

**MSX-2 CP/M v2.2
NET-SHELL version**

Classroom Network version 3.0

NPIP OPERATION MANUAL

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1. Overview

NPIP runs on the CP/M Version 2.2 net shell version on the YIS503IIR (Russian-language model) or the YIS805 and makes possible transfers of files and VRAM data between teacher and students and among students in Version 3.0 of the classroom network.

- DIRECTORY (DIR) : Displays the directory of the specified drive.
- TYPE : Displays the contents of the source text file.
- ERASE (ERA) : Erases a file
- RENAME (REN) : Renames a file.
- COPY : Copies a file.
- MAIL : Sends a file with the time and date marked.
- FILE-COMPARE (FCMP) : Compares the contents of two files.
- VRAM-MOVE (VMOV) : Transfers VRAM data or a VRAM data file.

Note: There are two versions of NPIP for Version 3.0 of the classroom network, a disk version for the teacher and a ROM version for the students. The ROM version of NPIP for students does not have the FILE-COMPARE and VRAM-MOVE commands.

2. What you should know for operating NPIP

Functions of the special keys on the keyboard

The functions of the special keys depend on the screen being displayed, but generally they have the following functions:

- Return key (RET)
 - Concludes entry of the drive or file name
 - Begins execution of a command.

- Escape key (ESC)
 - Cancels a command (and returns the system to command menu mode.

- Insert key (INS)
 - Puts the system into directory display mode or ends that mode.
 - Erases the screen directory and has the system wait for specification of another directory.

- Cursor keys (↑), (↓), (←), and (→)
 - Selects commands in command menu mode.
 - Selects files in the menu area.

- CTRL + C keys
 - Stops execution of a command.

- CTRL + X keys
 - Erases a file name or other item input in the menu area.

- Back space key (BS) and delete key (DEL)
 - Erases one character of the input drive or file name.

Note: CTRL + letter key means to press the CTRL key and that letter key simultaneously.

Specifying the drive

In Version 3.0 of the classroom network, specify the drive this way:

- A: Drive A that you control
- 1A: Drive A of Student 1
- #A: Broadcast to the Drive A of all the students

The teacher and students can specify drives from A: to P: for his or her own computer and from nA: to nH: (where n is the student number) for the teacher and Student 1 to Student 15. However, only the teacher can broadcast.

In addition, when using the VRAM move command, the teacher specifies V: for his or her own VRAM and for specifying a student's VRAM, enters the student number before the V:.

Others

Operating NPIP presumes knowledge of the following items:

- The basic and the operations of CP/M Version 2.2
- General knowledge of the classroom network Version 3.0 system
- Operations of the classroom network Version 3.0 utility (NUTL)

3. Starting up NPIP

To start up NPIP, first start CP/M, then use the DIR command, which is a built-in command, to check that the NPIP.COM file is on the disk in the current drive. For example, if the current drive is A (the prompt "A >" is being displayed), if the NPIP.COM is on the disk in the A drive, enter

```
A > NPIP
```

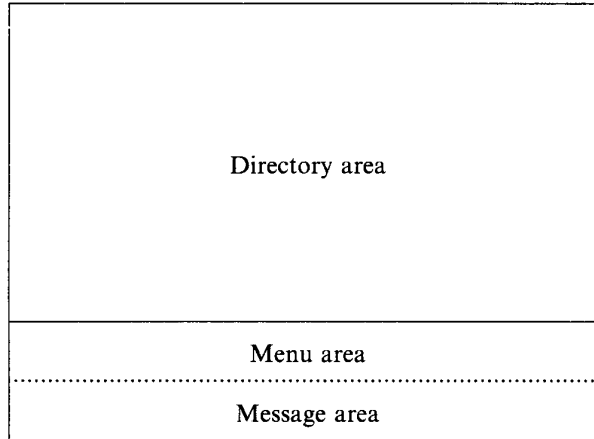
If the NPIP.COM file is on some other drive, for example B, enter:

```
A > B:NPIP
```

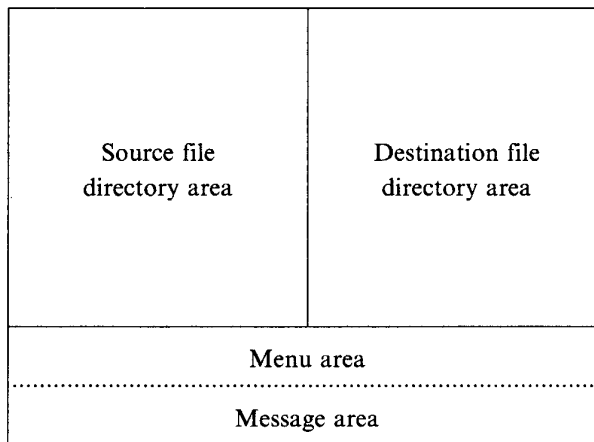
Note: Only a student can start the student NPIP, so do not copy the student NPIP to the teacher over the network.

4. NPIP screens

When NPIP is started, the screen is 80 characters wide by 24 lines. The NPIP screen is divided into the following three sections:



However, when the copy or file-compare command is used, the directory area is divided in 2:

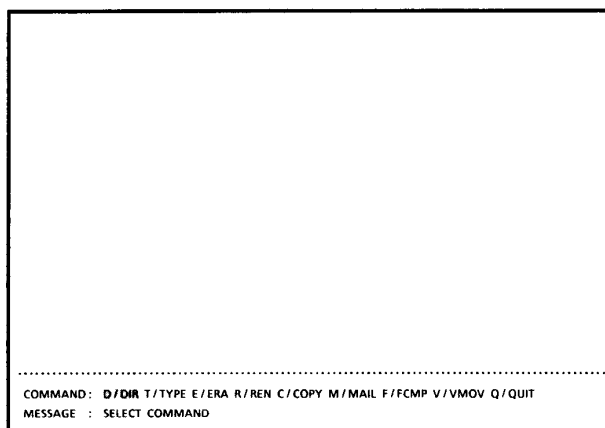


The directory is displayed in the directory area, but when NPIP is started up, nothing is displayed in this area. The menu area is used for selecting a command or file or for direct input from the keyboard. The message area displays messages from NPIP.

5. Commands

Command menu mode

When NPIP is started, it goes into command menu mode and waits for a command.



D/DIR	: DIRECTORY	R/REN	: RENAME	F/FCMP	: FILE-COMPARE
T/TYPE	: TYPE	C/COPY	: COPY	V/VMOV	: VRAM-MOVE
E/ERA	: ERASE	M/MAIL	: MAIL	Q/QUIT	: QUIT

At first, the cursor is displayed on the directory command (D/DIR). Any one of the nine commands in this menu can be selected by moving the cursor to that command or by inputting its first letter. The cursor can be moved freely to the right with the → key and to the left with the ← key. Moving the cursor to a command, then pressing the return key starts that command.

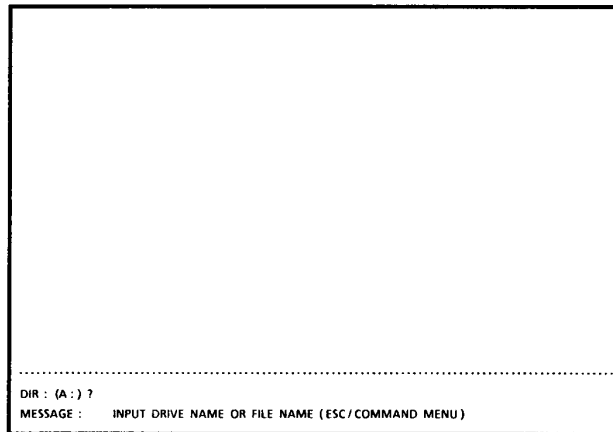
It is also possible to select a command by inputting its first letter, for example D for the directory command or T for the type command, without using the ← and → keys.

Except for the quit command, in any one of the other eight command modes, the ESC key can be pressed at any time, except when the command is actually being executed, to return to command menu mode. Exactly what happens during command execution will be discussed later, but during execution, it is possible to press CTRL + C keys to stop execution, then press the ESC key to return to command execution mode.

Note: The command menu mode screen shown on the previous page is the screen displayed when the teacher's disk NPIP is started. When the ROM NPIP for students is started, the "F/FCMP" mark for the file compare command and the "V/VMOV" mark for the VRAM move command are not displayed.

Directory command (D/DIR)

This command is used to display the directory of the disk in the specified drive. When the directory command is selected, the screen shows:



Here, input the drive or file whose directory is to be displayed. The menu area shows the name of the current command, followed by the name of the current drive in parentheses. Therefore, to display the directory for any drive other than the current drive, directly input the name of that drive from the keyboard. It is also possible to check for a certain file or files by using ? and * as wild cards in the file specification to display a directory of all the files that match the file name specification. In this case, specify the drive name, then the file. The input method is the same as for the built-in DIR command of the CP/M system.

As an example, assume that you are the teacher in the classroom network . This being the case, the current drive name displayed in the menu area is the name of a drive you control yourself. To check the directory of the disk in the H drive of Student 1, enter "1H:".

```
.....
DIR : (A :) ? 1H :
MESSAGE : INPUT DRIVE NAME OR FILE NAME (ESC/COMMAND MENU)
```

When input of the drive name and/or file name is complete, the command is executed and the directory is read from the specified disk and displayed this way in the directory area:

```
DIRECTORY STUDENT NO.1 H :

XDIR .COM : SUBMIT .COM : XSUB .COM : BASIC .COM
NUTL .COM : NPIP .COM : ASM .COM : DDT .COM
DUMP .COM : ED .COM : LOAD .COM : PIP .COM
STAT .COM : TEST1 .COM : TEST2 .COM : SAMPLE .ASM

.....
DIR :
MESSAGE : OK ? (RET) (INS/ANOTHER DIRECTORY ESC/COMMAND MENU)
```

When the directory is too large to fit on a single screen, the rest of the directory can be displayed by using the following keys:

N:	display the next screen	(N/NEXT)
B:	display the previous screen	(B/BACK)
U:	scroll up one line	(U/UP)
D:	scroll down one line	(D/DOWN)

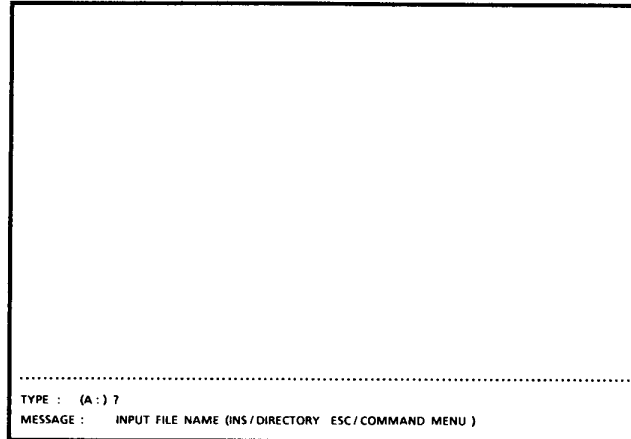
After reading one directory, to look at another press the INS key to return to the initial directory command screen, then enter the name of the drive or files that you now wish to see the directory of.

To end the directory command, after displaying a directory press the return key or the ESC key to return to command menu mode. To stop execution of a command while a directory is being displayed, press the CTRL and the C keys simultaneously and hold them down until the message that the command has been interrupted is displayed. After the command has been stopped, pressing the ESC key returns the system to command menu mode. This method for stopping a command works the same way for the other commands.

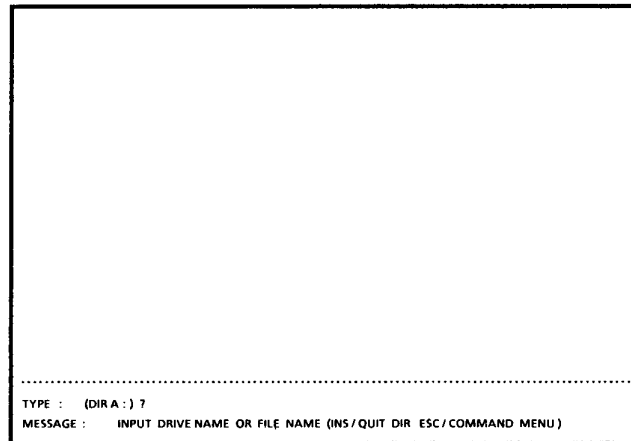
If a drive name or file name has been entered and an error occurs during execution of the command, an error message is displayed in the message area. The states indicated by the error message and what to do about them will be explained below. When an error message is displayed, pressing the return key returns the system to the screen that was being displayed before the command was executed, then pressing the ESC key returns the system to command menu mode. This operation works the same way for the other commands.

Type command

This command is used to display the contents of a source text file. When the system enters type command mode, the screen shows:



With this screen being displayed, you can enter the name of the file to be typed and execute the type command immediately or you can check the name of the files by pressing the INS key to display the directory. In this case, the screen shows:



The menu screen shows the name of the current command followed by "DIR:" and the current drive "A:" in parentheses to indicate temporary directory mode. From this point on, the method for selecting a directory is the same as for the directory command.

To get out of this temporary directory mode, press the INS key again before displaying a directory or press the return key after displaying a directory. Either method returns the system to the initial type command mode screen.

As an example, if the directory for Drive H of Student 1 is displayed, then the system returned from temporary directory mode to type command mode, the screen shows:

```
DIRECTORY STUDENT NO.1 H :  
  
XDIR .COM : SUBMIT .COM : XSUB .COM : BASIC .COM  
NUTL .COM : NPIP .COM : ASM .COM : DDT .COM  
DUMP .COM : ED .COM : LOAD .COM : PIP .COM  
STAT .COM : TEST1 .COM : TEST2 .COM : SAMPLE .ASM  
  
-----  
TYPE : (IH :) ? SAMPLE .ASM  
MESSAGE : SELECT OR INPUT FILE NAME (INS/DIRECTORY ESC/COMMAND MENU)
```

At this point, there are two ways to specify the name of the file to be typed:

1. Input the name of the file directly from the keyboard.
2. Use the cursor keys, <↑>, <↓>, <←>, and <→>, to place the cursor over the desired file in the directory area display. In both these methods, the name of the file currently selected is displayed inverted. Pressing one of the cursor keys moves the cursor to another file in the directory area and simultaneously changes the menu area from the previous file name to this new one.

After using the cursor keys to place the cursor over the name of the desired file, press the return key to input that file name and execute the type command. In Method 1, the inverted display in the directory area and the menu area goes out and the file can be input from the keyboard.

Pressing a cursor key at this point resumes the inverted display in the directory area and the menu area and the file can be selected from the directory area.

After the type command is executed, the entire contents of the file are typed out on the screen and the screen shows:

```
mov     a,$      : end of string
mov     m,a      : set $ on buffer
mvi     c,wrstr  : set write func.
call    bdos     : put 1 line
call    crlf     : put c/r & l/f
jmp     loop     : try next one

crlf : mvi     c,wrstr  : set write func.
      mvi     e,cr     : set c/r
      call    bdos     : put c/r
      mvi     c,wrstr  : set write func.
      mvi     e,lf     : set l/f
      call    bdos     : put l/f
      ret                          : return

buffer : db      7fh    : buffer length
length : ds      0fh    : for input length
string  : ds      7fh    : for image

      end     100h    : program end

-----
TYPE :
MESSAGE : END OF FILE, OK ? (RET) (INS / ANOTHER FILE ESC / COMMAND MENU)
```

To type out another file at this point, press the INS key. To end the type command, press the return key or the ESC key to return the system to command menu mode.

Erase command (E/ERA)

This command is used to erase a file. The same as for the type command, the initial screen for the erase command shows:

```
ERA: (A:) ?  
MESSAGE : INPUT FILE NAME (INS/DIRECTORY ESC/COMMAND MENU)
```

Also the same as for the type command, it is possible to enter the name of the file directly or to look at a directory first. To look at a directory, press the INS key, then specify the name of the drive or file whose directory is to be displayed, display it, then press the return key. The screen shows:

```
DIRECTORY STUDENT NO.1 H :  
  
XDIR .COM : SUBMIT .COM : XSUB .COM : BASIC .COM  
NUTL .COM : NPIP .COM : ASM .COM : DDT .COM  
DUMP .COM : ED .COM : LOAD .COM : PIP .COM  
STAT .COM : TEST1 .COM : TEST2 .COM : SAMPLE .ASM  
  
ERA: (IH:) ? TEST1.COM  
MESSAGE : SELECT OR INPUT FILE NAME (INS/DIRECTORY ESC/COMMAND MENU)
```


The screen on the previous page is the one shown when the name of the file is input directly from the keyboard after the directory has been called out. As explained earlier, the inverted display of the name of the file currently selected in the directory area and in the menu area goes out. To select a file from the directory area, press one of the cursor keys and the inverted display will be resumed.

When the file has been specified this way and the return key pressed, the erase command is executed. When inputting the file name directly from the keyboard, * and ? can be used as wild card specifications. In this case, all the files that match the specification are erased.

When the erase command has been executed, the system returns to the screen that was being displayed just before execution of the erase command and another file can be erased. Pressing the ESC key at this point returns the system to command menu mode. Pressing the INS key when a directory is being displayed returns to erase command mode retaining the display of that directory. To display a different directory, press the INS key again, then input the name of the drive or file whose directory is to be displayed. These operations are the same as for the directory command.

Rename command (R/REN)

This command is used to change the name of a file. The same as for the type and erase commands, when this command is selected, the screen shows:

```
.....  
REN: (A:) ?  
MESSAGE : INPUT FILE NAME (INS/DIRECTORY ESC/COMMAND MENU)
```

The same as for the commands already discussed, the file whose name is to be changed can be selected by inputting it directly from the keyboard or by displaying a directory, then selecting it from that directory with the cursor keys. In the following example, a directory is displayed, then the cursor keys are used to select one of the files from that directory.

```
DIRECTORY STUDENT NO.1 H :  
  
XDIR .COM : SUBMIT .COM : XSUB .COM : BASIC .COM  
NUTL .COM : NPIP .COM : ASM .COM : DDT .COM  
DUMP .COM : ED .COM : LOAD .COM : PIP .COM  
STAT .COM : TEST1 .COM : TEST2 .COM : SAMPLE .ASM  
  
.....  
REN: (IH:) ? TEST2 .COM ----->(A:) ? TEST3.COM  
MESSAGE : INPUT FILE NAME (INS/DIRECTORY ESC/COMMAND MENU)
```

The rename command can not be executed unless not only the first file name but also the second file name, i.e. the new name the file is to be given, are entered. Therefore, input the new file name directly from the keyboard. If a drive name is entered with the new file name it is ignored. The drive for the first file name (the old file name) is used.

Directories can be shown on this screen just as for the commands already explained, but the new file name must be input directly from the keyboard. It can not be selected from the directory with the cursor keys. When entry of the first (old) file name and second (new) file name is complete, the command is executed. If execution is completed normally, the system returns to the screen from which another file to be renamed can be entered. To end the rename command, press the ESC key to return to command menu mode.

Copy command (C/COPY)

This command is used to copy a file. When this command is selected, the screen shows:

SOURCE	DESTINATION
COPY : (A:) ?	
MESSAGE : INPUT FILE NAME (INS/DIRECTORY ESC/COMMAND MENU)	

The difference between this command and the commands explained up till now is that the directory area for this command is divided in two. The left half of the directory area is for the first file (the source file) and the right half is for the second file (the destination file).

At first, the "SOURCE" label on the first row is displayed inverted to show that this is the file whose name is currently being input. Input the name of the file to be copied. Either input it directly or display a directory then select it with the cursor keys in the same manner as for the commands already explained.

The example on the next page shows a screen when the directory is displayed and the source file is selected with the cursor keys.

```

----- SOURCE -----
----- DESTINATION -----
DIRECTORY A :
SYSGEN .COM : FORMAT .COM
MOVCPM .COM : ASM .COM
DDT .COM : DUMP .COM
ED .COM : LOAD .COM
XSUB .COM : SUBMIT .COM
PIP .COM : STAT .COM
NUTL .COM : NPIP .COM
VDATA .VRM : TEST .COM

COPY : (A:) ? TEST .COM
MESSAGE : SELECT OR INPUT FILE NAME (INS/DIRECTORY ESC/COMMAND MENU)

```

The directory for selecting the source file is displayed on the left. To select a file from this directory, use the <→>, <←>, <↑>, and <↓> keys. It is also possible to input the name of the file directly from the keyboard even when a directory is displayed. It is also possible to use the * and ? codes when inputting the file name directly from the keyboard to copy all the files that match the input.

After inputting the name of the source file, press the return key. The inverted display on the top line switches to the “DESTINATION” label to show that the system is in destination file input mode.

```

----- SOURCE -----
----- DESTINATION -----
DIRECTORY A :
SYSGEN .COM : FORMAT .COM
MOVCPM .COM : ASM .COM
DDT .COM : DUMP .COM
ED .COM : LOAD .COM
XSUB .COM : SUBMIT .COM
PIP .COM : STAT .COM
NUTL .COM : NPIP .COM
VDATA .VRM : TEST .COM

COPY : (A:) ? TEST .COM -----> (A:) ?
MESSAGE : INPUT FILE NAME (INS/DIRECTORY ESC/COMMAND MENU)

```

With this screen, the name of the destination file is input directly from the keyboard. It is also possible to display a directory the same way as for the source file. However, although the specified directory is displayed in the right hand side directory area, the destination file can not be selected from a directory with the cursor keys. Therefore, in this screen the destination file is input directly from the keyboard.

```

----- SOURCE -----
DIRECTORY A :
SYSGEN .COM : FORMAT .COM
MOVCPM .COM : ASM .COM
DDT .COM : DUMP .COM
ED .COM : LOAD .COM
XSUB .COM : SUBMIT .COM
PIP .COM : STAT .COM
NUTL .COM : NPIP .COM
VDATA .VRM : TEST .COM

----- DESTINATION -----
DIRECTORY STUDENT NO.1 H:
XDIR .COM : SUBMIT .COM
XSUB .COM : BASIC .COM
NUTL .COM : NPIP .COM
ASM .COM : DDT .COM
DUMP .COM : ED .COM
LOAD .COM : PIP .COM
STAT .COM : TEST1 .COM
TEST2 .COM : SAMPLE .ASM

COPY : (A:) ? TEST .COM -----> (A:) ? 1H:
MESSAGE : INPUT FILE NAME (INS/DIRECTORY ESC/COMMAND MENU)

```

If the destination file has the same name as the source file and the destination drive is the current drive, just press the return key. If the destination drive is some other drive, just enter the name of the destination drive, then press the return key.

(In the example on the this page, the destination drive is 1H and the destination file has the same name as the source file.) When the input of the source file and destination file is complete, the command is executed. When execution ends normally the system returns to source file input mode. To end the copy command, press the ESC key to return the system to command menu mode.

Note: While looking at the directories for this command, you can use the <←> and <→> keys to switch back and forth between the directory for the source file and the directory for the destination file. When the current directory is switched, the inverted display on the top line is also switched. This works the same way for the file compare command, which will be discussed later.

Mail command (M/MAIL)

This command is used to copy a file with the time and date labeled. The initial screen for the mail command shows:

```
MAIL : (A:) ?  
MESSAGE : INPUT FILE NAME (INS / DIRECTORY ESC / COMMAND MENU )
```

The same as for the type, erase, and rename commands, the file to be mailed can be input directly from the keyboard or selected from a directory with the cursor keys. For this command, when the file to be mailed is selected from a directory with the cursor keys, the screen shows:

```
DIRECTORY A:  
SYSGEN .COM : FORMAT .COM : MOVCPM .COM : ASM .COM  
DDT .COM : DUMP .COM : ED .COM : LOAD .COM  
XSUB .COM : SUBMIT .COM : PIP .COM : STAT .COM  
NUTL .COM : NPIP .COM : VDATA .VRM : TEST .COM  
  
MAIL : (A:) ? TEST .COM-----> (A:) ? 1H :  
MESSAGE : INPUT DRIVE NAME (INS / DIRECTORY ESC / COMMAND MENU)
```

In the screen on the previous page, the name of the directory for the mail to be copied to is input directly from the keyboard. If the destination directory for the mail is the current drive, just press the return key. If the destination drive is any other drive, enter it. The name of the destination file can not be specified.

Directories can be viewed from this screen, but it is impossible to use the cursor keys to select the name of the destination file from the directory.

When input of the destination drive is finished, the mail command is executed. The name of the destination file is displayed right after the destination drive. The 8 letters of the file name are the date (month and day) and the time (hour and minute), followed by a period, then a suffix of Mnn, where nn is the number of the student or teacher sending the mail. If the mail is sent between drives that you control, the suffix is MLD, where d is the name of the destination drive.

Here is an example:

```
DIRECTORY A :
SYSGEN .COM : FORMAT .COM : MOVCPM .COM : ASM .COM
DDT .COM : DUMP .COM : ED .COM : LOAD .COM
XSUB .COM : SUBMIT .COM : PIP .COM : STAT .COM
NUTL .COM : NPIP .COM : VDATA .VRM : TEST .COM

-----
MAIL : (A :) ? TEST .COM -----> (A :) ? 1H : 04150804.M00
MESSAGE : MAILING [TEST .COM] (CTRL - C / INTERRUPT)
```

This is the screen displayed while the mail command is being executed. The name of the destination file is "04150804.M00. This means that the mail was sent by Student 0, i.e. the teacher, at 8:04 on April 15.

When execution of this command is finished, the system returns to the screen from which another file to be mailed can be specified. Pressing the ESC key at this point ends the mail command and returns the system to command menu mode.

File-compare command (F/FCMP)

This command is used to compare the contents of two files. When this command is started, the same screen is displayed as for the copy command:

SOURCE	DESTINATION
FCMP : (A:) ? MESSAGE : INPUT FILE NAME (INS/DIRECTORY ESC/COMMAND MENU)	

First, enter one of the two files to be compared. The same as for the copy command, a directory can be displayed, then a file selected from it with the cursor keys.

SOURCE	DESTINATION
DIRECTORY A :	
SYSGEN .COM : FORMAT .COM	
MOVCPM .COM : ASM .COM	
DDT .COM : DUMP .COM	
ED .COM : LOAD .COM	
XSUB .COM : SUBMIT .COM	
PIP .COM : STAT .COM	
NUTL .COM : NPIP .COM	
VDATA .VRM : TEST .COM	
FCMP : (A:) ? TEST .COM MESSAGE : SELECT OR INPUT FILE NAME (INS/DIRECTORY ESC/COMMAND MENU)	

After the name of the first file is input, the second file name is input. Unlike the copy command, the second file can be selected from a directory with the cursor keys.

```

..... SOURCE ..... DESTINATION .....
.....
DIRECTORY A :          DIRECTORY STUDENT NO.1 H:
SYSGEN .COM : FORMAT .COM      XDIR   .COM : SUBMIT .COM
MOVCPM .COM : ASM   .COM      XSUB   .COM : BASIC .COM
DDT    .COM : DUMP  .COM      NUTL   .COM : NPIP  .COM
ED     .COM : LOAD  .COM      ASM    .COM : DDT   .COM
XSUB   .COM : SUBMIT .COM     DUMP   .COM : ED   .COM
PIP    .COM : STAT  .COM      LOAD   .COM : PIP   .COM
NUTL   .COM : NPIP  .COM     STAT   .COM : TEST1 .COM
VDATA  .VRM : TEST  .COM     TEST2  .COM : SAMLE .ASM
.....
FCMP : (A :) ? TEST .COM -----> (H :) ? TEST2 .COM
MESSAGE :   SELECT OR INPUT FILE NAME (INS/DIRECTORY ESC/COMMAND MENU)

```

When the name of the second file is input, this command is executed and the contents of the two specified files are compared:

```

ADRS  DT1  DT2
01FB  21   00
01F9  00   FF
01FA  CE   02

0200 END OF FILE1, FILE2 (FILE1 SIZE = FILE2 SIZE)

.....
FCMP : (A :) ? TEST .COM -----> (H :) ? TEST2 .COM
MESSAGE :   3 ERRORS DETECTED, OK ? (RET) (INS/ANOTHER FILE ESC/COMMAND MENU)

```

During execution, if the contents of the two files are different, the address relative to the head of the files and the byte of data for the two files are displayed in the directory area. When execution of this command is finished, the last relative address compared + 1 is displayed. If the two files are not the same size, the file whose end was reached first, File 1 or File 2, is displayed and so is the relationship between the size of the two files. The total number of spots where the two files differ is displayed in the message area.

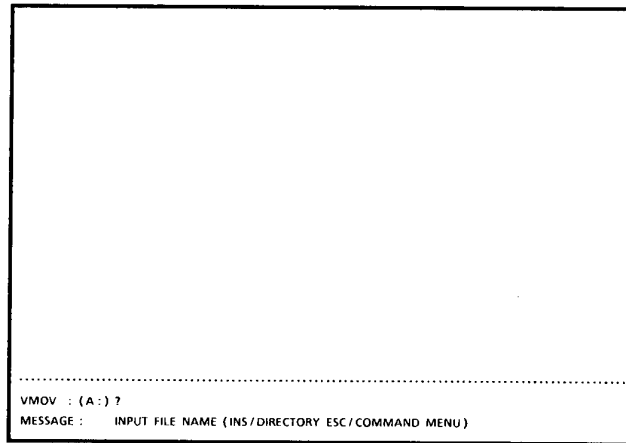
In the example on the this page, the relative addresses where the two files differed and the data for both files at that address are displayed in the directory area and the last line of the directory

area shows 1 + the last relative address compared in hexadecimal notation, in this case, 0200. This address is followed by a message indicating that the ends of both files were reached and that the two files were the same size. The message area contains a message indicating that the comparison of the two files found three places where they differed.

When the system is showing this screen, pressing either the return key or the ESC key ends the file compare command and returns the system to command menu mode. Pressing the INS key instead returns the system to the initial file comparison command screen and the first of another two files to be compared can be input.

VRAM-move command (V/VMOV)

This command is used to copy VRAM data or VRAM data files. The initial screen for this command shows:



The source VRAM data or file is input from this screen. If a VRAM data file is input, just as for the commands discussed up till now, it may be entered directly or a directory may be displayed and the file selected from that directory with the cursor keys. However, in this case, only a VRAM data file can be moved.

To specify VRAM data, enter "V:" for your own VRAM data or "V:" with the number of a student in front of it (for example "1V:" for the VRAM of that student. Immediately after this a start address for the VRAM from 0000H to FFFFH can be specified in hexadecimal notation followed by a comma, then the end address (again from 0000H to FFFFH in hexadecimal notation). However, the VRAM addresses are only specified in special cases. Since the data addresses in VRAM for making up a single screen depend on the screen mode, there are cases in which the screen is not displayed correctly when the addresses are specified. The concrete addresses for VRAM data conform to BASIC, so consult the BASIC manual if more information is necessary.

To simply send the VRAM for a single screen, just input "nV:", where n is a student number. In this case, the default value for the start address is 0000H and the default value for the end address is the border of the VRAM data, which depends on the screen mode:

Corresponding BASIC screen mode	End address
SCREEN 0 (WIDTH 40)	0FFFH
SCREEN 0 (WIDTH 80)	17FFH
SCREEN 1, 2, 3, 4	3FFFH
SCREEN 5, 6	7FFFH
SCREEN 7, 8	FFFFH

For example, to copy the screen (VRAM data) of Student 1 to your own screen, input:

```
.....  
VMOV : (A:) ? 1v :-----> (A:) ? v :  
MESSAGE : INPUT FILE NAME (INS/DIRECTORY ESC/COMMAND MENU)
```

Pressing the return key executes the command and the screen of Student 1 is displayed this way:

```
MSX-2 CP/M V2.2 1987.10/29  
NET-SHELL Version  
Copyright (C) DIGITAL RESEARCH INC.  
Distributed by YAMAHA  
  
NET-DRIVER active no-01  
H> DIR  
H: XDIR COM : SUBMIT COM : XSUB COM : BASIC COM  
H: NUTL COM : NPIP COM : ASM COM : DDT COM  
H: DUMP COM : ED COM : LOAD COM : PIP COM  
H: STAT COM : TEST COM : TEST2 COM : SAMPLE ASM  
H>  
  
DIR STAT SUBMIT PIP DDT
```

Pressing the return key or the ESC key when the copied in screen is being displayed (as in the example at the bottom of the previous page) ends VRAM move command and returns the system to command menu mode. Pressing the INS key instead returns the system to the initial VRAM move command screen, from which more VRAM data or another VRAM data file to be moved may be specified. In addition, when moved VRAM data or a moved VRAM data file is being displayed on your screen, you can save it to the disk in your current drive as the file VDATA.VRM by pressing the HOME key.

Quit command (Q/QUIT)

This command is used to return from NPIP to CP/M.

6. Error messages

If an error occurs during input of a drive name or file name or during execution of a command, one of the error message below is displayed in the message area. When such an error message is displayed, press the return key, then input the file name or drive name correctly. Pressing the ESC key ends the command and returns the system to command menu mode.

* DRIVE NAME ERROR

- Status: An incorrect drive name was input.
- Solution: Double check the method for entering drive names and the limits on what drives can be specified, then enter the drive name again as necessary.

* FILE NAME ERROR

- Status: An incorrect file name was input.
- Solution: Double check the method for entering file names and the limits on what files can be specified, then enter the file name again as necessary.

* DATA ERROR

- Status: An incorrect VRAM address was input for the VRAM move command.
- Solution: Double check the method for specifying VRAM addresses and the limits on what VRAM addresses can be specified, then enter the VRAM address again as necessary.

* NO FILE

- Status: An attempt was made to reference the specified file or file directory, but it could not be found.
- Solution: Double check whether the directory you specified matches the one you wish to reference, then enter it again as necessary.

*** FILE NOT FOUND**

- Status: An attempt was made to access a file during command execution, but that file does not exist.
- Solution: Check whether the file that the command attempted to access exists and input again as necessary.

*** DIRECTORY FULL**

- Status: An attempt was made to create a new file on the disk, but the disk has already reached the limit on the number of files it can have.
- Solution: Erase unnecessary files, then execute the command again.

*** DISK FULL**

- Status: While writing data to the disk, all the empty space on the disk was used up.
- Solution: Erase unnecessary files, then execute the command again.

*** NET BUSY**

- Status: An attempt was made to access a file or directory through the network, but the directory or file was already being accessed by the party at the other end.
- Solution: Wait a little while, then try the command again.

*** NET ERROR**

- Status: There was some type of abnormality on the network.
- Solution: Try the command a few more times and if this error continues to occur, double check the current network state and environment. After solving the problem, re-execute the command.

*** DISK ERROR**

- Status: There was some type of abnormality during disk input or output.
- Solution: Check that you specified the drive correctly, that there actually is a disk in that drive, and that that disk is not write protected, then execute the command again as necessary.

*** NOT VRAM DATA FILE**

- Status: An attempt was made to move a file with the VRAM move command, but that file was not a VRAM data file.
- Solution: Check whether the file you tried to move is actually a VRAM data file, then execute the command again as necessary.

*** SHORT OF VRAM**

- Status: An attempt was made to copy VRAM data or a VRAM data file into your own VRAM with the VRAM move command, but there was not enough space in your VRAM.
- Solution: When using MSX-2 computers with 64 Kbytes of VRAM, it is impossible to copy VRAM data or VRAM data files corresponding to Screen 7 or 8 in BASIC into your VRAM. If necessary, try the command again on an MSX-2 machine that has 128 Kbytes of VRAM.

*** BROADCAST ERROR**

- Status: There was some type of abnormality when the teacher tried to broadcast a file or data to all the students.
- Solution: Double check with all the students online that there are not any of the errors already discussed, then re-execute the command as necessary.

*** ERR ON m,n** (m and n are student numbers)

- Status: During the teacher broadcast of a file or data to all the students, some kind of abnormality occurred with Students N and M. The broadcast to the other students ended normally.
- Solution: Double check with Students M and N that there are not any of the errors already discussed, then re-execute the command only for those two students as necessary.

*** Others**

- **xxxxxxx.xxx ALREADY EXISTS, DELETE ? (Y/N)**
xxxxxxx.xxx is a file name.

- Status: An attempt was made to create a new file or rename a file but there is already a file with the name specified.
- Solution: If it is ok to delete the existing file, press the Y key; if not, press the N key.

- **INTERRUPT**

- Status: The CTRL and C keys were pressed during execution of a command to stop that command.
- Solution: Pressing the return key returns the system to the screen from which another file name, etc. can be specified. Pressing the ESC key returns the system to command menu mode.

- **SET DISK ON dr: THEN HIT ANY KEY (dr is the drive name)**

- Status: An attempt was made to access Drive dr, but there was no disk in that drive.
- Solution: Put the desired disk in Drive dr, then press any key on the keyboard.