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User Note 91

Title:

Portable X-Talk User Guide

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Synopsis

This Note describes the portable X-Talk program which provides a standard communications package for microcomputers.

Keywords

File transfer, X-Talk

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Introduction

Portable X-Talk is intended to provide a standard communication package for microcomputers. It conforms to the ERCC X-Talk Protocol for TCPs and PADs and has been written in PASCAL. To aid the portability aspects a simple user interface with terminal mode and menu selection mode has been provided. From the menu selection mode the communications port parameters are dynamically reconfigurable and the Set-Up parameters are optionally retained for future program initialisation. Files, both binary and character, may be transferred at baud rates up to 9600 bauds.

The executable program XTALK.EXE will be provided on a user supplied disc by ERCC Service Support Unit. The required cables may also be supplied at current rate cost at time of order.

Documentation will also be provided on the disc in the file XTALK.DOC and should be read thoroughly since this will give the most up to date information for the supplied version of the program.

Installation

This installation guide is primarily aimed at the ERCC user community but may be applicable to users of other installations where the host software conforms to the specified protocol.

1. Connect the communications port to the communications line using the appropriate cable.

2. Copy XTALK.EXE onto a disc in the default drive, (usually systems disc).

3. Type: **XTALK**

The file XTALK.PRM retains the operational configuration parameters for the program. These parameters must now be set up before the file can be automatically created in the current directory. A message to indicate this is displayed on the console screen and the Set-up Parameter Menu entered.

The menu instruction should then be followed and the set-up parameters selected. The following selections are available:

Baud Rate

Baud rate is the speed at which data can be transferred over an asynchronous communications line and is therefore dependent on the user's installation. The program supports baud rates of:

110, 150, 300, 600, 1200, 2400, 4800 or 9600 bauds

These rates are selected by entering a character A, for 110 bauds, through to character H, for 9600 bauds, in response to the menu prompt.

Parity

Parity is a bit added to the data word for error checking purposes. Although the program does not check parity it will support systems requiring parity and may be selected by entering the following characters in response to the menu prompt.

N for None	i.e., no parity bit added.
E for Even	i.e., bit added to make number of bits in data word even.
O for Odd	i.e., bit added to make number of bits in data word odd.

Stop Bit(s)

The number of Stop Bits required for asynchronous data byte streams varies depending on the requirement of the communications link. For most systems baud rates from 110 to below 300 bauds require two stop bits while baud rates of 300 and above require only one. A number may be entered in response to the menu prompt to select the required number of stop bits.

2 for 2 Stop Bits	110 =< Baud Rate < 300
1 for 1 Stop Bit	Baud Rate >= 300

Word Length

Word length is the size of the data word required by the communications link and may be selected by entering a number in response to the menu prompt as follows:

7 for 7-bit data word
8 for 8-bit data word

Transfer Mode

The default Transfer Mode may be set up for character or binary file transfers. This selection is made by entering a character in response to the menu prompt as follows.

C for character mode
B for binary mode

Flow Control from Micro against Host

The protocol used by the program to transfer data relies on the control characters DC1 (XON) and DC3 (XOFF) to regulate the flow of data over the communications link. This is required in order that the data buffers do not overflow and is automatically taken care of in File Transfer Mode. However, in Terminal Mode if large files are requested to be displayed on the console screen flow control must be supported in the user's remote host process or by the communications link, otherwise data buffers may overflow. For ERCC Mainframe users with TCP connections a method of doing this is discussed below under the SETMODE FLOW=ON command, PAD connections have inbuilt flow control. Some systems do not support flow control and this menu option has been provided for such cases in order that the program may know when flow control should be generated. This selection may be made by answering Yes or No in response to the menu prompt.

Y	Flow control from Micro against Host. For TCP connections where flow control has been set up in the remote host process, or for PAD connections.
N	Flow control from Micro against Host. For TCP connections where flow control has not been set up in the remote host process.

Receive Character MSB (Most Significant Bit)

Some communications links require an 8-bit data word for transmission but due to the nature of the link, receive a 7-bit word with parity. In order to support such conditions a mask option has been provided to remove the most significant bit (MSB) of the received data word. If this operation is selected then only the standard ASCII character set can be received, i.e. chr(0) to chr(127). The selection is made by answering Yes or No in response to the menu prompt.

Y	Remove receive character MSB.
N	Do not remove receive character MSB.

Character File Terminator: Ctrl+Z

Character files created under MS-DOS (Microsoft Disc Operating System) are terminated with the Ctrl+Z character. This can cause problems if the files are transferred to another computing environment with a different operating system. This option provides a mechanism for removing the Ctrl+Z file terminator from character files transferred from the micro to the remote host. The selection is made by answering Yes or No to the menu prompt.

Y	Remove Ctrl+Z from character files.
N	Do not remove Ctrl+Z from character files.

Map Backspace Key

Some keyboards have a backspace key which deletes characters while in local mode but send the backspace character (chr(8)) to line. This option has been provided to allow the user to map the backspace key to generate the delete character (chr(127)). The selection is made by answering Yes or No to the menu prompt.

Y	Map backspace key to <DEL>
N	Leave backspace key as <BS>

Line Wrap

Most microcomputers will automatically generate a new line when the 79 or 80th column position has been reached on the current line. When listing files, while in terminal mode, the remote host may output lines in excess of 79 or 80 characters followed by a new line. This would cause double line spacing to be displayed on the console screen. In order that this may be prevented, the option to turn line wrapping off has been provided. The selection is made by answering Yes or No to the menu prompt.

Y	Line Wrap at 79 or 80th column position.
N	No Line Wrap.

Once all the options have been set as required, a response of E to exit will cause the file XTALK.PRM to be created on the disc in the current directory and the communications port set up. A status report will then be displayed so that the parameters may be checked. The Terminal Mode is then entered and the following message displayed on the console:

**** Terminal Mode.****
For Menu enter Ctrl+L.

If any changes are required to the set-up parameters the Menu Mode may be entered by typing Ctrl+L and selecting "S" for the Set Up Communications Port menu. The menu instructions should then be followed as described above.

Note that the next time the program is initialised the file XTALK.PRM is automatically used to establish the communications port parameters and must be resident in the current directory. With the terminal mode message displayed logon to the host in the usual way. (TCP mode press space bar or PAD mode press return.)

Suggested configurations for ERCC systems are given in Appendix B.

In order that files may be transferred between the micro and the remote host, the user's host process must contain the required X-Talk interface software. The following instructions are therefore specific to users connected to an ERCC mainframe running EMAS. Users wishing to use X-talk with other systems will have to establish a similar interface environment.

With the host prompt displayed, insert the file MICROS.EMASLIB and change the interactive input buffer size to 16 Kbytes in your user options in the following manner:

Command: OPTION SEARCHDIR=MICROS.EMASLIB
Command: OPTION ITINSIZE=16

The second option only takes effect at log on time. You must therefore log off and log on again. The micro is required to control the flow of data from the remote host while in terminal mode otherwise the communications port will overflow when large files are listed to the console screen. This is termed 'Flow Control from Micro against Host' and is catered for automatically with PAD connections. However, with TCP connections the following SETMODE command is required:

Command: SETMODE FLOW=ON

It is recommended that this SETMODE command be included in a start up file which is executed at logon time. This can be achieved by creating a file called STARTUP which contains the command:

Command: SETMODE FLOW=ON

This can be appended to the process options by entering the following command:

Command: OPTION FSTARTFILE=STARTUP

This completes the installation.

Terminal Mode

The terminal mode message is only displayed once, after initialisation. This indicates that the micro is connected to the communications link as a dumb terminal and may be logged on to the remote host in the usual way. After a file transfer or menu selection the micro will be in terminal mode. If the host prompt is not displayed on the console screen, sending a RETURN character will, for most systems, cause the remote host to transmit its prompt characters.

File Transfer Mode may be terminated at any time during the transfer by entering a Ctrl+L or ESC character at the keyboard. This will cause the program to return to terminal mode.

A communications line fault will be indicated by the message:

Line fault no transmission

The program will exit and return to the operating system. If this occurs the communications cable and link should be checked out before the program is re-run.

Menu Mode

Menu Mode is entered from Terminal Mode by typing Ctrl+L. The menu selection will be displayed on the console screen. Entering the required selection character at the keyboard, in upper or lower case, will carry out the requested task. A description of each menu selection entry is given below.

Enter selection : **G** (or **g**) - **Getfile**

Getfile Mode is entered by the selection 'G' or 'g'. In this mode character or binary files may be transferred from the remote host to the micro. The type of transfer, character or binary, should be selected prior to entering Getfile Mode (see below) and is displayed as a reminder when Getfile Mode is entered. Multiple files of the same type may be requested for transfer and should be separated by commas, pluses or spaces.

Enter selection : **P** (or **p**) - **Putfile**

Putfile Mode is entered by the selection 'P' or 'p'. In this mode files may be transferred from the micro to the remote host in a similar manner to Getfile above.

Enter selection : **C** (or **c**) - **Character Mode**

Character Mode transfer is selected by entering 'C' or 'c' and will remain the transfer mode until changed by selection 'B' below.

Enter selection : **B** (or **b**) - **Binary Mode**

Binary Mode transfer is selected by entering 'B' or 'b' and will remain the transfer mode until changed by selection 'C' above.

Enter selection : **S** (or **s**) - **Set-up Parameters**

This entry allows the set-up parameters to be changed and reinitialised. The parameters are also saved in an auxiliary file to be used the next time the program is run. A status report is displayed and shows the current set up conditions, the user may then opt to change them or return to Terminal Mode. If the user chooses to change the parameters a menu is provided with the parameter choices available.

Enter selection : **L** (or **l**) - **Line Break**

The menu selection entry 'L' or 'l' generates a line break of approximately one second i.e. the communications Tx. line is held to SPACE for one second. A message is printed to indicate this has occurred, for example

Line Break generated.

Enter selection : **Ctrl+L - Send Ctrl+L to Remote**

When both the Ctrl key and L key are pressed together the Ctrl+L character (chr(12)) is transmitted to the remote Host. A message is displayed to indicate this has occurred, for example

Ctrl+L sent to Host.

Enter selection : **T** (or **t**) - **Terminal Mode**

Returns the program to Terminal Mode. A return produces the same effect.

Enter selection : **Q** (or **q**) - **Quit**

Selecting the entry 'Q' or 'q' causes the program to exit and return to the operating system. The operating system prompt will then be displayed.

Note

If the microcomputer was logged on to the remote Host when Q was selected it will remain logged on even although the microcomputer has returned to its operating system. It is the user's responsibility to logoff from the remote Host while in Terminal Mode. However, if the XTALK.EXE program is executed once more the remote Host process may be re-entered at the point at which exit occurred.

The exception to this is with remote host connections made through modem communication links. Since the modem control lines are controlled by the program they will be disabled when X-Talk returns to the operating system and the modem connection to the host will be lost.

APPENDIX A

Trouble Shooting

Check all cables to the network connection, quit X-talk and restart. Remember to use <Return> for a Pad and <Space> for a TCP.

Sirius Users

Check you have the correct version for DOS 1 or DOS 2 and the cable is plugged into the port nearest the display connector.

Apricot Users

XTALK.EXE is standard X-Talk. XTALKP.EXE is a version which is slower for terminal emulation but allows the printer to echo data from host by using <Ctrl>P before going into XTALKP. All Apricot PC or XI owners should be using Bios version 2.7, 21 February 1985 or later. If you are using an earlier version, for example 2.4, you should immediately contact User Liaison, Service Support Unit, ERCC, King's Buildings (031-667 1081 ext. 2635) for an upgrade, since earlier versions had bugs which can corrupt your files and cause problems. X-Talk is not supported on versions prior to 2.7.

For Apricot F1 series users, you should be using ROM Bios 1.6 or later. Contact as above for upgrade.

If the problem still persists, contact Advisory (031-667 1081 ext. 2976) or Mail to ADVICE outwith Advisory opening hours or if this method of contact is preferred.

APPENDIX B

Suggested Configuration

1 ERCC Mainframe Users

1.1 Micro to TCP Connections

	BAUD RATE	:	F	2400 or 1200 bauds
	PARITY	:	N	none
	STOP BIT(S)	:	1	1 stop bit
	WORD LENGTH	:	8	8-bits
	TRANSFER MODE	:	C	character mode
*	FLOW CONTROL	:	Y	flow control enabled
	MSB MASK	:	N	no mask
	Ctrl+Z	:	Y	Ctrl+Z removed
	BACKSPACE	:	Y	backspace mapped to <DEL>
	LINE WRAP	:	Y	no line wrap

* Note: Flow control must be enabled in remote host process.

1.2 Micro to PAD Connections

BAUD RATE	:	H	9600 bauds
PARITY	:	N	none
STOP BIT(S)	:	1	1 stop bit
WORD LENGTH	:	8	8-bits
TRANSFER MODE	:	C	character mode
FLOW CONTROL	:	Y	flow control enabled
MSB MASK	:	N	no mask
Ctrl+Z	:	Y	Ctrl+Z removed
BACKSPACE	:	Y	backspace mapped to <DEL>
LINE WRAP	:	Y	no line wrap

APPENDIX C

ERCC Contacts

Software

For supply of software contact Service Support (031-667 1081 ext. 2641).

Demonstrations

For a demonstration of X-Talk contact the Training Unit (031-667 1011 ext. 2301).

Problems

If you are having difficulties contact Advisory (031-667 1081 ext. 2976) or Mail to 'ADVICE' outwith Advisory opening hours or if this method of contact is preferred.