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Chapter 1

Where to Begin?

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Congratulations on your purchase of CROSSTALK XVI. You are now the owner of the most sophisticated, powerful, and flexible communications program available for 16-bit computers.

In order to get the most out of your purchase, please take the time to read this manual and go through the example sessions shown in the tutorials. Most of the calls we receive in our customer service department are simple questions, which could have saved the caller a few dollars in long-distance charges if he had read the manual. If there's something you don't understand, or if you have a problem with something, it's probably covered in this manual.

CROSSTALK XVI represents the end result of thousands of hours worth of design and programming work. Don't let the size of this manual scare you; the program is designed to allow you to use only those features you need, and ignore the others. As your needs become more demanding, you'll find that the program will be able to meet those needs.

This manual has been designed to accommodate both the experienced user and the computer neophyte. "Techno-jargon" has been avoided wherever possible. Data Communications is, by its nature, a technical area. CROSSTALK, and this manual, have been designed to allow you to deal with the various technical aspects of communications as easily and as clearly as possible.

We suggest that you start right here at Chapter 1, and progress forward, regardless of your level of computer proficiency. If the material seems familiar, skip to the next section. The worst that can happen is that you'll have to come back and re-read the sections you skipped.

A word of warning to old (pre-3.0) CROSSTALK users: This version is COMPLETELY different from previous versions. There are many new commands, many old commands have new names, and some commands have different functions depending on the circumstances under which they are used. Section 2.4 and Appendix B contain information outlining the differences between CROSSTALK XVI and previous versions of CROSSTALK.

Command files created with previous versions of CROSSTALK (3.4 or earlier) will not work until they are loaded and saved again.

1.2

Organization of this Manual

This manual is organized into fifteen chapters, and seven appendices.

The first two chapters are an introduction to CROSSTALK, and to data communications in general.

The third chapter provides preparatory information. This chapter will show you how to make a working CROSSTALK disk, how to connect your modem to your computer, and how to test your system to be sure that everything is working properly.

The fourth and fifth chapters are a tutorial on CROSSTALK. This section starts out with the most elementary aspects of the program, and progresses through to some of the more advanced features.

Chapters Six, Seven and Eight detail CROSSTALK's operation as a terminal program. Chapter Six explains how to modify CROSSTALK's operation in terminal mode, Chapter Seven deals with changing the various hardware-related parameters, and Chapter Eight explains how CROSSTALK's terminal emulation features operate.

Chapters Nine and Ten deal with uploading and downloading text files to non-CROSSTALK systems. Chapter Nine describes how to use CROSSTALK to capture data from another computer

system, while Chapter Ten explains how to send text files to another computer.

Chapter Eleven explains CROSSTALK's operation in answer mode.

Chapter Twelve explains how to exchange files with another CROSSTALK system.

Chapter Thirteen shows how CROSSTALK uses "command files" to store and re-call phone numbers and other information for frequently-called systems. This chapter also shows examples of typical command and script files.

Chapter Fourteen contains a summary of all of CROSSTALK's 76 commands. Each command is listed in alphabetical order, along with a brief description of each command.

Chapter Fifteen shows examples of typical uses for CROSSTALK, including capturing data, sending a text file, and exchanging program files with another CROSSTALK system.

Appendix A is a glossary of data communications and computer terms.

Appendix B is a guide for users who have used an older release of CROSSTALK. This section outlines the major differences between CROSSTALK XVI and older releases of the program.

Appendix C is a "how-to" section, detailing how to connect two computer systems together and transfer files.

Appendix D shows several typical cable diagrams for connecting your computer to a modem or to another computer system.

Appendix E contains option switch settings for several modems, and Appendix F contains typical dial commands for several modems.

Appendix G is an ASCII code chart. This chart shows the hex value and mnemonic name of each of the "special" keys on the keyboard.

Chapter 2

An Introduction to CROSSTALK

) This chapter explains what CROSSTALK is, what it does, and presents a brief outline of the major features of the program.

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CROSSTALK is a complete, self-contained data communications program. It is available for most popular 8 and 16-bit computer systems, including most CP/M, MP/M, CP/M-86, MS-DOS, and PC-DOS computer systems.

CROSSTALK XVI is the 16-bit MS-DOS version of CROSSTALK. It was designed to fully utilize the additional memory and computing power of the new 16-bit microcomputers.

CROSSTALK XVI requires at least 96K of RAM.

CROSSTALK performs two major functions. It is a "terminal program," allowing you to dial into a host computer system and act as a terminal to that system. Second, it is a "file transfer" program. This allows you to call up other CROSSTALK-compatible systems, and exchange files with that system. The file transfers are performed with an extremely accurate error check, assuring you that the file you sent is exactly identical to the file received at the other end of the transfer, even over noisy telephone lines.

Earlier, we mentioned that CROSSTALK was a "terminal program." This means that your computer system running CROSSTALK can operate as a terminal to many other computer systems. A good example of this would be using your CROSSTALK system to call into a timesharing "mainframe" computer system. As far as the mainframe can tell, you are just another "terminal".

Besides acting as a terminal, CROSSTALK XVI can actually "emulate" several popular terminals. That is, your CROSSTALK system will respond to terminal commands from a host computer system just as if you actually were using a terminal.

If, for example, your mainframe computer has a word processor program designed to work with a DEC VT-100 terminal, you can tell your CROSSTALK system to emulate a VT-100. Most commands the host system sends to your system will be interpreted just as they would be by a DEC terminal.

Most terminals are just that; they are terminals. They display incoming data on a video screen, and they send characters typed on the keyboard to the host computer. Terminals do not generally offer much in the way of storage or retrieval of data. CROSSTALK, on the other hand, allows you to perform several functions not normally found in terminals.

First, CROSSTALK can "capture" incoming information from the host computer, and save the stored information onto a disk. This allows you to "download" text and program files from other computer systems to your CROSSTALK system. Since you can store the captured information on a disk, you are free to edit and manipulate the information in any way you wish.

Conversely, CROSSTALK can send files from your disk to a host computer system. This feature allows you to prepare text files off-line, using your favorite word processor or text editor program, and then call up another computer system and transmit the file to the host system at full speed.

2.3

File Transfer Features

When you use CROSSTALK as a file transfer program, you can call up any other CROSSTALK or compatible system, and exchange any type of file with the other system. The other system doesn't have to be the same type of computer, and in fact, does not even have to be running the same operating system.

CROSSTALK's file transfers are "transparent" — that is, the user does not have to concern himself with any of the hardware incompatibilities between the two systems in question. As far as the program is concerned, one CROSSTALK system is the same as any other, regardless of the type of hardware involved.

Any type of file may be transferred to another CROSSTALK system, including 8-bit COM and EXE files. Unlike many other programs, CROSSTALK does not distinguish between 7-bit and 8-bit files. Eight bit transfers do not take any longer than 7 bit transfers, and the user does not have to "convert" 8-bit files to 7 bits before transferring them.

The only limit on the size of file you can transfer with CROSSTALK is imposed by the capacity of your computer's disk drives.

Files may be transferred in logical groups. If you want to send all of the files on a disk, a single command tells CROSSTALK to send all of the files. Names of files to be transferred may also be placed in a command file, allowing a user to transfer dozens of files with one command.

2.4 Differences Between CROSSTALK and CROSSTALK XVI

CROSSTALK XVI was written specifically for 16-bit systems. The program takes advantage of the additional computer power and memory available in the 16-bit world. The end result is a program which has many features not found in the original versions of the program.

During the design stages of development, we placed one thing above all others: the overall USABILITY of the program. The program is not menu-driven, nor is it entirely command driven. Yet, it has the advantages of each. We have found that menu-driven communications programs tend to bog the user down in a maze of menus and prompts. Purely command driven programs, on the other hand, tend to assume that the user

knows exactly what he is doing, and generally provide little in the way of guidance for new users.

We took a slightly different approach when designing CROSSTALK XVI. The status screen is always available by typing a single keystroke. The status screen is both a display of all of CROSSTALK's parameters and settings, and a menu of the commands related to those settings.

Most commands are self-prompting, and an extensive built-in help system is available to help you along. If you enter an incomplete command, the program will prompt you to enter the rest of the command, and in many cases, will offer the most likely choices. If you don't understand a question the program is asking, you may press the "?" key, and the program will offer a brief explanation of the question.

Some command names have been changed in this release of CROSSTALK. For example, the old READ command has been re-named the SEND command. The commands with new names are usually equivalent to their older counterparts.

Where we have changed the name of a command, we will usually allow the old form as well. An example of this is that the function key command is now "FK," rather than F1 through F4. The program will still accept the command "F1 Fred" to mean "Set function key F1 to 'Fred.'" This allows you to utilize your old CROSSTALK command files with the new version of the program.

Appendix B contains a complete list of commands which are either new or different to this release of CROSSTALK.

Chapter 3

Preparing Your System

This chapter describes what you need to do before you can run CROSSTALK on your computer system.

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Before you run CROSSTALK on your system, you will need to do a little preparatory work. You'll need to copy the CROSSTALK program and help files onto a disk, connect the modem to your computer, and set the option switches on your modem.

This chapter will guide you through all of these steps.

3.1 Making A Working Copy of CROSSTALK

The first thing you'll need to do is to make a copy of CROSSTALK for your day-to-day use. We suggest that you create a "work" disk specifically for CROSSTALK. Use this "work" disk every time you run the program.

The reason we suggest that you use a separate disk for CROSSTALK is this: The CROSSTALK program and accompanying help files take up about 90K of disk space. Additionally, you will probably want to keep your CROSSTALK command and script files (more about these later) on the same disk, so that they will always be available to you without having to search through a box of diskettes.

Follow these steps to make a CROSSTALK working disk:

1. Format a new diskette using the DOS FORMAT command. Use the /S option to copy DOS onto the new diskette. For example, if you wish to format a diskette in drive B:, enter the command:

FORMAT B:/S

2. Place your newly formatted diskette in Drive A:, and place the original CROSSTALK diskette in drive B:. From the DOS "A" prompt, enter the command:

COPY B:*.*

This will copy all of the files from drive B to drive A. After the copying is complete, remove the original CROSSTALK diskette and file it away in a safe place. Remember that if you should ever have to return your CROSSTALK diskette to us for updating, we require that you return the ORIGINAL diskette.

3. You now have a working copy of CROSSTALK. We suggest that you make a back-up copy of your working diskette from time to time, since you'll probably save some CROSSTALK command and script files on it later, and you'll probably want to have them backed up.

3.2

Connecting Your Modem

Normally, this should be the easiest part of preparing your system. Unfortunately, it is one of the largest sources of calls to our customer service department.

Unlike many other communications programs, CROSSTALK makes full use of all of the "handshaking" signals provided by the modem and computer. In order for the program to operate properly, these signals must be properly connected.

There are two different types of modems available for microcomputers. The first type is often referred to as a "stand-alone" modem. This type of modem is connected to the computer through a cable to a "serial communications port" on the computer, like this:

modem

cable

Computer RS-232 port

The second type of modem is called a "plug-in" or "internal" modem. This type of modem is a circuit board which plugs into the computer cabinet. The "plug-in" cards are functionally identical to a modem, a cable, and a serial interface. The only difference is that the plug-in modem is all one piece.

No matter which type of modem you use, you will have to follow the manufacturer's installation instructions for the modem. Many modems require that certain option switches be set; this is covered in the next section.

If you are using a stand-alone modem, you will need to acquire a cable to connect the modem to the computer's serial port. In order for CROSSTALK to operate properly, the following signals MUST be connected:

Pin No.	Signal Name
1	Protective Ground
2	Transmit Data
3	Receive Data
4	Request to Send
5	Clear to Send
6	Data Set Ready
7	Signal Ground
8	Carrier Detect
20	Data Terminal Ready

Most computer retailers can supply such a cable. The most common type of cable is a 25 pin conductor "ribbon" cable with "crimp" connectors at either end.

Appendix D contains additional information on connecting your computer to modems and to other computer systems.

When installing a plug-in modem, there are two additional things to keep in mind. First, you cannot have two serial ports set for the same port number. For example, if you have a computer which has a communications port already installed as COM 1., then you must set the plug-in modem as COM 2.. If you have two ports set for the same port address, CROSSTALK will not operate.

Second, each port in a computer system generally has an "interrupt request" signal assigned to the port. On some modem and multi-function boards (the Quadram Quadboard and AST Megaplus, to name two), setting the port address switches and/or jumpers does NOT re-assign the interrupt signal. The interrupt signal must be re-assigned, usually by moving a jumper on the board. Consult your board's user's manual for more details.

3.3

Setting the Modem Option Switches

CROSSTALK makes full use of the "handshaking" signals provided by the modem. Some modems, particularly the newer "auto-dial" modems, have option switches which allow the user to over-ride some of these signals.

Consult the table in appendix E for the proper switch settings for your particular modem. If your modem is not listed in the table, some guidelines for setting the switches follow:

CROSSTALK controls the DTR line. If your modem has a feature which allows DTR override, disable the feature.

Similarly, CROSSTALK expects to see the carrier detect signal only when a carrier is actually present. If your modem has a feature which "forces" the carrier detect signal to always be true, disable the feature.

Finally, many modems have a switch which allows you to disable auto-answer. Since CROSSTALK controls the DTR line, the program itself will insure that your modem will not answer the line unless CROSSTALK is in "answer" mode, awaiting a call. Set the switch to leave auto-answer enabled.

Chapter 4

Running CROSSTALK

This chapter explains how to enter commands to CROSSTALK, and how the program responds to your commands.

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Now that you have made a working copy of CROSSTALK, you are ready to run the program for the first time. With your working copy of CROSSTALK in drive A, enter the command:

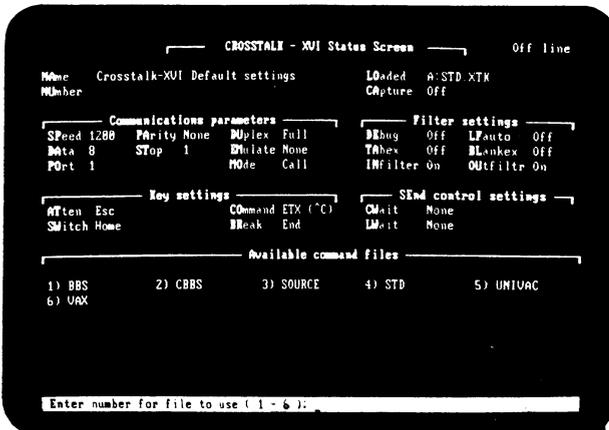
XTALK

After a few seconds, the screen will clear, and the sign-on message will appear like this:



The sign-on message will remain on the screen for about five seconds. To skip the sign-on message, press any key.

After the sign-on message has been displayed, the screen will clear, and the "status screen" will appear. The status screen looks like this:



The status screen serves two purposes. First, it is a display of all of CROSSTALK's major options, and each option's current setting. Second, it is a "menu" of commands. Notice that the first two letters of each command are highlighted; that is, they are displayed in "bright" letters. There is a reason for this. When entering commands to CROSSTALK, the program only requires you to enter the first two letters of the command. You may enter the entire command name if you wish, but it isn't necessary.

Notice that the bottom line of the status screen is in reverse video, and the word "Command?" appears at the beginning of the line. This is called the COMMAND LINE. We will refer to the command line throughout this manual, so keep it in mind. The command line may appear on either the status screen (the screen you are looking at now), or on the terminal screen, which is the screen you will see when you are connected to another computer.

Any command may be entered any time the "Command?" prompt appears on the screen by entering the two letter command name and pressing the ENTER key. If the command requires additional information, the program will ask you for the information by printing a question in the command line.

To see how CROSSTALK processes commands, let's enter a command. Enter "NU", and press the ENTER key. The following message will appear in the command line:

Command? **Enter number to dial:**

Enter the number "1-404-998-8048", and press the ENTER key. Now look up at the status screen again. Notice that the word "NUmber" in the upper left now shows the phone number you just entered next to it.

Let's try that again, but this time, we'll ask CROSSTALK to help us. Enter "NU", and press ENTER. When the program asks you to enter a phone number, press the "?" key, and ENTER again. The program will display a "help" message describing the NUmber command.

Any time you need help with a command, you may press the "?" key for help with that command. The program will tell you about the command in question, and then repeat the question it was asking. Notice that the command line still says "Enter number to dial." For now, press ENTER.

Once you become familiar with the program, you will probably want to use the "answer ahead" method of entering commands. To see how this works, enter the command:

Command? **NU 1-404-998-8048**

and press the ENTER key. Notice that the program did not ask you to enter a phone number, since you provided a phone number with the command. Also, notice that the phone number now appears next to the "NUmber" at the top left of the screen again.

Command which set an ON/OFF state (such as the PRINTER command, which turns the printer on and off) will accept answers in several different ways. As an example, the commands:

Command? PRINTER ON, PRINTER +, and PRINTER 1

are all equivalent. Similarly, the commands:

Command? PRINTER OFF, PRINTER -, and PRINTER 0

are also equivalent. Use the form you find most convenient.

These "ON/OFF" commands have an additional option; they can be "toggled" to their opposite state by entering the command, followed by a slash (/) character. For example, if the printer was ON, then the command:

Command? PRINTER /

would turn it OFF. Conversely, if the printer was OFF, the same command would turn it ON.

4.4

Error Messages

In addition to asking questions and accepting commands, the command line is also used to display error messages. Enter the command:

Command? DUPLEX NONE

and press the ENTER key. The program will respond:

DUp lex must be either Full or Half. Press Enter:

Most error messages require that you press the ENTER key to acknowledge the error. If you make a mistake entering a command, just enter the command again. If you don't understand the command, press "?" when it asks you, and let the program tell you what to do.

The terminal screen is the screen the program uses to display data from another computer system. You may switch back and forth between the terminal screen and the status screen by pressing a special key called the "SWITCH" key. ()

The switch key is normally assigned to the HOME key, but it may be assigned to another key if you wish. We will explain how to change the various key settings later in this section.

To see how the switch key works, press the HOME key once. The status screen disappeared, and a blank screen appeared in its place. This screen is blank because we haven't called another computer, so there is nothing to show. Press the HOME key again, and the status screen will appear.

In actual use, the program automatically switches to the terminal screen once communications have been established with another computer. You may always switch between the two screens by pressing the switch key. ()

Not all of the status screen is used to display status information. The bottom 10 lines are used as a display "window." This window is used to display data which is not normally displayed on the status screen.

To see how the display window works, enter the command:

Command? **HELP**

Key Name	Default Setting
ATTENTION	ESCAPE

Purpose

The ATTENTION key is used to get CROSSTALK's "attention" when you are connected to another computer. Normally, when you are online with another computer, all keys typed on your keyboard are transmitted to the other computer. When you press the ATTENTION key, CROSSTALK will respond by showing the "Command?" prompt on the bottom line of the screen. You may then enter commands to CROSSTALK.

SWITCH	HOME
--------	------

The SWITCH key is used to switch between the status and terminal screens. Each time the SWITCH key is pressed, CROSSTALK will switch between the two screens.

BREAK	END
-------	-----

The BREAK key causes CROSSTALK to transmit a special signal called a "break" signal to the other computer system. A break signal is used by many dial-up computer systems to interrupt printing. Do not confuse this key with the key marked "Break" on some keyboards.

Key Name	Default Setting
-----------------	------------------------

COMMAND	^C
---------	----

Purpose

The COMMAND key is similar to the ATTENTION key, except that the COMMAND key is used to get the "attention" of an answering CROSSTALK system. An answering CROSSTALK system responds to the COMMAND key by sending the "Command?" prompt. We recommend that you keep this key set to ^C for compatibility with other CROSSTALK users.

You may re-assign the SWITCH, ATTENTION, BREAK, and COMMAND keys to any "non-printing" key on the keyboard. By "non-printing," we mean those keys which do not display a character when they are pressed.

The special key settings may be changed by entering the name of the key, and pressing ENTER. CROSSTALK will ask you to press the key you wish to use for that special key.

4.8

Setting Up Your CROSSTALK Program

Before you actually begin using CROSSTALK, you will probably want to change the way CROSSTALK is set up. As shipped from us, CROSSTALK "wakes up" with the following "default" settings:

MOde: CALL

SPeed: 300 baud

POrt: 2 for Eagle 1600, 1 for all others

Modern type: Hayes compatible

To change any of these settings, you may wish to use a special "script" file we have provided. A script file is actually a program written in CROSSTALK's own "language." Several script files are provided on your CROSSTALK disk. We will explain script files fully in chapter 13. For now, enter the command.

Command? **LO SETUP**

and CROSSTALK will load and "run" the SETUP script file. The setup file will ask you a series of questions about how you want to set up your CROSSTALK program. After you have answered all of the questions, your new default settings will be permanently saved on your disk.

Even if you do not wish to change your default settings, you may wish to run SETUP to see how script files work.

Chapter 5

Making a Call With CROSSTALK

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By now, you're probably tired of reading, and are ready to actually DO something. This section will show you two different ways to make a call with CROSSTALK.

In chapter four, you used a "script file" to help you set up CROSSTALK's default settings. In the first part of this chapter, we will use another script file to make a call. In the second part of this chapter, you will learn how to enter commands to CROSSTALK to make a phone call. After we make the call, we'll show how to save a command file, so that you can make a call to the same location later, without having to re-enter all of the information.

This section will assume that you are using a Hayes-compatible auto-dial modem. If you are using another type of auto-dial modem, you will need to set the dialing control strings with the DP and DS commands, or run the SETUP script file as shown in section 4.8. The DP and DS commands are described in chapter 6.

If you are using modem without an auto-dialer (such as an acoustic coupler), read this example, and see section 5.6.

The easiest way to make your first call with CROSSTALK is to use the NEWUSER script file which was provided with your copy of CROSSTALK.

To begin the NEWUSER script file, enter the command:

Command? LO NEWUSER

from the "command" prompt. The NEWUSER file will ask you a series of questions. After answering the questions,

CROSSTALK will offer to save the settings you have entered for future use. If you will be calling the same computer often, you will probably want to save the settings.

We are now including subscription offers from several information services in the CROSSTALK package. To make it easier for you to connect to these services, we have updated the NEWUSER program. The NEWUSER program will allow you to select from a menu of information services, and then ask you for a phone number, account number, and password for the service you chose. Once you have entered the information, CROSSTALK will be able to call into that service and "log in" automatically.

After you run NEWUSER, you will be ready to make a call. The NEWUSER script file will tell you exactly what to do to begin your call. After you have established connection with the computer you are calling, turn to section 5.8, "Terminal mode."

5.2

Making a Call Manually

If you do not wish to use the NEWUSER script file, you may make a call by following the example presented in the remainder of this chapter. The steps outlined here are essentially the same as those performed by the NEWUSER script file.

5.3

Setting the Phone Number

Before you can make a call with CROSSTALK, the program has to know several things about the location you are calling. First, it needs to know the phone number, so that the program can dial the number for you.

To set the phone number, enter the command:

Command? **NU**

The program will ask you to enter the phone number to be dialed. For purposes of example, we will use the phone number of the Microstuf test center in Atlanta. In fact, you can call the test center if you wish, and check out your system. The number is (404) 998-8048. If you wish to call another number, enter the number to be dialed.

After entering the number, check the status screen display to ensure that you have entered the number correctly.

5.4

Setting the Location Name

Now that you have set the phone number, the computer knows where to call. You may wish to set the NAME of the location, so that you'll know where the computer is calling. Enter the command:

Command? **NA**

and press ENTER. The program will ask you to enter the name of the location you are calling. Enter "Microstuf Test Center," and press the ENTER key. Again, look at the status screen, and you'll see that the name is now shown on the screen.

5.5

Selecting a Baud Rate

When you first run CROSSTALK, the program is set for 300 baud operation. If you have a 1200 baud modem, and are calling our test center, you will probably want to call at 1200 baud.

To change the baud rate to 1200, enter the command:

Command? **SP 1200**

If you have a 300 baud modem, the program will already be set for 300 baud. Note that when entering baud rates, 1200 baud is entered as "1200," but 110 baud is entered as "0110."

5.6

Dialing the Number

At this point, you have entered two essential items: a phone number and a baud rate. At this point, you are ready to dial. Even though you have entered a phone number, CROSSTALK will not dial the phone until you tell it to.

The GO command is used to tell CROSSTALK to begin dialing. There are several forms of the GO command. The simplest case is to enter GO and press ENTER. You may also begin the dialing process by pressing ENTER at the command prompt. The program will dial the number once, and attempt to connect to the other computer system. If the number is busy or doesn't answer, CROSSTALK will offer to re-dial the number until it gets through.

The second form of the GO command allows you to specify in advance that you want CROSSTALK to re-dial until the call gets through. For example, the command:

Command? GO R90/30

tells CROSSTALK to dial the number repetitively at 90 second intervals until it connects, and to wait 30 seconds for a connection each time it makes a call. The "R" instructs CROSSTALK to sound an alarm tone after establishing the connection. If you do not wish to hear the alarm tone, use "Q" in place of "R".

The RDial command sets the number of attempts to connect. The normal value is 10.

The third form of the GO command is normally used with modems which do not have a built-in dialer. The GO LOCAL command tells CROSSTALK that you have manually dialed the number, and that the connection is already established.

If you are using a modem which does not have an auto-dialer, the procedure for making a call is similar to the example shown above. ()

Regardless of the type of modem you are using, you still must set CROSSTALK's baud rate. After setting the baud rate, place the call by dialing the number on your telephone. When you hear the answer tone, give CROSSTALK the "GO" command.

Note: if your modem does not provide a CARRIER DETECT signal, you may have to use the "GO LOCAL" command instead of the "GO" command.

Once CROSSTALK dials and connects to a distant computer system, the program enters "terminal mode." At this point, your system looks like a terminal to the remote computer system. Any keys you type on the keyboard are sent to the other computer, and any characters received from the other computer are displayed on your screen. ()

What happens at this point depends largely on the computer you called. Some systems (such as our test center) require that you press ENTER a few times when you first connect, other systems immediately display a greeting message.

When in terminal mode, CROSSTALK displays a "status line" at the bottom of the screen, like this:

ESC for attention, HOME to switch/Capture OFF/Online: 00:00

This status line tells you four things: the keys to press for ATTENTION and SWITCH, the status of the capture command, and the amount of time you have been connected. ()

Once you have connected to another computer, CROSSTALK will remain in terminal mode until you press either the ATTENTION or SWITCH keys. Each of these keys has a special meaning to CROSSTALK.

5.10**The ATTENTION Key**

Pressing the ATTENTION key when CROSSTALK is connected to another computer will display the "COMMAND?" prompt on the bottom line of the screen. When the command prompt appears, you may enter any command to CROSSTALK. While the command prompt is on the screen, you will still see any data coming in from the host computer system.

As an example, let's say that you have called into another computer system, and connected. Once you call into the system, you decide that you want your printer on, so that you'll have a printed copy of your session. Press the ATTENTION key (usually the ESCAPE key), and the "Command?" prompt will replace the status line on the bottom of the screen. Enter the command "PRINTER ON," and press ENTER. CROSSTALK turns the printer on, and returns to terminal mode.

When in terminal mode, CROSSTALK always returns to terminal mode after completion of any command. If the command resulted in an error message, the error message will be displayed in the status line for five seconds, and then the status line display will return.

5.11**The SWITCH Key**

The SWITCH key operates in a manner similar to the ATTENTION key. When you press the SWITCH key, CROSSTALK switches between the terminal communications screen and the status screen. Any time the status screen is

displayed, the "Command?" prompt will appear on the bottom line of the screen.

When the command prompt appears, you may enter any commands to CROSSTALK. After the command is completed, the command prompt will re-appear. To return to terminal mode, press the ENTER key. The program will switch back to the communications screen, and the status line will re-appear.

Any data which comes in the communications link while you are looking at the status screen is kept in a "buffer" area in memory. When you return to the terminal screen, the "buffered" data is added to the information which was already on the screen.

5.12

When to Use SWITCH and ATTENTION

Generally, you will only use the SWITCH and ATTENTION keys when you are connected to another computer system. When you first run CROSSTALK, the status screen is displayed. As soon as connection with another computer is established, the program automatically switches to the terminal screen.

As explained earlier, the SWITCH and ATTENTION keys are used to enter commands to CROSSTALK while you are connected to another computer.

Use the ATTENTION key when the command you are entering will not affect the screen. Commands which display information on the screen are best entered from the status screen.

For example, asking CROSSTALK for a directory while on the terminal screen will cause CROSSTALK to print the disk directory on the screen. If you have some important data on the screen, the directory information may cause the other information to "scroll" off the top of the screen. When the directory is displayed from the status screen, the directory information is shown in the display window on the status screen. The information on the terminal screen remains

untouched. When you press ENTER to return to communications, the terminal screen will be just as it was when you switched screens.

If you enter a command from the terminal screen which causes CROSSTALK to print information on the screen, the information will be displayed in bright video, so that you will be able to tell CROSSTALK's output from that of the host computer system.

5.13

What to do When You're Finished

After you have completed a call, you will probably want to hang up. There are several commands relating to hanging up and exiting CROSSTALK. The table below shows these commands, and explains what each one does.

Command	Effect
QUIT	Disconnects the current call, and returns you to DOS. Use this command when you are finished with your call, and do not wish to make another call.
BYE	Disconnects the current call, but leaves you in CROSSTALK. Use this command when you are finished with your call, but wish to make another call.
XDOS	Leaves CROSSTALK without disconnecting the call in progress. Use this command when you wish to exit from CROSSTALK, run another program, and return to CROSSTALK without disconnecting.

To enter any of these commands while a call is in progress, press the ATTENTION or SWITCH key, enter the command, and press ENTER. Exercise caution when using the XDOS command — it is easy to forget that you are still connected.

Chapter 6

Terminal Features

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In the last section, we explained the elementary aspects of using CROSSTALK; how to enter a phone number, how to enter commands, and how to use the SWITCH and ATTENTION keys. In this section, we will explain some of the more advanced features of CROSSTALK.

The features described in this chapter affect the way in which CROSSTALK operates in terminal mode. Most of these features are provided for the convenience of the user; they have no effect on the “hardware” aspects of communications.

6.1 Viewing the Disk Directory

CROSSTALK allows you to view the directory of any disk in the system in much the same manner as DOS does. The DIR command is used to view disk directories. The default format for directories is very similar to the DOS “/W” directory display; only the file names are shown, five entries per line. CROSSTALK presents the names sorted by type and name.

CROSSTALK provides two options to the DIR command which are NOT found in DOS. These are the /S (size) and /T (transmission time) options. A typical disk directory is shown below, using the DIR /T command:

```

CROSSTALK - XVI Status Screen                               Off line
Name: Crosstalk-XVI Default settings                       Loaded: A:STD.XTK
Number:                                                    Capture: Off

----- Communications parameters -----
Speed: 300 Parity: None Duplex: Full Debug: Off LFAuto: Off
Data: 8 Stop: 1 Emulate: None TAhex: Off BLankex: Off
Port: 1 Mode: Call IMfilter: On OUFiltr: On

----- Key settings -----
ATten: Esc Command: ETX / C: CMwait: None
Switch: Home BRk: End LMwait: None

----- Send control settings -----

----- Directory for A:?????????.??? -----
XTHELP DIR ( 3m) XTALK EXE (32m) XTALK HLP (19m) BBS XTK ( 1m)
CBBS XTK ( 1m) SOURCE XTK ( 1m) STD XTK ( 1m) UNIVAC XTK ( 1m)
UAX XTK ( 1m)
9 File(s), 103K total, 194K free, transmission times for 300 baud

Command?

```

Note that the transmission times calculated for each file are at the current baud rate. Changing the baud rate will always affect the time required to send a particular file.

Transmission times are rounded down to the nearest minute. Files which will take less than one minute to transmit are displayed as 0 minutes.

6.2

Reserving More Directory Space

CROSSTALK presents the disk directory in sorted order. In order to sort the directory, the program must reserve space in memory which is devoted to sorting. CROSSTALK normally reserves space for 200 directory entries. Since DOS 2.0 supports multiple directories, this is normally adequate. However, on systems running DOS 1.x with hard disks (such as the Eagle 1600), 200 entries may not be sufficient.

The DNAME command allows you to allocate more space for sorting directory entries. Enter DNAME X, where X is the number of entries you wish to reserve space for. Each directory entry requires 15 bytes of space. Increasing the amount of directory sorting space reduces the amount of memory available for capturing data by 15 bytes each.

6.3

Changing the Default Disk Drive

When you first run CROSSTALK, the program "looks" to see what your current default disk drive is. The program then sets its own default drive to the same drive.

You may change CROSSTALK's default disk drive with the DRIVE command. For example, the command:

Command? DR B

tells CROSSTALK to use drive B: for any disk operations, unless you provide a specific drive name. For example, if you have set the default drive to B:, you can still view the directory for drive A: by entering the command "DIR A:."

The command "DRIVE" with no drive name will display the amount of space remaining on each of the disk drives in the system.

6.4 Changing the Current Directory (DOS 2.0 Only)

You can change the current directory from CROSSTALK just as you can from DOS. The CD command is used to change directories. For example, to change from the root directory to the directory "BERT," enter the command:

Command? CD BERT

Similarly, to return to the root directory, enter the command:

Command? CD ..

After changing directories, CROSSTALK displays the new directory name in the status line. The command "CD" with no name will also cause CROSSTALK to display the current directory name.

This command is not available when running CROSSTALK under pre-2.0 releases of DOS.

6.5 Reviewing Disk Files

CROSSTALK has a feature which allows you to inspect the contents of a disk file without having to return to DOS.

The **TYPE** Command is used to display text files on your screen. To review the file BERT, for example, enter the command:

Command? **TYPE BERT**

If you wish, CROSSTALK can add line numbers to each displayed line. The table below shows the options available in the **TYPE** command.

Command:	Action:
TYPE BERT	The contents of the file BERT are displayed on the screen, beginning from the start of the file.
TYPE #BERT	The contents of the file BERT are displayed with line numbers. Again, the file is displayed from the start of the buffer.
TYPE #100 BERT	The contents of the file BERT are displayed, with line numbers, beginning with the 100th line in the file.

6.6

Erasing Disk Files

Disks seem to have a habit of filling up at the most inconvenient time. The **ERASE** command may also be used to erase files from your disk, allowing you to free up space on a full disk by erasing unwanted files.

You may provide any legal file name to the **ERASE** command. For example, the command:

Command? **ERASE *.BAK**

will erase all of the files with a name ending in ".BAK." CROSSTALK will show you the name of each file to be erased, and ask you to confirm that you want to erase the file.

CROSSTALK utilizes function keys in two ways. Each key may be assigned either a string of text or a CROSSTALK command. This allows you to program the function keys to perform any number of different functions.

When you use the SAVE command to save a command file, all of the current function key assignments are saved along with the command file. When you LOAD a command file, the function keys are re-set to the values they had when the file was saved. This allows you to have a different set of function keys for each command file. If you were calling The Source, for example, you might want to have keys F1 and F2 contain your Source ID and login.

The FKeys command is used to both set and review function key settings. The command "FK" by itself will display the current contents of the keys. If supported by your computer, SHIFT, CONTROL, and ALT function keys are also available.

To program function key number 1 with the text "Hello" enter the command:

Command? FK 1 Hello

Note that if you issue any FKey commands from the status screen, the program will display the new function key settings in the display window.

There are several characters which have special meaning when placed in a function key string. The table below lists each of the special characters.

Character Effect

- | The form separator is used to imbed a carriage return (ENTER key) inside of a function key definition.

Character Effect

- @ If the @ character is the first character in a function key string, it tells CROSSTALK that the contents of this function key are to be taken as a command to CROSSTALK. For example, setting F1 to @BY! will cause CROSSTALK to hang up the phone (perform the BYE command) when the F1 key is pressed.
- ^ The caret is used to place control characters in a function key. The character following the ^ is sent as a control character.

The following examples show some typical function key settings:

Command	Effect
FK 1 @PR!	Sets F1 to turn printer off or on when pressed. Note that this key assignment begins with the @ character.
FK 2 ID TCA 123^A^B^C!	Sets F2 to send "ID TCA 123," followed by control-A, control-B, control-C, and a carriage return. Note the use of the caret (^) before the control characters, and the use of the vertical bar for ENTER.
FK S1 Hello	Sets function key Shift-F1 to send the text "Hello" when pressed.

6.8 Printing Data While Online — The PRINT Command

CROSSTALK can send a "copy" of all terminal screen activity to a printer. When the printer is enabled, you can still see incoming data on the screen.

The PRINTER command tells CROSSTALK to turn on or off the output to the printer. The command:

Command? **PRINTER ON**

will cause CROSSTALK to duplicate any terminal screen information on the printer.

When you issue the PRINTER ON command for the first time, CROSSTALK tests the currently assigned parallel printer to see if the printer is ready. If you are using a serial printer, the ready test will not function properly. If you are using a serial printer connected to a com port, use the command "PRINTER DOS" instead of "PRINTER ON" to initiate printing.

CROSSTALK does not send status screen information to the printer. If you wish to print the status screen, use the "PICTURE" command (see Chapter 9), and print the picture file.

The command "PR/" will switch the printer back and forth from ON to OFF. CROSSTALK is supplied with this command programmed on function key #6. Pressing F6 will switch the printer on and off with a single keystroke.

6.9

The FILTER and INFILTER Commands

Some computer systems transmit special characters, called control-characters. These characters are often used by host computers for various functions, and are generally NOT needed by your CROSSTALK system.

These characters can cause some problems, since they show up as graphic characters on many microcomputer systems. CROSSTALK has two features, FILTER and INFILTER, which allow you to selectively discard these unwanted characters.

The INFILTER command is used to enable or disable the control character filtering. The FILTER command is used to decide which control characters are discarded.

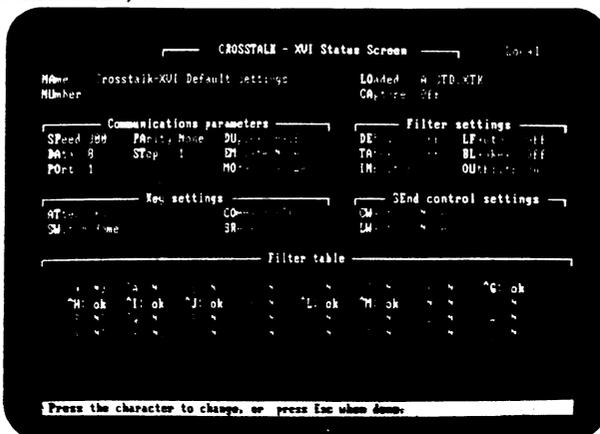
There are a few control characters which you will almost always want to keep. These characters are listed in the table below:

Character	Function
G	Bell
H	Backspace
I	Tab
J	Line Feed
L	Form Feed
M	Carriage Return

Use the FILTER command to change the table of allowable control characters. Enter the command:

Command? FILTER

and CROSSTALK will display the table of all of the possible control characters, like this:



A "NO" next to a character means that the character is discarded by the INFILTER command, and an "ok" means that the character is passed by INFILTER. After you enter the FILTER command, CROSSTALK will ask you to press the letter of the control character you wish to change, or press the ATTENTION key to leave the filter table as it is. For example, pressing the "K" key would switch K in the filter table from "NO" to "ok". After you have selected the characters you wish to filter, press the ATTENTION key.

Many computers and printers utilize the "high" data bit to display special "graphic" characters. Unfortunately, many host computer systems transmit data with the high bit on. This may cause your display to appear as a seemingly random combination of letters, numbers, and assorted greek and graphics characters.

The INFILTER command performs another function besides passing control characters through the filter table; it also "strips" the high data bit from 8 bit data. This has the effect of converting 8-bit "unprintable" characters to their 7-bit "printable" form. If your printer or video display shows any of these "garbage" characters, turning INFILTER on will usually correct the problem.

Note that the INFILTER command affects the data displayed on your screen, the data printed on your printer, and the data captured to the capture buffer.

6.10

Disabling the "Online" Timer

You may wish to disable the "online" timer on the terminal screen status line. Some people find the timer distracting, and the timer may cause some minor flicker on systems with color monitors.

To disable the online timer, use the TIMER command. The command "TIMER OFF" will disable the timer. Note that the timer does not count unless the TIMER command is set to ON. This feature may also be used as a "stopwatch" if desired.

A break is a special signal used by some computer systems to interrupt an operation. You can send a break by pressing the key designated as the BREAK key. The BREAK key can be any non-printing key on your keyboard. For example, the default setting for the BREAK key on most versions of CROSSTALK is the END key. Anytime the END key is pressed, CROSSTALK will send a BREAK signal to the other computer.

You can change the key assigned to the BREAK key by using the BREAK command. For example, to change the break key assignment to ^B, enter the command:

Command? **BREAK**

CROSSTALK will ask you to press the key you wish to use to send a break. To set the BREAK key to control-B, press ^B

Some computer systems send special characters called "control-characters." These characters are often undesirable, especially when you are capturing data to a disk file.

CROSSTALK's DEBUG command lets you "see" incoming control characters graphically on the screen. There are several different display modes available.

Option	Description
Off	Control characters are not displayed.
ASCII	Control characters are shown as ASCII mnemonics (see Appendix G for a list of mnemonics). For example, a bell is shown as [BEL].
Hex	Control characters are shown in hex numbers. For example, a bell is shown as [07].
Char	Control characters are displayed in the form ^X.

The DEBUG feature is useful in identifying unknown control characters. Note that the command "DEBUG ON" will select CHAR debug mode.

6.13

The TURNAROUND Command

Some mainframe computer systems use a key other than the ENTER key to signal end-of-line. An example of this is the Univac 9000 series, which uses ^C for end-of-line. The TURNAROUND command tells CROSSTALK what character to send when the ENTER key is pressed.

The default setting for TURNAROUND is the ENTER key. To change the TURNAROUND character to another key, enter the command:

Command? **TU**

CROSSTALK will ask you to press the key to be sent when the enter key is pressed.

The LIST command is used to display those CROSSTALK options and parameters which are not normally shown on the status screen. The LIST command operates differently in call mode than it does in answer mode.

When the LIST command is issued from the status screen in CALL mode, CROSSTALK displays a list of additional status information on the display window. This display looks like this:

```

CROSSTALK - XVI Status Screen
Name: Crosstalk XVI Telephone
Number:

Communications parameters
Speed 1200 PA: 0 DU: 0 FR: 0
Rate 0 ST: 0 CM: 0
Port 1 MD: 0

Filter settings
DF: 0 LP: 0
TA: 0 BL: 0
EM: 0 OU: 0

Key settings
AT: new Esc
Switch: new

Send control settings
CM: 0
EM: 0

Miscellaneous parameters
DB: 0 AC: 0
Prefix: ATURDT BS: 0
Printer: off UC: 0
BK: 1
  
```

When the LIST command is issued to an answering CROSSTALK system, the program presents the caller with a display similar to the status screen, including the additional "miscellaneous parameters" information.

CROSSTALK can support auto-dialing with most auto-dial modems. The program comes shipped set up for a Hayes compatible modem.

If you have another type of modem, or if you wish to alter the default set-up for the Hayes-compatible modems, you can do so with the DPREFIX and DSUFFIX commands.

The DPREFIX command allows you to specify the dialing prefix for your modem. The default setting for DPREFIX is "ATDT." The DPREFIX string is sent to the modem BEFORE the phone number. The default setting "ATDT" instructs the Hayes compatible modems to dial with tones. If, for example, you wish to pulse dial, the command:

Command? DP ATDP

will instruct the modem to dial with pulse dialing.

There are several characters which have special meaning when placed in a dialing string. The table below lists each of the special characters.

Character	Effect
	Imbeds a carriage return (ENTER key) inside of a dialing string.
^	Used to place control characters in a dialing string. The character following the ^ is sent as a control character.
-	Instructs CROSSTALK to "wait" for a second when dialing. Use as many of these as needed for delaying between dialing characters.

The DSUFFIX command is the counterpart to the DPREFIX command. The DSUFFIX command tells CROSSTALK what characters to send to the modem AFTER the phone number.

For example dialing commands for several different types of modems, see Appendix F.

Some computer systems and networks require that all terminals calling into the system be equipped with an answerback. An answerback is an identifier code which identifies your particular terminal to the computer system.

Answerbacks are most commonly used on the TELEX network. Each terminal on the network has its own unique identifier code, and the network can send a code called ENQUIRE to each terminal, asking the terminal to send its answerback.

The ENQUIRE character is ^E. If desired, CROSSTALK can respond to a received ^E by transmitting the contents of function key number 4. To enable this feature, use the ANSBACK command.

When ANSBACK is on, any received ^E character will cause the contents of function key 4 to be sent to the modem. When ANSBACK is off, received ^E characters are ignored.

Note that answering CROSSTALK and TRANSPORTER features send a ^E character to request your password. If you will be calling into a CROSSTALK or TRANSPORTER system which will require a password, turn ANSBACK on, and enter your password in function key 4. When the system answers, your password will automatically be sent to the answering system.

The SCREEN command allows you to select the colors to be used by CROSSTALK. The "normal," "highlighted," and command line colors may be changed. Both the foreground and background colors may be changed. These commands are only operative on systems with color displays.

Colors are specified by entering the first letter of the desired color. A lower-case letter denotes a "dark" shade of the color. An upper-case letter denotes a "bright" shade of the color.

Screen color commands are entered in the form:

Command? **SCREEN A FB**

where A specifies the type of characters you wish to set (N for Normal, H for Highlighted, or L for status line), F sets the foreground color (the color of the characters themselves), and B sets the background color (the color of the background on which the characters appear).

The available colors are:

Color	Letter
Black	K
Blue	B
Green	G
Cyan	C
Magenta	M
Yellow	Y
White	W

Note that the minus (-) may be substituted for the letter K to select the color black.

The table below shows some possible variations on the SCREEN command:

Command	Effect
SC N y	Set the "normal" screen color to dark yellow.
SC N Y	Set the "normal" screen to bright yellow.
SC H Yg	Set the "highlighted" screen to bright yellow characters on a dark green background.
SC H Gy	Set the "highlighted" screen to bright green characters on a dark yellow background.
SC L -r	Set the status line color to black letters on a red background. (inverse red)

On systems with color video displays, the color of the status line is used "as a visual indicator of capture status".

When you first turn capture on, the status line changes from white to green, to show that capture is on. When you have used one half of your available capture memory, the status line switches to yellow.

When there is 1K of space remaining in the capture buffer, the status line turns red, and a special alarm tone sounds, to warn you that you are about to run out of memory.

(This feature available under DOS 2.0 or later only)

The EDIT command allows you to run a text editor program from within CROSSTALK. When you use the EDIT command, CROSSTALK stays in your computer's memory, and continues to receive any incoming data. After you exit from your text editor, you will automatically return to CROSSTALK.

To run your text editor from CROSSTALK, enter the command:

Command? EDIT (filename)

CROSSTALK will load and run your editor program, using the file name given.

Before you can use the EDIT command, you have to tell CROSSTALK what the name of your editor program is, and where to find it. The EPATH command is used to tell CROSSTALK where to find your text editor program. For example, if you wish to use the EDLIN editor supplied with DOS, and EDLIN.COM is in a subdirectory called "bin" on drive C:, then you would enter the command:

Command? EPATH C:/BIN/EDLIN.COM

We suggest that you set EPATH once, then save a new "standard settings" file, so that you won't have to re-enter the editor name each time you run CROSSTALK.

Note that when running an editor from within CROSSTALK, your available memory is reduced by 72K, plus the amount of any data you have captured.

6.20

Running Other Programs From CROSSTALK

(This feature available under DOS 2.0 or later only)

The RUN command allows you to run other programs from CROSSTALK in much the same way that the EDIT command allows you to run a text editor program. To run another program, enter the command:

Command? RUN (program name)

CROSSTALK will turn control over to the other program, and control will return to CROSSTALK when the second program is finished. You may also temporarily return to DOS by entering "RUN" with no program name. Once you are in DOS, you may run another program. To return to CROSSTALK, enter "EXIT" from the DOS prompt.

When you are running another program from CROSSTALK, avoid running any programs which may change the settings of the serial port you are using for CROSSTALK.

Chapter 7

Changing the Communications Parameters

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Data communications, by its nature, is an area filled with technical details. Before two computers can even begin to communicate with one another, they must agree on HOW they will do the communicating. ()

A good analogy to this is two persons talking on the telephone. One person must call the other to establish the communications link. When they begin talking, they must both be speaking the same language. Finally, they will usually speak one at a time, so that the other person can hear what is being said.

Communications between two computers is a little more complicated than two people speaking on the phone. Again, one computer must initiate the call (CALL mode), and the other computer answers the call (ANSWER mode). Like, the two people in our analogy, they must each "speak" in a manner that the other computer understands. ()

It is important to remember that when you are calling into another computer system, you will generally have to adjust YOUR communications parameters to suit the requirements of the system you are calling. Most dial-up systems are designed to be accessed by a large number of people, with different types of equipment. For the most part, each terminal calling into a dial-up system must conform to the standards for that system; the system will not configure itself to conform to your parameters.

CROSSTALK provides several commands which control all of the communications parameters. This chapter will explain each of these commands. ()

CROSSTALK allows you to use one of several communications ports on your system for communications. The PORT command allows you to select the port to be used for communications. For example, to select port 2, enter the command:

Command? PORT 2

Some computers refer to the ports by letters, rather than numbers. CROSSTALK will accept the letter "A" to mean port 1, "B" to mean port 2, and so on.

Not all host computer systems operate in the same manner. Some computer systems will echo every character the user types, while others do not echo at all.

When communicating with a computer which does echo your data, you will want to set CROSSTALK to FULL duplex. This is the most commonly used of the two possible settings, and is the default value.

If you call into a computer and can not see yourself typing, the host system is probably not echoing your data. In this case, you would want to set duplex to HALF.

If you see two of everything you type, set duplex to FULL. Note that when you select ANSWER mode, CROSSTALK automatically selects HALF duplex. When you select CALL mode, the program automatically selects FULL duplex.

CROSSTALK allows you to communicate with modems and other computers at several rates of speed. The rates available on most computer systems are 110, 300, 600, 1200, 2400, 4800, and 9600 baud.

The SPEED command allows you to select the communications speed at which CROSSTALK will operate. You may enter the command:

Command? **SP**

and CROSSTALK will prompt you to select a speed from a list of choices. Alternatively, the command SPEED 1200 will select 1200 baud. Only the first letter of the speed must be entered.

Note that 1200 baud is SPEED 1, while 110 baud is SPEED 0.

Some computer systems require that you communicate with them using a certain combination of data, stop, and parity bits. (For a full explanation of these terms, see the glossary.)

The DATA command allows you to select the number of data bits to be used. You may select 7 or 8 bits. The command:

Command? **DATA 8**

would set CROSSTALK up for 8 bit data. There is no hard and fast rule about when to use 7 bits, and when to use 8. If you are in doubt, try 8 bits first.

Note that CROSSTALK automatically selects 8 bits whenever a protocol file transfer is performed.

CROSSTALK allows you to select the parity to be used by the communications interface. (For a full explanation of parity, see the glossary.) The available options are EVEN, ODD, and NONE. For example, to set the parity to even, enter the command:

Command? **PARITY EVEN**

Most computer systems ignore parity, and this setting is not usually critical. However, many mainframe computers require that your parity be set correctly. In such cases, consult the mainframe system operator to determine the correct parity setting for the system in question.

As with the PARITY and DATA commands, it is sometimes necessary to change the number of stop bits. The STOP command is used to select either one or two stop bits. As a general rule, most computers use one stop bit at speeds of 300 baud and above, and two stop bits at 110 baud.

Some computer systems do not send line feed characters at the end of each line. This can cause a problem, since CROSSTALK expects each line to begin with a carriage return and a line feed.

If you call into a computer system and each line "overtypes" the previous line, try turning LFAUTO on. When each carriage return is received, CROSSTALK will add a "fake" line feed. The lines will no longer overprint on your screen.

The FLOW command allows you to set the start and stop characters required by the host computer you are communicating with. The FLOW command is used to tell CROSSTALK how to control character flow with the host computer system. Normally, FLOW is set to ^S/^Q, meaning that the host system will stop sending upon receipt of a ^S, XOFF and will re-start after receiving a ^Q. If you wish, you can have XON separate start/stop sequences for the host system and your CROSSTALK system. To enter a new set of stop/start characters, enter the command: "FLOW ab cd", where a, b, c, and d are as follows:

- a-Sent by host to make CROSSTALK stop sending
- b-Sent by host to let CROSSTALK start sending again
- c-Sent by CROSSTALK to make the host stop sending
- d-Sent by CROSSTALK to let the host start sending again

For example, the command: "FLOW SQ" will set ^S as the stop character, and ^Q as the restart character. If you supply only "a" and "b", then CROSSTALK will use the same set of characters for both the host system and the CROSSTALK system.

To disable flow control entirely, enter .

Command? "FLOW-".

$\wedge S = \text{Hex } 13 \quad \text{XOFF}$

$\wedge Q = \text{Hex } 11 \quad \text{XON}$

Chapter 8

Terminal Emulation

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Some computer systems expect to see a particular type of terminal. For example, the DEV VAX editor program assumes that you have a DEC terminal. CROSSTALK can emulate, or "mimic" several popular terminals, including:

- Televideo 910/920 series
- IBM 3101 ASCII terminal
- Adds Viewpoint
- DEC VT-100 and VT-52
- Texas Instruments 940

8.1

Selecting the Emulation Type

The terminal emulation type is selected by the EMULATE command. For example, the command:

Command? EMULATE IBM

will cause CROSSTALK to emulate an IBM 3101 terminal. CROSSTALK behaves slightly differently in emulation mode than it does in normal terminal mode. The remainder of this section will explain those differences.

When set to TELEVIDEO emulation mode, CROSSTALK emulates the Teletideo 910/920 series of terminals. Most attributes available on the Teletideo terminals are available under CROSSTALK.

Note that the 920 function keys are not emulated. If you need to simulate the 920 function keys, you may program your keys using the FKeys command.

Teletideo's BLOCK mode is not supported by CROSSTALK.

When in IBM 3101 emulation mode, CROSSTALK emulates an IBM 3101 character-mode terminal. The 3101 has 8 function keys, marked PF1 through PF8. When you select 3101 emulation, CROSSTALK automatically programs your F1 through F8 keys to send the same codes as the 3101 keys.

The numeric keypad keys are also programmed to simulate the 3101 numeric keypad. If your computer's keyboard has a NUM LOCK key, the NUM LOCK key is used to determine whether to send numbers or arrows when a keypad key is pressed. When NUM LOCK is active, the number keys generate numbers. When NUM LOCK is off, the number keys send the arrow codes when the arrow keys are pressed, and the HOME key sends the 3101's HOME sequence. Note that the SWITCH key is re-assigned to shift-HOME when 3101 emulation is selected.

When DEC VT-100 emulation is selected, CROSSTALK responds to the DEC VT-100 command set in both ANSI standard and VT-52 modes. CROSSTALK "looks" like a no-options VT-100; that is, CROSSTALK can NOT emulate a VT-130 graphics terminal.

To select VT-100 emulation, enter the command:

EMULATE VT

To select VT-52 emulation, enter the command:

EMULATE 52

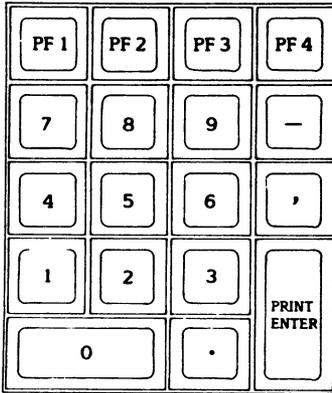
The following VT-100 functions are NOT supported by CROSSTALK:

- 132 column mode
- Smooth scrolling
- Split screen
- Double-high characters
- Double-wide characters

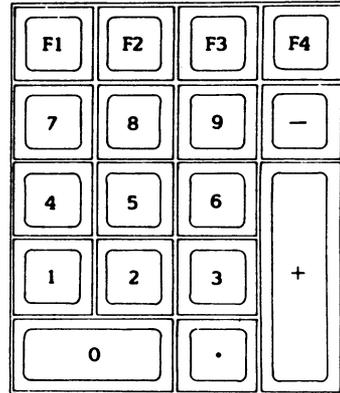
When VT-100 emulation is active, the timer normally displayed on the right side of the status line is replaced by a keypad mode indicator. The status line will show whether the keypad is set to application or numeric mode.

The VT-100 keypad is simulated on most keypads as follows: DEC function keys PF1 through PF4 are assigned to the F1 through F4 function keys. All of the keys on your computer's keyboard correspond to the same keys on the DEC keyboard. Note that there is no COMMA key on some keypads. In this case, the keypad asterisk (*) is used to simulate the DEC comma key.

VT-10(Numeric Keypad:



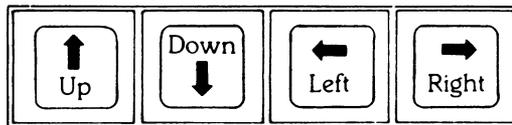
Typical PC Keypad:



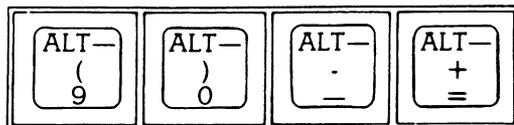
The DEC arrow keys are simulated in two ways. First, if your computer has separate arrow keys, those keys will send the equivalent VT-100 codes when pressed.

Second, many computers use the numeric keypad for both numbers and "arrows", depending on the state of the NUM LOCK key. If NUM LOCK is ON, then the keypad will produce either numeric codes, or DEC application codes, depending on the application program being run on the host computer. If NUM LOCK is OFF, then the keypad arrows (keys 2, 4, 6, and 8) will produce the appropriate "arrow" codes.

The VT-100 arrow keys are also duplicated on the main keyboard as follows:



VT-100 Arrow Keys:



Equivalent CROSSTALK key:

Since the HOME key is used to simulate one of the VT-100 keypad keys, the SWITCH key is re-assigned to SHIFT-HOME when VT-100 mode is selected.

CROSSTALK supports all of the VT-100 printer modes. This allows your PC to act as a VT-100 terminal with a printer attached. We also support the G0 and G1 (United Kingdom) character sets. CROSSTALK supports all of the VT-102 extensions to the original VT-100 terminal. To reflect these changes, CROSSTALK sends the VT-102 identifier sequence when responding to a "what are you" request from a host computer.

NOTE: Most DEC application software requires a DElete for a backspace.

Control ← (backspace) will send a DElete.

Chapter 9

Capturing Data

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Before we explain HOW to capture data, we will first explain WHAT it means.

Let's say that you subscribe to a dial-up information system, such as Dun & Bradstreet. You have called in to the system, and requested a credit check on a new customer. Let's also say that you need to include that credit information in a report to your boss.

By using CROSSTALK's capture features, you can save that customer's credit information on your disk, and then use your word processor program to edit the information, and include it in your report.

CROSSTALK offers two ways to capture data, and each has its own advantages and disadvantages. The two methods are called "Capture to disk" and "Capture to memory." We'll describe capture to memory first.

9.1 Capturing Data to Memory

Capture to memory does just that — it saves incoming data in your system's memory. After you have captured the data you want, you can write the data to a disk file of your choice.

You can capture as much data as your system's memory will hold. DOS uses about 8K of memory, and CROSSTALK uses about 62K, so if you have a 128K machine, you can capture about 66K of data.

Capture can be turned off and on at any time, allowing you to selectively capture only the data you want. There are several commands related to enabling and disabling capture to memory. They are:

Command	Effect
CA +	Turns capture ON.
CA -	Turns capture OFF, clears capture buffer
CA /	Switches capture between ON and PAUSED. If capture is OFF, this will turn it ON. If it is ON, it will change it to PAUSED. If it is PAUSED, it will change it to ON. This is useful turning capture on or off quickly, especially when assigned to a function key.

Note that by default, function key F5 is programmed as: "@CA/!". This allows you to turn capture on and off by pressing the F5 key.

9.2

Saving Captured Data

After using capture-to-memory to capture some data, you'll probably want to save that data in a disk file. The WRite command is used to write the captured data into a disk file of your choice.

As an example, if you had captured a financial report on a prospective new customer, you could issue the command:

Command? **WR B:NEWCUST.RPT**

to write the captured data into the file NEWCUST.RPT on drive B:. If there is not enough space remaining on the disk to save the entire file, the program will print a warning message, and allow you to either change disks, or write the data to a file on a different drive.

As a precaution, if you have captured some data and attempt to either leave the program or erase the contents of the capture buffer without first saving the data, the program will warn you and ask if you wish to save the data to a disk file before proceeding.

If you attempt to capture more data than your system can hold in its memory, the program will warn you, and turn capture OFF. If you have a system with a small amount of memory, you may wish to use capture-to-disk as an alternative. ()

On the other extreme, if your system has a large memory and small capacity disk drives, it may be possible to capture more data than will fit onto one entire disk. You should be careful of this when capturing large amounts of data at one time. In such cases, it is much safer to use capture-to-disk, since the data will be written to the disk continuously, thus avoiding any unpleasant surprises.

One last word on using capture-to-memory: Remember that the captured data is not written to the disk until you explicitly tell the program to save the data. In the event of a power outage, any data which has been captured will be lost. Using capture-to-disk avoids this problem, since captured data is saved almost continuously. ()

As an alternative to capturing to memory, you may wish to have the program write the captured data directly into a disk file.

To begin capturing data to a disk file, enter the command:

Command? CA (filename)

If the file name given does not exist, it will be created. If the file does exist, the program will give you the option of erasing the old file, or of adding the new data to the end of the old file. In either case, the program will then begin capturing incoming data in to the file. ()

If you know ahead of time that the file you are capturing to already exists, you may instruct CROSSTALK to erase the file, or append the new data to the file. The command:

Command? CA (filename) /E

) will tell CROSSTALK to erase the old file first, and the command:

Command? CA (filename) /A

) will tell CROSSTALK to append the new data to the end of the existing file.

As we outlined in the previous section, capturing to memory poses some potential problems which can be overcome by capturing directly to disk.

When capturing data directly to disk, the program writes the captured data to the disk every 1K (1,024 characters). This provides several advantages over saving large amounts of captured data in memory.

) As a general rule, use capture to disk when:

Your system has a small memory capacity (less than 128K)

Your system has a small disk capacity (less than 320K)

You are in an area which is susceptible to power outages

You will be capturing large amounts of data at one time

If the disk should become full while capturing, the program will print a warning message, and then begin capturing the remainder of the data to memory.

) You may be wondering WHY there are two different methods of capturing data, when it seems that capture-to-disk has several advantages. The answer is that while capture-to-disk is inherently more reliable, there are several features available in CROSSTALK which can only be used in conjunction with memory capture. These features include the ability to review and search through the capture buffer. We'll explain these features later in this section.

CROSSTALK has a unique feature called RETRO-CAPTURE, which allows you to capture data which has already scrolled off of the screen. The program maintains a "circular" buffer, and all incoming data is routed through this buffer. The buffer holds 4096 characters. As new data comes in, the oldest data is "bumped" out of the buffer to make room for the new data. RETRO-CAPTURE allows you to retrieve data out of this buffer and store it in the main capture buffer. Since the screen holds 1920 characters (24 lines of 80 characters), the retro-capture circular buffer can hold about two "screenfuls" of text.

To activate retro-capture, enter the command:

Command? CA <

The program will respond with a message telling you that RETRO-CAPTURE is complete, and will turn capture ON. Note that RETRO-CAPTURE may only be used when capture is OFF.

If you wish to capture a specific number of lines, you may enter the command:

Command? CA <X

where X is the number of lines you wish to capture.

When capturing data to memory, you can search through the capture buffer for a specific word or phrase. You can also ask CROSSTALK to tell you how much data has been captured.

Both of these functions are accomplished through the CStatus command. The command "CS" alone will show you the status of the capture buffer — how many lines of text and how many

characters have been captured, how much space is left for capturing additional data, and how much space is left on the current disk.

To search through the buffer for a specific word or phrase, enter the command:

Command? CS text

where "text" is the word or phrase you wish to search for. For example, if you had captured some data regarding wheat commodities, the command:

Command? CS WHEAT

would search the capture buffer for all occurrences of the word "wheat." If the word "wheat" exists in the capture buffer, the program will display the contents of the capture buffer surrounding the located word. After displaying the word, the program will offer to continue searching through the buffer.

The CS command may only be used when capture-to-memory is active.

9.7

Making a Record of the Screen

Often, it is helpful to be able to save an exact copy of the screen. CROSSTALK provides you with two methods for saving the screen contents.

The PICTURE command tells CROSSTALK to take a "picture" of the screen, and save the picture in a disk file of your choice.

The PICTURE command may be used from either the status or communications screens. For example, the command:

Command? PICTURE BERT

would save a picture of the current screen in the file "BERT."

Note that the PICTURE command may not be used while capture is active.

The SNAPSHOT command works in a manner similar to the PICTURE command, except that the screen image is saved in a special "snapshot" buffer. The snapshot buffer may not be written to the disk, nor may it be added to the main capture buffer; it may only be reviewed. The SNAPSHOT command operates ONLY on the terminal screen.

To take a snapshot of all 24 lines on the screen, enter the command:

Command? **SNAPSHOT 24**

To review the snapshot buffer, enter the command:

Command? **SNAPSHOT**

Remember that the SNAPSHOT buffer can not be saved on the disk. To save screen data into a disk file, use the PICTURE or RETRO-CAPTURE features.

9.8

Erasing the Capture Buffer

It is often necessary to erase the contents of the capture buffer. The ERASE command allows you to erase all of the data in the capture buffer. The command:

Command? **ERASE**

instructs CROSSTALK to discard all data in the capture buffer. As a precaution, the program asks you to confirm that you really want to erase the buffer before the data is actually discarded.

9.9

Reviewing the Capture Buffer

CROSSTALK allows you to review the contents of the capture buffer. The TYPE command is used to display the capture buffer data on the screen. If you wish, CROSSTALK can add

line numbers to each displayed line. The table below shows the options available in the TYPE command:

Command	Action
TYPE	Capture buffer contents are displayed on the screen, beginning from the start of the capture buffer.
TYPE #	Display the contents of the capture buffer, with line numbers. Again, the buffer is displayed from the start of the buffer.
TYPE #100	Display the contents of the capture buffer, with line numbers, beginning with the 100th line in the buffer.

Chapter 10

Sending Text Files

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In the last chapter, we looked at the capture feature, which provides a means of capturing data from a remote computer system, and saving it on your disk. In this chapter, we'll show you how to use the SEND command to send data from your disk to another computer system.

Before we proceed any further, please keep in mind that you will use the SEND command ONLY when you are communicating with another computer which is NOT running CROSSTALK or a compatible file transfer program. The process of exchanging files with another CROSSTALK compatible system will be covered in the next section.

To send a text file to another computer, enter the command:

Command? **SEND (filename)**

This will cause CROSSTALK to send the file named by (filename) to the host computer.

Sending a text file to another computer system is not always as simple as merely issuing the SEND command. Since no two computer systems operate in exactly the same way, it is often necessary to modify the manner in which CROSSTALK sends text through the SEND command. There are several other commands which affect the SEND command. In many cases, it will be necessary to set one or more of these other commands before issuing the SEND command.

These commands are: CWAIT, LWAIT, OUTFILTER, TABEX, BLANKEX, and UCONLY. Each of these commands has it's own distinct purpose, and each may be used in conjunction with any of the others to afford you the maximum flexibility.

The remainder of this chapter will explain each of these commands, and show how to use them.

10.2 Waiting For Slow Systems-The LWAIT & CWAIT Commands

Many computer systems require some sort of an inter-line delay when accepting text files. For example, many systems will send a prompt when they are ready to accept a line of text, others may simply require that you wait for a specified period of time between lines. The reason for this is that most host computer systems are designed to service terminals with people typing at those terminals. Since very few of us can type at 120 characters per second, the systems don't have the ability to respond to input at full speed.

When you use CROSSTALK's SEND command to send a text file into another computer system, your system looks to the host system like a very fast typist. Unfortunately, many computer systems simply cannot keep up. If you send text faster than the host system can take it in, some characters may be lost. To avoid losing any information, CROSSTALK has several methods for "waiting" for slower computer systems.

CROSSTALK has two commands which control this waiting. The CWAIT command provides a wait between each transmitted character, and the LWAIT command can provide a delay between each line. In most cases, you will need to use only the LWAIT command.

10.3 Waiting Between Lines-The LWAIT Command

The LWAIT command is used to select a method of waiting between transmitted lines. There are several options available, and each has its own distinct function. The options are each explained below.

LWAIT PROMPT X option:

With this option selected, CROSSTALK will send a line of text, wait for a prompt of X characters, and then send the next line. This method is most useful when sending text files to systems which send a fixed number of characters as a prompt. A good example of this is a system which sends a single character prompt when the system is ready to accept the next line.

LWAIT LEARN option:

This option is very similar to the PROMPT option, except that it counts the number of characters in the prompt for you. When LEARN is selected, CROSSTALK sends the first line of the file, and then asks you to press the space bar when the host system is finished sending its prompt. While the program is waiting for you to press the space bar, it is also counting the number of characters received from the modem. After you press the space bar, the program sets up LWAIT PROMPT mode, using the count of characters as the prompt length.

This method is the simplest to use, but again, will only operate properly with systems which send a fixed-length prompt.

LWAIT MANUAL option:

In this mode, CROSSTALK sends a line of text, asks you to press the space bar, and then sends the next line of text. This process is repeated until there are no more lines to send. Since you can see any data being returned from the host, you will be able to control the flow of data to the host system.

This option is useful when sending small files to systems which do not always respond to input in a consistent manner. Since you can see the host's response between each line, you can control the flow of data accordingly.

LWAIT QUIET X option:

In this mode, CROSSTALK sends a line of text, and then waits until the line is "quiet" (i.e. no characters received) for a period of "X" tenths of seconds. The next line is then sent, and the process is repeated until there are no more lines to send.

This option is most useful when sending text to a system which sends a random-length prompt between lines.

LWAIT DELAY X option:

This option is similar to the QUIET option described above, except that the program waits for "X" tenths of a second, regardless of what was received from the host. It is most useful for introducing a short inter-line delay on systems which can not quite take full-speed transmissions.

LWAIT CHARACTER "?" option:

When this option is selected, CROSSTALK sends each line of text, and then waits for the specified character before sending the next line. This option is most useful when sending text to systems which send a random-length prompt, but only when the prompt ends in a consistent character. It is also especially useful for sending to many half-duplex mainframes, such as IBM systems running TSO. These systems typically do not echo received data, but send a single character prompt when the system is ready for the next line.

By waiting for the specific character, you are assured that you haven't begun sending the next line of text before the host system is ready for it.

LWAIT ECHO option:

When LWAIT is set to ECHO, CROSSTALK sends each line of text, and then waits for the carriage return character to be echoed back from the host computer. The next line is then sent.

This option is useful for sending text files to systems which send a carriage return to indicate that the system is ready to accept another line of text.

10.4 **Waiting Between Characters-The CWAIT Command**

The CWAIT command is similar to the LWAIT command. While LWAIT tells CROSSTALK how to wait between each line of text, CWAIT tells CROSSTALK how to wait between each transmitted character.

In most cases, you will not need to use CWAIT. LWAIT and CWAIT operate independently of one another. CWAIT is typically used when sending text files to older mainframes which are slow to respond to incoming data. It is also useful when transmitting text to many bulletin board systems.

The CWAIT command has two options: Delay and Echo. The DELAY X option instructs CROSSTALK to wait X thousandths of a second between characters. This option is most useful for introducing a slight inter-character delay to accommodate systems which can not take full-speed input.

The ECHO option tells CROSSTALK to wait for the last transmitted character to be echoed back from the host before transmitting the next character. Since the character must make a full "round trip" before the next character is sent, the effective transmission speed is cut in half. Use this option sparingly, only on systems which are very slow to respond to input. Note that this option can not be used when CROSSTALK is set to half duplex, since characters are not echoed back in half duplex operation.

10.5 **Expanding Tab Characters-The TABEX Command**

MS-DOS systems interpret the tab key to mean "move the cursor to the next column position which is a multiple of eight." Some

systems do not allow the use of tab characters in text files. If you are transmitting a text file containing tabs to a host system which does not support tabs, you will need to use the TABEX command.

) The TABEX command tells CROSSTALK that if a tab character is encountered in a text file, send the appropriate number of spaces instead. Setting TABEX to ON enables this feature, setting it OFF disables it.

If the system you are sending to does support tabs, you can save considerable transmission time by leaving TABEX OFF. When TABEX is on, each tab will be transmitted as eight spaces.

10.6 Converting Lower Case to Upper-The UCONLY Command

) Some older computer systems do not support lower case letters. If you have a text file containing lower case letters, and you need to send the file to a system which does not support lower case, the UCONLY command can help.

When UCONLY is ON, all lower case letters are converted to upper case before they are transmitted. Upper case letters and punctuation marks are not affected.

10.7 Expanding Blank Lines-The BLANKEX Command

) Some computer systems take a blank line to mean "I'm finished sending text now." If you are trying to send a file containing blank lines to a system which doesn't want to see any blank lines, use the BLANKEX command.

When BLANKEX is ON, any blank lines are converted to a one character line, consisting of a single space character. This is usually enough to get around the problem.

Text files created with EDLIN and similar editors contain a carriage return and a line feed at the end of each line. Many computer systems do not need the line feed character, and some systems may create an additional blank line from the line feed character.

When OUTFILTER is ON, no line feed characters will be transmitted. If a text file contains carriage returns and line feeds at the end of each line, only the carriage return will be sent.

Chapter 11

Answer Mode Operation

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CROSSTALK can operate in one of two major modes. These two modes are CALL and ANSWER. CALL mode is used for making calls, and ANSWER mode is used for answering calls. ()

Besides the obvious difference, there are numerous other differences between the two modes. First, and most importantly when you are in call mode, you know that YOU are going to be entering all of the commands. In answer mode, either end (the caller or the answerer) may enter commands to CROSSTALK, although the caller will usually be entering the commands.

To complicate matters just a little more, some commands respond differently depending on who entered the command. Some commands which have potentially harmful effects may not be entered at all by a remote caller.

Further, an unattended answer-mode system is "wide open" to abuse and malicious mischief. CROSSTALK has several built-in safeguards to protect you and your system from abuse. ()

This chapter will explain the operation of answer mode, the protection features, and will describe the commands which operate differently in answer mode.

11.1

How Answer Mode Works

To set CROSSTALK to answer mode, enter the command:

Command? **MODE ANSWER**

When you select answer mode, three things happen: First, the program switches to answer mode. When the program is in answer mode, and a GO command is issued, the program watches the modem, waiting for a call, rather than dialing a number as it does in CALL mode. ()

Second, selecting answer mode causes the program to select HALF duplex (local echo ON). This is done so that persons calling into your system can see themselves typing.

Third, selecting the answer mode also causes the APREFIX to send a command string to the modem which sets the number of rings the modem will count before answering the line. The command is used on a Hayes type modem as follows:

Command? **ATS0=5**

This command is especially useful when using CROSSTALK with the Hayes Smartmodem 1200b, since the 1200b will NOT answer the phone unless specifically told to do so.

When someone calls into an answer mode system, he may enter commands to CROSSTALK, just as you can enter commands from your end.

11.2

Password Protection

After CROSSTALK is set to answer mode, and the GO command is issued, the program waits for an incoming call. When an incoming call comes in, the program checks to see if a password is required. If an answer password has been set (with the PWord command), the caller is required to enter the proper password before being allowed access to the system.

If the caller does not provide the correct password after three tries, the program hangs up, and waits for another call. If PWord is blank, then the caller is not required to enter a password.

The first time the program asks for a password, it sends the message "Enter Password:," followed by a control-E. The control-E character will automatically request an "answerback" from another calling CROSSTALK or TRANSPORTER system. If the caller has his answerback set to the correct password for the system, he will automatically be logged in.

CROSSTALK has a feature which allows you to restrict the amount of access a caller has to your answer-mode system. The ACCEPT command is used to set this level of access. ()

The options to the ACcept command are:

Option	Action
Everything	Allows caller full access to system.
Nothing	Prohibit caller from writing to any files.
Appends	Allows caller to append captured data to an existing file, but not to create any new files.
Creates	Allows caller to append data to or create new files, but not to overwrite existing files.

Once a caller has entered the correct password, or if no password is required, the program prints the contents of the NAME command as a "greeting" message. ()

Use of this feature is entirely optional. If no name has been entered, no message will be sent.

Once a caller has called into a CROSSTALK system, he may enter commands to the answering system. When the caller types the COMMAND character (usually ^C), the answering CROSSTALK system sends the prompt: ()

Command?

When the caller sees the prompt, he may enter a command to CROSSTALK. Note that there are many commands (QUIT and ERASE to name two), which the caller is not allowed to enter. If the caller enters one of the "forbidden" commands, the program sends him a reminder message, saying that he can not enter that particular command from his end.

The COMMAND character is normally ^C. We recommend that you leave COMMAND set to ^C to maintain compatibility with other CROSSTALK and TRANSPORTER users.

If you wish, you can print your own message instead of the "Command?" prompt. Put your message in function key Shift-F4, and CROSSTALK will send your message instead of the "Command?" prompt. For example, if function key Shift-F4 is assigned the text "Hello.", the caller will see the prompt:

Hello.

) instead of the "Command?" prompt.

Chapter 12

File Transfers

This chapter describes CROSSTALK's "protocol" file transfer features, and explains how to transfer files to and from other CROSSTALK and TRANSPORTER systems, as well as transfers with other communications programs using the XMODEM protocol.

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CROSSTALK provides two methods of performing error checked ("protocol") file transfers. The first method is used when communicating between two CROSSTALK compatible systems, the second method is used when exchanging files with another communications program which uses the XMODEM protocol. It is important to remember that an error checked transfer can be done ONLY between two compatible systems. We'll discuss the CROSSTALK file transfer method first.

12.1

Transfers with Another CROSSTALK System

There are three commands directly related to file transfers. These commands are XMIT (transmit), RQUEST (request), and PMODE (set protocol mode). XMIT is used to send files from your system to another CROSSTALK system, and RQest is used to request files from another CROSSTALK system. PMODE is used to tell your CROSSTALK system what type of system you are talking to.

Protocol transfers are done "transparently." That is, when a transfer is being performed, you do not actually see the file on your screen. Instead, a transfer summary is displayed, which shows you what the program is doing.

When performing protocol transfers between two CROSSTALK systems, one of the systems must be in ANSWER mode, the other in CALL mode. It is important to remember that CROSSTALK assumes that an answer mode system is entirely unattended; that is, that no commands will be issued from the answer mode system. All transfer commands MUST be issued by the call mode system.

Before you begin a file transfer, your CROSSTALK system must know what type of system it is communicating with. CP/M files

are always multiples of 128 bytes in length, while MS-DOS files may be any length. Many newer MS-DOS programs make use of the file length information, and consider a file to be "corrupted" if the length of the file is longer than the program "thinks" the file should be.

If you are sending files to a CP/M system, set PMODE to 1. If you are transferring files between two MS-DOS or PC-DOS systems, set PMODE to 2. If you inadvertently leave PMODE set to 2 when transferring files with a CP/M version of CROSSTALK, the program will automatically select PMODE 1.

12.2 **Transmitting Files to Another CROSSTALK System**

The XMIT command is used to transmit files to another CROSSTALK or TRANSPORTER system. Transfers may be done on a single file, or on a logical group of files. For example, the command:

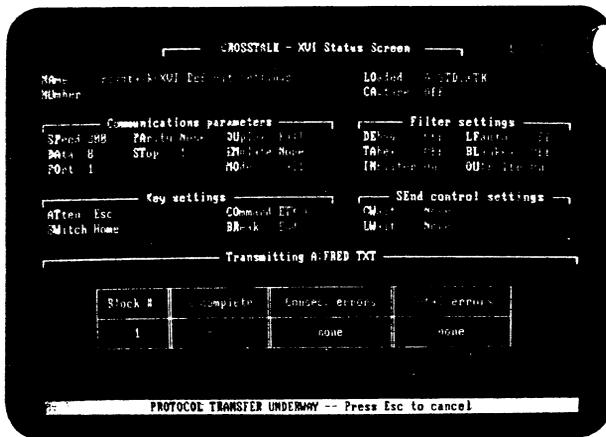
Command? **XMIT *.BAT**

will send all of the files with the type "BAT" from the calling system to the answering system.

As an example, let's say that you have called into an answermode CROSSTALK system, and that you have a file named FRED.TXT that you want to send to the other system. After placing your call, and establishing communications, press your ATTENTION key, and enter the command:

Command? **XMIT FRED.TXT**

The program will initiate the transfer, and then print a summary message showing the progress of the transfer. Like this:



After the transfer is complete, the program will tell you it is finished, and return to "terminal" mode. If the program can not complete the transfer, it will print an error message in the command line, and cancel the transfer.

If you wish to cancel a transfer at any time, you may do so by pressing the ATTENTION key. The transfer will be cancelled, and the incomplete file will be deleted from the answering system.

12.3 Requesting Files From Another CROSSTALK System

The RQUEST command is the opposite of the XMIT command. Use the RQUEST command to "ask for" files from an answering system. If, for example, you have called into another CROSSTALK system, and wish to get all of the BASIC programs from the other system, enter the command:

Command? **RQ *.BAS**

CROSSTALK will ask the other system to send it all of the files with the type ".BAS". If no such files exist on the answering CROSSTALK system, an error message will be printed. If any files exist, the program will begin the transfer. The transfer summary is displayed, just as in the XMIT command.

You may cancel a transfer at any time by pressing the ATTENTION key.

In the examples above, we did not specify a drive name. If no drive name is given, the program assumes that you want to send or receive to the default drive.

You may send and receive files to and from any drive on the system. CROSSTALK allows you to specify both a source and a destination drive name, much in the same way as the DOS COPY command. For example, the command:

Command? **XM B:FRED.TXT A:**

will cause the file FRED.TXT to be sent from drive B: on the sending system, and the file will be received on drive A: on the receiving system.

Similarly, the command

Command? **RQ B:FRED.BAS C:**

will cause the file FRED.BAS to be sent from drive B: on the sending system to drive C: on the requesting system.

12.5

Error Handling During Transfers

CROSSTALK automatically detects and corrects errors during protocol transfers. If a block of data is received incorrectly, the receiving system sends a message to the sending system, asking that the block of data be re-transmitted.

This process is done automatically. When a block of data is received incorrectly, the program shows an error in the transfer summary.

If you notice an unusually large number of consecutive errors during a transfer, you may wish to cancel the transfer. A transfer can be cancelled at any time, from either end of the transfer, by pressing the ATTENTION key.

A large number of errors is usually indicative of some type of hardware problem. When transferring files via modem, the most likely cause is a bad telephone connection. The best remedy is to place the call over and try again.

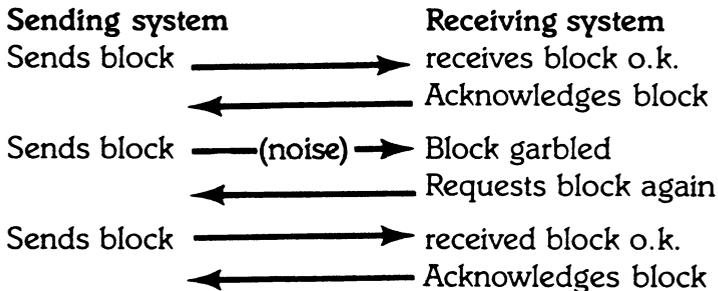
12.6

The BKSIZE Command

When transferring files, CROSSTALK sends data in groups called "blocks." Each time a block is sent, the program performs a mathematical check on the block, called a CRC check. If the CRC calculation does not match at both ends of the transfer, the program re-transmits the block again.

The larger the block of data is, the more time it takes to retransmit the block. If telephone lines were perfect, we wouldn't have to worry about CRC checks, block sizes, or protocol transfers. Unfortunately, the telephone network is far from perfect. Noise and "static" can create big problems when transferring files via telephone.

CROSSTALK defines a "block" as being 256 bytes, or ¼ Kilobytes of data. Every 256 bytes, the program asks the other end if it received the block correctly. The dialogue between the two systems looks like this:



This process is repeated until the entire file has been sent. The larger the block size, the more data will have to be re-transmitted each time an error is encountered.

CROSSTALK allows you to select the block size with the BKSIZE command. The block size may be set from 1 to 10, which corresponds to 256 to 2560 bytes per block.

) On an extremely quiet line, such as two computers wired together with no modems, increasing the block size will slightly increase the transmission speed. On a noisy phone line, decreasing the block size will increase the transmission speed.

The reason for this is that on a quiet line, you will never have to re-transmit any blocks. With a large block size, the program spends less time checking, since the checks are performed at longer intervals. With a small block size, the program spends a little more time checking, but has to re-transmit fewer characters in the event of an error.

) The default value for block size is 1. If most of your transfers will be performed over a modem, we suggest you leave the block size set at 1. If you are transmitting files over a cable to another computer, you may wish to use the large block size.

12.7

"Hard" Errors During Transfers

There are several types of errors which may be encountered during a transfer that CROSSTALK can do nothing about. We call these "hard" errors.

The hard errors are:

No disk in drive or physical disk error

Carrier lost during transfer

No space on disk for requested file

Other computer's disk is full

Requested file not found at other computer

) Other computer's operator cancelled transfer

When CROSSTALK encounters any of these errors during a transfer, the program will report the error on the status line, and cancel the transfer. Correct the problem, and try the transfer again.

Many communications programs use a file transfer method called "XMODEM" (also known as MODEM, MODEM7, or Christensen protocol), which allows dissimilar computer systems to exchange files, regardless of the type of hardware or communication software being used.

We have provided XMODEM capabilities so that CROSSTALK users may exchange files with systems which use the XMODEM protocol. XMODEM is not nearly as easy to use as CROSSTALK's own file transfer protocol, and the error checking method used by XMODEM is not as accurate as CROSSTALK's own, so we recommend that you use CROSSTALK's own file transfer mode whenever possible.

Since there is no "standard" implementation of XMODEM, it's a little difficult for us to describe exactly how to use XMODEM for file transfers. The wide variety of other communications programs which use XMODEM vary widely in their command structure. Most XMODEM bulletin board systems are "menu-driven", so it's usually a fairly simple matter to determine the correct procedure for beginning a transfer.

As far as CROSSTALK's `xmodem`-related commands are concerned, there are two commands to know. The `RXMODEM` command is used to tell CROSSTALK to receive an XMODEM file transfer, and the `XXMODEM` command is used to send a file with XMODEM. It is important to note that XMODEM allows transfer of only one file at a time.

The normal procedure for using XMODEM is to place your call to the system you are transferring files with, and then instruct the other system to either receive or send you a file. You then instruct CROSSTALK to receive or send a file. The file name need not be the same on both ends.

Please note that our customer service personnel can not answer questions regarding XMODEM file transfers, due to the wide variety of other programs which use XMODEM. If you are having problems with a XMODEM FILE TRANSFER try changing PMODE.

Chapter 13

Command & Script Files

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If you frequently call the same computer system, you may find it convenient to create a command file for that system.

Basically, a command file is a list of commands, stored in a disk file. CROSSTALK can load in and perform the commands contained in a command file just as if the commands were entered from the keyboard.

Using command files saves you from having to enter the phone number, name, modem speed, function key settings, and other information for a particular computer system. Instead of entering all of the information each time you call a particular system, you enter it once, and then save the information in a command file.

When you first run CROSSTALK, the program will search the disk for all the available command files, and then ask you to choose one. The program then loads in all of the settings for that particular command file, and begins dialing the number.

If you know ahead of time which command file you want to use, from your system prompt, type:

XTALK filename

This tells CROSSTALK that you want to load the file named in (filename) as the command file. The program will load in the file, and begin dialing immediately.

Command files may contain any CROSSTALK commands. They generally contain all of the information that CROSSTALK needs to establish communications with another computer system. In addition to the "essentials," command files also contain information on all of the function key settings.

Command files may also pass control to another type of special file called a script file. We'll explain script files and their function a little later.

A typical command file looks like this:

```
NAme          Big Mainframe
NUmber        9876543
ACcept        Everything
ANswerback    Off
APrefix       ATSt=5 |
ATten         Esc
BReak        End
SWitch        Home
CWait         None
LWait         None
DEbug         Off
DPrefix       ATDT
DSuffix       |
EMulate       TVI 920
EPath         CABINEDLIN.COM
Filter        -----+ + + + +-----
INfilter      On
LFauto        Off
MODE          Call
POrt          COM 1:
PWord         |
RDials        10
TIme          On
TUrnamd       :Enter
BKsize        1
CApture       On
COmmand       ETX (^C)
FLoW          ^S/^Q
DAta          8
DUplex        Full
OUtfilter     On
PArity        None
PRInter       Off
SPeed         1200
STop          1
TABex         Off
BLankex       Off
UConty        Off
FK 1 user id abc 123 |
FK 2 password ^A^B^C^D
FK 3 mail check |
FK 4 directory |
FK 5@CA/ |
FK 6 @PR/ |
FK 7 @TY |
FK 9
FK 10
GO Q45/45
```

Note that the last item in this command file is a GO command. This will cause CROSSTALK to begin dialing the phone when this file is loaded.

There are two different ways to create command files. The easiest way is to use CROSSTALK's SAVE command. To create a command file with SAVE, follow these steps:

1. Bring up CROSSTALK
2. Set the phone number with the NU command.
3. Set the location name with the NA command.
4. Set any desired function keys with the FK command.
5. Set the desired modem speed with the SP command.
6. Change any other settings you wish (terminal emulation type, parity, stop bits, etc.) with the appropriate commands.
7. Enter the command "SAVE filename", where filename is the name you wish to assign to this command file.
8. Your command file is now saved.

This procedure will create a command file much like the one in our example above. All of the commands and settings necessary to set CROSSTALK for this one particular system have been saved.

Command files are stored as ascii text, and may be created or altered with any text editor program, such as the EDLIN program which is included with DOS.

To create your own command file, start out by having CROSSTALK save a command file with the SAVE command, as above. After the file is saved, exit CROSSTALK, and bring up your text editor. Then use the text editor to change or add the necessary lines to the file.

Remember that any command may be part of a command file. By combining commands in a file, it is possible to set up an "automated" CROSSTALK session.

The following example shows a command file which will dial the Microstuf test center until it gets a connection, then request a file from the center, and send a file to the test center. After the file transfers have been completed, the program will hang up and dial another number.

Command Name	File Contents	Comments
Number	1-404-998-8048	Set the phone number
Speed	1200	Set 1200 baud
Parity	none	
Data	8	Set 8 bits, no parity
GO 45/45		Dial every 30 seconds
Sleep	5	Kill 5 seconds
Rquest	MESSAGE.TXT	Get this file
Xmit	MORE.TXT	Send this file
BYe		Hang up
Load	ANOTHER.TXT	And go do another file

Any combination of commands may be used in a command file. If any command is incomplete (such as a SPEED command with no baud rate), the program will ask you to enter the missing data before proceeding. Similarly, any error message which requires that you press ENTER will wait until the ENTER key is pressed on the keyboard before proceeding.

13.2 Changing CROSSTALK's Default Settings

All of CROSSTALK's default settings are stored in a file named STD.XTK. When you first run CROSSTALK, the program searches the disk for STD.XTK, and sets itself up accordingly.

The STD file is just like any other .XTK file with one exception: the last command in the STD file is a "LOAD" command. When CROSSTALK encounters this LOAD command with no file name, it presents you with a "menu" of available command files.

You may change any of CROSSTALK's default settings simply by entering or changing the appropriate command in STD.XTK. For example, if you want CROSSTALK to come up with the function keys set a certain way, you can change the FKeys commands in the STD.XTK file. The next time you bring up CROSSTALK, the function keys will be set as you want them.

A special script file, SETUP, is provided with your copy of CROSSTALK. You can run this script file by entering the command "DO SETUP". CROSSTALK will ask you a series of questions, and then save the new default settings in STD.XTK for you.

The STD.XTK file may also be edited with any text editor, such as the EDLIN editor supplied with DOS.

13.3

Script Files

CROSSTALK provides a means for users to write and run "programs" in CROSSTALK's own "language." These programs are called SCRIPT FILES, and they add a great deal of flexibility to CROSSTALK.

A properly written script file, like any good program, allows the user to accomplish an objective without having to consider either the program or the language used. Like programs written in conventional programming languages, a CROSSTALK script file may be as simple or as complex as you wish it to be.

Script files are very similar to command files. In fact, a script file may be included inside of a command file, or it may be called from a command file.

The major difference between the two types of files is that command files are normally used to provide parameters to tell CROSSTALK how to dial a particular computer system, while script files tell CROSSTALK what to do once it has made the connection.

Script files are performed by entering the DO command. As script files are similar to command files, the DO command is similar to the LOAD command. Use DO to perform a script file, and use LOAD to perform a command file.

Any CROSSTALK command may be included as part of a script file. In addition, there are several commands which are useful ONLY in script files. The remainder of this chapter will describe those commands, and show examples of typical script files.

) If you are proficient in BASIC, PASCAL, FORTRAN, or most any other high-level programming language, you should have no trouble learning the CROSSTALK command language. Please keep in mind that our customer service department can NOT help you write script files for any particular purpose, any more than Microsoft's customer service department can tell you how to write a BASIC program. Programming in any language is an acquired skill, and we can not give programming courses over the phone.

13.4

Organization of a Script File

) A script file is a disk file consisting of one or more CROSSTALK commands. Script file names must have the file type ".XTS". You can create a script file with any text editor program, such as the EDLIN program included with DOS. Multiple commands may be placed on the same line, as long as they are separated by a space, a colon, and another space. Commands in a script file are performed in the order they appear in the file.

13.5

How Script Files are Performed

When CROSSTALK first connects to another computer system, the program checks the current disk to see if a script file exists with the same name as the currently loaded command file.

) For example, if you use a command file named "BERT.XTK" to make a call to another computer, CROSSTALK will look for "BERT.XTS" as soon as the call is connected. If the .XTS file exists, CROSSTALK will automatically perform the commands in the script file.

You may also perform a script file by entering the command "DO BERT", where "BERT" is the name of the file you wish to perform. If you enter "DO" with no file name, CROSSTALK will display a menu of the available script files, and ask you to choose one.

The number of script files you may have is limited only by the amount of available disk space. Script files may pass control to other script files, so that commonly used commands need not be repeated in several different files.

13.6

Writing a Script File

Before you sit down to actually write a script file, it is a good idea to have in front of you a printed copy of what it is you want to do. For example, if you want to write a script file to call The Source, log in, and send some commands to The Source, you'll need to know exactly what questions The Source asks, how it expects you to answer them, and so on.

The easiest way to obtain a printed copy of such an exchange is to call the system first, and either capture the session to a disk file, or print it on your printer while you are on line.

After you know exactly what to do and when to do it, the task of writing a script file becomes much simpler.

13.7

Special Commands for Script Files

There are a number of CROSSTALK commands which are useful only in script files. Many of these commands have counterparts in the BASIC language. These commands are:

Command	Purpose
ABORT	Cancels operation of a script file.
ALARM	Sounds an alarm tone on the computer

Command	Purpose
ASK	Asks the user a question, and obtains an answer, much like BASIC's INPUT command.
CLEAR	Clears the current screen.
DO	Resumes a suspended script file.
IF	Logical operator, similar to the IF statement in BASIC and PASCAL.
JUMP	Causes CROSSTALK to begin performing commands in a script file at a label position. See LABEL.
LABEL	Marks the line containing the LABEL statement so that a JUMP command can locate it, akin to line numbers in BASIC, or to a label name in assembly language.
MESSAGE	Prints a message on the current screen, similar to BASIC's PRINT statement.
—(NOT)	Logical operator, similar to BASIC's NOT operator.
RWIND	Re-starts the script file from the beginning, usually used when an error is encountered.
SBREAK	Sends a BREAK to the remote computer. This command has exactly the same effect as pressing the BREAK key.
SCREEN	Allows you to switch to a particular screen (either the status or terminal screen) under script file control.
SKIP	Skips past a number of lines in a script file.
REPLY	Sends a single line of text to the modem
WAIT	Waits until a certain condition has been met.
WHEN	Tells CROSSTALK to perform an action upon receipt of a certain string of text.

Each of these commands will be explained fully in this section of the manual.

The ABORT command causes CROSSTALK to cancel the currently active script file. This command is normally used when an error condition has been detected, and you wish to cancel the remainder of the script file.

The ALARM command is used to sound an audible alert tone to let you know that CROSSTALK has done something. The command:

Command? **AL**

sounds the alarm tone. There are four different alarm tones available. You can select the tone you prefer by entering AL, followed by the number of the alarm tones you wish to use. For example, the command:

Command? **AL 3**

will select alarm tone number 3. The next time an "AL" command is issued, alarm tone number 3 will sound. You may also enter "AL 3 NOW" which will set the alarm tone to number 3, and sound the alarm.

The ASK command is used to print a message on the status line, and ask the user to enter a reply. The reply may either be a single character, or a string of data.

The difference between the two forms of the ask command is that the "single character" reply may be tested by the IF command, allowing your script file to make decisions based

on user input. The "string" reply may be assigned to a function key, allowing the string to be sent to the host computer, either by pressing the function key, or by using the REPLY command.

) To ask the user a question, and obtain a single key response, use the command:

ASK Press Enter to continue:

In this example, CROSSTALK will display the "Press Enter" message in the status line, and wait for the user to enter a key. The user's response to the prompt message may then be tested by the IF command (described later).

To ask the user a question, and obtain a string of data, use the command:

ASK @F1 (prompt message).

) In this case, CROSSTALK will print the message contained in (prompt message) on the command line. CROSSTALK will then accept a string of text from the user, and assign that string to function key F1. If the (prompt message) is omitted, CROSSTALK will print a question mark as a prompt. Similarly, you may use the form "ASK @A1" to ask for a string to be assigned to function key ALT-F1.

13.11

The CLEAR Command

The CLEAR command is used to clear the current screen. When issued from the status screen, the CLEAR command clears the "display window" on the lower half of the screen.

) When issued from the terminal screen, the CLEAR command clears the entire screen.

The **DO** command tells **CROSSTALK** to perform the commands contained in a "script" file. Script files are files containing commands for **CROSSTALK** to perform.

There are four forms of the **DO** command. The table below shows how each works.

Command	Action
DO —	Disables the "auto-linking" to a script file after a connection is established.
DO	When no other script file is active, this command will display a menu of the available script files, and then ask you to choose one. The chosen file will then be performed.
DO	If a script file has been suspended by a WAIT MANUAL command, entering " DO " will resume the script file processing.
DO BERT	Performs the commands contained in the script file " BERTXTS ".

You may create a script file with any text editor, such as the **EDLIN** program which is included with **DOS**. Script files must have the file name extension "**XTS**". The script files may contain any list of commands you wish for **CROSSTALK** to do. There are two commands which are especially useful in script files. These are the "**REply**" and **WAit**" commands.

The **LABEL** command is used to "name" a line in a script file. It performs no operation in and of itself, but it allows another command to refer to a certain point in a script file by name.

The command:

LABEL BERT

-) assigns the name "BERT" to that particular line in the script file. Note that a label name **MUST** start with a letter.

13.14

The IF Command

The IF command is very important, since it is the only "decision making" command. Earlier, we showed how the ASK command can be used to print a message and get a response from the user. The IF command is used to make decisions, based on the result of an ASK command. As an example, these two lines ask the user if he wishes to clear the screen, and then clears the screen if he answers "Y".

-)

```
ASK Do you wish to clear the screen?  
IF Y clear
```

You may provide a series of letters to the IF command, as long as the letters are consecutive. No spaces or commas are allowed between the letters. For example, the commands:

```
ASK Do you wish to leave CROSSTALK?  
IF XEY quit
```

will cause CROSSTALK to perform a QUIT command if the user replies by pressing the X, E, or Y keys.

There are two characters which have special meaning when used in conjunction with the IF command.

-) The minus sign (-) is used to logically negate the arguments supplied to the IF command — that is, it reverses the conditions specified in the IF command.

For example, the commands:

```
ASK Enter A, B, or C:  
If -ABC jump Here  
(some commands)  
Label HERE
```

will ask the user to enter A, B, or C, and skip to the label HERE if any other key is pressed. Notice that we used the LABEL command in this example, to tell the JUMP command where to go. The JUMP and LABEL commands will be explained fully later.

The dollar sign (\$) is used to mean ONLINE. If you are connected to another system, the "IF \$" condition will be TRUE. For example, the command:

```
IF $ ALARM
```

will sound the alarm ONLY if you are connected to another computer.

13.15

The JUMP Command

The JUMP command causes CROSSTALK to go to a particular point in a script file, and begin from that point. In the example above, we used a JUMP command to return to the label HERE. A JUMP command must be followed by a label name.

The at-sign (@) has a special meaning when used with the JUMP command. The @ symbol may be used as an "ON-GOTO" condition. The @ tells CROSSTALK "replace the @ with the answer you got from the ASK command". For example, the commands:

LABEL askuser
ASK Enter A, B, or C:
IF -ABC rwind
JUMP DO-@

LABEL DO-A
(some commands)

LABEL DO-B
(some more commands)

LABEL DO-C
(still more commands)

will cause CROSSTALK to jump to a certain point in a script file, based on a user's response to a question.

13.16

The SKIP Command

The SKIP command is used to skip certain lines in a script file. You can NOT skip past the end of the file, nor can you skip a negative number of lines. The statement:

SKIP 10

will cause CROSSTALK to skip over the next ten lines in the script file.

13.17

The MESSAGE Command

This command is used to print a message for the user to read. The message may appear on the terminal screen, or in the status screen display window. You may prefer the MESSAGE command with a SCREEN command to make sure that the message is printed on the screen you want.

A MESSAGE command must be followed by a line containing a single period to mark the end of the message.

For example, the following commands will switch to the status screen, clear the window, and print a message in the window:

```
SCREEN S  
CLEAR  
MESSAGE
```

This message will appear in the window on the status screen.
(note that this period marks the end of the message)

13.18

The RWIND Command

The RWind command "rewinds" the current script file to the beginning, and starts over from the top. It is faster to use RWind than it is to use a JUMP to a label at the start of a file.

13.19

The SBREAK Command

The SBreak command is used to send a BREAK signal under control of a script file. It has the same effect as pressing the BREAK key.

13.20

The REPLY Command

The REPLY command is used to send a string of text, or the contents of a function key to the host computer system. It is usually used in conjunction with the WAIT command to set up a series of events (or a "script") which tells CROSSTALK how to carry on a "conversation" with another computer system.

Since the REPLY command is intended to be part of a script file, it would not normally be entered as a command from the command line.

To send a string of text from a script file, use the command:

REPLY "STRING OF TEXT"

To send the contents of a function key from a script file, use the command:

REPLY @F7

In this case, the at-sign (@) tells CROSSTALK to send the contents of function key F7 to the host system. You may send any of the function keys.

The next section shows how WAIT and REPLY can be used in a script file to automatically enter a log-in and password to a computer system.

13.21

The WAIT Command

The WAIT command tells CROSSTALK to wait until a certain condition has been met. These conditions are given as arguments to the WAIT command. The conditions are:

Condition	Effect
Echo	Wait for a carriage return, then do the next line in the script file.
Quiet X	Wait until the line is "quiet" (i.e., no characters received) for X tenths of a second, then do the next line in the script file.
Delay X	Wait for a period of X tenths of a second, then do the next line.
Char 'x'	Wait until the character "x" is received from the communications line, then send the next line.
For 'x'	Same as "Wait char", above.
Prompt X	Wait for X characters from the communications line, then do the next line in the file.

Condition	Effect
String 'text'	Wait until the string 'text' is received from the communications line. Note that case is ignored.
Until HH:MM	Wait until the time described by HH:MM, then do the next line in the file. Note that time must be expressed in 24 hour (military-style) format.
Manual	Suspend script processing until a "DO" command is issued.

13.22

The WHEN Command

WHEN is a special command that allows CROSSTALK to do a command or series of commands WHENever a particular word or phrase is sent to you by a remote computer, thus helping to automate your terminal session even more. WHEN is especially useful in script files, but can also be entered from the keyboard as a regular command.

The format of the WHEN command is as follows:

WHen "text" command-line

The quotes around the text are required. Once this command is given, CROSSTALK will perform the command or commands specified whenever "text" is received.

For example, The Source often sends "—More—" when more output is forthcoming. You could tell CROSSTALK to always send a carriage return when that happened by giving the command:

WHen "—More—" reply!

Remember that the REPLY command sends characters to the modem as if you had typed them, and that the vertical bar represents a carriage return (corresponding to the ENTER key on your keyboard).

As another example, let's say that you were working with a mainframe that would send "Done" when your job was done. You could give the command:

```
WHEN "Done" alarm
```

and whenever CROSSTALK received the word "Done", the alarm would sound, alerting you to the fact that your job had been completed.

You can only have one WHEN condition active at a time. If you give a new WHEN command while another is active, the new condition supercedes the old one, and the old one is lost. You may deactivate a WHEN condition without specifying a new one by using "WHEN—"

Combining the WHEN command with the other CROSSTALK script file control facilities can give you great versatility in automating your communications. For example, the sequence:

```
when "Password:" reply BERT | : do  
wait manual
```

will cause CROSSTALK to wait for the word "Password:" to appear from the remote system, reply with the word "BERT", and then proceed with the script file processing. This happens as follows:

1. The WHEN command sets the condition to watch for, and script file processing continues.
2. CROSSTALK finds the 'wait manual' command, and pauses in its execution of commands from the file.
3. Eventually, the remote system asks for "Password:" and CROSSTALK activates the WHEN condition.
4. The commands specified on the WHEN condition first sends "BERT" to the remote system (the REPLY command), and reactivates the script file (the DO command).

Keep the following conditions in mind when using **WHEN**:

- * The **WHEN** condition **STAYS ACTIVE** until explicitly deactivated. If you want something to happen only the **FIRST TIME** a string is received, remember to put a **WHEN—** at the end of the **WHEN** command line. For example:

```
when "System:" reply SYS10! : when—! do
```

- * **CROSSTALK** ignores case and all blanks when checking for a **WHEN** condition. Therefore,

```
when "—More—" reply!
```

works just the same as

```
when "—MORE—" reply!
```

or

```
when "—more—" reply!
```

- * As we just mentioned, **CROSSTALK** is intelligent enough to account for miscellaneous blanks and changes in letter case while checking for **WHEN** conditions. However, it **CANNOT** be expected to act properly if a noisy communications line causes garbage to appear at random. Therefore, we do not recommend that you depend on **WHEN** (or other modem-dependent script file facilities like **WAIT**) in unattended operations when there is a likelihood of noise on the line. We cannot be held responsible for data lost or connect expenses incurred as a result of an unsuccessful script file.
- * If a **WHEN** condition occurs, and a script file containing a **WAIT** statement is waiting for a particular word or character, the **WHEN** condition prevails. After the **WHEN** condition has been met, and the **WHEN** commands executed, the program will resume the script file at the **NEXT** line after the **WAIT** command.

A properly written script file can add a great deal of flexibility to your CROSSTALK system. You can create script files to do any number of things. For example, if you frequently call another CROSSTALK system to exchange a group of files with the other system, you can place the XMIT and RQUEST in a script file.

A more common use of script files is to call into a timesharing system, and automatically enter an account number and password to the host system.

Script files must have the file type ".XTS". The following example shows a combination of a command file and a script file which will call another computer system, log in, enter a password, and send some commands to the other computer system. Note that any line in a command file which begins with a semicolon is assumed to be a comment, and is not processed as a command.

File EXAMPLE.XTK (command file)

NAme	Example command file
NUmber	1-404-998-8048
SPeed	1200
DAta	8
PArity	None
MOde	Call
EMulate	IBM 3101

.

.

.

(Additional commands)

.

.

GO

(dials number)

(after connecting, CROSSTALK searches the disk for EXAMPLE.XTS. If the file exists, CROSSTALK executes the commands in the script file.)

File EXAMPLE.XTS (script file)

```
; Wait until the line has been "quiet" for one second  
Wait quiet 10  
; Send LOGIN command to host computer  
Reply LOGIN!  
; Wait for "Enter account number:" prompt from host  
Wait char ":"  
; Reply with our account number  
Reply ABC 123!  
; Wait for "password?" prompt  
Wait char "?"  
; Reply with our password  
Reply ^A^B^C^D!  
; Wait for system's " <" prompt  
Wait char ">"  
; Ask for our mail, and capture it to memory  
Reply MAIL READ!  
; When we get "—more—", send a carriage return  
When "—more—" reply!  
Capture ON  
; End of this script.
```

Each line of this particular script file has a comment before it. The comments are entirely optional, and are there only to aid your understanding of what the script file is doing. Note that the final line in the script file is "Capture ON". You may include commands in a script file if you wish.

In this example, we showed the command and script files as two separate files, but you can just as well add the script commands to the end of the command file.

In most cases, you'll probably want to have the chores of entering your log-in and password done as part of a script file, rather than as part of a command file. In some cases, you may want to have several different script files for the same system.

For example, if you use The Source frequently, you might want to create one script file to read your mail, another to read the POST messages, another to check your favorite stock reports, and another to sign you off.

You can create as many script files as you wish. The only limit is your imagination and the amount of storage available on your disks. If you have several script files, you may enter the command "DO" to have CROSSTALK show you a menu of all the available script files.

13.24 Example Script Files Included With CROSSTALK

Your CROSSTALK distribution disk contains several script files. These files are provided as examples, and may be changed to suit your own needs.

Two files, SETUP and NEWUSER, are provided. SETUP allows you to change CROSSTALK's default parameter settings through a series of questions and answers. NEWUSER guides a new user through the process of making a call, again through a series of questions and answers.

While these script files are provided as examples, they are entirely functional script files. Both of these files illustrate how a script file may be used to provide a customized "front end" to CROSSTALK.

Chapter 14

Command Summary

(In alphabetical order)

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This section of the manual contains an alphabetical listing of all of CROSSTALK's commands. Each command is listed with a full explanation of what each command does, and what the possible options for each command are. The first line of each description indicates how the command may be used; either as a LOCAL command (from a call mode system), as a REMOTE command (on an answer mode system), as either REMOTE or LOCAL, or in a SCRIPT file only.

14.1**The ABORT Command**

SCRIPT

The ABort command is used to cancel execution of a script file. It is normally used when an error has been detected. See section 13.8.

14.2**The ACCEPT Command**

The ACcept command allows you to set the type of access a caller has when calling into an answering CROSSTALK system. By setting the access level, you can protect your system from unauthorized tampering.

The options to the ACcept command are:

Option	Action
Nothing	Prohibit caller from writing to any files
Appends	Allows caller to append captured data to an existing file, but not to create any new files.
Creates	Allows caller to append data to or create new files, but not to overwrite existing files
Everything	Allows caller full access to system

SCRIPT

) The ALarm command is used to sound one of several alarm tones on the computer's speaker. This command may be used to alert the operator to the fact that a script file has been performed. See section 13.9 for full information.

LOCAL

) The ANswerback command tells CROSSTALK whether or not to respond to a received ^E character. Many computer networks utilize this feature as a means of identifying a caller. Answering CROSSTALK and TRANSPORTER systems utilize the feature to request your password. If ANswerback is ON, a received ^E will cause the contents of your F4 key (see FK command) to be sent. If ANswerback is OFF, the ^E will be ignored.

LOCAL

) The APREFIX command is used to set the number of rings the modem will count before answering the line. The command is used on a Hayes type modem as follows:

$$ATS0=5!$$

SCRIPT

ASk is used to prompt the operator for information. It is normally used in script files, in conjunction with the MESSAGE command. See section 13.10 for examples.

LOCAL

The ATTENTION command selects the key to be used for the "ATTENTION" key. The attention key is the key used to display the "Command?" prompt when you are in terminal mode. Note that this key can not be sent to the remote computer, since typing it causes the program to immediately enter the command mode. The default key used for attention is the ESCAPE key. If the system you are calling requires you to send an ESCAPE, you will have to select another key for the attention key.

There are several different ways to set the ATTENTION key. The chart below shows each of the possible methods.

Command	Effect
AT	CROSSTALK will ask you to press the key to be used for the ATTENTION key. You may NOT select the numbers 0-9 or the letters A-Z as the attention key.
AT 1b	Sets the attention key to the key with a hex value of 1b (in this case, the ESCAPE Key).
AT EOT	Sets the attention key to the key with the ascii mnemonic "EOT", which is the ^D key.

AT PgDn (Sets the attention key to the PgDn key on the IBM Personal Computer keyboard.

Note that CROSSTALK will not allow you to set the ATTENTION and SWITCH keys to the same key setting.

14.8

The BKSIZe Command

LOCAL/REMOTE

The BKSIZe command sets the size of the data block (in 256 byte increments) sent during protocol transfers. It is normally set to 1. If you are "direct connecting" two computers together without modems, you may wish to select a larger block size (up to 10). Using a larger block size marginally speeds up protocol transfers. We recommend the default setting of 1 when transferring files via modems.

14.9

The BLANKEX Command

LOCAL/REMOTE

The BLANKEX command tells CROSSTALK how to handle "blank" lines when sending files to another computer with the SEnd command. If BLANKEX is ON, CROSSTALK will convert blank lines into lines consisting of one space. This may be useful when sending prepared text containing empty lines into a host computer system which assumes a blank line to mean "end of text".

14.10

The BREAK Command

LOCAL

The BREAK command is used to select the key to be used for sending a BREAK. The BREAK key is normally assigned to the END key, but may be changed if desired.

There are several different ways to set the BREAK key. The chart below shows each of the possible methods.

Command	Notes
BR	CROSSTALK will ask you to press the key to be used for the BREAK key. You may NOT select the numbers 0-9 or the letters A-Z as the BREAK key.
BR 02	Sets the BREAK key to the key with a hex value of 02 (in this case, the ^B key).
BR EOT	Sets the BREAK key to the key with the ascii mnemonic "EOT", which is the ^D key.
BR PgDn	Sets the BREAK key to the PgDn key on the IBM Personal Computer keyboard.

14.11

The BYE Command

LOCAL/REMOTE

The BYE command hangs up the phone line, and disconnects the current call. Use this command when you wish to hang up and make another call without existing CROSSTALK.

14.12

The CAPTURE Command

LOCAL/REMOTE

The CAPTURE command has two main modes: Capture-to-disk, and capture-to-memory. To capture directly to disk, enter "CA (filename)". If the file already exists, CROSSTALK will ask if you wish to over-write the file, or append the new data to the end of the old file. The command "CA —" is used to end capture-to-disk, and closes the capture file.

To capture data to memory, enter "CA +". Capture-to-disk automatically stores the captured data to the specified disk file, but capture-to-memory requires that you use the WRITE command to save the data to a disk file before exiting CROSSTALK. While capturing data, the command "CA /" will toggle capture on and off, allowing you to selectively save incoming data. The command "CA —" turns capture OFF.

If you wish to capture some data which is already on your screen, and capture is OFF, you may use the "RETRO-CAPTURE" feature. Enter "CA <xx," where xx is the number of lines you wish to "grab" off the screen. CROSSTALK will retroactively capture the data, add it to the capture buffer, and leave CAPTURE ON. RETRO-CAPTURE may only be used when CAPTURE is OFF.

14.13

The CDIR Command

LOCAL/REMOTE

(DOS 2.0 ONLY)

The CDIR command allows you to switch disk directories. To change directories, enter the command:

Command? CD name

and CROSSTALK will change the directory to the name given. The command "CD" will show the name of the current directory.

SCRIPT

The CLEAR command is used to clear either the terminal screen, or the display window on the status screen. Although it is normally used in script files, the CLEAR command may also be entered anytime you wish to clear the screen. See section 13.11 for full information.

LOCAL

The COMMAND command sets the COMMAND key. The COMMAND character is the key a caller would type if he had called into your system and wanted to enter commands to CROSSTALK. We recommend that you leave this key set to the default setting of ^C.

There are several different ways to set the COMMAND key. The chart below shows each of the possible methods.

Command	Notes
CO	CROSSTALK will ask you to press the key to be used for the COMMAND key. You may NOT select the numbers 0-9 or the letters A-Z as the command key.
CO 03	Sets the COMMAND key to the key with a hex value of 03 (in this case, the ^C key).
CO EOT	Sets the COMMAND key to the key with the ascii mnemonic "EOT", which is the ^D key.

LOCAL/REMOTE

The CStat command has two functions. The command "CStat" alone displays the status of the capture buffer — how many lines of text and how many characters have been captured, how much space is left for capturing additional data, and how much space is left on the current disk.

The command "CS fred" will search the capture buffer for all occurrences of the text "fred". If the word "fred" is located in the capture buffer, the program will display the contents of the capture buffer surrounding the located word. After displaying the word, the program will offer to continue searching through the buffer.

Note that the CS command may only be used when capture-to-memory is active.

LOCAL

The CWait command tells CROSSTALK how to wait between characters when transmitting files with the SEND command. Use this command when you are sending text to a computer system which can not accept text at full speed.

The CWAIT command has several options. The chart below illustrates the effect of each:

Option	Effect
NONE	Do not wait at all between characters.
Echo	Wait for each character to be echoed by the host before sending the next character.
Delay XX	Delay xx tenths of seconds, then send the next character.

Note that CWAIT can be used in combination with WAIT to allow you to transmit text to virtually any dial-up computer system.

14.18**The DATA Command**

LOCAL/REMOTE

The DATA command sets the number of data bits used by CROSSTALK. The default value is 8. CROSSTALK automatically switches to 8 bits whenever a protocol transfer is performed, even if 7 bits had previously been selected. Most dial-up computer systems require 7 data bits.

14.19**The DEBUG Command**

LOCAL

The DEBUG command allows you to select one of three "debug" modes. The debug modes allow you to display incoming control-characters graphically on your screen. This is often useful when attempting to identify non-printing control characters transmitted by some dial-up computer systems.

The chart below shows how each of the debug modes operate:

Option	Effect
NONE	Incoming control characters are not altered.
HEX	All incoming characters are shown as hex numbers. For example, an incoming ^Z will be shown as [1A].
ASCII	Incoming control-characters are shown by their ASCII mnemonics. For example, an incoming ^Z will be shown as [SUB].
CHAR	Incoming control-characters are shown in the form ^X.

LOCAL/REMOTE

The Dir command is used to view the disk directory, much like the DOS "DIR" command. Like the DOS DIR command, you may provide an optional file name, and the program will display only those files given in the file name. For example, the command "DIR .ASM" will show only the .ASM files.

There are two options to the DIR command which are not found in the DOS DIR command. These are the /S and /T options. The command "DIR /S" will show the size of each file, and "DIR /T" will show the amount of time required to send each file, at the current speed.

LOCAL/REMOTE

The D NAMES command is used to reserve memory space for sorting directory entries. If you have more than 200 files on your disk, CROSSTALK will not be able to sort the directory entries unless you have reserved sufficient space for sorting.

To reserve space for 300 names, enter the command:

Command? D NAMES 300

Note that the D NAMES command may not be issued when capture is ON.

LOCAL

The DO command is used to begin or continue execution of a script file. The command "DO" by itself will display a menu of available script files. The command "DO (filename)" will cause the script file named "filename.xts" to be performed. See section 13.12 for further information.

LOCAL

The DPREFIX command tells CROSSTALK how to dial your modem. When you instruct CROSSTALK to dial, the program sends the following data to the modem:

DPREFIX string | NUMBER string | DSUFFIX string

By changing the DPREFIX string, CROSSTALK can dial a number of different types of auto-dial modems. There are several characters which have special meaning when placed in a DPREFIX string. These are:

Character	Effect
	Places a carriage return (RETURN key) in the string.
~	Causes CROSSTALK to delay one second when dialing.
^	The character following the ^ character is sent as a control character. For example, "^T" would place the ^T character in the dial prefix.

LOCAL

The DRive command has two functions. Entering "DRive" alone will show you the amount of space remaining on all of the drives in your system. Entering "DR" followed by a drive name ("DR B:") will change the "default" drive to the specified drive.

LOCAL

The DSUFFIX command sets the dialing suffix string. (see explanation of the DPREFIX command). The same special characters apply to DSUFFIX as apply to DPREFIX.

LOCAL/REMOTE

The DUplex command sets duplex to full (local echo OFF) or half (local echo ON). Most dial-up computer systems require that your system be set for FULL duplex.

Note that when you select ANSWER mode, CROSSTALK automatically selects HALF duplex. When you select CALL mode, the program automatically selects FULL duplex. See the glossary for an explanation of "duplex".

LOCAL

(This feature available under DOS 2.0 or later only)

The EDIT command allows you to run a text editor program from within CROSSTALK. When you use the EDIT command, CROSSTALK stays in your computer's memory, and continues to receive any incoming data. After you exit from your text editor, you will automatically return to CROSSTALK.

To run your text editor from CROSSTALK, enter the command:

EDIT (file name)

CROSSTALK will load and run your editor program, using the file name given.

Before you can use the EDIT command, you have to tell CROSSTALK what the name of your editor program is, and where to find it.

LOCAL

The EMulate command sets the type of terminal CROSSTALK will emulate. This is important to you only if the system you are calling utilizes cursor positioning and clear screen codes for a particular type of terminal. The terminals CROSSTALK can emulate are: Televideo 910/920, IBM 3101, ADDS Viewpoint, and the DEC VT-100. To select an emulation mode, enter the command "EM x", where x is the first letter of the terminal you wish to emulate.

Some emulation modes alter the use of several of the keys on the keyboard. The chart below shows which keys are changed in emulation mode:

Mode	Notes
DEC VT-100	Keypad keys are assigned the same values as the keys in the same location on the VT-100 terminal. Function keys F1 through F4 are not programmable, and send the same codes as the function keys on a VT-100 terminal. ALT-9, 0, -, and = send the VT-100 codes for UP, DOWN, LEFT, and RIGHT arrows. The SWITCH key is always shift-home when in VT-100 mode.
IBM 3101	Function keys F1 through F8 are not programmable; they generate the same codes as F1 through F8 on the IBM 3101 terminal. The HOME key sends the 3101's HOME codes, and SWITCH is automatically assigned to shift-home. The remainder of the keypad keys (up, down, left, right) send the equivalent 3101 codes.

14.29

The EPATH Command

LOCAL

Before you can use the EDIT command, you have to tell CROSSTALK what the name of your editor program is, and where to find it.

The EPATH command is used to tell CROSSTALK where to find your text editor program. For example, if you wish to use the EDLIN editor supplied with DOS, and EDLIN.COM is in a subdirectory called "bin" on drive c:, then you would enter the command:

```
EPATH C:\BIN\EDLIN.COM
```

We suggest that you set EPATH once, then save a new "standard settings" file, so that you won't have to re-enter the editor name each time you run CROSSTALK.

LOCAL/REMOTE (limited)

The ERase command has two functions: The command "ER" alone will erase the contents of the capture buffer. The command "ER FILE.NAM" will erase the file "FILE.NAM". You are always asked to confirm an erase before the operation actually takes place. The command "ER*.*" will allow you to selectively erase any or all files on a disk.

Note that an answer-mode caller may only use the ERASE command to erase the contents of the capture buffer. He may NOT erase files from the disk.

LOCAL

The Filter command is used to display and change the table of allowable control characters. Enter the command "FILTER", and CROSSTALK will display the table of all the possible control characters.

A "NO" next to a character means that the character is discarded by the INFILTER command, and an "ok" means that the character is passed by INFILTER. After you enter the FILTER command, CROSSTALK will ask you to press the letter of the control character you wish to change, or press the ATTENTION key to leave the filter table as it is.

LOCAL

The FKeys command is used to set and display the contents of the programmable function keys. The command "FK" will show the settings of the "normal" function keys, "FK A" will show the contents of the "Alt" function keys. The other two sets of keys are "Shift" and "Control".

To set a function key, enter "FK n string" (or "FK An string" for alt-keys), where n is the number of the key to be set, and "string" is the string of text assigned to that key. Several characters have special meaning when used in function keys.

) The vertical bar | places a carriage return in the string. The tilde (~) causes a two second delay. Any key which begins with an at-sign (@) will be taken as a command to CROSSTALK.

For example, the command "FK C1 @PR/" will set control-F1 to "@PR/". When the Control-F1 key is pressed, CROSSTALK will toggle the printer on or off.

14.33

The FLOW Command

LOCAL

) The FLOW command allows you to set the start stop characters required by the host computer you are communicating with. It is used to tell CROSSTALK how to control character flow with the host computer. See section 7.8 for examples.

14.34

The GO Command

LOCAL

) The function of the GO command depends on which mode the program is in. In CALL mode, the GO command tells CROSSTALK to dial a number and establish a connection. You may instruct the program to re-dial automatically if a connection is not established on the first try. The command "GO R 30" would tell CROSSTALK to re-dial every 30 seconds until a connection is established.

) The Command "GO LOCAL" tells CROSSTALK that there is no modem connected to the system. Use this option when using CROSSTALK to transfer files between two computers "hard-wired" together. When the local option is used, the carrier

detect signal on the RS-232 interface is ignored, and the "online" timer in the status line is replaced by the word "local". In ANSWER mode, the GO command tells CROSSTALK to begin waiting for incoming calls.

14.35**The HELP Command**

LOCAL/REMOTE

The HELP command provides help on all of CROSSTALK's commands. Entering "HElp" with no option displays a list of all of CROSSTALK's commands. If you need help with a command, type "HELP XX", where "XX" is the command you need help with. If CROSSTALK asks you a question you don't understand, enter a "?", and the help for that command will be displayed.

14.36**The IF Command**

SCRIPT

The IF command is used in script files to make a decision based on the results of an ASk command. It allows "branching" to different locations in a script file, based on the user's response to a question. See section 13.14 for more details.

14.37**The INFILTER Command**

LOCAL

The INfilter command tells CROSSTALK to discard incoming control characters when in terminal mode. Some host computer systems may send control-characters which are meaningless to your computer. Turning INfilter ON will discard these characters. If you see extraneous "junk" characters on

the terminal screen, try turning INfilter ON. INfilter also "strips" the top bit off of 8-bit characters. With INFILTER OFF, these characters may appear as "graphics" characters. Turning INFILTER ON will display these characters correctly.

14.38**The JUMP Command**

SCRIPT

The JUMP command is used to branch control to a particular location in a script file. See section 13.15 for more information.

14.39**The LABEL Command**

SCRIPT

The LABEL command is used to assign a label name to a particular spot in a script file, so that it may be referred to by the JUMP command. See section 13.13 for more information.

14.40**The LFAUTO Command**

LOCAL

When LFauto is on, CROSSTALK will print a line feed on the screen after each received carriage return. This is useful when communicating with systems which do not send line feeds. Conversely, when LFAUTO is ON, CROSSTALK will print a carriage return each time a line feed is received. This is useful when communicating with systems which send line feeds without carriage returns.

LOCAL/REMOTE

The LIST command is used to display CROSSTALK's parameter settings.

The operation of the List command depends on who issued the command. If "LI" is entered as a command from the status screen, several infrequently-used parameters are shown in the status screen "window". If a person calling into an answer-mode CROSSTALK system issues the LIST command, the program displays the full listing of all the parameters, in much the same format as it is displayed on the status screen.

LOCAL

The LOad command is used to load CROSSTALK command files. Command files are files containing commands for CROSSTALK to perform. The command "LO" will display all of the available command files, and allow you to choose one to load. The command "LO FRED" will load in "FRED .XTK", and perform all of the commands contained in that file.

LOCAL

The LWait command tells CROSSTALK how to wait between lines when transmitting text files with the SEND command. There are several options to the LWAIT command. The table below shows how each option works:

Option	Effect
NONE	Each line is sent with no waiting.
Prompt X	Send a line of text, wait for a prompt of X characters, then send the next line.

Option	Effect
Char "X"	Send a line of text, wait until the character "X" is received, then send the next line.
Delay X	Wait X tenths of seconds between lines.
Manual	Prompts the user to press the space bar between each line.
Echo	Wait until a carriage return is echoed from the host system.
Learn	Send the first line of text, count incoming characters, wait until the user presses the space bar, then send each successive line with a wait for a prompt of "count" characters.

14.44

The MESSAGE Command

SCRIPT

The MESSAGE command is used in script files to display a message on either the status or terminal screen. See section 13.17 for detailed information.

14.45

The MODE Command

LOCAL

The MODE command tells your CROSSTALK program whether to Make or Answer calls. If you wish to MAKE a call, select "CALL" mode. To ANSWER calls, use "ANSWER" mode. CROSSTALK automatically selects HALF Duplex (see DUPLEX command) when the answer mode is selected, and selects FULL duplex when call mode is selected.

LOCAL

The NA command is used to set the name of a called location. Use of this command is optional. If a NAME has been given to CROSSTALK, the name will be sent as a "greeting" message whenever a remote terminal calls into CROSSTALK in the answer mode.

LOCAL

This command is used internally between two CROSSTALK systems. It is sent from an answer system to a call system at the end of a file transfer, to tell the calling system that there are no more files to be transmitted.

This command is not normally entered as a command by the user.

LOCAL

The NUmber command sets the phone number to be dialed. The number may be up to 40 characters long.

LOCAL

The OUtfilter command instructs CROSSTALK to screen out line feeds when sending text files with the SEnd command. If OUtfilter is ON, line feed characters are discarded.

LOCAL/REMOTE

The PARITY command is used to set the parity bit to the appropriate value. Some systems require that parity be set correctly, other systems ignore parity entirely. The possible settings for the PARITY command are None, Even, and Odd.

LOCAL

The PICTURE command allows you to take a "picture" of the screen, and save the picture into a disk file of your choice. For example, the command:

Command? PICTURE BERT

) will save an image of the screen in the file BERT. If BERT already exists, the program will ask if you wish to erase the old file, or add the new picture to the end of the file.

This feature is most useful when you need to make an absolute copy of the screen. All of the data on the screen is saved in the file exactly as it appears on the screen.

Note that you may use the PICTURE command from either the terminal or status screen, but you may not use PICTURE when CAPTURE is ON.

LOCAL/REMOTE

The PMode command tells your CROSSTALK system what type of system it is communicating with. It is only necessary to set PMode when you are doing error-checked file transfers with another CROSSTALK system. If you are exchanging files with a CP/M system, set PMode to 1, otherwise set PMode to 2.

LOCAL

The Port command tells CROSSTALK which of the computer's communications ports to use. Note that on some computers, it may be necessary to re-set the baud rate after switching ports.

The number of ports available depend on how many ports are installed in your computer. The ports are usually numbered 1 and 2, although CROSSTALK will also accept A and B as port numbers.

LOCAL/REMOTE

The Printer command tells CROSSTALK to echo all data displayed on the terminal screen to the printer. Turning Printer ON does not turn the terminal video display off. The command "PR /" will toggle the printer to the opposite state of what it currently is.

Note: If you are using a serial printer connected to a COM port, use the command "PR DOS" instead of "PR ON".

LOCAL

) The PWord command is used to set CROSSTALK's answer password. The password may be up to 12 characters long. If you have set a password, then any persons calling into your system will be required to enter the password before they can access your system. Setting PWord to blank disables the password feature.

LOCAL

) The QUIT command tells CROSSTALK to immediately disconnect and return to DOS. If any information is in the capture buffer, CROSSTALK will ask if you wish to save the information before exiting.

LOCAL/REMOTE

This command is used internally by CROSSTALK, during file transfers. It is not entered as a command by the user.

) The RDIAl command sets the number of attempts to connect. The normal value is 10.

SCRIPT

The REPLY command is used in a script file to send a message to the other computer system. See section 13.20 for more information.

LOCAL

The RQrequest command is used to request a transfer of files from another CROSSTALK system. This command should only be issued from a CALL mode system when calling into an ANSWER mode system.

You may specify an optional target or destination drive name when issuing the REQUEST command. Some examples of this are shown below:

Command	Result
RQ *.ASM	Request all files with the type .ASM.
RQ B:FRED	Request the file FRED from drive B:, place the file on the default drive.
RQ B:BERT C:	Request the file BERT from drive B:, place the file on drive C:.

LOCAL

(This feature available under DOS 2.0 or later only)

Another new command, RUN, allows you to run other programs from CROSSTALK in much the same way that the

EDIT command allows you to run a text editor program. To run another program, enter the command:

RUN (program name)

CROSSTALK will turn control over to the other program, and control will return to CROSSTALK when the second program is finished. You may also temporarily return to DOS by entering "RUN" with no program name. Once you are in DOS, you may run another program. To return to CROSSTALK, enter "EXIT" from the DOS prompt.

When you are running another program from CROSSTALK, avoid running any programs which may change the settings of the serial port you are using for CROSSTALK.

14.62

The RWIND Command

SCRIPT

The RWind command is used to cancel and re-start a script file. The current script file is terminated and re-started from the beginning, just as if a new DO command has been issued. See section 13.18 for more information.

14.63

The RXMODEM Command

LOCAL/REMOTE

The RXMODEM command is used to tell CROSSTALK to receive a file from another computer, using the XMODEM file transfer protocol. See chapter 12 for a full explanation of XMODEM.

LOCAL

The **SAve** command saves a **CROSSTALK** command file for future use. All of **CROSSTALK**'s operating parameters, including all function key definitions, are saved in the command file.

SCRIPT

The **SBreak** command is used to send a **BREAK** signal to the modem from within a script file. See section 13.19.

LOCAL

Use the **SEnd** command to send a text file from your disk to another computer system. This command is most often used when communicating with another computer which is not running **CROSSTALK**. If the system you are communicating with is running **CROSSTALK**, use the "**XMit**" command instead.

Several other commands are used to modify the method the **SEND** command uses to send files. For information on all of the commands affecting the operation of the **SEnd** command, see the **LWait**, **CWait**, **BLankex**, and **OUtfilter** commands.

SCRIPT

The **SKip** command is used to skip over a number of lines in a script file. See section 13.16 for more information.

LOCAL

) The SNaPshot command is used to take or review a "snapshot" of the terminal screen. Enter "SN 24" to take a snapshot of all 24 lines on the screen. You may then view this screen by typing "SN". This is especially useful when trying to remember a long list of menu items on a screen. The snapshot buffer remains intact until you take another snapshot. The snapshot buffer may NOT be written to a disk file. To save data on the screen into a disk file, use RETRO-CAPTURE.

LOCAL/REMOTE

) The SPeed command selects the speed at which your computer will communicate over the phone line. Only the first digit of the desired speed must be entered. Note that 1200 baud is 1, 110 baud is 0.

LOCAL/REMOTE

) The STop command sets the number of stop bits used to make up the data word. Most systems use 1 stop bit at speeds of 300 baud, and above, and 2 stop bits at 110 baud.

LOCAL

The SWITCH command selects the key to be used for switching between the terminal and status screens. This key is normally the HOME key (shift-home when in DEC and IBM 3101 Emulation), but can be changed to another key if desired.

There are several ways to set the SWITCH key. The table below shows each of the possible methods:

Command	Notes
SW	CROSSTALK will ask you to press the key to be used for the SWITCH key. You may NOT select the numbers 0-9 or the letters A-Z as the SWITCH key.
SW 02	Sets the SWITCH key to the key with a hex value of 02 (in this case, the ^B key).
SW EOT	Sets the SWITCH key to the key with the ascii mnemonic "EOT", which is the ^D key.
SW HOME	Sets the SWITCH key to the HOME key on the IBM Personal Computer keyboard.

LOCAL

The TABex command is used to turn tab expansion on and off. When TABex is on, transmitted tab characters are sent as spaces to the next tab position. This is useful when sending files to systems which do not interpret tabs.

Note that the TABEX command only affects the SEND command. It has no effect on normal "terminal mode" operation.

LOCAL

The TIMER command allows you to disable the "online" timer on the terminal screen. When TIMER is ON, the online connection time is constantly displayed at the lower right corner of the screen. Setting TIMER to OFF removes the timer count from the screen.

Note that the timer does not count unless the TIMER command is set to ON.

LOCAL

Some computer systems use a key other than ENTER to mean "end of line". The TURNAROUND command tells CROSSTALK which character to send when the ENTER key is pressed.

There are several ways to set the TURNAROUND key. The table below shows each of the possible methods:

Command	Notes
TU	CROSSTALK will ask you to press the key to be used for the TURNAROUND key.
TU 03	Sets the TURNAROUND key to the key with a hex value of 3 (in this case, the ^C key).
TU EOI	Sets the TURNAROUND key to the key with the ascii mnemonic "EOI", which is the ^D key.

LOCAL/REMOTE

The TYPE command has two functions: it may be used to review the contents of the capture buffer, or it may be used to view the contents of a disk file. ()

When given with no name, the TYPE command types the contents of the capture buffer to the screen. The command "TYPE (filename)" will type the contents of the file on the screen. CROSSTALK will add line numbers to each line if desired. Enter "TY #" to type the capture buffer with line numbers, or "TY # FRED.TXT" to type the file FRED.TXT with line numbers. To begin TYping at a particular line, you may enter "TY #100 FRED.TXT", to begin typing FRED.TXT starting with the 100th line in the file.

LOCAL

The UConly command is used to set upper case mode on and off. When UConly is on, all lower case letters encountered during a SEnd will be converted to upper case. Received characters are unaffected.

Note that this command does not have any effect on normal terminal mode operation.

SCRIPT ()

The WAit command causes a script file to be paused until the condition specified by the WAIT command has been met. See section 13.21 for more details.

SCRIPT

() See section 13.22.

LOCAL/REMOTE

The WRite command stores captured data into a file of your choice. If a disk error occurs, or if the capture buffer is empty, an error message will be printed.

Use the WRITE command when you have captured data using the capture-to-memory command, and you wish to save the captured data on your disk. It is not necessary to use the WRITE command if you are using capture-to-disk.

LOCAL

The XDOS command tells CROSSTALK to exit to DOS without hanging up the phone line. You may run any other program and return to CROSSTALK, and your connection will still be intact. If any information is in the capture buffer, CROSSTALK will ask if you wish to save the information before exiting.

LOCAL

The XMIT command transmits files to another CROSSTALK system. "Wildcard" file names are allowed. An optional target drive name may be given after the file name.

Note that the XMIT command should only be used when calling into an answer-mode CROSSTALK or TRANSPORTER system.

The chart below shows some example XMIT commands:

Command	Result
XMIT *.ASM	Sends all the files with the type .ASM to the other system.
XMIT BERT	Sends the file BERT from the default drive to the other system.
XMIT B:FRED C:	Sends the file B:FRED to drive C: on the other system.

LOCAL/REMOTE

The XXMODEM command is used to tell CROSSTALK to send a file to another computer, using the XMODEM file transfer protocol. See chapter 12 for a full explanation of XMODEM.

Chapter 15

Examples

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This section of the manual gives some how-to-do-it examples of typical uses of CROSSTALK. Please remember that these are only examples. Every situation is different, and what is shown here may not work for every system in the world. Any names, phone numbers, account numbers or passwords shown in this section are fictitious. Any similarity to any real names, phone numbers, account numbers or passwords is purely coincidental.

15.1

Calling The Source

Judging from the feedback we get from users of CROSSTALK, a lot of you are using CROSSTALK to call The Source.

CROSSTALK can help you cut down on connect time by making your call to The Source more efficient. In this example, we will show a command and script file which will call The Source through TYMNET, log you in, and send the MAIL READ command to The Source. In addition, we'll set some function keys to some common Source commands.

Once these command and script files have been created, all you have to do to call The Source is enter the command:

Command? XTALK SOURCE

from DOS. CROSSTALK will make the call, wait and re-dial if necessary, and log you in.

File SOURCE.XTK

Contents of File	Comments
NAme The Source	This is who we're calling and this is the phone number
NUmber 555-1212	
ANswback Off	
ATten Esc	Set our normal AT key
APrefix AT\$0=5!	Tells modem what ring to answer on

Contents	File	Contents
BReak	End	and our normal BREAK key
SWitch	Home	and our normal SWITCH key
CWait	None	Don't need CWAIT
LWait	Delay 1	LWAIT 1 works well
DEbug	Off	No DEBUG
DPrefix	ATDT	Dial with tones
DSuffix		
EPath	C:\BIN\EDLIN.COM	Tells CROSSTALK where to find text editor
EMulate	None	Don't emulate
FLow	^S/^Q	Normal XON XOFF characters
INfilter	On	Filter junk chars. out
LFauto	Off	Don't need extra LF's
MOde	Call	We are making a call
POrt	COM 1:	Use this port
TUrnamd	Enter	Send CR when we press CR
CApture	Off	
DAta	8	8 bit data
DUpIex	Full	Full duplex
OUIfilter	On	Filter ongoing LF's
PARity	None	
PRinter	Off	Start with printer OFF
RDials	10	Sets the number of attempts to connect.
SPEed	1200	1200 baud
STop	1	1 stop bit
TAbex	On	Expand Tabs
BLankex	On	Expand blank lines
UConly	Off	Lower case is ok
FK 1 Post read IBM/!		Set these function keys
FK 2 Post read BULLETIN-BOARD!		
FK 3 UPI!		
FK 4 n!		
FK 5 @CA/!		F5 toggles capture on/off
FK 6 @PR/!		F6 does same for printer
FK7 @TY!		F7 will review the buffer

Contents of File

Contents

FK8

FK9

FK10

GO R45/45

Re-dial until we connect

File SOURCE.XTS

Contents of File

Comments

Wait delay 10

wait for a second

Reply a

send terminal ID

Wait char ":"

wait for "user name:" prompt

Reply ABC10^^

reply with system #

Wait char ">"

wait for "log in >" prompt

Reply id abc 123 ^A^B^C

send our log-in & password

Wait char ">"

wait for Source's ">" prompt

Reply mail read!

and ask for our mail

15.2

How to Capture Data

This example will show you how to capture data from a host computer system, and save the data on your disk. This example will assume that you have already made a call and established communications with the host system.

Once you have made your call and established communications with another computer, any data sent to your computer from the host system may be captured and saved on your disk. In this example, we will show you how to capture your mail from The Source.

You Type

What Happens

MAIL READ

Source MAIL system signs on

[ESC] CA +

ROSSTALK begins capturing

(answer MAIL system prompts)

Source MAIL is displayed
... (end of mail)

[ESC] WR B:MAIL

CROSSTALK saves captured data in
file B:MAIL

This example will show you how to send a text file to a host computer system with the SEND command. This example will again assume that you are already connected to the host computer. The example will show you how to send a pre-edited text file into The Source MAIL system.

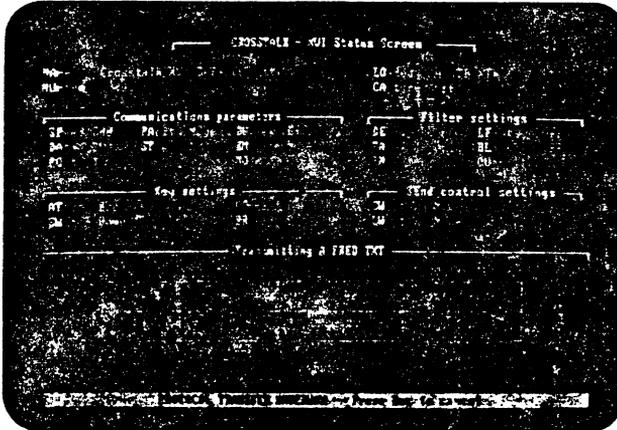
You Type	What Happens
MAIL SEND TCA 123 (answer MAIL system prompts)	Source MAIL system signs on
[ESC] LWAIT LEARN	Source replies "Enter Text:"
[ESC] SEND filename	CROSSTALK sets up "learn" mode
[SPACE BAR]	CROSSTALK sends first line of text, asks you to press the space bar
.S	CROSSTALK sends remainder of text file to The Source
	MAIL program sends mail

This example shows how to transfer files with another CROSSTALK or TRANSPORTER system. We will assume that you are the caller, and the other system answered. We will also assume that you have already made the call and established communications with the other system.

In the example, we will send the file "FRED.TXT" to the other system, and request the file "ERNIE.BAS" from the other system.

You Type
[ESC] XM FRED.TXT

What Happens
CROSSTALK begins transfer of file
FRED.TXT to other CROSSTALK
system. A transfer summary is
shown:



[ESC] RQ ERNIE.BAS

CROSSTALK begins transfer of file
ERNIE.BAS from the other
CROSSTALK system. Transfer
summary is shown, as above.

Word	Definition
Bit	A bit is the single unit of a data word. Normally, 7 data bits are used to represent the 96 commonly used alphanumeric characters used by most computer systems.
Baud Rate	The speed at which a computer communicates with another device. Baud is a technical term for "bits per second." If you are transmitting a 10 bit data word at 300 baud, you are sending 30 characters per second.
CRC check	A method for verifying the integrity of data. The CRC (cyclic redundancy check) is computed by adding together the numeric total of the value of each character sent. This sum is then compared to the total sum of the characters received. If the totals do not match, an error has occurred, and the block of data is automatically re-transmitted.
Data word	The combination of start bits, data bits, parity bits, and stop bits is called the data word. One data word is used to represent each character of transmitted data.
Duplex	Duplex is a term describing the method of communication between two computers. If full duplex, characters sent from point a to point b are echoed back from point b before they appear on point a's terminal. In Half duplex, characters sent from point a to point b are sent directly to point a's terminal, as well as to point b. Point b does not echo the characters back to point a.

Word	Definition
Modem	An acronym for MOdulator/DEModulator, a modem is a device which converts digital data into audio tones suitable for transmission over regular telephone lines.
Parity	The parity bit is an additional data bit, the purpose of which is to provide a simple means of error checking. When parity is even, the total sum of all the bits (including the parity bit) will be an even number. When parity is odd, the total will be an odd number.
Protocol	A pre-defined method of exchanging data between computers. The protocol defines the order and method of how the data and CRC information are exchanged.
Start bit	A start bit is used to signify the beginning of a data word.
Stop bits	The bits used to signify the end of a data word. Normally, one stop bit is used at 300 baud and above, and two stop bits are used at 100 baud.
Word length	The word length is the numeric total of the number of start, data, parity, and stop bits used to make up the data word.

The following table lists those commands which are either new or different in release 3.5 of CROSSTALK.

New Command	Old Command	Difference
ACCEPT	—	New feature
ANSWERBACK	—	New feature
APREFIX	—	New feature
BKSIZE	BLOCK	New name; command "BL" now has different meaning.
BLANKEX	—	New feature
BREAK	—	New feature
CDIR	—	New feature
CSTATUS	—	New feature
CWAIT	FLOW	Replaces "FLOW CHAR" mode
DEBUG	DEBUG	Several new options available
DIR	DIR	Several New options available
DO	—	New feature
DPREFIX	—	New feature
DRIVE	—	New feature
DSUFFIX	—	New feature
EDIT	—	New feature
EMULATE	—	New feature
EPATH	—	New feature
ERASE	—	New feature
FILTER	—	New feature
FKEYS	F1-F4, F?	All keys are now programmable. Old commands F1-F4 and F? are still valid.

New Command	Old Command	Difference
FLOW	—	New feature
GO	—	New feature
INFILTER	FILTER	New name
LWAIT	FLOW	Replaces "FLOW LINE" mode.
MODE	MODE	Originate is now CALL mode, old "MODE O" command still accepted.
OUTFILTER	SCREEN	New name — old command still accepted.
PICTURE	—	New feature
PORT	—	New feature
PRINTER	PRINTER	New "Printer DOS" mode allows routing printer output through DOS.
PWORD	—	New feature
RDIAL	—	New feature
RXMODEM	—	New feature
SNAPSHOT	—	New feature
SWITCH	—	New feature
TIMER	TIME	TIME command no longer available TIMER command turns status line timer on & off
TURNARND	—	New feature
TYPE	TYPE	TYPE command may now be used to review disk files; line numbers available when typing data.
WAIT	WAIT	WAIT now has a completely different meaning, old WAIT command replaced by LWAIT and CWAIT commands.
XXMODEM	—	New feature

Many of our customers use CROSSTALK to wire two systems together in order to transfer files between the two computers. Here are a few tips which will make this process much easier.

First, before you can transfer files between two systems, you must be able to communicate between the two systems. This may sound elementary, but many people overlook this fact when trying to transfer files.

In order to communicate properly, your cable between the two systems **MUST** be connected correctly. Unfortunately, there are so many different types of systems on the market that we can not even begin to tell you exactly what type of cable you'll need to connect a brand X to a brand Y. A list of all the possible cable combinations would be as large as the rest of this manual, and would be out of date by the time it was printed. The general rule is this: All computers have one of two types of communications interface, either a DCE port or a DTE port.

If you are connecting two computers with DISSIMILAR port types, you'll need a straight, unmodified cable; this is the "easy" one. If BOTH computers have either a DTE or DCE port, you need one of three things: either A) a "null" modem, B) a "breakout" box, or C) a special cable. In any case, the desired result is to connect the TRANSMIT data on one computer to the RECEIVE data on the other. An example DTE-to-DTE connection is shown below:

	Computer A Pin #	Computer B Pin #	
Ground	1	1	Ground
Transmit	2	3	Receive
Receive	3	2	Transmit
Ground	7	7	Ground

Notice that pins 2 and 3 are "crossed". This is necessary to connect the transmit data on one side to the receive data on the other. Note also that other than the 4 pins shown, no other connections between the two computers are necessary.

Once you have connected the systems together, you will need to test to see if they are actually communicating with one another. Since the systems are wired together, there is no need to dial a phone number to establish a connection. Remember that when transferring files, one system must be in ANSWER mode, the other in CALL mode. The system in CALL mode ALWAYS issues the commands to the ANSWER mode system.

To test the connection, place one machine in ANSWER mode by issuing the command:

Command? **MODE ANSWER**

Place the other system in CALL mode by issuing the command:

Command? **MODE CALL**

Make sure that both systems are set for the same baud rate. On each of the machines, issue the command "GO LOCAL". Now type on the keyboard of the computer which is in CALL mode. You should see what you type on both screens. If you do, you're ready to begin transferring files. If not, you probably have a cable problem. Check the cable, and try again.

Once you have established that the two systems are talking to one another, you may begin transferring files. Remember that the commands to transmit or request files are always entered to the CALL mode system.

The cable charts in this appendix show how to connect your computer to a modem and to other computer systems:

**IBM Personal Computer, and compatibles
to a modem:**

Computer Pin #	Modem Pin #	Signal Name
1	1	Protective Ground
2	2	Transmit Data
3	3	Receive Data
5	5	Clear to Send
6	6	Data Set Ready
7	7	Signal Ground
8	8	Carrier Detect
20	20	Data Terminal Ready

**IBM Personal Computer, and compatibles
to another computer:**

Computer Pin #	Goes To
1	Protective Ground, pin 1
2	To "receive data" on other system
3	To "transmit data" on other system
7	Signal ground, pin 7

Eagle 1600 Computer to modem:
(port B - 25 pin connector)

Computer Pin #	Modem Pin #	Signal Name
1	1	Protective Ground
2	3	Transmit Data
3	2	Receive Data
5	5	Clear to Send
6	8	Carrier Detect
7	7	Signal Ground
20	20	Data Terminal Ready

Eagle 1600 Computer to another computer:
(port B - 25 pin connector)

Computer Pin #	Goes To
1	Protective Ground, pin 1
2	To "receive data" on other system
3	To "transmit data" on other system
7	Signal Ground, pin 7

This section describes the option switch settings for several popular modems.

Hayes Smartmodem & Smartmodem 1200

Switch #	Position	Function
1	UP	Allows CROSSTALK to maintain control over the DTR (data terminal ready) signal.
2	N/A	Not used by CROSSTALK.
3	N/A	Not used by CROSSTALK.
4	DOWN	Tells Smartmodem not to echo "command" characters
5	UP	Allow auto-answer on first ring. Note that since CROSSTALK maintains control over DTR, the modem will not answer the phone unless CROSSTALK is running, and set to answer mode.
6	UP	Provides carrier detect signal only when carrier is actually present. Since CROSSTALK uses this signal, this switch MUST be set properly.
7	?	Set UP for use with single-line home telephone jack (type RJ-11), DOWN for multi-line business phone (RJ-12 & RJ-13) jacks.
8	DOWN	Enables command recognition (Smartmodem 1200 ONLY).

U.S. Robotics Auto-dial 212A:

Switch #	Position	Function
RNG	OFF	Only used in test mode.
8HI	OFF	Provides carrier detect signal only when carrier is actually present. Since CROSSTALK uses this signal, this switch MUST be set properly.
BAL	?	Set according to local telephone line conditions.
DTR	OFF	Allows CROSSTALK to maintain control over the DTR (data terminal ready) signal.

Concord Data Systems 224 Autodial & Tymnet Model 932

Switch #	Position	Function
2-5	OFF	Select Asynch Mode
2-6	2-6 OFF, 2-7 OFF	Select 10 bit character length
2-7	2-6 ON, 2-7 OFF	Select 9 bit character length
1-8	ON	Provides carrier detect signal only when carrier is actually present. Since CROSSTALK uses this signal, this switch MUST be set properly
4-1	OFF (factory setting)	Allows CROSSTALK to maintain control over the DTR (data terminal ready) signal
4-2	OFF (factory setting)	RTS controls CTS

All other dip switches should remain in the factory position or as determined for the application. Please refer to the appropriate section of the modem users manual for description of the other switches and their function.

This appendix shows typical modem dialing strings for several modems.

Modem	DPrefix	DSuffix	Comments
Bizcomp	V ~ D ~		Set tone-dial mode, then dial number.
CERMETEK	~ ~ XY^ ND' 'U	1	Set tone-dial mode, then dial number.
CDS 224 Autodial	~ D		"Wake up" modem, then dial number.
CDS 392 TYMNET	~ D		"Wake up" modem, then dial number.
Hayes	ATDT		Dial with tones.
Hayes	ATS11 = 40DT		"Fast" dial with tones.
Hayes	ATDP		Dial with pulse-dialing.
Novation Smart-Cat	% D ~		Dial with tones. Note — There MUST be a blank space after the "~".
TRANSEND	^E ~D ~	~	"Wake up" modem, then dial number.

NOTE: DATEC, MULTITEK, ROBOTICS and VEN-TEL all use ATDT Industry Standard Dialing Protocol.

This table is a list of each of the standard ASCII control characters. The list shows the character, the hex value of the character, and the mnemonic name of each character.

Keyboard Character	Hex Value	Ascii Mnemonic
^@	00	NUL
^A	01	SOH
^B	02	STX
^C	03	ETX
^D	04	EOT
^E	05	ENQ
^F	06	ACK
^G	07	BEL
^H	08	BS
^I	09	TAB
^J	0A	LF
^K	0B	VT
^L	0C	FF
^M	0D	CR
^N	0E	SO
^O	0F	SI
^P	10	DLE
^Q	11	DC1 (X-ON)
^R	12	DC2
^S	13	DC3 (X-OFF)
^T	14	DC4
^U	15	NAK
^V	16	SYN
^W	17	ETB
^X	18	CAN
^Y	19	EM
^Z	1A	SUB
^[1B	ESC
^\	1C	FS
^]	1D	GS

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Crosstalk Version 3.6 Users Manual Addendum September 6, 1985

This addendum describes several changes and additions which were made to the Crosstalk-XVI program after the manual was printed. These changes were made as part of our ongoing commitment to make Crosstalk the best possible product. These changes are described below.

o TopView compatibility

Crosstalk is now compatible with IBM's TopView. This allows you to run Crosstalk in conjunction with TopView, taking advantage of TopView's ability to run more than one program at a time. TopView adds a new dimension of usefulness to Crosstalk. For example, you can transfer files with Crosstalk while you are running your favorite word processor. You can leave Crosstalk running in the "background" all day long if you like, acting as an electronic mail receiver.

For your convenience, we have provided a TopView "PIF" file on your Crosstalk disk.

o KERMIT file transfer protocol:

Crosstalk now supports the KERMIT file transfer protocol. KERMIT was developed at Columbia University in order to allow many types of computers to exchange files with one another.

Five new commands have been added in order to support KERMIT. These commands are:

XKERMIT - Transmits a file or group of files to a KERMIT server running on another computer. For example, the command *XK *.BAS* will transfer all files with a type of .BAS to the remote KERMIT system.

GKERMIT - Gets a file or group of files from a remote KERMIT server. For example, the command *GK *.EXE* will request all of the files of the type .EXE from the remote KERMIT system.

RKERMIT - Receives a file from a KERMIT system. Use this command only when you are communicating with a remote KERMIT system which is NOT a KERMIT "server". To transfer files with a "non-server" KERMIT program, first tell the remote KERMIT to send you the file, then tell your Crosstalk program to receive the file using the RK command.

KERMIT - Allows you to enter KERMIT commands. Most KERMIT commands require two arguments, for example: *KERMIT PSIZE 50*. The KERMIT commands are:

- Psize:** Set KERMIT packet size.
- CQuote:** Set the control quoting character.
- BQuote:** Set the Binary quoting character.
- EOL:** Set the "end of line" character.
- TIMEOUT:** Set the Kermit timeout period.
- LIST:** List current Kermit settings.
- GET:** Get files, same as *GKERMIT*.
- SEND:** Send files, same as *XKERMIT*.
- RCV:** Receive file, same as *RKERMIT*. **FINISH:** Finish Kermit server session.

Note that *BQUOTE*, *CQUOTE*, and *EOL* must be unique characters.

o Automatic speed settings

If you have a modem which can automatically set the modem speed, you can take advantage of Crosstalk's ability to set the modem speed for you. This feature (often called AUTO-BAUD) is selected by preceding the desired modem speed with the letter "A". For example, if you have a 2400 BPS modem, set the speed to "A2400", and Crosstalk will automatically determine the correct speed for the service you are calling. Automatic speed detection will operate in both CALL and ANSWER modes. This allows you to leave your Crosstalk system in answer mode, and call into the system with a 300, 1200, or 2400 BPS modem.

Note that this feature operates only with a modem which uses the "AT" command set.

o Faster Speeds for faster modems

Crosstalk now supports several faster speeds. These speeds are primarily of use when transferring files through a local "hardwired" connection, or when using a high speed modem. These speeds are: 19,200 BPS, 38,400 BPS, 57,600 BPS, and 115,200 BPS. Note that the two highest speeds require a fast CPU; for example, they will not operate correctly on an IBM PC, but will operate on a PC-AT or a Compaq 286.

Note that Crosstalk now requires the first TWO digits of the speed in order to correctly determine the speed you want. For example, the command *SPEED 12* will set 1200 BPS, but *SPEED 11* will select 115,200 BPS.

o Built-in RS232 "status lights"

Many of our customers have begun using internal modem boards. These boards replace an external modem, cable, and serial interface. The only complaint we've had about internal modems is that they lack the "status lights" commonly found on external modems. These lights can be a big help when attempting to troubleshoot a modem, since they can reveal a number of insights into the operation of the modem.

We have added the electronic equivalent of the status lights by adding a new option to the *DEBUG* command. The command *DEBUG RS232* turns on the status display at the lower right corner of the terminal screen, replacing the on-line timer. The status display is composed of eight "lights", representing pins 2,3,4,5,6,7,8, and 20 of the RS-232 interface.

Pins 2 and 3 (transmitted and received data) show the last character sent and received, respectively. All others display a minus sign (-) if the signal is inactive (logical LOW), or the pin number of the signal involved (i.e. "4") if the signal is active (logical HIGH).

The table below explains the significance of each light:

- 2 Transmitted data. Shows the last character transmitted from your computer to the modem. Control characters are shown in red on a color display, and in "half intensity" on a monochrome display.
- 3 Received data. Shows the last character received by your computer from the modem.
- 4 Request to Send (RTS). Shows the status of the RTS signal at the RS232 interface. The RTS signal is sent from the computer to the modem, indicating that the computer is ready to receive data. Crosstalk uses this signal only when the *HANDSHAKE* command (see below) is active.

- 5 Clear to Send (CTS). Opposite of RTS, above. CTS is sent from the modem to the computer, indicating that the modem is ready to accept data. Note that RTS and CTS are not used by most modems. They are typically used as a "flow control" mechanism to control the speed of data transmission. Crosstalk uses this signal only when the *HANDSHAKE* command (see below) is active.
- 6 Data Set Ready (DSR). This signal is sent from the modem to the computer, indicating that the modem is ready to accept data for transmission.
- 7 Signal Ground - The ground signal (pin 7) is shown only as a reference, to allow you to easily locate the other signals.
- 8 Carrier Detect (CD). Shows the state of the CARRIER DETECT signal from the modem. The CD signal is sent from the modem to the computer, and indicates that the modem is off-hook, and is receiving a valid carrier signal from the distant modem.
- 0 Data Terminal Ready (DTR - pin 20) Shows the state of the DTR signal from the computer. The DTR signal is sent from the computer to the modem, indicating that the terminal is ready to accept and send data. Most modems require this signal to be present before they will operate.

o RTS/CTS "Handshaking"

Crosstalk can now utilize the RTS and CTS signals, if required by your modem. The *HANDSHAKE* command tells Crosstalk to either use or ignore these signals. Most modems do not require use of these signals, and the default setting for *HANDSHAKE* is Off.

o Improved XMODEM file transfers

The Xmodem file transfer protocol was designed to allow diverse types of microcomputers to exchange files via a modem. The original Xmodem protocol assumed that characters sent from one computer to the other would be received within one second. Since its inception, Xmodem has been implemented on a large number of computer systems, including a number of subscription information services. Unfortunately, Xmodem was not designed as a file transfer vehicle for mainframe computers. To compound the problem, calling into a mainframe running Xmodem through a packet-switching network (such as TYMNET or TELENET) can add additional timing delays.

To further complicate matters, some implementations of Xmodem added to the original protocol, in effect creating a "Tower of Babel" among supposedly compatible programs.

Earlier versions of Crosstalk attempted to reconcile these differences through the use of the *PMODE* command. Unfortunately, we wound up further complicating what was supposed to be a simple operation. This release of Crosstalk eliminates the *PMODE* command as far as Xmodem transfers are concerned, and includes automatic timeout detection, allowing Crosstalk to exchange files with every flavor of checksum Xmodem we could find to test it against.

VT-100 Emulation Improvements

We have made three small improvements to Crosstalk's VT-100 emulator, making Crosstalk more convenient to use as a DEC terminal. These improvements are:

1. Programmable backspace key: Crosstalk normally uses the PC's backspace key as "backspace", and uses "control-backspace" to send a DELETE to the host computer. Some users have told us that they'd rather have it the other way around. If you want the PC's backspace key to send a DEL, program function key 1 to contain a backspace (^H), by entering the command *FK 1 ^H*. Note that this does not change the operation of function key 1, it just tells Crosstalk to swap backspace and DEL.

2. Earlier versions of Crosstalk set NUM LOCK to ON. This release does not change the state of NUM LOCK unless you press NUM LOCK.

3. Form feed characters are now passed to the printer when in VT100 mode. Earlier versions of Crosstalk filtered out form feeds in VT100 mode.

o Script Language Improvements

We have added a number of minor improvements to the Crosstalk script language. These improvements are explained in detail below:

1. Expandable function keys:

Function key names may now be expanded at any point where a file name may be entered. To expand a function key's contents into a filename, precede the function key name with an at-sign (@). For example, you may wish to have a script prompt a user for a file name, and then proceed to transmit the file. The example scripts below show how to use function keys to accept and pass on the file name information:

```
ASK @F1 "Enter file name to transmit:"  
XMIT @F1
```

or

```
ASK @F1 "Which directory do you wish to see?"  
DIR @F1
```

2. Continuing a script after a failed call:

Many users have asked us to provide a method for continuing a script file after a call has "failed" for one reason or another. Starting with this release, a script file will continue to run if the number of re-dials (*RDials* command) is set to zero. The script below shows how this feature can be used to select an alternate script file if the first call fails:

```
Number 241-6393
```

```
RDials 0
```

```
GO
```

```
IF $ jump okay (note: This tests to see if we're online)
```

```
Load ANOTHER (if we're NOT online, load another  
script)
```

```
Label OKAY
```

```
DO logon (If we're online, run our LOGON script)
```

3. Saving a script for a local connection:

An increasing number of people (including ourselves) are using Crosstalk to communicate with mainframe and minicomputer systems, through a "direct" (no modem) connection. Crosstalk normally expects to be making a call through a modem. In earlier versions of Crosstalk, the command *GO* was saved as the last item in a command file. Starting with this release, Crosstalk will save a "go local" as the last item in a command file IF no phone number is entered. This allows you to easily create a command file for a local connection, without having to edit the command file saved by Crosstalk's *SAVE* command.

4. Additional "REMOTE" commands:

Many customers have asked us to grant more commands to a person calling into an answering Crosstalk system. The *ACCEPT* command has been expanded to allow you to decide if a caller can have "full access" to your answering Crosstalk system.

If *ACCEPT* is set to *EVERYTHING*, the following commands become available to the remote caller:

CWAIT, LWAIT, ACCEPT, FKEYS, GO, INFILTER, LFAUTO, LOAD, QUIT, SAVE, SEND, and XDOS.

Note that issuing a *QUIT* command to an answering Crosstalk system will cause the system not to answer anymore. This may be useful when you want to call into a system one time, and then disable the system from answering again.

Allowing *XDOS* as a remote command has some interesting applications, since it would allow you to create a batch file which answers the phone with Crosstalk, then run some other program, and return to Crosstalk. The following batch file gives an example of this:

```
XTALK ANSWER (set up Crosstalk to answer)
BASICA REPORT (run BASIC program REPORT.BAS)
XTALK ANSWER (go back to Crosstalk)
```

Note that you may use the *CTTY* command to redirect the PC's output to the modem, but this method is not reliable. If you need to run programs on a remote PC, ask for information on our *REMOTE* program.

o Crosstalk now supports the EGA and PGA

Crosstalk now supports the IBM Enhanced Graphics Adapter and Professional Graphics Adapter boards, as well as the IBM Color Graphics Adapter and Monochrome Display Adapter boards.

A new command, *VIDEO*, allows you to tell Crosstalk which type of adapter board you have. The chart below shows the proper setting of the *VIDEO* command for your hardware.

<u>Computer/Display Type:</u>	<u>VIDEO setting:</u>
IBM Color Graphics Adapter	<i>CGA</i>
IBM Enhanced Graphics Adapter	<i>EGA/Mono</i>
IBM Professional Graphics Adapter	<i>PGA</i>
IBM Monochrome Adapter	<i>EGA/Mono</i>
IBM PCjr	<i>EGA/Mono</i>
Compaq (all models)	<i>EGA/Mono</i>

If you are in doubt as to which setting to use, try setting *VIDEO* to "*EGA/Mono*". If your screen shows "snow" on the EGA setting, switch back to the *CGA* setting.

Crosstalk-XVI Troubleshooting Guide

This list contains the most frequently asked questions we receive in our technical support group. If you have a problem installing or operating your copy of Crosstalk, it's probably answered here.

If you do encounter a problem, you can save yourself some time by checking this list before you pick up the phone and call us.

Q: When I run Crosstalk, the program signs on, and then says that it's "already connected." What's wrong?

A: There are several possible causes for this problem. The most likely cause is having one of the modem option switches set incorrectly. If your modem has a switch which forces the carrier detect signal to be on all the time, change the setting of the switch and try again.

The other common cause of this problem is an incorrectly wired cable. Crosstalk requires that pins 1 through 8 and pin 20 be connected in your cable. Some cables don't have all of these pins connected. Your dealer should be able to provide you with a correctly wired cable.

Q: I'm using Crosstalk without a modem. How can I tell Crosstalk not to try to dial before connecting?

A: Use the GO LOCAL command instead of the GO command. The GO LOCAL command tells Crosstalk to connect you directly to whatever's at the other end of your cable.

Q: I can run Crosstalk just fine, but it doesn't disconnect when I enter the "BYE" command.

A: This is another problem which can be caused by an incorrect switch setting. If your modem has a switch which forces the "Data Terminal Ready" signal to be true all of the time, change the setting of the switch. Crosstalk turns the DTR signal off to disconnect a call. If your modem is ignoring the DTR signal, Crosstalk will not be able to disconnect properly.

Q: I think I have everything set up, but I don't have any place to call to test it out.

A: There are several possibilities here. First, you can call our Computer Bulletin Board system at (404) 998-8048. This service is free, other than the long distance charges you may incur when calling the system.

Another possibility is to use one of the free subscription offers packaged with your copy of Crosstalk. Check the individual offers and see if any of them appeal to you. Many of the services offer free connect time as an incentive to sign up for the service.

Q: How do I configure Crosstalk for my particular system?

A: Crosstalk includes a setup program which will guide you through all of the steps necessary to set up your Crosstalk program. After you have made your working copy of Crosstalk, type "XTALK SETUP" to run the setup program. The setup program will take you from there.

Q: My modem isn't on the setup list. The modem manufacturer says that the modem is "Hayes compatible". What should I do?

A: From the setup menu, choose "Hayes". When the program asks what type of Hayes modem you have, choose "Smartmodem 1200", even if you have a 2400 BPS modem. Most Hayes compatible 2400 BPS modems actually function more like a Hayes 1200 than a Hayes 2400.

Q: My modem isn't on the setup list, and it's not Hayes compatible. How do I set up Crosstalk for my modem?

A: From the setup menu, choose "Z". This option allows you to tell Crosstalk how to dial your modem. You will need to consult the modem manual to determine what sequence of characters the modem needs in order to dial. There are two sequences of characters that Crosstalk sends to the modem. The Dial prefix is sent before the phone number, and the dial suffix is sent after the phone number. Consult the sections on the DP and DS commands in the manual for more information.

Q: When I use Crosstalk to dial a number, the program says its dialing, but nothing happens. What's wrong?

A: The most common cause for this problem is that Crosstalk is set up for the wrong type of modem. Run the SETUP script, and try again. If you are dialing through a PBX system, don't forget that you may need to add a "9" in front of the phone number. If you need to pause during dialing to wait for a second dial tone, add a comma where you want the pause to occur.

Q: I can run Crosstalk and dial a number, and the other computer answers the phone, but I don't see any data from the other computer.

A: This problem is usually caused by having two devices set for the same serial port. If you have two ports in your PC, make sure that one of them is set for COM1, and the other for COM2. In addition, some add-on boards have jumpers which determine which of the computer's interrupt lines are assigned to COM1 and COM2. Normally, interrupt request line 4 (also called IRQ4) is used for COM1, and request line 3 (IRQ3) is used for COM2. Consult your hardware documentation for the location of these switches.

Q: I'm trying to connect to another computer system via telephone. I hear the other system answer, but my system never connects. After a few seconds, the other system disconnects. If I do get a connection, all I see is "garbage".

A: There are several causes for this problem. Unfortunately, it's difficult for us to tell exactly where the problem lies, but here are a few suggestions:

1. Check to make sure that you are connecting at the proper speed. For example, you can't call a 300 BPS modem at 1200 BPS.
2. You may have gotten a noisy phone line. Try the call a few times. If you're calling long distance through a discount long-distance service, you may not be able to get a clean enough connection to keep your modem happy.
3. Make sure that your PARITY and DATA settings are correct for the system you are calling.
4. Your modem may be at fault. Try calling another modem. If you have another modem available, try using it.

Q: I just called another computer, and everything went ok. How do I save the current setup for future use?

A: Assuming that you haven't changed anything, enter the command "SAVE". Crosstalk will ask you to enter a name for the file to save the settings in. The next time you bring up Crosstalk or use the LOAD command, you will see that saved file presented as an option.

Q: Why is there more than one program file on my original Crosstalk disk?

A: Some releases of Crosstalk include more than one program file because of the wide number of modems and computers supported by Crosstalk. The IBM Personal Computer version of Crosstalk has three .EXE-files on the disk. They are:

<u>File name</u>	<u>Description</u>
XTALK.EXE	"Normal" release of Crosstalk for use with most modems.
XTALK-VA.EXE	Special version for use with the IBM Voice Communications Adapter.
XTALK-JR.EXE	Special version for the IBM PCjr computer.

You probably don't need all three of these files on your disk. After you have made your working copy of Crosstalk, you may erase the versions that you don't need, which will save you a little disk space. Please don't erase these files from your original Crosstalk disk!

Crosstalk Version 3.61 Users Manual Addendum January 27, 1986

This addendum contains information about your Crosstalk program which is not included in the manual. Please take a moment to read through it before you begin using your copy of Crosstalk.

o Variable BREAK signal length:

This version of Crosstalk adds a new command, LBREAK, which is used to select the length of the BREAK signal generated by Crosstalk. The default value is 200 Milliseconds. You may set the BREAK length from 1 to 65,535 Milliseconds. (a millisecond is 1/1000th of a second.)

o New modems / devices added:

Several new modems and communication devices have been added to the Crosstalk modem setup list. If your modem is not on the list, please contact our technical support group for assistance.

o "Troubleshooting" guide added:

We have added a "troubleshooting" guide to the manual. This guide answers the most frequently-asked questions we receive in our tech support department. If you encounter any problems or questions with Crosstalk, the answer is probably in the guide. If not, our tech support group will be happy to answer any questions as always.