UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

Direct-wire procedures for transferring files

among IBM-PCs, COMPUSTARs and LEXITRONs

By

Daniel O. Hayba [1]

Open-file Report 85-127

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards. Any use of trade names is for descriptive purposes only and does not imply endorsement by the U.S.G.S.

[1.] U.S. Geological Survey, Reston, VA 22092

1985

INTRODUCTION

Although most communications between computers and word-processors are done over the phone lines using modems, there are many situations where it is advantageous to transfer information by directly wiring two computers (word processors) together. The obvious limitation to this technique is the fact that the two machines need to be physically close to each other. The advantages are 1) only one person is needed to complete the transfer, 2) transmissions can be made at high baud rates (at least 2400 baud, some as high as 9600 baud), and 3) there is very little "line noise."

This report lists, in a cookbook fashion, the steps necessary to transfer data or text among the following microcomputers and word processors: IBM-PC (or compatible), COMPUSTAR (SUPERBRAIN), and LEXITRON. The following software is necessary to use the procedures: PC-TALK for the IBM-PC, GSCOM for the COMPUSTAR, and the ASYNC ASCII communications diskette for the LEXITRON. The first two are available to U.S. Geological Survey personnel on request from the Information Systems Division. In addition to software, IBM-PCs and LEXITRONs must be equipped with an RS-232 communications port. The COMPUSTARs come with a built-in port.

In order to use the direct-wire procedure a special RS-232 patch cord must be obtained. The cable must have 4 wires with pins 1, 2, 3, and 7 at one end connected to pins 1, 3, 2, and 7, respectively, at the other end. (Note: the wires to pins 2 and 3 are reversed). In addition, pins 5, 6, and 20 must be jumpered at both ends. For convenience, the cable should be at least 5 to 6 feet long. For IBM-PC/LEXITRON and IBM-PC/COMPUSTAR communications, one end of the cable must have a female plug and the other end a male plug. For COMPUSTAR/LEXITRON communications, both ends of the cable need to have male plugs.

When transferring text files between computers, some editing of the files is ususally required, especially for files generated in, or to be later used in Wordstar. Two public domain programs, CLEAN and UNWS[1], are available to convert Wordstar files so they can be read by other editing programs and sent by PC-TALK to other computers. These programs strip off high order bits, expand tab characters to the appropriate number of spaces and eliminate all other control characters except for carriage returns. On the other hand, text files generated by other word processing packages have "hard" carriage returns at the end of each line which must be converted to "soft" carriage returns if Wordstar is to be used effectively. A relatively simple program to handle this chore is listed in Appendix 2. It is also possible to use Wordstar to edit out the "hard" carriage returns, but it can be a tedious task for long files.

---

[1] These programs are on the Information System's Bulletin Board which can be

IBM-PC - COMPUSTAR COMMUNICATIONS

TO SEND DATA FROM IBM-PC TO COMPUSTAR

Plug in communications cable into "COM1" port on IBM-PC and into the
"MAIN" port on COMPUSTAR.

1) On IBM-PC:
   a) enter PC-TALK <return>
   b) press the "Alt" and "F" keys at the same time
   c) check for the correct communication settings:
      2400 baud, 8 data bits, 1 stop bit, no parity
   d) press the "Esc" key then <return> to exit menu
   e) answer "Y" to question, "Are new values OK?"
   f) answer either "Y" or "N" to question, "Make the changes permanent?"

2) On COMPUSTAR:
   a) enter CONFIGUR <return>
   b) check for the correct communication settings on main port:
      2400 baud, 8 data bits, 1 stop bit, no parity
   c) after making any changes, hit the two red keys simultaneously
   d) enter GSCOM <return>
   e) enter H B:filename.extension <return>
   f) press the "Ctrl" and "Y" keys at the same time (nothing happens, but
      it is necessary)

3) On IBM-PC:
   a) press the "Alt" and "T" keys at the same time
   b) when it asks for specification, enter filename.extension <return>
   c) transmission of data should begin now and the file should be displayed
      on both computers
   d) when transmission is complete, press the "Alt" and "X" keys at the
      same time to exit, or press the "Alt" and "T" keys at the same time
      to transmit another file
   e) if you exit, answer "Y" to the question, "Do you want to terminate?"

4) On COMPUSTAR:
   a) press the "Ctrl" and "E" keys at the same time
   b) enter WRT <return>

The file on the COMPUSTAR will have a control character at the end of it that
needs to be removed.

IBM-PC - COMPUSTAR COMMUNICATIONS

TO SEND DATA FROM COMPUSTAR TO IBM-PC

Plug in communications cable into "COM1" port on IBM-PC and into
"MAIN" port on COMPUSTAR.

1) On IBM-PC:
   a) enter PC-TALK <return>
   b) press the space bar when it asks you to hit any key to continue
   c) press the "Alt" and "F" keys at the same time
   d) check for the correct communication settings:
       2400 baud, 8 data bits, 1 stop bit, no parity
   e) press the "Esc" key then <return> to exit menu
   f) answer "Y" to question, "Are new values OK?"
   g) answer either "Y" or "N" to question, "Make the changes permanent?"
   h) press the "Alt" and "R" keys at the same time
   i) when it asks for specification, enter filename.extension <return>

2) On COMPUSTAR:
   a) enter CONFIGUR <return>
   b) check for the correct communication settings on main port:
       2400 baud, 8 data bits, 1 stop bit, no parity
   c) after making any changes, hit the two red keys simultaneously
   d) enter GSCOM <return>
   e) enter T <return>
   f) press the "Ctrl" and "T" keys at the same time
   g) enter the filename.extension to be transferred <return>
   h) select the "N" option
   i) transmission of data should begin now and the file should be displayed
       on both computers
   j) when transmission is complete press the "Cntl" and "E" keys at the
       same time

3) On IBM-PC:
   a) press the "Alt" and "R" keys at the same time
   b) press the "Alt" and "X" keys at the same time to exit, or press the
       "Alt" and "R" keys at the same time to receive another file
   c) if you exit, answer "Y" to the question, "Do you want to terminate?"

The file on the IBM-PC may have a control character at the end of it that
    needs to be removed.

LEXITRON - COMPUSTAR COMMUNICATIONS

TO SEND DATA FROM COMPUSTAR TO LEXITRON

Plug in communications cable into back of LEXITRON and into the "MAIN" port on COMPUSTAR.

1) On COMPUSTAR:
    a) enter CONFIGUR <return>
    b) check for the correct communication settings on main port:
        2400 baud, 8 data bits, 1 stop bit, no parity
    c) after making any changes, hit the two red keys simultaneously

2) On LEXITRON:
    a) if a printer is connected to the LEXITRON, turn it on
    b) insert the "ASYNC ASCII" diskette
    c) set up the menu page to match the one in Appendix 1, with 2400 baud, 8
        data bits, 1 stop bit, no parity
    d) press "SPEC SHIFT" and "ARCHIVE" keys at the same time, a bell should
        ring and menu should be saved
    f) remove the "ASYNC ASCII" diskette
    g) insert a data disk
    h) move the cursor to the bottom of the index and enter the name of the
        file that will be received
    i) press the "NEXT PAGE" key, this should take you to a new blank file
    j) press the "COMM/LOCAL" key, the top of the screen should say
        "CONVERSATIONAL"

3) On COMPUSTAR:
    a) enter GSCOM <return>
    b) enter T <return>
    c) press the "Ctrl" and "T" keys at the same time
    d) enter the filename.extension to be transferred <return>
    e) select the "N" option
    f) transmission of data should begin now and the file should be displayed
        on both the COMPUSTAR and the LEXITRON
    g) when transmission is complete press the "Cntl" and "E" keys at the
        same time

3) On LEXITRON:
    a) press the "COMM/LOCAL" key to put it in local mode
    b) press "INDEX" key
    c) if you are through, press the "SPEC SHIFT" and "EJECT" keys at the
        same time.

It may be necessary to edit the new file on the LEXITRON to remove some
control characters, especially if transferring a file that was generated using
Wordstar

LEXITRON – COMPUSTAR COMMUNICATIONS

TO SEND DATA FROM LEXITRON TO COMPUSTAR

Plug in communications cable into back of LEXITRON and into the "MAIN" port on COMPUSTAR.

1) On LEXITRON
    a) if a printer is connected to the LEXITRON, turn it on
    b) insert the "ASYNC COMMUNICATION" disk
    c) set up the menu page to match the one in Appendix 1, with 2400 baud, 8 data bits, 1 stop bit, no parity
    d) press "SPEC SHIFT" and "ARCHIVE" keys at the same time, a bell should ring and menu should be saved
    f) remove the "ASYNC COMMUNICATION" disk
    g) insert the data disk
    h) place the cursor under the document to be sent and press the "SELECT" key, an "T" will be displayed in the left-hand margin

2) On COMPUSTAR:
    a) enter CONFIGUR <return>
    b) check for the correct communication settings on main port: 2400 baud, 8 data bits, 1 stop bit, no parity
    c) after making any changes, hit the two red keys simultaneously
    d) enter GSCOM <return>
    e) enter H B:filename.extension <return>
    f) press the "Ctrl" and "Y" keys at the same time

3) On LEXITRON:
    a) while on the index page put the cursor on the line of the previously selected title and press the "SPEC SHIFT" and "SEND" keys at the same time
    b) transmission of data should begin now and the file should be displayed on both the COMPUSTAR and the LEXITRON
    c) when transmission is complete press the "COMM/LOCAL" key; the top of the screen should say "LOCAL MODE"

4) On COMPUSTAR:
    a) press the "Ctrl" and "E" keys at the same time
    b) enter WRT <return>

The file on the COMPUSTAR may have control codes and special characters that will need to be corrected.

IBM-PC - LEXITRON COMMUNICATIONS

TO SEND DATA FROM IBM-PC TO LEXITRON

Plug in communications cable into back of LEXITRON and into the
    "COM1" port on the IBM-PC.

1) On IBM-PC:
    a) enter PC-TALK <return>
    b) press the space bar when it asks you to hit any key to continue
    c) press the "Alt" and "F" keys at the same time
    d) check for the correct communication settings:
        2400 baud, 8 data bits, 1 stop bit, no parity
    e) press the "Esc" key then <return> to exit menu
    f) answer "Y" to question, "Are new values OK?"
    g) answer either "Y" or "N" to question, "Make the changes permanent?"

2) On LEXITRON:
    a) if a printer is connected to the LEXITRON, turn it on
    b) insert the "ASYNC ASCII" diskette
    c) set up the menu page to match the one in Appendix 1, with 2400 baud, 8
        data bits, 1 stop bit, no parity
    d) press "SPEC SHIFT" and "ARCHIVE" keys at the same time, a bell should
        ring and menu should be saved
    f) remove the "ASYNC ASCII" diskette
    g) insert a data disk
    h) move the cursor to the bottom of the index and enter the name of the
        file that will be received
    i) press the "NEXT PAGE" key, this should take you to a new blank file
    j) press the "COMM/LOCAL" key, the top of the screen should say
        "CONVERSATIONAL"

3) On IBM-PC:
    a) press the "Alt" and "T" keys at the same time
    b) when it asks for specification, enter filename.extension <return>
    c) transmission of data should begin now and the file should be displayed
        on both computers
    d) when transmission is complete, press the "Alt" and "X" keys at the
        same time to exit, or press the "Alt" and "T" keys at the same time
        to transmit another file
    e) if you exit, answer "Y" to the question, "Do you want to terminate?"

3) On LEXITRON:
    a) press the "COMM/LOCAL" key to put it in local mode
    b) press "INDEX" key
    c) if you are through, press the "SPEC SHIFT" and "EJECT" keys at the
        same time.

It may be necessary to edit the new file on the LEXITRON to remove some
control characters, especially if transferring a file that was generated using
Wordstar

IBM-PC - LEXITRON COMMUNICATIONS

TO SEND DATA FROM LEXITRON TO IBM-PC

Plug in communications cable into back of LEXITRON and into the
"COM1" port on COMPUSTAR.

1) On LEXITRON
    a) if a printer is connected to the LEXITRON, turn it on
    b) insert the "ASYNC COMMUNICATION" disk
    c) set up the menu page to match the one in Appendix 1, with 2400 baud, 8
       data bits, 1 stop bit, no parity
    d) press "SPEC SHIFT" and "ARCHIVE" keys at the same time, a bell should
       ring and menu should be saved
    f) remove the "ASYNC COMMUNICATION" disk
    g) insert the data disk
    h) place the cursor under the document to be sent and press the "SELECT"
       key, an "T" will be displayed in the left-hand margin

2) On IBM-PC:
    a) enter PC-TALK <return>
    b) press the space bar when it asks you to hit any key to continue
    c) press the "Alt" and "F" keys at the same time
    d) check for the correct communication settings:
       2400 baud, 8 data bits, 1 stop bit, no parity
    e) press the "Esc" key then <return> to exit menu
    f) answer "Y" to question, "Are new values OK?"
    g) answer either "Y" or "N" to question, "Make the changes permanent?"
    h) press the "Alt" and "R" keys at the same time
    i) when it asks for specification, enter filename.extension <return>

3) On LEXITRON:
    a) while on the index page put the cursor on the line of the previously
       selected title and press the "SPEC SHIFT" and "SEND" keys at the
       same time
    b) transmission of data should begin now and the file should be displayed
       on both the IBM-PC and the LEXITRON
    c) when transmission is complete, the LEXITRON automatically goes to the
       Index page

4) On IBM-PC:
    a) press the "Alt" and "R" keys at the same time
    b) press the "Alt" and "X" keys at the same time to exit, or press the
       "Alt" and "R" keys at the same time to receive another file
    c) if you exit, answer "Y" to the question, "Do you want to terminate?"

The file on the IBM-PC may have control codes and special characters that will
need to be corrected.

ASYNC COMM - ASCII EMULATION - VERSION 0106
TO EJECT MENU: PRESS ARCHIVE KEY
TO INITIALIZE MENU: PRESS CANCEL KEY

TRANSMISSION RATE (BPS)
  110
  150
  300
  600
  1200
- 2400
  4800
  9600

DATA LINK MODE
- FULL DUPLEX
  HALF DUPLEX
  ECHOPLEX

TRANSMIT AT END OF LINE
  CR CODE ONLY
  LF CODE ONLY
  LF, CR
- CR, LF
  PROGRAMMABLE-®   -UP TO 8 CHARACTERS

END OF TRANSMIT TRIGGER FOR BATCH
  END OF LINE
- $C TRANSMITTED

END OF FILE ACTION
  NO CODE TRANSMITTED
- $D TRANSMITTED

ATTENTION KEY OPTIONS
- BREAK TRANSMITTED
  $S TRANSMITTED
ATTN KEY DISPLAY=$A

END OF RECEIVE TRIGGER FOR BATCH
- CR CODE RECEIVED
  $C OR EOT RECEIVED

MISCELLANEOUS SELECTIONS
- SPACE CODE IN BLANK LINE
- DISPLAY MENU PAGE
- TERMINATE BATCH IF EOT RECEIVED
- TRANSMIT AND RECEIVE BETWEEN PAGE SETS
  RECEIVED SPACE EQUIVALENT TO ERASE
  SEND TITLES FROM INDEX PAGE
  SELECTIVE TRANSMIT
  SEND FORM FEED AT END OF PAGE

DATA LINK CHAR SPEC=100

    DATA SPEC KEY

1ST DIGIT=DATA BITS 0=7,1=8,2=N.A.
2ND DIGIT=PARITY 0=NONE,1=ODD,2=EVEN
3RD DIGIT=STOP BITS 0=1,1=1.5,2=2   9

The following is a listing of a basic program which changes hard carriage returns into soft carriage returns for text files which are to be edited with Wordstar. Hard carraige returns are left on blank lines, text lines that are followed by blank lines, and text lines which are followed by a line beginning with 5 blank spaces (the beginning of a new paragraph).

```
10 ' This program changes hard carriage returns into soft
20 ' carriage returns for text files which are to be edited with
30 ' Wordstar.  Hard carriage returns are removed from all lines
40 ' except those lines which are 1) blank lines, 2) text lines
50 ' which are followed by blank lines and 3) text lines which
60 ' are followed by a line beginning with 5 blank spaces
65 ' Note: text must be single spaced.
70 '
80 ' Written by Daniel O. Hayba, 12/28/84
90 '
100 DIM A$(1000)
110 INPUT "ENTER INPUT FILE NAME: ",F9$ : IF LEN(F9$)=0 THEN 360
120 OPEN "I",#1,F9$
130 INPUT "ENTER OUTPUT FILE NAME: ",O9$ : IF LEN(O9$)=0 THEN 360
140 IF O9$<>F9$ THEN 160
150 PRINT "INPUT/OUTPUT FILE NAMES MUST BE DIFFERENT" : GOTO 130
160 OPEN "O",#2,O9$
170 IF EOF(1) THEN 360
180 LINE INPUT #1,A$(1)
190 X=1
200 IF EOF(1) THEN 320
210 LINE INPUT #1,B$
220 IF 1>LEN(A$(1)) THEN GOTO 270
230 IF STRING$(5,32)=LEFT$(B$,5) THEN GOTO 270
240 IF 1>LEN(B$) THEN GOTO 270
250 A$(X)=A$(X)+CHR$(141)+CHR$(10)
260 X=X+1 : A$(X)=B$ : GOTO 200
270 FOR I=1 TO X-1
280 PRINT#2,A$(I);
290 NEXT I
300 PRINT#2,A$(X)
310 A$(1)=B$ : GOTO 190
320 FOR I=1 TO X-1
330 PRINT#2,A$(I);
340 NEXT I
350 PRINT#2,A$(X)
360 CLOSE : END
```