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COMMUNICATING BETWEEN THE IBM PERSONAL COMPUTER
AND THE WANG WORD-PROCESSING SYSTEM

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SEPTEMBER 7, 1983

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INTRODUCTION

This manual outlines the steps for transferring documents to a Wang word processor from an IBM Personal Computer (PC) and for retrieving stored documents from the Wang. We first look at hardware and software you need to connect the two systems before detailing the steps you should take in transferring a document.

We only address one transfer method in this manual, but there are other ways to address the problem. For instance, we use TTY protocol, but you can use others. We also look at only two of the many software packages for communication available for the IBM-PC: a terminal emulator program and a telecommunications program. We do make the following recommendations, however, no matter which method you use. First, that you send only ASCII text to the Wang system, and second, do not use any control characters or a form feed.

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There are two other manuals which address the task of using microcomputers to communicate with Wang systems. They are:

Communicating Between the Apple and Wang, UCID-19588

Communicating From the PET to the Wang, UCID 197707.

Refer to the appropriate manual if the microcomputer you're using is either an Apple or PET.

HARDWARE

You can connect the IBM-PC to the WANG system using the following hardware:

	<u>\$</u>	<u>STOCK #</u>
1) Quadram multi-function board	696.50	6020-67379
2) 1 ea. male to male RS-232 cable (10 ft.)	18.00	5995-66084
3) 1 ea. male to female RS-232 cable (10 ft.)	16.00	5995-66085
4) 1 ea. null modem	13.00	5995-66087

Connect the cables as shown in Figure 1. We do not use modems in this connection because the two systems are in the same room. The RS-232 standard indicates that point-to-point communication between two systems should not exceed 50 feet. However, if slower data rates are used, like 1200 baud, you could get distances greater than 200 feet. For distances greatly exceeding 200 feet, consider using modems.

FIGURE 1. IBM-PC to Wang Cabling

SOFTWARE

WANG

A Wang representative must install a hardware communications interface on your Wang system and telecommunications software. These additions will increase the monthly charge by about \$75.00.

IBM-PC

We used two different programs to transfer the ASCII text to and from Wang:

	<u>\$</u>	<u>STOCK #</u>
VTERM by: Saturn Consulting Group Inc. 147 West 26th Street New York, New York 10001 Phone Number (212) 675-7753	100.00	6010-67373
DATA CAPTURE/PC: Southeastern Software 7743 Briarwood Drive New Orleans, Louisiana 70128 Phone Number (504) 246-7937	120.00	6010-67494

VTERM has no problems sending text to the Wang. Receiving text from the Wang, however, is not as smooth. VTERM uses XON/XOFF to control the flow of incoming text (XOFF = stop sending, XON = start sending). In the TTY mode, Wang ignores XOFF/XON once transmission has begun. Thus, VTERM sends XOFF the first time the disk is accessed, but the Wang ignores it. This means that some text can be lost the first time VTERM writes its memory buffer to the disk. VTERM will run in a 64k system.

DATA CAPTURE/PC worked nicely in transferring text in both directions. The XON/XOFF problem does not occur with DATA CAPTURE/PC because the disk file is opened for access just prior to entering the received text mode. This program requires at least 128k of memory to operate.

PREPARING THE WANG EDIT CONNECTIONS MENU

You use this procedure when you initially set up communications or if the system crashes and loses this information.

To avoid writing in someone else's library, you must personalize a connection table for your own use. To do this:

- 1) Bring up the "Telecommunication" menu, then "Sessions, Logs, Connections", then "Edit a Connection". This menu will prompt for a connection.
- 2) Type in "tty" and press EXECUTE twice. Rename the connection something unique. For instance, "Docrec" (document receive). Limit your connection names to eight characters or less. Blanks are not allowed in connection names. If you make a mistake, delete the characters with the delete key.
- 3) Press RETURN, and change the Library identification letter to your letter (obtain this identifier from your Wang coordinator). You can change the identifier when setting up a session, but you should put your most commonly used one here.

- 4) Press EXECUTE twice. If you get the message "Connection Already Exists" STOP! Contact your Wang Coordinator to find out why your desired name is already there. If someone else is already using that name, press CANCEL, choose a new name, and reedit the connection. If you and the Coordinator decide that everything is all right, press EXECUTE to overwrite the old information. You will use this connection table when receiving files.
- 5) Next, you need to set up the "send" connection. Bring up "ttyh" the same way you brought up "tty". Give it a name different from the receiving name. For example, "Docsend".
- 6) Correct the library identifier, and store this connection table away by pressing EXECUTE. You will use this connection table when sending files.

When you have finished editing, the connection edit will look something like this:

Connection:	Docrec (or Docsend)	Protocol:	TTY
Library:	M		
Response Timeout:	100 X 0.01 seconds		
Role:	T (or H)	Parity:	N
Baud Rate:	1200	End of Line:	OD
Translation Tables:	01	End of Page:	OC
Format Length:	080		

See pages 7-7 to 7-9 in the Wang Telecommunications Manual if you want to know what all these terms mean.

PREPARING THE WANG TO RECEIVE A DOCUMENT

When you are ready to receive a file, follow this procedure:

- 1) Bring up the telecommunication menu. Select "Begin an Interactive Session" and press RETURN.
- 2) The system will select a session number for you and prompt you:

Connection: _____

Type in the name you selected for receiving. Spaces are not accepted in connection names. If you make a mistake, use the delete key. Press EXECUTE.

- 3) Your default library will be displayed. Press EXECUTE again. After a short wait for the system to load the telecommunications software, the session menu will come up.
- 4) It should say "Data Set Ready" in the upper right of the screen. If it does not, the cable is not connected, the IBM is not turned on, or there is something seriously wrong. Assuming the data set is ready, press the RECV TO DOC key. (If you do not have the function strip for your station, this is the blank key left of the GO TO PAGE key. The strip is shown on page 3-5 of the Wang Telecommunications Manual.)

- 5) The cursor will jump to "Doc Name". Type in the document name and press EXECUTE. If you do not type in a name, the Wang will not save the incoming data, but just display it for you. The cursor will jump to the top of the communication screen and wait for incoming data. Press the RECV TO DOC (or blank) key once more. The message "Recv. Doc. Active" will appear.
- 6) Initiate transmission from the IBM as described on page 13 for VTERM or page 16 for DATA CAPTURE/PC of this manual.
- 7) When the IBM has finished transmitting, use the IBM to bring up another document to send or terminate the session at the Wang, as follows.
- 8) To terminate, press CLOSE RECV DOC (the GO TO PAGE key). Note the Receive Doc ID number. You will need this number later when you edit the document.
- 9) CANCEL will bring up "Cancel Session?". EXECUTE will return you to the previous menu, after a delay. Another CANCEL returns you to the Wang system menu.

PREPARING WANG TO SEND A DOCUMENT

- 1) Bring up the communications menu as described in the section "PREPARING THE WANG TO RECEIVE A DOCUMENT" on page 10. The connection will be the name you chose for sending.
- 2) Provide the document ID. The Wang will provide the name of that document and prompt "DOC Name OK?". If it is, press EXECUTE. Transmission will start immediately.

Be sure THE IBM-PC program is set up to receive before transmission is started, because the Wang will send even if no one is listening. There is no indication when the transmission is finished except that the last line of the document is displayed.

SENDING A DOCUMENT FROM VTERM

To run VTERM under the IBM-PC Disk Operating System (DOS), put the VTERM disk in drive B of the IBM and type B:VTERM. After VTERM has loaded, type Function Key 5. This will display the Options Menu. The menu should look as follows:

TERMINAL OPERATION

Terminal Mode: VT100(ANSI)
Line/Local: ON LINE
New Line: OFF
Wrap Around: ON
Scroll: NORMAL
Screen: NORMAL VIDEO
Cursor Type: BLOCK
Margin Bell: OFF
DA Response: ADVANCED VIDEO
Status Line: UN

COMMUNICATION INTERFACE

Baud Rate: 1200
Bits Per Char: EIGHT
Parity: OFF
Parity Sense: SPACE
Stop Bits: ONE
Auto XON/XOFF: OFF

KEYBOARD OPERATION

Keypad: VT100
Shift-3 Displays: #
Backspace Sends: DELETE

LOGGING AND AUTOTYPE

Log Device: DISK
After Prtsc: NO FORMFEED
Autotype EOL: CR-LF
Autotype Ctrl: STRIP
Autotype Rate: AT BAUD RATE

If an item in the menu is not indicated as above, you can change it using the arrow keys to reach the item, then the ESC key to change its designation.

If changes are made to the menu they can be saved on disk by typing SHIFT "S".

To send a document to the Wang type SHIFT "T". VTERM will respond with "Autotype File:VTERM.ATP". Enter the name of the document that is to be transferred. For example A:LETTER.DOC. Now press Function Key 5, then press the CTRL and ALT keys simultaneously. The word TYPE should be flashing. When the document has been sent, the word TYPE will stop flashing. The document will not be displayed while it is being sent.

RECEIVING A DOCUMENT TO VTERM

The Options Menu should be set up as described on pages 13-14. With the menu showing, type SHIFT "L". VTERM responds with "Disk Log File:". Enter a file name into which the document is to be stored. Example A:LETTER.DOC." Now press Function Key 5, then simultaneously press the control keys CTRL and PRTSC. The word "LOG" should be flashing. As the document is received, it will be displayed on the screen as well as written to disk. VTERM does not know when Wang has finished sending a document. When you are sure transmission is complete, simultaneously press keys CTRL and PRTSC again. This will take VTERM out of the LOGGING mode and close the disk file. Beware of the XON/XOFF problem mentioned on page 6.

SENDING A DOCUMENT FROM DATA CAPTURE/PC

After you have configured your DATA CAPTURE/PC (see the User Manual Data Capture/PC, page 4) install it in drive A of your IBM-PC. Be sure the IBM Operating System (DOS) has been loaded before typing DCAP. After the program is loaded, the parameter heading is displayed. The heading should look as follows:

DUPLEX = HALF BAUD = 1200 DRIVE = B: CAPTURE = BUFFER LINE = 0
TRANSMIT = ON ECHOWAIT = OFF LINEFEED = ON LINEFILL = OFF
PROMPT = NONE

If not, select the appropriate menu and make the necessary corrections.

If transmitting to Wang, place the disk with the text file in drive B and press the Function Key F10, then press F, then S, and enter the name of the file you wish to transfer. Example B:MEMO.DOC. When the file has been transferred the message FILE SENT is displayed.

RECEIVING A DOCUMENT TO DATA CAPTURE/PC

Place the disk which will receive the text file in drive B of the IBM-PC and press F10, then the letters F and O, and enter the name of the file. For example, B:LETTER.DOC.

When the last line of the document has been received from Wang, press F10, then F, then C. The program will then close the file.

CONCLUSION

We are currently working on how to ease the process of cleaning up the documents transferred to the Wang system. A document just transferred to a Wang word processor from an IBM-PC has several problems: it can contain carriage return symbols, tab characters, and spaces which represent tabs, and it does not have any end of paragraph characters or end of page characters. There can also be columns of spaces inserted between pieces of text. Before this document can be edited, it must be cleaned up and changed to Wang format...a painful task on any document which is ten pages or longer.

Luckily, tailor-made glossaries can be written for the Wang systems. A glossary is a routine written by the operator to perform repetitive tasks. We are writing a glossary which is designed to ease this cleanup process. The glossary and the appropriate documentation will be available.

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