
* INSTRUCTION MANUAL FOR *
* THE MAP ASSIGN *
* (FORMAT COPYING SYSTEM) *
* *

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CONTENTS

	SYSTEM OVERVIEW	PAGE 3
SECTION 1	FOR THE NOVICE OPERATOR	PAGE 3
=====		
	CONVENTIONS USED IN THE SYSTEM	PAGE 3
	POWER UP	PAGE 5
	RUNNING ASSIGN	PAGE 5
	TROUBLE SHOOTING	PAGE 8
SECTION 2	FOR THE EXPERIENCED OPERATOR	PAGE 10
=====		
	PHYSICAL VARIABLES	PAGE 10
	LOGICAL VARIABLES	PAGE 13
	ADD OR CHANGE FORMAT DATA	PAGE 14
	GUIDELINES TO SETTING UP A FORMAT	PAGE 17
	USING ASSIGN FROM CP/M	PAGE 19
	WARRANTY AND DISCLAIMER	PAGE 20

SYSTEM OVERVIEW

The MAP 80 ASSIGN program has been designed to re-configure the disk parameters within the computer system. It requires a MAP 80 or Gemini microcomputer running the CP/M PLUS operating system, with a version 4.xx MAP 80 BIOS. The user can easily set up and alter the system so as to read and write to many different computer disk drive formats. The program has been designed so that either complex instructions or simple one stroke keypresses can be entered. For this reason this manual has been split into two main sections. The first section covers the simple commands that a novice operator may encounter whilst the second section discusses the points that the experienced engineer may have to overcome. In both cases the user must be conversant with CP/M and in particular must be capable of using the main commands (PIP, DIR, SHOW, SET etc). The experienced operator must also read the first section as there are some fundamental points discussed.

SECTION 1 FOR THE NOVICE OPERATOR

This section has been written with the novice operator in mind. It is expected that this operator will simply want to take one disk and transfer its contents to another of a different format. For example, he may want to transfer all the files that he has written under Wordstar on his Superbrain computer to an EPSON QX10 computer. Once into the system he will be able to see which formats are available. If the computer format that he wants is not on the list he will be able to interrogate the disk and set up the format accordingly. This latter operation requires a certain skill and understanding of disk formats. If a new format is to be added to the system the operator should thoroughly read and understand section 2 of this manual.

CONVENTIONS AND TERMINOLOGY USED IN THE SYSTEM

Throughout this manual there are references to various parts of the system that may cause some confusion to the novice operator. In understanding this manual it is absolutely imperative that the operator understands the differences in the following terms especially FORMAT, FLOPPY and DRIVE.

FORMAT

Wherever this word is used it refers to the individual way that information is stored on a particular computer's floppy diskette. For example, a Superbrain computer has its own way of storing information on the diskette. This is called the FORMAT of the diskette and it would be different to an EPSON QX10 (for example).

FLOPPY "x"

This is a reference to a particular disk drive. In order for the system to identify a particular drive, each actual drive has a drive number (1,2,3 or 4). This is sometimes called the "PHYSICAL DRIVE". For example, if you had two drives in a system they would be set up as FLOPPY number 1 and FLOPPY number 2.

DRIVE "x"

This is the reference that the CP/M operating system makes to a format. It is sometimes called the "LOGICAL DRIVE" and is identified as a letter and full colon (A:,B:,C: --- P:).

An example using the above notations would be as follows:-

A Superbrain "FORMAT" might be assigned "FLOPPY 2" and might be referred to as "DRIVE H:" within the system.

{x,x,x}

Braces denote that their contents are optional. This allows the operator to bypass the next system prompt if he does not want to use the single key entry facilities. For example, if the operator were to simply enter "?" he would be prompted for help on a particular item. If, however, he entered "?S" the system would go straight to the help screen for the S command.

d:

Lower case "d" followed by a full colon denotes the logical CP/M disk drive. See DRIVE "x" above.

,

The comma symbol is used to separate the various instructions when the operator does not want to use single key entry facilities.

f1

Lower case "f1" denotes the FLOPPY number in the system and is a number between 1 & 4. See FLOPPY "x" above.

fm

Lower case "fm" denotes the FORMAT number in the system and is normally a number between 1 and 254. See "FORMAT" above.

*

The star character "*" denotes the main system prompt. This character is effectively asking the operator to enter a command. Whenever this prompt is encountered the operator may consider he is looking at the main system menu. For example, if he presses "ESCAPE" here he will be returned to the operating system.

RETURN

Whilst running the system or reading this manual you may encounter "RET, RETURN or return". This refers to the key on the keyboard normally marked RETURN or ENTER.

ESCAPE

Whilst running the system or reading this manual you may encounter "ESC, ESCAPE or escape". This refers to the key on the keyboard normally marked ESC.

POWER UP

From an initial cold start the system will ask you to insert a diskette in the usual way. Insert the ASSIGN diskette into floppy 1 and the MAP 80 sign on message will appear. At this point one of two things will happen:-

1. The operating system prompt " A> " will appear followed by a lot of disk access and various messages will flash on the screen. After about 15 seconds the system will display various different formats allocated to various different floppy numbers. The operating system " A> " will then appear with a flashing cursor.
2. Only the operating system prompt will appear.

In both of the above cases look at the screen to see if the computer formats that you require are present. The screen will display the format name and its associated floppy number. If they are present it is only a simple matter of copying from one format to another by using PIP. Just refer to the format that you require by its CP/M drive name (eg A,B,C,D etc). You can even log into the various drive formats and run some of the programs. If the computer formats that you require are not present on the screen use the following instructions to assign the appropriate formats.

RUNNING ASSIGN

=====

The program can be run in single key mode as follows.

Type

ASSIGN (return)

You will now be greeted with the main ASSIGN menu and in the bottom left hand corner of the screen you will see the system prompt. At any time in the program you can return to system prompt by simply pressing the ESCAPE (ESC) key. If you press the ESC key with the main system prompt displayed you will be returned to the operating system. If you have the system prompt "*" on the screen the main menu can be re-displayed by simply pressing RETURN.

At the main ASSIGN menu you will see two highlighted boxes. For the novice operator the functions displayed in the uppermost box will be enough. At this stage you may ignore the functions in the lower box. Just under the lower box there are some simple reminders that you may find useful in the future.

The following is a list of the various commands associated with the first box and their explanations. Just enter the appropriate command and press RETURN.

EXIT TO CP/M
<ESC>

If the ESCAPE key is pressed in answer to the system prompt "*", the operator will be returned to the CP/M PLUS operating system.

HELP on Command x
?{x}

If the "?" command is entered in answer to the system prompt "*", the operator will be asked for the command on which he requires help. If the "RETURN" is then typed he will be taken back to the main menu. If he requires help he must enter "?x" where x is the letter denoting the command for which help is required. A screen full of helpful information will then be displayed. For example, "?A" will provide help on the ASSIGN command.

Show available formats
S{L}

If the "S" command is entered in answer to the system prompt "*", the computer will list all the FORMATS that can be assigned into the system. The following is a typical list of available FORMATS:-

No. 1 - MAP-80 96tpi DSDD	No. 29 - KAYPRO 4 48tpi DSDD
No. 2 - MAP-80 96tpi SSDD	No. 5 - NASCOM 96tpi SSDD
No. 3 - MAP_80 48tpi DSDD	No. 20 - NCR 48tpi DSDD
No. 25 - ADLER 1041 48tpi DSDD (1)	No. 12 - NEC 48tpi SSDD
No. 10 - ADLER 1041 48tpi DSDD (2)	No. 28 - OSBOURNE 48tpi SSSD
No. 18 - ADLER P2 48tpi SSDD	No. 22 - PHILIPS 48tpi DSDD
No. 19 - ALTOS 96tpi DSDD	No. 23 - PHILIPS 48tpi SSDD (1024)
No. 24 - BBC 96tpi DSDD	No. 13 - RML 48tpi SSSD (SIDE 1)
No. 26 - CIRTON 48tpi DSDD	No. 14 - RML 48tpi SSSD (SIDE 2)
No. 15 - DEC RAINBOW 96tpi SSDD	No. 10 - SCREENTYPER 48tpi DSDD
No. 8 - EASI-PRINT 96tpi DSDD	No. 7 - SUPERBRAIN QD (35Tk)
No. 9 - ELMER 48tpi DSDD	No. 17 - TELEVIDEO 48tpi DSDD
No. 21 - EPSON QX10 48tpi DSDD	No. 6 - TUSCAN 96tpi DSDD
No. 3 - GEMINI 48tpi DSDD	
No. 11 - GEMINI 48tpi DSDD	
No. 1 - GEMINI 96tpi DSDD	
No. 2 - GEMINI 96tpi SSDD	
No. 4 - IBM 3740 8" SSSD	
No. 27 - KAYPRO 2 48tpi DSDD	
No. 16 - KAYPRO 2 48tpi SSDD	

If the S command is followed by an "L" the program's output to the screen will also go to the printer (if connected).

Show CURRENT assignment
C

If the "C" command is entered in answer to the system prompt "*", the computer will list the current assignment of the system.

The current assignment of a system is a list of FORMATS allocated to FLOPPYS and addressed as DRIVES. For example, a Superbrain (FORMAT) could be allocated to FLOPPY 3 and addressed as DRIVE H:. In this example the operator would simply put a Superbrain disk into FLOPPY 3 and refer to it as DRIVE H:.

FORMAT a disk,FV to verify too
F{f1,fm}

If the "F" command is entered in answer to the system prompt "*", the computer will ask the operator to select which FLOPPY number is to be formatted. After the operator has selected the required FLOPPY number the computer will display the list of available FORMATS. He simply types the required FORMAT number and presses RETURN. In order to finally activate the format command he must press the RETURN key once more. Note that formatting a disk will destroy all the previous information stored on that diskette. BE CAREFUL AND MAKE SURE YOU KNOW WHAT YOU ARE DOING. The operator can abort the format by pressing the ESC key at any time before the final RETURN keypress.

If a "V" is entered after the "F" above, the system will perform a verify on the diskette after the formatting process.

After the format/verify process has finished the system returns to the main system prompt "*".

After a while the operator will become very familiar with the operations required so a quicker approach has been incorporated into the system. The operator can type all the commands in one line at the system prompt "*". For example, if the system is to be used to format and verify a Superbrain diskette in FLOPPY 3 the following command could be entered. "FV3,7".

VERIFY a disk
V{f1,fm}

If the "V" command is entered in answer to the system prompt "*", the computer will ask the operator to select which FLOPPY number is to be verified. After the operator has selected the required FLOPPY number the computer will display the list of available FORMATS. He simply types the required FORMAT number and presses RETURN. In order to finally activate the verify command he must press the RETURN key once more. The operator can abort the verify by pressing the ESC key at any time before the final RETURN keypress.

After the verify process has finished the system returns to the main system prompt "*".

After a while the operator will become very familiar with the operations required so a quicker approach has been

incorporated into the system. The operator can type all the commands in one line at the system prompt "*". For example if the system is to be used to verify a Superbrain diskette in FLOPPY 3 the following command could be entered. "V3,7".

ASSIGN format to drive
A{d:f1,fn}

In order to copy to or from a diskette, the appropriate FORMAT must be allocated to the appropriate FLOPPY number and addressed as the appropriate DRIVE number. This can be performed using the following command. If the "A" command is entered in answer to the system prompt "*", the computer will ask the operator to select which DRIVE number is to be assigned. After the operator has selected the required DRIVE number the computer will display the list of available FLOPPY numbers. The computer will ask the operator to select which FLOPPY number is to be assigned. After the operator has selected the required FLOPPY number the computer will display the list of available FORMATS. He simply types the required FORMAT number and presses RETURN. The operator can abort the whole assignment process by pressing the ESC key at any time before the final RETURN keypress.

After the assign process has finished the system displays the current assignment in the same way as if it were performing a "C" command. It then returns to the main system prompt "*".

After a while the operator will become very familiar with the operations required so a quicker approach has been incorporated into the system. The operator can type all the commands in one line at the system prompt "*". For example, if the system is to be used to assign a Superbrain diskette in FLOPPY 3 to DRIVE H: the following command could be entered. "AH:3,7". The Assign command also allows the operator to perform more than one Assignment at a time. Just separate the different Assignments with a ",". For example, "AH:3,7,G:2,2" will assign two formats - one to DRIVE H: and one to DRIVE G:.

TROUBLE SHOOTING

From time to time the operator may come across some error messages. These are normally encountered as a result of misuse. The following is a list of error messages and the expected reason for the error:-

ERROR: DRIVE/FORMAT MISMATCH

This error occurs if a FLOPPY is instructed to carry out a task that it cannot undertake. For example, if the operator had tried to format a 5" 96tpi FORMAT with a 48tpi FLOPPY the system would report an error. The system will, however, allow the user to read/write 48tpi FORMAT's with 96tpi FLOPPY's. This will not cause any problems when the 96tpi drive is being used to read a 48tpi diskette, however a

48tpi diskette which has been written to/formatted on a 96tpi drive may subsequently cause errors when re-read using a 48tpi FLOPPY. Note also that some older 48tpi FLOPPY drives are only capable of accessing 35 tracks, many formats use 40 tracks and cannot be fully accessed by a 35 track FLOPPY.

ERROR: CAN'T OPEN HELP FILE

The .ELP files have not been copied to this disk. Either carry on without them or copy them from your master diskette.

ERROR: BAD COMMAND

This error will occur if the operator enters an invalid command letter.

ERROR: FORMAT ERROR

This error may occur during the formatting process if a fault is encountered

ERROR: I CAN'T INTERROGATE ON A 48 TPI DRIVE

This error will occur if the operator runs the interrogate routine on a diskette and selects a 48 tpi FLOPPY.

ERROR: NO DATA FOR THAT ENTRY

This error will occur if the data and index files have become corrupt. For example if a disk fault were encountered while updating the data file the index file may contain different entries. If this happens re-generate the system from your backup files.

SECTION 2

FOR THE EXPERIENCED OPERATOR

This section has been written with the experienced operator in mind. After reading this section the operator should be able to add a new FORMAT into the system. However, it is not recommended that a novice operator should attempt the following unless he has thoroughly understood this section. For example, if a new FORMAT is to be added and no information about the new FORMAT is available, the operator may have to run some of the interrogation routines that the system provides. These interrogation routines are only able to provide actual (physical) information about the disk's FORMAT and therefore, they cannot tell or help the user about directory structures and allocation blocks etc. The operator will therefore have to make "calculated guesses" at the FORMAT after he has run the interrogation routine. He will then have to look at the disk with the system's examination routines to be sure that the FORMAT is correct. For this reason the operator MUST understand the following system terms. He must also make sure that he is fully conversant with the CP/M 3 manuals and BIOS notes.

THE FOLLOWING IS A LIST OF PHYSICAL VARIABLES USED WITHIN THE SYSTEM

Format type

This term is used within the system to determine the track density. It is normally expressed as the number of tracks per inch. For example, the FORMAT could be either 48TPI, 96TPI or 8".

Density

This term is used within the system to determine the density that data is stored on the diskette. Information is normally stored using the IBM standard (either in single density (FM) or double density (MFM)). In all cases this system can only read standard IBM single or double density. There are a few systems that do not use proper floppy disk controllers which consequently, this system cannot read. These systems are APPLE, COMMODORE, and SHARP.

Sector size

This term is used within the system to determine the physical size of the sector in bytes. The sector sizes are 128, 256, 512, or 1024 bytes.

Tracks per side

This term is used within the system to determine the number of physical tracks on one side of a diskette.

Sectors per side

This term is used within the system to determine the number of physical sectors that are on each track. Some systems consider their sectors or tracks to carry on the other side of the disk (see side handling). For example, logical

sectors 1 to 10 may be on side 1 and logical sectors 10 to 20 may be on side 2. Sectors per side however express the number of physical sectors that are on a single side within a track.

Skew factor

This term is used within the system to determine the logical sector skew on the disk. E.g physical sectors may be laid down on the track sequentially 1 thru' 10, the operating system however translates a logical sector to a physical sector and then read/writes to the physical sector. Most logically skewed formats follow a standard translation algorithm and for these formats you need simply enter a skew factor of 2+, some use their own skew and for this you enter a skew factor of 1 and then when prompted enter the special skew data. Other formats skew the order in which sectors are laid down on the track and then read them sequentially. If the INTERROGATION command reveals a sequential sector layout suspect a logical sector skew, if it reveals a physical skew expect no logical skew. This isn't gauranteed.

Sector offset

Within the track some formats start physical sector numbering within a track 0. Others start from 1. The term "sector offset" is used within the system to determine if the FORMAT has sectors starting at 0 (no sector offset) or if the FORMAT has sectors starting at 1 (sector offset of 1).

Inverted data

This term is used within the system to determine if the data is stored on the disk as true data or inverted data. For example, a binary 1 can be put onto the disk as an 0 or a 1. A FORMAT incorporating inverted data would transfer all 1's to 0's and all 0's to 1's before storing the data on the diskette. When using the EXAMINE command remember NOT OEH5H (empty sector) is 1AH.

Deleted data mark

The IBM format allows for one of two options for the byte identifying the start of data on the diskette, most formats use the standard data mark, but as always someone has to be different, set this to Yes if INTERROGATE indicates deleted data marks are being used.

Gap 1

This is the number of bytes laid down by the formatting routine from the index hole to the first pre ID nulls. Simply use the number provided by INTERROGATE. The FORMAT routine always places an index mark in here if there is sufficient room.

Gap 3

This is the number of inter sector filler, from the end of one sector's data CRC bytes to the next sector's pre ID nulls. Simply use the number provided by INTERROGATE.

Side handling

For single sided FORMATS there is only one way that the data can be stored.

On double sided systems there are 4 main ways that a FORMAT can store its data.

1. Track carry - This is a double sided FORMAT where the numbering of the tracks continue on side 2 after all the tracks have been used on side 1. With this FORMAT the tracks number from the outside of the diskette to the inner on both sides.
2. Track reversed - This is a double sided FORMAT where the numbering of the tracks continue on side 2 after all the tracks have been used on side 1. With this FORMAT the tracks number from the outside of the diskette to the inner on side 1 and from the inner to the outside on side 2.
3. Sec Cylindrical - This is a double sided FORMAT where all the sectors within a single track will occupy both sides of the diskette. Tracks number as the drive moves the heads inward.
4. Trk Cylindrical - This is a double sided FORMAT where the tracks are numbered on alternate sides of the diskette (ie logical track 0 is on physical track 0 side 1, logical track 1 is on physical track 0 side 2)

Bad side 2 flag

Certain FORMATS do not set the side flag in the sector ID on side 2 of the diskette. Set this to Yes if INTERROGATE indicates a bad side 2 FLAG. The controller within this system cannot decipher this type of FORMAT unless a MAP 80 MPI card (with modification) is installed. The ASSIGN software can determine if a FORMAT has this oddity.

Sector number carry on 2

This is a double sided FORMAT where the physical numbering of the sectors continue on side 2 of the disk after all the sectors have been used on side 1. E.g a diskette having 5 sectors per side will have them physically numbered 1,2,3,4,5 on side 1 and numbered 6,7,8,9,10 on side 2. Note that this has nothing to do with logical side handling above.

THE FOLLOWING IS A LIST OF LOGICAL VARIABLES USED WITHIN THE SYSTEM

The following glossary of terms relates to the CP/M type of directory structure. This will be common for CP/M 80, CP/M Plus, MP/M, MP/M 86, CP/M 86, Concurrent CP/M, CP/M 68, Turbodos, OSM and others with the same directory structure. Other more common structures not covered by this section include all IBM PC DOS formats, Microsoft's MSDOS and Digital Equipment's RT11.

Block size

As far as a program is concerned the CP/M BDOS accesses "records" consisting of 128 bytes each. A number of records are then grouped together to form a "block". This block may vary in size depending upon the FORMAT that is being used. A file of 1 byte in size will occupy one block on the diskette. For example, if a 1 byte file was saved it may show a size of 2K on the diskette. This is also referred to as the allocation size.

Directory blocks

The directory is stored in blocks on the disks just like files starting at block 0. The number of blocks allocated to the directory may change from FORMAT to FORMAT. Therefore, the more directory blocks that there are in a FORMAT the larger the directory will be. This may also be called the number of Directory allocation blocks.

User blocks

System space on a disk is normally reserved before the directory blocks (see System tracks below), a few formats however reserve blocks after the directory, by setting allocation vectors in the DPB to more blocks than are indicated by the number of directory entries. Note that a freshly formatted disk PIPPed to on the host machine will start allocating blocks to files starting at the first available according to the DPB allocation vectors.

Zeroed EXM.

Allocation blocks are grouped together in 16k extents depending on block and disk size it is possible to get more than one extent in a directory entry, however CP/M 1.4 did not support this and FORMATS which retain 1.4 compatibility permit only 1 extent per directory entry. Use the P command and compare records per dir entry against a STAT DSK: on the host machine.

System tracks

Most FORMATS reserve space on the diskette before the directory for the operating system itself. When a system is either cold or warm booted the computer may read the diskette to load or reload the operating system. Under these circumstances the computer will go to the system tracks and load the operating system. It follows, therefore, that some computers may require more space to store the operating system than others. The space for the operating system is reserved in whole numbers of tracks called system tracks.

USING ASSIGN TO ADD OR CHANGE FORMAT DATA
=====

This section covers the commands referred to in the second highlighted box on the system main menu.

INTERROGATE a disk

I{L}{f1}

This command will interrogate an unknown diskette. If the I command is entered, the system will prompt the operator to enter the FLOPPY number in which the diskette is to be interrogated. The operator must select a 96TPI FLOPPY. If the I command is followed by an "L" the program's output to the screen will also go to the printer (if connected). After a short pause the system will display a screen of information as follows.

DENSITY:-	Double	SECTOR SIZE:-	512
SECTORS PER TRACK:-	10	DATA MARK:-	Standard
SECTOR LAYOUT ON SIDE 1 :-			
0,7,4,1,8,5,2,9,6,3			
GAP-1 LENGTH:-	32	GAP-3 LENGTH:-	37
SIDES:-	Double	Good side 2 flag	
SECTOR LAYOUT ON SIDE 2 :-			
0,7,4,1,8,5,2,9,6,3			
TRACK DENSITY:-	96 tpi		
TRACKS ON SIDE 0:-	80	TRACKS ON SIDE 1:-	80

This information is purely "physical" information about the diskette's FORMAT. The operator will now insert this physical information into the data for the new FORMAT. See the "N" (enter NEW format data) command.

The reading of a total track ignoring ID headers is not a precise science and strange results can sometimes ensue especially with single density, if anything doesn't make sense running a second time might produce something better.

DISPLAY full format data

D{L}{nn}

This command is used to display all the information about a particular FORMAT. The operator will simply enter "D" followed by the FORMAT number that he wishes to view. If the operator should forget the number of the FORMAT he may simply type "D" and press return. The system will then display the available FORMATS. If the operator wishes to print a hard copy of the FORMAT data he may follow the "D" command with an "L" and the screen's output will be echoed to the printer. The following is a sample of the type of output that will be produced from this command. Entering a FORMAT number 0 will display all FORMATS.

No.	4 - IBM 3740 8" SSSD		
Format type	8"	Side Handling	Single Sided
Density	Single	Bad side 2 flag	No
Sector size	128	Sec number carry on 2	No
Tracks per side	77		
Sectors per side	26		
Skew factor	6		
		Block size	1024
Sector offset	Yes	Directory Blocks	2
Inverted data	No	User Blocks	0
Deleted data mark	No	Zeroed EXM	Yes
Gap-1	63	System tracks	2
Gap-3	27		

Sector Layout 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,
 17,18,19,20,21,22,23,24,25,26

The left side of the screen displays all the physical information about the FORMAT. The right side at the top of the screen displays some more physical information about the side handling of the FORMAT. The right side at the bottom displays the logical information about the FORMAT. The bottom line of the information displays the physical sector layout of the FORMAT.

Enter NEW format data

N

This command allows the operator to enter a new FORMAT into the system. It should be noted that many FORMATS are exactly the same. This system, therefore, allows the user to have a number of different names allocated to any FORMAT. The operator should therefore only use this command if a new FORMAT is required and NOT for adding a new name to an existing FORMAT. For example, the MAP 80 Systems single sided FORMAT is exactly the same as the Gemini single sided micropolis FORMAT, so if the operator were to enter the Gemini FORMAT into his data he would add a new name to the existing data listed under the MAP 80 Systems single sided FORMAT. There is obviously no reason why the operator should not enter new data for each new FORMAT but this facility allows many more FORMATS in the data files.

When using this command the computer will prompt the operator at each field within the data. He will simply enter the appropriate information as the cursor moves across the screen. At various stages a list of options will appear in the bottom left corner of the screen.

EDIT format data
E{nn}

This command allows the operator to change any previously entered data. He simply types "E" followed by the number of the FORMAT that he wishes to change. If he does not know the number of the FORMAT that he is going to edit he simply types "E" RETURN. The system will then prompt him with a list of the FORMATS in alphabetical order. He then only has to type the number of the FORMAT followed by RETURN. The system will then show the existing data for that FORMAT. The operator can change the data in the same way as under the "N" command. If the operator wishes to leave a field of data unchanged he will simply type return. If he wishes to exit from editing the data without saving the changes he simply types ESC. The operator can enter any number of names for one particular FORMAT. To do this he should type CURSOR UP in the format name field. If the operator is only making a small number of changes to a FORMAT he may wish to press the CURSOR DOWN key and the system will pass through all the remaining data without making any further changes. Entering a FORMAT name having a "?" as the first character will clear that name from the data file, if it was the only name associated with the FORMAT number that number will be available for re-assignment by the N command.

EXAMINE a disk
X{fl,fm}

This command allows the operator to examine portions of a diskette. He can either look at just simple tracks and sectors or move through the diskette to the next allocation block. This command is very useful for checking and analysing a FORMAT. See the notes "Guidelines to setting up a format". This command has its own sub menu which can be recovered by pressing "?" at any time during the use of the command. The operator simply types the tracks/sectors or allocation groups that he wants to display and the system automatically displays the information on the screen. Simply pressing RETURN increments the system to the next sector. The extreme right portion of the screen shows the printed equivalent of the information in ASCII whereas the left side of the screen shows the actual hexadecimal values.

Show PARAMETER block data
P{L}{nn}

This command allows the operator to list the logical information of a FORMAT. The left portion of the screen shows the values within the actual disk parameter block. The right portion of the screen shows the equivalent of a STAT DSK: under CP/M 2.2 or a SHOW [DRIVES] under CP/M Plus. A typical listing on the screen would look like this. Entering a FORMAT number 0 will display all FORMATS.

No. 4 - IBM 3740 8" SSSD

Records per track	SPT	26	128 Byte Record capacity	1944
Block shift	BSH	3	Kilobyte Drive capacity	243
Block mask	BLM	7	32 Byte Directory entries	64
Extent mask	EXM	0	Checked Directory entries	64
Disk size	DSM	242	Records/Dir entry (Extent)	128
Directory entries	DRM	63	Records/Block	8
Allocation vector	ALV	C000H	Sectors/Track	26
Checksum vector size	CKS	16	Reserved Tracks	2
System tracks	OFF	2	Bytes/Physical Record	128
Physical record shift	PSH	0		
Physical record mask	PHM	0		

If the operator types an "L" after the "P" the system will echo the screen output to the printer (if connected).

GUIDELINES TO SETTING UP A FORMAT

The following is a set of notes that the experienced operator should read and understand before attempting to set up a new FORMAT. It is not possible for this manual to list an exact procedure as there are so many variants. However, this manual will give a simple guideline and show the operator how to check that his FORMAT is correct. If problems are experienced, MAP 80 Systems will be happy to look at the proposed format although we do not promise any results. It is unlikely that there will be any charge involved but we must have a diskette containing a copy of the FORMAT. It is helpful if the disk is full of text files and a STAT DSK: printout is included.

STEP BY STEP PROCEDURE TO INTERPRETING A FORMAT

STEP 1

Obtain a diskette from the computer system of that FORMAT. Make sure that the diskette is full of data (preferably text files). On CP/M type systems obtain a printout of the equivalent of a STAT DSK:

STEP 2

Run the I (interrogate) command on the new diskette and take a note/printout of the report.

STEP 3

Choose an existing FORMAT similar to the information provided by the interrogate command. This can be done using the "D" command and comparing the screen with the printout from the interrogate command. Choose a format with the correct physical data (that is the information in the left portion of the screen). If none exist then add a new FORMAT with the "N" command.

STEP 4

Use the "X" examine command and the choice in STEP 3 to look at the appropriate information on the disk. By incrementing/decrementing the tracks/sectors the operator should be able to find the system directory. This will then tell him how many system tracks there are in the FORMAT as the directory is normally stored immediately after the reserved tracks. If the operator cannot find the directory the chances are that the data has been stored on the disk in inverted form. This is often confirmed by reading the end of the disk and finding lots of "1A"'s.

Look carefully at the directory to see if all the files are present. There can be more names in the directory but there should never be any less than there were when the diskette was constructed on the other computer.

If the directory is not complete then one of the following may have to be adjusted.

1. Side handling
2. Sector skew
3. Track offset
4. Sector size

If there are sections of "E5"'s in between the directory names then the sector skew on the diskette may be wrong.

If the first portion of the directory is missing then there may be a conflict in the sector offset.

Always check if there is an existing FORMAT in the system which satisfies the above and try again until a complete directory can be successfully and completely read. Only when this is the case should the operator move on to STEP 5.

STEP 5

After ensuring that the directory can be read with the examine command and that it is displayed when an "AO" command is given, the operator may then look at the rest of the diskette. The first byte from the left under the directory name contains the allocation group in which the file resides. For example, in the directory below the file AHELP.ELP resides in allocation group 0EH.

TRACK 2 SECTOR 0 :- ALLOCATION BLOCK 0000H - 00H

0000:-	00 43 50 4D 33 20 20 20.20 53 59 53 01 00 00 28	*.CPM3	SYS...(*
0010:-	01 02 03 04 05 06 00 00.00 00 00 00 00 00 00 00	*.....*	
0020:-	00 57 20 20 20 20 20.20 42 41 4B 00 00 00 01	*.W	BAK...*
0030:-	07 00 00 00 00 00 00.00 00 00 00 00 00 00 00 00	**
0040:-	00 53 55 42 4D 49 54 20.20 43 4F 4D 00 00 00 2A	*.SUBMIT	COM...**
0050:-	08 09 00 00 00 00 00.00 00 00 00 00 00 00 00 00	**
0060:-	00 41 53 53 49 47 4E 44.20 43 4F 4D 00 00 00 6B	*.ASSIGND	COM...k*
0070:-	0A 6B 6D 6E 00 00 00 00.00 00 00 00 00 00 00 00	*.kmn*
0080:-	00 41 48 45 4C 50 20 20.20 45 4C 50 00 00 00 02	*.AHELP	ELP...*
0090:-	0E 00 00 00 00 00 00.00 00 00 00 00 00 00 00 00	**
00A0:-	00 53 48 45 4C 50 20 20.20 45 4C 50 00 00 00 02	*.SHELP	ELP...*
00B0:-	0F 00 00 00 00 00 00.00 00 00 00 00 00 00 00 00	**
00C0:-	00 49 48 45 4C 50 20 20.20 45 4C 50 00 00 00 02	*.IHELP	ELP...*
00D0:-	10 00 00 00 00 00 00.00 00 00 00 00 00 00 00 00	**
00E0:-	00 43 48 45 4C 50 20 20.20 45 4C 50 00 00 00 02	*.CHELP	ELP...*
00F0:-	11 00 00 00 00 00 00.00 00 00 00 00 00 00 00 00	**

Therefore, assuming that the FORMAT was correct and if the operator were to type "AE" RETURN, the system would display the beginning of the file AHELP.ELP. With practice the operator should soon become familiar with the beginning of PIP.COM and STAT.COM and use these two files as a reference for other disk FORMATS.

STEP 6

Before finally approving the FORMAT the operator should run the "P" command to check that the right portion of the screen tallys with the STAT DSK: printout from the other computer. If this does not tally the operator may have to change one of the following.

1. Number of tracks
2. Tracks per side
3. Sectors per side
4. Block size
5. Directory blocks
6. User blocks

STEP 7

Finally, the operator should check the EXM. All CP/M 1.4 formats zero the extent mask, so for these FORMATS he must insert a "YES".

USING ASSIGN FROM THE OPERATING SYSTEM =====

All the above facilities in the ASSIGN.COM program can be used without actually going through the main menu. For example, just like PIP.COM, the operator can simply give the ASSIGN commands directly from the operating system by placing arguments inside square brackets.

Example:-

If the following command was entered at the operating system prompt.

A>ASSIGN [AF:1,1,G:2,2,E:4,4]

This would be a typical result.

ASSIGNING FORMAT TO FLOPPY: AF:1,1,G:2,2,E:4,4

```
A: Floppy 1 Fixed      1 - MAP-80 96tpi DSDD
B: Floppy 2 Fixed      1 - MAP-80 96tpi DSDD
C: Floppy 2 Assignable 255 - NOT ALLOCATED
D: Floppy 2 Assignable 255 - NOT ALLOCATED
E: Floppy 4 Assignable  4 - IBM 3740 8" SSSD
F: Floppy 1 Assignable  1 - MAP-80 96tpi DSDD
G: Floppy 2 Assignable  2 - MAP-80 96tpi SSSD
```

This single command would make three separate assignments and then return to the operating system.

It is then only a simple task for the user to put his favourite assignment into the PROFILE.SUB file. This will then set the appropriate formats every time that the system is cold started. See the CP/M Plus manuals for details.

WARRANTY AND DISCLAIMER

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The authors and suppliers of this software have, where possible, tried to make the system as user friendly as possible. Given the number of combinations that exist within the computer market we cannot be sure that every eventuality has been covered. Indeed, there are already a few FORMATS that we have decided not to support. Taking this all into consideration this software has been supplied under the terms of the MAP 80 Systems standard conditions of sale. A copy of which can be obtained from the following address.

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