/DD/YY)

For failed off load of monthly traffic data the valid entries are:

- Log: "Failed off load of monthly traffic data."
  - — Check date. Can’t collect into the future
  - — Collection date is more than 12 months previous to current date
  - — Insufficient free space on disk. Free space = NNN
  - — Login result: <error message from alogin>
  - — <error message from getrem> (tr_remmo -dMM/YY)
  - — Insufficient space to sort tr_remmo.dbf

For failed off load of subscriber verification data the valid entries are:

- Log: "Failed off load of local subscriber verification data."
  - — Insufficient free space for audit. Please free NNN bytes
  - — getlist failed: <error message from getlist>
  - — Login failed: <error message from alogin>
  - — No return code from form request
  - — The AUDIX system indicates no local subscribers are administered
- Log: "Failed off load of remote subscriber verification data."
  - — Insufficient free space for audit. Please free NNN bytes
  - — getrlist failed: <error message from getrlist>
  - — Login failed: <error message from alogin>
  - — No return code from form request
  - — Must be Networked to verify remote subscribers
  - — The AUDIX system indicates no remote subscribers are administered

For failed off load of error/alarm log data the valid entries are:

Log: "Failed off load of error/alarm log data."

For successful off load of traffic data the valid entries are:

Log: "Successful off load of traffic data."

For successful off load of subscriber verification data the valid entries are:

Log: "Successful off load of subscriber verification data."

For successful off load of error/alarm log data the valid entries are:

Log: "Successful off load of error/alarm log data."

CDR EVENT LOG ENTRIES

For connection not established because the AUDIX system is down or busy, the valid entries are:

Log: "Failed off load: connection not established."

Retries? no
CDR file created? no

For connection rejected by the AUDIX system.

Log: "Failed off load: connection rejected."

Retry? no
CDR file created? no

For connection dropped due to transmission problems or AUDIX system failure.

Log: "Interrupted off load: connection dropped, #### records created in mmddyy_X.cdr, ##% retransmission rate."

Retry? yes
CDR file created? yes, partial data

For connection lost due to power failure.

Log: "Interrupted off load: power failure, #### records created in mmddyy_X.cdr"

Retry? no
CDR file created? yes, partial data

For connection dropped due to PC running out of disk space.

Log: "Interrupted off load: full disk, #### records created in mmddyy_X.cdr"

Retry? no
CDR file created? yes, partial data

For successful off load.

Log: "Successful off load: #### records created in mmddyy_X.cdr"

Retry?: no
CDR file created? yes

For successful off load, but no data to be off loaded.

Log: "Successful off load: audix had no CDR data to off load."

Retry? no
CDR file created? no

For missing a scheduled event because the PC was not in schedule mode.

Log: "Scheduled event _____ at MM/DD/YY ##:## was missed: PC was not in schedule mode."

Retry? no
CDR file created? no

For failed network loop-around test due to connection not being established.

Log: "Failed network loop-around test: connection not established."

For failed network loop-around test due to connection being rejected by the AUDIX system.

Log: "Failed network loop-around test: connection rejected."

For failed network loop-around test due to acknowledgment not being returned.

Log: "Failed network loop-around test: connection dropped."

For successful network loop-around.

Log: "Successful network loop-around test."

D. Voice Session CDR Records

This appendix describes the structure, format, and content of AUDIX voice session CDR records as stored in the ADAP PC. This information is intended for AUDIX traffic engineers, programmers, or other persons responsible for incorporating CDR data into AUDIX traffic or usage reports.

A voice session CDR record is created whenever a caller:

- Successfully or unsuccessfully logs into the AUDIX system
- Is redirected or forwarded to the AUDIX system
- Is transferred to a voice mailbox via an Automated Attendant or Bulletin Board
- Restarts a voice session (*R or **R)

It makes no difference whether the caller is originally in Voice Mail or Call Answer mode.

STRUCTURE

- Fields are *fixed format*, a fixed number of spaces in each field
- 102 characters in length
- Numeric fields are right-justified, padded to the left with zeros
- Alphanumeric fields are left-justified, padded to the right with blanks
- Unused fields are padded with blanks

RECORD HEADER

Each record begins with the following fields:

- *Record Length*: (3 characters) The length of the record in characters, including this field.
- *Record Type*: (2 characters) Code identifying the record type — *01* for voice session records.
- *Record Version*: (2 characters) A version indicator to track modifications to the record. This field is initially 01, then each time the record is modified, this field is incremented.
- *System ID*: (10 characters) The AUDIX machine name.
- *Date*: (6 characters) The initial date of the AUDIX activity. The format is *yymmdd*.
- *Time*: (6 characters) The initial time of the AUDIX activity. The format is *hhmmss*.

RECORD TRAILER

Each record ends with the following fields:

- *Carriage Return*: (1 character) The standard ASCII carriage return to reorient the cursor
- *Line Feed*: (1 character) The standard ASCII line feed to reorient the cursor

RECORD BODY

In the following sections, the fields are summarized first in Table D-1, *Voice Session CDR Record Fields*, showing the length of the field and the options or format of the entries, then in descriptions listing conditional considerations.

The following table does not include the header and trailer fields listed above.

Table D-1. Voice Session CDR Record Fields

	Field	Length	Comments
1	Port ID	3	AUDIX voice port number
2	Duration of Session	5	seconds
3	Mailbox ID	10	subscriber's extension number
4	Community ID	2	community for sending restrictions
5	Filler	2	(Reserved for future use)
6	Reason for Connection	1	Identifies direct, redirected, or AUDIX system originated outgoing calls
7	Session Type	2	Identifies primary, transfer, and secondary calls (VM, CA, Auto Attendant, etc.)
8	Integration Type	1	1 = integrated, 2 = nonintegrated
9	Called Party ID	10	incoming calls - called party's phone number outgoing calls - mailbox ID of called subscriber
10	Calling Party ID	10	Identifies the calling party for incoming calls as determined by switch type.
11	Calling Party Type	1	For incoming calls, identifies the type of number (trunk, phone number or unknown) in the Calling Party ID field.
12	Log-in Attempts	3	Identifies the status of the login attempt.
13	Session Termination Method	2	Identifies the reason the session terminated.
14	Total Messages Created	3	Total number of new voice messages created.
15	Total Message Recipients Specified	4	Total number of recipients specified for all created messages;
16	Messages Created and Filed	3	New voice messages created and saved in file cabinet
17	New Messages Played and Saved	3	New voice messages played and saved
18	New Messages Played and Deleted	3	New voice messages played and deleted
19	Total Messages Deleted	3	Total number of voice messages deleted
	Total Length	102	(Including 31 bytes common header/trailer information)

The following list describes each of the voice session CDR record fields in detail.

1. *Port ID.* The number of the AUDIX voice port used for the session. Permissible values are 001 through 032.
2. *Duration of Session.* The duration, in seconds, of the voice session. If the session duration is greater than or equal to 100,000 seconds, then the entry is 99999 (27.8 hours).
3. *Mailbox ID.* The mailbox number for the voice session. For a Voice Mail session, it corresponds to the AUDIX subscriber's extension number input during the session log-in. For a Call Answer, Automated Attendant, Bulletin Board, or Guest Password session, it corresponds to the AUDIX subscriber's extension number dialed by the calling party. For nonintegrated systems, it is the default mailbox (if any) for time-outs where a time-out treatment is specified. For unsuccessful log-in attempts, it is the last extension number entered by the user.

   For direct calls to the AUDIX system, this is the same as the *Calling Party ID* obtained from the switch connect message, the user's login, or guest password. For calls redirected to the AUDIX system, this is the *Called Party ID* that has been filtered through address ranges specified by the system administrator on the `system : translation : switch connection` form.

   This is treated as an alphanumeric field.
4. *Community ID.* This field identifies the subscriber's community for the Sending Restrictions Feature. The default for this field is 01, if the restrictions feature is not active.

   Possible values are 00 through 15.
5. *Filler.* This field is reserved for future use.
6. *Reason for the Connection.* The reason that the original call was connected to or by the AUDIX system. Possible values are:
   - 1 = direct call to the AUDIX system
   - 2 = redirected to the AUDIX system - all (unconditional)
   - 3 = redirected to the AUDIX system - busy
   - 4 = redirected to the AUDIX system - no answer
   - 5 = AUDIX originated outgoing call
   - 6 = unknown reason
7. *Session Type.* The type of session. The first digit in this field identifies the reason for connection (primary call, transfer, etc.), the second digit identifies the session type (voice mail, call answer, etc.), as follows:
   - A 0 in the first position specifies a primary session direct to the AUDIX system. Possible values include:
     - 01 = Voice Mail - primary session
     - 02 = Call Answer - primary session
     - 03 = Guest Password - primary session
     - 04 = Automated Attendant - primary session
     - 05 = Bulletin Board - primary session

- A 1 in the first position specifies a transfer within the AUDIX system (which generates only one voice session CDR record). Possible values include:
  - 12 = Call Answer - transfer into mailbox from Automated Attendant
  - 13 = Guest greeting - transfer into mailbox from Automated Attendant
  - 14 = Automated Attendant - transfer into mailbox from Automated Attendant
  - 15 = Bulletin Board - transfer into mailbox from Automated Attendant
- A 2 in the first position specifies a secondary session invoked by pressing **R in Voice Mail or *R in Call Answer mode. A 2x session type would most likely occur when a user in Call Answer mode uses a single AUDIX call to get messages or perform other AUDIX tasks. Possible values include:
  - 21 = Voice Mail - secondary session
  - 23 = Guest Password - secondary session

The value in this field is determined from the *Mailbox ID* or the *Reason for the Connection*, unless the system is nonintegrated (see definition below), in which case the *Integration Type* may indicate the call type.

8. *Integration Type.* This indicates whether the session was processed by the AUDIX system in an integrated mode or in nonintegrated mode. Possible values are: 1 = integrated, 2 = nonintegrated.

   An integrated AUDIX system is one that is connected to a switch; a nonintegrated AUDIX system is a stand-alone system (no switch integration).

   However, in this field a *nonintegrated* value may indicate that this is an outgoing call, that a CONNECT message was not received for the call,

9. *Called Party ID.* For incoming calls that have been redirected to the AUDIX system, this is normally the originally called principal. For incoming calls that are direct to the AUDIX system, this is the AUDIX telephone number. The following variations apply:
   - If the switch is an AT&T 1A ESS, it is the number of the last telephone in the forwarding chain (for example, the last telephone before the call was redirected to the AUDIX system).
   - If the switch is a System 75/85, DEFINITY Generic 1/Generic 2/Generic 3 or a DIMENSION PBX, it is the *associated group number* from the CONNECT message.
   - If the switch is an AT&T System 75/85, a DEFINITY Generic 1/Generic 2/Generic 3 or a DIMENSION PBX *without* the Vectoring Feature, it is the *queue directory number* (QDN) for the AUDIX Automatic Call Distribution (ACD) group.
   - If the switch is a System 75/85 or a DEFINITY Generic 1/Generic 2/Generic 3 *with* the Vectoring Feature, multiple vectors may be set up to access the AUDIX system directly, in which case it is the *dialed vector directory number* (VDN).
   - For sessions that are established as a result of outcalling, it is the mailbox number for the called subscriber and matches the Primary Mailbox ID in the corresponding outgoing call CDR record.

10. *Calling Party ID.* For incoming calls, this is the identification of the calling party (if available). Possible values are:

    - For System 75/85, DEFINITY Generic 1/Generic 2/Generic 3 or DIMENSION PBX internal calls - calling party's extension number
    - For System 75/85, DEFINITY Generic 1/Generic 2/Generic 3 or DIMENSION PBX external calls - incoming trunk group number
    - Other integrated switches internal calls - caller's extension number
    - Other integrated switches external calls - calling party's phone number, if available
    - Other nonintegrated switches - not available (blank)

    For sessions established as a result of the AUDIX system originating an outgoing call, this field is blank.

11. *Calling Party Type.* For incoming calls, this indicates the type of number in the Calling Party ID field described above. *T* indicates that the Calling Party ID is a trunk group number; a blank indicates that the Calling Party ID is a phone number or its type is unknown. For sessions that are established as a result of outcalling, this field is blank.

12. *Log-in Attempts.* The results of the log-in attempt(s) for a session (maximum of three attempts). The length of this field is three characters, one for each possible log-in attempt. The attempts are recorded left-to-right (for example, the left-most character represents the result for the first log-in attempt).

    Values are:

    0 = not used (such as, the second or third log-in attempt was not made)
    1 = successful
    2 = mailbox ID invalid (*Mailbox ID* will reflect the last value entered)
    3 = password invalid
    4 = system time-out without entry

    For example, the value *231* shows that the first attempt was unsuccessful because the user entered an invalid mailbox ID, that the second attempt was unsuccessful because the user entered an invalid password, and that the third attempt was successful.

    If the call is answered by a nonintegrated the AUDIX system and is then routed to a pre-defined AUDIX mailbox awaiting a message because the calling party (using a rotary phone for example) does not enter the called party identification, this field will indicate system time-out without entry (4).

13. *Session Termination Method.* The manner in which the session was terminated. Possible values are:

    - 01 = transfer out of the AUDIX system
    - 02 = user disconnected established call
    - 03 = user abandoned call before the AUDIX system answered
    - 04 = user entered **X
    - 05 = user entered *R from Call Answer (CA) session
    - 06 = user entered **R from Voice Mail (VM) session
    - 07 = AUDIX-terminated call due to system problem
    - 08 = AUDIX-terminated call due to user/subscriber problem
    - 09 = AUDIX-terminated call that was originated by an AUDIX system (i.e., outcalling)

    The value 08, user problems, often means the AUDIX system terminated the call because of a full mailbox or because the user did not respond after a period of time (for example, a password break-in attempt).

14. *Total Messages Created.* The total number of new voice messages that the user created during the session, including responses to incoming messages, call deliveries, network messages (including AMIS), etc. This does not include messages that were created but deleted prior to approval for delivery (for example, working messages). A message sent to multiple recipients is counted as one message created. Possible values are 000 through 999.

15. *Total Message Recipients Specified.* The total number of message recipients specified for all of the new voice messages that the user created during the session (see Total Messages Created, above). This includes the number of individual recipients specified as well as the number of recipients on any lists that may have been used. Possible values are 0000 through 9999.

    NOTE

    Broadcast messages (broadcast voice messages and log-in announcements) are considered to have been sent to only one recipient (for example, the broadcast mailbox). See the broadcast and login message features in the *AUDIX Feature Descriptions* (585-305-203).

16. *Messages Created and Filed.* The total number of new voice messages that the user created and saved in the file cabinet during the session. This is a subset of the Total Messages Created field. Possible values are 000 through 999.

17. *New Messages Played and Saved.* The total number of new voice messages that the user played (any part of the header or message) and saved during the session. Possible values are 000 through 999.

18. *New Messages Played and Deleted.* The total number of new voice messages that the user played (any part of the header or message) and deleted during the session. This is a subset of the field Total Messages Deleted, below. Possible values are 000 through 999.

19. *Total Messages Deleted.* The total number of voice messages that the user deleted during the session. This includes the following:

    - New messages that are played and deleted
    - Unopened and old messages that are deleted
    - File cabinet messages that are deleted

    This field does *not* include AUDIX networking status messages that are deleted. Possible values are 000 through 999.

VOICE SESSION TYPE DEPENDENCIES

This section identifies the voice session CDR record fields that differ depending on the voice session type and whether the AUDIX system is integrated or nonintegrated.

Voice Mail Primary Session (Session Type 01)

Field	Value	Value	Value
Integration Type:	integrated	nonintegrated (stand-alone or no CONNECT msg)	nonintegrated [1]
Reason for Connection:	direct	direct or unknown	AUDIX originated call
Mailbox ID:	subscriber's extension from log-in	subscriber's extension from log-in	subscriber's extension from log-in
Called Party ID:	originally called number (normally the AUDIX number)	blank	mailbox ID for called subscriber
Calling Party ID:	telephone number or trunk group number	blank	blank [2]
NOTES:	[1] For calls originated by the AUDIX system type is always nonintegrated. [2] For dialed number, see Appendix E, *Outgoing Call CDR Records*.		

Call Answer Primary Session (Session Type 02)

Field	Value	Value
Integration Type:	integrated	nonintegrated
Reason for Connection:	redirected	unknown
Mailbox ID:	subscriber's extension	subscriber's extension or timeout extension
Called Party ID:	originally called number	blank
Calling Party ID:	telephone number or trunk group number	blank

Guest Password Primary Session (Session Type 03)

Field	Value	Value
Integration Type:	integrated	nonintegrated
Reason for Connection:	direct	unknown
Mailbox ID:	subscriber's extension from log-in	subscriber's extension from log-in
Called Party ID:	originally called number (normally the AUDIX number)	blank
Calling Party ID:	telephone number or trunk group number	blank

Automated Attendant Primary Session (Session Type 04)

Field	Value	Value
Integration Type:	integrated	nonintegrated
Reason for Connection:	redirected	unknown
Mailbox ID:	Automated Attendant's extension number	Automated Attendant's extension number
Called Party ID:	Automated Attendant's extension number	originally called Automated Attendant extension number (if available), or blank.
Calling Party ID:	telephone number or trunk group number	blank

NOTES: [1] If an Automated Attendant session is terminated by a transfer into a mailbox, this record is converted into a Voice Session CDR Record with Session Type = 14 - Transfer into Mailbox From Automated Attendant.

Bulletin Board Primary Session (Session Type 05)

Field	Value	Value
Integration Type:	integrated	nonintegrated
Reason for Connection:	redirected	unknown
Mailbox ID:	Information Service mailbox extension number	Information Service mailbox extension number
Called Party ID:	originally called number	blank
Calling Party ID:	telephone number or trunk group number	blank

Voice Mail Secondary Session (Session Type 21)

Field	Value	Value
Integration Type:	integrated	nonintegrated
Reason for Connection:	same as previous session	same as previous session
Mailbox ID:	subscriber's extension from log-in	subscriber's extension from log-in
Called Party ID:	same as previous session	same as previous session
Calling Party ID:	same as previous session	same as previous session

Guest Password Secondary Session (Session Type 23)

Field	Value	Value
Integration Type:	integrated	nonintegrated
Reason for Connection:	same as previous session	unknown
Mailbox ID:	subscriber's extension from log-in	subscriber's extension from log-in
Called Party ID:	same as previous session	blank
Calling Party ID:	same as previous session	blank

Call Answer From Automated Attendant (Session Type 12)

Field	Value	Value
Integration Type:	integrated	nonintegrated
Reason for Connection:	redirected	unknown
Mailbox ID:	subscriber's extension	subscriber's extension
Called Party ID:	same as original session for Automated Attendant	same as original session for Automated Attendant
Calling Party ID:	same as original session for Automated Attendant	blank

Guest Greeting From Automated Attendant (Session Type 13)

Field	Value	Value
Integration Type:	integrated	nonintegrated
Reason for Connection:	redirected	unknown
Mailbox ID:	subscriber's extension	subscriber's extension
Called Party ID:	same as original session for Automated Attendant	same as original session for Automated Attendant
Calling Party ID:	same as original session for Automated Attendant	blank

Automated Attendant From Automated Attendant (Session Type 14)

Field	Value	Value
Integration Type:	integrated	nonintegrated
Reason for Connection:	redirected	unknown
Mailbox ID:	Automated Attendant's extension number	Automated Attendant's extension number
Called Party ID:	same as original session for Automated Attendant	same as original session for Automated Attendant
Calling Party ID:	same as original session for Automated Attendant	blank

Bulletin Board From Automated Attendant (Session Type 15)

Field	Value	Value
Integration Type:	integrated	nonintegrated
Reason for Connection:	redirected	unknown
Mailbox ID:	subscriber's extension	subscriber's extension
Called Party ID:	same as original session for Automated Attendant	same as original session for Automated Attendant
Calling Party ID:	same as original session for Automated Attendant	blank

E. Outgoing Call CDR Records

This appendix describes the structure, format, and content of AUDIX outgoing call CDR records as stored in the ADAP PC. This information is intended for AUDIX traffic engineers, programmers, or other persons responsible for incorporating CDR data into AUDIX traffic or usage reports.

An outgoing call CDR record is created for every outgoing call that is originated by the AUDIX system via a voice port. This includes call transfers, outcalling, message delivery attempts, and message waiting activation/deactivation via access codes for stand-alone AUDIX systems.

Unsuccessful call transfer attempts may result in multiple outgoing call CDR records being created during a single voice session. For example, the subscriber may attempt a transfer that is not successful. If the AUDIX system is administered to use *enhanced call transfer*, the caller is given the opportunity to attempt another transfer.

The word *secondary* in the context of outgoing call CDR records relates to a subscriber who logs into the AUDIX system *during* an AUDIX outcall. A secondary subscriber is usually the same as the primary subscriber. *Time out* is a phrase meaning the subscriber did not respond to the AUDIX system within an administered period of time, so that the AUDIX system finally disconnected or transferred the call.

RECORD STRUCTURE

Outgoing call CDR records are structured as follows:

- Fields are *fixed format*, a fixed number of spaces in each field
- Outgoing call CDR records are 102 characters
- Numeric fields are right-justified, padded to the left with zeros
- Alphanumeric fields are left-justified, padded to the right with blanks
- Unused fields are padded with blanks

RECORD HEADER

Each outgoing call CDR record begins with the following fields:

- *Record Length*: (3 characters) The length of the record in characters, including this field.
- *Record Type*: (2 characters) A code for the type of record — *02* for outgoing call CDR records.
- *Record Version*: (2 characters) A version indicator (initially 01), which provides a means for a system administrator to keep track of modifications to the record.
- *System ID*: (10 characters) The AUDIX machine name.
- *Date*: (6 characters) The initial date of the AUDIX activity. The format is *yymmdd*.
- *Time*: (6 characters) The initial time of the AUDIX activity. The format is *hhmmss*.

RECORD TRAILER

- *I Filler*: (optional 1 character) A filler to ensure records contain an even number of characters.
- *Carriage Return*: (1 character) The standard ASCII carriage return to reorient the cursor.
- *Line Feed*: (1 character) The standard ASCII line feed to reorient the cursor.

RECORD BODY

In the following sections, the fields are summarized first in Table E-1, *Outgoing Call CDR Record Fields*, showing the length of the field and the options or format of the entries, then in descriptions listing conditional considerations.

The following table does not include the header and trailer fields listed above.

Table E-1. Outgoing Call CDR Record Fields

	Field	Length	Comments
1	Port ID	3	AUDIX voice port number
2	Duration of Call	5	seconds
3	Primary Mailbox ID	10	subscriber responsible for the call
4	Community ID	2	community for sending restrictions
5	Filler	2	(Reserved for future use)
6	Secondary Mailbox ID	10	subscriber that logs into the AUDIX system (for outcalls)
7	Community ID	2	community for sending restrictions
8	Filler	2	(Reserved for future use)
9	Dialed Number	30	dial string sent to switch
10	Call Type	2	Identifies the type of outgoing call.
11	Result of Call	2	Identifies the result of the call.
	Total Length	102	(Including 31 bytes common header/trailer information)

The following list describes each of the outgoing call CDR record fields in detail.

1. *Port ID.* The number of the AUDIX voice port used for the session. Permissible values are 001 through 032.
2. *Duration of the Call.* The duration, in seconds, of the outgoing call.
3. *Primary Mailbox ID.* The mailbox number of the subscriber who is responsible for the outgoing call. This is treated as an alphanumeric field.
4. *Community ID.* This field identifies the subscriber's community for the Sending Restrictions feature. The default for this field is 01, if the restrictions feature is not active. Possible values are 00 through 15.
5. *Filler.* This field is reserved for future use.
6. *Secondary Mailbox ID.* The mailbox number of the subscriber that logs into the AUDIX system (if any) during an outcall. This is treated as an alphanumeric field.
7. *Secondary Community ID.* This identifies the secondary subscriber's community for the Sending Restrictions Feature. The default for this field is 01 if the feature is not active. The default for this field is 00 if a Secondary Mailbox ID is not present in the record. Possible values are 00 through 15.
8. *Filler.* This field is reserved for future use.

9. *Dialed Number*. The number dialed by the AUDIX system for the outgoing call. The following variations apply:
   - For transferred calls, this is the destination telephone extension
   - For the outcalling feature, this is the character string specified by the subscriber
   - For the message delivery feature, this is the character string specified by the subscriber
   - For message waiting indication (MWI) activation, this is the feature access code and the telephone number
10. *Call Type.* This field identifies the type of outgoing call. Possible values are:
   - 10 = transfer from Voice Mail (VM) session - *T or *0
   - 11 = transfer from VM session - return call
   - 12 = transfer from Call Answer (CA) session - *T, *0, 0
   - 13 = transfer from Automated Attendant - menu selection
   - 14 = transfer from Automated Attendant - extension, name
   - 15 = transfer from Automated Attendant - time out
   - 16 = transfer from Automated Attendant - *T
   - 17 = transfer from bulletin board - *T, *0, 0
   - 20 = outcalling - any message
   - 21 = outcalling - priority message
   - 30 = message waiting activation/deactivation
   - 40 = call delivery
11. *Result of Call.* This field indicates the result of the call. Values are:
   - 00 = result unknown

NOTE

With basic call transfer, the AUDIX system only checks for the proper number of digits in the destination telephone number. Once the call is transferred to the switch, the AUDIX system is dropped from the call and cannot determine whether the transfer succeeded or failed.

   - 10 = operation successful (if known by the AUDIX system)
   - 11 = operation failed (if known by the AUDIX system)
   - 20 = outcalling - no response
   - 21 = outcalling - acknowledgement by called party ("*#")
   - 22 = outcalling - log-in by called subscriber
   - 23 = outcalling - log-in by other subscriber
   - 40 = recipient acknowledged call via "0" and/or "*D"
   - 41 = call not acknowledged by recipient

F. System Activity CDR Records

This appendix describes the structure, format, and content of AUDIX system activity CDR records as stored in the ADAP PC.

This information is intended for AUDIX traffic engineers, programmers, or other persons responsible for incorporating CDR data into AUDIX traffic or usage reports.

A system activity CDR record is created every time one of the following occurs:

- The system is restarted
- The system clock is reset
- The time zone is changed
- The daylight savings time attribute is changed
- Daylight savings time is changed
- CDR file transfer to the PC starts or ends
- There is a change in the specified CDR record types that are being stored
- Corruption or loss of CDR data is detected

The system activity CDR records provide the system administrator with an audit trail for the system events listed above. A system restart may explain partial or missing records and gaps in the CDR file. It may also indicate when a version of a record has changed due to a system upgrade. A clock, time zone or daylight saving time attribute change affects the reported time for all messages and system activity. Clock, time zone and daylight savings time attribute changes and CDR record type changes impact the consistency of the CDR records.

RECORD STRUCTURE

System activity CDR records are structured as follows:

- Fields are *fixed format*, a fixed number of spaces in each field
- System CDR activity records are 56 characters
- Numeric fields are right-justified, padded to the left with zeros
- Alphanumeric fields are left-justified, padded to the right with blanks
- Unused fields are padded with blanks

RECORD HEADERS

Each system activity CDR record begins with the following fields:

- *Record Length*: (3 characters) The length of the record in characters, including this field.
- *Record Type*: (2 characters) A code for the type of record — *05* for System Activity.
- *Record Version*: (2 characters) A version indicator (initially 02), which provides a means for a system administrator to keep track of modifications to the record.
- *System ID*: (10 characters) The AUDIX machine name.
- *Date*: (6 characters) The initial date of the AUDIX activity. The format is *yymmdd*.
- *Time*: (6 characters) The initial time of the AUDIX activity. The format is *hhmmss*.

RECORD TRAILER

Each system activity CDR record ends with the following fields:

- *I Filler*: (optionally 1 character) A filler to ensure each record is composed of an even number of characters.
- *Carriage Return*: (1 character) The standard ASCII carriage return to reorient the cursor.
- *Line Feed*: (1 character) The standard ASCII line feed to reorient the cursor.

RECORD BODY

In the following sections, the fields are summarized first in Table F-1, *System Activity CDR Record Fields*, showing the length of the field and the options or format of the entries, then in descriptions listing conditional considerations.

The following table does not include the record headers and trailers listed above.

Table F-1. System Activity CDR Record Fields

	Field	Length	Comments
1	System Activity	2	Identifies the specific system event.
2	CDR Record Types	10	Identifies the current CDR record types that the AUDIX system is collecting.
3	Secondary Date	6	yymmdd after clock reset
4	Secondary Time	6	hhmmss after clock reset
	Total Length	56	(Including 31 bytes header/trailer information)

For system activity CDR records, the initial dates and times are referred to as *primary* dates and times, because *secondary* dates and times are unique fields. In the system activity CDR records, the primary date or time means one of the following:

- For system restarts, this is the date or time the system is back in service.
- For CDR record selection changes, this is the date or time that the change was made.
- For CDR file transfers to the PC, this is the date or time that the transfer started or ended.
- For system clock resets, this is the *old* date or time — the date or time prior to the reset.

The following list describes each of the system activity CDR record fields in detail.

1. *System Activity.* The specific system activity or event.

   Values are:

   - 01 = AUDIX system restart
   - 02 = AUDIX time zone change
   - 03 = AUDIX daylight savings time attribute change
   - 04 = AUDIX daylight savings time change
   - 10 = CDR feature activated
   - 11 = CDR feature deactivated
   - 12 = CDR record types changed
   - 13 = CDR file transfer to PC started
   - 14 = CDR file transfer to PC ended
   - 15 = CDR data was overwritten
   - 16 = CDR Internal Buffer overflow
   - 17 = CDR data was found to be corrupt
   - 20 = Clock reset from *system: clock* form - time explicitly set

- 21 = Clock reset from *system: clock* form - time synchronization
- 22 = Clock reset automatically due to drift from internal clocks
- 23 = Clock reset automatically due to corrupt clock data

NOTE

If System Activity = 14 (CDR file transfer to PC ended), then the record is not sent to the PC as part of the CDR file transfer session that it represents. It is sent during the *next* CDR file transfer session.

2. *CDR Record Types.* The CDR record types that are being stored as a result of the change reflected by this record. This field is populated for every system activity record written. The field length is ten characters, one for each CDR record type (including spare fields for future new record types). Possible values are:

   - 1xxxxxxxxx = system activity
   - x1xxxxxxxx = voice session
   - xx1xxxxxxx = outgoing call
   - xxx1xxxxxx = network session
   - xxxx0xxxxx = spare
   - xxxxx0xxxx = spare
   - xxxxxx0xxx = spare
   - xxxxxxx0xx = spare
   - xxxxxxxx0x = spare
   - xxxxxxxxx0 = spare

   Values for each character are:

   - 0 = off (not storing the record type)
   - 1 = on (storing the record type)

3. *Secondary Date.* The new date, after the reset of the system clock.
4. *Secondary Time.* The new time of day, after the reset of the system clock.

G. Network Session CDR Records

This appendix describes the structure, format, and content of AUDIX network session CDR records as stored in the ADAP PC. This information is intended for AUDIX traffic engineers, programmers, or other persons responsible for incorporating CDR data into AUDIX traffic or usage reports.

A network session CDR record is created for every AUDIX network session. This includes:

- AUDIX digital networking sessions
- AMIS analog networking sessions
- Outgoing message delivery sessions
- CDR data transfers to the PC
- Text Services sessions

STRUCTURE

Network session CDR records are structured as follows:

- Fields are *fixed format*, a fixed number of spaces in each field
- 128 characters in length
- Numeric fields are right-justified, padded to the left with zeros
- Alphanumeric fields are left-justified, padded to the right with blanks
- Unused fields are padded with blanks

RECORD HEADER

Each network session CDR record begins with the following fields:

- *Record Length*: (3 characters) The length of the record in characters, including this field.
- *Record Type*: (2 characters) Code identifying the record type — *03* for network session records.
- *Record Version*: (2 characters) A version indicator to track modifications to the record. This field is initially 01, then each time the record is modified, this field is incremented.
- *System ID*: (10 characters) The AUDIX machine name.
- *Date*: (6 characters) The initial date of the AUDIX activity. The format is *yymmdd*.
- *Time*: (6 characters) The initial time of the AUDIX activity. The format is *hhmmss*.

RECORD TRAILER

Each network session CDR record ends with the following fields:

- *Filler*: (optional 1 character) A filler character optionally added to force even-length records.
- *Carriage Return*: (1 character) The standard ASCII carriage return to reorient the cursor
- *Line Feed*: (1 character) The standard ASCII line feed to reorient the cursor

RECORD BODY

In the following sections, the fields are summarized first in Table G-1, *Network Session CDR Record Fields*, showing the length of the field and the options or format of the entries, then in descriptions listing conditional considerations.

The following table does not include the header and trailer fields listed above.

Table G-1. Network Session CDR Record Fields

	Field	Length	Comments
1	Port ID	3	Physical (external) data or voice port number
2	Logical Port Number	3	Logical (internal) port number for digital networking
3	Duration of Call	5	in seconds
4	Remote System Type	1	The type of remote system engaged in the session
5	Remote System ID	15	The identification of the remote system engaged in the session (the name or dialed digits for AMIS analog and message delivery session types)
6	Type of Connection	1	The type of connection used for the call
7	Data Rate	2	The data rate used for the call
8	Call Type	1	The type of call (incoming, outgoing, reason, etc.)
9	Result of Call	1	Identifies successful, unsuccessful, or unknown results
10	Failure Reason	2	Identifies reasons (if any) that the network call was unsuccessful
11	Messages Sent/Accepted	3	Total voice messages, text headers, or CDR blocks successfully sent
12	Messages Sent/Rejected	3	Total messages rejected by remote system
13	Recipients for Messages Sent	5	Total recipients for messages successfully sent
14	Deliveries for Messages Sent	5	Total deliveries for messages successfully sent
15	Status Messages Sent	5	Total status messages sent for AUDIX networking
16	Subscriber Updates Sent	4	Total number of subscriber updates sent
17	Name Updates Sent	4	Total number of subscriber name voice files sent
18	Messages Received/Accepted	3	Total voice messages successfully received by the local AUDIX system
19	Messages Received/Rejected	3	Total voice messages rejected by the local AUDIX system

TABLE G-1. Network Session CDR Record Fields (cont'd)

	Field	Length	Comments
20	Recipients for Messages Received	5	Total recipients for messages successfully received
21	Deliveries for Messages Received	5	Total deliveries for messages successfully received
22	Status Messages Received	5	Total status messages sent for the AUDIX system and AMIS networking
23	Subscriber Updates Received	4	Total number of subscriber updates received
24	Name Updates Received	4	Total number of subscriber name voice files received
25	Transmission Errors	4	Voice message, header or CDR file error
	Total Length	128	(Including 31 bytes common header/trailer information)

The following list describes each of the network session CDR record fields in detail.

1. *Port ID.* The identifier of the physical (external) port used for the networking session. For digital networking, this is the number of the ACC or ACCE data port used for the session (for example, the number of the DCP or RS-232 port from the AUDIX system to the switch). For AMIS analog networking or call deliveries, this is the number of the AUDIX voice port that was used for the session. See the *Type of Connection* field to determine the session type (digital vs. analog).

   Possible values are 001 through 999.

2. *Logical Port Number.* The identifier of the logical (internal) port used for digital networking sessions (for example, calls that use ACC or ACCE ports). This is the logical port number internal to the ACC/ACCE board for the data port used for the session. This field is not applicable for analog networking or message delivery sessions (the value is 000).

   Possible values are 000 through 999.

3. *Duration of Call.* The duration, in seconds, of the outgoing call. This is measured from the time that the port goes off-hook until it goes back on-hook (disconnects).

4. *Remote System Type.* The type of remote system involved in the session.

   Values are:

   - 1 = the AUDIX system
   - 2 = Text Services
   - 3 = PC for the CDR file transfer application
   - 4 = Reserved
   - 5 = AMIS Analog Interface—1-step addressed machine
   - 6 = AMIS Analog Interface—2-step addressed machine
   - 7 = Call Delivery destination

5. *Remote System ID.* The identification of the remote system involved in this networking session. For AMIS Analog 2-step addressing and for message delivery, this is the last fifteen digits of the number dialed to access the destination machine. For all other Remote System Types (where the destination machine is administered within the local AUDIX machine), this is the name of the remote AUDIX machine (maximum of ten characters).

6. *Type of Connection.* The type of connection used for this network call.

   Possible values are:

   - 1 = digital via a DCP port on the ACC or ACCE board
   - 2 = digital via an RS-232 port on the ACCE board
   - 3 = analog via a voice port (Remote System Types 5 through 7, for example, AMIS Analog or Message Delivery).

7. *Data Rate.* The data rate used for this network call.

   Possible values are:

   - 00 = not applicable (Connection Type = 3, voice port used)
   - 01 = 300 bps (not currently used)
   - 02 = 600 bps (not currently used)
   - 03 = 1200 bps
   - 04 = 2400 bps
   - 05 = 4800 bps
   - 06 = 9600 bps
   - 07 = 19200 bps
   - 08 = 38400 bps
   - 09 = 56000 bps
   - 10 = 64000 bps

8. *Call Type.* The type of network data call. This includes the direction of the call (incoming or outgoing), and the reason that the call was originated.

   Possible values are:

   - 0 = unknown
   - 1 = incoming network data call
   - 2 = incoming test call
   - 3 = outgoing regularly scheduled transmission (including call deliveries)
   - 4 = outgoing transmission threshold exception
   - 5 = outgoing retry
   - 6 = outgoing test call (including AMIS loop-back test replies)

9. *Result of Call.* The result of the network data call.

   Possible values are:

   - 0 = result unknown (valid for all Remote System Types)
   - 1 = connection made and session terminated normally (valid for all Remote System Types)
   - 2 = connection made, but session terminated abnormally (valid for Remote System Types 1 through 6 only)
   - 3 = connection made, but session rejected (valid for Remote System Types 1 through 6 only)
   - 4 = connection not made, for example, busy, no answer, aborted, etc. (valid for Remote System Types 1 through 6 only)

10. *Failure Reason.* The reason that the network data call was not successfully completed.

    The first digit in the field identifies a major failure type (for example, connection not made); the second digit further identifies the reason for failure. Possible values are:

    - First digit of 0 indicates that the connection was made, but one of the following occurred:
      - 00 = call successful or failure reason unknown
      - 01 = session rejected for invalid system ID
      - 02 = session rejected for invalid password
      - 03 = session rejected because permission was denied
    - First digit of 1 indicates that the connection was not made for one of the following reasons:
      - 10 = call aborted prior to dialing
      - 11 = no dial tone
      - 12 = no ringing
      - 13 = busy
      - 14 = try again (reorder)
      - 15 = no answer
      - 16 = no carrier
    - First digit of 2 indicates that the sending machine aborted the call due to one of the following reasons:
      - 20 = timeout
      - 21 = frame error
      - 22 = protocol error
      - 23 = other detected error
      - 24 = no response to call
      - 25 = unexpected tone received (the AUDIX system assumes that the wrong number was dialed)

- First digit of 3 indicates that the receiving machine aborted the call due to one of the following reasons:
  - 30 = timeout
  - 31 = frame error
  - 32 = protocol error
  - 33 = other detected error
  - 34 = full disk (no storage available)
  - 35 = not accepting any calls
  - 36 = not accepting calls from the message sender
- First digit of 9 indicates that the call was aborted by the AUDIX system for the following reasons:
  - 90 = no resources
  - 91 = listen/request aborted
  - 92 = time out
  - 93 = answered, but no response
  - 94 = protocol handshake failed
  - 95 = premature hang up

11. *Messages Sent/Accepted.* The total number of messages that were successfully sent to the remote system during the session. Accepted means that the receiving system provided a positive message receipt acknowledgement. If some of the messages that are queued for transmission are not sent because the call is abnormally terminated, the messages that were not sent are not counted.

    Possible values are 000 through 999.

    The definition of this field differs depending on the value of the *Remote System Type* field. These differences are listed below:

    - If the Remote System Type is *AUDIX*, this field represents the number of voice messages sent during the session.
    - If the Remote System Type is *Text Services*, this field represents the number of message headers sent during the session. (One header per message is sent from the AUDIX system to the Text Services PC.)
    - If the Remote System Type is *AMIS Analog* (either 1-step or 2-step addressing), this field represents the number of voice messages sent during the session. (The value will be 0 through 9.)
    - If the Remote System Type is *PC for CDR*, this field represents the number of blocks (400K bytes) of CDR data successfully transmitted during the session.
    - If the Remote System Type is *Call Delivery*, this field represents the number of voice messages sent during the session. (The value will be 0 or 1, where 0 indicates that the call aborted prior to the message being played completely; and 1 indicates that the message was played back successfully.)

12. *Messages Sent/Rejected.* The total number of messages that were unsuccessfully sent to the remote system during the session. Rejected means that the receiving system did not provide a positive message receipt acknowledgement. This implies that the message was explicitly rejected or transmission was abnormally terminated.

    Possible values are 000 through 999.

    The definition of this field differs depending on the the value of the *Remote System Type* field. These differences are listed below:

    - If the Remote System Type is *AUDIX*, this field represents the number of voice messages unsuccessfully sent during the session.
    - If the Remote System Type is *Text Services*, this field represents the number of message headers unsuccessfully sent during the session. (One header per message is sent from the AUDIX system to the Text Services PC.)
    - If the Remote System Type is *AMIS Analog* (either 1-step or 2-step addressing), this field represents the number of voice messages unsuccessfully sent during the session. (The value will be 0 through 9.)
    - If the Remote System Type is *PC for CDR*, this field represents the number of blocks (400K bytes) of CDR data unsuccessfully transmitted during the session.
    - If the Remote System Type is *Call Delivery*, this field represents the number of voice messages unsuccessfully sent during the session. (The value will be 0 or 1.)

13. *Recipients for Messages Sent.* The total number of successful deliveries for all messages that were successfully sent to the remote system.

    Possible values are 00000 through 99999.

    This field differs depending on the the value of the *Remote System Type* field. These differences are listed below:

    - If the Remote System Type is *AUDIX*, there may be multiple recipients for a single message.
    - If the Remote System Type is *Text Services*, there will be only one recipient for each message header.
    - If the Remote System Type is *AMIS Analog* (either 1-step or 2-step addressing), there will be only one recipient for each message.
    - If the Remote System Type is *PC for CDR*, this field is not applicable and its value will be zero.
    - If the Remote System Type is *Call Delivery*, there will be only one recipient for each message.

14. *Deliveries for Messages Sent.* The total number of successful deliveries for all messages that were successfully sent to the remote system.

    Possible values are 00000 through 99999.

    This field differs depending on the value of the *Remote System Type* field. This differences are listed below:

    - If the Remote System Type is *AUDIX*, there may be multiple deliveries for a single message.
    - If the Remote System Type is *PC for CDR*, this field is not applicable and its value will be zero.
    - If the Remote System Type is *AMIS Analog* (either 1-step or 2-step addressing), *Text Services*, or *Call Delivery*, there may be no more than one delivery per message.

15. *Status Messages Sent.* The total number of message-delivery status messages sent to the remote system during the session.

    Possible values are 00000 through 99999.

    The definition of this field differs depending on the value of the *Remote System Type* field. These differences are listed below:

    - If the Remote System Type is *AUDIX*, this field represents the number of status messages sent during the session from the local machine to the remote machine.
    - If the Remote System Type is *Text Services*, *PC for CDR*, *Call Delivery*, or *AMIS Analog* (either 1-step or 2-step addressing), this field is not applicable and its value will be zero.

      For *AMIS Analog* (either 1-step or 2-step addressing), the only form of status message is the return of an undeliverable message to the sending system. The AUDIX system will not accept a message unless it can be delivered; therefore, the AUDIX system will not return a status message for the AMIS Analog application.

16. *Subscriber Updates Sent.* The total number of individual, administrative updates for local subscribers that were sent to the remote system. The updates may result from administrative adds, changes and/or deletes.

    This is *not* the count of subscribers for whom updates have been sent—it is the count of updates. For example, if there have been two updates for a single subscriber, the count for this field is two, not one.

    Even though some networking implementations may bundle data for multiple updates into a single update message for transmission to the remote system, this field will reflect the number of updates sent, *not* the number of messages sent. Therefore, if a single update message contains data for one hundred subscribers, this field will indicate one hundred updates.

    Possible values are 0000 through 9999.

    This field is applicable only for the Remote System Type *AUDIX*, for all others the value will be zero.

17. *Name Updates Sent.* The total number of voiced name updates sent to the remote system. The updates result from administrative adds or changes for subscribers on the local system.

    Possible values are 0000 through 9999.

    This field is applicable only for the Remote System Type *AUDIX*, for all others the value will be zero.

18. *Messages Received/Accepted.* The total number of voice messages successfully received from the remote system during the session. Accepted means that the sending system returned a positive message receipt acknowledgement.

    Possible values are 000 through 999.

    The value of this field differs depending on the value of the *Remote System Type* field. These differences are listed below:

    - If the Remote System Type is *AUDIX*, this field represents the number of voice messages received during the session.
    - If the Remote System Type is *AMIS Analog* (either 1-step or 2-step addressing), this field represents the number of voice messages received during the session. Its value will be 0 through 9.
    - If the Remote System Type is *Text Services*, *PC for CDR*, or *Call Delivery*, this field is not applicable and its value will be zero.

19. *Messages Received/Rejected.* The total number of voice messages that were rejected during the session by the local machine after being received from the remote machine. Rejected means that an explicit rejection was returned to the sending system. If the voice or data line is dropped during transmission, the message is not explicitly rejected and will be counted in the *Transmission Error* field.

    Possible values are 000 through 999.

    The value of this field differs depending on the value of the *Remote System Type* field. These differences are listed below.

    - If the Remote System Type is *AUDIX*, this field represents the number of voice messages received during the session from the remote machine but rejected by the local machine (for example, there was not enough system space available to store the message).
    - If the Remote System Type is *AMIS Analog* (either 1-step or 2-step addressing), this field represents the number of voice messages received during the session from the remote machine but rejected by the local machine. The value will be 0 through 9.
    - If the Remote System Type is *Text Services*, *PC for CDR*, or *Call Delivery*, this field is not applicable and its value will be zero.

20. *Recipients for Messages Received.* The total number of recipients specified for all messages that were successfully received from the remote system.

    Possible values are 00000 through 99999.

    The value of this field differs depending on the value of the *Remote System Type* field. These differences are listed below.

    - If the Remote System Type is *AUDIX*, there may be multiple recipients for a single message.
    - If the Remote System Type is *AMIS Analog* (either 1-step or 2-step addressing), there will be only one recipient for each message.
    - If the Remote System Type is *Text Services, PC for CDR*, or *Call Delivery*, this field is not applicable and its value will be zero.

21. *Deliveries for Messages Received.* The total number of successful deliveries for all messages that were successfully received from the remote system.

    Possible values are 00000 through 99999.

    The value of this field differs depending on the value of the *Remote System Type* field. These differences are listed below.

    - If the Remote System Type is *AUDIX*, there may be multiple deliveries for a single message.
    - If the Remote System Type is *AMIS Analog* (either 1-step or 2-step addressing), there may be no more than one delivery for each message.
    - If the Remote System Type is *Text Services, PC for CDR*, or *Call Delivery*, this field is not applicable and its value will be zero.

22. *Status Messages Received.* The total number of status messages received from the remote system during the session.

    Possible values are 00000 through 99999.

    The value of this field differs depending on the value of the *Remote System Type* field. These differences are listed below.

    - If the Remote System Type is *AUDIX*, this field represents the number of status messages received from the remote machine during the session.
    - If the Remote System Type is *Text Services, PC for CDR, or Call Delivery*, this field is not applicable and its value will be zero.
    - If the Remote System Type is *AMIS Analog* (either 1-step or 2-step addressing), the only form of status messages is the return of an undeliverable message (in its entirety) from the receiving system to the sending system. Thus, this value reflects the number of messages that had been accepted during a previous session, but could not be successfully delivered. These messages are returned in their entirety from the destination system to the sending system during the current session. The value will be 0 through 9.

23. *Subscriber Updates Received.* The total number of individual, administrative updates for remote subscribers that were received from the remote system. These updates may result from administrative adds, changes and/or deletes.

    This is *not* the count of subscribers for whom updates have been received—it is the count of updates. For example, if there have been two updates received for a single subscriber, the count for this field is two, not one.

    Even though some networking implementations may bundle data for multiple updates into a single update message for transmission to the remote system, this field will reflect the number of updates received, *not* the number of messages received. Therefore, if a single update message contains data for one hundred subscribers, this field will indicate one hundred updates.

    Possible values are 0000 through 9999.

    This field is applicable only for the Remote System Type *AUDIX*, for all others the value will be zero.

24. *Name Updates Received.* The total number of voiced name updates received from the remote system. The updates result from administrative adds or changes for subscribers on the remote system.

    Possible values are 0000 through 9999.

    This field is applicable only for the Remote System Type *AUDIX*, for all others the value will be zero.

25. *Transmission Errors.* The number of transmission errors that were detected during the session.

    Possible values are 0000 through 9999.

    The value of this field differs depending on the value of the *Remote System Type* field. These differences are listed below.

    - If the Remote System Type is *AUDIX*, this is the number of voice message transmission errors that were detected during the session. Typically, this value is one because the line drops on the first error.
    - If the Remote System Type is *PC for CDR*, this field is the number of CDR file transmission errors that were detected during the session.
    - If the Remote System Type is *AMIS Analog* (either 1-step or 2-step addressing), this value indicates the number of times that a data frame was retransmitted.
    - If the Remote System Type is *Text Services* or *Call Delivery*, this field is not applicable and its value will be zero.

Index