

Concurrent™ PC DOS

E X P A N D E D M E M O R Y

REFERENCE GUIDE



Concurrent™ PC DOS

Reference Guide

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Foreword

This manual, referred to as the Concurrent Reference Guide, is for users of the Concurrent PC DOS Expanded Memory™ operating system. In this guide, DOS refers to either PC DOS or MS-DOS™. The manual contains reference information about Concurrent PC DOS Expanded Memory commands and should be used with the Concurrent PC DOS User's Guide, hereafter referred to as User's Guide.

In This Manual

This manual contains detailed descriptions of the Concurrent PC DOS Expanded Memory commands. See the User's Guide for operating system details.

Examples use boldface blue type to represent information that you type into your computer, and blue type to represent information that your computer displays on the screen.

The figures in this manual might vary from the screen you see on your video display.

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Concurrent Commands

This manual describes the Concurrent commands in alphabetical order. Command descriptions assume that you are entering the command at the command line prompt. Each description presents first the command-line format, or syntax, followed by an explanation of when and how to use the command. Example command lines illustrate the form and function of the command. Note that you must press the Enter key after you type a command line.

Command-line Symbols

Table 1 shows the terms, special characters, and symbols used in command-line format.

TABLE 1. COMMAND-LINE SYMBOLS

Component	Description
filename	<p>Represents the command's filename. Some command filenames can be abbreviated, as explained in the text.</p> <p>Do not include the file extension unless you want to override Concurrent's search order (see the ORDER command description). To run a non built-in command program, you must have a corresponding program file in your current directory or in one of the path directories.</p>
filespec	<p>Represents a file specification. The file specification consists of the following elements:</p> <p><code>d:filename.ext;password</code></p> <p>"d." is an optional drive reference. "filename" is the 1- to 8-character name of the file. "ext" is the optional 1- to 3-character file extension. "password" is the optional 1- to 8-character password. The colon (:), period (.), and semicolon (;) must be used as shown to separate the filespec elements.</p>
option	<p>Indicates that the command accepts one or more options. When entering the options, be sure to use the separators as shown in the form.</p> <p>Some commands need only a space to separate options while others use a comma or backslash (\). Option names shown in uppercase must be entered exactly as they appear.</p>
[]	<p>Separate the options from the command. Brackets must be used when shown.</p>

TABLE 1. (CONT'D)

Component	Description
{ }	Indicate optional command-line entries.
dev:	Represents a peripheral device, such as a printer.
n	Indicates that a number should be entered. The command explanation describes the range of valid numbers.
command	Represents any parameter or option entered on a command line after the command name.
fd	Represents a floating drive letter (N or O) used to access directories.
dirname	Represents a directory name. The directory name consists of the following elements: subname.ext where "subname" is the 1- to 8-character name of the directory and "ext" is the optional 1- to 3-character directory extension.
dirpath	Represents directory path and is defined as follows: {\} dirname({dirname})

Command Summary

Table 2 lists the commands described in this manual and summarizes their purpose. Built-in commands are indicated. Optional short forms are shown when they exist.

TABLE 2. CONCURRENT COMMAND SUMMARY

Name	Purpose
8087	Indicates to Concurrent that a COM or EXE program makes use of an 8087 co-processor. (Built-in; default = OFF)
ADDMEM	Increases the memory allocation requested by programs with the EXE file extension. (Built-in; default = 64K)
AUX	Selects auxiliary port 0 or 1. (Built-in)

TABLE 2. (CONT'D)

Name	Purpose
BACKUP	Copies files from a hard disk drive to floppy disks and restores files from floppy disks to the hard disk.
BANK	Controls how a program runs in banked memory. (Built-in; default = ON)
BATCH	Executes the commands in a file that has a BAT file extension.
CARDFILE	Stores and retrieves names, addresses, phone numbers, and comments for persons and businesses you want to remember.
CHDIR (CD)	Shows the path to and changes the current directory on DOS media. (Built-in)
CHKDSK	Checks the integrity of data on disks, and restores corrupted disks.
CHSET	Changes the command header of programs with the CMD file extension.
CLS	Clears the display screen. (Built-in)
COMPAQ	Sets the resolution of the COMPAQ® display.
COMSIZE	Sets the amount of memory allocated to programs with the COM file extension. (Built-in; default = 128K)
COPY	Copies files between directories and devices.
COPYMENU	Copies one or more menus from one file to another.
DATE	Displays and changes the date.
DELQ	Erases files but queries you before operation. (Built-in)
DIR	Displays the files in a directory. (Built-in)
DISKCOPY	Copies entire disks of the same format.
DREDIX	Text editor used to create and edit text files.
DSKMAINT	Performs floppy disk format, verify, and copy services.
EDITMENU	Creates, modifies, and deletes menus.
ERAQ	Erases files but queries you before operation. (Built-in)
ERASE (ERA)(DEL)	Erases files. (Built-in)
FM	The File Manager allows you to select commands from a series of menus.
FORMAT	Formats floppy disks.
FSET	Sets file and drive related attributes such as time and date stamping and password protection.
FUNCTION	Assigns the function key commands and window switching keys.

TABLE 2. (CONT'D)

Name	Purpose
HDMAINT	Performs hard-disk partition and verifies services.
HELP	Explains Concurrent commands.
INITDIR	Formats CP/M® directories to allow time and date stamping.
LOADXM	Starts Concurrent if DOS has control when you first turn on your computer.
MKDIR (MD)	Creates a subdirectory on DOS media. (Built-in)
ORDER	Changes the command file search order. (Built-in; default = CMD, COM, EXE, BAT)
PATH	Sets a search path for commands or batch files. (Built-in)
PIP	Copies files between directories and devices.
PRINTER	Changes the current printer number. (Built-in; default = 0)
PRINTMGR	Controls the printing of files.
PROMPT	Modifies the command prompt. (Built-in)
RENAME (REN)	Renames files. (Built-in)
RETURN	Performs a system reset, is a synonym for Ctrl-Alt-Del.
RMDIR (RD)	Removes subdirectories on DOS media. (Built-in)
RUNMENU	Runs a menu. (Built-in)
SCEPTER	Initializes the banked memory management routines within Concurrent.
SDIR	Displays directory and file status information.
SET	Inserts strings into the command processor's environment. (Built-in)
SETPORT	Configures the serial ports.
SETUP	Modifies the default characteristics.
SHOW	Displays information about disk drives.
STOP	Displays memory allocation and terminates programs. (Built-in)
SUSPEND	Suspends EXE and COM programs when their window is switched out. (Built-in; default = ON)
SYSDISK	Shows the current system disk, or sets a different system disk. (Built-in)
TIME	Displays and changes the time of day.
TREE	Displays the hierarchical path of directories and subdirectories.
TYPE	Displays the contents of a text file. (Built-in)

TABLE 2. (CONT'D)

Name	Purpose
USER	Changes the directory user number on CP/M media. (Built-in; default = 0)
VSET	Interrupts vector set. (Built-in)
WINDOW	Shows and modifies window characteristics.
WMENU	Allows you to change your window configuration.

Built-in Commands

Several Concurrent commands are built into the operating system. This means that no corresponding program file is needed to run a built-in command. For example, 8087 is a built-in command; therefore, there is no program file named 8087.COM, 8087.EXE, or 8087.CMD. You can run a built-in command when all the system's memory is in use.

The Concurrent built-in commands are as follows:

8087	DELO	PRINTER	SUSPEND
ADDMEM	DIR	PROMPT	TYPE
AUX	ERAQ	RENAME	USER
BANK	ERASE	RMDIR	VSET
CHDIR	MKDIR	RUNMENU	
CLS	ORDER	SET	
COMSIZE	PATH	STOP	

The rest of this manual gives detailed descriptions of all the Concurrent commands.

8087

Format: 8087=ON
8087=OFF

Explanation: The 8087 command allows EXE and.COM programs to use the 8087 co-processor. 8087=ON signals Concurrent that a program requiring the 8087 co-processor is going to be started. 8087=OFF signals Concurrent that no 8087 co-processor is available. The default setting is 8087=OFF.

The 8087 command is necessary only for DOS 8087-dependent programs. See the CHSET command description for more information on running 8087-dependent CMD programs.

To allow a program to use the 8087 co-processor, type the following:

A>**8087=ON**

Concurrent checks to see if the 8087 co-processor is present in your computer. If it is, the command prompt is returned to the screen. If it is not, the message

8087 not installed

is displayed.

The 8087=ON command allows 8087 use for the current window only. If you run an 8087-dependent program from two windows, you must enter 8087=ON from each.

ADDMEM

Format: ADDMEM
 ADDMEM=n

Explanation: ADDMEM increases the amount of memory allocated to a program with an EXE file extension. Often, EXE-type programs indicate only their minimal memory requirements. This amount may not be enough when large amounts of data are being handled, such as spreadsheet applications.

ADDMEM allocates additional memory beyond that indicated in the EXE file. Use ADDMEM before invoking the program. The allocation applies only to the current window. Make a batch file for EXE programs that always require an extra allocation.

When you enter ADDMEM alone, the amount of additional memory allocated to EXE programs is displayed. The default allocation is 64K. To allocate an amount different than the default, enter ADDMEM with a value from 0 to 999. The value indicates a number of kilobytes. For example, the following command adds 32K bytes of memory to an EXE program's request:

A>**ADDMEM=32**

You should allocate the minimum amount of additional memory necessary to run a program. If ADDMEM is set higher than your available memory, you will receive this message when you load your program.

Insufficient Memory

AUX

Format: AUX
 AUX=n

Explanation: The AUX command selects auxiliary port 0 or 1. Each window can have a different AUX assignment, as follows:

AUX 0 = Serial Com1
AUX 1 = Serial Com2

Examples: When you enter AUX with no parameters, Concurrent displays your window's current AUX number. For example:

```
A>AUX  
AUX number = 0
```

Enter AUX with a parameter and Concurrent changes the status of of your current window and displays the new AUX assignment. If you enter:

```
A>AUX=1  
Concurrent displays:  
AUX number = 1
```

BACKUP

Explanation: The Concurrent BACKUP utility copies files from a hard disk drive onto floppy disks, and it can restore files from BACKUP floppy disks to that hard disk drive. If the amount of space on a floppy disk is insufficient to hold all the files to be copied from a hard disk drive, BACKUP can copy files onto a series of disks. Each floppy disk is numbered serially starting from 1. When files are restored to a hard disk drive, BACKUP checks that the floppy disks are inserted in the correct order.

Floppy disks to be used by BACKUP must be formatted as DOS media. If disks previously used for BACKUP are recycled for use by BACKUP again, they must be reformatted.

To backup files from a hard disk drive C of a system onto floppy disks in drive A, proceed as follows. This procedure assumes that drive C is your default drive.

1. Enter

BACKUP

at the prompt and press the Enter key. The following message appears on the screen:

```

BACKUP Backup/Restore      dd/mm/yy  Version n.n
Serial No. XXX-999-999999  All rights reserved
Copyright (c) 1985        Digital Research Inc.
    
```

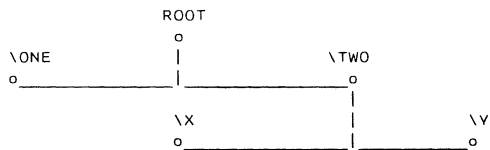
Do you want to backup or restore files (enter B or R)?

2. Press "B". The following message appears:

Which drive do you want to backup (A-P)?

Enter "C" (or the letter that corresponds to your hard disk drive). The next prompt is

Which directories do you want to backup:
A - All directories on the specified drives
S - Current directory and its subdirectories only
C - Current directory only
Please select (A/S/C):



Suppose that the above diagram represents the file directory structure for drive C and the current directory level is \TWO. Option A copies all the files for all directory levels on drive A. Option S will copy files only from subdirectories \TWO, \TWO\X, and \TWO\Y. Option C only copies files from \TWO.

Note: Before selecting one of these three options, be clear on the effect your choice might have on other users' files during a restore operation. If you choose A or S, you might include a subdirectory of files belonging to another user. When you restore these subdirectories, that user's files could be overwritten with obsolete copies.

3. After selecting your option, this prompt appears on your screen:

```
Which files do you want to back up?
A - All files in specified directories
N - New and modified files in specified directories
D - Files created or modified after a specified date
```

Please select (A/N/D)

Option A copies all files for the directory levels selected in 2. above. Option N selects only those files that have been created or modified since the last time BACKUP was run. Option D selects only those files that have been created or modified since a particular date. If you select option D, the following additional prompt appears:

```
Start date for back-up (format DDMMYY e.g. 311285)
Specify six digits or hit RETURN only for no date.
```

Enter a valid date in DDMMYY form.

4. The next message asks

```
Do you want to see the file names (Y/N)
```

If you press "Y", BACKUP displays a list of all the files that are copied to floppy disks. The display of filenames takes the form:

```
___Files found___file(s)
```

```
A:\directory_1\directory_2\ ... \filename.ext
```

When copying is complete, the program ends with the message:

```
---- Backup/Restore completed ----
```

Multiple Floppy Disks

If file to be copied cannot fit on one floppy disk, BACKUP displays the following message when a disk is full:

```
Destination disk full
Insert formatted blank disk and press [RETURN] when ready
```

When you have followed these instructions, the following message appears to confirm that the backup is continuing on the disk just inserted:

```
Backing up on disk number, created
```

Restoring Files to a Hard Disk

To restore files,

1. Select option R at step 1 above. The following message appears:

```
Restore to which drive (A-P)
```

2. Enter the drive designation of your hard disk drive (C, in this example). You can restore your files to a different drive than the one from which they were copied.

The next prompt asks you to name the floppy disk drive you will use for the backup disks:

```
Restore from which drive (A-P)
```

3. Enter the name of the floppy disk drive you are going to use. BACKUP then displays the message:

```
Insert backup disk number 1 into drive A:
and press any key when ready:
```

4. After you have inserted the disk and pressed a key, BACKUP restores files to their original subdirectory levels with their filenames unchanged. If the file already exists on the hard disk drive, it is overwritten. As each file is restored, the following message appears:

```
---nnnnn -dd-mm-yy hh:mm X:\level1\level2...\filename.ext
```

where X: is the hard disk drive designation, "\level1\level2" is the full directory path, and "filename.ext" is the filename of the file being restored. When the message is complete, the program ends with the message:

```
---Backup/Restore Complete---
```

BANK

Format: BANK=ON
 BANK=OFF

Explanation: The BANK command controls how a program runs in banked memory. The default setting is BANK=ON. With BANK=OFF, Concurrent cannot page the program in and out of conventional memory. This means that the memory used by the program is removed from the total memory available for paging. Using BANK=OFF can severely limit system performance.

BATCH

Format: filespec {variable1} {variable2} ... {variable9}
BATCH filespec {variable1} {variable2} ... {variable9}

Explanation: BATCH allows you to invoke a series of commands contained in a BATCH file by entering a single command.

Invoking and Interrupting a BATCH File

Invoke a BATCH file by entering the filename with or without the file extension, which is always BAT. Variables are optional and are explained below in "Using Variables in a BATCH File."

You can interrupt a BATCH file by entering a Ctrl-C, causing the following prompt to appear:

```
Terminate batch job (Y/N)?
```

If you press Y, batch processing ends and the command line prompt reappears. If you press N, the current command ends, but batch processing continues with the next command in the file.

Creating a BATCH File

Use COPY CON: or an editor such as DR EDIX™ to create a BATCH file. COPY CON: copies information typed at the console to the file specified. The following example uses COPY CON: to create the BATCH file ENDWORK.BAT:

```
A>COPY CON: ENDWORK.BAT
ERASE B:*.BAK
DIR B:
SHOW B:
COPY B:*. * A:
DIR A:
SHOW A:
```

Press Ctrl-Z, then press the Enter key to end the file ENDWORK.BAT.

Once ENDWORK.BAT is created, type ENDWORK to execute the six commands in the BATCH file in the order listed.

To invoke a BATCH file from within another BATCH file, include a command line with BATCH followed by the name of a BATCH file as one of the commands to be executed. To chain BATCH files, use the name of the next BATCH file to be executed as the last command in the BATCH file.

Using Variables in a BATCH File

When creating a BATCH file, you can use variables as a part of the commands to be executed. Then the command invoking the BATCH file can contain the actual values for the variables. Thus, you can create general purpose BATCH files.

Variables take the form %n, where n is a number from zero to nine. For example, the variables %0, %1, and %2 are used in the following BATCH file, SAVE.BAT:

```
A>COPY CON: SAVE.BAT
COPY %1.BAS %2.BAS
TYPE %0.BAT
```

Press Ctrl-Z, then Enter, to complete the BATCH file.

The command to invoke SAVE.BAT might look as follows:

```
A>SAVE PROGRAM1 B:PROGRAM1
```

SAVE replaces %0, PROGRAM1 replaces %1, and B:PROGRAM1 replaces %2. The command copies PROGRAM1.BAS from the current drive to drive B, then shows the contents of the SAVE.BAT file on the screen.

Remember that you can specify up to 10 variables (%0 through %9). %0 is always the name of the BATCH file and its drive specification, if included. Separate variable values by a space. Make sure that values are entered in the proper sequence. If you want to use % as a filename within a batch file, you must include % twice. For example, if the filename is test%.dat, the batch file must specify test%%.dat.

ECHO Subcommand

ECHO allows or inhibits the screen display of DOS commands executed from a batch file. It does not affect the messages produced during command execution. The ECHO subcommand format is:

```
ECHO{ON|OFF|message}
```

ECHO is ON by default, and shows all commands as they run. ECHO OFF stops all commands from appearing on the screen.

The ECHO message option displays messages on the screen whether or not ECHO is ON or OFF.

The current ECHO condition of ON or OFF is displayed if ECHO is issued with no parameters.

FOR Subcommand

FOR allows iterative execution of a command. Each filename in the set is sequentially substituted in the command following DO. Wildcard * or ? characters are valid for members of the set and all matching filenames on the disk are substituted in the command. Only one FOR command can be used on a command line. Path names are not accepted with filenames in the set. The format is:

```
FOR %%variable IN (set) DO command
```

If you enter this command:

```
A>FOR %%f IN (myprog.asm acct.bas acct2.bas)DO dir %%f]
```

The result is:

```
dir myprog.asm
dir acct.bas
dir acct2.bas
```

GOTO Subcommand

GOTO transfers control to the line following a label. The GOTO label causes the commands on the line after label to process. If label is not named, the current batch file ends with this message:

```
Label not found
```

To set up a label in a batch file, use a colon (:) followed by a character string. The first eight characters of the string are considered the significant characters, and they must be different from those of all other labels. The format for GOTO is:

```
GOTO label
```

The following batch file sets up an infinite loop of messages on the screen. Your screen displays "rem this is a loop ..." and "GOTO MYLABEL".

```
:MYLABEL
rem this is a loop..
GOTO MYLABEL
```

Labels within a batch file are not shown while the file is executing. Unreferenced labels may be used to place comments in your batch file.

IF Subcommand

IF allows conditional processing of DOS commands. The DOS command executes when the IF condition is true. When the condition is false, the DOS command is ignored and the next command executes. The IF format is:

IF {NOT} condition command

The condition is one of the following:

- * ERRORLEVEL number
- * string1==string2
- * EXIST filespec

ERRORLEVEL number is true if the previous program had an exit code (specified as a binary value) of number or higher. Your programs can set an error code that can then be checked by the IF ERRORLEVEL command.

When string1 and string2 are identical, this condition is true.

If filespec is on the indicated drive, EXIST filespec is true. Path names are not allowed with the filespec when using EXIST condition variable.

NOT condition is true if the condition is false.

Examples:**IF EXIST filespec command:**

```
if exist myfile goto xyz
dir b:
```

```
.
:xyz
command
```

This condition is true if executed with myfile on the default drive. The command following the label xyz is executed. If myfile is not found, the goto xyz is not executed and processing continues with the dir b: command in the batch file.

IF string1==string2 command:

```
if %1==Joan echo Joan ran over.
```

The batch file with this command, assuming Joan is named as the %1 parameter, performs the ECHO batch command. "Joan ran over" is displayed. If Joan is given as the %1 parameter, the condition is false, and the ECHO batch command is not executed.

IF ERRORLEVEL number command:

```
tstprog
if errorlevel 1 echo tstprog failure.
dir b:
```

TSTPROG is a program that sets the errorlevel when it ends. Assume TSTPROG sets the errorlevel to 0 if it finishes successfully and sets the errorlevel to 1 if it fails. If TSTPROG fails, the condition is true and the ECHO batch command is processed, displaying the message following the echo command. If TSTPROG is successful, the condition is false and the ECHO batch command does not execute. The next command in the batch file, dir b:, is processed.

IF NOT EXIST filespec command:

```
if not exist a:%1 copy b:%1 a:
myprog1
```

The batch file is looking for a certain file to be on Drive A. The IF condition is executed before MYPROG1 to ensure that the needed file is on Drive A. If the file is not on Drive A, the condition is true and the copy command is processed, copying the file from Drive B to Drive A. If the file is on Drive A, the copy is not processed and MYPROG1 will run.

PAUSE Subcommand

You can insert a PAUSE subcommand in a BATCH file to pause the processing of the file. The pause allows you to display a message or let an action occur, such as changing disks or aborting the file. The PAUSE subcommand takes the form:

```
PAUSE {remark}
```

After the optional remark or message, PAUSE always inserts the following message:

Strike a key when ready ...

The optional remark can contain a maximum of 121 characters. The following example shows a PAUSE subcommand in a BATCH file:

```
A>COPY CON: STORAGE.BAT
```

```
COPY A:.* B:
```

```
PAUSE Insert new disk in drive A
```

```
COPY A:.* B:
```

When STORAGE is run, the first disk in drive A is copied. Then the processing pauses and this message appears:

```
A>Pause Insert new disk in drive A
Strike a key when ready ...
```

Two responses are possible. Insert the new disk and strike any key to continue, or press Ctrl-C to terminate the processing.

REM Subcommand

Use REM to display a comment on your screen during BATCH file execution. REM takes the form:

```
REM {remark}
```

The maximum length of a remark is 123 characters. The following is an example of a REM command:

```
REM Archive backup files for security
```

SHIFT Subcommand

SHIFT allows command lines to access more than 10 (%0 through %9) replacement variables. Execute the SHIFT command to get past the tenth parameter on the parameter list. The parameters on the command line are shifted one position to the left; the parameter in %1 position moves to the 0% position. Each shift command moves all the parameters to the left by one more position. For example:

```
%0 = Yellow
%1 = Orange
%2 = Red
%3 = Blue
```

```
.
%9
```

Execute the SHIFT command and the results are:

```
%0 = Orange
%1 = Red
%2 = Blue
```

```
.
%9
```

CARDFILE

Format: CARDFILE
CARDFILE COLOR

Explanation: Use the CARDFILE command to run the Cardfile™ name and address program. See Section 5 of the User's Guide for detailed instructions on its use.

If you have a hard disk system, and have created a NAME.IDX file, you can start Cardfile from the Startup Menu by pressing F5. You can also run Cardfile from the File Manager by selecting Run a Program and then choosing CARDFILE.CMD. To start Cardfile from the command line prompt, type CARDFILE if you have a monochrome monitor, or CARDFILE COLOR if you have a color monitor.

CHDIR

Format: CHDIR {fd:=}{d:}{\}
CHDIR {fd:=}{d:}dirpath

Explanation: The CHDIR (change directory) command and its options provide access to directories. Use CHDIR to change the current directory on a drive, assign the floating drives N and O to a directory, and display the current directory path. When no directory or directory path is specified, CHDIR displays the sequence, called the path, of hierarchical directories leading to the current directory. If a path is specified, CHDIR makes the last directory in the path the current directory for the current drive, the drive specified, or a floating drive (N or O). The short form of the CHDIR command is CD.

CHDIR Special Characters

To help you move between directories, CHDIR responds to the following special characters:

- * \ (backslash): Enter a backslash alone with CHDIR and you are returned to the current or designated drive's root directory. For example, the command

```
A>CHDIR C:\
```

makes the root directory on drive C the current directory.

- * .. (two periods): Enter two periods with CHDIR and you are returned to the next highest (that is, closer to the root) directory. For example, if the directory LEVEL4 in the path LEVEL2\LEVEL3\LEVEL4 is the current directory, the command

```
A>CHDIR ..
```

makes LEVEL3 the current directory.

Concurrent Directories

Concurrent allows you to create named directories on DOS media with the MKDIR command. Directories appear by name in the next higher directory's DIR file listing and are identified by a preceding backslash (\).

Files in a directory are accessible by preceding the filename with a directory path, or by using CHDIR to change a drive's current directory to the desired path and referencing the files normally (without a path).

Use the second method with programs that do not understand paths (like PIP). In these cases, floating drives can be useful. For example, you want to copy MYFILE.TXT from C:\SUBDIR1 to C:\SUBDIR2 using PIP. First, set C: to \SUBDIR1 with the command **CHDIR C:\SUBDIR1**. Next, set a floating drive, such as O, to the other directory with **CHDIR O:=C:\SUBDIR2**.

Then copy with the following command:

```
A>PIP O:=C:MYFILE.TXT
```

Using Floating Drives

Floating Drives are a powerful application tool that lets applications not written for subdirectories use subdirectories. You can set the floating drive to a commonly used path as a shorthand reference, or use the floating drives to access more than one subdirectory at the same time.

Note: Each window keeps a separate list of current directories for each drive.

Examples: A>**CHDIR O:=C:\SUB1\SUB2\SUB3**
A>**O:**

This example assigns the floating drive O: to the subdirectory SUB3 and then makes drive O (actually SUB3) the current directory.

```
C>CHDIR N:=GENLEDG
```

The above command sequence assigns floating drive N to the subdirectory GENLEDG on drive C. GENLEDG is a subdirectory in the current directory.

```
B>CD O:=C:
```

This command assigns the current path of Drive C to floating drive O:

Making a Directory the Current Directory

There are three ways to make a directory the current directory:

- * Enter CHDIR with the directory's path.
- * Enter CHDIR with a drive specification and a path and then make that the active drive.
- * Use CHDIR to name the directory with floating drive name N or O, and then make that drive the active drive.

If the directory you are currently in is not part of the path to the directory you want, you must specify the complete path from the root, preceding the first directory with a backslash.

Examples: C>CHDIR \GENLEDG\AR

The above example makes AR the current directory. The backslash that precedes GENLEDG indicates that the path to AR begins from the root of drive C, not from the current directory.

C>CHDIR A:WORDPROC\MEMOS

The preceding command sets drive A's current directory to MEMOS. All references to A: now access this directory.

C>CHDIR \

This command makes the drive C root directory the current directory.

How to Display the Current Path

The path to the current directory is displayed when you enter CHDIR with no parameters. You can display the path to the current directory on another drive by entering the drive's name as the only parameter. Note that a path consisting of just a drive and a backslash (\) indicates that the root directory is the current directory.

CHKDSK

Format: CHKDSK {d:}{option}

Explanation: The CHKDSK command checks the integrity of data on disks, and restores corrupted disks. If you omit the drive, CHKDSK uses the default drive.

Table 3 lists the options for CHKDSK.

TABLE 3. CHKDSK OPTIONS

Option	Description
/B	Mark bad blocks. The /B option searches all the files on a disk to locate any bad blocks.
/D	Locate directories. The /D option locates all the directories on a disk so that in the event of a major disk corruption, you can restore individual files and directories using a suitable disk editor.
/F	Fix. The /F option allows CHKDSK to write corrections back to the disk. If you do not specify /F, CHKDSK does not modify the disk when errors are found.
/L	Rebuild cluster links. The /L option attempts to rebuild a corrupted File Allocation Table (FAT). You must zero any corrupted areas on the disk before using this option.
/R	Recover root directory. The /R option recovers lost directories that were contained in the root directory. You must remove any corrupted files in the root directory.
/V	Verbose display. The /V option displays additional information while CHKDSK is running and may be useful when trying to locate corrupted data on a disk.

CHSET**Format:**

CHSET [HELP]
CHSET filespec
CHSET filespec [field=setting{,field=setting...}]

Explanation: CHSET (Command Header SET) displays or changes the command header of any program file with the CMD file extension. The command header indicates whether the program requires the 8087 math co-processor, whether the program code can be shared, whether the program should be suspended when it is running on a switched-out window, and whether the program uses MP/M-86™ record-locking functions.

File specifications in the CHSET command line require only the filename; the CMD file extension is assumed. Changes made to the command header are permanent until changed. Table 4 lists the five fields and describes the settings for each.

TABLE 4. CHSET FIELDS AND SETTINGS

Field	Setting	Description
BANK	ON	The program can be run in banked memory.
	OFF	The program cannot be run in banked memory.
8087	ON	The program requires an 8087 co-processor.
	OFF	The program does not require an 8087 co-processor.
	OPT	The program determines whether or not an 8087 co-processor is present and adjusts its operation accordingly.
SHARED	ON	Concurrent uses the same program code (but not the data) for multiple versions of the program running on different windows. This option must be set by the program's author.
	OFF	Concurrent uses separate program code for multiple versions of the program running on different windows.
SUSPEND	ON	Concurrent suspends but does not terminate the program's operation when its window is switched out.
	OFF	Concurrent does not stop program operation when its window is switched out.
MPMLOCK	ON	The program uses the record-locking functions of MP/M-86.
	OFF	The program uses the record-locking functions of Concurrent.

To get helpful information about CHSET, type

A>CHSET

To display a CMD program's current command header settings, type CHSET and a filename. For example,

A>CHSET SDIR

gives the following display for the SDIR command:

```
SDIR .CMD [8087=OFF,SHARED=OFF,
SUSPEND=OFF, MPMLOCK=OFF, BANK=ON]
```

CHSET accepts wildcards when you display file settings but not when you change a field. CHSET requires passwords when you display or change settings for password-protected files.

Examples: **A>CHSET MYPROG [BANK=ON]**

This command tells Concurrent that the program MYPROG can run in banked memory, which means that Concurrent can page the program in and out of conventional memory.

A>CHSET EXSORT [8087=ON]

This command tells Concurrent that the program EXSORT requires the 8087 co-processor. With this setting, the program does not load unless the 8087 co-processor is available.

A>CHSET ANYPROG [SHARED=ON]

The next command tells Concurrent that ANYPROG can run on a shared-code basis, which saves memory when multiple copies are run. This is a feature that must be written in by the program's author. Only select the SHARED=ON option if the program's manual states that this option is available.

A>CHSET MYPROG [SUSPEND=ON]

This command causes MYPROG to suspend when its window is switched out. When the window is switched back in, the program continues.

A>CHSET YOURPROG [MPMLOCK=ON]

This command tells Concurrent that the program uses the record-locking functions included in MP/M-86.

CLS

Format: CLS

Explanation: CLS clears the display screen. If foreground and background colors were selected previously, the colors will be unchanged. Otherwise, the screen is set to white characters on a black background.

COMPAQ

Format: COMPAQ {[option]}

Explanation: This command sets the resolution of the screen on a COMPAQ computer only. Two options are possible:

- * Option 1 (the default) sets the screen to low resolution (8 x 8) for a 25 x 80 screen.
- * Option 2 sets the screen to high resolution (9 x 14) for a 25 x 80 screen.

The COMPAQ command setting controls all four virtual consoles.

Examples: COMPAQ 1
 COMPAQ 2

COMSIZE

Format: COMSIZE
COMSIZE=n

Explanation: COMSIZE lets you increase and decrease the amount of memory allocated to your current window for programs with the COM file extension. The default memory allocation when Concurrent is started is 128 kilobytes (128K). To display the amount of memory allocated to the current window, type

A>**COMSIZE**

The following message appears:

Memory Allocation Size = 128K

This number indicates the current value. Use the COMSIZE=n command to increase or decrease the amount. The value for n can be any value from 0 through 999 and represents the number of kilobytes. For example, if your COM-type program requires 192K in memory, enter the following command:

A>**COMSIZE=192**

The following message appears:

Memory Allocation Size = 192K

Changes made with COMSIZE affect the current window only and remain in effect until you turn off or reset your computer or run COMSIZE again. If you need to change the memory allocation every time you run the program, make a BATCH file consisting of a COMSIZE command and your program command.

When to Use COMSIZE

Your application documentation should indicate how much memory the program needs. If the amount is different from the current value displayed by COMSIZE, run COMSIZE to make the change before you run the application.

If the application program's manual does not indicate how much memory is required, experiment with different values for COMSIZE. However, as you increase the allocation, you decrease the amount of memory available to the other windows. If you do not specify enough memory to load the program, Concurrent aborts the operation and displays the message:

Insufficient memory to load program.

Run COMSIZE again and increase the amount of memory allocated for this program.

COPY**Format:**

```
COPY {dirpath\}source{/option}{dirpath\}destination{/option}
```

Explanation: The COPY command copies files between consoles, printers, and drives. The source can be a file in a disk-drive directory or a console keyboard. The destination can be a disk-drive directory, a console screen, or a printer.

A disk-drive directory can be specified by a drive letter followed by a colon, and/or a path specifier. If you omit both, the current drive/directory is assumed.

The printer and console devices are specified by the names shown in Table 5.

The source and destination file specifications are the complete filename and file extension. You can use the wildcard characters (* and ?) to specify a group of files. COPY does not recognize passwords in file specifications. If your files are password-protected, you must use PIP or set the default password.

TABLE 5. COPY DEVICE NAMES AND DESCRIPTIONS

Name	Description
CON: [*]	Designates your console screen when it is the destination and your keyboard when it is the source device.
LPT1: - LPT5:	Designates your current printers numbers 0 through 4 respectively.
PRN: & LST:	Designate your current printer.
NUL:	Designates a dummy output device and is usually used for program testing.
COM1: & COM2:	Designate the serial ports (0 & 1).
AUX:	Designates your current auxillary port.

^{*}Colons used with device names are optional.

COPY has several options that you can add to a source or destination file specification. Table 6 lists and defines the options.

TABLE 6. COPY OPTIONS

Option	Description
/A	Causes the file to be treated as an ASCII (text) file. When you specify the /A option with the source file specification, the file contents are copied up to, but not including, the first Ctrl-Z end-of-file character. Remaining file characters are not copied. Using /A with a destination file specification adds a Ctrl-Z as the last character in the file.
/B	When applied to the source file specification, causes the entire file to be copied regardless of any Ctrl-Z character found in the file. When you use /B with your destination file specification, no end-of-file character (Ctrl-Z) is added.
/V	Causes COPY to compare the destination file with the source file contents to verify the accuracy of the copy. Because of the comparison, it takes longer to complete the copy with the /V option.
/n	Denotes the user number (range 0 to 15) of the file's directory. The /n option is necessary only when your source and/or destination user number is different from your current user number.
/S	Includes SYS and hidden files in the copy. Usually, only normal attribute files are copied.
/C	Confirms each file before copying it. If combining multiple groups of files, confirms each group by first source name.
+	Valid only in the source specification. It is used between file specifications to indicate that the files are to be combined (concatenated).

The /A and /B options need be entered only when you are combining ASCII and binary files. These options are not necessary to copy data, program, and BATCH files.

How to Copy Files between Disk Drives and Directories

This part explains how to copy files between drives, within a single directory, between subdirectories, between user numbers, how to combine files, and how to change the filename.

Format: COPY filespec{/option} {filespec{/option} filespec{/option}}

Explanation: To copy a file from the current drive to another drive, type COPY followed by the filename, the letter designation of the destination drive, and a colon. The following example copies the file MYFILE from drive A (current drive) to drive B:

A>>COPY MYFILE B:

To copy a file to the current drive from another drive, type COPY, then the letter designation of the source drive, a colon, and the filename. The following command line copies MYFILE.TYP on drive B to the current drive A:

A>>COPY B:MYFILE.TYP

To duplicate a file in the same directory, rename the file as you copy it, because you cannot have two files with the same filename in one directory. Therefore, you must specify different filenames for the original and copy. The following command line duplicates the file MYFILE.TYP in the same directory and names the copy YOURFILE.TYP:

A>>COPY MYFILE.TYP YOURFILE.TYP

To copy a file between different user numbers, type COPY, the source filename, slash, and the file's user number followed by the destination filename, slash, and that file's user number. The following example copies the file PHONE.LST in user number 3 to user number 11 on the same (current) drive:

A>>COPY PHONE.LST/3 PHONE.LST/11

Note that you can copy a file from one drive and user number to a different drive and user number by specifying drive designations before the filenames. The following example copies PHONE.LST from drive B, user number 3 to drive D, user number 11 and verifies the destination file against the source file for an exact match:

A>>COPY B:PHONE.LST/3 D:PHONE.LST/11/V

You can combine files with COPY by putting a plus sign, +, between the source file specifications. The files are concatenated in the order they are listed in the command or, if there is a wildcard character, in the order they are encountered in the directory. The following command line combines MFILE.TYP on drive A with YFILE.TYP on drive B, copies the file to drive C, and names it OFILE.TYP:

A>COPY MFILE.TYP+B:YFILE.TYP C:OFILE.TYP

When copying a file to a different drive, user number, or subdirectory you can rename it on the destination. For example, the following command line copies the file NEWPHONE.LST, from drive A, user number 10, onto drive B, user number 3, and renames it OLDPHONE.LST:

A>COPY NEWPHONE.LST/10 B:OLDPHONE.LST/3

Note that if you enter a destination file specification that matches one already on the destination drive, the copy replaces the existing file. The existing file is erased and then the copy is made.

How to Copy Files to the Console or Printer

You can use COPY to display or print a file.

Format: COPY filespec{/n} DEV:

Explanation: COPY can be used instead of TYPE or PRINTMGR to display or print a file. To perform this type of copy, you enter CON: or PRN: as the destination. This command is valid only for text (ASCII) files, not application or command program files.

Examples: A>COPY D:MYFILE/2 CON:

This command reads the file MYFILE from drive D user number 2 and displays it on the console.

A>COPY *.TXT PRN:

The above command prints all files with the file extension TXT on the current drive.

How to Create a File with COPY

You can create a text file using COPY by specifying the keyboard as the source.

Format: COPY CON: filespec{/n}

Explanation: When you specify CON: as the source device, every character you enter is recorded in the destination file you specified except line-editing characters such as Ctrl-H and Ctrl-X. Enter a Ctrl-Z to stop the recording and close the file.

Example: A>COPY CON: MYFILE
This is my file.<Ctrl-Z>

This entry creates the file MYFILE on the current disk and records in it the second line shown. After the Ctrl-Z is entered, the command-line prompt is returned to the screen.

COPYMENU

Format: COPYMENU
COPYMENU source-filespec destination-filespec -M
COPYMENU source-filespec destination-filespec menulist

Explanation: Use COPYMENU to copy one or more specific menus between existing menu files. COPYMENU is one of the three commands--the others are EDITMENU and RUNMENU--provided with Concurrent that allow you to construct and run easy-to-use menus.
See Section 7 in the User's Guide for more information.

DATE

Format: DATE {mm-dd-yyyy}

Explanation: The DATE command displays or sets the month, day, and year. Concurrent contains an internal clock that can increment the date and time. The DATE and TIME commands are used to set the values from which Concurrent starts keeping the time. You must set the date and time each time you start or reset your computer. To be prompted automatically whenever you start or reset your computer, include DATE and TIME commands in your STARTUP1.BAT file. Concurrent maintains the internal clock for two reasons:

- * to provide you and your applications continuous access to the date and time
- * to have the time available for file time and date stamping

Time and date stamping records the current time and date whenever you create, access, or update a file. Time and date stamping is provided on CP/M and DOS media. However, you must run the INITDIR and FSET commands before it is recorded on CP/M media. See the descriptions of these commands for more information on time and date stamping.

If you do not enter the date, Concurrent assumes one. The date assumed varies with the Concurrent release. The DATE command always lets you change the current date. When you enter

A>DATE

DATE displays the current date and prompts you as follows:

Current date is day mm/dd/yyyy

Enter new date:

"day" in the first display line indicates day of the week while mm/dd/yyyy indicates month, day, and year. You can enter a new date or press the Enter key to keep the current values. To set the date from the command line prompt, enter the following:

A>DATE mm-dd-yyyy

You can use either a hyphen (-) or a slash (/) to separate your entries. The date values in this form are defined as follows:

- * mm is a one- or two-digit number from 1 to 12 indicating the month.
- * dd is a one- or two-digit number from 1 to 31 indicating the day.

* yy is a two- or four-digit number indicating the year.

If you enter a date that is incorrect or out of range, DATE returns the following message and prompt:

Invalid date

Enter new date:

Enter the date as described above or press the Enter key to keep the previous value.

DELO

Format: DELO {dirpath\} filespec

Explanation: The DELO and ERAQ commands have the same format and each erases files. Each also queries you to make sure you want to erase each file. See the description of the ERAQ command for more details about the DELO command.

DIR**Format:**

```
DIR {d:}{dirpath\}{filespec}{/W|/L}{D|/S|/A}{/P}{/V}{/R|/C}
```

Explanation: DIR displays the contents of a disk directory. DIR with no parameters displays all files with the DIR attribute and all subdirectories in the current drive's current directory in the wide mode. Files with the SYS (system) attribute are not shown. (See the FSET command explanation for a description of the DIR and SYS attributes.) Subdirectories are distinguished from files by a backslash (\) before the name.

DIR shows the directory contents of the current drive unless you specify another drive. On CP/M media, DIR shows only the files in the current user number. On DOS media, DIR shows the contents of the current drive's or the designated drive's current directory unless you specify another drive or path.

You can select a file or class of files for display by entering a specific file specification or a general file specification using the wildcard characters (* and ?). For example, you can enter

A>DIR FSET.CMD

and DIR will search the current directory for the FSET.CMD file. If it cannot find it, this message is displayed:

File not found

The DIR display shows the following information about the current directory:

- * Drive selected.
- * Volume label of current drive. (If desired).
- * Disk format, either CP/M or DOS format.
- * Full path used for file search.
- * List of file names.
- * Number of files found.
- * Amount of storage space left, in bytes.
- * Whether any SYS or DIR files were omitted from the display.

There are nine DIR options. They can be entered individually or in combination and in any order. Table 7 lists and describes these options.

TABLE 7. DIR OPTIONS

Option	Description
/D	DIR option. Displays files with the DIR attribute. This is a default option.
/S	SYS option. Displays files with the SYS attribute.
/A	All option. Displays both the SYS and DIR attribute files.
/W	Wide display. Displays only the names of files with Backslashes (\) before directories. A default option.
/L	Long display. Includes the size, date, and time.
/P	Page option. Pause at end of each full page. The default is no page (/NP).
/V	Volume option. Displays the volume label in the header. The default is no volume (/NV).
/R	Remember option. Tells DIR to remember new options you specified as the default option.
/C	Change option. Like /R, except the output is not generated. Used to set the default options only.

Examples: A>DIR C:/S

This command displays all files and subdirectories in drive C's current directory with the SYS attribute.

The next command displays all files and subdirectories with the CMD file extension in drive A's current directory. It uses the long format, giving information on size and date and time stamping. The display pauses with each full screen. SYS and DIR attribute files are included and the options are remembered for the next DIR command without options. The filespec is not remembered.

A>DIR *.CMD/L/P/A/R

This command displays all files and subdirectories that do not have an extension. If you omit the period, DIR lists all files.

A>DIR *

The next command sets the default options of DIR (wide, DIR files, no page, no volume label) with no display. These are the default options enabled each time you restart Concurrent. This type of command is useful in your Startup1.bat file. Each window keeps a separate set of default options.

```
A>DIR/W/D/NP/NV/C
```

DISKCOPY

Format: DISKCOPY {source drive} {destination drive}

Explanation: The DISKCOPY command copies entire disks of the same format. If the destination disk has a different format, or is unformatted, DISKCOPY formats it the same as the source disk. If you want to copy a disk to a different format, use COPY.

If you omit the destination drive, DISKCOPY copies to the default drive, not the source drive. If the source and destination drives are identical, DISKCOPY prompts you when you need to swap disks. If you omit both drives, DISKCOPY copies to the default drive.

Example: When you enter the command,

```
A>DISKCOPY A: A:
```

DISKCOPY prompts you to insert the source disk. When the information on the source disk is copied into memory, you are then prompted to insert the destination disk. The information in memory is then copied onto the destination disk.

DREDIX

Format: DREDIX

Explanation: With DR EDIX you can create and edit text files. DR EDIX is explained in detail in Section 4 of the User's Guide.

To start DR EDIX from the File Manager, select the Run a Program command and then choose file DREDIX.CMD. To start DR EDIX from the command line prompt, type the following:

A>**DREDIX**

Once you start DR EDIX, press Alt-H for help.

DSKMAINT

Format: DSKMAINT

Explanation: DSKMAINT is a multifunction, menu-driven command that performs the following common floppy disk maintenance operations:

- * formatting disks
- * copying the contents of one disk to another
- * verifying the integrity of the data on disks

DSKMAINT's copy function does not transfer individual files from a source to a destination disk. Instead, DSKMAINT copies all data on a track-for-track basis without regard for beginning and ending file boundaries.

When using DSKMAINT, review the following differences between CP/M disks and DOS disks:

- * DOS disks for DOS versions after 1.1 have 9 sectors per track. DOS versions 1.0 and 1.1 have 8 sectors per track. CP/M disks have 8 sectors per track. DOS disks store more data than CP/M disks.
- * You can create subdirectories on DOS disks; you can use user numbers and password protection with CP/M disks.

When using DSKMAINT to copy disks, both the source and destination disks must be of the same type. If the format of your destination disk does not match that of your source disk, DSKMAINT asks if you want the destination disk to be formatted like the source disk. Formatting a disk destroys all files on the disk. Be sure that the destination disk does not contain any files you want to save. If it does, copy those files onto another disk before you format.

Remember also that disks can be single- or double-sided. Single-sided disks store data on only one side; double-sided disks record data on both sides. Note that it is impossible to visibly distinguish between single- and double-sided disks. When you purchase disks, label them immediately as single- or double-sided. DSKMAINT does not let you copy a single-sided disk to a double-sided disk or vice versa.

To run DSKMAINT, enter the following command:

```
A>DSKMAINT
```


DSKMAINT does not operate if there are any files open in any other windows. DSKMAINT first displays its Main Menu. Table 8 lists and summarizes options on the Main Menu.

TABLE 8. DSKMAINT MAIN MENU OPTIONS

Option	Description
F3 -- Verify a disk	Use this option to make sure a disk is usable. (This option checks a disk for unreadable sectors.)
F5 -- Copy from one Disk to another	Use this option to copy the contents of one disk to another.
F7 -- Format Disks	Use this option to prepare new disks for use or to reformat used disks.

To select an option, press the corresponding function key. Note that help is available by pressing function key F1. The Esc key performs specific services under DSKMAINT. Use it to do the following:

- * Go back to previous menu: When an option or menu is displayed, press the Esc key to return to the previous menu. Use this key to return to the command-line prompt from the DSKMAINT Main Menu.
- * Abort the command: When a verify, format, or copy operation is being performed, press the Esc key to abort the operation and return to the previous menu or prompt.

F3 -- Verify a Disk

DSKMAINT's verify option tests a disk to determine if all sectors are readable. Unlike formatting, this test does not destroy disk files. Disks prepared with DSKMAINT's copy and format options do not need to be verified because both options check the disk after the copy or format has been performed. Use the verify option to test older or questionable disks.

When you select the verify option from the DSKMAINT Main Menu, DSKMAINT prompts you to select the drive. Insert a disk and press the function key that corresponds to that drive. Verification begins immediately and the message

Checking track nn

is displayed, where nn indicates the current track number. If there are no unreadable sectors, the verify option's drive selection prompt is displayed again. The disk tested is safe for use.

To test another disk, insert it into a drive and press the corresponding function key. To return to the DSKMAINT Main Menu, press the Esc key.

When a bad sector is located, DSKMAINT issues a beep and displays the following message on the status line:

```
Disk Error Drive d: Track nn
Uncorrectable Data Retry, Ignore, Accept?
```

Drive d: indicates the drive, and Track nn indicates the track number where the error occurred. Here are your options:

- * Press the R key to retry. DSKMAINT tries again to verify the track. If the same error recurs, the disk's value is highly questionable.
- * Press the I key to ignore an error. This option allows DSKMAINT to skip a track with a problem and continue checking the rest of the disk.
- * Press the A key to accept an error. This option stops DSKMAINT from checking the rest of the disk and results in a "BAD DISK" error message.

Note: You can use COPY or PIP to transfer files from a disk with unreadable sectors. If a file is located on one of the unreadable sectors, you cannot transfer that file. Once you have transferred all the files from your bad disk, you can select F7 to reformat the disk.

F5 -- Copy from One Disk to Another

The copy procedure for a single-drive system differs slightly from that used in dual-drive systems. If you have a single-drive system, see "Copying Disks on a Single-drive System" in this section.

When you select the copy option, DSKMAINT asks for the source drive containing the disk you want to copy. Insert the source disk into the drive, then press the corresponding function key to proceed.

Next, DSKMAINT asks for the destination drive containing the disk where the copy will be placed. Insert the destination disk into the drive, then press the corresponding function key.

DSKMAINT checks both disks and compares their formats. If the source and destination disk formats match, DSKMAINT summarizes the source and destination assignments and displays the following reminder and prompt:

This will erase data on the destination
disk in drive n: Is this what you want
to do (Y or N)?

Select Y or N. If you enter N, DSKMAINT returns you to the initial "Select Source Disk" prompt. You can then continue in the Copy Menu or return to the DSKMAINT Main Menu by pressing the Esc key.

If you enter Y, DSKMAINT copies the source disk by reading a number of tracks, writing them to the destination disk, and then checking (verifying) the destination disk to ensure the copy was recorded accurately. DSKMAINT repeats this sequence until all tracks are copied. Any files on the destination disk are erased during the copy operation.

DSKMAINT constantly indicates what function in the sequence it is performing and the current track number. For example, when it is reading from the source disk the message

Reading track nn

is displayed, where nn is the current track number. "Reading" is replaced by "Writing" and "Checking" when these functions are being performed. Notice that the same range of track numbers repeats for each reading, writing, and checking sequence.

If the formats of the source and destination disks do not match, DSKMAINT displays the following message and prompt:

The source and destination disks are
different. Do you want to format the
destination disk (Y or N)?

Enter N to stop the operation and return to the "Select Source Disk" prompt. Enter Y to perform the copy operation; DSKMAINT follows the above procedure with one exception; after reading the first series of tracks, it formats the destination disk to match the source disk, verifies the matching format, then writes that first series of tracks to the destination disk.

Copying Disks on a Single-drive System

When you copy disks in a single-drive system, the potential for confusing disks and copying to the wrong one is high. Be sure to pay strict attention to the DSKMAINT source and destination disk swap instructions. You should cover the write-protect notch on the source disk before beginning the copy, so that DSKMAINT cannot write to the source disk.

The single-drive DSKMAINT prompts are the same as those displayed for the dual-drive systems. The source and destination drives are the same: drive A. DSKMAINT instructs you to insert the source disk into drive A. Then you must remove it and insert the destination disk. When you change disks, DSKMAINT checks to ensure that the destination format matches the source. If DSKMAINT finds different formats, it displays the message and prompt:

The source and destination disks are different. Do you want to format the destination disk (Y or N)?

Enter N to stop the operation. Enter Y to continue the format and copy. DSKMAINT proceeds as follows:

1. It reads a number of tracks from the source disk.
2. It requests that you insert the destination disk.
3. It formats the destination disk (if necessary) and copies the tracks it has already read from the source disk.
4. It instructs you to replace the destination disk with the source disk and completes the copy operation.

If the formats of the source and destination disks are the same, DSKMAINT requests that you insert the source disk and then follows the steps in the numbered list above.

Copy Errors

When a copy error occurs, DSKMAINT beeps and displays the following error message on the status line:

```
Disk Error Drive d: Track nn  
Uncorrectable Data. Retry, Ignore, Accept?
```

When this occurs, your options are to retry, ignore, or accept the error. These alternatives are described in "F3--Verify a Disk", above.

F7 -- Format Disks

You must format a disk before you can record files on it. When you select DSKMAINT's format option, you are presented with four of the following five choices:

- * Format a single-sided disk with the DOS format.
- * Format a double-sided disk with the DOS format.
- * Format a quad-density disk with the DOS format. (This choice is presented only if a hyper-drive is present. This choice then supersedes the following choice.)
- * Format a single-sided disk with the CP/M format.
- * Format a double-sided disk with the CP/M format.

If you have a problem deciding, see the discussion of CP/M versus DOS formats and single- versus double-sided disks at the beginning of the DSKMAINT section. Select the option you want by pressing the corresponding function key. DSKMAINT responds by asking for the disk drive. Insert the disk to be formatted into a drive and press the function key assigned to that drive.

Before DSKMAINT formats the disk, it reminds you that formatting destroys existing files and asks you whether to proceed. Enter Y to proceed with the format. Enter N to abort it. If you select N, you are returned to the list of format options.

If you press Y, all tracks are formatted and subsequently checked. If a check fails, accept the error and repeat the entire format operation. If the disk fails to pass the check a second time, discard the disk. After a successful check, DSKMAINT returns you to the list of format options. To format another disk, select an option and repeat the process.

To create a disk capable of starting Concurrent, format it as either a DOS or CP/M disk and use COPY or PIP to copy the file CCPM.SYS from your distribution disk to your newly formatted disk. You can also use FORMAT with the /S option or select "System Diskette" from the File Manager Format Diskette Menu to copy CCPM.SYS to a newly formatted disk. Make sure to label your newly formatted disk as your Startup disk.

EDITMENU

Format: EDITMENU
EDITMENU filespec

Explanation: EDITMENU, COPYMENU, and RUNMENU construct and run easy-to-use menus for your applications. EDITMENU allows you to create a new menu, or to edit, copy, or delete an existing menu. If you enter EDITMENU without a file specification, the default menu file MENU.DAT is assumed. If you include a file specification, it can be the name of an existing menu file or of a menu file you want to create. You can then create, edit, copy, or delete menus in the menu file.

See Section 7 in the User's Guide for more information.

ERAQ

Format: ERAQ {dirpath\} filespec

Explanation: The ERAQ and DELQ commands have the same form and each erases files. Each queries you before erasing a file. The ERASE command is similar to these commands but in most cases erases files without queries.

ERAQ and DELQ are most useful when used with the wildcard characters * and ? to erase an entire class of files. Instead of erasing every file that matches the file specification, ERAQ and DELQ list the specified files individually, followed by a ? prompt, to which you respond either with a Y for Yes (erase the file) or with an N for No (do not erase the file).

ERASE

Format: ERASE {dirpath\} filespec
DEL {dirpath\} filespec
ERA {dirpath\} filespec

Explanation: The ERASE, DEL, and ERA commands have the same form and each removes the specified file or files from the directory. The file specification can identify a particular file, or it can indicate a group of files through the wildcard characters * and ?.

After you erase a file, you cannot retrieve it, so you should be very careful when you use wildcards in your file specifications. Generally, ERASE does not query you before erasing files. However, it does query you when you use the asterisk wildcard for both the filename and the extension (*.*). For *.* it displays the following query:

Are you sure (Y/N)?

Type Y to erase all files on the drive; type N to end the command.

FM

Format: FM

Explanation: The Concurrent File Manager program allows you to select commands from a series of menus instead of typing them at the command line prompt.

See Section 3 of the User's Guide for a detailed description of File Manager operation.

FORMAT

Format: FORMAT {drive} {options}

Explanation: The FORMAT command formats floppy disks in standard format. Table 9 lists the options:

TABLE 9. FORMAT COMMAND OPTIONS

Option	Description
/S	Copies Concurrent onto the formatted disk.
/V	Allows an 11-character volume name.

If you omit the drive, FORMAT uses the default drive.

Examples: If you enter the command:

A>FORMAT

the following message appears:

Insert disk to FORMAT in DRIVE A

Press <ENTER> when ready (or <ESQ> to quit)

If you enter the command:

A>FORMAT A:/S

FORMAT searches the default drive for CCPM.SYS, and if found, FORMAT displays:

READING Concurrent

If FORMAT cannot find CCPM.SYS, it prompts you to insert the Concurrent disk into the default drive and the operation proceeds as before. When finished, FORMAT prompts

Format Another? (Y/N)

Note: FORMAT requires a minimum COMSIZE of 185KB to format a system disk.

FSET

Format: FSET [options]
FSET d: [options]
FSET filespec [options]

Explanation: The FSET command initiates password protection and time stamping of files and establishes the drive and file attributes such as Read/Only, SYS, or archive attributes. FSET also lets you label a diskette or hard disk and password-protect the label. Before enabling the time stamping option, you must first format the disk or hard disk directory. See INITDIR for information on directory formatting.

Assign a Label to the Drive

Format: FSET {d:} [NAME=labelname.typ]

Explanation: On CP/M media the FSET command assigns a name to the specified drive's directory or to the default drive's directory if no drive is listed. You can create a directory label with an eight character name and three character type, similar to filename and file extension. For example, the command

```
A>FSET [NAME=DISK100]
```

labels the disk on the current drive, DISK100. The default label name is LABEL.

Enable/Disable Password Protection

Format: FSET [PROTECT=ON]
FSET [PROTECT=OFF]

Explanation: The first FSET command turns on password protection for all the files on a CP/M disk. The second FSET command disables password protection for all the files on the disk or hard disk. Password protection must be turned on before you assign passwords to individual files or labels.

Assign Password to the Label

Format: FSET filespec [PASSWORD=password]
FSET [PASSWORD=<RET>]

Explanation: The first form of this FSET command assigns the password to the disk or hard disk label on CP/M media. The second form of the command removes the password protection from the label.

If a label has no password, any user with access to the FSET program can set other attributes to the disk or hard disk, which might make the disk inaccessible to you. However, if you assign a password to the label, you must also supply the password to set any of the functions controlled by the label. FSET always prompts you for the password if the label is password protected. You can use SHOW to display the label to determine if a disk or hard disk is password protected. See SHOW in this manual.

When you assign or change any password on a drive, you must enter the commands in a specific order. You must switch on password protection as described above, before you can assign a password. After protection is switched on, set the password like this:

```
D>FSET [PASS=XYZ]
```

Once the drive has the protection turned on and the password set, it prompts you for the password whenever you access that drive or label.

If you use password protection, for a label or for files, be sure to record the passwords. If you forget the password, you lose access to any protected files.

Assign Passwords to Files

Format: FSET filespec [PASSWORD=password]

Explanation: On CP/M media, this command sets the password for a file to the password that you specify with the PASSWORD option. Passwords can be up to eight characters long. Lowercase letters are translated to uppercase. For example,

A>FSET MYFILE.TEX [PASSWORD=myfil]

assigns the password MYFIL to the file MYFILE.TEX.

You can use the asterisk and question mark wildcard characters in the filename and file extension fields of the file specification. FSET assigns the specified password for all files that match the wildcard file specification.

Set Password Protection Mode

Format:

```
FSET filespec [PROTECT=READ]
FSET filespec [PROTECT=WRITE]
FSET filespec [PROTECT=DELETE]
FSET filespec [PROTECT=NONE]
```

Explanation: You can assign one of four password protection modes--READ, WRITE, DELETE, and NONE--to your CP/M files. Table 10 describes each mode.

TABLE 10. PASSWORD PROTECTION MODES

Mode	Protection
READ:	The password is required for reading, copying, writing, deleting, or renaming the file.
WRITE:	The password is required for writing, deleting, or renaming the file. You do not need a password to read the file.
DELETE:	The password is required only for deleting or renaming the file. You do not need a password to read or modify the file.
NONE:	No password exists for this field. If a password exists, this modifier is used to delete the password.

For example,

B>FSET *.TEX [PASSWORD=KISS, PROTECT=WRITE]

assigns the password KISS to all the TEX files on drive B. Each TEX file is given a WRITE protect mode to prevent unauthorized editing.

Assign a Default Password

Format: FSET[DEFAULT=password]

Explanation: This command assigns a default password that the system uses during a given session. The system uses the default password to access password protected files if you do not specify a password. The system lets you access the file if the default password matches the password assigned to the file.

For example,

```
A>FSET [DEFAULT=dd]
```

instructs the system to use dd as a password if you do not enter a password for a password-protected file.

FSET Time Stamp Options

Format: FSET [CREATE=ON]
FSET [ACCESS=ON]
FSET [UPDATE=ON]

Explanation: These FSET commands allow you to keep a record of the times and dates you created, accessed, or updated your CP/M files. Before you enable time stamping on your files, you must run INITDIR to format the disk or hard disk directory for time and date stamps. See INITDIR in this section. You must also use the DATE command each time you run Concurrent to set the correct time.

The CREATE option allows you to record the creation time of a file. It turns on the CREATE time stamp on the disk or hard disk in the current drive or a specified drive. You must turn the option on before creating the file to be time stamped.

The ACCESS option turns on the ACCESS time stamp on the disk or hard disk in the current or specified drive. ACCESS and CREATE are mutually exclusive; only one can be in effect at any given time. If you turn on the ACCESS time stamp for a disk with CREATE active, the CREATE time stamp is turned off.

The UPDATE option turns on UPDATE time stamps on the disk or hard disk in the current drive or specified drive. UPDATE records the last time you modified or updated your file.

There are three kinds of time and date stamps, but only two can be associated with a file at one time. Time and date stamps cannot be selectively assigned to individual files. Either all files on a disk are stamped, or none at all.

If you set both UPDATE and CREATE, both stamps are changed when you edit a file. This occurs because word-processing and text-editing programs do not update the original file, but create a new version with the same name. For example, if you have ACCESS time stamps turned on, and you enter the command:

B>SDIR [FULL]

Concurrent displays time and date stamps in the following format:

Name	Bytes	Recs	Attributes	Prot	Update	Access
ONE .TEX	9k	71	Dir RW	None	08/03/85	10:56
THREE .TEX	12k	95	Dir RW	None	08/05/85	15:45
TWO .TEX	10k	76	Dir RW	None	08/10/85	09:30

The ACCESS time stamps displayed show the time the file was last displayed or edited. Note that displaying a filename in a directory listing does not constitute an access and is not recorded.

If you turn on CREATE and UPDATE, the display includes CREATE and UPDATE in the columns at the right, as shown below.

Name	Bytes	Recs	Attributes	Prot	Update	Create
GENLED .DAT	109k	873	Dir RW	None	08/05/85 14:01	08/01/85 09:36
RECEIPTS.DAT	59k	475	Dir RW	None	08/08/85 12:11	08/01/85 09:40
INVOICES.DAT	76k	608	Dir RW	None	08/08/85 08:46	08/01/85 10:51

Set Drive and File Attributes

Format:

```
FSET {d:} [RO]
FSET {d:} [RW]
FSET {d:} filespec [RO]
FSET {d:} filespec [RW]
FSET {d:} filespec [SYS]
FSET {d:} filespec [DIR]
```

Explanation: These FSET commands set the specified drive or file(s) to Read/Only, Read/Write, Sys, and Dir. If your drive is password protected and protection is on, the system asks you for your password.

If a drive is set to Read/Only, PIP and COPY cannot copy files to it, ERASE and DEL cannot delete a file from it, and REN cannot rename a file on it. You cannot perform any operation that requires writing to the drive. When the specified drive is set to Read/Write, you can read from or write to the disk in that drive.

Similarly, when a file is set to Read/Only, PIP and COPY cannot copy it, ERASE and DEL cannot erase it, and REN cannot rename it. You cannot use any program to make changes to the file. When a file is set to Read/Write, you can read it and write to it. You can use wildcards in an FSET command so that you can set attributes for more than one file with a single command.

The SYStem and DIRectory attributes apply only to files. DIR is the default file attribute and the DIR command displays all files with this attribute.

Setting a program file on the system disk to SYS allows you to access that program from any user number or directory on the drive. (See the SYSDISK command for more information.) To display files set to SYS, use the SDIR command or the DIR command with the /S option.

You can also use FSET to set the archive attribute for files. When the archive attribute of a file is on, it means that the file has been backed up. There are two ways to turn the archive attribute on. Using FSET, you can turn the archive attribute on or off with the following commands:

```
B>FSET MARVELL.TXT [ARCHIVE=ON]
B>FSET MARVELL.TXT [ARCHIVE=OFF]
```


You can also turn the archive attribute on by copying a group of files using PIP with the A option. When using the A option, PIP requires a wildcard file specification. PIP copies only those files matching the filespec that have not been changed since the last time they were backed up with the A option. For each file successfully copied, PIP sets the archive attribute to on.

The archive attribute is displayed by SDIR.

The FSET [HELP] Option

Format: FSET [HELP]

Explanation: Type the above FSET command to obtain FSET examples on your screen that cover all the uses of FSET.

Additional FSET Examples

```
A>FSET *.LTR [SYS,RO,PASS=123,PROT=READ]
```

```
A>FSET *.LTR [RW,PROTECT=NONE,DIR]
```

The first command affords the most protection for all the files with a file extension of LTR on drive A. The password protection is set to READ, so you cannot read one of the LTR files without entering the password, 123, unless the default password is set to 123.

The second command reverses the protection and access attributes of the LTR file. Anyone can read and write the files; no password is required. The system prompts you for the password before it allows you to turn off the password protection.

FUNCTION

Format: FUNCTION
FUNCTION {d:} filename.PFK

Explanation: The FUNCTION command allows you to change the commands assigned to your function keys and numeric keypad keys. FUNCTION lets you make the following assignments:

- * Assign a command up to 20 characters long to any of the function keys F1 through F10.
- * Assign a command up to four characters long to any of the key combinations formed by using the function keys in combination with the Ctrl, Alt, and Shift keys.
- * Assign a command up to four characters long to any of the dual-purpose numeric keypad keys. (Only the 5 is not dual purpose.)
- * Change the key combinations used to switch windows.

When you enter FUNCTION without a file specification, Concurrent displays a menu presenting you with options.

When you enter FUNCTION with a file specification, function assignments are made from the file specified. No menu is displayed, and no user interaction is allowed.

Function key assignments generally apply only to command-line entries. Many Concurrent commands and application programs use the function keys for special purposes; they ignore any assignments you make with the FUNCTION command. In some cases, your assignments remain in force even when a command or program is running.

The FUNCTION command allows you to reassign the function keys to perform different commands from within different programs. You can have the function keys perform one set of commands when the command-line prompt is displayed. Then, you can invoke FUNCTION from within a BATCH file that also invokes an application program, and have totally different commands in effect when the program is running. When you exit the application program, the function keys do not always return to their original assignment. You should save your default function key assignments in a file and run FUNCTION with that file after you exit the application program.

Note: Function key assignments have effect only in the window in which they are made.

Table 11 describes the options presented when you invoke FUNCTION without a file specification.

TABLE 11. FUNCTION MAIN MENU OPTIONS

Selection	Description
F3 -- Assign Function Keys	Select this option to display or change the current function key assignments.
F5 -- Save Function Keys in a File	Select this option to save new function key assignments in a file.
F7 -- Change Window Switching Keys	Select this option to change the key combination used to switch windows.

To select an option from the FUNCTION Main Menu, press the associated function key. Another screen is then displayed. If you need help, press function key F1. After you have finished with a FUNCTION Menu, press Esc to return to the previous menu. Also use Esc to exit the FUNCTION Main Menu and return to the command-line prompt.

All assignments you make with FUNCTION take effect as soon as you exit the FUNCTION command. The assignments remain in effect until you turn off or reset your computer, or another program resets them. If you want to save your assignments, select option F5, "Save Function keys in a File" from the Main Menu before you exit FUNCTION. Invoke FUNCTION with this filename when you want to change the default function key assignments to these values.

You can also use SETUP to change the default function key assignments that take effect when you start Concurrent.

F3 -- Assign Function Keys

The Concurrent commands shown for function keys F1 through F10 when you select F3 from the Main Menu are the default commands. To change the command assigned to a particular function key, press that key. FUNCTION then highlights the number of the function key selected and erases the currently assigned command. You can now enter a new command.

To make an entry, type the command exactly as if you were entering it from the command line. Use the backspace key to edit the command as you enter it. When you are satisfied with the command, press Ctrl-@ or enter \00 to conclude the entry. You can then select another function key or exit.

If you want Concurrent to run a command when you press the corresponding function key, press Enter before terminating the command entry. If you want Concurrent to wait for an additional entry, do not press the Enter key at the end of your command. For example, if you want a function key to give you an alphabetical listing of the files on the current drive, assign the following command to the key:

SDIR<Enter>

If you want Concurrent to wait and let you specify which drive to list, you would make the following assignment:

SDIR<Space>

Afterwards, when you press the associated function key, Concurrent waits for you to press Enter before running the command. This lets you enter a drive specification or other option.

Note: When you press the spacebar during function key assignment, FUNCTION displays \20 instead of a literal space. When you press the Enter key, Concurrent displays \0D. These are the numerical (hexadecimal) representations of the spacebar and Enter keys.

You can program function keys F1 through F10 to invoke the commands you run most often.

When you finish making assignments to the F1 through F10 function keys, press Enter to proceed to the second page of the assign-function-keys display. This screen shows the numeric keypad and Alt-function assignments. Press Enter again to proceed to the third and last page of the display, which shows Shift-function and Ctrl-function assignments.

Make assignments to any of the keys on these two pages in the same way you make assignments to function keys F1 through F10. The only difference is that keys on these pages cannot be assigned commands of more than four keystrokes.

You can scroll through the three pages of the display by pressing Enter as many times as necessary. When you are through making all your assignments, press Esc to return to the FUNCTION Main Menu.

F5 -- Save Function Keys in a File

After you have made your command assignments and returned to the FUNCTION Main Menu, press F5 to save your assignments. FUNCTION displays a new menu that presents you with two options.

One option is to press F5 again. This saves the assignments in a file with the default name KEYS.PFK (highlighted on your screen) in the current user number on the current disk.

Select F3 to change the default filename, KEYS.PFK, to a filename of your choice. The PFK file extension remains on the screen, and there is no cursor. Enter any valid filename, up to a maximum of eight characters. Press Enter to terminate a filename shorter than eight characters. After you complete your entry, FUNCTION updates the screen with the new filename. Select F5 to save your file, or select F3 again to select a different filename.

F7 -- Reset Window Switching Keys

This option lets you define the key combination used to switch windows. The entire range of combinations is shown on your screen when you press F7. The current key combination is indicated by the flashing arrow.

Notice that option F2 allows you to select a window by pressing the numeric keypad key only. All other options require the use of the numeric keypad key in combination with one or more keys.

To select an option, press the associated function key and Esc. This returns you to the FUNCTION Main Menu.

Saving the function-key command assignments in a file also saves your window switching-key selection in a file.

Using FUNCTION with an Input File

When you enter FUNCTION with a file specification, Concurrent reads the file and makes function-key assignments as specified in the file. Note that the specified file must have the extension PFK. The file must also include a line for each function key, whether or not it differs from the default.

The FUNCTION option F5, "Save Function Keys in a File," automatically creates a PFK file for you. You can also create a PFK file with your text editor or word-processing program. It is easier to create the file initially with the F5 option, and then edit it with your word-processing program. This gives you the opportunity to put comments in the PFK file to describe what the command does and why.

When you create your own PFK file, keep the following facts in mind:

- * Each function key is identified in the file by a single specific character. Only one function-key assignment is allowed per line.
- * You can include blank lines between function key assignments.
- * If a command contains fewer than the maximum number of characters allowed, you must terminate it with the characters \00.
- * If a line starts with an asterisk, FUNCTION ignores all characters between that asterisk and the next asterisk it encounters. This allows you to store comments in the file along with the key assignments.

Table 12 lists the identifying character assigned to each function key.

TABLE 12. FUNCTION KEY IDENTIFIERS

Function Key	Character	Function Key	Character
F1	:	Alt-F6	f
F2	<	Alt-F7	g
F	=	Alt-F8	h
F4	>	Alt-F9	i
F5	?	Alt-F10	j
F6	@	Shift-F1	k
F7	A	Shift-F2	l
F8	B	Shift-F3	m
F9	C	Shift-54	n
F10	D	Shift-F5	o
Home	G	Shift-F6	p
Up Arrow	H	Shift-F7	q
Pg Up	I	Shift-F8	r
Left Arrow	K	Shift-F9	s
Right Arrow	M	Shift-F10	t
End	O	Ctrl-F1	u
Down Arrow	P	Ctrl-F2	v
Pg Dn	Q	Ctrl-F3	w
Ins	R	Ctrl-F4	x
Del	S	Ctrl-F5	y
Alt-F1	a	Ctrl-F6	z
Alt-F2	b	Ctrl-F7	{
Alt-F3	c	Ctrl-F8	
Alt-F4	d	Ctrl-F9	}
Alt-F5	e	Ctrl-F10	~

The window switching keys can also be set in your PFK file by using the special character identifier exclamation point, !. The specific combination of numeric keypad keys and Ctrl, Alt, and Shift keys is set by a number. Table 13 lists the number-to-key-combination assignments. Use this table to construct the desired control string in the PFK file.

TABLE 13. WINDOW SWITCHING NUMBER ASSIGNMENTS

Number	Key Combination
0	Keypad only
1	Keypad + Shift
3	Keypad + Ctrl
5	Keypad + Shift + Ctrl
2	Keypad + Alt
4	Keypad + Alt + Shift
7	Keypad + Alt + Ctrl
6	Keypad + Alt + Ctrl + Shift

Use the ASCII hexadecimal values to include a space, Enter character, or other special character. Table 14 lists the hexadecimal values for the keys listed. Be sure to precede each value with a backslash (\).

TABLE 14. HEXADECIMAL VALUES FOR SELECTED KEYS

Key Name	Hex Value	Key Name	Hex
Backslash(\)	5C	End	CF
Space	20	Down Arrow	D0
Enter	0D	Pg Dn	D1
Up Arrow	C8	Ins	D2
Pg Up	C9	Del	D3
Left Arrow	CB	Home	C7
Right Arrow	CD		

Examples: The following shows how Function Key Identifiers are used in a PFK file. Notice the use of comments. The first three commands assign character strings to function keys F1, F2, and F3. The last command changes the window switching key combination.

```
*F1  *;SDIR\20*.CMD|USER=ALL\00
*      This command displays all CMD
      files. Command is 20 characters
      long; doesn't need trailing \00*

*F2  *;<DATE\0D\00
*      This command lets me change
      the date*

*F3  *=SHOW\20SPACE\0D\00
*      This shows the remaining space
      on all logged in drives*

*Window*!2\00
*      This changes the window-switching
      key combination to keypad + Alt.* >
```

Notice the following characteristics of the PFK file entries shown:

- * The keys F1 through F3 are identified for FUNCTION by the characters ;, <, and =. For clarity, F1, F2, and F3 are listed as comments.
- * The F1 assignment has no closing bracket or trailing \00. The closing bracket is not necessary with the SDIR command. If it were entered here, it would put the command over the 20-character limit. Because the command string is exactly 20 characters long, the \00 is not required.
- * Comments can extend to more than one line.
- * Regular numbers can be used in the command line. They are distinguished from hexadecimal digits because they do not have the preceding backslash.

HDMMAINT

Format: HDMMAINT

Explanation: HDMMAINT is an easy-to-use, menu-driven command that performs hard disk maintenance tasks. The main purpose of HDMMAINT is to format your hard disk before you use it for the first time. (This service might be provided by your computer dealer.) You can also use HDMMAINT to change the formatting of your hard disk. This process completely erases your hard disk, so before reformatting, be sure to make copies of your hard disk files with the BACKUP command.

HDMMAINT options are

- * Create, change, or delete a CP/M or DOS partition.
- * Test a CP/M or DOS partition and verify that all data can be read without errors.
- * Write Concurrent system loader information from your distribution disk to a hard disk partition or change the "bootable" hard disk partition.
- * Display or change a partition's options regarding directory labels, number of directory entries, and read-after-write verification.
- * Once you use HDMMAINT to make a DOS partition capable of starting (booting) Concurrent, you can use the REDOS command to reinitialize the DOS partition to make it capable of starting DOS.

For a thorough explanation of HDMMAINT and REDOS, see the HDMMAINT.DOC disk file on the distribution disk. Use the TYPE command to read it on the console, or print the file using the File Manager or Printer Manager.

HELP

Format: HELP
HELP {topic} {subtopic1 subtopic2 ... subtopic8}
HELP [option]

Explanation: The HELP command displays information about Concurrent commands. You can also create your own help screens. The information is organized in a tree-structured fashion that starts with a topic and proceeds down through as many as eight levels of subtopics. The file HELP.HLP contains all the information displayed by HELP.

Two HELP options allow you to modify the HELP.HLP file. They are EXTRACT and CREATE. See "Customizing Your HELP File" below for a description of how to use them.

When you enter

```
A>HELP
```

the entire list of topics is displayed and the command-line prompt is replaced with the following prompt:

```
HELP (Enter topic, ESC to exit)
```

Select a topic by entering a name in the list. You need not enter the entire topic name, but you must enter enough letters to uniquely identify the topic.

There are two ways to display subtopic information from the HELP prompt. One way is to enter the topic and subtopic in a single command:

PIP EXAMPLES

then press Enter. Another way is to enter the topic alone, press Enter, then type a period (.) and the subtopic name before pressing Enter again. Instead of the period, you can retype the topic name and follow it with the subtopic. Subtopic names can be abbreviated in the same manner as the topic names.

Enter a ? to return to the initial list of topics after you have displayed topic or subtopic information. Alternatively, you can enter another topic and/or subtopic. Press Esc to return to the command-line prompt.

You can also display topical information directly from the Concurrent command-line prompt. For example, to show the information in the EXAMPLE subtopic in PIP, type

```
A>HELP PIP EXAMPLE
```

Customizing Your HELP Files

Concurrent has two related HELP files: HELP.CMD and HELP.HLP. The HELP.CMD file is the program file that manages the display of the information. HELP.HLP is the text file containing the information. While you cannot directly edit HELP.HLP to add new information, you can use the CREATE option to change information in HELP.HLP.

First, make sure that the current directory contains HELP.CMD, HELP.HLP, and a text editor. HELP.HLP need not have the DIR attribute but it must have the Read/Write attribute. (See the FSET command for a description of the DIR and Read/Write attributes.) To modify the HELP.HLP file, perform the following steps:

1. Create the file HELP.DAT by entering:

```
A>HELP [EXTRACT]
```

EXTRACT can be abbreviated to E, but the brackets must be entered.

2. Edit the file HELP.DAT with your editor.
3. Create a new HELP.HLP from the edited HELP.DAT file by entering:

```
A>HELP [CREATE]
```

CREATE can be abbreviated to C, but the brackets must be entered.

New topics and subtopics are added to HELP.DAT in step 2 according to specific rules. The format of a topic heading in HELP.DAT is as follows:

```
///ntopicname
```

The three slashes designate that the following topicname is a topic. The n indicates the topic level. Valid numbers are 1 to 9. Topics with a 1 value appear in the HELP list of topics. The remainder are shown as subtopics in the previous level topic's display.

The topicname is any combination of 12 letters and numbers, including spaces. Lowercase letters are translated to uppercase in the topicname.

Under the topic identifier, enter your information. What you enter is what you see when you select the topic from HELP. Be sure to end each line by pressing the Enter key. If the information is more than one screen long, HELP stops and waits for you to enter any character before displaying the next screen. Lowercase letters are not translated to uppercase in the description.

A subtopic must follow immediately after its topic. The rules for specifying the subtopic name are the same as for a topic. To make your HELP file additions easy to use, place new topics in alphabetical order. HELP displays the topics in the initial list in their order of appearance in the HELP.HLP file.

Example:

```
///1NEWAPP
///2COMMANDS
///3EASY CMDS
///3DIFF CMDS
///2EXAMPLES
```

This example shows a possible arrangement of topics and subtopics for the program NEWAPP. There are two second-level subtopics and two third-level subtopics. Notice the use of spaces in the third-level subtopics. Also notice the sequence of second- and third-level subtopics. This arrangement indicates that EASY CMDS and DIFF CMDS are subtopics of COMMANDS and not EXAMPLES.

INITDIR

Format: INITDIR d:

Explanation: Use the INITDIR command to format the directory on CP/M media for time and date stamping. Note that time and date stamping on DOS media is automatic and no formatting is required. After you run INITDIR, you must run the FSET command to turn on time and date stamping. (See the FSET command description for these instructions.)

Time and date stamping tells you the time and date a file was created, modified, or accessed. Use DIR /L or SDIR to display this information after the directory is prepared with INITDIR.

For more information, see the description of the FSET command time stamp options: ACCESS, CREATE, and UPDATE. INITDIR formats the directory for all user numbers on the drive designated.

When INITDIR reformats the directory area, it saves all current entries. You must have at least one fourth of the total directory space available to run INITDIR successfully. If the directory does not contain enough space, INITDIR displays the following message:

```
ERROR: Not enough room in directory
```

To use INITDIR, enter the command followed by the designation of the drive containing the disk. If you do not specify a drive name, INITDIR prompts you for the correct drive. For example, the following command initializes the directory on drive D:

```
A>INITDIR D:
```

If the designated disk is password-protected, INITDIR displays the message:

```
Directory is password-protected.  
Please enter drive label password.
```

Enter drive label password and press Enter. If you do not enter the correct password, INITDIR terminates.

You must confirm your intentions, as follows:

```
INITDIR WILL ACTIVATE TIME STAMPS FOR  
SPECIFIED DRIVE. Do you want to reformat  
the directory on drive: D (Y/N)?
```

If the directory is already formatted for time and date stamps, INITDIR displays the message:

Directory already reformatted
Do you want to recover time/date
space (Y/N)?

Press Y to recover the space reserved for time and date stamping. The file entries in the directory are saved, but you can no longer use the time and date stamping feature unless you run INITDIR again. If you press N to leave the extra directory space as is, the following message appears:

Do you want the existing time and date
stamps cleared (Y?N)?

Press Y to erase the current time and date values for all files. You can still use the time and date feature after this option is selected. Press N to leave the time and date information intact and terminate INITDIR.

LOADXM

Format: LOADXM
 LOADXM ASK
 LOADXM INSTALL

Explanation: Use the LOADXM command to start Concurrent if DOS has control when you first turn on your computer. LOADXM must be installed under Concurrent before using it under DOS. You invoke LOADXM under DOS. When you use LOADXM, you do not need to change existing DOS system files. If you use the form

LOADXM ask

in the file, you are asked at system startup if you want to load Concurrent. Enter Y to load Concurrent; enter N to retain DOS.

MKDIR

Format: MKDIR {d;}dirpath
MD {d;}dirpath

Explanation: Use MKDIR to create subdirectories in the root directory or other subdirectories. You can abbreviate MKDIR as MD in your command line.

If you do not include a backslash (\) before the first subdirectory name in dirpath, MKDIR begins the path to your new directory from the current directory of the current or specified drive. If you do include the backslash, MKDIR begins the path at the root directory of the current or specified drive. For example, if you are in subdirectory LEVEL2 and want to create subdirectory NEWONE from the root directory, enter the following:

```
A>MKDIR \NEWONE
```

If you are in subdirectory LEVEL2 and want to create a subdirectory from LEVEL2, enter the following:

```
A>MKDIR NEWONE
```

The Xpath from the current directory leading to the new subdirectory must be entered and all the subdirectories in the path must exist. If a subdirectory is specified that does not exist, MKDIR displays the following message and terminates:

```
Path Not Found
```

Example: Use subdirectories to organize your data and command files into logical groups. The sequence of MKDIR commands shown below create the hierarchical series of subdirectories shown in Figure 1.

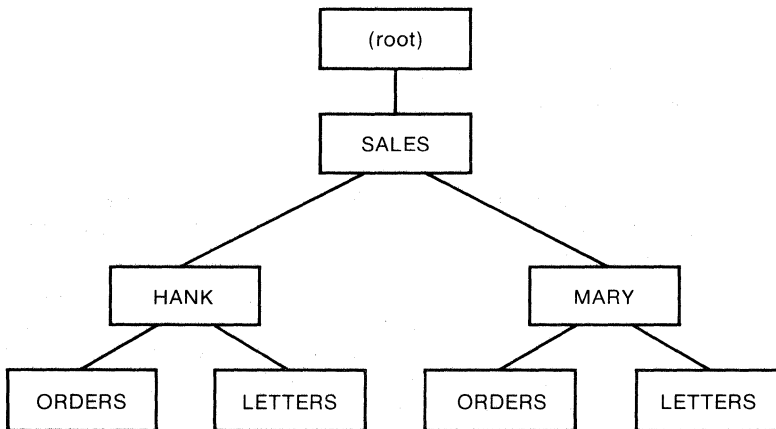


FIGURE 1. SAMPLE HIERARCHICAL SUBDIRECTORIES

```
C>MKDIR SALES  
C>MKDIR SALES\HANK  
C>MKDIR SALES\MARY  
C>MKDIR SALES\MARY\ORDERS  
C>MKDIR SALES\MARY\LETTERS  
C>MKDIR SALES\HANK\ORDERS  
C>MKDIR SALES\HANK\LETTERS
```

You can have subdirectories with the same specification, but they must have different paths.

ORDER

Format: ORDER
ORDER=ext1{,ext2{,ext3{,ext4}}}

Explanation: ORDER displays or changes the file extension search order Concurrent uses to find a program when the file extension is not specified in a command. Concurrent uses the following default file extension search sequence to look for the file:

CMD
COM
EXE
BAT

Thus, if you use COPY1 in a command, and there are two available files named COPY1.EXE and COPY1.BAT, Concurrent runs the EXE file rather than the BAT file, unless you change the search order or use the complete filename.

To display the current file extension search sequence, type:

A>**ORDER**

To change the search order, enter a command similar to the following:

A>**ORDER=BAT,CMD,COM,EXE**

List file extensions in the new search order. Separate them by commas, but use no spaces. If you create BATCH files for all your applications, you might want to use ORDER to place BAT as the first file extension to be found.

You can reduce the number of file extensions searched for by entering a command similar to the following:

A>**ORDER=EXE,BAT**

This command limits the search to two file extensions, instead of four. If a search is unsuccessful, Concurrent displays the following message:

Concurrent Error: Can't Find Command

PATH

Format: PATH {{d:}dirpath{;;{d:}dirpath}....}}

Explanation: PATH sets a search path for commands or batch files not found by a search of the current directory. If a command cannot be found in the current directory, Concurrent searches the named directories in the order you entered them, but does not change the current directory.

PATH with no parameters displays the names indicated in the previous PATH command. (The search paths currently defined.) PATH with a semicolon (PATH;) resets the search path to null (no extended search path.) The default search path is the root directory of the drive Concurrent was started from.

In the following example, PROGA.COM is contained in directory PLANDIR on Drive B, and the default drive is Drive A:

```
PATH \SUB1;\SUB1\SUB2;B:\PLANDIR
```

This command tells Concurrent to look into the current directory of the drive specified, followed by A: SUB1, then A: SUB1 A:SUB2, then B:\PLANDIR, until it finds the command you entered. If the command entered is not found in any of the directories specified in PATH, the message:

```
Bad command or filename  
is displayed.
```

If you enter the command:

PROGA

Concurrent searches four directories and finds program PROGA in B: PLANDIR.

Incorrect information in the paths will not be found until the specified paths are searched. If a specified path does not exist, Concurrent will ignore that path and go to the next.

PIP

Format: PIP destination=source
PIP

Explanation: Use PIP (Peripheral Interchange Program) to copy files between drives, directories, and devices. Both the destination and source in the PIP command can be a device rather than a specific file. For a description of using these devices with PIP, see "Copy Files to and from Devices." When there is a file on the destination with the same file specification, PIP erases the old copy after the new copy has been created.

PIP copies files incrementally into a temporary file. The temporary file is given the filename specified for the destination but PIP substitutes the file extension \$\$\$\$. PIP changes the temporary extension \$\$\$ to the proper file extension after the copy is completed. If the copy fails or is interrupted by a Ctrl-C, the destination file with the same specification is not destroyed. The incomplete \$\$\$ file is retained on the disk.

When you enter PIP alone, the PIP asterisk prompt is displayed. You can then enter multiple PIP commands. See "Multiple Command Mode" for a description of this form of the PIP command.

You can use PIP to copy files between CP/M and DOS media. Remember that CP/M media has directories with user numbers while DOS media uses a root directory and its subdirectories. When you use PIP to copy files from a hard-disk partition to a floppy disk, you must observe the following precautions:

- * You cannot use a DOS subdirectory name as a destination or source specification. Before you run PIP, use CHDIR to make the subdirectory a current directory or assign it to either floating drive N or O. For example, the following command makes PHONES, a subdirectory of MAILLST, the current directory:

```
C>CHDIR MAILLST/PHONES
```

* To transfer a file or files from one subdirectory to another subdirectory on the same drive, one of the subdirectories must be assigned to floating drive N or O. Make the other subdirectory the drive's current directory. For example, the following sequence of commands assigns floating drive N to the MAILLST/PHONES subdirectory, makes MAILLST the current directory on drive C, and copies the file CA.DAT to subdirectory MAILLST/PHONES:

```
C>CHDIR N:=MAILLST/PHONES
C>CHDIR MAILLST
C>PIP N:=C:CA.DAT
```

Using Options with PIP

PIP options enable you to process your source file in special ways. See Table 15 for a listing and description of PIP options. In the options, n represents a number and s represents a sequence, or string, of characters terminated by a Ctrl-Z.

Except for the Gn option, all options follow the source specification. Options must be enclosed in square brackets, []. For those options that require a numeric value, no blanks can occur between the letter and the value. A space can be inserted to separate one option from another. All options must be specified in a single set of square brackets.

TABLE 15. PIP OPTIONS

Option	Description
A	Copies only the files that do not have the Archive flag set. Use this option with wildcards to copy only the files that have been modified since the last PIP with [A] command.
C	Asks for confirmation before each file is copied.
Dn	Deletes any characters past column n. Use this option for a source file with lines that are too long to be handled by the destination device (for example, an 80-column printer or console).
E	Echoes transfer to the computer screen. Use this option to display file contents as the copy is taking place. The source file must be a text file.
F	Filters formfeeds. Use this option to remove all formfeed characters embedded in the source file.

TABLE 15. (CONT'D)

Option	Description
Gn	Goes to or from user number <i>n</i> . This is the only option that can be used with both the source and destination file specifications. When this option follows the destination name, PIP copies the file into the user number specified by <i>n</i> . When this option follows the source name, PIP copies the file from the user number specified by <i>n</i> . In both cases, the user number must be in the range 0 to 15.
H	Transfers Hex data. Use this option to check all data for the proper Intel® hexadecimal file format. Errors are displayed as they occur.
I	Ignores :00 records in the transfer of Intel hexadecimal file format. The I option sets the H option.
L	Translates uppercase characters in the source file to lowercase in the destination file.
N	Adds line numbers to the destination file. Use this option to add sequential line numbers to each line copied. A colon follows the line number. If you enter N2 instead of N, PIP adds leading zeros to the line number and inserts a tab after the number.
O	Transfers machine code (noncharacter) files. PIP ignores any Ctrl-Z end-of-file characters during concatenation and transfer. Use this option only if you are combining object code files.
Pn	Sets page length where <i>n</i> specifies the number of lines per page. When your destination is LST, use this option to send a page eject at the beginning of the file and at every <i>n</i> lines. If <i>n</i> = 1 or is not specified, PIP inserts page ejects every 60 lines. When you also specify the F option, PIP ignores formfeeds in the source data and inserts new formfeeds in the destination data at the page length specified by <i>n</i> .
Qs	Quits copying from the source device after the character string <i>s</i> . Use the Q option with or without the S option to copy only a portion of the source file. The quit character string must be terminated by Ctrl-Z in your command line. The quit character string is included in the destination file. If the quit string contains lowercase letters, you must enter the command from the PIP interactive mode. See "Multiple Command Mode."
R	Reads system (SYS) files. Normally, PIP does not copy files with the SYS attribute. This option overrides this restriction.

TABLE 15. (CONT'D)

Option	Description
Ss	Starts copying file from the character string s. The start character string must be terminated by Ctrl-Z. The Ss option, used with or without the Q option, can copy a portion of a file. The start string is included in the destination file. If the character string contains lowercase letters, the command must be entered from PIP's interactive mode. See "Multiple Command Mode" in this section.
Tn	Expands tabs. Use this option to expand tab characters in the destination file. PIP replaces each tab with enough spaces to position the next character in a column divisible by n.
U	Translates lowercase characters in the source file to uppercase in the destination file.
V	Verifies that data has been copied correctly. PIP compares the destination to the source data to ensure that the data has been written correctly. The destination must be a floppy disk or hard disk file. The V option increases copy time.
W	Writes over files with R/O (Read/Only) attribute. Normally, if a PIP command includes an existing R/O file as a destination, PIP sends a query to the console to make sure you want to write over the existing file. When this option is specified, PIP overwrites the R/O file without the console prompt. If the command contains multiple source files, this option need follow only the last file in the list.
Z	Zeros the parity bit. Use this option to set the parity bit of each data byte in the destination file to zero. The source file must be a text file.

Examples:

```
A>PIP
NEWPROG.LTR=CODE.LTR[L],DATA.LTR[U]
```

This command constructs the file NEWPROG.LTR on drive A by joining (concatenating) the two files CODE.LTR and DATA.LTR from drive A. During the copy operation, all CODE.LTR characters are translated to lowercase (L) and all DATA.LTR characters are translated to uppercase (U).

```
B>PIP LST:=PROGRAM.LTR[NT8U]
```

The above command copies the file PROGRAM.LTR from drive B to the printer. The N option tells PIP to number each line. The T8 option expands tabs to every eighth column. The U option translates lowercase letters to uppercase.

A>PIP

```
*PART.TXT=LET.TXT[SDear Sir ^ ZQSincerely ^ Z]
```

*

The above command sequence extracts from the file LET.TXT the portion that starts with the character string "Dear Sir" and ends with the character string "Sincerely." The corresponding file contents are copied to the file PART.TXT. Remember that when the beginning or ending string does not contain all uppercase characters, you must use PIP's multiple command mode rather than a PIP command line.

B>PIP B:=A.*.CMD[VWR]

The previous command copies all files with file extension CMD from drive A to drive B. The V option tells PIP to verify each destination file with its source file for an exact match. The W option lets PIP overwrite any destination files marked R/O (Read/Only). The R option tells PIP to read files from drive A marked with the SYS (System) attribute.

Single File Copy

Format:

```
PIP d:{{Gn}}=filespec{{options}}
```

```
PIP filespec{{Gn}}=d:{{options}}
```

```
PIP filespec{{Gn}}=filespec{{options}}
```

Explanation:

Use this PIP command form to copy a file from one disk drive to another, from one directory or subdirectory to another, or to make a copy of the file in the same directory.

The Gn option in the above command form refers to user numbers. User numbers are used only on CP/M floppy disks and CP/M hard-disk partitions to identify subdivisions of the disk's directory. DOS disk and hard-disk partitions use directory names only.

The first command form above is the simplest way to copy a file. PIP looks for the file named by filespec on the default or designated drive and copies it to the drive specified by d:, giving it the same name it has on the source drive. You can use the [Gn] user number option to place your destination file in the user number specified by n.

In the second command model, PIP copies the file named in the destination specification from the source drive to the destination drive. If a destination drive is not specified, the copy is made to the current drive.

The third form copies and renames a file.

Before you start PIP, use the SHOW command to make sure that you have enough free space on your destination disk. Even if you are replacing an old copy, PIP needs enough room for the new copy before it deletes the old copy.

The source file DIR, SYS, RW, and R/O attributes and password are copied with the file. (See the FSET command for a description of file attributes). If you want to copy a file that has a SYS attribute, you must use the PIP [R] option in the source specification.

If the existing destination file is set to Read/Only, PIP displays the prompt

```
DESTINATION IS R/O, DELETE (Y/N)?
```

Answer Y to erase the existing version on the destination; enter N to abort the copy operation. If you know that the destination is R/O but you want to replace the file anyway, enter the source specification with the [W] option.

Examples:

```
A>PIP B:=OLDFILE.DAT
```

```
A>PIP B:OLDFILE.DAT=A:
```

Both forms of this command cause PIP to read the file OLDFILE.DAT from drive A and copy it to drive B.

```
A>PIP B:NEWFILE.DAT=OLDFILE.DAT
```

The previous command copies the file OLDFILE.DAT from drive A to drive B and renames it NEWFILE.DAT. The original file remains OLDFILE.DAT on drive A.

```
A>PIP NEWFILE.DAT=OLDFILE.DAT
```

The above command copies the file OLDFILE.DAT into the same directory but renames it NEWFILE.DAT. This gives you two copies of the same file in one directory.

```
A>PIP B:PROGRAM.BAK[G1]=A:PROGRAM.DAT
```

The above command copies the file PROGRAM.DAT from user number 0 on drive A to user number 1 on drive B, and renames the destination file to PROGRAM.BAK.

Multiple File Copy

Format: PIP d:{{[Gn]}}=filespec{{[options]}}

Explanation: You can use the wildcards (* and ?) in your source file specification to copy a group of files one by one. As each file is copied, a message is displayed indicating the name. The files retain their original name on the destination drive.

The options field in the source specification allows you to use the PIP [A] (archive) option. This is handy when you want to copy only those files changed since the last time you used PIP to back up your files. See the description of the archive attribute in the description of the FSET command.

Examples: A>PIP B:=A:*CMD[RW]

This command copies all the files on drive A with the CMD file extension, including those with the SYS attribute, to drive B.

Combining Files

Format: PIP filespec{{[Gn]}}=filespec{{[options]}, filespec{{[options]}}{...}

Explanation: This form of PIP combines a number of files, in the order named, into a single file named in the destination filespec. The first character of each source file is appended directly to the last character of the previous source. This form allows you to specify different options for each source file.

Examples: A>PIP NEWFILE=FILE1,FILE2,FILE3

This command copies the files FILE1, FILE2, and FILE3 on drive A into the file NEWFILE also on drive A.

A>PIP B:X.LTR=Y.LTR,B:Z.LTR

The above command copies the file Y.LTR on drive A and the file Z.LTR on drive B into the file X.LTR on drive B.

Multiple Command Mode

Format: PIP

Explanation: This form of the PIP utility lets you type multiple command lines while PIP remains in user memory. PIP prompts with an asterisk on your screen when it is ready to accept input command lines. You can type any valid command line described under previous PIP formats at the asterisk prompt.

To stop this PIP command, press the Enter key when the PIP prompt is displayed. The empty command line tells PIP to discontinue operation.

Note: You can change disks between your PIP commands. Make sure that the PIP prompt is displayed before switching disks.

Example:

```
A>PIP
*NEWFILE=FILE1,FILE2,FILE3
*APROG.CMD=BPROG.CMD
*A:=B:X.LTR
*B:=*.*
*PRN:=B:FUNFILE.SUE
*<Enter>
A>
```

The first command in this sequence loads the PIP program and displays the PIP prompt. The subsequent commands are all valid PIP commands described in this section.

Copy Files to and from Devices

Format:

```
PIP dev:=filespec{[options]}
PIP filespec{Gn}=dev:
PIP dev:=dev:
```

Explanation: This form of the PIP command line lets you copy a file from a floppy or hard disk to a device (dev:), from a device to a floppy or hard disk, or from one device to another. The files must contain ASCII characters; you cannot copy program files in this manner. Devices are designated by the names CON:, LST:, NUL:, EOF:, and PRN:.

The logical device names are as follows:

- * CON: The console; the physical device assigned to CON:. When used as a source, CON: is usually the keyboard; when used as a destination, CON: is usually the screen.
- * LST: The destination device assigned to LST:, usually the printer.

There are three device names with special meanings:

- * NUL: A source device used for paper tape readers that produces 40 nulls (hexadecimal zeros).
- * EOF: A source device that produces a single Ctrl-Z (the Concurrent end-of-file mark).
- * PRN: The printer device with the following defaults: tab expansion to every eighth column, line numbers, and page ejects every 60th line.

Examples

A>PIP B:FUNFILE.SUE=CON:

When CON: is specified as the source, your keyboard entries are recorded in the destination file specification, in this case FUNFILE.SUE on drive B. Type Ctrl-Z to stop PIP and close the file.

A>PIP LST:=CON:

When CON: is specified as the source and LST: as the destination, your keyboard entries are written to the printer.

The next command copies the file DRAFT.TXT on drive B to the printer. The T8 option expands tab characters to every eighth column.

A>PIP LST:=B:DRAFT.TXT[T8]

PRINTER

Format: PRINTER
 PRINTER n

Explanation: The PRINTER command displays or sets the printer assigned to your current window. Each window can have a different printer assignment or all windows can share access to a single printer. When one window is using the printer, no other window can access it. When Concurrent is started, all windows are assigned to printer 0. Table 16 shows the printers and their number assignments for the IBM PC® family of computers.

TABLE 16. PRINTERS AND NUMBER ASSIGNMENTS

Number	Description
0	First parallel interface printer and the Concurrent default printer assignment
1	Second parallel interface printer
2	Third parallel interface printer
3	First serial interface printer
4	Second serial interface printer

The printer numbers shown are the only valid numbers for the IBM PC computer family. Refer to your printer and computer manuals to determine if your printer is parallel or serial. The LST: and PRN: device names used by PIP and COPY always refer to the current printer.

Examples: When you enter PRINTER alone, Concurrent displays your window's current printer number.

```
A>PRINTER
Printer Number = 0
```

When you enter **PRINTER** followed by a number, Concurrent changes your window's current printer and displays the new assignment.

```
A>PRINTER 3  
Printer Number = 3
```

PRINTMGR

Format: PRINTMGR command
 PRINTMGR filespec filespec ... [option,option...]

Explanation: PRINTMGR is one of several commands you can use to print files. (PIP and COPY are also available.) Use PRINTMGR when you want to print two or more files at the same time, when you want to use a window to run another program while you are printing, or when you want to print files from several windows simultaneously.

Note: Concurrent also includes a menu-driven form of PRINTMGR called the Printer Manager. See Section 6 of the *User's Guide*.

You cannot print more than one file at a time on the same printer. PRINTMGR lets you specify multiple files, so that you do not have to wait for one to finish printing before specifying the next. PRINTMGR numbers each file specification you enter and adds it to a list called the job queue. It then prints the files in the order they are specified. While the files are printing, you can run programs from any window or leave the computer.

Table 17 lists and summarizes the PRINTMGR commands. The PRINT command specifies files to be printed; the other commands control PRINTMGR operation. Some have abbreviated forms.

TABLE 17. PRINTMGR COMMANDS

Command	Description
DEL{ETE} n	Deletes entry n from the job queue.
H{ELP}	Displays summary of PRINTMGR commands and options.
PRINT	Prints the file or files specified with the options selected.
RES{ET}	Resets PRINTMGR system.
STAR{T} n	Starts PRINTMGR for use with printer n.
STAT{US}	Displays PRINTMGR status.
TER{MINATE}	Temporarily stops PRINTMGR.

START Command

Before you can use PRINTMGR, you must START it. You must START PRINTMGR after any of the following events:

- * Concurrent is started.
- * Concurrent is reset.
- * PRINTMGR is stopped.

If you attempt to use PRINTMGR without first STARTing it, an error message appears. Once you start PRINTMGR, you can use it from all windows.

The START command turns PRINTMGR on and designates which printers are to be used. Printers are designated by the numbers 0, 1, 2, 3, and 4.

You must list all printers you plan to use in a single start command because PRINTMGR can access only those printers that have been specified; for example:

```
A>PRINTMGR START 0 3 4
```

Printer numbers must be separated by a space; do not use a comma.

When you START PRINTMGR, a special job queue file is created to record the contents of the job queue. Every time PRINTMGR is STARTed, it checks this file to see if any jobs remain to be printed. A job is removed from the file only when completed. Thus, there is a permanent record of PRINTMGR's status in case a computer failure or operator error interrupts its operation. When PRINTMGR is STARTed, it begins printing from the beginning of the interrupted job.

Note: When you start PRINTMGR, two programs are invoked: SPL and DSP. If you specify more than one printer, a separate DSP program is invoked for each printer. Do not terminate these programs with the STOP command.

PRINT Command

Files are printed using the PRINTMGR PRINT command. PRINT is assumed if no other command is specified. Thus, the following commands are equivalent:

```
A>PRINTMGR MYFILE  
C>PRINTMGR PRINT MYFILE
```


You can specify more than one file in a single command line. File specifications must be separated by spaces. You can also use the * and ? wildcard characters in your file specifications. For example, the following command prints all files on the current disk with the DAT and TXT file extensions:

```
A>PRINTMGR *.DAT *.TXT
```

All files specified and any matching the wildcard specification are given numbers and added to the job queue.

Several options are available with the PRINT command to control the format of the printout. Enter options in brackets following the file specifications. Table 18 lists and summarizes the options.

TABLE 18. PRINTMGR OPTIONS

Option	Short	Defaults	Description
COPIES=n	COP=n	1	Print n copies of each file in the command line.
FORMAT	FOR	OFF	When on, print the file contents with 55 lines per page (page equals 66 lines).
FORMSIZE=n	FORM=n	66	Set paper length at n lines.
MARGIN=n	MAR=n	8	Set left margin at n spaces.
NOFEED	NOF	OFF	When on, do not send a formfeed to the printer between files.
NUMBER	NUM	OFF	When on, print file contents with 55 lines per page and number each page.
PAGESIZE=n	PAGE=n	66	Print n lines of file per page.
PRINTER=n	PRI=n	*	Send output to printer n.
TABS=n	TAB=n	8	Set a tab at every nth column.

^aDefault n=current printer

DELETE Command

The PRINTMGR DELETE (or DEL) command erases a specified job from the job queue. It takes the form:

PRINTMGR DEL n

Here, n is the job number of the file to be deleted from the queue. Use the PRINTMGR STATUS command to display the job numbers.

DELETE can also be used to terminate a job that is already printing. In this case, the PRINTMGR immediately terminates the job and continues to the next one in the job queue. (Printers that have internal buffers continue to print the terminated job until the buffer is empty. This can give the appearance that PRINTMGR has not terminated the job.)

HELP Command

Use the PRINTMGR HELP (or H) command to display a summary of the PRINTMGR print options and commands. Use the form:

PRINTMGR H

When you enter this command, a two-screen display appears. The first screen lists the PRINT options, their default values, and describes what effect they have. The display remains on the screen until you press any key. The second screen lists and summarizes the PRINTMGR commands.

STATUS Command

The PRINTMGR STATUS (or STAT) command displays the current contents of the job queue including, for each job, the job number, filename and file extension, destination printer, how many copies remain to be printed, the size of the file, and whether the job is printing or waiting. Use the form:

PRINTMGR STAT

The PRINTMGR TERMINATE (or TERM) command turns off PRINTMGR. Use the form:

PRINTMGR TERM

Use TERMINATE to stop the printer or PRINTMGR so you can add another printer. TERMINATE differs from RESET in that it saves the contents of the job queue. All jobs in the queue, including those being printed, are completed when PRINTMGR is STARTed again.

RESET Command

The PRINTMGR RESET (RES) command terminates the current job and erases the job queue file. Use the form:

PRINTMGR RES

Normally, use TERMINATE or turn off your computer to stop PRINTMGR. RESET is provided for extreme situations in which a computer or PRINTMGR failure prevents PRINTMGR from working properly. You can also use RESET to remove all jobs from the job queue.

If the printer is not working, confirm that the cable between the computer and the printer is in place before using the RESET command. If the printer still does not work, confirm that you have selected a printer that actually exists. If PRINTMGR still does not work, enter the PRINTMGR RESET command and then reissue the START command.

PROMPT

Format: PROMPT {prompt string}

Explanation: The PROMPT command modifies the DOS command prompt. The prompt string can contain special meta-strings that are in the form \$c. The following are meta-strings that can be included in the prompt string.

Where c is one of the following:

- \$ The "\$" character.
- t The time.
- d The date.
- p The current directory of the default drive.
- v The version number.
- n The default drive letter.
- g The ">" character.
- l The "<" character.
- b The "|" character.
- q The "=" character.
- h A backspace; the previous character is erased.
- e The ESCape character.
- _ The CR LF sequence (go to beginning of new line of the display screen).
- u The current user number if it is non-zero.

Any other value for c is treated as a null character and is ignored by PROMPT.

Type PROMPT with no parameters to reset the prompt to the default DOS prompt. For example, the default prompt (if the user has not enabled a prompt) is \$u\$n\$g which will display the standard DOS prompt, 1A>. The prompt indicates user number 1, the default drive letter A, and the character >.

Examples: The following example sets the DOS prompt to "HELLO".

A>**prompt hello**

The following example sets the DOS prompt to the default drive letter plus the character >.

A>**prompt \$n\$g**

The following example sets the DOS prompt to display the time and date:

A>**prompt time = \$\$_date = \$d**

The DOS prompt would appear as follows:

Time = (current time)

Date = (current date)

RENAME

Format: REN{AME} {dirpath}oldfilespec {dirpath}newfilespec

Explanation: The RENAME command lets you change the name of a file. If the file to be renamed is not on the current drive, you must precede the old file specification with the correct drive/path specification. The following command line renames MYFILE.TYP as FILE1.TXT:

```
A>REN B:MYFILE.TYP FILE1.TXT
```

On drives with the CP/M-type directory and password protection enabled, you must enter the default password before renaming a file. The same file password is then required to access the new file specification. You can remove the password protection on the file before renaming it. (See the FSET command.)

The wildcard characters * and ? can be used in file specifications as follows:

```
B>REN *.IN *.OUT
```

The above command renames all files with the file extension IN, so that they have the file extension OUT.

REN does not let you rename a file to an existing name or rename a Read/Only file. If you attempt to do either, the message

Access Denied

is displayed and the command-line prompt is returned. Any files designated to be renamed remain unchanged.

RETURN

Format: RETURN

Explanation: The RETURN command is a synonym for Ctrl-Alt-Del, and performs a system reset.

RMDIR

Format: RMDIR {d:}dirpath
RD {d:}dirpath

Explanation: The RMDIR command removes a specified subdirectory. The subdirectory to be removed cannot contain any files or subdirectories, except for the (.) and (..) subdirectories. RMDIR can be abbreviated as RD in your command line.

To remove a subdirectory, the following conditions must be satisfied:

- * The subdirectory cannot contain any files, or additional subdirectories.
- * The subdirectory cannot be a current directory on any drive on any window.
- * The subdirectory cannot be assigned to floating drives N or O on any window.

Examples: A>RMDIR SUB1\SUB2\SUB3

This command erases subdirectory SUB3 on drive A.

A>RMDIR C:GL.DAT\ACCTS.RCV

This command erases subdirectory ACCTS.RCV on drive C.

RUNMENU

Format: RUNMENU
 RUNMENU filespec
 RUNMENU filespec menuname

Explanation: RUNMENU, COPYMENU, and EDITMENU allow you to create and run menus for your applications. See Section 7 of the User's Guide for detailed instructions on the use of these commands.

The RUNMENU command invokes a menu from a menu file. Replace filespec in the command line with the name of the menu file you want to use. Replace menuname with the name of the specific menu you want within that menu file. RUNMENU then runs the specified menu.

If you do not specify a menu file, the file MENU.DAT is assumed. If you do not specify a menuname, the menu MAIN is assumed. The menu file you specify must be in your current directory.

SCEPTER

Format: SCEPTER

Explanation: The SCEPTER command initializes the banked memory management routines within Concurrent. These routines enable Concurrent to support the Enhanced Expanded Memory Specification (EEMS) memory provided by a Quadram® QuadEMS+™ board and AST RAMpage™ board.

You must run SCEPTER before using the QuadEMS+ board to supply banked memory. If you use the EEMS board to supply conventional memory only, you do not need to run SCEPTER.

Do not run SCEPTER while any other program is running, or in a BATCH command.

Note: SCEPTER does not run under DOS.

SCEPTER Options

SCEPTER supports two command line options:

SCEPTER /M=hh

SCEPTER /S=hhhh

where h is a hexadecimal digit.

The /M option supports applications written for the Expanded Memory Specification (EMS) also called the Lotus® /Intel® /Microsoft® (LIM) specification. The /M option specifies how many available pages of memory are reported to the application. It is useful for preventing one application from using too much memory, thereby preventing other applications on other windows from having enough memory to run.

If you run SCEPTER without this option, the default is a maximum of 20H pages (512KB). You can specify a 16KB page count as two hexadecimal digits. For example, the command:

SCEPTER /M=18

specifies 18H pages, or 384KB.

The /S option specifies the address where SCEPTER begins converting "conventional" memory to "banked" memory. The default is 4000H (256KB). You can specify a paragraph address as four hexadecimal digits to start bankable memory windows at a different address.

SDIR

Format: SDIR
SDIR filespec{,filespec ...}
SDIR [option{,option ...}]
SDIR filespec{,filespec ...}[option{,option ...}]

Explanation: When no options are selected, the SDIR command displays all files, including those with the SYS attribute, in the current user number or directory, on the current drive. Files are listed in alphabetical order by filename and file extension. Each file listing also shows the amount of space used by the file and the file's attributes. At the bottom of the display, SDIR provides totals related to the files listed.

When you enter one or more file specifications, SDIR looks in the current user number on the current or specified drive for files that match your entries. The wildcard characters, * and ?, can be used to select a group of files.

Table 19 explains the column headers shown in the SDIR display.

TABLE 19. SDIR DISPLAY

Entries	Explanation
Name	Filename and extension.
Bytes	The number of kilobytes allocated to the file.
Recs	The number of 128-byte records allocated to the file.
Attributes	The attributes set for the file. (See the FSET command for a description of file attributes.)
Prot*	The file's password protection mode. The mode determines what applications you can perform on the file. Possible values are READ, WRITE, DELETE, and NONE.
Update*	Indicates when the file was last modified.
Create*	Indicates when the file was created.
Access*	Indicates when the file was last used.
Total Bytes	The total kilobytes allocated to all the files listed.
Total 1k Blocks	Indicates the total number of 1-kilobyte blocks required to store the files listed on a single-density disk or any other storage medium with a block size of 1 kilobyte.
Total Records	The total number of 128-byte records allocated to the files listed.
Files Found	The total number of files listed.
Used/Max Entries	Indicates the number of directory entries allocated to the files listed and the maximum number of directory entries available for the designated drive. (Note that longer files require more than one directory entry.)

* These entries only appear when the drive has a label. The entries, except for Update, apply only to CP/M media. See FSET for a description of these entries.

SDIR Options

SDIR options affect all files in a command line. They can be used with or without a file specification.

More than one option can be specified in a command line. Options must be separated by commas and enclosed in a single set of square brackets.

SDIR allows up to 10 file specifications on a single command line. SDIR ignores passwords. When you enter a drive specification without a file specification, SDIR displays all the files on the drive.

Table 20 lists and describes the SDIR options. Notice that many of them have abbreviated forms. Examples illustrating their use follow the table.

TABLE 20. SDIR OPTIONS

Option	Description
SYS	Displays only those files with the SYS (System) attribute set.
RO	Displays only those files with the R/O (Read/Only) attribute set.
DIR	Displays only those files with the DIR (Directory) attribute set.
RW	Displays only those files with the R/W (Read/Write) attribute set.
XFCB	Displays only those files that are password-protected. XFCB is an extra directory entry allocated to a file by Concurrent when you give it a password.
NONX{FCB}	Displays only files with no password.
U{SER}=n	Displays the files in the user number specified by n. Specify multiple user numbers by enclosing them in parenthesis and separating them with commas.
U{SER}=A{LL}	Displays the files in all user numbers.
DR{IVE}=d	Displays the files on the drive specified by d. Specify multiple drives by enclosing them in parenthesis and separating them with commas.
DR{IVE}=A{LL}	Displays the files on all of the on-line drives. An on-line drive is any drive that has been accessed since the last system reset.
L{ENGTH}=n	Displays n lines of filenames before inserting an SDIR table heading. n must be in the range of 5 to 65536.
SI{ZE}	Displays the number of kilobytes allocated to each file.
FF	Sends an initial formfeed to the printer. FF is useful only when the Concurrent Ctrl-P option is used to print a SDIR display. If the LENGTH option is also specified, formfeed is issued after every n lines.
M{ESSAGE}	Displays the drive, user number, and message "File not found" of empty directories during searches for files on more than one drive and/or user number.
NOS{ORT}	Displays the files in directory order.
E{XCLUDE}	Displays only files that do not match the files entered. Use EXCLUDE with one or more file specifications.

Examples: **A>SDIR *.CMD *.LTR[USER=ALL,DRIVE=ALL,LENGTH=15]**

This command searches through all user numbers on all drives accessed since the last computer reset and lists all files with the CMD or LTR file extension. The files are listed 15 lines at a time with header and summary information provided with each group.

A>SDIR D:[SIZE,RW]

The preceding command displays the size of all files on drive D with the RW (Read/Write) attribute.

A>SDIR *.CMD[XFCB,DRIVE=(A,D)]

The preceding command displays all CMD files that are password-protected on drives A and D.

A>SDIR C:*.CMD,*.DAT[NONX,EX,U=(3,4,5,15)]

The preceding command displays all files on drive C in user numbers 3, 4, 5, and 15 that are not password-protected and do not have the CMD or DAT file extension. Note that the abbreviated forms of the NONXFCB, EXCLUDE, and USER options were used.

SET

Format: SET {name={parameter}}

Explanation: SET inserts strings into the command processor's environment. All the strings in the environment are available to all commands and applications in the current window.

The string (beginning with name) is inserted into a portion of memory reserved for environment strings. Lowercase letters in the name are converted to uppercase when added to the environment. If the name was in the environment, it is replaced by the new parameter.

If a name is specified with no parameter, the current occurrence of name=parameter is removed from the environment.

Use SET only if you want to set values to be used by your programs. An application program can check all values set with the SET command by issuing SET with no options. For example, SET TOT=VT86 sets your TOT value to VT86 until you change it with another SET command.

Examples: The following command adds string CAL=abc to the other strings in the environment. The lowercase "cal" is converted to uppercase. With SET, you can enter keywords and parameters not meaningful to Concurrent, but can be found and interpreted by applications that examine the environment.

SET cal=abc

The next command adds the string WXYZ=FILES2 to the environment. An application program can search the environment for the name WXYZ, and use the supplied parameter as the directory name to use for its files.

SET WXYZ=FILES2

The following command removes WXYZ=FILES2 from the environment:

SET WXYZ=

SETPORT

Format: SETPORT
SETPORT parameter . . .

Explanation: Use SETPORT to configure the serial ports. Serial ports are commonly used to output data to a serial printer or plotter. Concurrent supports up to two serial ports, designated as serial ports 0 and 1.

Before you run SETPORT, refer to the manuals provided with your serial devices to find out what configuration values you need. Then run SETPORT to configure the serial ports to the correct values. If you have no serial ports, and you invoke SETPORT, the following message is displayed:

No serial communications options installed.

Note: If you have only one serial port, SETPORT adjusts its menus so that only the options for that port are displayed.

SETPORT has two modes of operation: menu-driven and command-line. When you enter SETPORT alone, you see the SETPORT Main Menu with the options shown in Table 21. You can also enter SETPORT and specify the parameters you want to change directly from the command line. Parameters not specified remain unchanged. The second form is provided so that you can configure the ports from a BATCH file.

TABLE 21. SETPORT OPTIONS

Option	Description
F3 -- Port Configuration	<p>Use this option to display and change the port characteristics for both serial ports. The definable characteristics are as follows:</p> <ul style="list-style-type: none"> * baud rate: number of bits of input or output per second * word length: number of bits in each word * parity: the use of odd, even, or no parity * stop bits: number of stop bits added to each word
F5 -- Port 0 Protocol	Use this option to set port 0's input and output communication protocol.
F7 -- Port 1 Protocol	Use this option to set port 1's input and output communication protocol.

The changes you enter are implemented immediately after you exit SETPORT. These values remain in effect until you turn off or reset your computer. To record these values permanently as Concurrent's defaults, run the SETUP command after running SETPORT and use the SAVE SYSTEM Parameters option.

Menu-driven Mode

The first SETPORT screen is the Main Menu and lists the options shown in Table 21. Press F1 if you need help. Press the Esc key to exit SETPORT.

From the SETPORT Main Menu, press F3 to configure either or both serial ports. A new menu is displayed listing the current baud rate, word length, parity, and stop bits for each port as well as the function keys assigned to change those values.

Function keys F3 and F4 set the baud rate for serial ports 0 and 1 respectively. The baud rate is the speed at which the computer sends data to and receives data from external devices. Pressing F3 or F4 repeatedly increases the baud rate incrementally as follows:

110 150 300 600 1200 2400 4800 9600

The baud rate returns to 110 after 9600.

Word length is the number of data bits in each character transmitted. Word length is usually 7 or 8, but you can select as few as 5. Press F5 and F6 to select the word length for ports 0 and 1 respectively.

Parity checking verifies that a character was transmitted correctly. You can select odd, even, or no parity checking by pressing function keys F7 and F8.

One or two stop bits are always added to every byte transmitted. Press F9 or F10 to select 1 or 2 stop bits, respectively.

Press Esc to return to the SETPORT Main Menu. From the Main Menu, press F5 and F7 to define the communication protocol for ports 0 and 1, respectively. The Main Menu is then replaced by a screen listing the different input and output options available. The screen also shows whether the options are ON or OFF. To change a setting, press the corresponding function key.

Command-line Mode

All serial port parameters can be defined from the command line. Table 22 lists the valid command-line values for each parameter. These values must be separated by spaces. They can be entered in any order. If you do not want to change a particular parameter, omit its value from the command line.

Note that P3 designates serial port 0 and P4 designates serial port 1.

TABLE 22. SETPORT PARAMETERS

Port Number	Baud Rate	Word Length	Parity	Stop Bits	Input Protocol	Output Protocol
P3	110	5	ODD	1	IDRX	ODRX
P4	150	6	EVEN	2	IDRN	ODRN
	300	7	NONE		IDNX	ODNX
	600	9		IDNN	ODNN	
	1200			INRX	ONRX	
	2400			INRN	ONRN	
	4800			INNX	ONNX	
9600		INNN	ONNN			

The protocol's options for the input and output side of each port must be entered separately. When you set the protocol, use letters in your command-line entry to identify the options. The letters are defined as follows:

I -- selects the input side of the port

O -- selects the output side of the port

D -- turns ON the DSR/DTR option

R -- turns ON the RTS/CTS option

X -- turns ON the XON/XOFF option

N -- used in the position of any other option; turns
that option OFF

The letters must be entered in the order shown in Table 22 above. Note that the protocol must begin with either I or O, followed by the options, then the opposite letter, followed by the options. If you want to turn a particular option OFF, enter N instead of the letter. You must make an entry for each input or output option.

If you make an invalid entry in a SETPORT command line, an error information screen appears. Use this information to identify the inappropriate entry and review your options. The command-line prompt is returned at the end of the error message so that you can enter another SETPORT command.

Examples:

A>SETPORT P3 9600 7 EVEN 1 IDNN ODNN

This command sets serial port 0 (printer 3) to 9600 bits per second, with a 7-bit word length, even parity, and 1 stop bit. The protocol selected for the input and output sides of port 0 is DSR/DTR.

A>SETPORT INN X ODNX 110 P4

This command sets serial port 1 (printer 4) input side for the XON/XOFF protocol, the output side for the DSR/DTR and XON/OFF protocols, and the baud rate at 110.

SETUP

Format: **SETUP**
 SETUP {option}

Explanation: SETUP is a menu-driven program that lets you change certain system characteristics and save your changes as Concurrent's startup values. SETUP modifies the file CCPM.SYS, which contains Concurrent and is read every time you start or reset your computer. To save changes you make with SETUP, CCPM.SYS must be available and set to Read/Write.

To run SETUP from the command line, type SETUP and press Enter. The SETUP Main Menu appears with the options listed in Table 23.

TABLE 23. SETUP MAIN MENU OPTIONS

Option	Description
F1 -- Help	
F2 -- Reserve System Space	Controls the amount of memory in the system space reserved for use by DOS compatible device drivers.
F3 -- Save System Parameters	Saves the current window's function key assignments and/or the current serial port configuration as the new startup values.
F4 -- MDisk	Makes an MDISK from a portion of memory.
F5 -- Diskette Drive Parameters	Provides for customization options to support non-IBM diskette drives.
F6 -- Verify After Diskette Write	Enables or disables the Concurrent Disk-Write verification feature.

TABLE 23. (CONT'D)

Option	Description
F7 -- Select Serial Console	Designates serial ports 0 and 1 as additional user consoles to provide multiuser support. Up to three users can use Concurrent at the same time.
F8 -- Menu Two	Provides a menu choice of Maximum Memory per Process, Clock Calibration, or Select Hard Disk Driver. Maximum Memory per Process sets the limit on the amount of memory a CMD program can use. Clock Calibration permits the calibration of Concurrent's status line clock for machines with non-standard clock hardware. Select Hard Disk Driver enables an optimized section of code for 100% IBM PC/XT® compatibles.
F9 -- Color Monitor Scroll Mode	Allows you to change the speed and appearance of scrolling on a color monitor.
F10 -- Update and Exit	Records your changes in the CCPM.SYS file.

Once you select an option, the Main Menu is replaced by another menu for the chosen option. Press Esc to return to the Main Menu.

Changes you make using SETUP become system defaults only when you exit the Main Menu by selecting F10, "Update and Exit," and then restart Concurrent. If you want to exit SETUP without saving any changes, exit the Main Menu by pressing Esc.

You can bypass the Main Menu by entering an option as part of the command line. When you do this, you go directly to the menu for that option. Table 24 lists and explains the available options. Note that a slash separates an option from the SETUP command.

TABLE 24. SETUP OPTIONS

Option	Definition
/PARAM	Specifies the Save System Parameters Menu
/MDISK	Specifies the MDISK Menu
/DISK	Specifies the Diskette Options
/VERIFY	Specifies the Verify After Diskette Write Menu
/SERIAL	Specifies the Select Serial Console Menu
/MEMORY	Specifies the Maximum Memory per Process Menu
/PFKSAVE	Selects Save System Parameters, saves the current programmable function key assignments, and leaves you at the SETUP Main Menu
/PORTSAV	Selects Save System Parameters, saves the current serial port values, and leaves you at the SETUP Main Menu
/SYSDAT	Controls amount of memory in the system space reserved for use by DOS compatible device drivers
/CLOCK	Permits calibration of status line clock for machines with non-standard clock hardware

F2 -- Reserve System Space

This option controls the amount of memory in the system space reserved for use by DOS compatible device drivers. Concurrent stops the device driver installation with an error message if the device being driven does not fit into the available space. Many drivers will not require extra space, but if the driver will not load, you can increase this value by 128 bytes and retry. Space reserved here reduces the memory available to the applications programs. The amount of System Space currently reserved is zero bytes.

The F2 option gives you a new menu with these choices:

- * F1 Help
- * F3 Enter a new value
- * Esc Return to Main Menu

F3 -- Save System Parameters

Select F3 (or /PARAM) to save the current window's function key assignments or the current serial I/O port configuration as the new system startup values.

Before you select this option, run the FUNCTION command to prepare your function key commands and/or the SETPORT command to configure the serial ports. The parameters in effect when you select this option become your new startup values.

When you select the F3 option, a new menu is displayed and you are presented with the following options:

- * F3. Save Programmable Function Keys: Press F3 to save the current function key assignments. The word "Saved" is displayed when you press F3. Press F3 again to deselect this option.
- * F5. Save Serial Port Configuration: Press F5 to save the serial port values. "Saved" appears and disappears as you continue to press F5.

Press Esc to exit the option and return to the SETUP Main Menu. Only the options saved when you exit are incorporated into Concurrent.

F4 -- MDisk

Select F4 (or /MDISK) to create disk drive M in your system memory.

Disk drive M is a block of memory with all the characteristics of a disk drive, with one important exception: all information on drive M is lost when the computer is turned off. You can PIP and COPY files to and from drive M; it can be your system drive; you can run programs stored on it. Drive M has a significant speed advantage over floppy-disk drives. If you want to save information permanently, you must PIP or COPY the files to a floppy disk or hard disk partition before you turn off your computer.

Note: Concurrent requires a minimum of 256 kilobytes of memory. Consequently, only memory in excess of 256K can be used as a memory disk. Also note that drive M has the characteristics of CP/M, rather than DOS media.

The MDISK menu displays two parameters, current MDISK size and current starting address. The initial values for these parameters indicate how much memory is already reserved for drive M and the starting memory address of the MDISK. This address also indicates the last memory location available for use by Concurrent.

Unless an MDISK already exists in your system, the initial value for the MDISK size is zero kilobytes, and the starting address is the top of available memory.

The MDISK Menu provides the following options:

- * F3. Increase MDISK size: When you press F3, the size increases in increments of 16K. At the same time, the starting address value decreases in increments of 16K. An MDISK must have at least 32K. A smaller MDISK is ignored.
- * F5. Decrease MDISK size. When you press F5, the size decreases and the starting address increases in increments of 16K.
- * F7. Enter a new Starting Address: When you press F7, the display changes and asks you to specify an MDISK starting address. You need only select this option if your computer has a block of memory not contiguous with the rest of memory or if you want an MDISK size which is not a multiple of 16K. Enter the two most significant digits of the starting address or 00. (The two most significant digits for the address 4000:0000, for example, are 40).

After you enter the address digits, SETUP automatically determines how much contiguous memory is available beginning at that memory location and creates the MDISK to that size. Note that the memory locations A000:0000 through BFFF:0000 are reserved for the terminal screen.

To exit the MDISK option, press the Esc key.

F5 -- Diskette Drive Parameters

This option provides customization to support non-IBM diskette drives. Type Esc if your system consists of IBM® drives. Caution: A customized version of Concurrent may not run correctly on other machines. Be sure that you have a backup copy of CCPM.SYS. The F5 option gives you these choices:

- * F1. Help
- * F2. Motor Startup Time. This parameter specifies how long Concurrent waits before attempting a diskette Read or Write after turning on the drive motor. If this interval is too small, Read and Write errors will result. If the startup time is too high, diskette accesses take longer than required. The current diskette motor startup time is 1000 msec.
- * F3. Head Step Time. This option sets a head step time of 2 to 32 msec for the diskette drive hardware. The smaller the time, the faster the drive head moves from track to track. The default time is set to 8 msec, but times of 6 msec or 4 msec work with some diskette drives. The current diskette head step time is 6 msec.

- * F4. Head Settling Time. Use this parameter to specify how long Concurrent waits before attempting a diskette Read or Write after moving the drive Read/Write head from one track to another. If the head settling time is too low, Read or Write errors will occur. If it is too high, disk accesses will take longer than necessary. The current diskette head settling time is 15 msec.
- * F5. Head Load Time. This parameter specifies how long the floppy disk controller waits before attempting a Read or Write operation after Concurrent gives a command to the controller. Most 5 1/4 inch drives use the minimum setting because the heads are always in a loaded state. Drives with head-load solenoids require a higher setting. The current head load time is 4 msec.
- * F6. Head Unload Time. This parameter specifies how long the floppy disk controller assumes the Read/Write head remains loaded after a Read/Write operation has finished. Most 5 1/4 inch drives use the maximum value of 480 ms because the heads are always in a loaded state. Drives with head-load solenoids require a lower setting. Current head unload time is 480 msec.

F7 -- Select Serial Console

Select F7 (or /SERIAL) to designate the function of serial ports 0 and 1. If your computer has one or more serial ports, you can designate them as either serial printer ports or as a terminal port.

A terminal port is a serial port with a computer terminal (console and keyboard) connected. This terminal can run any program not sending output directly to the main terminal. In other words, this feature allows up to three people to use the computer at the same time. When you attach a terminal to either Serial Port 0 or 1, the command-line prompt is displayed when Concurrent is started or reset. Note that this console has a single window.

When you select F7, the display changes to show the current serial port assignments and your options. The expression "Aux/Printer" indicates that the port is used for a serial printer. As you press a port's function key, the display alternates between Aux/Printer and Additional User Terminal.

The serial ports are identified for the purpose of data input and output as Serial Port 0 and Serial Port 1. When Serial Port 0 has the Aux/Printer designation, a printer attached to this port is referred to as printer 3. When Serial Port 1 has the Aux/Printer designation, a printer attached to this port is always printer 4, regardless of whether or not there is a printer 3. Printers 0 through 2 are always parallel printers.

F8 -- MENU TWO

When you select F8, another menu is displayed with these options:

- * F3. The F3 option sets a limit on the amount of memory available to each CMD program. Some programs claim all available memory for their use. This is not a problem when you are running only one program. It is a problem when you change windows and try to run another program. You might get the following message:

Not enough memory

The option menu displays the current limit. Press function F3 to enter a new value. Enter a three-digit decimal value with the number of kilobytes.

- * F5. Clock Calibration: This option permits the calibration of Concurrent's status line clock for machines with non-standard clock hardware. If you use this option, be sure and save a copy of CCPM.SYS.

F9 -- Color Monitor Scroll Mode

Select F9 to change the speed and appearance of scrolling on a color monitor. Your selection determines the appearance and speed of your color monitor. Try each mode and choose the one that best suits your system and your personal tastes.

F10 -- Update and Exit

Select F10 to make your changes Concurrent's default values. The Update and Exit Menu appears. It defines the "Current Update Disk" and gives you two options: F3 to change the current update disk and F5 to update the current disk and exit SETUP.

Select option F3 to change the disk you want updated. SETUP looks to the current user number or directory of the disk you specify to find the CCPM.SYS file. Enter just the letter designation. The colon and Enter keys need not be pressed. You must specify a drive name that exists. After you have specified the drive name, you are returned to the Update and Exit Menu.

Select F5 to update your CCPM.SYS file and automatically exit SETUP to the command-line prompt. If you update the CCPM.SYS file from which you load Concurrent, your changes are implemented as soon as you start or reset Concurrent.

SHOW

Format: SHOW {d:}
SHOW {d:}option {,option...}

Explanation: Use SHOW to display disk-drive characteristics and status. The drive requested can be a floppy disk or a hard disk partition. Table 25 lists the SHOW options.

TABLE 25. SHOW OPTIONS

Option	Description
SPACE	Displays the remaining space available for file storage on a drive or drives. SHOW SPACE also indicates whether the disk is Read/Write or Read/Only.
DRIVE	Displays drive-recording characteristics. The values shown in the following example for a floppy-disk drive represent the total available and not the amount in use. <p style="margin-left: 40px;">A: Drive Characteristics 2,528: 128 Byte Record Capacity 316: Kilobyte Drive Capacity 64: 32 Byte Directory Entries 64: Checked Directory Entries 256: Records / Directory Entry 16: Records / Block 8: Sectors / Track 1: Reserved Tracks</p>
USERS	Displays the current user number and all user numbers with files recorded in them.
LABEL	Displays a drive's label and password status, and the time and date when the label was created. For a description of drive options, see the FSET command.
HELP	Displays a summary of the SHOW command syntax

Note: Unless you specify a drive (d:), SHOW displays the option information for all drives accessed since the last computer reset.

STOP

Format: STOP
STOP program name Window-#

Explanation: Use the STOP command to display the programs that are running and to terminate a program. The first form of the STOP command lists the programs running in each window and displays status information regarding the amount of memory used by each program. This form also prompts you to terminate any of the programs listed in the display. To terminate a program, enter the number assigned to it and press Enter. To exit STOP without terminating a program, press Enter.

The second form of STOP terminates only the program specified; no memory allocation information is displayed. Notice that the second form requires the entry of the command name and the window number in which it is running. For example, the next command will terminate program CARDFILE running in Window 3.

```
A>STOP CARDFILE 3
```

When you issue the STOP command, you see the information listed in Table 26.

TABLE 26. STOP DISPLAY INFORMATION DESCRIPTIONS

Information	Description
Entry Number	Numbers given by the STOP command to all programs running. The numbers are sequential: the highest number indicates the first program invoked and the lowest indicates the most recent program invoked. STOP always appears first on the list with the designation **.
Program Name	The name of the program running.
Memory Used	The amount of memory used by the program.
Window Number	The number of the window in which the program is running.
Type of Free Memory	A list of contiguous blocks of memory. The memory can be of two types: conventional memory or banked windows. A banked window can be occupied or empty (specified by "Empty"). Assuming enough physical memory exists (on an expanded memory board), the largest bankable program that can be loaded is equal in size to the largest entry in this list. The largest non-bankable program that can be loaded is equal in size to the amount of conventional memory, or an empty banked window in this list, whichever is larger.
Enter the Number to delete or RETURN to exit	This prompt allows you to terminate a program or return to the Concurrent command line prompt.

How to Terminate a Program

Normally, you should use the termination command procedure described in your program's manual because it saves the information you have entered.

Use the STOP command to terminate a program only if the normal termination command cannot be performed. Change windows if necessary and enter the STOP command. Find the program's number in the display, type that number, and press the Enter key.

STOP terminates the program specified. When you return to the window in which the program was running, the command line prompt is displayed and you can enter another command.

SUSPEND

Format: SUSPEND=ON
 SUSPEND=OFF

Explanation: Use the SUSPEND command to temporarily stop a program with the EXE or COM file extension while it is in a background (switched-out) window. (Use CHSET to suspend the operation of programs with the CMD filetype.) Program operation resumes when the program returns to the foreground window.

The most common reason to use SUSPEND is to stop applications that send program output directly to the screen. These applications can overwrite the contents of your foreground window when they are running in the background.

If one of your applications writes directly to the screen, enter the following command before you run the program:

A>SUSPEND=ON

SUSPEND works on a single window basis. Therefore, you must run SUSPEND on each window when you use a program that writes directly to the screen. The SUSPEND=ON state remains in effect on each window until the computer is turned off, reset, or you enter SUSPEND=OFF.

Unless you intend to run another application outputting directly to the console, enter the following command after you exit the program.

A>SUSPEND=OFF

SYSDISK

Format: SYSDISK

Explanation: Use the SYSDISK command to show the current system disk, or set a different system disk.

Use the next command to show which drive contains the current system disk or directory:

```
A>SYSDISK
```

System disk assignments made with SYSDISK apply to the current window only. If you need to change the system disk on a regular basis, include the SYSDISK command in your STARTUP.BAT files for each window.

You can designate any physical DOS or CP/M disk as the system disk. Memory drive M and any subdirectory can be made the system disk. When a CP/M disk is designated the system disk, Concurrent searches in user number 0 for the designated file. When a DOS disk is designated the system disk, Concurrent searches only the designated directory.

DOS Media System Disks

A DOS disk's root directory or any subdirectory can be designated as the system disk. To make a subdirectory the system disk, you must specify all subdirectories in its path. For example, to make subdirectory SUB3 on drive C (where the path from the root directory is SUB1\SUB2\SUB3) the system disk, enter the following:

```
C>SYSDISK SUB1\SUB2\SUB3
```

This example assumes that SYSDISK is invoked from the root. If SYSDISK is not invoked from the root, enter the following command:

```
C>SYSDISK \SUB1\SUB2\SUB3
```

The backslash before SUB1 indicates that the path starts from the root directory.

Using MDISK as a System Drive

Making an MDISK the system disk can provide real performance benefits, especially in floppy disk only systems. (See the definition of MDISK in the SETUP description and in Section 2 of the User's Guide). Because you must copy files to the MDISK every time Concurrent is started, build a BATCH file that transfers the programs to Drive M and then runs SYSDISK to change the system disk. The following example illustrates this command sequence.

```
PIP M:=A:*.CMD[R]  
SYSDISK M:
```

Notice the use of the PIP [R] option in this example. This is necessary to copy files with the SYS attribute.

Note: The SYSDISK command is included for compatibility with previous products. New users should use PATH for greater efficiency. Previous users can set the PATH to P: to load commands from the currently defined SYSDISK.

TIME

Format: TIME
TIME hh:mm:ss

Explanation: Use the TIME command to display or set the time of day. Concurrent maintains an internal clock and displays the time on the status line. Concurrent also uses the time to record the time a file is created or accessed and updated when you implement time and date stamping. (See the FSET command explanation for a description of time and date stamping.)

You must set the time whenever you start or reset Concurrent, unless you have a real-time clock with battery backup. (When you do not enter a time, Concurrent assumes the time 00:00:00.00.) Put the TIME command in your STARTUP1.BAT file to prompt you when you start Concurrent. The Concurrent clock works on a 24-hour basis. This means that 1 PM is 13:00 and midnight is 00:00.

A>TIME

TIME displays the time and prompts you as follows.

Current time is hh:mm:ss.xx
Enter new time:

You can press the Enter key to keep the current values. To enter a new time, enter the hours, minutes, and seconds and press the Enter key. Note that the last value shown here, xx, indicates hundredths of a second.

The time values are defined as follows:

- * hh is a one- or two-digit number from 0 to 23 indicating the hour.
- * mm is a one- or two-digit number from 0 to 59 indicating the minute.
- * ss is a one- or two-digit number from 0 to 59 indicating the second.

TIME assumes that the first entry specifies the hour. The minute and second values are optional and if not entered are not changed. You must use a colon to separate the entries.

If you enter a number that is out of range, TIME returns the message and prompt

```
Invalid time  
Enter new time:
```

Examples: A>TIME 22:30:59

This command sets the time for 30 minutes and 59 seconds after 10 PM.

A>TIME 00:12

This command sets the time at 12 minutes after midnight.

TREE

Format: TREE {d:}{filespec}

Explanation: The TREE command displays the hierarchical path of directories and subdirectories.

Examples: The command:

A>TREE C:

might generate the following listing showing that drive C has two directories, Fred and John, that each has subdirectories, and listing the space used and number of files belonging to each.

Space	Files	Pathname
315,420	41	C:\
22,135	13	C:\Fred
11,261	10	C:\Fred\memos
5,236	8	C:\John
15,112	1	C:\John\A1
8,210	5	C:\John\A2

The command:

A>TREE MEMO.TXT

might generate the listing showing two files named MEMO.TXT on drive A. One is in the root directory, and one is in the subdirectory ACCT. The file attributes are: r (Read/Only), s (System file), and a (Archived file).

Attrib	Size	Date	Time	File name
r	2165	01/11/85	01:12	a:\memo.txt
	3172	06/03/86	12:21	a:\acct\memo.txt

TYPE

Format: TYPE {dirpath\}filespec

Explanation: The TYPE command displays the contents of a text file on your screen. The file specification is the filename and file extension. If the file is password-protected for READ mode, you must set the default password. The wildcard characters (* and ?) may be used to type multiple files.

Press Ctrl-S to stop the display from scrolling. To restart scrolling, press Ctrl-Q. Press Ctrl-C to abort the display.

Press Ctrl-P to have the file contents sent to the printer as well as the screen. Press Ctrl-P again to stop output to the printer. Note that screen output continues to be sent to the printer after the TYPE command has completed until you press Ctrl-P.

USER

Format: USER {n}

Explanation: The USER command displays or changes the current user number on CP/M media. The directory for a disk can be divided into sixteen directories, each designated by a user number from 0 to 15.

The default user number is 0. When Concurrent starts, it assumes that 0 is the current user number. With the exception of user 0, Concurrent displays the current user number in the system prompt. The current user number precedes the drive specifier as follows:

3A>

The next command displays the current user number:

A>**USER**

To change the current user number to 8, type the following command:

A>**USER 8**

The system responds with:

User Number = 8

8A>

The next command lists all user numbers that have files associated with them:

A>**SHOW USER**

VSET

Format: VSET {n{,n{,n{,n}}}}
VSET OFF

Explanation: VSET is used to run certain application programs. Appendix C, "Running Applications Under Concurrent," in the User's Guide specifies which application programs require the use of VSET.

WINDOW

Format: WINDOW command NUMBER=n parameter {,parameter...}

Explanation: The WINDOW command displays and changes window parameters and records the window and screen contents. Table 27 summarizes the command options of the WINDOW command. You can enter the command in its full or abbreviated form.

Several WINDOW command options require a window number; others require more information in the command line. Commas are used to separate window parameters. Take care in using commas and spaces properly when entering a WINDOW command as shown above and in the examples below.

The WINDOW and WMENU commands (see WMENU) provide the same window management tools. Use WINDOW commands when you need to manage a window with command-line entries. For example, use WINDOW commands in BATCH files to create window displays for your applications. Use WMENU (Window Menu) to create window displays interactively and manipulate window placement, size, and color with the arrow keys.

TABLE 27. WINDOW COMMAND SUMMARY

Command	Abbr	Summary
VIEW	V	Displays each window's current parameter values
TOP	T	Switches in the window specified
FULL	F	Displays the complete screen
WRITE	WR	Records the window or entire screen contents in a file
CHANGE	CH	Modifies a window's parameters

Concurrent's windows are a mechanism for controlling four program displays on your screen. When you receive Concurrent, the four windows are displayed separately. Simultaneously press the Ctrl key and one of the numeric keypad numbers 1 through 4 to switch from one window to another.

You can also display two or more windows at the same time by manipulating the size and placement of the windows. The windows are stacked one on top of another on your screen somewhat like sheets of paper. When you start or reset Concurrent, window 1 is the topmost sheet; window 2 is underneath it; window 3 is the next, and window 4 is on the bottom. As you change windows, the sheets of paper are shuffled into a new order.

Each window's characteristics are determined by a set of parameters that can be changed with the WINDOW command. The window size, for example, is determined by parameters which define the number of rows and columns displayed. In a full screen display, each window has 24 rows and 80 columns. Row 1 runs along the top of the screen; row 24 runs along the bottom. (The status line at the bottom of the screen is on row 25 and is not considered part of a window.) Column 1 is the leftmost column, column 80 the rightmost.

Before reading the following detailed descriptions of WINDOW command options, read through the WMENU description and run through the exercise provided in the "Example" section of WMENU. WMENU provides a fast, easy method for understanding the concepts of windows.

VIEW

Format: WINDOW V{IEW}

Explanation: WINDOW VIEW lists the current parameter values for all four windows. Figure 2 illustrates the display. Table 28 defines the column headers. The values shown in the columns are representational and do not describe any particular window arrangement.

Number	PRow	PCol	NRows	NCols	VRow	VCol	Tracking	Display	FGColor	BGColor
1	1	1	24	80	1	1	Row	Color	White	Magenta
2	10	10	12	40	1	1	Row	B&W	Black	White
3	12	30	11	63	5	7	No	Color	Red	Cyan
4	5	15	5	20	1	1	Row	B&W	White	Black

FIGURE 2. SAMPLE WINDOW VIEW DISPLAY

TABLE 28. WINDOW VIEW PARAMETER DEFINITIONS

Parameter	Definition
Number	Window number for that row of values.
PRow	Physical row number of the window's top border.
PCol	Physical column number of the window's left border.
NRows	Number of rows in the window display.
NCols	Number of columns in the window display.
VRow	Row number of the virtual scroll point.*
VCol	Column number of the virtual scroll point.*
Tracking	Indicates that the window always contains the row the cursor is on (the ROW setting) or that the window does not necessarily contain the cursor (the NO setting).
Display	Indicates whether the window is displayed on a color or monochrome monitor.
FGColor	Color of the characters on the screen.
BGColor	Background color.

* The virtual scroll point is an imaginary point in the upper-left corner of the window. The row and column numbers are the coordinates of the point with respect to the full screen program display. Concurrent uses these values to maintain the window position while the display underneath scrolls.

TOP

Format: WINDOW T{OP} N{UMBER}=n

Explanation: WINDOW TOP switches in the window number entered. This command performs the same operation as pressing Ctrl and one of the numeric keypad numbers 1, 2, 3, or 4.

A>WINDOW T N=4

The previous command switches in window 4.

FULL

Format: WINDOW F{ULL} N{UMBER}=n

Explanation: WINDOW FULL can be used to expand the designated window to the full 24 rows by 80 columns display. When you enter your current window as "n," the expansion is immediate. (In this case, the command has the same effect as pressing the Ctrl-Del key combination.) When you specify a switched-out window, the full-screen window is not shown until you switch it in.

A>WINDOW F N=3

This command expands the size of window 3 to the full 24 by 80 display. If window 3 is current, this result is immediate. If window 3 is switched-out, the current screen remains unchanged and the result is not apparent until window 3 is switched in.

WRITE

Format: WINDOW WR{ITE} N{UMBER}=n TYPE=W,FILE=filespec

Explanation: The WINDOW WRITE command records the screen display in the file designated. The complete display is recorded when you specify TYPE=C; only the window portion is saved when you specify TYPE=W. The file created is a standard text file that you can edit and print.

The WINDOW WRITE file specification must contain at least the filename. The file extension and disk reference are optional. Unless a disk reference is specified, the file is written to the current user number or subdirectory on the current disk.

A>WINDOW WR N=2 TYPE=W,FILE=SHADES

This command writes just the window portion of window 2 into the file SHADES.

A>WR N=2 TYPE=C,FILE=D:SASH.TXT

This command writes the entire screen display of window 2 into the file SASH.TXT on drive D.

CHANGE

Explanation: Use WINDOW CHANGE to modify a window's parameters. Table 29 lists the parameters and the values each can take. The letters shown in parenthesis are the abbreviations you can use for each parameter and value.

The WINDOW CHANGE command requires a window number. You can modify one parameter or all parameters from a single command line. If a parameter is not entered, it is not changed. Separate each parameter/value equation with a comma.

TABLE 29. WINDOW CHANGE PARAMETER VALUES

PRow (PR)	PCol (PC)	NRows (NR)	NCols (NC)	Tracking (T)	Display (D)	Colors*
1-24	1-80	1-24	1-80	ROW NO	COLOR B&W	BLACK (BLA) WHITE (W) RED (R) YELLOW (Y) CYAN (CY) MAGENTA (M) BLUE (BLU) GREEN (G)

* The colors listed are available for the FGColor and BGColor parameters.

VRow and VCol were left out of Table 29 intentionally. You do not need to modify these parameters except under the most extraordinary circumstances. If you want to experiment, their parameters range from 1 to 24 and 1 to 80 respectively.

A>WINDOW CH N=4 FG=CY,BG=BLU,T=NO

This command modifies the window 4 display so that the foreground color is cyan (light blue), the background color is dark blue, and cursor tracking is turned off.

```
A>WINDOW CH N=1 PR=1,PC=1,NR=24,NC=80,VR=1,VC=1,TR=ROW,FG=WH,BG=BLA
A>WINDOW CH N=2 PR=1,PC=1,NR=24,NC=80,VR=1,VC=1,TR=ROW,FG=WH,BG=BLA
A>WINDOW CH N=3 PR=1,PC=1,NR=24,NC=80,VR=1,VC=1,TR=ROW,FG=WH,BG=BLA
A>WINDOW CH N=4 PR=1,PC=1,NR=24,NC=80,VR=1,VC=1,TR=ROW,FG=WH,BG=BLA
```

This set of commands returns all windows to the full-screen size with white characters on a black background. It might be worthwhile for you to create a BATCH file with these commands to clear your screen of existing windows and return to the default setting.

WMENU

Format: WMENU

Explanation: WMENU (Window Menu) provides interactive window manipulation. Once WMENU is loaded, the cursor control keys on the numeric keypad select parameters and change values. As you manipulate the values, the changes are reflected on the screen.

A significant feature of the WMENU command is that it creates a BATCH file of WINDOW commands for you. When you have settled on a display, select the WRITE command in the WMENU Command Menu and then the WSETUP.BAT option. This records the WINDOW commands for all four windows in the file WSETUP.BAT. When you run this file, the windows are set up exactly as you configured them with WMENU.

Invoke WMENU by entering WMENU and pressing the Enter key. The message

Window Manager installed

is displayed, WIN appears on the status line, and the command-line prompt is returned to the screen. As long as WIN is shown on the status line, you can use the WMENU facilities.

To manipulate the windows, press the Ctrl key and + key (on the numeric keypad) simultaneously. This replaces the status line at the bottom of your screen with the WMENU Command Menu and enables the numeric keypad keys for WMENU use.

Although you can manipulate windows while other programs are running, this can cause conflicts over the status line display. Consequently, set up your windows with WMENU before you run your applications.

The remainder of the WMENU explanation describes the rules of WMENU operation and the command menu options. Table 30 summarizes the commands for quick reference. The example at the end of this description is a hands-on exercise that shows you how to create a window display. If you have never used the WMENU or the WINDOW commands, run through this exercise before proceeding with the rest of the WMENU description.

TABLE 30. WMENU COMMAND SUMMARY

Command	Description
PLACE	Moves the window's top and left borders.
SIZE	Moves the window's right and bottom borders.
SCROLL	Moves the window around to expose different portions of the program display.
TRACKING	Turns cursor tracking on (ROW) or off (NO).
DISPLAY	Selects a COLOR or monochrome (B&W) monitor as the display device. Note that you can have both connected to your computer.
COLOR	Selects foreground and background colors for each window display.
WRITE	Saves the WINDOW commands in WSETUP.BAT, the complete program display in CONSOLEn.TXT, or the window contents in WINDOWn.TXT. In both cases, n is replaced by the window number.
ABORT	Terminates the WMENU command.

WMENU Rules of Operation

Load WMENU and press the Ctrl+ key combination to display the command menu on the status line. N=n: (where n is replaced by a number) at the beginning of the line indicates the current window number. You change windows by pressing Ctrl and one of the keypad numbers 1, 2, 3, or 4. You do not need to leave WMENU to change windows.

Once you modify a window, you can switch to full screen and back at any time by pressing Ctrl-Del.

Select a command from the menu by moving the white box over it with any of the arrow keys or the spacebar, and pressing Enter. The status line display is replaced by the options for the command you selected.

To exit the WMENU Command Menu and return to the command-line prompt, press the Esc key. You can also use the Esc key to return to the previous menu.

Note: Except for the ABORT and WRITE commands, you can press Enter or Esc to exit the other command options and return to the WMENU command menu.

PLACE

The PLACE command moves the top and left window borders. Use the Down- and Right-arrow keys to move the window down and to the right. As you move the window, notice that the next window is revealed underneath. PLACE does not decrease the size of the window; it only moves portions of the right side and the bottom offscreen.

PLACE changes the values of the PRow and PCol parameters. The current values of these parameters appear in the status line.

SIZE

Use the SIZE command to decrease the size of the window. Use the arrow keys to move the righthand and bottom window borders in towards the center of the screen. The lefthand and top borders are not affected by the SIZE command.

When you first press the Left- and Up-arrow keys, you may not see anything happening on the screen. This is because the borders are offscreen because of a previous PLACE command.

SIZE changes the values of the NRows and NCols parameters. The current values of these parameters appear in the status line.

SCROLL

SCROLL uses the arrow keys to move the window backward, forward, up, and down over the program display. Thus, you can adjust your view of the program's display to show just the area you want.

If you select ROW with the TRACKING command, the SCROLL command can only move the window sideways. This is because ROW tracking locks the window onto the row containing the cursor. If you want to expose a portion of the window that does not include the cursor row, you must select the NO tracking option.

SCROLL changes the values of the VRows and VCols parameters. The current values of these parameters are displayed on the status line.

TRACKING

Use the TRACKING command to enable and disable cursor tracking. The two TRACKING options are described as follows:

- * ROW (the default value): The window is locked over the row the cursor is on. If the window includes column 1 when ROW is selected, the command-line prompt is always shown.
- * NO: The window is locked over a position that does not include the cursor row. Select this option when you want to use SCROLL to view the program display away from the cursor location.

When you select the TRACKING command, the status line display shows the current setting in a white box. Use the arrow keys or spacebar to change options.

When the option you want is highlighted, press the Esc key to return to the WMENU Command Menu.

Use DISPLAY to indicate whether your window's monitor is color or monochrome (B & W).

When you select the DISPLAY command, the status line indicates the current setting. Use the arrow keys or spacebar to switch between the COLOR or B&W option. When the option you want is highlighted, press Esc to return to the WMENU Command Menu.

Note: Some computer manufacturers make a monochrome monitor appear as though it were a color monitor. Consequently, the DISPLAY command indicates COLOR rather than B&W. Do not be concerned if the option named is not reflected on your screen; performance is not affected.

COLOR

Use the COLOR command to select the window's foreground and background colors. When you select the COLOR command, the status line shows the following two color parameters:

- * FG: foreground color parameter
- * BG: background color parameter

You press the Right- or Left-arrow key to switch your selection from one to the other. The white box highlights the current selection.

The current color for each parameter is always displayed on your window. You change colors by pressing the Up- or Down-arrow key or the spacebar. As you change colors, the display changes. The following colors are available for both background and foreground parameters:

Black	White
Green	Cyan
Blue	Red
Yellow	Magenta

When you have selected both the foreground and the background colors, press Esc to return to the WMENU Command Menu.

The window display on a monochrome monitor can be affected by the color selection. For example, you can select between standard white letters on a black background or inverse video with black letters on a white background. On monochrome monitors that come up as COLOR when you select the DISPLAY command, you might have some other screen options as well. You can try changing the foreground and background colors just to see what effect it has and if it is useful to your applications.

WRITE

Use the WRITE command to record the current windows' parameters, the window contents, or the complete screen display.

When you select the WRITE command, WMENU displays the following on the status line:

```
WINDOW WRITE N=n Type=t,File=filename.ext
```

You can select one of three values for Type and File. Table 31 lists your options.

TABLE 31. WMENU WRITE COMMAND OPTIONS

Type	File	Description
S	WSETUP.BAT	Records the current parameters of all windows
W	WINDOWn.TXT	Records the contents of window n
C	CONSOLEn.TXT	Records the full program display

Use an arrow key to change and display the options. Press Enter to select an option and write the file. After the file is written, you are returned to the WMENU Command Menu.

If you have selected the WRITE command and do not want to write a file, press the Esc key to return to the WMENU Command Menu.

The file is always written to user number 0 (CP/M media) or the current directory (DOS media) on the current drive. You cannot change any of the file specifications for the three types of WRITE operations.

The WRITE command replaces any existing WSETUP.BAT, WINDOWn.TXT, or CONSOLEn.TXT file. If you want to keep the existing versions, rename them before you select the WRITE command.

The WSETUP.BAT file contains the series of WINDOW commands that configure windows 1 through 4 to the configuration they had when WSETUP.BAT was created. Whenever you want your windows to assume these characteristics, just enter WSETUP.

The Type W and C options are useful to save the information in the program display in a text file. Later, you can edit or print the file for any number of uses.

ABORT

Once you have created and saved your windows, there is no need to leave WMENU running. When you select ABORT, the following message appears:

(Press [Enter] to abort WMENU,
[ESC] to go back to previous menu)

Press Enter to remove WMENU from memory. The command-line prompt appears. You cannot use WMENU again until you enter the WMENU command, press the Enter key, and press the Ctrl++ combination.

Example:

The following example is an exercise in using WMENU to manipulate windows. The steps listed below create a unique window and write this configuration in BATCH file form to the current disk. Note that you can switch between windows and configure them all before selecting the WRITE command.

Several commands used in this exercise anticipate the presence of a color monitor. If you do not have one, proceed as though you do. The change-color steps do not harm a monochrome console; by using these commands you see how your console is affected. (Not all computers and monochrome monitors respond in the same way.)

This exercise is not intended to generate a meaningful window display. Rather, it is intended to teach you how to create your own windows and to save them for use with your application programs.

Start Concurrent and run through the windows by pressing Ctrl-2, 3, and 4 to see if there are any start up programs running. You might want to terminate these programs but it is not necessary. Return to window 1 when done and enter

A>WMENU

The WMENU installation message is displayed and you are ready to proceed.

1. Press Ctrl++ to display the WMENU Command Menu on the status line.
2. Press the right-arrow key until COLOR is highlighted. Select it by pressing the Enter key. The foreground and background color options appear. Use the Left- or Right-arrow key to switch from the FG or BG color. Select the BG color. Press the Up- or Down-arrow key, or spacebar to change the background color to Cyan (light blue). Notice the color on your screen changes with each new choice. Use the Left-arrow key to switch to the FG color. Use the Up- or Down-arrow key or spacebar to change the foreground color to Magenta. Press Enter to select these two colors and return to the WMENU Command Menu.
3. Press the Left-arrow key until SIZE is highlighted. Press Enter. Press the Up-arrow key 12 times until NRows=12. Press the Left-arrow key 40 times until NCols=40. Press Enter.
4. Press the Left-arrow key once to highlight PLACE. Press Enter. Press the Right-arrow key 39 times until PCol=40. Press Enter. You now have in the upper-right corner of the screen a window that is 1/4 the size of the full screen. The characters are Magenta on a Cyan background. Notice how window 1 overlays window 2.

5. Press the Right-arrow key until TRACKING is highlighted. Press Enter. Use the Left- or Right-arrow key to switch from ROW to NO. (Cursor tracking is now disabled.) Press Enter.
 6. Press the Left-arrow key once so that SCROLL is highlighted. Press Enter. Press the Right-arrow key 33 times until VCol=34. Note that as you SCROLL over the screen to the right, the screen characters appear to move to the left off the window. To bring the command-line prompt back into view, press the Left-arrow key 34 times. Press Enter.
 7. Press the Left- or Right-arrow key to highlight ABORT. Select it by pressing Enter. Press Enter again to exit WMENU and return the system status line and command-line prompt to your window. You can now enter Concurrent commands.
- To make a small window full screen, press Ctrl-Del. Press Ctrl-Del again to return to the smaller window.

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