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Guide to Use the Data features of the AT&T 7506, 7507, & 8510T ISDN Phones

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Abstract

Integrated Services Digital Network, ISDN, technology is an integral component of Sandia National Laboratories telecommunications infrastructure. ISDN is a fully digital telephone service that allows simultaneous voice and data communication from the same telephone instrument. Almost all ISDN phones in use at Sandia/New Mexico and most ISDN phones at Sandia/California have a built-in module for data communication. This user guide describes the use and operation of ISDN data module and services as they are installed at Sandia.

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Introduction

Integrated Services Digital Network, ISDN, is a fully digital telephone service that allows customers a great deal of flexibility. It allows you the capability to simultaneously make both voice and data calls from the same telephone. ISDN uses standard telephone wires, so it can be installed almost anyplace you have a regular telephone.

Almost all ISDN phones used at Sandia/New Mexico have a built-in module for data communication. This guide provides you with information to use the data module of the AT&T model 7506, 7507, and 8510 API ISDN phones. You will find a 25-pin data jack on the back of the phone. This connector is an industry standard RS-232 serial interface. It is compatible with the serial port of your computer.

The sections "Basic ISDN Data Setup and Use" and "Appendix B -- ISDN Data Numbers" provide you with basic information to begin using the ISDN phone with your terminal emulation software to connect to mainframe computers, mini/micro computers, and network terminal servers throughout Sandia. The other sections of this guide proved more detailed information on how to configure and use the ISDN phone for other data applications.

Intended Audience

The intent of this guide is to provide an experienced computer user sufficient information to configure and use the ISDN phone for data communication. This guide anticipates that a user is familiar with their computer and communication software and can make basic changes to the operating settings of their communication software. Detailed knowledge of computer communications is not required. If you have had someone else install your computer and software for you but really don't understand what they did, then you should continue to rely on that person, the Central Computing Help Desk, or the system manager of the computer with which you wish to communicate for support.

Overview of Data Setup and Use

The data connector on an ISDN phone is designed to be used with a computer, terminal, or other serial device via an industry standard RS-232 serial interface. This interface is common on personal computers. Use a standard "straight-though" serial cable to connect your computer to the ISDN phone. Before you will be able to use the ISDN phone's data module, you will need to first configure the operating settings of the data module and the operating settings of your terminal or terminal emulation software. You need only perform this configuration once. After it is completed, you should not normally need to change the phone's data settings. The steps to use the ISDN data phone include the following.

- Inter-connect the computer and the ISDN phone with an industry standard RS-232 serial cable. The serial interface on the ISDN phone requires a DB-25 pin male connector on the serial cable. The cable's connector type at the computer will vary depending on the make and model of your computer.
- Set the serial port or interface settings on your ISDN phone and your computer so that they match each other.
- Use a terminal or terminal emulation software on your computer to complete the configuration of the ISDN phone's data module.

(Once you have completed the steps above, you normally will not need to repeat them.)

- Place a data call to the phone number of the computer with which you wish to communicate.
- Login to the computer; perform your work; logoff the computer.

For Help with Data Communication or ISDN phone Problems, Call the Tech Control Trouble Desk, 844-8017.

If you are having trouble using your application software or your computer accounts, Call the Central Computing Help Desk, 845-2243.

Basic ISDN Data Setup and Use

This section provides you with basic instructions to configure and operate your ISDN phone from a terminal emulation package that you will use to communicate with mini-computers and with network terminal servers located around the lab. You need only preform this basic setup procedure the first time you use your ISDN phone. Once you complete the basic setup, you need not repeat it. The setup procedure is split into two steps to accommodate the differences in the various ISDN telephone models used at Sandia. The initial configuration is specific to your particular ISDN phone model. The final configuration is generic to all the phone models.

Initial Configuration for AT&T model 7506 & 7507 Telephones

	Instructions	***Additional Information***
1.	Turn on your computer and connect the serial data cable to the data plug on the back of the ISDN phone. (You will need to use a serial data cable that is long enough to conveniently reach from the computer port to the ISDN phone without presenting a tripping hazard.)	*Your computer should be turned on and connected to the ISDN phone before you configure the ISDN data phone's settings.* *Your computer's data cable may already be connected to a PBX data box that is labeled IBX Async Data Interface or to a modem. If so, you can just unplug the cable from the PBX box or modem and plug the cable into the connector on the back of the ISDN phone.*
2.	Start you terminal emulation package, and set its communication parameters to 19200 baud or bits per second 8 data bits 1 stop bit NONE parity XON/XOFF flow control	*You will need to refer to the documentation that came with your terminal emulation program for the procedure to change the communication settings.* *Appendix A provides instructions to change the communication parameters for some of the terminal programs more commonly used at Sandia.*
3.	Press the **[Select]** button on the 7507 phone or the **[Shift/Select]** button on the 7506 phone. The green light will light.	*Configure the ISDN data phone's operating mode and interface speed. The setup to the left will configure the phone to use Data Mode DX25, Data Rate 19200, Parity Space, and Local Mode CMD.*
4.	Press the **[Data/Send/Off]** button. The lamps next to this button will not light.	
5.	On the telephone's keypad Press **3** , then Press **6**, then Press **1**, then Press **1**	*3211 -- for 1,200 bits per second* *3311 -- for 2,400 bits per second* *3411 -- for 4,800 bits per second* *3511 -- for 9,600 bits per second* *3611 -- for 19,200 bits per second*

Complete the configuration outlined below in "Final Configuration for all AT&T model ISDN Telephones."

Initial Configuration for AT&T model 8510 Telephone

The AT&T model 8510 ISDN phones make use of "softkeys" to set many of the phones functions including the data functions. The model 8510 phone has four softkeys, marked with arrows, that are positioned just below the phone's liquid crystal display. Each softkey may represent different functions through a menu process that displays the function name just above the softkey. To select a particular function with a softkey, press the softkey that is directly below the function name shown on the LCD.

	Instructions	***Additional Information***
1.	Turn on your computer and connect the serial data cable to the data plug on the back of the ISDN phone. (You will need to use a serial data cable that is long enough to conveniently reach from the computer port to the ISDN phone without presenting a tripping hazard.)	*Your computer should be turned on and connected to the ISDN phone before you configure the ISDN data phone's settings.* *Your computer's data cable may already be connected to a PBX data box that is labeled IBX Async Data Interface or to a modem. If so, you can just unplug the cable from the PBX box or modem and plug the cable into the connector on the back of the ISDN phone.*
2.	Start you terminal emulation package, and set its communication parameters to 19200 baud or bits per second 8 data bits 1 stop bit NONE parity XON/XOFF flow control	*You will need to refer to the documentation that came with your terminal emulation program for the procedure to change the communication settings.* *Appendix A provides instructions to change the communication parameters for some of the terminal programs more commonly used at Sandia.*
3.	Press the **[Menu]** button, then press the **[Next]** button, then press the **[Data]** softkey, then press the **[DataOptions]** softkey, then press the **[Change]** softkey.	*Configure the ISDN data phone's operating mode and interface speed. The setup to the left will configure the phone to use Data Mode DX25, Data Rate 19200, Parity Space, and Local Mode CMD.*
4.	Use the [+] and [-] softkeys to select the following options: Data Mode: DX25 Data Rate: 19200 Parity: SPACE Local Mode: CMD When you have selected the correct value for each option, press the [Save] softkey to set the next option value	*After you save the value for each option, the phone will display a message for a few seconds before it allows you to set the next option. If the option value is already set correctly, then you may wish to use the [Skip] softkey instead of the [Save] softkey. This will speed the configuration by eliminating the time that the phone displays the change message.*
5.	Press the **[Menu]** button twice to clear the display.	

Final Configuration for all AT&T model ISDN Telephones

Instructions	*Additional Information*
6. Press the **[Return]** or **[Enter]** key on your computer. The ISDN data phone will respond with a command prompt. It will look like **CMD:**	*When the ISDN phone displays the command prompt (CMD:), you can issue commands to the phone to control its operation and to place an ISDN data call.*
7. At the "CMD:" prompt, enter the commands **set rec.flow xon** **set trans.flow xon** **set dtr ignore** The phone will respond with *rec.flow = xon/xoff* *trans.flow = xon/xoff* *dtr = ignore*	*These commands instruct your ISDN phone to use software flow control and to ignore electrical signal on the DTR control line between your computer and ISDN phone .*
8. Enter the command **set autoadjust off** The phone will respond with *autoadjust = off*	*This command disables the ISDN phone's "autobaud" feature. Autobaud is the ability of the phone to automatically determine the communication speed setting of your terminal program. If this feature is not turned off, the ISDN phone will sometimes misadjust its communication speed when you first turn on your computer.*
9. Enter the command **copy pa to p1** The phone will respond with *p1 updated*	*This command will save the changes you just made to the phone's configuration in case of a power outage.* ***If you do not save the parameter changes, the changes will be lost after a power outage and you will need to repeat this setup procedure.***
Your phone is now configured. This general configuration will work with most computers at Sandia.	*You may use the* **VIEW** *command to look at the phone's parameter settings.*

How to Place a Data Call

To place a data call to a remote computer, you must initiate the call by dialing the phone number of that computer. Appendix B lists the phone numbers for commonly used mainframe, mini-computers, and network terminal servers around the lab. You may also place a data call to any ISDN phone by dialing that phone's number. (This assumes that the phone being dialed also has a computer connected to it.) Whenever you place a successful data call on the AT&T model 7506 and 7507 phone, the red and green lamps next to the

[Data/Send/Off] button will light to indicate that a data call is in progress. When you place a successful data call on the AT&t model 8510 phone, the phone will show word "DATA" in the lower right corner of the display. The are several methods you may use to dial a remote computer. You can either issue the **DIAL** command from your computer or directly from the phone's keypad. When making a data call, you must dial all seven digits of the number.

To Dial from your computer

By Phone Number

At the "CMD:" prompt enter

d *xxx-xxxx* (The dash is optional.)

where *xxx-xxxx* is the phone number of the computer you wish to call.

By Name

If your ISDN phone's memory dial locations are programmed, see Appendix C, you may also dial a computer by name.

At the "CMD:" prompt enter

d ***name***

where *name* is the name of the computer you wish to call.

By Redialing Last Number

The redial command is a short cut way to re-connect to the last ISDN data number you dialed.

At the "CMD:" prompt enter

r

To Dial from the ISDN phone's keypad

(NOTE: This method will only work if you have configured the ISDN phone to ignore the DTR control line with the command **set dtr ignore** .)

For the AT&T model 7506 & 7507 telephones

Press the **[Data/Send]** button. The red lamp will light.
Dial the remote computer's phone number from the keypad.
Press the **[Data/Send/Off]** button.

For the AT&T model 8510 telephones

Press the **[Menu]** and then the **[Next]** buttons.
Press the **[Data]** and then the **[Call]** softkeys.
Dial the remote computer's phone number from the keypad.
Press the **[Send]** softkey.

After you place a successful data call you should see the following messages displayed on your computer's screen

CALLING xxxxxx
Type E to end call:
CONNECT
DATA MODE

Terminating a Data Call

When you logout of a remote computer, the remote computer will usually instruct the telephone switch to disconnect the data call. After the call is disconnected, the red and green lamps next to the **[Data/Send/Off]** button on the model 7506 and 7507 phones will extinguish. The model 8510 phones will no longer display "DATA" after a data call is disconnected. You can manually force the ISDN phone to disconnect a data call by pressing the **[Data/Send/Off]** button. On the model 8510 press the **[Menu]** button, the **[Next]** button, the **[Data]** softkey, and then the **[EndCall]** softkey to manually disconnect a data call. Alternatively, from your computer, you can quickly press +++ to get the "CMD:" prompt, and enter **end** at the prompt. After you disconnect a data call you should see the following display on your computer's screen

ENDED
FAR END REQUESTED
Call Status: Idle
Type H for help.
CMD:

For Help with Data Communication Problems, Call the Tech Control Trouble Desk, 844-8017.

Advanced Setup

The ISDN phone has two operating modes for data connections -- the **command mode** and the **data mode**. When in the **command mode**, the ISDN phone interprets and acts upon the characters you type. In the **command mode** the phone will display the "CMD:" prompt, and you can enter commands to change the communication settings of the phone. When you place a data call, the phone goes into **data mode** and will pass any character you type to the computer that you called.

The commands **SET** and **VIEW** allow you to respectively alter and look at the phones's communications setup. The command **VIEW** will display the ISDN phone's communication settings.

Automatic Speed Determination (Autobaud)

Enabling the your phone's autobaud setting will allow it to automatically adjust to the communication settings (baud, parity, number of data bits, and number of stop bits) of your terminal emulation package.

The command

set autoadjust on

enables the autobaud setting.

From your terminal emulation package send a "**Break**" command and type the command "**at**" to instruct the ISDN phone to adjust to the settings of your terminal software. (The terminal emulation packages' Break command will momentarily toggle the voltage on the DTR control wire between the personal computer and the ISDN phone.) *If the ISDN phone's autobaud feature is left turned on, the ISDN phone will sometimes misadjust its communication speed when you first turn on your computer.*

Interface Speed

The ISDN phone's serial interface located on the back of the phone supports standard communication speeds up to 57600 baud. You may alter the phone's interface speed with the command

set speed *rate*

where *rate* is one of { 1200, 2400, 4800, 9600, 19200, 38400, 57600 }. If you alter the phone's interface speed, you must also change the speed setting of your terminal emulation package to match that of the phone.

NOTE: The interface speed between your personal computer and ISDN phone may be set higher or lower than the interface speed of the remote computer. The 5ESS telephone switch automatically adjusts for interface speed differences between your computer and the remote computer. This "rate adaptation" allows you to set the speed of your computer to its maximum possible setting and you need not worry about what setting the remote computer uses. (Refer to the Flow Control section below for speed settings greater than 19200 baud.)

Flow Control

Even though your terminal software may allow you to set the interface speed to values greater than 19200 baud, your computer may not be able to process or display data that quickly. Flow Control is a method by which your computer can instruct the remote computer to momentarily stop sending data. The ISDN phone recognizes two methods of flow control commonly called "software" and "hardware" flow control. Hardware flow control is the preferred flow control method whenever your terminal emulation package and computer will support it. Only hardware flow control should be used if the interface speed is set to 38400 or 57600 baud. The Basic ISDN Data Setup and Use section instructs you to use software flow control only because some older computers and terminal emulation packages only allow software flow control. Your terminal emulation package's flow control setting should match any changes you make to the flow control setting of your ISDN phone.

NOTE: Software flow control uses special characters to signal the local and remote computers when to start and stop transmitting data. Some applications, like binary file transfers, may receive or transmit data that include these characters. When software flow control is used with these applications, the applications may have difficultly in distinguishing between a character used for flow control and an occurrence of that character in the data. In general, applications that transmit binary data will not work with software flow control.

To set hardware (also called CTS&RTS) flow control enter

set rec.flow eia
set trans.flow eia

To set software (also called XON/XOFF) flow control enter

set rec.flow xon
set trans.flow xon

To disable flow control enter

set rec.flow off
set trans.flow off

Parity

You should set the ISDN serial interface to SPACE parity. If the remote computer requires a different parity setting, change the parameter in your terminal emulation program, but leave the phone's serial interface set to SPACE parity. When the ISDN serial interface is set to SPACE parity, it will ignore the parity bit and "pass-through" the parity you set in your terminal emulation program. To set parity to SPACE use the command

set parity space

Attention Sequence

When connected to a remote computer and in the data mode, it is sometimes useful to toggle back to the command mode. The most common reason to do this would be to manually terminate a data call. The ISDN phone usually passes all characters you type to the remote computer when it is in data mode. The attention sequence, however, is a special three character string that the phone interprets as a command to go into command mode. The default attention sequence is "+++" -- the plus character repeated three times. Since this character string may normally appear in data sent to the remote computer, it is only effective when it is typed in quickly and it is both preceded and succeeded by about a second of keyboard inactivity. Since the analog modems, described in the next section, also use this same sequence, you may find it necessary to change the attention sequence on the ISDN phone. Changing the sequence on the ISDN phone will allow you to independently put the analog modem and the ISDN phone into command mode.

You can change the attention sequence with the command

set attention *character*

where *character* is the attention sequence character (for example =).

If you switch from data mode to command mode and you need to switch back into data mode, at the "CMD:" prompt enter the command

continue

Parameters to Improve Performance

The DX25 data mode on the ISDN phone uses the X.25 communication protocol to pass data between your computer and the remote computer. This protocol allows a lot of flexibility and adaptability in its

use. The protocol will perform automatic error correction on error prone circuits, and it enables the 5ESS telephone switch to adapt the data rate of your computer to that of the remote computer. The ISDN phone provides several parameters to control the operation of the X.25 protocol. The default settings of these parameters work with many computer applications; however, you can improve the data performance of your ISDN phone by altering these parameters. Issue the following commands at the "CMD:" prompt to improve the performance of the X.25 protocol.

set fcpn on
set v120.ps 256
set v120.ws 7

Accessing and Using the Analog Modem Pool

Even though the data interface on your ISDN phone responds to commands similar to a standard analog data modem, the ISDN data interface does not inter-operate with a standard analog modem. Your ISDN phone will only inter-operate with other ISDN phones or data devices. **Also standard analog modems and/or fax modems can not be directly attached to an ISDN phone line. If you try to attach a standard analog modem or fax to the ISDN line, you may damage the modem/fax.** To meet the need for data communications between ISDN phones and analog modems, Tech Control has installed a pool of analog modems that you may use from your ISDN phone. You can use this modem pool to connect to an off-site Bulletin Board System or Online Data service. Use of the modem pool is via a two-stage process that allows the telephone system to make the conversion from digital to analog. To use the modem pool, you need to first place a ISDN data call to the modem pool number and then instruct the analog modem to dial the BBS or Online service. You can use the analog modem pool at the same time that you use your ISDN phone for voice calls. The modem pool uses AT&T Comsphere 3800 series modems. These modems support industry standard operating speeds up to 19200 baud, data compression, and data correction. The modems use the Hayes command set for dialing.

Modem Pool Use

These instructions assume that you are using a terminal emulation package that allows you to interactively issue commands to the analog modem. If you are using the software provided by an Online Service, such as America Online, then you must program the commands into the software as necessary. Most Online Service programs automatically initialize and dial the modem for you once you tell the program the brand of modem you are using. It is still possible for you to use this software, however, you will need to **remove all commands or clear the modem initialization and reset fields** in the software's configuration section. Since the modem you will use is not directly connected to your computer but rather is connected through the ISDN phone, you must manually place an ISDN data call to the modem. Once you have placed the ISDN data call to the modem, you can then execute the Online Service software.

To use the modem pool, place an ISDN data call to the modem pool number (refer to host MODEM in Appendix B). If your BBS or Online Service software automatically dials the remote service, you will need to manually dial the ISDN call to the modem pool from the phone's keypad. Once connected, enter the command

at z1 (Resets the Modem)

The modem should respond with an **OK** message. A previous user of the modem may have disabled modem echo and message display, so there is a chance that you may not see the characters displayed as you type them. The command above will turn on character display and reset the modem to known state. Normally the modems should automatically reset when you first connect to them, so it may not be strictly necessary for you to manually rest the modem.

From your terminal emulation package issue the dial command to the modem to dial the BBS or Online Service, enter

atdt *phone_number*

where *phone_number* is the phone number you wish to call (Example: atdt 43442, atdt 918006546973, or 85058443442). Note: Software provided by an Online Service may automatically issue this command when you tell the software to connect to the service.

There will be a ten to twenty second delay while the modem attempts to place the call. You will not be able to hear the "line activities" as is common when the modem is in your office. If you enter a keystroke during this wait, the modem will terminate the call attempt. If the modem is not able to complete the call, it will respond with **NO CARRIER**. If it does complete the call, it will respond with a **CONNECT** message. If the connection is successful, the modem will use the highest data rate supported by it and the remote modem up to 19200 baud.

The action of logging out of the remote computer should terminate both the analog and ISDN calls. If this action does not terminate the ISDN call, you will need to terminate the ISDN call manually.

Modem Commands

People that use the modem pool may alter the modem settings to make the modem work with the diverse needs of various software packages. The settings that work with one package may not work with another package. Hence, you may need to issue the reset command, **at z1**, to the modem if it will connect to the remote computer, but the remote computer does not respond to input or responds erratically. You may want to include this command in the modem reset field of your communication software. If this modem change does not correct the problem, contact your building's Tech Control representative for assistance. Other commands to adjust the way that the analog modems operate are given below. Generally, you should not need to use the commands below. However, some software form online service providers may require you to disable modem data compression, error control, and character echo. You should consult your software manual to determine the requirements of your communication software.

at e1 Enable character echo
at e0 Disable character echo
at q0 Enables display of result codes
at q1 Disables display of result codes
at "h0 Disables V.42bis/MNP5 data compression
at "h3 Enables V.42bis/MNP5 data compression
at \n0 Disables V.42/MNP error control
at \n5 Enables V.42/MNP error control

IMPORTANT NOTE:

Do not alter modem parameters that are not listed below or above unless directed to do so by a Tech Control Technician. Altering other parameters may disable operation of the modem.

SLIP and Remote Access Protocols

By using the Serial Line Internet Protocol, SLIP, or a remote access protocol you can connect a computer to a network via the computer's serial port. SLIP specifically uses the Internet communication protocol TCP/IP[1]. TCP/IP supports file transfer; electronic mail and Eudora™, a graphical user interface for mail; remote computer login; network printing; as well as other applications. The hosts RAN and EON (refer to Appendix B for phone numbers) will accept SLIP connections. AppleTalk Remote and cc:Mail Remote provide similar network capabilities by using the computer's serial port.

The ISDN phone configuration given in the Basic Setup uses software flow control which is incompatible with these remote access protocols. To use your ISDN phone with these communication packages, you will need to use hardware flow control if your software supports it. Otherwise you will need to disable flow control on the phone. Turning on the ISDN phone's X.25 flow control negotiation parameter will also improve the operation of SLIP.

Enter the following commands at the "CMD:" prompt to use hardware flow control and set the X.25 data parameter

set rec.flow eia
set trans.flow eia
set fcpn on

Enter the following commands to disable flow control and set the X.25 data parameter

set rec.flow off
set trans.flow off
set fcpn on

A complete description of how to establish a SLIP session with one of the SLIP servers is beyond the scope of this user guide. However, a brief description of the major steps needed to establish a SLIP connection is given below. First, you will need to acquire a SLIP communication software package and install it on your computer. As part of the software installation you will need to specify the network addresses, also called IP addresses, of your computer, the network router for the LAN you will connect to, and the domain name server. The SLIP servers dynamically assign your computer an IP address when you connect to the server. Hence, the IP address of your computer may be different each time you reconnect to the server. Your software will need to query the server for the IP address to use for the session. Once your software has the IP address, it then needs to instruct the server to go into SLIP mode. Most newer SLIP software will allow you to use a connect script to automate the session setup. A typical script would include the following elements.

1. Dial Slip Server.
   (Command is " **d *phone_number*** ".)

2. Send Carriage Return Character for server to recognize connect speed.

3. Query server for IP address.
   (Command is different for each SLIP software package.)

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[1]There are several commercial software packages that support SLIP and TCP/IP. SLIP and TCP/IP are available for a wide variety of computers and operating systems. Popular software packages include VersaTerm Pro for the Macintosh, PC/TCP by FTP Software for MS-DOS and MS-Windows, and ChameleonNFS by NetManage for MS-Windows.

4. Send server the command to place it in SLIP mode.
(Command is " **set port internet slip enable** ".)

File Transfers, cc:Mail Remote, Remote Printing, and Other Things

The ISDN phone configuration given in the Basic Setup instructs you to use software flow control which will work for most communication programs. However, communication programs that must transmit binary computer data are incompatible with this method of flow control. Programs and applications that may have trouble operating with software flow control include file transfer packages, remote mail packages such as cc:Mail and Eudora, remote printing applications, SLIP, and Point-to-point protocol packages. Software that appears to work when first started but then stops working and program displays that "freeze" or "hangup" are indications that the software is not compatible with software flow control settings on the ISDN phone. These programs and applications should work with the ISDN phone if you set the ISDN phone to use hardware flow control. In some instances you may also need to replace the computer cable that inter-connects your ISDN phone and computer with a cable that is wired to use the RTS and CTS pins on the serial port.

Enter the following commands at the "CMD:" prompt to use hardware flow control.

set rec.flow eia
set trans.flow eia
set fcpn on

Procomm Plus, version 1.1B, MS-DOS

Simultaneously press the ALT and s keys to access the Setup Utility Screen.

Select TERMINAL OPTIONS
GENERAL OPTIONS
Set Software Flow Control (XON/XOFF): ON
Select SAVE SETUP OPTIONS on the setup utility main menu screen

Simultaneously press the **ALT** and **p** keys to access the setup screen.

Set the following parameters:

Baud Rate: 19200
Parity: NONE
Data bits: 8
Stop bits: 1
(The Current Settings banner will show 19200,N,8,1,COM#)

Simultaneously press the **ALT** and **s** keys to save the settings.

Procomm Plus for Windows, version 1.01, MS-Windows

Select the "Current Setup" gadget. It is just to the right of the "Script Files:" box.

Set the following parameters:

Baud Rate: 19200
Port Setting: Parity NONE
Data 8
Stop 1
Com Buffer 16K
Flow Control Software

Select **Save&Exit** to save the setup.

Relay Gold, version 5.0, MS-DOS

NOTE: If you exclusively use ISDN, login scripts provided by the Laboratory Information Systems Center, then the configuration description below is not needed. The scripts and setup programs provided by this center will configure Relay Gold as necessary to work with the ISDN phones. You should use the configuration information below only if you do not use login scripts.

Configuration:

From the Relay Gold main OFFLINE menu, select **F3=Review the Directory of Computers.**
Select **F3=Copy Entry to Add a New Name** to create an entry.

Set Name: ISDNNM
Speed: 19KB

Select **F4=Review Connect Options**

Set		
	Parity Code?	8
	Stop Bits?	1
	Login Script Filename?	<blank>
	Flow Control?	B

Connection Startup:

From the main OFFLINE menu enter ISDNNM in the space next to "**F1=Call**".
Press F1 to get the ISDN phone prompt.

VersaTerm Pro, version 5.0.1, Macintosh

Under the **Settings** pull down menu, select

Baud	19200
Data Bits	8
Parity	None
Stop Bits	1
Xon/Xoff	"check marked"

Vterm, version 2.6, MS-DOS

Simultaneously press the **ALT** and **s** keys to access the setup screen.

Set the following parameters:

Communication Rate:	19200
Data bits/parity:	8 NONE
Stop bits:	1
Auto XON/XOFF:	XOFF at 256

Simultaneously press the **ALT** and **p** keys to save the settings.

Press the Return or Enter key to exit setup.

Terminal (included with MS-Windows 3.1)

Select **Communications...** under the **Settings** pull down menu.

Select		
	Baud Rate	19200
	Data Bits	8
	Stop Bits	1
	Parity	None
	Flow Control	Xon/Xoff

Select **Save** under the **File** pull down menu to save the changes.

Appendix B -- ISDN Data Numbers

PBX Host Name and (Speed No.)	ISDN Phone Number	Host Description
B-891 (2261)	845-0241	SAV30,SAV49,SAV212 VAX cluster, Building 891.
cc:Mail	845-0247	Internal Restricted Network CC-Mail Remote Server, Building 880.
EON	845-0106	External Open Network terminal server. Allows telnet and SLIP connections to computers on the EON.
IIT (2358)	845-0202	
IRN (2203)	845-0204	Internal Restricted Network terminal server. Presents a menu display to connect to several computers attached to the IRN.
MODEM	845-0244	Pool of analog modems. Allows dial-up connections to off-site Bulletin Board Systems and Online Information Services.
PACE (2266)	845-0222	
PBX	845-0250	Direct connection to Black (Unclassified) PBX terminal data ports.
PENET (2205)	845-0236	Terminal server to the Plant Engineering VAX network, Building 887.
Person-to-Person	Same as voice number	Allows you to directly inter-connect two personal workstations assuming both have properly configured hardware and software.
RAN (2216)	845-0210	Internal Restricted Network terminal server. Allows telnet and SLIP connections to computers attached to the IRN. (SLIP: Network gateway address is 134.253.2.254)
SAILIP (2267)	845-0230	IBM, Laboratory Information System, Building 880.
SAILIS (2268), and SAILIT (2223)	845-0252	IBM, Laboratory Information System, Building 880.
SAIPAD (2212)	845-0224	IBM, Laboratory Information System, X.25 PAD, Building 880. (Requires Relay Gold terminal emulator.)
SAV200 (2237)	845-0104	Building 970 VAX.
SAV234	845-0218	
SAV33 (2248)	845-0216	Building 970 VAX.
SOMNET (2324)	845-0102	Internet Connection and mail machine SOMNET, Building 880.

ISDN data numbers are also available through the Electronic Directory feature on ISDN phones. Use ISDN for the "Last Name" and the host name for the "First Name." To look up a computer phone number:

Press the **[Telephone Directory]** button, then on the telephone keypad
Press **ISDN#** (or **4736#**)
Press the **[Scroll Down]** button to view the phone numbers.

Note: All phone numbers may not be active.

Appendix C -- Memory Dial Programming

The 7506, 7507, and 8510 API telephones have nine memory dial locations. These memory dial locations make it possible to dial a computer by a short name rather than the full telephone number. The memory locations are labeled *m1*, *m2*, *m3*, ... , *m8*, *m9*. Use the following instructions to program these memory locations.

At the "CMD:" prompt enter

program m?

where m? is the label of memory location you wish to program.

The phone will respond with

```
MEMORY NUMBER m?
OPTION              VALUE
Name                unspecified
Number              unspecified
Profile             active
RPOA1               unspecified
RPOA2               unspecified
Closed User Group   unspecified
Reverse Charges     no
Type option name (or Q to quit):
```

At the option name prompt enter **name** and then the **hostname** or text you will identify with the host. Examples of host names might include one of {a, b, IRN, SOMNET}.

Type option name (or Q to quit): **name**
Type new value (or Q to quit): ***hostname***

At the prompt enter **number** and then the **phone number** of the host.

Type option name (or Q to quit): **number**
Type new value (or Q to quit): ***phone_number***

The set will display

```
MEMORY NUMBER m?
OPTION              VALUE
Name                hostname
Number              phone_number
Profile             active
.                   .
```

At the option prompt enter **q** to quit and then **y** to save the changes.

To look at the memory dial setting for a host, at the "CMD:" prompt enter
view *hostname*

Appendix D -- Application Programming Interface Programs

The AT&T 7506, 7507, and 8510 API, Application Programming Interface, ISDN phones facilitate the development and use of computer-managed applications that integrate voice and data. The programming interface uses a computer's industry standard serial port to send and receive information from the ISDN phone. Applications such as database retrieval based on caller phone number, outbound call origination, incoming call logging, high-speed screen sharing, and controlling the display and ringer of the ISDN phone are commercially available.

Below ia a list of software packages and short descriptions of the packages that are available to use with the AT&T API ISDN phones. These descriptions were taken from the vendors advertisement sheets. The applications aim to integrate voice and data functions. This list is provided to give you a view of some application programs being developed and advertised for use with the ISDN API phones. Some of the application packages may be useful at help desks where several people are responding to customer calls. These products have not been tested at Sandia; however, the Communication Department does intend to purchase a few of them to place in the Building 880 ISDN Demonstration room.

ExcellNET, ICLID, XLDIAL Supplier: EXCELLTECH, (605) 665-5811
Platforms: MS-DOS, MS-Windows

EXCELLTECH NETBIOS is a standard interface that is compatible with existing popular NETBIOS network operating systems. New ISDN applications can be written to take advantage of EXCELLTECH's extensions that are specially designed for the API ISDN phone. ExcellNET is an ISDN data communication product that includes public domain file transfer protocols, printer sharing, messaging, terminal emulation, the NETBIOS interface, and security. ExcellNET supports data rates up to 57,600 baud. ICLID for ISDN automatically searches a personal database for a record that matches the Caller ID of an incoming call. XLDIAL for ISDN allows the user to automatically dial a phone number selected from a personal database. XLDIAL indicates when the dialed party has answered and allows the user to cancel the call at anytime.

Face to Face Supplier: Crosswise, (408) 426-3991
Platforms: Macintosh, MS-Windows (1Q94)

Face to Face is an inexpensive, remote meeting software product that allows two or more users of any combination of Macintosh and Windows computers to participate in a Face to Face meeting. Meeting participants can share a variety of information on their computer screen as they talk on the telephone. Documents created in virtually any application can be displayed and annotated, sketches can be created interactively on an electronic white board, and multimedia presentations including text, graphics, recorded sound and animation can be presented. Face to Face provides automated voice and data call set-up and tear-down, and leverages the switched data services of ISDN to provide excellent, real-time performance.

ManyLink™, Call-Pop Supplier: ManyLink, (206) 881-5060
Platforms: MS-DOS

ManyLink for ISDN is a complete office network for sharing printers, transferring files, and sending electronic messages. Above all, ManyLink software is designed to be simple to install and easy to use. ManyLink's basic features may be enhanced by adding optional utilities for screen sharing, remote PC control, fax sharing and a number of other applications. Custom applications are possible using ManyLinks's memory resident programming interface.

ManyLink Call-Pop is a memory resident application that uses the Caller ID information provided by the API phone. When Call-Pop detects an incoming call, it automatically searched a designated database file for a record that matches the Caller ID and displays the information on the user's screen.

SIMS

Supplier: Southern New England Telephone, (203) 771-7661
Platforms: MS-DOS, MS-Windows

SIMS (SNET Integrated Massaging System) is a PC base inbound call management and message desk attendant station software package that provides personalized answering services and message management for department coverage. SIMS provides features such as display of called and calling number with associated information such as name and organization, electronic storage/retrieval/printing of messages, visual alert indication on screen, and call traffic statistics.

ViewMate

Supplier: Structured Information, (908) 842-9553
Platforms: MS-Windows

ViewMate is a new Windows application that uses the voice call features of the API ISDN phone. ViewMate links existing systems and applications with Caller ID, allowing the system to immediately run different programs based on who's calling in. It also allows the user to run the same program with variable information based on who's calling. ViewMate is designed to be particularly effective in organizations with heavy sales and customer service needs.

Client Profile Software

Supplier: AT&T, (201) 644-3917
Platforms: MS-Windows

Client Profile Software (CPS) is a PC based ISDN incoming call management product that provides enhanced voice and data capabilities. Features include automatic client data retrieval, external database access, call log, and client notepad.

CPS increases user productivity by providing automatic access to a customer's profile each time a customer calls. CPS further enhances communications with customers by providing access to additional external data sources and by supplying an online log of all incoming calls.

Copy to:

MS0630 M. J. Eaton, 13100
MS0898 G. A. Bell, 13312
MS0809 G. C. Shepherd, 13411
MS0813 M. C. Finley, 13412
CCHD (4)
MS0801 M. J. Murphy, 13900
MS0806 R. C. Dougherty, 13902
MS0806 D. C. Jones, 13903
MS0805 D. S. Rarick, 13911
MS0809 G. E. Connor, 13912
MS1090 L. B. Cox, 13912
MS0809 M. R. Heiser, 13912
MS1090 D. A. Paulsen, 13912
MS0809 M. E. Mefford, 13913
MS0806 T. Archuleta, 13913
MS0809 D. P. Duggan, 13913
MS0805 J. P. Sena, 13914
MS0805 P. P. Baca, 13914
MS0805 D. B. Bateman, 13914
MS0805 B. J. Cardell, 13914
MS0805 L. S. Dayton, 13914
MS0805 N. Lopez, 19314 (2)
MS0805 Customer Service Desk, 13914 (50)
MS0805 J. M. Miller, 13914
MS0805 K. Montano, 13914
MS0805 P. J. Montavon, 13914
MS0805 L. Montoya, 13914 (2)
MS0805 R. W. Phillips, 13914
MS0805 G. M. Pino, 13914
MS0805 G. Rivera, 13914
MS0805 R. S. Silva, 13914
MS0805 R. A. Skinner, 13914
MS0805 V. K. Williams, 13914
MS0809 R. F. Collins, 13915-1
MS0809 A. R. Gibson, 13915-2
MS0809 M. Foster, 13915-3
MS0809 J. E. Gonzales, 13915-4
MS0809 L. E. Willhelm, 13915-5
MS0809 J. E. Tapia, 13915-6
MS0807 M. O. Vahle, 13916
MS0807 J. P. Brenkosh, 13916
MS0807 S. A. Gossage, 13916
MS0807 J. H. Maestas, 13916
MS0807 L. Martinez, 13916
MS0807 J. H. Naegle, 13916
MS0807 L. G. Pierson, 13916
MS0807 T. J. Pratt, 13916
MS0807 N. Testi, 13916
MS0807 L. F. Tolendino, 13916
MS0807 E. L. Witzke, 13916
MS0807 I. C. Alexander, 13917
MS0807 R. L. Adams, 13917
MS0807 A. Breckinridge, 13917
MS0807 J. M. Eldridge, 13917 (20)
MS0807 T. C. Hu, 13917
MS0807 M. M. Miller, 13917
MS0807 S. D. Nelson, 13917
MS0807 M. A. Schaefer, 13917
MS0807 B. Whittet, 13917
MS0806 R. M. Cahoon, 13918
MS0806 W. L. Larson, 13918
MS0806 J. P. Long, 13918
MS0806 R. A. Haynes, 13918
MS0811 R. J. Pryor, 13919
MS0811 T. R. Frytz, 13919
MS0811 G. D Machin, 13919
MS0811 C. D. Brown, 13921
MS0811 R. G. Hawkins, 13921
MS0811 D. J. Ortiz, 13921
MS0811 W. H. Rahe, 13921
MS0811 P. D. Sands, 13921
MS9040 G. Gutierrez, 8902
MS9011 P. W. Dean, 8910
MS9011 J. C. Berry, 8910
MS9011 Y. S. Yu, 8910

Ralph Hinshaw, DOE/AL-IMD
Mike Gomez, DOE/AL-IMD

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